

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","330","ng/L","D","11","DL","","TRG","","","38","LOQ","NO","-99","","260.9","10.00","29",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","2058-94-8","Perfluoroundecanoic acid (PFUnA)","14","ng/L","U M","6.9","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","14",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","2706-90-3","Perfluoropentanoic acid (PFPeA)","210","ng/L","D","4.1","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","9.6",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","307-24-4","Perfluorohexanoic acid (PFHxA)","380","ng/L","D","4.5","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","9.6",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","307-55-1","Perfluorododecanoic acid (PFDoA)","14","ng/L","U M","5.0","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","14",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","1600","ng/L","D M","5.2","DL","","TRG","","","19","LOQ","YES","-99","","260.9","10.00","14",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","335-76-2","Perfluorodecanoic acid (PFDA)","9.6","ng/L","U","4.6","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","9.6",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","335-77-3","Perfluorodecanesulfonic acid (PFDS)","14","ng/L","U","5.4","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","14",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","410","ng/L","D","3.6","DL","","TRG","","","19","LOQ","YES","-99","","260.9","10.00","9.6",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","375-22-4","Perfluorobutanoic acid (PFBA)","76","ng/L","D B","5.7","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","14",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","50","ng/L","D","4.4","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","9.6",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","67","ng/L","D","5.8","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","14",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid (PFHpS)","7.5","ng/L","J D","3.5","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","9.6",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","14","ng/L","U","5.0","DL","","TRG","","","19","LOQ","NO","-99","","260.9","10.00","14",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","376-06-7","Perfluorotetradecanoic acid (PFTeA)","29","ng/L","U","8.0","DL","","TRG","","","38","LOQ","NO","-99","","260.9","10.00","29",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","72629-94-8","Perfluorotridecanoic acid (PFTriA)","29","ng/L","U M","7.3","DL","","TRG","","","38","LOQ","NO","-99","","260.9","10.00","29",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","754-91-6","Perfluorooctanesulfonamide (FOSA)","29","ng/L","U","12","DL","","TRG","","","38","LOQ","NO","-99","","260.9","10.00","29",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00990","13C4 PFOA","81","ng/L","","-99","DL","","TRG","85","","-99","LOQ","YES","95.8","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00991","13C4 PFOS","78","ng/L","","-99","DL","","TRG","86","","-99","LOQ","YES","91.6","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00992","13C4 PFBA","77","ng/L","","-99","DL","","TRG","80","","-99","LOQ","YES","95.8","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00993","13C2 PFHxA","82","ng/L","","-99","DL","","TRG","86","","-99","LOQ","YES","95.8","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00994","18O2 PFHxS","74","ng/L","","-99","DL","","TRG","81","","-99","LOQ","YES","90.6","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00995","13C5 PFNA","84","ng/L","","-99","DL","","TRG","87","","-99","LOQ","YES","95.8","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00996","13C2 PFDA","88","ng/L","","-99","DL","","TRG","92","","-99","LOQ","YES","95.8","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00997","13C2 PFUnA","82","ng/L","","-99","DL","","TRG","86","","-99","LOQ","YES","95.8","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL00998","13C2 PFDoA","82","ng/L","","-99","DL","","TRG","86","","-99","LOQ","YES","95.8","","260.9","10.00","960",""

"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL01056","13C8

FOSA","72","ng/L","",-99","DL","","TRG","76","",-99","LOQ","YES","95.8","","260.9","10.00","960",""
"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL01892","13C4
PFHpA","83","ng/L","",-99","DL","","TRG","87","",-99","LOQ","YES","95.8","","260.9","10.00","960",""
"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL01893","13C5
PFPeA","82","ng/L","",-99","DL","","TRG","86","",-99","LOQ","YES","95.8","","260.9","10.00","960",""
"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL02116","13C2
PFTeDA","70","ng/L","",-99","DL","","TRG","73","",-99","LOQ","YES","95.8","","260.9","10.00","960",""
"TP-PFC-037-TPI","EPA 537 (Mod)","DL","320-45943-1","TALSAC","STL02337","13C3
PFBS","74","ng/L","",-99","DL","","TRG","83","",-99","LOQ","YES","89.1","","260.9","10.00","960",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","300","ng/L","","1.1","DL","","TRG","","","3.8","LOQ","YES","-99","","260.9","10.00","2.9",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","2058-94-8","Perfluoroundecanoic acid
(PFUnA)","1.4","ng/L","U M","0.69","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","1.4",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","2706-90-3","Perfluoropentanoic acid
(PFPeA)","180","ng/L","","0.41","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","0.96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","307-24-4","Perfluorohexanoic acid
(PFHxA)","350","ng/L","","0.45","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","0.96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","307-55-1","Perfluorododecanoic acid
(PFDoA)","1.4","ng/L","U","0.50","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","1.4",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","1000","ng/L","E M","0.52","DL","","TRG","","","1.9","LOQ","NO","-99","","260.9","10.00","1.4",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","335-76-2","Perfluorodecanoic acid
(PFDA)","1.0","ng/L","J","0.46","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","0.96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","335-77-3","Perfluorodecanesulfonic acid
(PFDS)","1.4","ng/L","U","0.54","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","1.4",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","370","ng/L","E","0.36","DL","","TRG","","","1.9","LOQ","NO","-99","","260.9","10.00","0.96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","72","ng/L","M B","0.57","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","1.4",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","50","ng/L","","0.44","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","0.96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","66","ng/L","","0.58","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","1.4",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid
(PFHpS)","6.3","ng/L","","0.35","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","0.96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","2.9","ng/L","","0.50","DL","","TRG","","","1.9","LOQ","YES","-99","","260.9","10.00","1.4",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","376-06-7","Perfluorotetradecanoic acid
(PFTeA)","2.9","ng/L","U","0.80","DL","","TRG","","","3.8","LOQ","YES","-99","","260.9","10.00","2.9",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","72629-94-8","Perfluorotridecanoic acid
(PFTriA)","2.9","ng/L","U","0.73","DL","","TRG","","","3.8","LOQ","YES","-99","","260.9","10.00","2.9",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","754-91-6","Perfluorooctanesulfonamide
(FOSA)","2.9","ng/L","U","1.2","DL","","TRG","","","3.8","LOQ","YES","-99","","260.9","10.00","2.9",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00990","13C4
PFOA","87","ng/L","",-99","DL","","TRG","90","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00991","13C4
PFOS","100","ng/L","",-99","DL","","TRG","112","",-99","LOQ","YES","91.6","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00992","13C4
PFBA","100","ng/L","",-99","DL","","TRG","109","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00993","13C2
PFHxA","98","ng/L","",-99","DL","","TRG","102","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00994","18O2
PFHxS","91","ng/L","",-99","DL","","TRG","100","",-99","LOQ","YES","90.6","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00995","13C5

PFNA","97","ng/L","",-99","DL","","TRG","101","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00996","13C2
PFDA","98","ng/L","",-99","DL","","TRG","102","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00997","13C2
PFUnA","90","ng/L","",-99","DL","","TRG","94","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL00998","13C2
PFDoA","89","ng/L","",-99","DL","","TRG","93","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL01056","13C8
FOSA","94","ng/L","",-99","DL","","TRG","98","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL01892","13C4
PFHpA","99","ng/L","",-99","DL","","TRG","104","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL01893","13C5
PFPeA","110","ng/L","",-99","DL","","TRG","112","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL02116","13C2
PFTeDA","89","ng/L","",-99","DL","","TRG","93","",-99","LOQ","YES","95.8","","260.9","10.00","96",""
"TP-PFC-037-TPI","EPA 537 (Mod)","RES","320-45943-1","TALSAC","STL02337","13C3
PFBS","98","ng/L","",-99","DL","","TRG","110","",-99","LOQ","YES","89.1","","260.9","10.00","96",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RE","320-45943-2","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA)","1.3","ng/L","U M H","0.49","DL","","TRG","","","1.7","LOQ","NO","-99","","299.4","10.00","1.3",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RE","320-45943-2","TALSAC","STL00992","13C4
PFBA","74","ng/L","",-99","DL","","TRG","89","",-99","LOQ","YES","83.5","","299.4","10.00","84",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","1763-23-
1","Perfluorooctanesulfonic acid (PFOS)","2.8","ng/L","U
M","1.0","DL","","TRG","","","3.8","LOQ","YES","-99","","263.7","10.00","2.8",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","2058-94-
8","Perfluoroundecanoic acid (PFUnA)","1.4","ng/L","U
M","0.68","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","1.4",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","2706-90-3","Perfluoropentanoic
acid (PFPeA)","0.95","ng/L","U","0.41","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","0.95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","307-24-4","Perfluorohexanoic
acid (PFHxA)","0.95","ng/L","U","0.45","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","0.95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","307-55-1","Perfluorododecanoic
acid (PFDoA)","1.4","ng/L","U M","0.49","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","1.4",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","335-67-1","Perfluorooctanoic
acid (PFOA)","1.4","ng/L","U M","0.51","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","1.4",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","335-76-2","Perfluorodecanoic
acid (PFDA)","0.95","ng/L","U M","0.46","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","0.95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","335-77-
3","Perfluorodecanesulfonic acid (PFDS)","1.4","ng/L","U
M","0.53","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","1.4",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","355-46-
4","Perfluorohexanesulfonic acid (PFHxS)","0.95","ng/L","U
M","0.36","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","0.95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","375-22-4","Perfluorobutanoic
acid (PFBA)","1.3","ng/L","J B","0.56","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","1.4",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","375-73-
5","Perfluorobutanesulfonic acid (PFBS)","0.95","ng/L","U
M","0.44","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","0.95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","375-85-9","Perfluoroheptanoic
acid (PFHpA)","1.4","ng/L","U M","0.58","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","1.4",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","375-92-
8","Perfluoroheptanesulfonic Acid
(PFHpS)","0.95","ng/L","U","0.35","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","0.95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","375-95-1","Perfluorononanoic

acid (PFNA),"1.4","ng/L","U M","0.49","DL","","TRG","","","1.9","LOQ","YES","-99","","263.7","10.00","1.4",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","376-06-
7","Perfluorotetradecanoic acid
(PFTeA),"2.8","ng/L","U","0.79","DL","","TRG","","","3.8","LOQ","YES","-99","","263.7","10.00","2.8",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","72629-94-
8","Perfluorotridecanoic acid (PFTriA),"2.8","ng/L","U
M","0.72","DL","","TRG","","","3.8","LOQ","YES","-99","","263.7","10.00","2.8",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","754-91-
6","Perfluorooctanesulfonamide
(FOSA),"2.8","ng/L","U","1.2","DL","","TRG","","","3.8","LOQ","YES","-99","","263.7","10.00","2.8",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00990","13C4
PFOA","84","ng/L","","-99","DL","","TRG","89","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00991","13C4
PFOS","93","ng/L","","-99","DL","","TRG","102","","-99","LOQ","YES","90.6","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00992","13C4
PFBA","86","ng/L","","-99","DL","","TRG","91","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00993","13C2
PFHxA","86","ng/L","","-99","DL","","TRG","90","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00994","18O2
PFHxS","84","ng/L","","-99","DL","","TRG","94","","-99","LOQ","YES","89.7","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00995","13C5
PFNA","88","ng/L","","-99","DL","","TRG","93","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00996","13C2
PFDA","87","ng/L","","-99","DL","","TRG","92","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00997","13C2
PFUnA","86","ng/L","","-99","DL","","TRG","91","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL00998","13C2
PFDaA","80","ng/L","","-99","DL","","TRG","84","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL01056","13C8
FOSA","83","ng/L","","-99","DL","","TRG","88","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL01892","13C4
PFHpA","84","ng/L","","-99","DL","","TRG","89","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL01893","13C5
PFPeA","94","ng/L","","-99","DL","","TRG","99","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL02116","13C2
PFTeDA","76","ng/L","","-99","DL","","TRG","80","","-99","LOQ","YES","94.8","","263.7","10.00","95",""
"TP-PFC-037-MID-CARBON","EPA 537 (Mod)","RES","320-45943-2","TALSAC","STL02337","13C3
PFBS","79","ng/L","","-99","DL","","TRG","90","","-99","LOQ","YES","88.2","","263.7","10.00","95",""
"TP-PFC-037-TPE","EPA 537 (Mod)","RE","320-45943-3","TALSAC","375-22-4","Perfluorobutanoic acid
(PFBA),"1.3","ng/L","U M H","0.51","DL","","TRG","","","1.7","LOQ","NO","-99","","287.9","10.00","1.3",""
"TP-PFC-037-TPE","EPA 537 (Mod)","RE","320-45943-3","TALSAC","STL00992","13C4
PFBA","70","ng/L","","-99","DL","","TRG","81","","-99","LOQ","YES","86.8","","287.9","10.00","87",""
"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"2.8","ng/L","U M","1.0","DL","","TRG","","","3.8","LOQ","YES","-99","","265.5","10.00","2.8",""
"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","2058-94-8","Perfluoroundecanoic acid
(PFUnA),"1.4","ng/L","U","0.68","DL","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","1.4",""
"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","2706-90-3","Perfluoropentanoic acid
(PFPeA),"0.94","ng/L","U","0.40","DL","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","0.94",""
"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","307-24-4","Perfluorohexanoic acid
(PFHxA),"0.94","ng/L","U","0.44","DL","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","0.94",""
"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","307-55-1","Perfluorododecanoic acid
(PFDaA),"1.4","ng/L","U","0.49","DL","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","1.4",""
"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"0.56","ng/L","J M","0.51","DL","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","1.4",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","335-76-2","Perfluorodecanoic acid (PFDA)","0.94","ng/L","U","0.45","DL","","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","0.94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","335-77-3","Perfluorodecanesulfonic acid (PFDS)","1.4","ng/L","U","0.53","DL","","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","1.4",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","0.38","ng/L","J M","0.36","DL","","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","0.94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","375-22-4","Perfluorobutanoic acid (PFBA)","1.1","ng/L","J B M","0.56","DL","","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","1.4",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","0.94","ng/L","U M","0.43","DL","","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","0.94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","1.4","ng/L","U","0.57","DL","","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","1.4",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid (PFHpS)","0.94","ng/L","U","0.35","DL","","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","0.94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","1.4","ng/L","U","0.49","DL","","","TRG","","","1.9","LOQ","YES","-99","","265.5","10.00","1.4",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","376-06-7","Perfluorotetradecanoic acid (PFTeA)","2.8","ng/L","U","0.78","DL","","","TRG","","","3.8","LOQ","YES","-99","","265.5","10.00","2.8",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","72629-94-8","Perfluorotridecanoic acid (PFTriA)","2.8","ng/L","U","0.72","DL","","","TRG","","","3.8","LOQ","YES","-99","","265.5","10.00","2.8",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","754-91-6","Perfluorooctanesulfonamide (FOSA)","2.8","ng/L","U","1.2","DL","","","TRG","","","3.8","LOQ","YES","-99","","265.5","10.00","2.8",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00990","13C4 PFOA","88","ng/L","","-99","DL","","","TRG","93","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00991","13C4 PFOS","91","ng/L","","-99","DL","","","TRG","102","","-99","LOQ","YES","90.0","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00992","13C4 PFBA","87","ng/L","","-99","DL","","","TRG","92","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00993","13C2 PFHxA","92","ng/L","","-99","DL","","","TRG","98","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00994","18O2 PFHxS","84","ng/L","","-99","DL","","","TRG","94","","-99","LOQ","YES","89.1","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00995","13C5 PFNA","88","ng/L","","-99","DL","","","TRG","94","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00996","13C2 PFDA","87","ng/L","","-99","DL","","","TRG","93","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00997","13C2 PFUnA","83","ng/L","","-99","DL","","","TRG","88","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL00998","13C2 PFDaA","81","ng/L","","-99","DL","","","TRG","86","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL01056","13C8 FOSA","88","ng/L","","-99","DL","","","TRG","94","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL01892","13C4 PFHpA","89","ng/L","","-99","DL","","","TRG","94","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL01893","13C5 PFPeA","92","ng/L","","-99","DL","","","TRG","98","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL02116","13C2 PFTeDA","80","ng/L","","-99","DL","","","TRG","85","","-99","LOQ","YES","94.2","","265.5","10.00","94",""

"TP-PFC-037-TPE","EPA 537 (Mod)","RES","320-45943-3","TALSAC","STL02337","13C3 PFBS","85","ng/L","","-99","DL","","","TRG","97","","-99","LOQ","YES","87.6","","265.5","10.00","94",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RE","320-45943-4","TALSAC","375-22-4","Perfluorobutanoic acid (PFBA)","1.3","ng/L","U M H","0.50","DL","","","TRG","","","1.7","LOQ","NO","-99","","293.4","10.00","1.3",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RE","320-45943-4","TALSAC","STL00992","13C4 PFBA","72","ng/L","","-99","DL","","","TRG","85","","-99","LOQ","YES","85.2","","293.4","10.00","85",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","2.8","ng/L","U M","1.0","DL","","TRG","","","3.8","LOQ","YES","-99","","265.9","10.00","2.8","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","2058-94-8","Perfluoroundecanoic acid (PFUnA)","1.4","ng/L","U","0.68","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","1.4","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","2706-90-3","Perfluoropentanoic acid (PFPeA)","0.94","ng/L","U","0.40","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","0.94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","307-24-4","Perfluorohexanoic acid (PFHxA)","0.94","ng/L","U","0.44","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","0.94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","307-55-1","Perfluorododecanoic acid (PFDoA)","1.4","ng/L","U","0.49","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","1.4","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","0.58","ng/L","J M","0.51","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","1.4","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","335-76-2","Perfluorodecanoic acid (PFDA)","0.94","ng/L","U","0.45","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","0.94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","335-77-3","Perfluorodecanesulfonic acid (PFDS)","1.4","ng/L","U","0.53","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","1.4","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","0.43","ng/L","J M","0.36","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","0.94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","375-22-4","Perfluorobutanoic acid (PFBA)","1.7","ng/L","J B M","0.55","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","1.4","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","0.94","ng/L","U","0.43","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","0.94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","1.4","ng/L","U","0.57","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","1.4","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid (PFHpS)","0.94","ng/L","U","0.35","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","0.94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","1.4","ng/L","U","0.49","DL","","TRG","","","1.9","LOQ","YES","-99","","265.9","10.00","1.4","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","376-06-7","Perfluorotetradecanoic acid (PFTeA)","2.8","ng/L","U","0.78","DL","","TRG","","","3.8","LOQ","YES","-99","","265.9","10.00","2.8","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","72629-94-8","Perfluorotridecanoic acid (PFTriA)","2.8","ng/L","U","0.71","DL","","TRG","","","3.8","LOQ","YES","-99","","265.9","10.00","2.8","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","754-91-6","Perfluorooctanesulfonamide (FOSA)","2.8","ng/L","U","1.2","DL","","TRG","","","3.8","LOQ","YES","-99","","265.9","10.00","2.8","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00990","13C4 PFOA","86","ng/L","","-99","DL","","TRG","91","","-99","LOQ","YES","94.0","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00991","13C4 PFOS","89","ng/L","","-99","DL","","TRG","99","","-99","LOQ","YES","89.9","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00992","13C4 PFBA","78","ng/L","","-99","DL","","TRG","83","","-99","LOQ","YES","94.0","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00993","13C2 PFHxA","90","ng/L","","-99","DL","","TRG","95","","-99","LOQ","YES","94.0","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00994","18O2 PFHxS","82","ng/L","","-99","DL","","TRG","92","","-99","LOQ","YES","88.9","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00995","13C5 PFNA","86","ng/L","","-99","DL","","TRG","92","","-99","LOQ","YES","94.0","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00996","13C2 PFDA","86","ng/L","","-99","DL","","TRG","91","","-99","LOQ","YES","94.0","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00997","13C2 PFUnA","81","ng/L","","-99","DL","","TRG","86","","-99","LOQ","YES","94.0","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL00998","13C2 PFDoA","80","ng/L","","-99","DL","","TRG","85","","-99","LOQ","YES","94.0","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL01056","13C8 FOSA","87","ng/L","","-99","DL","","TRG","92","","-99","LOQ","YES","94.0","","265.9","10.00","94","",""

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL01892","13C4 PFHpA","88","ng/L","","-99","DL","","TRG","93","","-99","LOQ","YES","94.0","","265.9","10.00","94","","

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL01893","13C5 PFPeA","91","ng/L","","-99","DL","","TRG","97","","-99","LOQ","YES","94.0","","265.9","10.00","94","","

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL02116","13C2 PFTeDA","76","ng/L","","-99","DL","","TRG","81","","-99","LOQ","YES","94.0","","265.9","10.00","94","","

"TP-PFC-037-TPE-D","EPA 537 (Mod)","RES","320-45943-4","TALSAC","STL02337","13C3 PFBS","79","ng/L","","-99","DL","","TRG","91","","-99","LOQ","YES","87.4","","265.9","10.00","94","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","34.0","ng/L","","1.1","DL","","SPK","91","","4.0","LOQ","YES","37.1","","250.00","10.00","3.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","2058-94-8","Perfluoroundecanoic acid (PFUnA)","38.5","ng/L","","0.72","DL","","SPK","96","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","2706-90-3","Perfluoropentanoic acid (PFPeA)","38.2","ng/L","","0.43","DL","","SPK","95","","2.0","LOQ","YES","40.0","","250.00","10.00","1.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","307-24-4","Perfluorohexanoic acid (PFHxA)","38.8","ng/L","","0.47","DL","","SPK","97","","2.0","LOQ","YES","40.0","","250.00","10.00","1.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","307-55-1","Perfluorododecanoic acid (PFDaA)","36.9","ng/L","","0.52","DL","","SPK","92","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","42.8","ng/L","M","0.54","DL","","SPK","107","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","335-76-2","Perfluorodecanoic acid (PFDA)","41.8","ng/L","","0.48","DL","","SPK","104","","2.0","LOQ","YES","40.0","","250.00","10.00","1.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","335-77-3","Perfluorodecanesulfonic acid (PFDS)","40.4","ng/L","","0.56","DL","","SPK","105","","2.0","LOQ","YES","38.6","","250.00","10.00","1.5","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","35.1","ng/L","","0.38","DL","","SPK","96","","2.0","LOQ","YES","36.4","","250.00","10.00","1.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","375-22-4","Perfluorobutanoic acid (PFBA)","41.1","ng/L","","0.59","DL","","SPK","103","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35.3","ng/L","","0.46","DL","","SPK","100","","2.0","LOQ","YES","35.4","","250.00","10.00","1.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","40.0","ng/L","","0.61","DL","","SPK","100","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid (PFHpS)","33.7","ng/L","","0.37","DL","","SPK","88","","2.0","LOQ","YES","38.1","","250.00","10.00","1.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","37.3","ng/L","","0.52","DL","","SPK","93","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","376-06-7","Perfluorotetradecanoic acid (PFTeA)","34.2","ng/L","","0.83","DL","","SPK","85","","4.0","LOQ","YES","40.0","","250.00","10.00","3.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","72629-94-8","Perfluorotridecanoic acid (PFTriA)","40.3","ng/L","","0.76","DL","","SPK","101","","4.0","LOQ","YES","40.0","","250.00","10.00","3.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","754-91-6","Perfluorooctanesulfonamide (FOSA)","45.4","ng/L","M","1.3","DL","","SPK","113","","4.0","LOQ","YES","40.0","","250.00","10.00","3.0","","

"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00990","13C4
PFOA","93.6","ng/L","",-99,"DL","","SPK","94","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00991","13C4
PFOS","102","ng/L","",-99,"DL","","SPK","107","",-99,"LOQ","YES","95.6","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00992","13C4
PFBA","89.5","ng/L","",-99,"DL","","SPK","90","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00993","13C2
PFHxA","94.5","ng/L","",-99,"DL","","SPK","94","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00994","18O2
PFHxS","86.6","ng/L","",-99,"DL","","SPK","92","",-99,"LOQ","YES","94.6","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00995","13C5
PFNA","98.7","ng/L","",-99,"DL","","SPK","99","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00996","13C2
PFDA","96.4","ng/L","",-99,"DL","","SPK","96","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00997","13C2
PFUnA","95.2","ng/L","",-99,"DL","","SPK","95","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL00998","13C2
PFDaA","92.8","ng/L","",-99,"DL","","SPK","93","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL01056","13C8
FOSA","91.1","ng/L","",-99,"DL","","SPK","91","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL01892","13C4
PFHpA","91.8","ng/L","",-99,"DL","","SPK","92","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL01893","13C5
PFPeA","95.9","ng/L","",-99,"DL","","SPK","96","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL02116","13C2
PFTeDA","88.2","ng/L","",-99,"DL","","SPK","88","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCS 320-264674/2-A","EPA 537 (Mod)","RES","LCS 320-264674/2-A","TALSAC","STL02337","13C3
PFBS","84.0","ng/L","",-99,"DL","","SPK","90","",-99,"LOQ","YES","93.0","","250.00","10.00","100",""
"LCS 320-267590/2-A","EPA 537 (Mod)","RES","LCS 320-267590/2-A","TALSAC","375-22-4","Perfluorobutanoic
acid (PFBA)","37.8","ng/L","","0.59","DL","","SPK","94","","2.0","LOQ","YES","40.0","","250.00","10.00","1.5",""
"LCS 320-267590/2-A","EPA 537 (Mod)","RES","LCS 320-267590/2-A","TALSAC","STL00992","13C4
PFBA","88.9","ng/L","",-99,"DL","","SPK","89","",-99,"LOQ","YES","100","","250.00","10.00","100",""
"LCSD 320-267590/3-A","EPA 537 (Mod)","RES","LCSD 320-267590/3-A","TALSAC","375-22-
4","Perfluorobutanoic acid (PFBA)","37.0","ng/L","","0.59","DL","","SPK","93","2","2.0","LOQ","YES","40.0","LCS
320-267590/2-A","250.00","10.00","1.5",""
"LCSD 320-267590/3-A","EPA 537 (Mod)","RES","LCSD 320-267590/3-A","TALSAC","STL00992","13C4
PFBA","82.4","ng/L","",-99,"DL","","SPK","82","",-99,"LOQ","YES","100","LCS 320-267590/2-
A","250.00","10.00","100",""
"MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","1763-23-
1","Perfluorooctanesulfonic acid
(PFOS)","3.0","ng/L","U","1.1","DL","","TRG","","","4.0","LOQ","YES","-99","","250.00","10.00","3.0",""
"MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","2058-94-
8","Perfluoroundecanoic acid
(PFUnA)","1.5","ng/L","U","0.72","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","2706-90-3","Perfluoropentanoic
acid (PFPeA)","1.0","ng/L","U","0.43","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""
"MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","307-24-4","Perfluorohexanoic
acid (PFHxA)","1.0","ng/L","U","0.47","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""
"MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","307-55-1","Perfluorododecanoic
acid (PFDaA)","1.5","ng/L","U","0.52","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","335-67-1","Perfluorooctanoic
acid (PFOA)","0.729","ng/L","J M","0.54","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","335-76-2","Perfluorodecanoic
acid (PFDA)","1.0","ng/L","U","0.48","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.0",""

"MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","335-77-3","Perfluorodecanesulfonic acid (PFDS)","1.5","ng/L","U","0.56","DL","","","TRG","","","2.0","LOQ","YES",-99","","250.00","10.00","1.5","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","0.468","ng/L","J","M","0.38","DL","","","TRG","","","2.0","LOQ","YES",-99","","250.00","10.00","1.0","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","375-22-4","Perfluorobutanoic acid (PFBA)","1.43","ng/L","J","0.59","DL","","","TRG","","","2.0","LOQ","YES",-99","","250.00","10.00","1.5","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","1.0","ng/L","U","0.46","DL","","","TRG","","","2.0","LOQ","YES",-99","","250.00","10.00","1.0","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","1.5","ng/L","U","0.61","DL","","","TRG","","","2.0","LOQ","YES",-99","","250.00","10.00","1.5","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","375-92-8","Perfluoroheptanesulfonic Acid (PFHpS)","1.0","ng/L","U","0.37","DL","","","TRG","","","2.0","LOQ","YES",-99","","250.00","10.00","1.0","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","1.5","ng/L","U","0.52","DL","","","TRG","","","2.0","LOQ","YES",-99","","250.00","10.00","1.5","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","376-06-7","Perfluorotetradecanoic acid (PFTeA)","3.0","ng/L","U","0.83","DL","","","TRG","","","4.0","LOQ","YES",-99","","250.00","10.00","3.0","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","72629-94-8","Perfluorotridecanoic acid (PFTriA)","3.0","ng/L","U","0.76","DL","","","TRG","","","4.0","LOQ","YES",-99","","250.00","10.00","3.0","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","754-91-6","Perfluorooctanesulfonamide (FOSA)","3.0","ng/L","U","1.3","DL","","","TRG","","","4.0","LOQ","YES",-99","","250.00","10.00","3.0","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00990","13C4 PFOA","88.7","ng/L","","-99","DL","","","TRG","89","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00991","13C4 PFOS","89.0","ng/L","","-99","DL","","","TRG","93","","-99","LOQ","YES","95.6","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00992","13C4 PFBA","89.5","ng/L","","-99","DL","","","TRG","89","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00993","13C2 PFHxA","94.4","ng/L","","-99","DL","","","TRG","94","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00994","18O2 PFHxS","83.7","ng/L","","-99","DL","","","TRG","88","","-99","LOQ","YES","94.6","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00995","13C5 PFNA","91.8","ng/L","","-99","DL","","","TRG","92","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00996","13C2 PFDA","90.2","ng/L","","-99","DL","","","TRG","90","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00997","13C2 PFUnA","87.2","ng/L","","-99","DL","","","TRG","87","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL00998","13C2 PFDoA","82.7","ng/L","","-99","DL","","","TRG","83","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL01056","13C8 FOSA","87.2","ng/L","","-99","DL","","","TRG","87","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL01892","13C4 PFHpA","92.5","ng/L","","-99","DL","","","TRG","93","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL01893","13C5 PFPeA","94.6","ng/L","","-99","DL","","","TRG","95","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL02116","13C2 PFTeDA","79.8","ng/L","","-99","DL","","","TRG","80","","-99","LOQ","YES","100","","250.00","10.00","100","","MB 320-264674/1-A","EPA 537 (Mod)","RES","MB 320-264674/1-A","TALSAC","STL02337","13C3

PFBS","83.9","ng/L","",-99","DL","","TRG","90","",-99","LOQ","YES","93.0","","250.00","10.00","100",""
"MB 320-267590/1-A","EPA 537 (Mod)","RES","MB 320-267590/1-A","TALSAC","375-22-4","Perfluorobutanoic
acid (PFBA)","1.5","ng/L","U","0.59","DL","","TRG","","","2.0","LOQ","YES","-99","","250.00","10.00","1.5",""
"MB 320-267590/1-A","EPA 537 (Mod)","RES","MB 320-267590/1-A","TALSAC","STL00992","13C4
PFBA","89.6","ng/L","",-99","DL","","TRG","90","",-99","LOQ","YES","100","","250.00","10.00","100",""
"Unknown","Unknown","TP-PFC-037-TPI","12/06/2018 09:10","AQ","320-45943-1","NM","","0.90","EPA 537
(Mod)","3535","RES","12/12/2018 07:32","12/13/2018
15:22","TALSAC","COA","WET","NA","1","NA","NA","","100","320-264674","320-264674","NA","320-
265099","320-45943-1","12/07/2018 09:15","12/09/2018 12:30",""
"Unknown","Unknown","TP-PFC-037-TPI","12/06/2018 09:10","AQ","320-45943-1","NM","","0.90","EPA 537
(Mod)","3535","DL","12/12/2018 07:32","12/24/2018
12:35","TALSAC","COA","WET","NA","10","NA","NA","","100","320-264674","320-264674","NA","320-
267151","320-45943-1","12/07/2018 09:15","12/09/2018 12:30",""
"Unknown","Unknown","TP-PFC-037-MID-CARBON","12/06/2018 09:15","AQ","320-45943-
2","NM","","0.90","EPA 537 (Mod)","3535","RES","12/12/2018 07:32","12/24/2018
12:20","TALSAC","COA","WET","NA","1","NA","NA","","100","320-264674","320-264674","NA","320-
267151","320-45943-1","12/07/2018 09:15","12/09/2018 12:30",""
"Unknown","Unknown","TP-PFC-037-MID-CARBON","12/06/2018 09:15","AQ","320-45943-
2","NM","","0.90","EPA 537 (Mod)","3535","RE","12/27/2018 07:47","12/28/2018
02:22","TALSAC","COA","WET","NA","1","NA","NA","","100","320-267590","320-267590","NA","320-
267814","320-45943-1","12/07/2018 09:15","12/09/2018 12:30",""
"Unknown","Unknown","TP-PFC-037-TPE","12/06/2018 09:20","AQ","320-45943-3","NM","","0.90","EPA 537
(Mod)","3535","RES","12/12/2018 07:32","12/13/2018
15:37","TALSAC","COA","WET","NA","1","NA","NA","","100","320-264674","320-264674","NA","320-
265099","320-45943-1","12/07/2018 09:15","12/09/2018 12:30",""
"Unknown","Unknown","TP-PFC-037-TPE","12/06/2018 09:20","AQ","320-45943-3","NM","","0.90","EPA 537
(Mod)","3535","RE","12/27/2018 07:47","12/28/2018
02:30","TALSAC","COA","WET","NA","1","NA","NA","","100","320-267590","320-267590","NA","320-
267814","320-45943-1","12/07/2018 09:15","12/09/2018 12:30",""
"Unknown","Unknown","TP-PFC-037-TPE-D","12/06/2018 00:00","AQ","320-45943-4","FD","","0.90","EPA 537
(Mod)","3535","RES","12/12/2018 07:32","12/13/2018
15:44","TALSAC","COA","WET","NA","1","NA","NA","","100","320-264674","320-264674","NA","320-
265099","320-45943-1","12/07/2018 09:15","12/09/2018 12:30",""
"Unknown","Unknown","TP-PFC-037-TPE-D","12/06/2018 00:00","AQ","320-45943-4","FD","","0.90","EPA 537
(Mod)","3535","RE","12/27/2018 07:47","12/28/2018
02:37","TALSAC","COA","WET","NA","1","NA","NA","","100","320-267590","320-267590","NA","320-
267814","320-45943-1","12/07/2018 09:15","12/09/2018 12:30",""
"Unknown","Unknown","LCS 320-264674/2-A","","AQ","LCS 320-264674/2-A","LCS","",-99","EPA 537
(Mod)","3535","RES","12/12/2018 07:32","12/24/2018
12:05","TALSAC","COA","WET","NA","1","NA","NA","","100","320-264674","320-264674","NA","320-
267151","320-45943-1","12/12/2018 07:32","12/09/2018 12:30",""
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(Mod)","3535","RES","12/27/2018 07:47","12/28/2018
02:07","TALSAC","COA","WET","NA","1","NA","NA","","100","320-267590","320-267590","NA","320-
267814","320-45943-1","12/27/2018 07:47","12/09/2018 12:30",""
"Unknown","Unknown","LCSD 320-267590/3-A","","AQ","LCSD 320-267590/3-A","LCSD","",-99","EPA 537
(Mod)","3535","RES","12/27/2018 07:47","12/28/2018
02:15","TALSAC","COA","WET","NA","1","NA","NA","","100","320-267590","320-267590","NA","320-
267814","320-45943-1","12/27/2018 07:47","12/09/2018 12:30",""
"Unknown","Unknown","MB 320-264674/1-A","","AQ","MB 320-264674/1-A","MB","",-99","EPA 537
(Mod)","3535","RES","12/12/2018 07:32","12/13/2018
13:59","TALSAC","COA","WET","NA","1","NA","NA","","100","320-264674","320-264674","NA","320-
265099","320-45943-1","12/12/2018 07:32","12/09/2018 12:30",""
"Unknown","Unknown","MB 320-267590/1-A","","AQ","MB 320-267590/1-A","MB","",-99","EPA 537

(Mod)","3535","RES","12/27/2018 07:47","12/28/2018
02:00","TALSAC","COA","WET","NA","1","NA","NA","","100","320-267590","320-267590","NA","320-
267814","320-45943-1","12/27/2018 07:47","12/09/2018 12:30",""



TETRA TECH

INTERNAL CORRESPONDENCE

TO: J. ORIENT **DATE:** JANUARY 14, 2019

FROM: MICHELLE L. WOEBER **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION – POLYFLUOROALKYL SUBSTANCES (PFAS)
FORMER NAVAL AIR STATION (NAS) BRUNSWICK, BRUNSWICK, ME
CTO WE21 PFC ASSESSMENT
SAMPLE DELIVERY GROUP (SDG) 320-45943-1

SAMPLES: 4/Aqueous/PFAS

TP-PFC-037-MID-CARBON TP-PFC-037-TPE
TP-PFC-037-TPE-D TP-PFC-037-TPI

Overview

The sample set for former NAS Brunswick, SDG 320-45943-1 consisted of four (4) aqueous environmental samples. All four (4) aqueous samples were analyzed for Polyfluoroalkyl Substances (PFAS). One field duplicate pair was included in this Sample Delivery Group (SDG): TP-PFC-037-TPE/TP-PFC-037-TPE-D.

The samples were collected by Tetra Tech, Inc. on December 6, 2018 and analyzed by Test America, Inc. The analyses were conducted in compliance with Department of Defense (DoD)/Department of Energy (DOE) Quality Systems Manual (QSM) for Environmental Laboratories version 5.1 PFAS using LC/MS/MS Appendix B Table B-15 (July 2017). The data was evaluated based on the following parameters:

- * • Data completeness
- Hold times/Sample Preservation
- * • Mass Calibration
- * • LC/MS/MS System Tuning and Performance
- * • Mass Spectral Acquisition Rate
- * • Instrument Sensitivity Check
- * • Ion Transition Check
- * • Initial/Continuing Calibrations
- Laboratory Method/Preparation Blank Results
- * • Extraction Internal Standard (Surrogate) Recoveries
- Injection Internal Standard Recoveries
- * • Laboratory Control Sample/Laboratory Control Sample Duplicate Recoveries
- * • Field Duplicate Precision
- * • Compound Identification
- * • Compound Quantitation
- * • Detection Limits

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B, and Appendix C contains the documentation to support the findings as discussed in this data validation report. An EPA Region 1 tier II validation was performed on the data in these SDGs. The text of this report has been formulated to address only those areas affecting data quality.

PFAS

Samples TP-PFC-037-MID-CARBON, TP-PFC-037-TPE, and TP-PFC-037-TPE-D were re-extracted outside the 14-day holding time because the associated laboratory method blank, MB 320-264674/1-A, had a result for perfluorobutanoic acid (PFBA) > ½ the Limit of Quantitation (LOQ). Three samples were re-extracted. Sample TP-PFC-037-TPI was not re-extracted because the PFBA concentration was greater than 10X the blank concentration. The laboratory method blank was free of PFBA in the reanalysis. The results from the initial analyses were used for these samples due to the holding time exceedance. Although the re-extractions were not used, PFBA was nondetected in the re-extraction analyses.

The following compounds were detected in the laboratory method and/or Initial/Continuing Calibration Blanks (ICB/CCBs) at the following maximum concentrations:

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level LOQ > or <</u>
Perfluorobutanoic acid (PFBA) ⁽¹⁾	1.43 ng/L (> 1/2 LOQ)	< LOQ
Perfluorooctanoic acid (PFOA) ⁽¹⁾	0.729 ng/L	< LOQ
Perfluorohexanesulfonic acid (PFHxS) ⁽¹⁾	0.468 ng/L	< LOQ
Perfluorotetradecanoic acid (PFTeA) ⁽²⁾	0.00993 ng/ml	< LOQ
Perfluorohexanesulfonic acid (PFHxS) ⁽²⁾	0.00952 ng/ml	< LOQ

⁽¹⁾ – Maximum concentration detected in the laboratory method blank, MB 320-264674/1-A, performed on instrument A9 affecting all samples.

⁽²⁾ – Maximum concentration detected in the ICB and CCB performed on instrument A9 affecting all undiluted samples.

The detected results reported for these compounds reported below the Limit of Detection (LOD) were raised to LOD and qualified as non-detected, (U).

NOTES

The injected internal standard compound, 13C2-perfluorooctanoic acid (13C2-PFOA), had an area below the 50% quality control limit in the diluted analyses of sample TP-PFC-037-TPI. No action was taken because the sample was diluted 10X and the internal standard area response varied because of the dilution.

Field Reagent Blanks (FRBs) were not provided with the environmental samples.

The following sample was further diluted because the compounds below exceeded the instrument calibration range. The results for these compounds from the dilution were used in the data validation.

<u>Sample</u>	<u>Compound</u>	<u>Dilution</u>
TP-PFC-037-TPI	PFOA	10X
	PFHxS	10X

A detected result reported below the LOQ but above the Detection Limit (DL) was qualified as estimated, (J). Non-detected results are reported to LOD.

EXECUTIVE SUMMARY

Laboratory Performance: Three PFAS analytes were detected in the laboratory method blank. Two analytes were detected in the ICBs/CCBs. An injected internal standard area was low in the diluted sample.

Other Factors Affecting Data Quality: One sample was further diluted. Detected results below the LOQ were estimated.

TO: J. ORIENT
SDGs: 320-45943-1

PAGE 3

The data for these analyses were reviewed with reference to the EPA New England Environmental Data Review Supplement for Regional Data Review Elements Superfund Guidance/Procedures (April 2013), National Functional Guidelines for Organic Data Validation (January 2017), and the DoD/DOE QSM for Environmental Laboratories" (July 2017). The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Michelle L. Woeber
Environmental Chemist



Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:

Appendix A - Qualified Analytical Results
Appendix B - Results as reported by the Laboratory
Appendix C - Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted detection limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
X	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times \text{IDL}$ for inorganics and $< \text{CRQL}$ for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $> 40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-WE21 SDG: 320-45943-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	TP-PFC-037-MID-CARBON			TP-PFC-037-TPE			TP-PFC-037-TPE-D			TP-PFC-037-TPI		
	LAB_ID	320-45943-2			320-45943-3			320-45943-4			320-45943-1		
	SAMP_DATE	12/6/2018			12/6/2018			12/6/2018			12/6/2018		
	QC_TYPE	NM			NM			FD			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							TP-PFC-037-TPE					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID (PFOA)		1.4	U		1.4	U	A	1.4	U	A			
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.95	U		0.94	U		0.94	U		50		
PERFLUOROBUTANOIC ACID (PFBA)		1.4	U	A	1.4	U	A	1.7	U	A	72		
PERFLUORODECANESULFONIC ACID (PFDS)		1.4	U		1.4	U		1.4	U		1.4	U	
PERFLUORODECANOIC ACID (PFDA)		0.95	U		0.94	U		0.94	U		1	J	P
PERFLUORODODECANOIC ACID (PFDOA)		1.4	U		1.4	U		1.4	U		1.4	U	
PERFLUOROHEPTANESULFONIC ACID (PFHPS)		0.95	U		0.94	U		0.94	U		6.3		
PERFLUOROHEPTANOIC ACID (PFHPA)		1.4	U		1.4	U		1.4	U		66		
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.95	U		0.94	U	A	0.94	U	A			
PERFLUOROHEXANOIC ACID (PFHXA)		0.95	U		0.94	U		0.94	U		350		
PERFLUORONONANOIC ACID (PFNA)		1.4	U		1.4	U		1.4	U		2.9		
PERFLUOROOCTANE SULFONAMIDE (FOSA)		2.8	U		2.8	U		2.8	U		2.9	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		2.8	U		2.8	U		2.8	U		300		
PERFLUOROPENTANOIC ACID (PFPEA)		0.95	U		0.94	U		0.94	U		180		
PERFLUOROTETRADECANOIC ACID (PFTEA)		2.8	U		2.8	U		2.8	U		2.9	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		2.8	U		2.8	U		2.8	U		2.9	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		1.4	U		1.4	U		1.4	U		1.4	U	

PROJ_NO: 08005-WE21 SDG: 320-45943-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	TP-PFC-037-TPI-DL		
	LAB_ID	320-45943-1		
	SAMP_DATE	12/6/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID (PFOA)		1600		
PERFLUOROBUTANESULFONIC ACID (PFBS)				
PERFLUOROBUTANOIC ACID (PFBA)				
PERFLUORODECANESULFONIC ACID (PFDS)				
PERFLUORODECANOIC ACID (PFDA)				
PERFLUORODODECANOIC ACID (PFDOA)				
PERFLUOROHEPTANESULFONIC ACID (PFHPS)				
PERFLUOROHEPTANOIC ACID (PFHPA)				
PERFLUOROHEXANESULFONIC ACID (PFHXS)		410		
PERFLUOROHEXANOIC ACID (PFHXA)				
PERFLUORONONANOIC ACID (PFNA)				
PERFLUOROOCTANE SULFONAMIDE (FOSA)				
PERFLUOROOCTANESULFONIC ACID (PFOS)				
PERFLUOROPENTANOIC ACID (PFPEA)				
PERFLUOROTETRADECANOIC ACID (PFTEA)				
PERFLUOROTRIDECANOIC ACID (PFTRIA)				
PERFLUOROUNDECANOIC ACID (PFUNA)				

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-TPI</u>	Lab Sample ID: <u>320-45943-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.13LLAA_049.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 09:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>260.9 (mL)</u>	Date Analyzed: <u>12/13/2018 15:22</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>265099</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	72	M B	1.9	1.4	0.57
2706-90-3	Perfluoropentanoic acid (PFPeA)	180		1.9	0.96	0.41
307-24-4	Perfluorohexanoic acid (PFHxA)	350		1.9	0.96	0.45
375-85-9	Perfluoroheptanoic acid (PFHpA)	66		1.9	1.4	0.58
335-67-1	Perfluorooctanoic acid (PFOA)	1000	E M	1.9	1.4	0.52
375-95-1	Perfluorononanoic acid (PFNA)	2.9		1.9	1.4	0.50
335-76-2	Perfluorodecanoic acid (PFDA)	1.0	J	1.9	0.96	0.46
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U M	1.9	1.4	0.69
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.50
72629-94-8	Perfluorotridecanoic acid (PFTriA)	2.9	U	3.8	2.9	0.73
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.9	U	3.8	2.9	0.80
375-73-5	Perfluorobutanesulfonic acid (PFBS)	50		1.9	0.96	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	370	E	1.9	0.96	0.36
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	6.3		1.9	0.96	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	300		3.8	2.9	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.54
754-91-6	Perfluorooctanesulfonamide (FOSA)	2.9	U	3.8	2.9	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-TPI</u>	Lab Sample ID: <u>320-45943-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.13LLAA_049.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 09:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>260.9(mL)</u>	Date Analyzed: <u>12/13/2018 15:22</u>
Con. Extract Vol.: <u>10.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20(uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>265099</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	98		50-150
STL00992	13C4 PFBA	109		50-150
STL01893	13C5 PFPeA	112		50-150
STL00993	13C2 PFHxA	102		50-150
STL01892	13C4 PFHpA	104		50-150
STL00990	13C4 PFOA	90		50-150
STL00995	13C5 PFNA	101		50-150
STL00996	13C2 PFDA	102		50-150
STL00997	13C2 PFUnA	94		50-150
STL00998	13C2 PFDoA	93		50-150
STL00994	18O2 PFHxS	100		50-150
STL02116	13C2 PFTeDA	93		50-150
STL00991	13C4 PFOS	112		50-150
STL02337	13C3 PFBS	110		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-TPI DL</u>	Lab Sample ID: <u>320-45943-1 DL</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.24LLAA_012.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 09:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>260.9 (mL)</u>	Date Analyzed: <u>12/24/2018 12:35</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>267151</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	76	D B	19	14	5.7
2706-90-3	Perfluoropentanoic acid (PFPeA)	210	D	19	9.6	4.1
307-24-4	Perfluorohexanoic acid (PFHxA)	380	D	19	9.6	4.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	67	D	19	14	5.8
335-67-1	Perfluorooctanoic acid (PFOA)	1600	D M	19	14	5.2
375-95-1	Perfluorononanoic acid (PFNA)	14	U	19	14	5.0
335-76-2	Perfluorodecanoic acid (PFDA)	9.6	U	19	9.6	4.6
2058-94-8	Perfluoroundecanoic acid (PFUnA)	14	U M	19	14	6.9
307-55-1	Perfluorododecanoic acid (PFDoA)	14	U M	19	14	5.0
72629-94-8	Perfluorotridecanoic acid (PFTriA)	29	U M	38	29	7.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	29	U	38	29	8.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	50	D	19	9.6	4.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	410	D	19	9.6	3.6
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	7.5	J D	19	9.6	3.5
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	330	D	38	29	11
335-77-3	Perfluorodecanesulfonic acid (PFDS)	14	U	19	14	5.4
754-91-6	Perfluorooctanesulfonamide (FOSA)	29	U	38	29	12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-TPI DL</u>	Lab Sample ID: <u>320-45943-1 DL</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.24LLAA_012.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 09:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>260.9(mL)</u>	Date Analyzed: <u>12/24/2018 12:35</u>
Con. Extract Vol.: <u>10.00(mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>20(uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>267151</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	76		50-150
STL00992	13C4 PFBA	80		50-150
STL01893	13C5 PFPeA	86		50-150
STL00993	13C2 PFHxA	86		50-150
STL01892	13C4 PFHpA	87		50-150
STL00990	13C4 PFOA	85		50-150
STL00995	13C5 PFNA	87		50-150
STL00996	13C2 PFDA	92		50-150
STL00997	13C2 PFUnA	86		50-150
STL00998	13C2 PFDoA	86		50-150
STL00994	18O2 PFHxS	81		50-150
STL02116	13C2 PFTeDA	73		50-150
STL00991	13C4 PFOS	86		50-150
STL02337	13C3 PFBS	83		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-MID-CARBON</u>	Lab Sample ID: <u>320-45943-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.24LLAA_010.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 09:15</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>263.7 (mL)</u>	Date Analyzed: <u>12/24/2018 12:20</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>267151</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.3	J B	1.9	1.4	0.56
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.95	U	1.9	0.95	0.41
307-24-4	Perfluorohexanoic acid (PFHxA)	0.95	U	1.9	0.95	0.45
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.4	U M	1.9	1.4	0.58
335-67-1	Perfluorooctanoic acid (PFOA)	1.4	U M	1.9	1.4	0.51
375-95-1	Perfluorononanoic acid (PFNA)	1.4	U M	1.9	1.4	0.49
335-76-2	Perfluorodecanoic acid (PFDA)	0.95	U M	1.9	0.95	0.46
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U M	1.9	1.4	0.68
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U M	1.9	1.4	0.49
72629-94-8	Perfluorotridecanoic acid (PFTriA)	2.8	U M	3.8	2.8	0.72
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.8	U	3.8	2.8	0.79
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.95	U M	1.9	0.95	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.95	U M	1.9	0.95	0.36
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.95	U	1.9	0.95	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.8	U M	3.8	2.8	1.0
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U M	1.9	1.4	0.53
754-91-6	Perfluorooctanesulfonamide (FOSA)	2.8	U	3.8	2.8	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-MID-CARBON</u>	Lab Sample ID: <u>320-45943-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.24LLAA_010.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 09:15</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>263.7(mL)</u>	Date Analyzed: <u>12/24/2018 12:20</u>
Con. Extract Vol.: <u>10.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20(uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>267151</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	88		50-150
STL00992	13C4 PFBA	91		50-150
STL01893	13C5 PFPeA	99		50-150
STL00993	13C2 PFHxA	90		50-150
STL01892	13C4 PFHpA	89		50-150
STL00990	13C4 PFOA	89		50-150
STL00995	13C5 PFNA	93		50-150
STL00996	13C2 PFDA	92		50-150
STL00997	13C2 PFUnA	91		50-150
STL00998	13C2 PFDoA	84		50-150
STL00994	18O2 PFHxS	94		50-150
STL02116	13C2 PFTeDA	80		50-150
STL00991	13C4 PFOS	102		50-150
STL02337	13C3 PFBS	90		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Client Sample ID: TP-PFC-037-MID-CARBON RE Lab Sample ID: 320-45943-2 RE

Matrix: Water Lab File ID: 2018.12.27LLBB_072.d

Analysis Method: EPA 537 (Mod) Date Collected: 12/06/2018 09:15

Extraction Method: 3535 Date Extracted: 12/27/2018 07:47

Sample wt/vol: 299.4 (mL) Date Analyzed: 12/28/2018 02:22

Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 267814 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.3	U M H	1.7	1.3	0.49

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	89		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-TPE</u>	Lab Sample ID: <u>320-45943-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.13LLAA_051.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 09:20</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>265.5 (mL)</u>	Date Analyzed: <u>12/13/2018 15:37</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>265099</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.1	J B M	1.9	1.4	0.56
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.94	U	1.9	0.94	0.40
307-24-4	Perfluorohexanoic acid (PFHxA)	0.94	U	1.9	0.94	0.44
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.4	U	1.9	1.4	0.57
335-67-1	Perfluorooctanoic acid (PFOA)	0.56	J M	1.9	1.4	0.51
375-95-1	Perfluorononanoic acid (PFNA)	1.4	U	1.9	1.4	0.49
335-76-2	Perfluorodecanoic acid (PFDA)	0.94	U	1.9	0.94	0.45
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	1.4	0.68
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.49
72629-94-8	Perfluorotridecanoic acid (PFTriA)	2.8	U	3.8	2.8	0.72
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.8	U	3.8	2.8	0.78
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.94	U M	1.9	0.94	0.43
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.38	J M	1.9	0.94	0.36
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.94	U	1.9	0.94	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.8	U M	3.8	2.8	1.0
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.53
754-91-6	Perfluorooctanesulfonamide (FOSA)	2.8	U	3.8	2.8	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-TPE</u>	Lab Sample ID: <u>320-45943-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.13LLAA_051.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 09:20</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>265.5 (mL)</u>	Date Analyzed: <u>12/13/2018 15:37</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>265099</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	94		50-150
STL00992	13C4 PFBA	92		50-150
STL01893	13C5 PFPeA	98		50-150
STL00993	13C2 PFHxA	98		50-150
STL01892	13C4 PFHpA	94		50-150
STL00990	13C4 PFOA	93		50-150
STL00995	13C5 PFNA	94		50-150
STL00996	13C2 PFDA	93		50-150
STL00997	13C2 PFUnA	88		50-150
STL00998	13C2 PFDoA	86		50-150
STL00994	18O2 PFHxS	94		50-150
STL02116	13C2 PFTeDA	85		50-150
STL00991	13C4 PFOS	102		50-150
STL02337	13C3 PFBS	97		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: TP-PFC-037-TPE RE Lab Sample ID: 320-45943-3 RE
 Matrix: Water Lab File ID: 2018.12.27LLBB_073.d
 Analysis Method: EPA 537 (Mod) Date Collected: 12/06/2018 09:20
 Extraction Method: 3535 Date Extracted: 12/27/2018 07:47
 Sample wt/vol: 287.9 (mL) Date Analyzed: 12/28/2018 02:30
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 20 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 267814 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.3	U M H	1.7	1.3	0.51

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	81		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-TPE-D</u>	Lab Sample ID: <u>320-45943-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.13LLAA_052.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 00:00</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>265.9 (mL)</u>	Date Analyzed: <u>12/13/2018 15:44</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>265099</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.7	J B M	1.9	1.4	0.55
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.94	U	1.9	0.94	0.40
307-24-4	Perfluorohexanoic acid (PFHxA)	0.94	U	1.9	0.94	0.44
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.4	U	1.9	1.4	0.57
335-67-1	Perfluorooctanoic acid (PFOA)	0.58	J M	1.9	1.4	0.51
375-95-1	Perfluorononanoic acid (PFNA)	1.4	U	1.9	1.4	0.49
335-76-2	Perfluorodecanoic acid (PFDA)	0.94	U	1.9	0.94	0.45
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.4	U	1.9	1.4	0.68
307-55-1	Perfluorododecanoic acid (PFDoA)	1.4	U	1.9	1.4	0.49
72629-94-8	Perfluorotridecanoic acid (PFTriA)	2.8	U	3.8	2.8	0.71
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.8	U	3.8	2.8	0.78
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.94	U	1.9	0.94	0.43
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.43	J M	1.9	0.94	0.36
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.94	U	1.9	0.94	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.8	U M	3.8	2.8	1.0
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.4	U	1.9	1.4	0.53
754-91-6	Perfluorooctanesulfonamide (FOSA)	2.8	U	3.8	2.8	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: <u>TP-PFC-037-TPE-D</u>	Lab Sample ID: <u>320-45943-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.13LLAA_052.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: <u>12/06/2018 00:00</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>265.9(mL)</u>	Date Analyzed: <u>12/13/2018 15:44</u>
Con. Extract Vol.: <u>10.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20(uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>265099</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	92		50-150
STL00992	13C4 PFBA	83		50-150
STL01893	13C5 PFPeA	97		50-150
STL00993	13C2 PFHxA	95		50-150
STL01892	13C4 PFHpA	93		50-150
STL00990	13C4 PFOA	91		50-150
STL00995	13C5 PFNA	92		50-150
STL00996	13C2 PFDA	91		50-150
STL00997	13C2 PFUnA	86		50-150
STL00998	13C2 PFDoA	85		50-150
STL00994	18O2 PFHxS	92		50-150
STL02116	13C2 PFTeDA	81		50-150
STL00991	13C4 PFOS	99		50-150
STL02337	13C3 PFBS	91		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: TP-PFC-037-TPE-D RE Lab Sample ID: 320-45943-4 RE
 Matrix: Water Lab File ID: 2018.12.27LLBB_074.d
 Analysis Method: EPA 537 (Mod) Date Collected: 12/06/2018 00:00
 Extraction Method: 3535 Date Extracted: 12/27/2018 07:47
 Sample wt/vol: 293.4 (mL) Date Analyzed: 12/28/2018 02:37
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 20 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 267814 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.3	U M H	1.7	1.3	0.50

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	85		50-150

APPENDIX C

SUPPORT DOCUMENTATION

NAS BRUNSWICK
SDG 320-45943-1

SAMPLE IDENTIFICATION

TP-PFC-037-TPI

COMPOUND

PERFLUOROBUTANESULFONIC ACID (PFBS)

COMPOUND AREA 4590674

INTERNAL STANDARD AMOUNT (ng/ml) 2.5

DILUTION FACTOR 1

INTERNAL STANDARD AREA 6314525

AVERAGE RRF 0.9696

SAMPLE VOLUME (ml) 260.9

VOLUME EXTRACT (ml) 10

ml to L 1000.00

CONCENTRATION = 71.8 ng/L

$4590674 \times 2.5\text{ng/ml} \times 10\text{ml} \times 1000\text{ml} \times 1 / (6314525 \times 0.9696 \times 270\text{ml} \times 1\text{L} \times 2)$

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A9\20181213-69138.b\2018.12.13LLAA_049.d
 Lims ID: 320-45943-A-1-A
 Client ID: TP-PFC-037-TPI
 Sample Type: Client
 Inject. Date: 13-Dec-2018 15:22:20 ALS Bottle#: 36 Worklist Smp#: 15
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 320-45943-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A9\Administrator Instrument ID: A9
 Method: \\chromna\Sacramento\ChromData\A9\20181213-69138.b\PFAS_A9.m
 Limit Group: LC PFC_QSM5-1 ICAL
 Last Update: 22-Dec-2018 10:25:54 Calib Date: 07-Dec-2018 03:55:58
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Sacramento\ChromData\A9\20181206-68754.b\2018.12.06ICALB_008.d
 Column 1 : Det: EXP1
 Process Host: CTX0306

First Level Reviewer: ruangyotsakuld

Date: 22-Dec-2018 10:25:54

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.90 > 169.00	1.700	1.700	0.0	1.000	4590674	1.87			179	M
D 1 13C4 PFBA										
217.00 > 172.00	1.700	1.700	0.0	0.532	6314525	2.73		109	5867	
D 3 13C5 PFPeA										
267.90 > 223.00	2.030	2.030	0.0	0.636	5552382	2.81		112	3483	
4 Perfluoropentanoic acid										
262.90 > 219.00	2.030	2.041	-0.011	1.000	10899340	4.71			369	
D 5 13C3 PFBS										
301.90 > 80.00	2.063	2.063	0.0	0.646	7178471	2.55		110	136920	
6 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.063	2.074	-0.011	1.000	4040071	1.31	Target=2.70		171	
298.90 > 99.00	2.063	2.074	-0.011	1.000	1510509		2.67(1.35-4.05)		175	
D 9 13C2 PFHxA										
315.00 > 270.00	2.400	2.389	0.011	0.752	5586802	2.56		102	4798	
10 Perfluorohexanoic acid										
313.00 > 269.00	2.400	2.402	-0.002	1.000	17810686	9.04	Target=13.92		1164	
313.00 > 119.00	2.400	2.402	-0.002	1.000	1286975		13.84(6.96-20.87)		2473	
D 16 13C4 PFHpA										
367.00 > 322.00	2.789	2.780	0.009	0.874	6854765	2.59		104	3412	
D 17 18O2 PFHxS										
403.00 > 84.00	2.798	2.789	0.009	0.876	3987018	2.37		100	3508	
15 Perfluoroheptanoic acid										
363.00 > 319.00	2.789	2.800	-0.011	1.000	5096939	1.72	Target=4.34		86.3	
363.00 > 169.00	2.789	2.800	-0.011	1.000	1100903		4.63(2.17-6.52)		86.5	
18 Perfluorohexanesulfonic acid										E
399.00 > 80.00	2.798	2.800	-0.002	1.000	20302652	9.76	Target=3.80		1353	E
399.00 > 99.00	2.798	2.800	-0.002	1.000	5832424		3.48(1.90-5.70)		6029	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 25 13C4 PFOA										
417.00 > 372.00	3.193	3.187	0.006	1.000	5427720	2.26		90.4	3043	
23 Perfluoroheptanesulfonic acid										
449.00 > 80.00	3.193	3.197	-0.003	0.896	322531	0.1635	Target=3.69		23.5	
449.00 > 99.00	3.185	3.197	-0.011	0.893	98092		3.29(1.84-5.53)		31.2	
26 Perfluorooctanoic acid										
413.00 > 369.00	3.193	3.197	-0.003	1.000	59898292	26.9	Target=2.72		554	EM
413.00 > 169.00	3.193	3.197	-0.003	1.000	36302124		1.65(1.36-4.08)		902	EM M
* 24 13C2 PFOA										
415.00 > 370.00	3.193	3.197	-0.003		6070143	2.50			1822	
D 28 13C4 PFOS										
503.00 > 80.00	3.565	3.558	0.007	1.116	4420983	2.67		112	3920	
D 31 13C5 PFNA										
468.00 > 423.00	3.572	3.573	-0.001	1.119	5631862	2.54		101	3359	
29 Perfluorooctanesulfonic acid										
499.00 > 80.00	3.565	3.575	-0.010	1.000	15837934	7.95	Target=4.08		3116	
499.00 > 99.00	3.565	3.575	-0.010	1.000	3643652		4.35(2.04-6.12)		4342	
30 Perfluorononanoic acid										
463.00 > 419.00	3.580	3.583	-0.003	1.002	170954	0.0752	Target=5.35		51.5	
463.00 > 169.00	3.572	3.583	-0.011	1.000	30720		5.56(2.68-8.03)		20.6	
D 33 13C8 FOSA										
506.00 > 78.00	3.924	3.917	0.007	1.229	2600573	2.45		98.0	2462	
D 36 13C2 PFDA										
515.00 > 470.00	3.933	3.926	0.007	1.232	5938168	2.55		102	6077	
34 Perfluorooctanesulfonamide										
498.00 > 78.00	3.924	3.928	-0.004	1.000	17143	0.005658			7.2	
38 Perfluorodecanoic acid										
513.00 > 469.00	3.933	3.946	-0.013	1.000	72202	0.0272	Target=14.23		34.1	R
513.00 > 169.00	3.942	3.946	-0.004	1.002	3028		23.84(7.12-21.35)		4.7	R
D 44 13C2 PFUnA										
565.00 > 520.00	4.248	4.249	-0.001	1.330	4723199	2.35		93.8	2833	
43 Perfluoroundecanoic acid										
563.00 > 519.00	4.248	4.260	-0.012	1.000	13741	0.008505	Target=10.48		9.3	M
563.00 > 169.00	4.239	4.260	-0.021	0.998	1539		8.93(5.24-15.72)		5.6	M
D 49 13C2 PFDaA										
615.00 > 570.00	4.539	4.533	0.006	1.422	5615089	2.33		93.2	3929	
50 Perfluorododecanoic acid										
613.00 > 569.00	4.531	4.550	-0.019	0.998	7847	0.003483	Target=9.37		6.4	
613.00 > 169.00	4.531	4.550	-0.019	0.998	865		9.07(4.68-14.05)		4.2	
54 Perfluorotridecanoic acid										
663.00 > 619.00	4.800	4.811	-0.011	1.057	6113	0.003301	Target=6.18		8.2	
663.00 > 169.00	4.808	4.811	-0.003	1.059	772		7.92(3.09-9.27)		6.9	
D 55 13C2 PFTeDA										
715.00 > 670.00	5.045	5.041	0.004	1.580	4461672	2.32		92.9	3811	
56 Perfluorotetradecanoic acid										
713.00 > 169.00	5.053	5.050	0.003	1.002	1875	0.005737	Target=1.39		25.7	
713.00 > 219.00	5.036	5.050	-0.014	0.998	1667		1.12(0.70-2.09)		24.9	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\chromna\Sacramento\ChromData\A9\20181213-69138.b\2018.12.13LLAA_049.d

Injection Date: 13-Dec-2018 15:22:20

Instrument ID: A9

Lims ID: 320-45943-A-1-A

Lab Sample ID: 320-45943-1

Client ID: TP-PFC-037-TPI

Operator ID: A9\Administrator

ALS Bottle#: 36

Worklist Smp#: 15

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

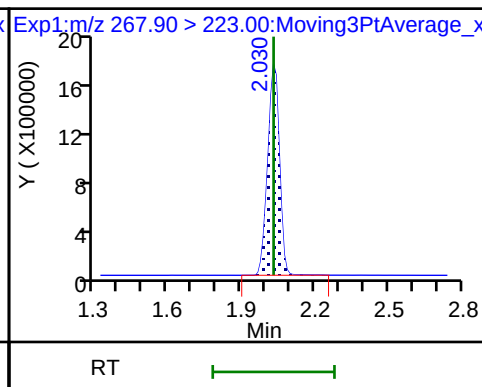
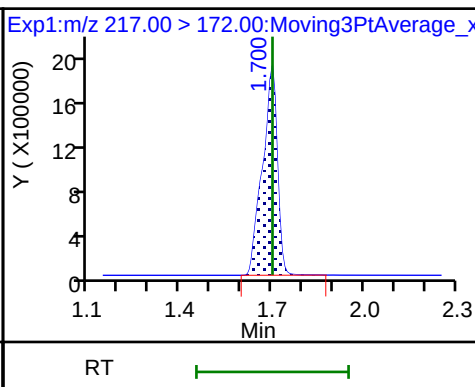
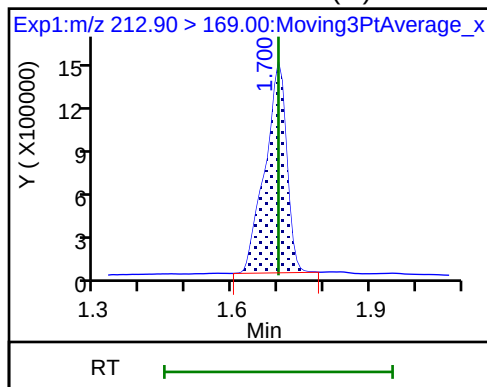
Method: PFAS_A9

Limit Group: LC PFC_QSM5-1 ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

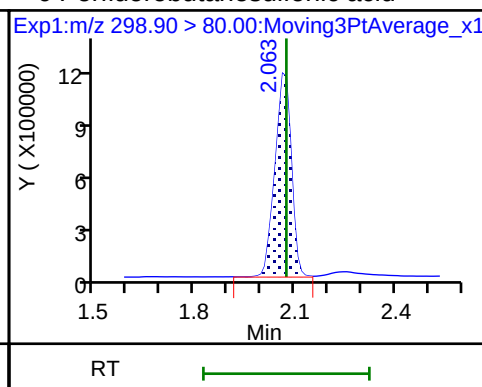
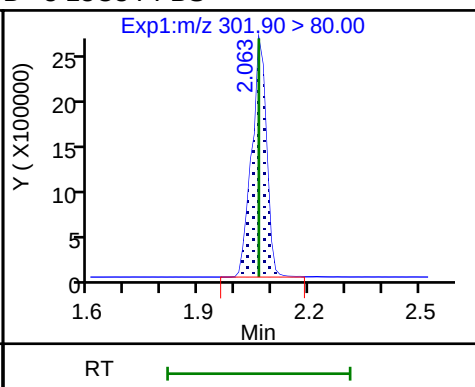
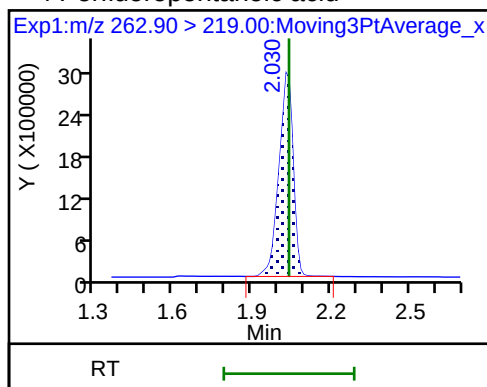
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 5 13C3 PFBS

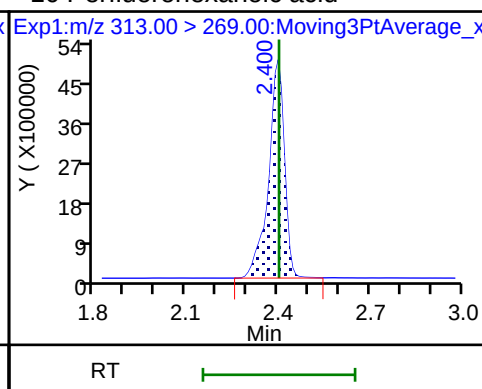
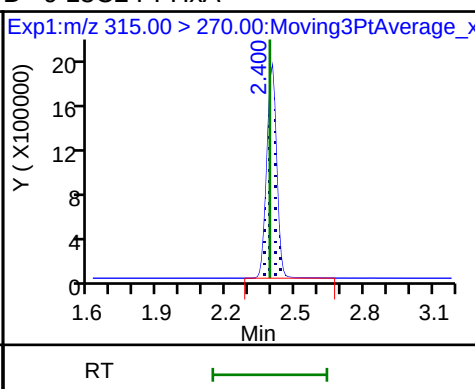
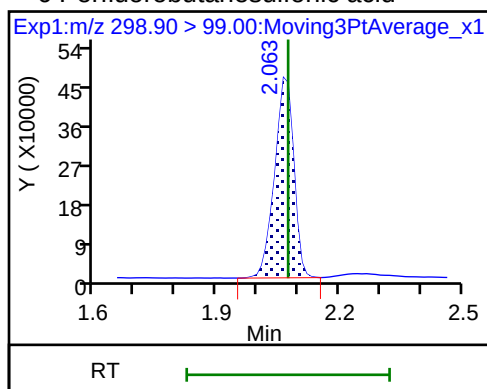
6 Perfluorobutanesulfonic acid



6 Perfluorobutanesulfonic acid

D 9 13C2 PFHxA

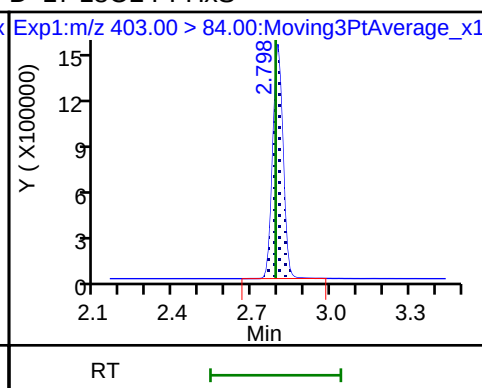
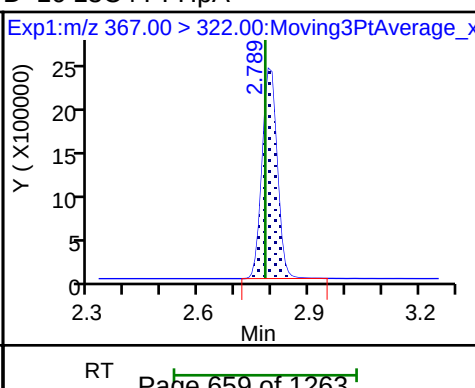
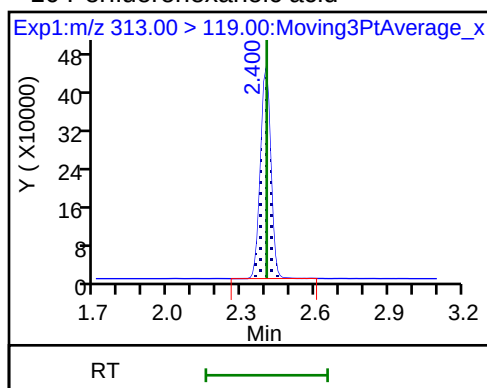
10 Perfluorohexanoic acid

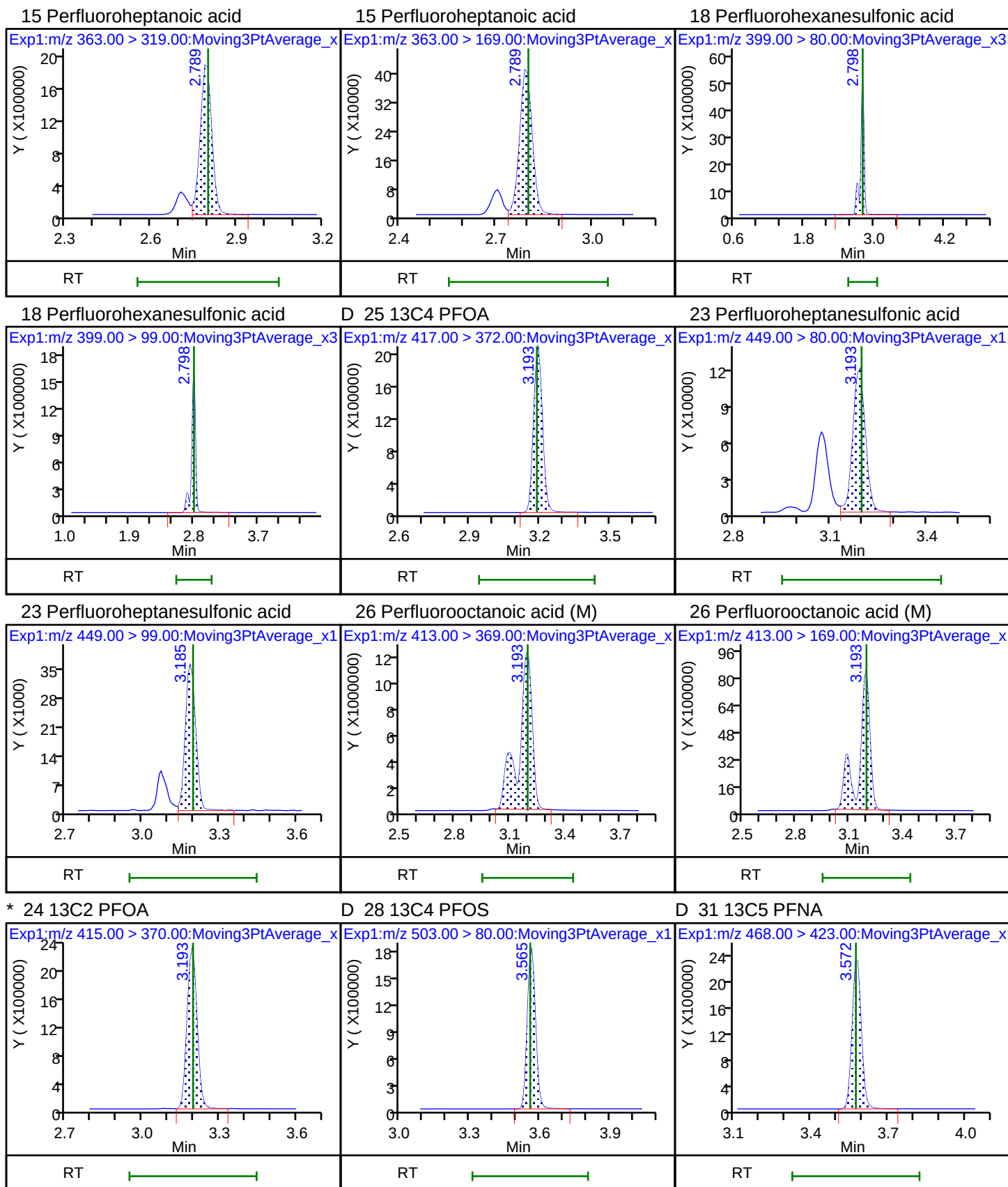


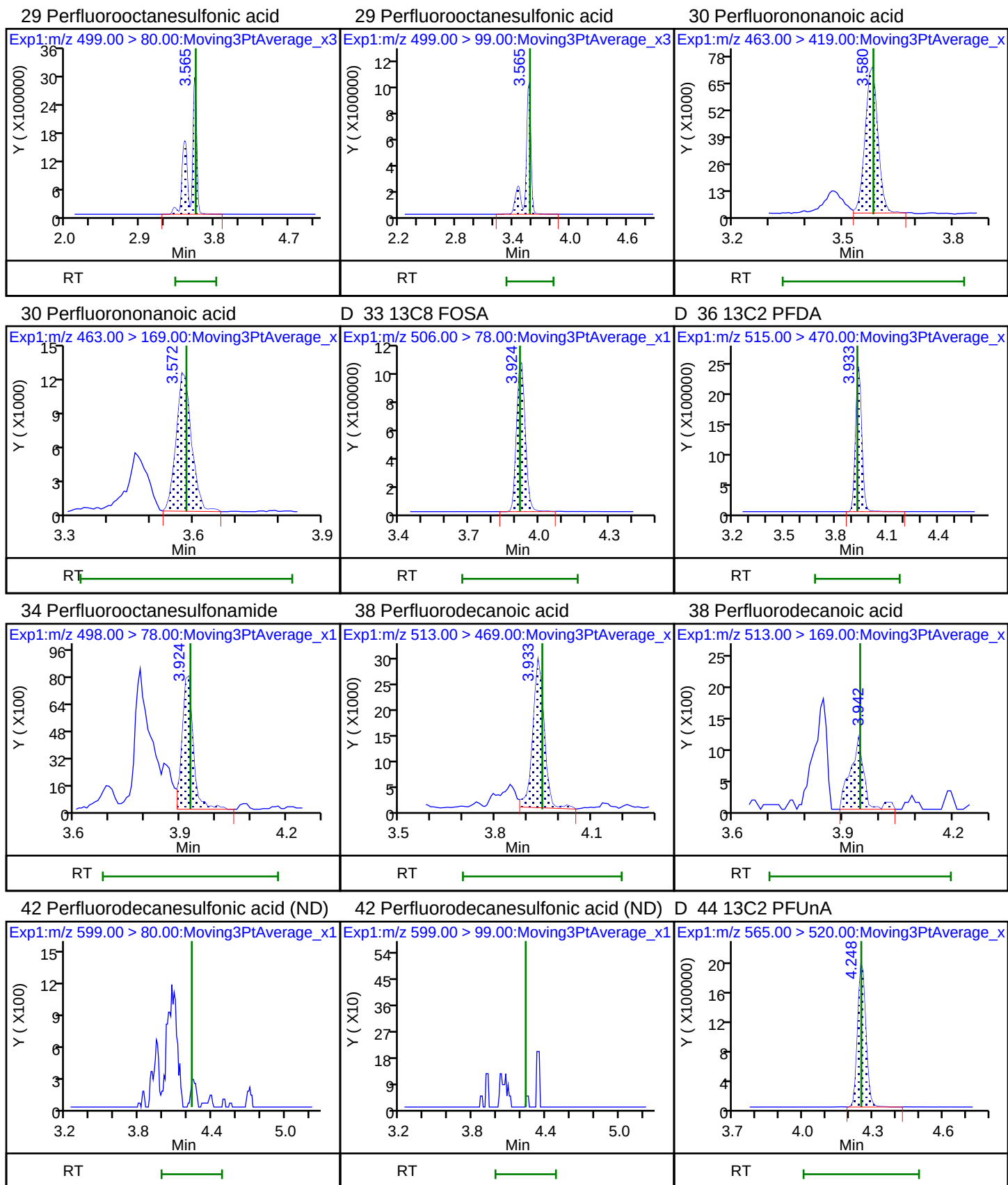
10 Perfluorohexanoic acid

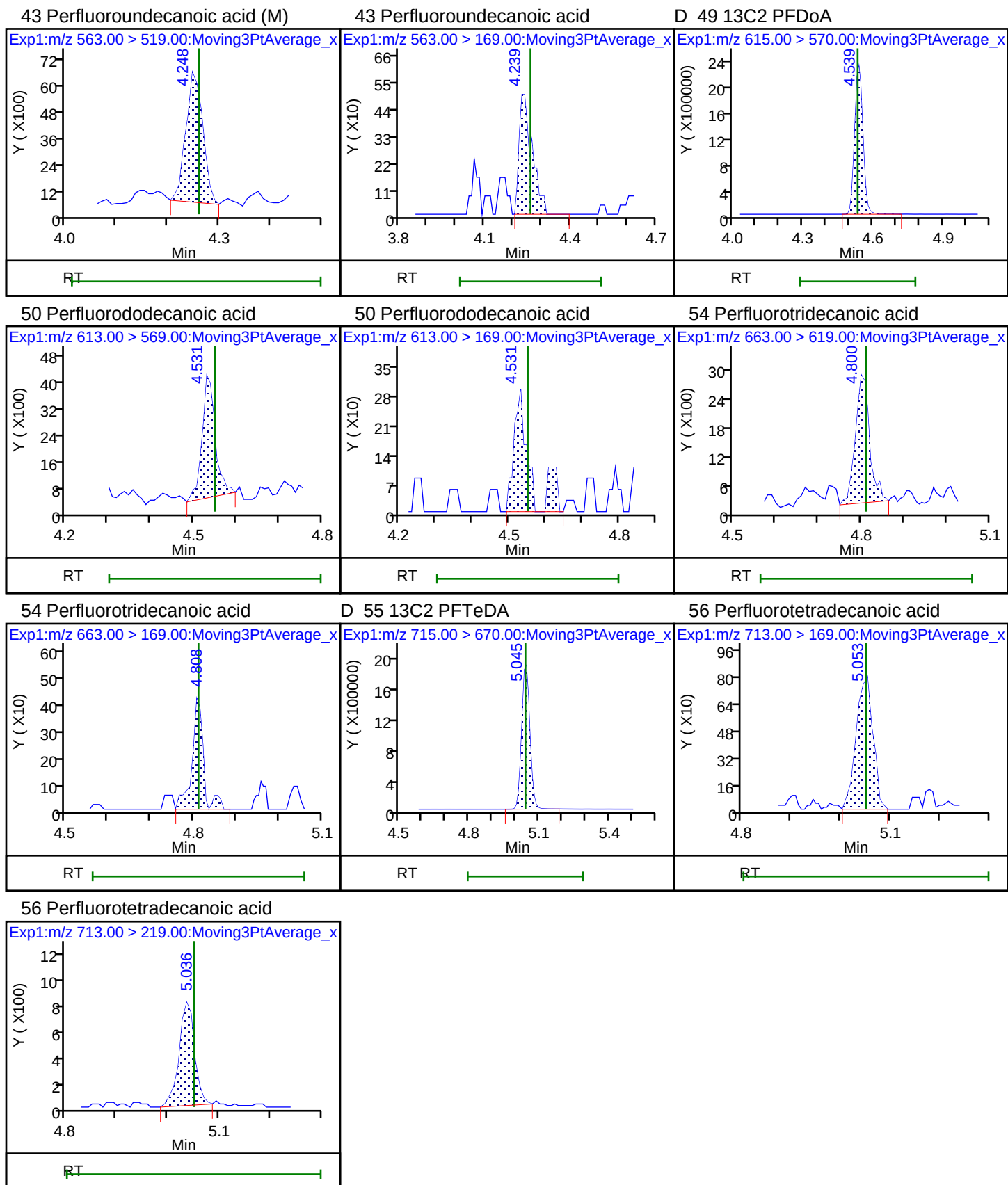
D 16 13C4 PFHpA

D 17 18O2 PFHxS









TestAmerica Sacramento

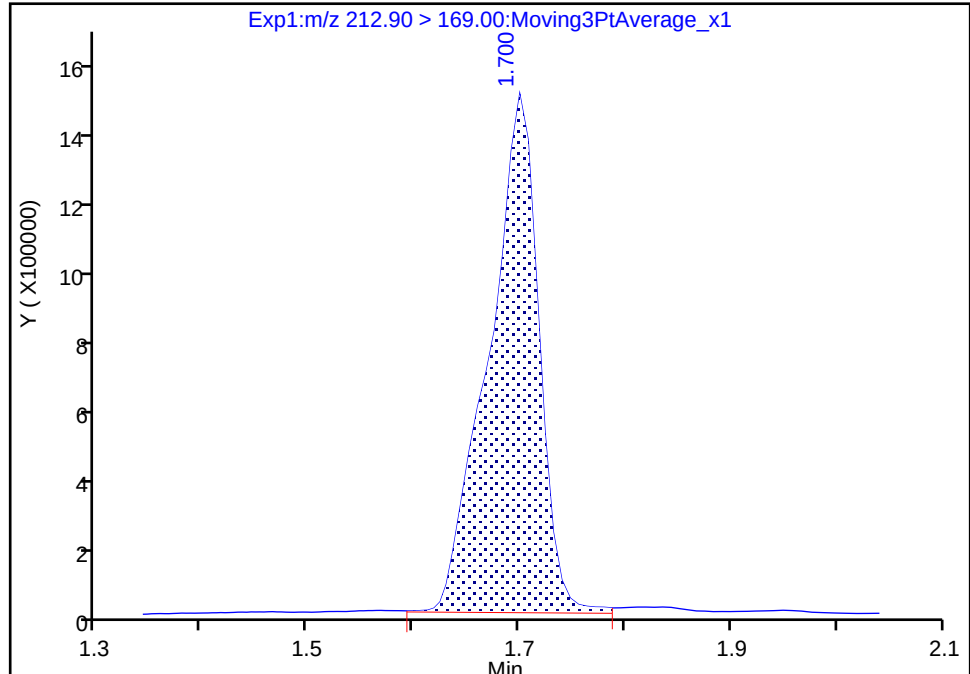
Data File:	\\chromna\Sacramento\ChromData\A9\20181213-69138.b\2018.12.13LLAA_049.d				
Injection Date:	13-Dec-2018 15:22:20	Instrument ID:	A9		
Lims ID:	320-45943-A-1-A	Lab Sample ID:	320-45943-1		
Client ID:	TP-PFC-037-TPI				
Operator ID:	A9\Administrator	ALS Bottle#:	36	Worklist Smp#:	15
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFAS_A9	Limit Group:	LC PFC_QSM5-1 ICAL		
Column:		Detector:	EXP1		

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

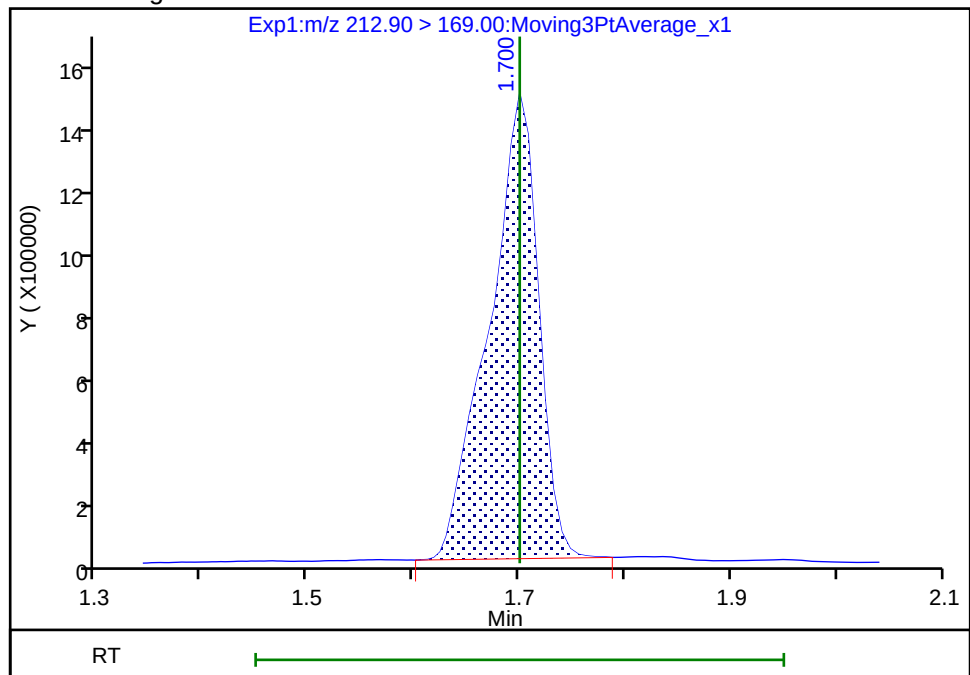
RT: 1.70
Area: 4691593
Amount: 1.915620
Amount Units: ng/ml

Processing Integration Results



RT: 1.70
Area: 4590674
Amount: 1.874414
Amount Units: ng/ml

Manual Integration Results



Reviewer: ruangyotsakul, 22-Dec-2018 10:25:02

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

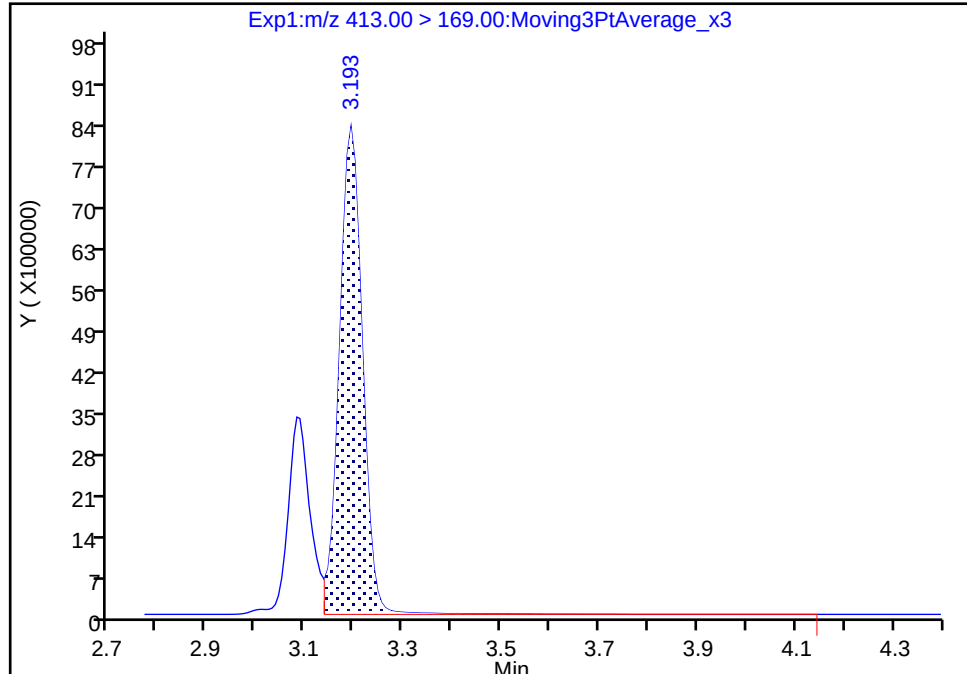
Data File:	\\chromna\Sacramento\ChromData\A9\20181213-69138.b\2018.12.13LLAA_049.d				
Injection Date:	13-Dec-2018 15:22:20	Instrument ID:	A9		
Lims ID:	320-45943-A-1-A	Lab Sample ID:	320-45943-1		
Client ID:	TP-PFC-037-TPI				
Operator ID:	A9\Administrator	ALS Bottle#:	36	Worklist Smp#:	15
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFAS_A9	Limit Group:	LC PFC_QSM5-1 ICAL		
Column:		Detector	EXP1		

26 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

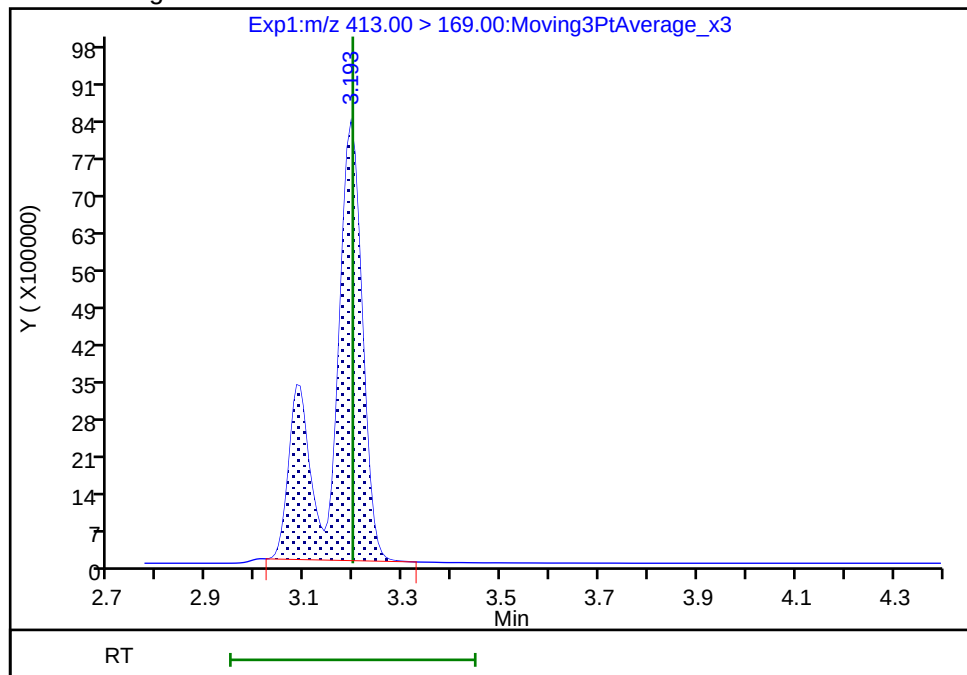
RT: 3.19
Area: 27102550
Amount: 20.418199
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 36302124
Amount: 26.933176
Amount Units: ng/ml

Manual Integration Results



Reviewer: ruangyotsakul, 22-Dec-2018 10:25:28

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

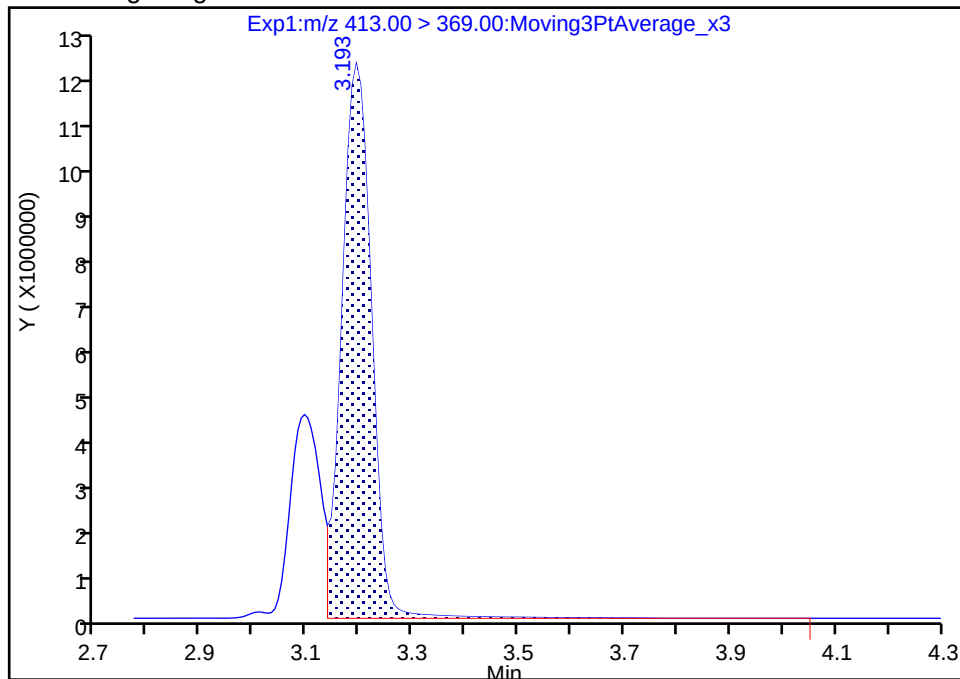
Data File: \\chromna\Sacramento\ChromData\A9\20181213-69138.b\2018.12.13LLAA_049.d
Injection Date: 13-Dec-2018 15:22:20 Instrument ID: A9
Lims ID: 320-45943-A-1-A Lab Sample ID: 320-45943-1
Client ID: TP-PFC-037-TPI
Operator ID: A9\Administrator ALS Bottle#: 36 Worklist Smp#: 15
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFAS_A9 Limit Group: LC PFC_QSM5-1 ICAL
Column: Detector EXP1

26 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

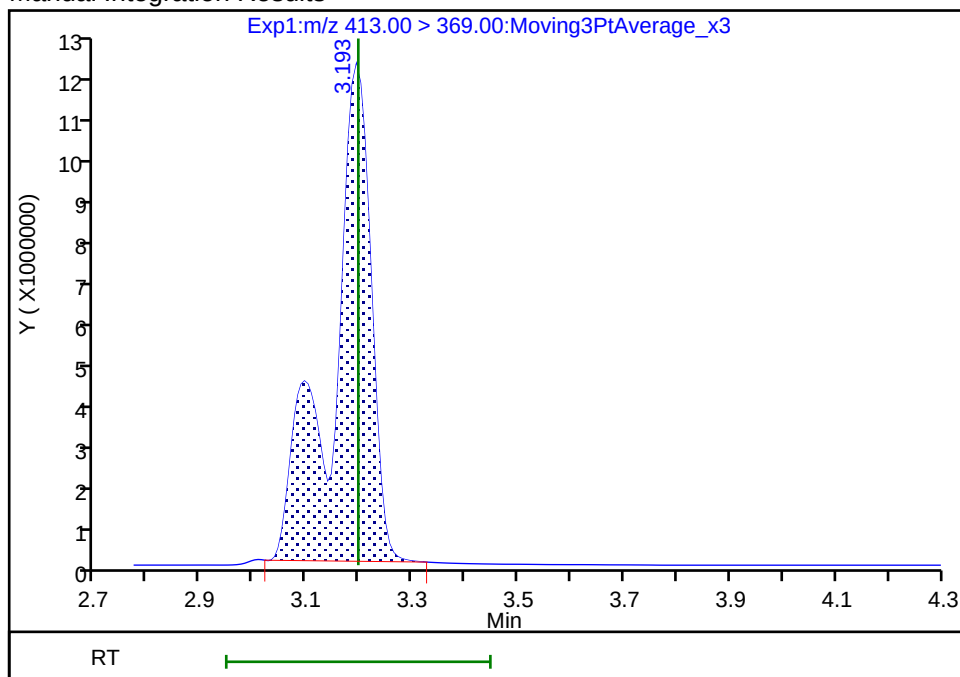
RT: 3.19
Area: 45409247
Amount: 20.418199
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 59898292
Amount: 26.933176
Amount Units: ng/ml

Manual Integration Results



Reviewer: ruangyotsakuld, 22-Dec-2018 10:25:32

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

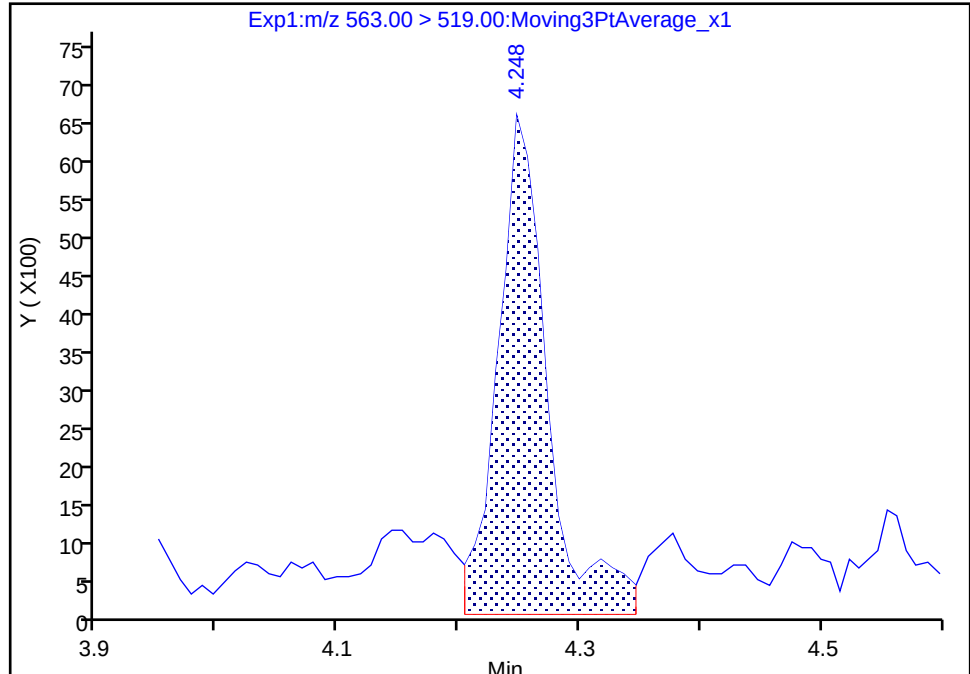
Data File:	\\chromna\Sacramento\ChromData\A9\20181213-69138.b\2018.12.13LLAA_049.d				
Injection Date:	13-Dec-2018 15:22:20	Instrument ID:	A9		
Lims ID:	320-45943-A-1-A	Lab Sample ID:	320-45943-1		
Client ID:	TP-PFC-037-TPI				
Operator ID:	A9\Administrator	ALS Bottle#:	36	Worklist Smp#:	15
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFAS_A9	Limit Group:	LC PFC_QSM5-1 ICAL		
Column:		Detector	EXP1		

43 Perfluoroundecanoic acid, CAS: 2058-94-8

Signal: 1

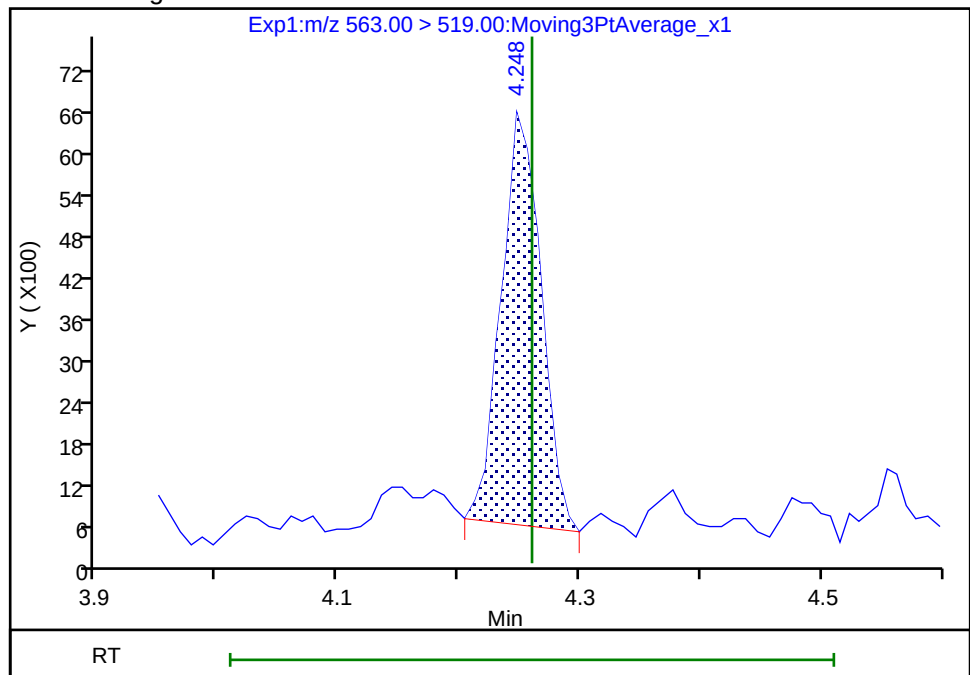
RT: 4.25
Area: 18514
Amount: 0.011459
Amount Units: ng/ml

Processing Integration Results



RT: 4.25
Area: 13741
Amount: 0.008505
Amount Units: ng/ml

Manual Integration Results



Reviewer: ruangyotsakul, 22-Dec-2018 10:25:47

Audit Action: Manually Integrated

Audit Reason: Baseline

Job Narrative
320-45943-1

Receipt

The samples were received on 12/7/2018 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9° C.

LCMS

Method(s) EPA 537 (Mod), EPA 537(Mod): The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

Method(s) EPA 537 (Mod): Results for samples TP-PFC-037-TPI (320-45943-1) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were outside acceptance limits. The internal standard response was in control in the undiluted analysis and both sets of data were reported. The internal standard is not used to quantitate target analytes; therefore, there is no impact to the data.

Method(s) EPA 537 (Mod): The concentration of Perfluorooctanoic acid (PFOA) and Perfluorohexanesulfonic acid (PFHxS) associated with the following samples exceeded the instrument calibration range: TP-PFC-037-TPI (320-45943-1). These analytes have been qualified; however, the peaks did not saturate the instrument detector. The samples were diluted within calibration range, and both sets of data were reported.

Method(s) EPA 537 (Mod): The method blank for preparation batch 320-264674 and analytical batch 320-265099 contained Perfluorobutanoic acid (PFBA) above half the reporting limit (RL). The following sample was not re-extracted because results were greater than 10X the value found in the method blank: TP-PFC-037-TPI (320-45943-1), (MB 320-264674/1-A) and (320-45945-A-1-A).

Method(s) EPA 537 (Mod): The method blank for preparation batch 320-264674 and analytical batch 320-265099 contained Perfluorobutanoic acid (PFBA) above half the reporting limit (RL). The following samples were re-extracted outside of the holding time: TP-PFC-037-MID-CARBON (320-45943-2), TP-PFC-037-TPE (320-45943-3), TP-PFC-037-TPE-D (320-45943-4) and (MB 320-264674/1-A). Both sets of data were reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-267590.

Method(s) 3535: The following samples were re-prepared outside of preparation holding time due to MB contamination for PFBA: TP-PFC-037-MID-CARBON (320-45943-2), TP-PFC-037-TPE (320-45943-3) and TP-PFC-037-TPE-D (320-45943-4).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-45943-1

Qualifiers

LCMS

Qualifier	Qualifier Description
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
E	Result exceeded calibration range.
D	The reported value is from a dilution.
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-45943-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-45943-1	TP-PFC-037-TPI	Water	12/06/18 09:10	12/07/18 09:15
320-45943-2	TP-PFC-037-MID-CARBON	Water	12/06/18 09:15	12/07/18 09:15
320-45943-3	TP-PFC-037-TPE	Water	12/06/18 09:20	12/07/18 09:15
320-45943-4	TP-PFC-037-TPE-D	Water	12/06/18 00:00	12/07/18 09:15

Method Summary

Client: Tetra Tech, Inc.
Project/Site: TT: PFAS, Brunswick, Discharge

TestAmerica Job ID: 320-45943-1

Method	Method Description	Protocol	Laboratory
EPA 537 (Mod)	PFAS for QSM 5.1, Table B-15	DOD 5.1	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

DOD 5.1 = Department of Defense Quality Systems Manual V5.1

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-45943-1

SDG No.: _____

Matrix: Water

Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #
TP-PFC-037-MID-CAR BON RE	320-45943-2 RE	89
TP-PFC-037-TPE RE	320-45943-3 RE	81
TP-PFC-037-TPE-D RE	320-45943-4 RE	85
	MB 320-267590/1-A	90
	LCS 320-267590/2-A	89
	LCSD 320-267590/3-A	82

PFBA = 13C4 PFBA

QC LIMITS
50-150

Column to be used to flag recovery values

FORM II EPA 537 (Mod)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): Acquity ID: 2.1 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	PFOA #	PFOS #
TP-PFC-037-TPI	320-45943-1	109	112	110	102	104	100	90	112
TP-PFC-037-TPI DL	320-45943-1 DL	80	86	83	86	87	81	85	86
TP-PFC-037-MID-CAR BON	320-45943-2	91	99	90	90	89	94	89	102
TP-PFC-037-TPE	320-45943-3	92	98	97	98	94	94	93	102
TP-PFC-037-TPE-D	320-45943-4	83	97	91	95	93	92	91	99
	MB 320-264674/1-A	89	95	90	94	93	88	89	93
	LCS 320-264674/2-A	90	96	90	94	92	92	94	107

	<u>QC LIMITS</u>
PFBA = 13C4 PFBA	50-150
PFPeA = 13C5 PFPeA	50-150
PFBS = 13C3 PFBS	50-150
PFHxA = 13C2 PFHxA	50-150
PFHxS = 18O2 PFHxS	50-150
PFHpA = 13C4 PFHpA	50-150
PFOA = 13C4 PFOA	50-150
PFOS = 13C4 PFOS	50-150

Column to be used to flag recovery values

FORM II EPA 537 (Mod)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): Acquity ID: 2.1 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOSA #	PFDA #	PFUnA #	PFDoA #	PFTDA #
TP-PFC-037-TPI	320-45943-1	101	98	102	94	93	93
TP-PFC-037-TPI DL	320-45943-1 DL	87	76	92	86	86	73
TP-PFC-037-MID-CAR BON	320-45943-2	93	88	92	91	84	80
TP-PFC-037-TPE	320-45943-3	94	94	93	88	86	85
TP-PFC-037-TPE-D	320-45943-4	92	92	91	86	85	81
	MB 320-264674/1-A	92	87	90	87	83	80
	LCS 320-264674/2-A	99	91	96	95	93	88

	<u>QC LIMITS</u>
PFNA = 13C5 PFNA	50-150
PFOSA = 13C8 FOSA	50-150
PFDA = 13C2 PFDA	50-150
PFUnA = 13C2 PFUnA	50-150
PFDoA = 13C2 PFDoA	50-150
PFTDA = 13C2 PFTeDA	50-150

Column to be used to flag recovery values

FORM II EPA 537 (Mod)

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Sample No.: IC 320-263888/5 Date Analyzed: 12/08/2018 05:39
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.12.07ICAL_008. Heated Purge: (Y/N) N
 Calibration ID: 42666

	13PFOA					
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	4919904	3.19				
UPPER LIMIT	7379856	3.39				
LOWER LIMIT	2459952	2.99				
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICB 320-263888/9		5105758	3.18			
ICV 320-263888/10		5075507	3.19			
CCV 320-267787/3 CCVIS		5841641	3.21			

13PFOA = 13C2 PFOA

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Sample No.: CCV 320-267787/3 Date Analyzed: 12/27/2018 17:53
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.12.27LLBB_006. Heated Purge: (Y/N) N
 Calibration ID: 42666

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		5841641	3.21				
UPPER LIMIT		8762462	3.41				
LOWER LIMIT		2920821	3.01				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCB 320-267787/1		5562550	3.22				
CCVL 320-267787/2		5555010	3.22				
CCV 320-267814/1		5540867	3.21				
MB 320-267590/1-A		5528905	3.21				
LCS 320-267590/2-A		5746987	3.21				
LCSD 320-267590/3-A		5454092	3.21				
320-45943-2 RE	TP-PFC-037-MID-CARBON RE	5512732	3.21				
320-45943-3 RE	TP-PFC-037-TPE RE	5652053	3.21				
320-45943-4 RE	TP-PFC-037-TPE-D RE	5511328	3.21				
CCV 320-267814/8		5223279	3.22				

13PFOA = 13C2 PFOA

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Sample No.: IC 320-263574/5 Date Analyzed: 12/07/2018 03:33
 Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 2018.12.06ICALB_005 Heated Purge: (Y/N) N
 Calibration ID: 42635

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		8929377	3.17				
UPPER LIMIT		13394066	3.37				
LOWER LIMIT		4464689	2.97				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 320-263574/9		8918812	3.17				
ICV 320-263574/10		6852780	3.17				
CCV 320-265099/3 CCVIS		7525257	3.19				
CCV 320-267151/3 CCVIS		6916277	3.26				

13PFOA = 13C2 PFOA

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Sample No.: CCV 320-265099/3 Date Analyzed: 12/13/2018 11:44
 Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 2018.12.13LLAA_020. Heated Purge: (Y/N) N
 Calibration ID: 42635

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		7525257	3.19				
UPPER LIMIT		11287886	3.39				
LOWER LIMIT		3762629	2.99				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCB 320-265099/1		7414508	3.18				
CCVL 320-265099/2		7327805	3.19				
MB 320-264674/1-A		8197410	3.19				
CCV 320-265099/14		7840261	3.20				
320-45943-1	TP-PFC-037-TPI	6070143	3.19				
320-45943-3	TP-PFC-037-TPE	8075682	3.20				
320-45943-4	TP-PFC-037-TPE-D	8342863	3.20				
CCV 320-265099/20		7552946	3.20				

13PFOA = 13C2 PFOA

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Sample No.: CCV 320-267151/3 Date Analyzed: 12/24/2018 11:50
 Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 2018.12.24LLAA_006. Heated Purge: (Y/N) N
 Calibration ID: 42635

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		6916277	3.26				
UPPER LIMIT		10374416	3.46				
LOWER LIMIT		3458139	3.06				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCB 320-267151/1		7166801	3.27				
CCVL 320-267151/2		6928949	3.25				
LCS 320-264674/2-A		7181008	3.26				
320-45943-2	TP-PFC-037-MID-CARBON	7023137	3.25				
320-45943-1 DL	TP-PFC-037-TPI DL	1334471Q	3.26				
CCV 320-267151/10		5861457	3.24				

13PFOA = 13C2 PFOA

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab File ID: 2018.12.13LLAA_038.d Lab Sample ID: MB 320-264674/1-A
 Matrix: Water Date Extracted: 12/12/2018 07:32
 Instrument ID: A9 Date Analyzed: 12/13/2018 13:59
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
TP-PFC-037-TPI	320-45943-1	2018.12.13L LAA 049.d	12/13/2018 15:22
TP-PFC-037-TPE	320-45943-3	2018.12.13L LAA 051.d	12/13/2018 15:37
TP-PFC-037-TPE-D	320-45943-4	2018.12.13L LAA 052.d	12/13/2018 15:44
	LCS 320-264674/2-A	2018.12.24L LAA 008.d	12/24/2018 12:05
TP-PFC-037-MID-CARBON	320-45943-2	2018.12.24L LAA 010.d	12/24/2018 12:20
TP-PFC-037-TPI DL	320-45943-1 DL	2018.12.24L LAA 012.d	12/24/2018 12:35

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: _____	Lab Sample ID: <u>MB 320-264674/1-A</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.13LLAA_038.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: _____
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>250.00 (mL)</u>	Date Analyzed: <u>12/13/2018 13:59</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>265099</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.43	J	2.0	1.5	0.59
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.0	U	2.0	1.0	0.43
307-24-4	Perfluorohexanoic acid (PFHxA)	1.0	U	2.0	1.0	0.47
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.5	U	2.0	1.5	0.61
335-67-1	Perfluorooctanoic acid (PFOA)	0.729	J M	2.0	1.5	0.54
375-95-1	Perfluorononanoic acid (PFNA)	1.5	U	2.0	1.5	0.52
335-76-2	Perfluorodecanoic acid (PFDA)	1.0	U	2.0	1.0	0.48
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.5	U	2.0	1.5	0.72
307-55-1	Perfluorododecanoic acid (PFDoA)	1.5	U	2.0	1.5	0.52
72629-94-8	Perfluorotridecanoic acid (PFTriA)	3.0	U	4.0	3.0	0.76
376-06-7	Perfluorotetradecanoic acid (PFTeA)	3.0	U	4.0	3.0	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.0	U	2.0	1.0	0.46
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.468	J M	2.0	1.0	0.38
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	1.0	U	2.0	1.0	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.1
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.5	U	2.0	1.5	0.56
754-91-6	Perfluorooctanesulfonamide (FOSA)	3.0	U	4.0	3.0	1.3

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: _____	Lab Sample ID: <u>MB 320-264674/1-A</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.13LLAA_038.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: _____
Extraction Method: <u>3535</u>	Date Extracted: <u>12/12/2018 07:32</u>
Sample wt/vol: <u>250.00 (mL)</u>	Date Analyzed: <u>12/13/2018 13:59</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>265099</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	87		50-150
STL00992	13C4 PFBA	89		50-150
STL01893	13C5 PFPeA	95		50-150
STL00993	13C2 PFHxA	94		50-150
STL01892	13C4 PFHpA	93		50-150
STL00990	13C4 PFOA	89		50-150
STL00995	13C5 PFNA	92		50-150
STL00996	13C2 PFDA	90		50-150
STL00997	13C2 PFUnA	87		50-150
STL00998	13C2 PFDoA	83		50-150
STL00994	18O2 PFHxS	88		50-150
STL02116	13C2 PFTeDA	80		50-150
STL00991	13C4 PFOS	93		50-150
STL02337	13C3 PFBS	90		50-150

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.12.24LLAA_008.d
 Lab ID: LCS 320-264674/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	41.1	103	83-118	
Perfluoropentanoic acid (PFPeA)	40.0	38.2	95	83-108	
Perfluorohexanoic acid (PFHxA)	40.0	38.8	97	83-109	
Perfluoroheptanoic acid (PFHpA)	40.0	40.0	100	80-113	
Perfluorooctanoic acid (PFOA)	40.0	42.8	107	80-107	M
Perfluorononanoic acid (PFNA)	40.0	37.3	93	83-113	
Perfluorodecanoic acid (PFDA)	40.0	41.8	104	85-113	
Perfluoroundecanoic acid (PFUnA)	40.0	38.5	96	76-105	
Perfluorododecanoic acid (PFDoA)	40.0	36.9	92	87-116	
Perfluorotridecanoic acid (PFTriA)	40.0	40.3	101	75-129	
Perfluorotetradecanoic acid (PFTeA)	40.0	34.2	85	82-115	
Perfluorobutanesulfonic acid (PFBS)	35.4	35.3	100	87-120	
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.1	96	81-106	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	33.7	88	80-117	
Perfluorooctanesulfonic acid (PFOS)	37.1	34.0	91	82-112	
Perfluorodecanesulfonic acid (PFDS)	38.6	40.4	105	81-114	
Perfluorooctanesulfonamide (FOSA)	40.0	45.4	113	85-114	M
13C8 FOSA	100	91.1	91	50-150	
13C4 PFBA	100	89.5	90	50-150	
13C5 PFPeA	100	95.9	96	50-150	
13C2 PFHxA	100	94.5	94	50-150	
13C4 PFHpA	100	91.8	92	50-150	
13C4 PFOA	100	93.6	94	50-150	
13C5 PFNA	100	98.7	99	50-150	
13C2 PFDA	100	96.4	96	50-150	
13C2 PFUnA	100	95.2	95	50-150	
13C2 PFDoA	100	92.8	93	50-150	
18O2 PFHxS	94.6	86.6	92	50-150	
13C2 PFTeDA	100	88.2	88	50-150	
13C4 PFOS	95.6	102	107	50-150	
13C3 PFBS	93.0	84.0	90	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: 2018.12.27LLBB_070.d
Lab ID: LCS 320-267590/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	37.8	94	83-118	
13C4 PFBA	100	88.9	89	50-150	

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab File ID: 2018.12.27LLBB_069.d Lab Sample ID: MB 320-267590/1-A
 Matrix: Water Date Extracted: 12/27/2018 07:47
 Instrument ID: A8_N Date Analyzed: 12/28/2018 02:00
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-267590/2-A	2018.12.27L LBB 070.d	12/28/2018 02:07
	LCSD 320-267590/3-A	2018.12.27L LBB 071.d	12/28/2018 02:15
TP-PFC-037-MID-CARBON RE	320-45943-2 RE	2018.12.27L LBB 072.d	12/28/2018 02:22
TP-PFC-037-TPE RE	320-45943-3 RE	2018.12.27L LBB 073.d	12/28/2018 02:30
TP-PFC-037-TPE-D RE	320-45943-4 RE	2018.12.27L LBB 074.d	12/28/2018 02:37

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-267590/1-A
 Matrix: Water Lab File ID: 2018.12.27LLBB_069.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 12/27/2018 07:47
 Sample wt/vol: 250.00 (mL) Date Analyzed: 12/28/2018 02:00
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 20 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 267814 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	1.5	U	2.0	1.5	0.59

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	90		50-150

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: 2018.12.27LLBB_070.d
Lab ID: LCS 320-267590/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	37.8	94	83-118	
13C4 PFBA	100	88.9	89	50-150	

Column to be used to flag recovery and RPD values
FORM III EPA 537 (Mod)

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: 2018.12.27LLBB_071.d
Lab ID: LCSD 320-267590/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorobutanoic acid (PFBA)	40.0	37.0	93	2	30	83-118	
13C4 PFBA	100	82.4	82			50-150	

Column to be used to flag recovery and RPD values
FORM III EPA 537 (Mod)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Instrument ID: A8_N Start Date: 12/08/2018 05:16Analysis Batch Number: 263888 End Date: 12/08/2018 06:16

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-263888/2		12/08/2018 05:16	1	2018.12.07ICAL_ 005.d	GeminiC18 3x100 3(mm)
IC 320-263888/3		12/08/2018 05:24	1	2018.12.07ICAL_ 006.d	GeminiC18 3x100 3(mm)
IC 320-263888/4		12/08/2018 05:31	1	2018.12.07ICAL_ 007.d	GeminiC18 3x100 3(mm)
IC 320-263888/5 ICIS		12/08/2018 05:39	1	2018.12.07ICAL_ 008.d	GeminiC18 3x100 3(mm)
IC 320-263888/6		12/08/2018 05:46	1	2018.12.07ICAL_ 009.d	GeminiC18 3x100 3(mm)
IC 320-263888/7		12/08/2018 05:54	1	2018.12.07ICAL_ 010.d	GeminiC18 3x100 3(mm)
IC 320-263888/8		12/08/2018 06:01	1	2018.12.07ICAL_ 011.d	GeminiC18 3x100 3(mm)
ICB 320-263888/9		12/08/2018 06:09	1	2018.12.07ICAL_ 012.d	GeminiC18 3x100 3(mm)
ICV 320-263888/10		12/08/2018 06:16	1	2018.12.07ICAL_ 013.d	GeminiC18 3x100 3(mm)

PFBA ONLY

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263888

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/08/2018 05:16 Calibration End Date: 12/08/2018 06:01 Calibration ID: 42666

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263888/2	2018.12.07ICAL_005.d
Level 2	IC 320-263888/3	2018.12.07ICAL_006.d
Level 3	IC 320-263888/4	2018.12.07ICAL_007.d
Level 4	IC 320-263888/5	2018.12.07ICAL_008.d
Level 5	IC 320-263888/6	2018.12.07ICAL_009.d
Level 6	IC 320-263888/7	2018.12.07ICAL_010.d
Level 7	IC 320-263888/8	2018.12.07ICAL_011.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	0.8738 0.9428	0.8977 0.8815	0.9256	0.9333	0.9382	AveID		0.9132				3.1		20.0			
Perfluoropentanoic acid (PFPeA)	1.1564 1.0622	1.1741 1.0853	1.0226	1.0800	1.0870	AveID		1.0954				4.8		20.0			
Perfluorobutanesulfonic acid (PFBS)	1.0406 0.9780	0.9901 0.8804	0.9700	1.0004	1.0523	AveID		0.9874				5.7		20.0			
4:2 FTS	0.1760 0.1999	0.1931 0.1819	0.1970	0.1822	0.1947	AveID		0.1892				4.8		20.0			
Perfluorohexanoic acid (PFHxA)	1.0819 1.0096	1.0277 0.9896	0.9786	0.9590	1.0385	AveID		1.0121				4.1		20.0			
Perfluoropentanesulfonic acid	0.8686 0.8582	0.8543 0.7615	0.8837	0.8939	0.9299	AveID		0.8643				6.0		20.0			
Perfluoroheptanoic acid (PFHpA)	1.1228 1.0842	1.4212 1.0406	1.0823	1.1103	1.0381	AveID		1.1285				11.8		20.0			
Perfluorohexanesulfonic acid (PFHxS)	1.2214 1.0554	1.1343 0.9858	0.9947	1.0048	1.0388	AveID		1.0622				8.1		20.0			
6:2 FTS	1.5612 1.5997	1.4390 1.5545	1.6269	1.4851	1.6224	AveID		1.5556				4.6		20.0			
Perfluoroheptanesulfonic Acid (PFHpS)	1.2438 1.3014	1.2652 1.2483	1.2684	1.3448	1.3291	AveID		1.2859				3.1		20.0			
Perfluorooctanoic acid (PFOA)	1.3197 1.0523	1.1530 1.0242	1.1327	1.0877	1.0935	AveID		1.1233				8.6		20.0			
Perfluorooctanesulfonic acid (PFOS)	1.1071 1.1350	1.0794 1.1428	1.1384	1.1281	1.1129	AveID		1.1205				2.0		20.0			
Perfluorononanoic acid (PFNA)	1.2144 1.0604	1.0109 0.9992	1.0071	1.0493	1.0271	AveID		1.0526				7.1		20.0			
Perfluorononanesulfonic acid	0.6719 0.7836	0.7680 0.8276	0.8109	0.8116	0.8003	AveID		0.7820				6.7		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263888
SDG No.: _____
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
Calibration Start Date: 12/08/2018 05:16 Calibration End Date: 12/08/2018 06:01 Calibration ID: 42666

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorodecanoic acid (PFDA)	0.8639 0.9579	1.0326 1.0026	1.0074	0.9378	0.9778	AveID		0.9686				5.8		20.0			
8:2 FTS	1.3830 1.3128	1.3008 1.2724	1.3361	1.2158	1.3326	AveID		1.3076				4.1		20.0			
Perfluorooctanesulfonamide (PFOSA)	0.9004 0.9228	0.8946 0.9223	0.9511	0.9661	1.0052	AveID		0.9375				4.2		20.0			
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.8781 0.9144	0.9529 0.9907	0.9540	0.8772	0.9056	AveID		0.9247				4.6		20.0			
Perfluorodecanesulfonic acid (PFDS)	0.5741 0.6823	0.5841 0.6736	0.6262	0.6658	0.6689	AveID		0.6393				7.0		20.0			
Perfluoroundecanoic acid (PFUnA)	1.0364 0.9384	0.9140 0.8641	0.8873	0.8681	0.8880	AveID		0.9137				6.6		20.0			
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.8570 0.8534	0.9110 0.8681	0.8139	0.8334	0.8436	AveID		0.8543				3.6		20.0			
Perfluorododecanoic acid (PFDoA)	1.1801 1.0153	1.1268 1.0270	1.0535	0.9928	1.0602	AveID		1.0651				6.2		20.0			
Perfluorotridecanoic acid (PFTriA)	0.9078 1.0666	0.9763 1.0277	1.0235	1.0455	1.0372	AveID		1.0121				5.3		20.0			
Perfluorotetradecanoic acid (PFTeA)	0.2757 0.2573	0.2402 0.2521	0.2483	0.2492	0.2484	AveID		0.2530				4.4		20.0			
13C4 PFBA	1.4703 1.5185	1.4909 1.5549	1.4813	1.5445	1.4723	Ave		1.5047				2.3		20.0			
13C5 PFPeA	0.9979 1.0153	0.9563 0.9974	1.0052	0.9968	0.9412	Ave		0.9872				2.8		20.0			
13C3 PFBS	1.5192 1.5466	1.4753 1.6087	1.5172	1.5953	1.4392	Ave		1.5288				4.0		20.0			
13C2 PFHxA	0.9921 1.0259	1.0295 1.0137	1.0347	1.1059	1.0158	Ave		1.0311				3.5		20.0			
13C4 PFHpA	0.9529 0.9857	1.0218 0.9715	1.0048	1.0121	0.9786	Ave		0.9896				2.5		20.0			
18O2 PFHxS	1.2023 1.1723	1.1866 1.1726	1.2291	1.2419	1.1393	Ave		1.1920				3.0		20.0			
M2-6:2 FTS	0.1760 0.1733	0.1855 0.1805	0.1718	0.1885	0.1765	Ave		0.1789				3.5		20.0			
13C4 PFOA	0.9844 0.9779	0.9817 1.0052	0.9718	0.9889	0.9865	Ave		0.9852				1.1		20.0			
13C4 PFOS	0.8187 0.7829	0.7945 0.7742	0.7763	0.7861	0.7681	Ave		0.7858				2.1		20.0			
13C5 PFNA	0.7976 0.8136	0.8100 0.8568	0.8314	0.8296	0.7996	Ave		0.8198				2.6		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263888
SDG No.: _____
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
Calibration Start Date: 12/08/2018 05:16 Calibration End Date: 12/08/2018 06:01 Calibration ID: 42666

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
M2-8:2 FTS	0.1963 0.1998	0.1923 0.2043	0.1870	0.1983	0.1839	Ave		0.1946				3.7		20.0			
13C2 PFDA	0.7178 0.7686	0.7340 0.7325	0.7219	0.7725	0.7083	Ave		0.7365				3.4		20.0			
13C8 FOSA	1.1691 1.1922	1.1572 1.1613	1.1808	1.1958	1.1353	Ave		1.1702				1.8		20.0			
d3-NMeFOSAA	0.3880 0.4036	0.3763 0.3966	0.3634	0.4178	0.3828	Ave		0.3898				4.6		20.0			
13C2 PFAUnA	0.5718 0.5740	0.5831 0.6032	0.5999	0.5905	0.5611	Ave		0.5834				2.7		20.0			
d5-NEtFOSAA	0.4024 0.4093	0.4002 0.4074	0.4195	0.4191	0.4076	Ave		0.4094				1.8		20.0			
13C2 PFDoA	0.5935 0.5886	0.5826 0.6293	0.6206	0.6070	0.5849	Ave		0.6009				3.1		20.0			
13C2 PFTeDA	0.6745 0.7110	0.6904 0.7088	0.7151	0.6967	0.6902	Ave		0.6981				2.1		20.0			
13C2 PFHxDA	1.1695 1.2382	1.2168 1.2477	1.2559	1.2695	1.1865	Ave		1.2263				3.0		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263888

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/08/2018 05:16 Calibration End Date: 12/08/2018 06:01 Calibration ID: 42666

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263888/2	2018.12.07ICAL_005.d
Level 2	IC 320-263888/3	2018.12.07ICAL_006.d
Level 3	IC 320-263888/4	2018.12.07ICAL_007.d
Level 4	IC 320-263888/5	2018.12.07ICAL_008.d
Level 5	IC 320-263888/6	2018.12.07ICAL_009.d
Level 6	IC 320-263888/7	2018.12.07ICAL_010.d
Level 7	IC 320-263888/8	2018.12.07ICAL_011.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	63016 14118065	134242 25337129	664779	2836773	6931695	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	56606 10634903	112622 20010869	498455	2118586	5134540	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	68547 13186942	129521 23143967	630804	2776349	6718429	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	12248 2847272	26686 5052888	135338	534200	1313185	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	52650 10214491	106123 18543964	490978	2087126	5293796	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanesulfonic acid		AveID	60710 12277369	118586 21241019	609830	2632513	6300001	0.0235 4.69	0.0469 9.38	0.235	0.938	2.35
Perfluoroheptanoic acid (PFHpA)		AveID	52481 10539567	145665 18687199	527327	2211469	5098162	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	65546 11103494	122851 19445678	539488	2234673	5404770	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
6:2 FTS		AveID	12779 2591676	25382 4916435	128485	522288	1362440	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	47555 9565336	95994 17007871	454534	1980624	4877217	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorooctanoic acid (PFOA)		AveID	63790 10158282	113649 19048878	534239	2118930	5419118	0.0250 5.01	0.0501 10.0	0.250	1.00	2.50
Perfluorooctanesulfonic acid (PFOS)		AveID	41260 8132457	79827 15178857	397681	1619534	3981079	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid (PFNA)		AveID	47511 8508441	82133 15826170	405985	1713219	4121000	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorononanesulfonic acid		AveID	25905 5808111	58754 11370348	293038	1205356	2961609	0.0240 4.80	0.0480 9.60	0.240	0.960	2.40
Perfluorodecanoic acid (PFDA)		AveID	30421 7260982	76021 13575847	352629	1425656	3475850	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263888

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/08/2018 05:16 Calibration End Date: 12/08/2018 06:01 Calibration ID: 42666

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
8:2 FTS		AveID	12759 2477992	24039 4603116	116067	454602	1178186	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
Perfluorooctanesulfonamide (PFOSA)		AveID	51631 10850361	103838 19798058	544592	2273469	5727143	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)		AveID	16712 3639349	35967 7262923	168100	721364	1739614	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	22226 5078014	44878 9293520	227222	992860	2485603	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
Perfluoroundecanoic acid (PFUnA)		AveID	29065 5312027	53452 9634066	258113	1008854	2500097	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)		AveID	16917 3445041	36571 6537164	165534	687377	1725506	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorododecanoic acid (PFDoA)		AveID	34353 5893515	65846 11946248	317033	1185940	3112000	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic acid (PFTriA)		AveID	26426 6191846	57051 11953632	308014	1248800	3044284	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	9121 1804130	16635 3302713	86101	341601	860320	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PF OA	Ave	7212121 7487416	7477257 7185819	7182487	7598815	7388621	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PF OA	Ave	4894993 5006239	4796125 4609410	4874212	4904349	4723411	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3 PFBS	13PF OA	Ave	6930116 7092378	6880944 6913885	6841707	7299426	6716967	2.33 2.33	2.33 2.33	2.33	2.33	2.33
13C2 PFHxA	13PF OA	Ave	4866369 5058915	5162925 4684854	5017316	5440869	5097441	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFHpA	13PF OA	Ave	4674198 4860579	5124572 4489560	4872311	4979356	4910967	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PF OA	Ave	5578850 5468316	5629433 5126377	5637965	5780156	5408539	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2 FTS	13PF OA	Ave	820248 811783	883771 792328	791407	881057	841523	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C4 PFOA	13PF OA	Ave	4828869 4821820	4923339 4645140	4711848	4865135	4950786	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFOS	13PF OA	Ave	3839340 3690547	3809435 3420592	3598667	3697359	3685010	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PF OA	Ave	3912198 4012004	4062511 3959575	4031300	4081734	4012443	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2 FTS	13PF OA	Ave	922564 943788	924043 904430	868680	934799	884111	2.40 2.40	2.40 2.40	2.40	2.40	2.40
13C2 PFDA	13PF OA	Ave	3521168 3790048	3681074 3385143	3500314	3800614	3554606	2.50 2.50	2.50 2.50	2.50	2.50	2.50

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263888

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/08/2018 05:16 Calibration End Date: 12/08/2018 06:01 Calibration ID: 42666

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C8 FOSA	13PF OA	Ave	5734441 5878788	5803663 5366514	5725680	5883149	5697512	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	1903135 1990092	1887162 1832735	1762047	2055768	1920937	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	2804546 2830496	2924195 2787447	2908878	2905371	2815537	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	1973935 2018360	2007117 1882597	2033921	2061954	2045443	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	2911099 2902486	2921731 2908000	3009330	2986227	2935236	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFTeDA	13PF OA	Ave	3308673 3505989	3462400 3275425	3467600	3427528	3463798	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFHxDA	13PF OA	Ave	5736420 6105593	6102314 5766093	6089785	6245988	5954497	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD
AveID = Average isotope dilution

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263888

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/08/2018 05:16 Calibration End Date: 12/08/2018 06:01 Calibration ID: 42666

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263888/2	2018.12.07ICAL_005.d
Level 2	IC 320-263888/3	2018.12.07ICAL_006.d
Level 3	IC 320-263888/4	2018.12.07ICAL_007.d
Level 4	IC 320-263888/5	2018.12.07ICAL_008.d
Level 5	IC 320-263888/6	2018.12.07ICAL_009.d
Level 6	IC 320-263888/7	2018.12.07ICAL_010.d
Level 7	IC 320-263888/8	2018.12.07ICAL_011.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanoic acid (PFBA)	-4.3 -3.5	-1.7	1.3	2.2	2.7	3.2	30 30	30	30	30	30	30
Perfluoropentanoic acid (PFPeA)	5.6 -0.9	7.2	-6.6	-1.4	-0.8	-3.0	30 30	30	30	30	30	30
Perfluorobutanesulfonic acid (PFBS)	5.4 -10.8	0.3	-1.8	1.3	6.6	-0.9	30 30	30	30	30	30	30
4:2 FTS	-7.0 -3.9	2.0	4.1	-3.7	2.9	5.6	30 30	30	30	30	30	30
Perfluorohexanoic acid (PFHxA)	6.9 -2.2	1.5	-3.3	-5.2	2.6	-0.3	30 30	30	30	30	30	30
Perfluoropentanesulfonic acid	0.5 -11.9	-1.2	2.2	3.4	7.6	-0.7	30 30	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-0.5 -7.8	25.9	-4.1	-1.6	-8.0	-3.9	30 30	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	15.0 -7.2	6.8	-6.3	-5.4	-2.2	-0.6	30 30	30	30	30	30	30
6:2 FTS	0.4 -0.1	-7.5	4.6	-4.5	4.3	2.8	30 30	30	30	30	30	30
Perfluoroheptanesulfonic Acid (PFHpS)	-3.3 -2.9	-1.6	-1.4	4.6	3.4	1.2	30 30	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	17.5 -8.8	2.6	0.8	-3.2	-2.7	-6.3	30 30	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-1.2 2.0	-3.7	1.6	0.7	-0.7	1.3	30 30	30	30	30	30	30
Perfluorononanoic acid (PFNA)	15.4 -5.1	-4.0	-4.3	-0.3	-2.4	0.7	30 30	30	30	30	30	30
Perfluorononanesulfonic acid	-14.1 5.8	-1.8	3.7	3.8	2.3	0.2	30 30	30	30	30	30	30
Perfluorodecanoic acid (PFDA)	-10.8 3.5	6.6	4.0	-3.2	1.0	-1.1	30 30	30	30	30	30	30

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263888
SDG No.: _____
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N
Calibration Start Date: 12/08/2018 05:16 Calibration End Date: 12/08/2018 06:01 Calibration ID: 42666

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
8:2 FTS	5.8 -2.7	-0.5	2.2	-7.0	1.9	0.4	30 30	30	30	30	30	30
Perfluorooctanesulfonamide (PFOSA)	-4.0 -1.6	-4.6	1.5	3.0	7.2	-1.6	30 30	30	30	30	30	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	-5.0 7.1	3.1	3.2	-5.1	-2.1	-1.1	30 30	30	30	30	30	30
Perfluorodecanesulfonic acid (PFDS)	-10.2 5.4	-8.6	-2.1	4.1	4.6	6.7	30 30	30	30	30	30	30
Perfluoroundecanoic acid (PFUnA)	13.4 -5.4	0.0	-2.9	-5.0	-2.8	2.7	30 30	30	30	30	30	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.3 1.6	6.6	-4.7	-2.5	-1.3	-0.1	30 30	30	30	30	30	30
Perfluorododecanoic acid (PFDoA)	10.8 -3.6	5.8	-1.1	-6.8	-0.5	-4.7	30 30	30	30	30	30	30
Perfluorotridecanoic acid (PFTriA)	-10.3 1.5	-3.5	1.1	3.3	2.5	5.4	30 30	30	30	30	30	30
Perfluorotetradecanoic acid (PFTeA)	9.0 -0.4	-5.1	-1.9	-1.5	-1.8	1.7	30 30	30	30	30	30	30

Calibration

/ Perfluorobutanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

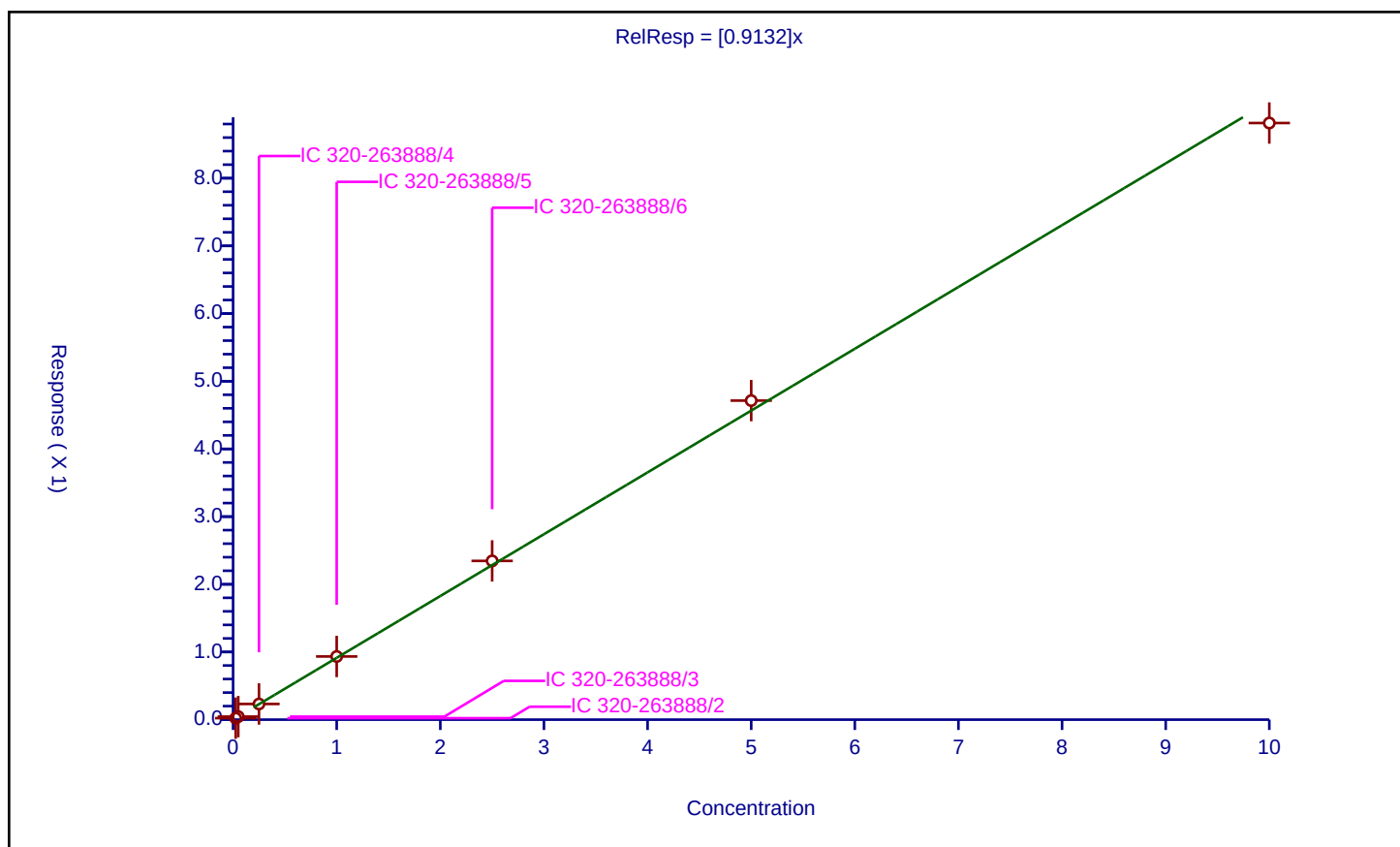
Curve Coefficients

Intercept: 0
 Slope: 0.9132

Error Coefficients

Standard Error: 12200000
 Relative Standard Error: 3.1
 Correlation Coefficient: 0.997
 Coefficient of Determination (Adjusted): 0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.021844	2.5	7212121.0	0.873751	Y
2	IC 320-263888/3	0.05	0.044883	2.5	7477257.0	0.897669	Y
3	IC 320-263888/4	0.25	0.231389	2.5	7182487.0	0.925555	Y
4	IC 320-263888/5	1.0	0.933295	2.5	7598815.0	0.933295	Y
5	IC 320-263888/6	2.5	2.345395	2.5	7388621.0	0.938158	Y
6	IC 320-263888/7	5.0	4.713931	2.5	7487416.0	0.942786	Y
7	IC 320-263888/8	10.0	8.814976	2.5	7185819.0	0.881498	Y



Calibration

/ Perfluoropentanoic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

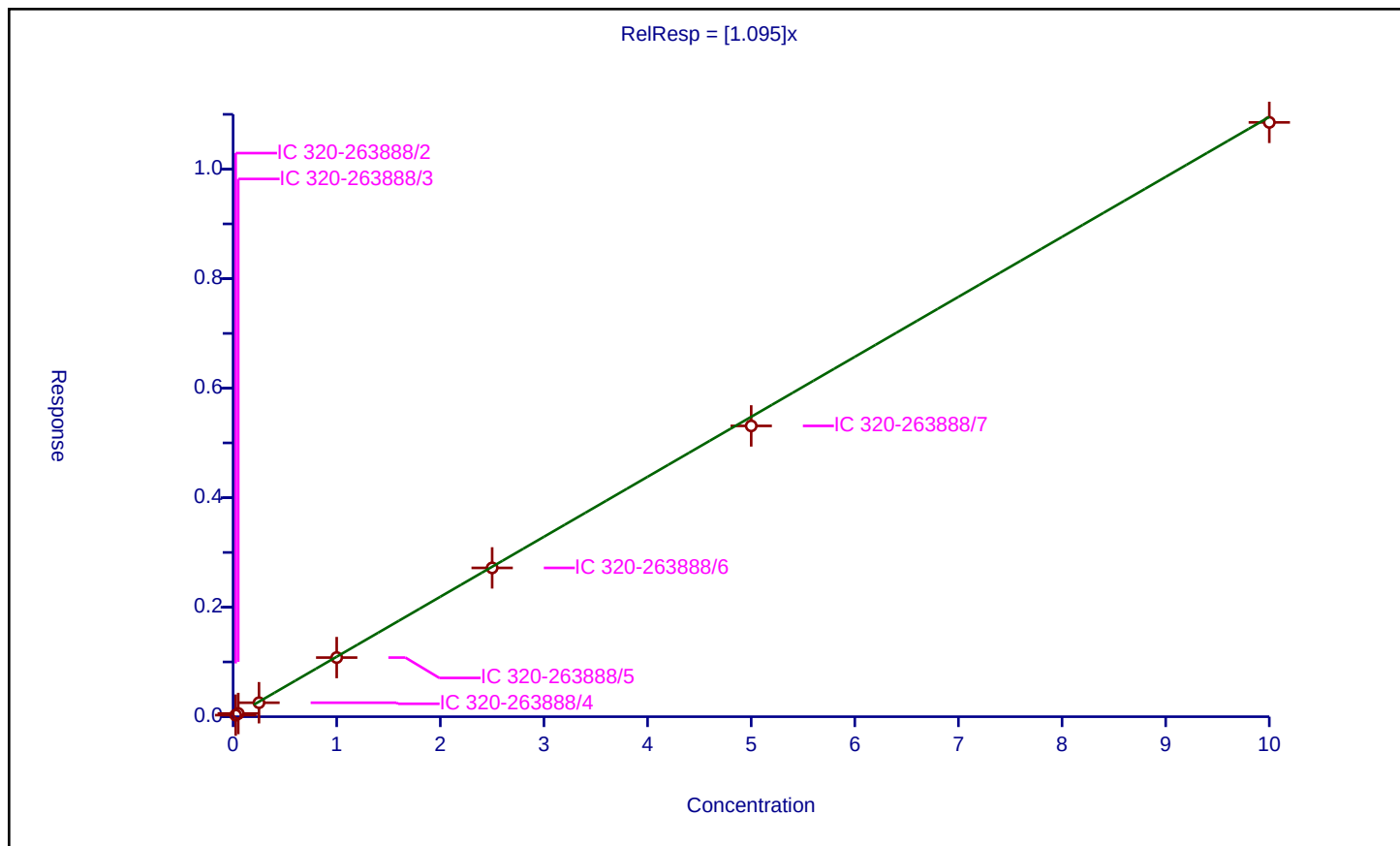
Curve Coefficients

Intercept: 0
Slope: 1.095

Error Coefficients

Standard Error: 9530000
Relative Standard Error: 4.8
Correlation Coefficient: 0.999
Coefficient of Determination (Adjusted): 0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.02891	2.5	4894993.0	1.156406	Y
2	IC 320-263888/3	0.05	0.058705	2.5	4796125.0	1.174094	Y
3	IC 320-263888/4	0.25	0.255659	2.5	4874212.0	1.022637	Y
4	IC 320-263888/5	1.0	1.079953	2.5	4904349.0	1.079953	Y
5	IC 320-263888/6	2.5	2.717602	2.5	4723411.0	1.087041	Y
6	IC 320-263888/7	5.0	5.310825	2.5	5006239.0	1.062165	Y
7	IC 320-263888/8	10.0	10.85327	2.5	4609410.0	1.085327	Y



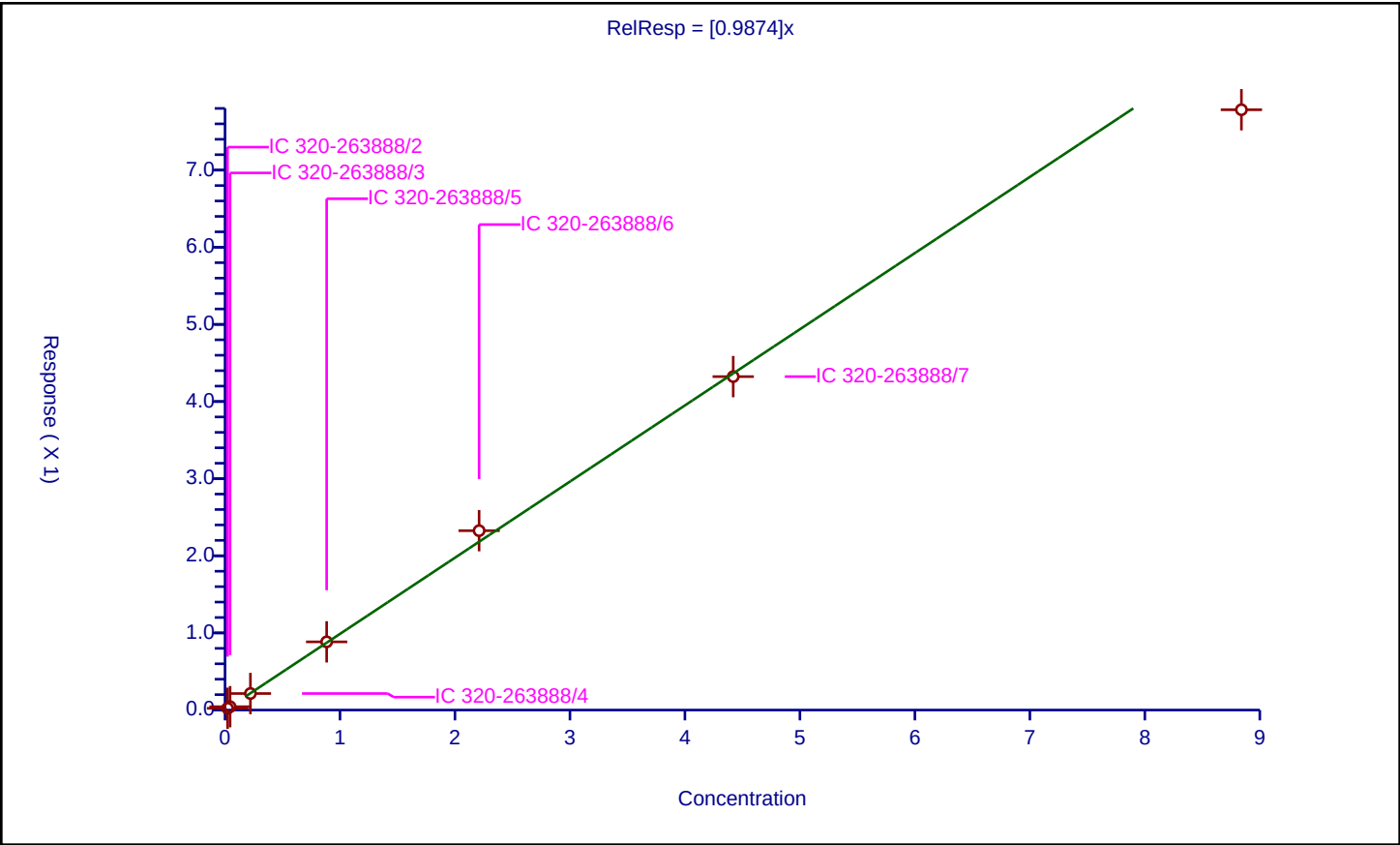
Calibration

/ Perfluorobutanesulfonic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

Curve Coefficients	
Intercept:	0
Slope:	0.9874
Error Coefficients	
Standard Error:	11300000
Relative Standard Error:	5.7
Correlation Coefficient:	0.995
Coefficient of Determination (Adjusted):	0.996

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.0221	0.022997	2.325	6930116.0	1.040588	Y
2	IC 320-263888/3	0.0442	0.043764	2.325	6880944.0	0.990131	Y
3	IC 320-263888/4	0.221	0.214365	2.325	6841707.0	0.969975	Y
4	IC 320-263888/5	0.884	0.884318	2.325	7299426.0	1.000359	Y
5	IC 320-263888/6	2.21	2.325506	2.325	6716967.0	1.052265	Y
6	IC 320-263888/7	4.42	4.3229	2.325	7092378.0	0.978032	Y
7	IC 320-263888/8	8.84	7.782849	2.325	6913885.0	0.880413	Y



Calibration

/ 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2)

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

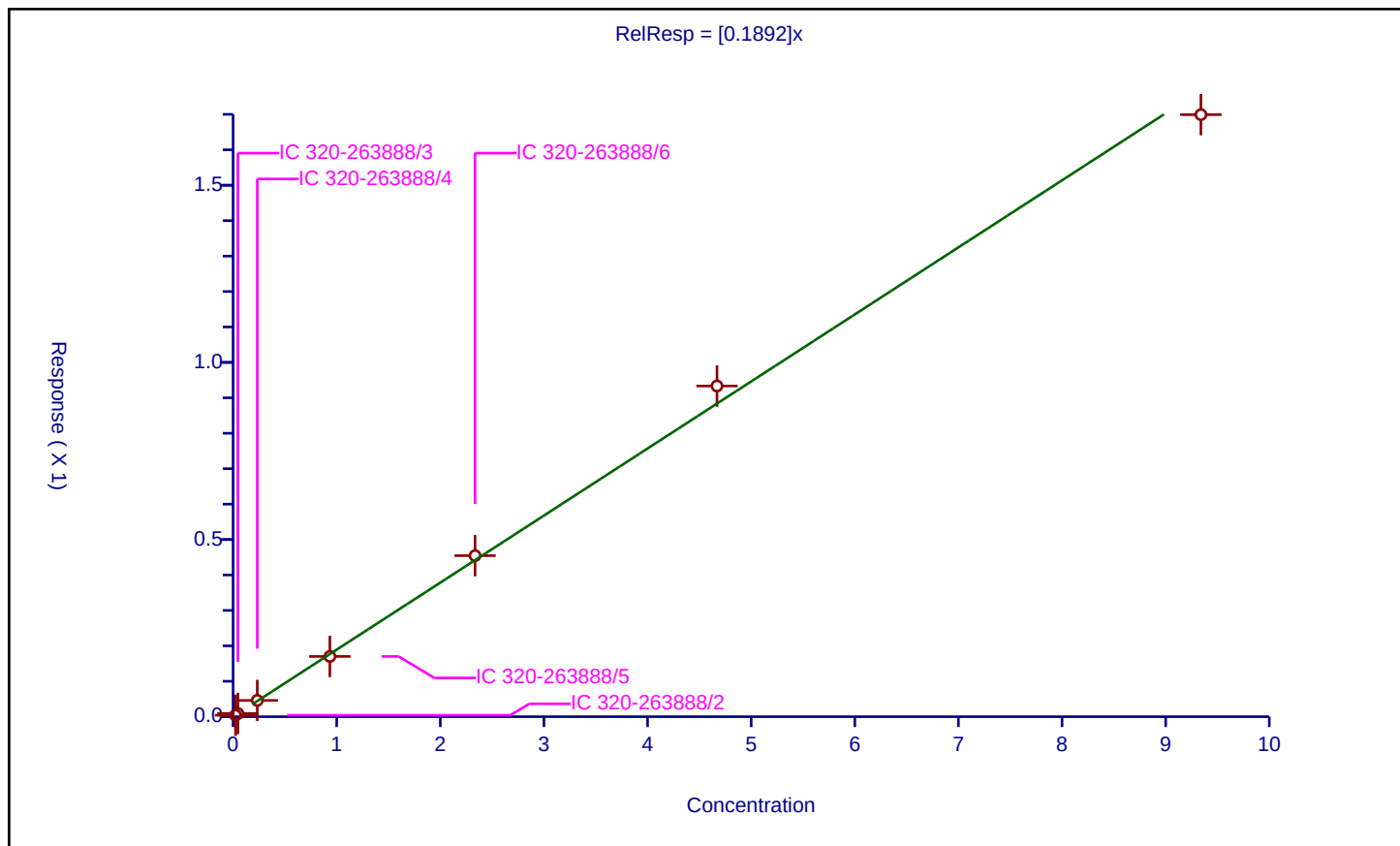
Curve Coefficients

Intercept: 0
 Slope: 0.1892

Error Coefficients

Standard Error: 2440000
 Relative Standard Error: 4.8
 Correlation Coefficient: 0.996
 Coefficient of Determination (Adjusted): 0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.02335	0.004109	2.325	6930116.0	0.175979	Y
2	IC 320-263888/3	0.0467	0.009017	2.325	6880944.0	0.193082	Y
3	IC 320-263888/4	0.2335	0.045992	2.325	6841707.0	0.196966	Y
4	IC 320-263888/5	0.934	0.170152	2.325	7299426.0	0.182176	Y
5	IC 320-263888/6	2.335	0.454544	2.325	6716967.0	0.194665	Y
6	IC 320-263888/7	4.67	0.933383	2.325	7092378.0	0.199868	Y
7	IC 320-263888/8	9.34	1.699184	2.325	6913885.0	0.181926	Y



Calibration

/ Perfluorohexanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

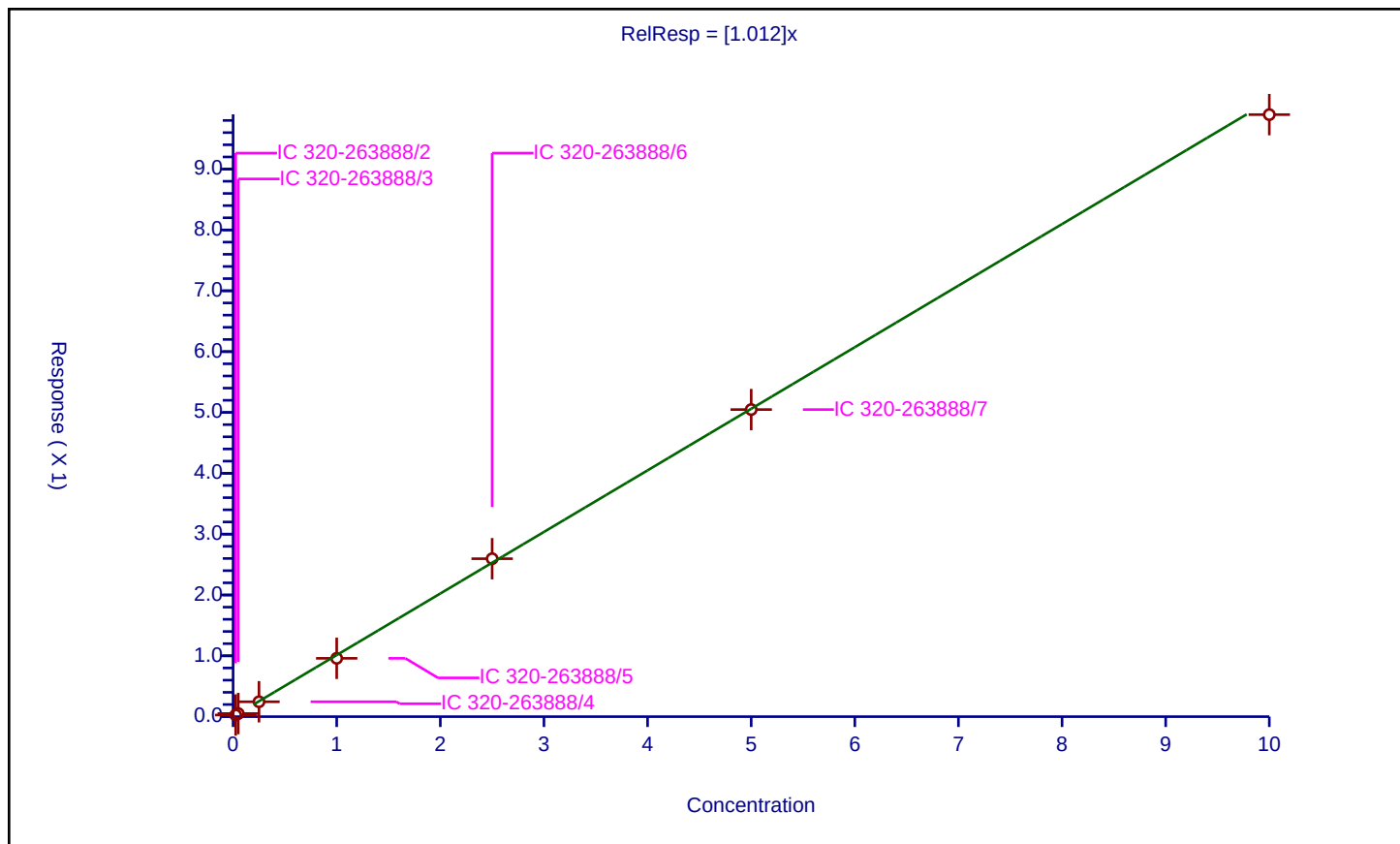
Curve Coefficients

Intercept: 0
 Slope: 1.012

Error Coefficients

Standard Error: 8950000
 Relative Standard Error: 4.1
 Correlation Coefficient: 0.997
 Coefficient of Determination (Adjusted): 0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.027048	2.5	4866369.0	1.081915	Y
2	IC 320-263888/3	0.05	0.051387	2.5	5162925.0	1.027741	Y
3	IC 320-263888/4	0.25	0.244642	2.5	5017316.0	0.978567	Y
4	IC 320-263888/5	1.0	0.959004	2.5	5440869.0	0.959004	Y
5	IC 320-263888/6	2.5	2.596301	2.5	5097441.0	1.03852	Y
6	IC 320-263888/7	5.0	5.047768	2.5	5058915.0	1.009554	Y
7	IC 320-263888/8	10.0	9.8957	2.5	4684854.0	0.98957	Y



Calibration

/ Perfluoropentanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

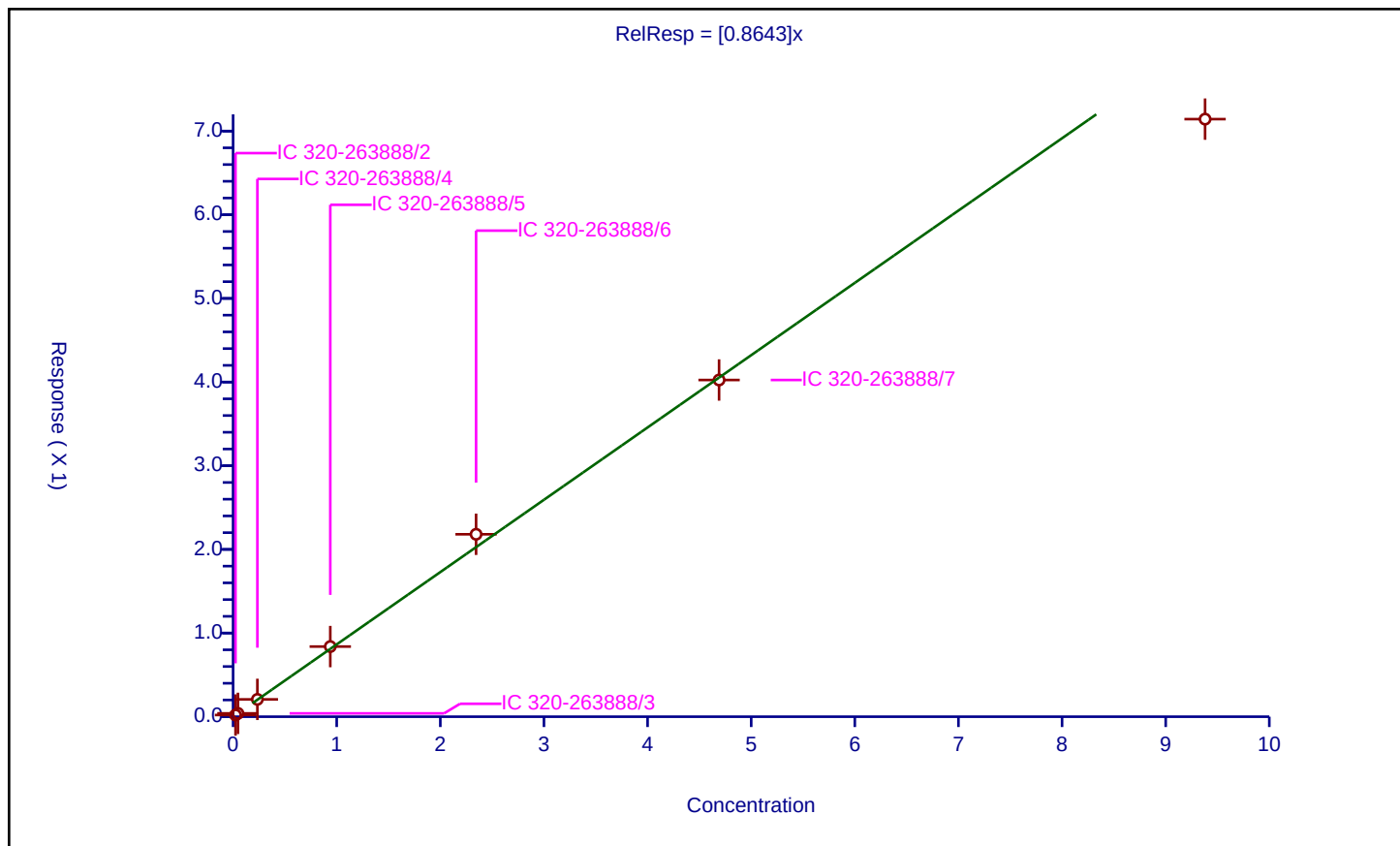
Curve Coefficients

Intercept: 0
 Slope: 0.8643

Error Coefficients

Standard Error: 10400000
 Relative Standard Error: 6.0
 Correlation Coefficient: 0.994
 Coefficient of Determination (Adjusted): 0.996

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.02345	0.020368	2.325	6930116.0	0.86856	Y
2	IC 320-263888/3	0.0469	0.040069	2.325	6880944.0	0.854349	Y
3	IC 320-263888/4	0.2345	0.207237	2.325	6841707.0	0.88374	Y
4	IC 320-263888/5	0.938	0.838503	2.325	7299426.0	0.893927	Y
5	IC 320-263888/6	2.345	2.180672	2.325	6716967.0	0.929924	Y
6	IC 320-263888/7	4.69	4.024727	2.325	7092378.0	0.858151	Y
7	IC 320-263888/8	9.38	7.142926	2.325	6913885.0	0.761506	Y



Calibration

/ Perfluoroheptanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

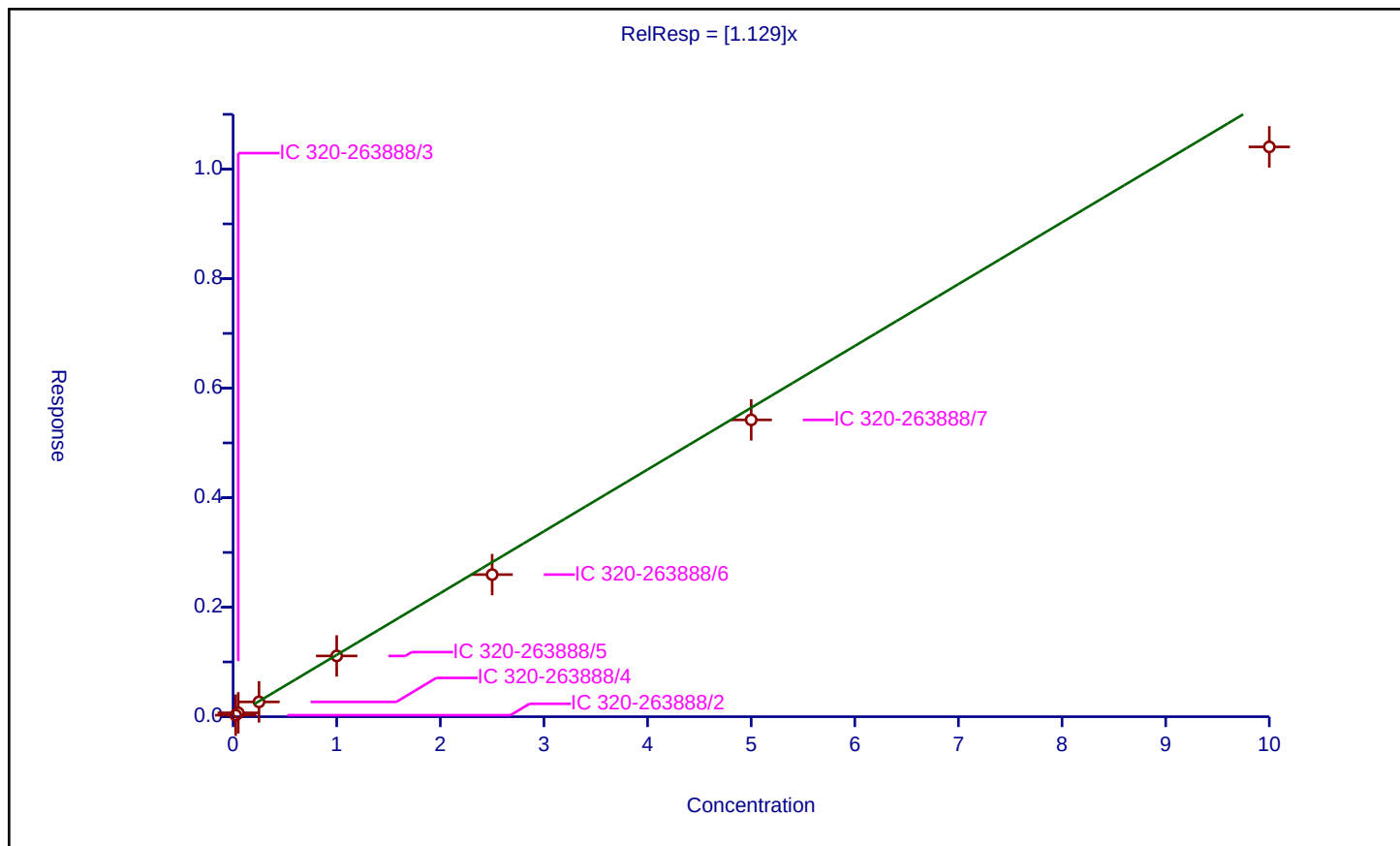
Curve Coefficients

Intercept: 0
 Slope: 1.129

Error Coefficients

Standard Error: 9050000
 Relative Standard Error: 11.8
 Correlation Coefficient: 0.996
 Coefficient of Determination (Adjusted): 0.982

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.02807	2.5	4674198.0	1.122781	Y
2	IC 320-263888/3	0.05	0.071062	2.5	5124572.0	1.421241	Y
3	IC 320-263888/4	0.25	0.270573	2.5	4872311.0	1.082293	Y
4	IC 320-263888/5	1.0	1.110319	2.5	4979356.0	1.110319	Y
5	IC 320-263888/6	2.5	2.595294	2.5	4910967.0	1.038118	Y
6	IC 320-263888/7	5.0	5.420942	2.5	4860579.0	1.084188	Y
7	IC 320-263888/8	10.0	10.405919	2.5	4489560.0	1.040592	Y



Calibration

/ Perfluorohexanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

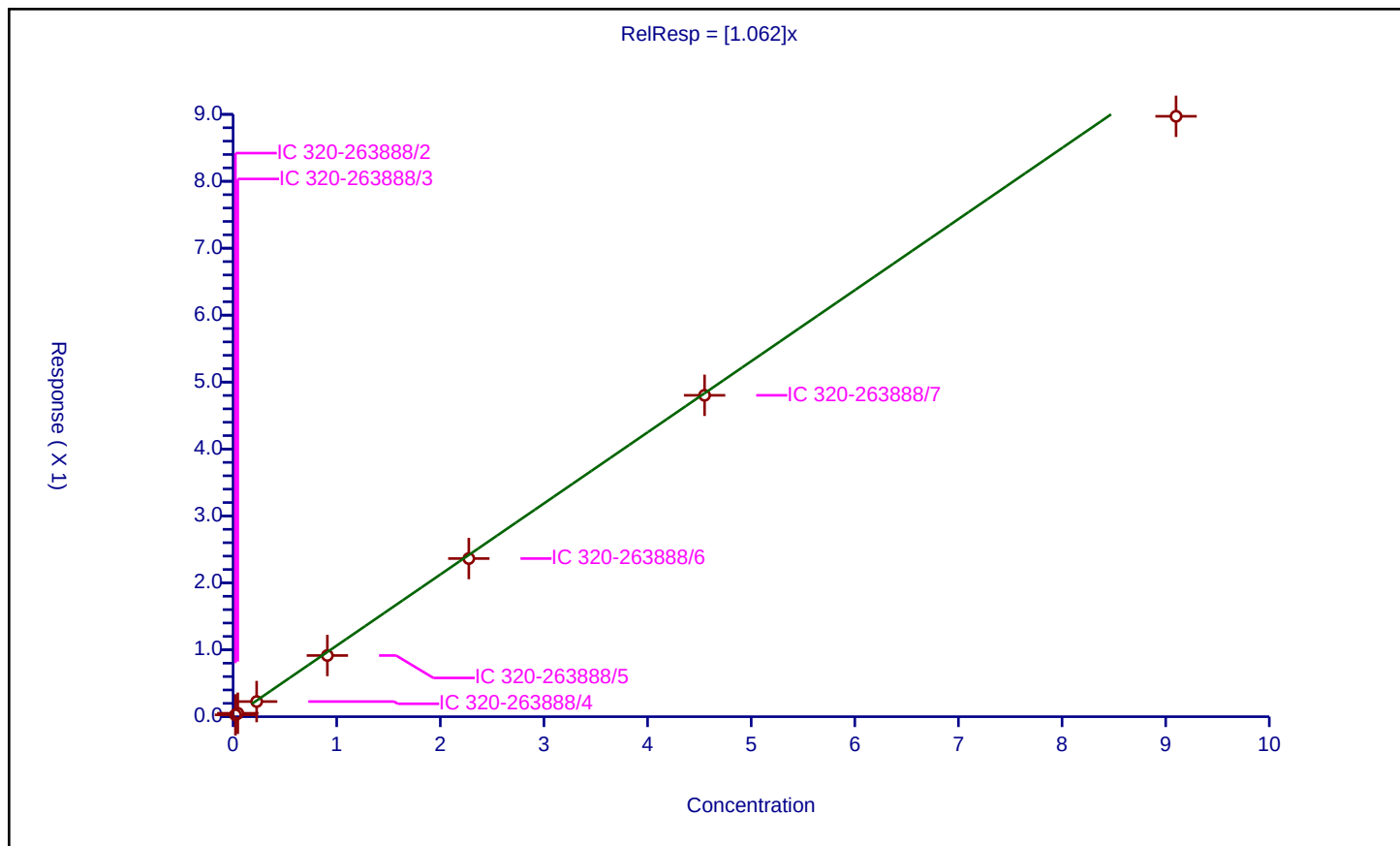
Curve Coefficients

Intercept: 0
 Slope: 1.062

Error Coefficients

Standard Error: 9450000
 Relative Standard Error: 8.1
 Correlation Coefficient: 0.995
 Coefficient of Determination (Adjusted): 0.991

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.02275	0.027786	2.365	5578850.0	1.221381	Y
2	IC 320-263888/3	0.0455	0.051611	2.365	5629433.0	1.134315	Y
3	IC 320-263888/4	0.2275	0.226303	2.365	5637965.0	0.994739	Y
4	IC 320-263888/5	0.91	0.914335	2.365	5780156.0	1.004764	Y
5	IC 320-263888/6	2.275	2.363352	2.365	5408539.0	1.038836	Y
6	IC 320-263888/7	4.55	4.802166	2.365	5468316.0	1.055421	Y
7	IC 320-263888/8	9.1	8.971059	2.365	5126377.0	0.985831	Y



Calibration

/ 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

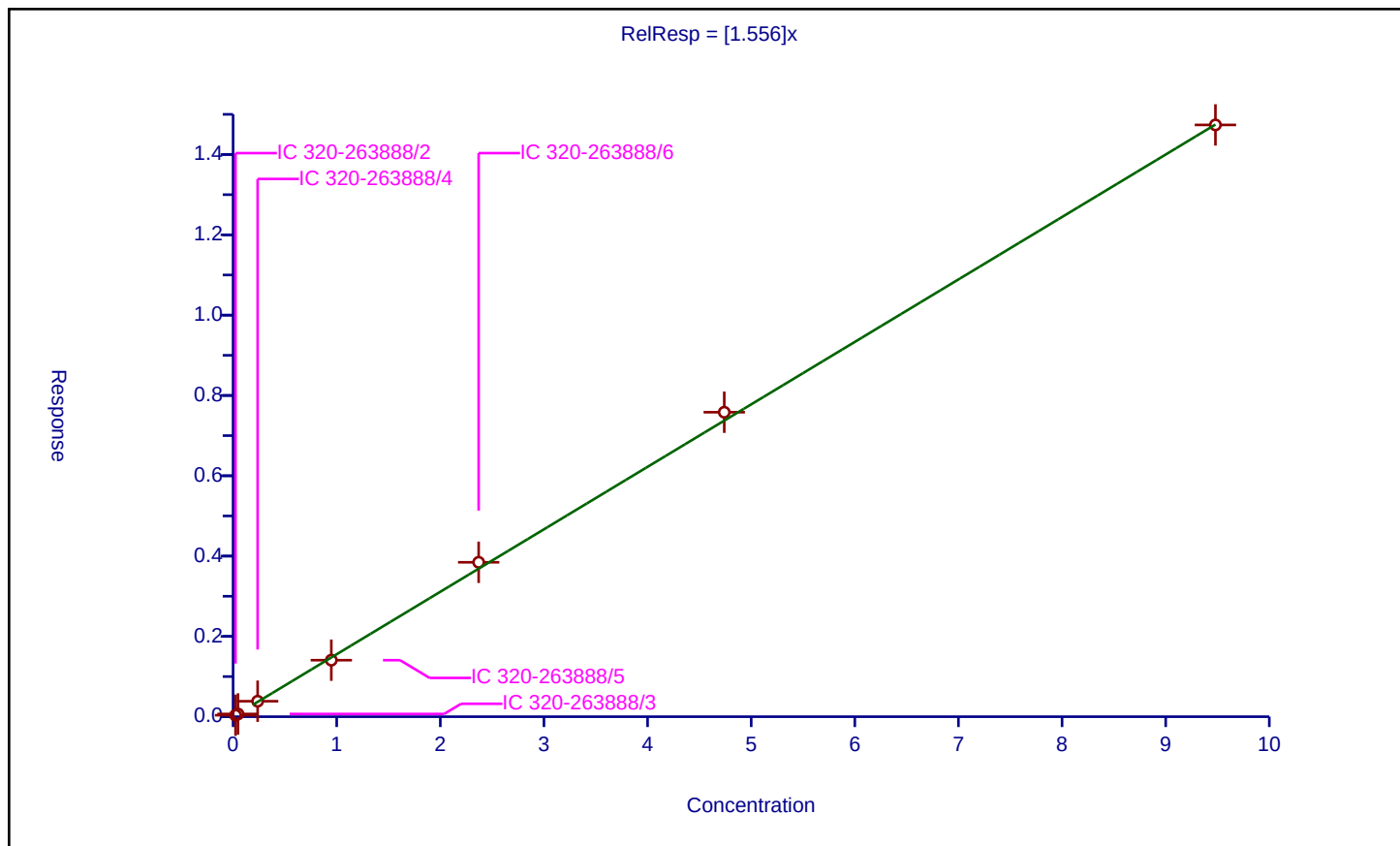
Curve Coefficients

Intercept: 0
 Slope: 1.556

Error Coefficients

Standard Error: 2350000
 Relative Standard Error: 4.6
 Correlation Coefficient: 0.999
 Coefficient of Determination (Adjusted): 0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.0237	0.037001	2.375	820248.0	1.56123	Y
2	IC 320-263888/3	0.0474	0.06821	2.375	883771.0	1.439035	Y
3	IC 320-263888/4	0.237	0.385581	2.375	791407.0	1.626926	Y
4	IC 320-263888/5	0.948	1.407893	2.375	881057.0	1.485119	Y
5	IC 320-263888/6	2.37	3.845165	2.375	841523.0	1.622433	Y
6	IC 320-263888/7	4.74	7.582359	2.375	811783.0	1.599654	Y
7	IC 320-263888/8	9.48	14.736994	2.375	792328.0	1.554535	Y



Calibration

/ Perfluoroheptanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

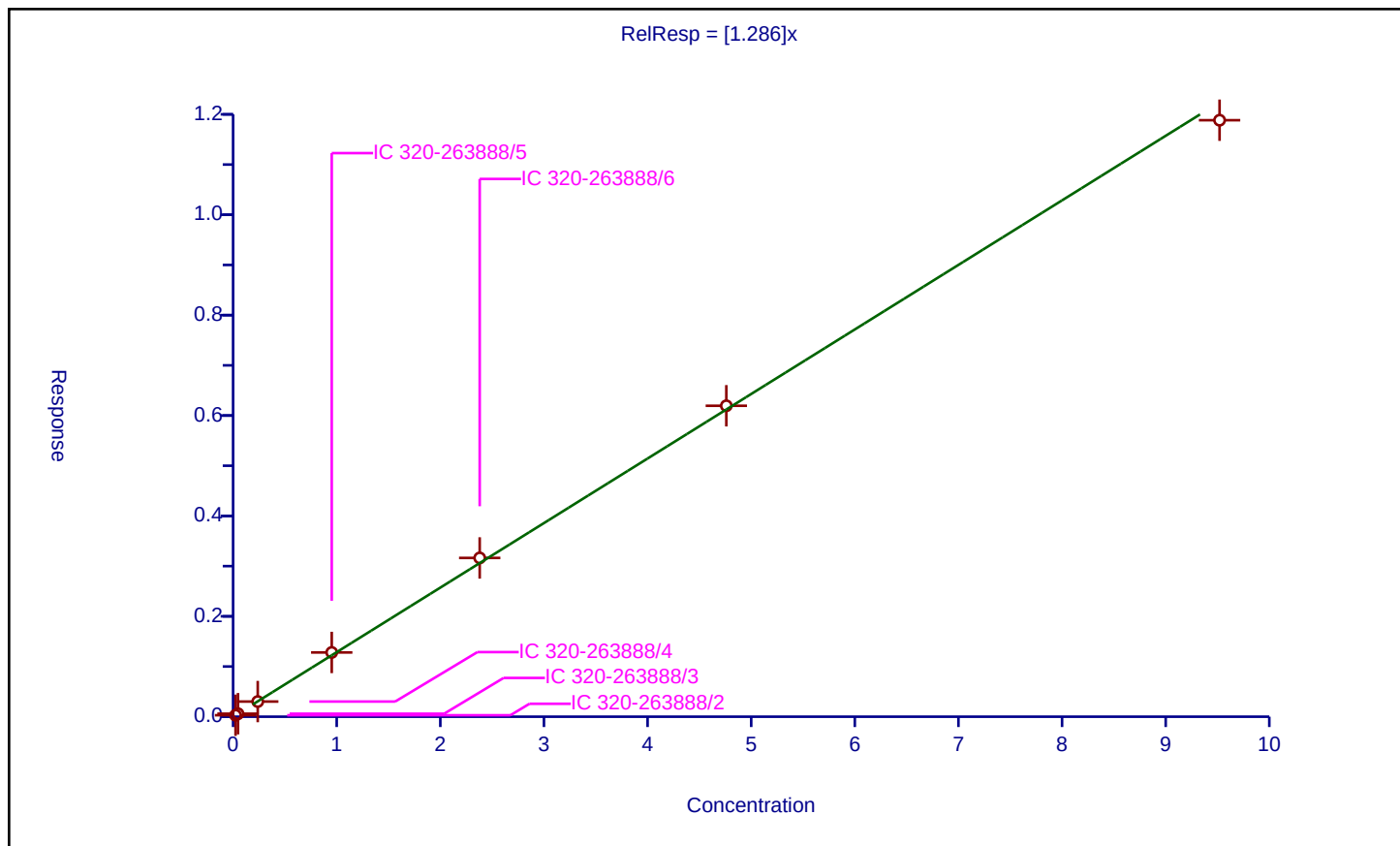
Curve Coefficients

Intercept: 0
 Slope: 1.286

Error Coefficients

Standard Error: 8250000
 Relative Standard Error: 3.1
 Correlation Coefficient: 0.996
 Coefficient of Determination (Adjusted): 0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.0238	0.029603	2.39	3839340.0	1.243829	Y
2	IC 320-263888/3	0.0476	0.060226	2.39	3809435.0	1.265245	Y
3	IC 320-263888/4	0.238	0.301872	2.39	3598667.0	1.268369	Y
4	IC 320-263888/5	0.952	1.28029	2.39	3697359.0	1.344842	Y
5	IC 320-263888/6	2.38	3.163234	2.39	3685010.0	1.32909	Y
6	IC 320-263888/7	4.76	6.194516	2.39	3690547.0	1.301369	Y
7	IC 320-263888/8	9.52	11.88356	2.39	3420592.0	1.248273	Y



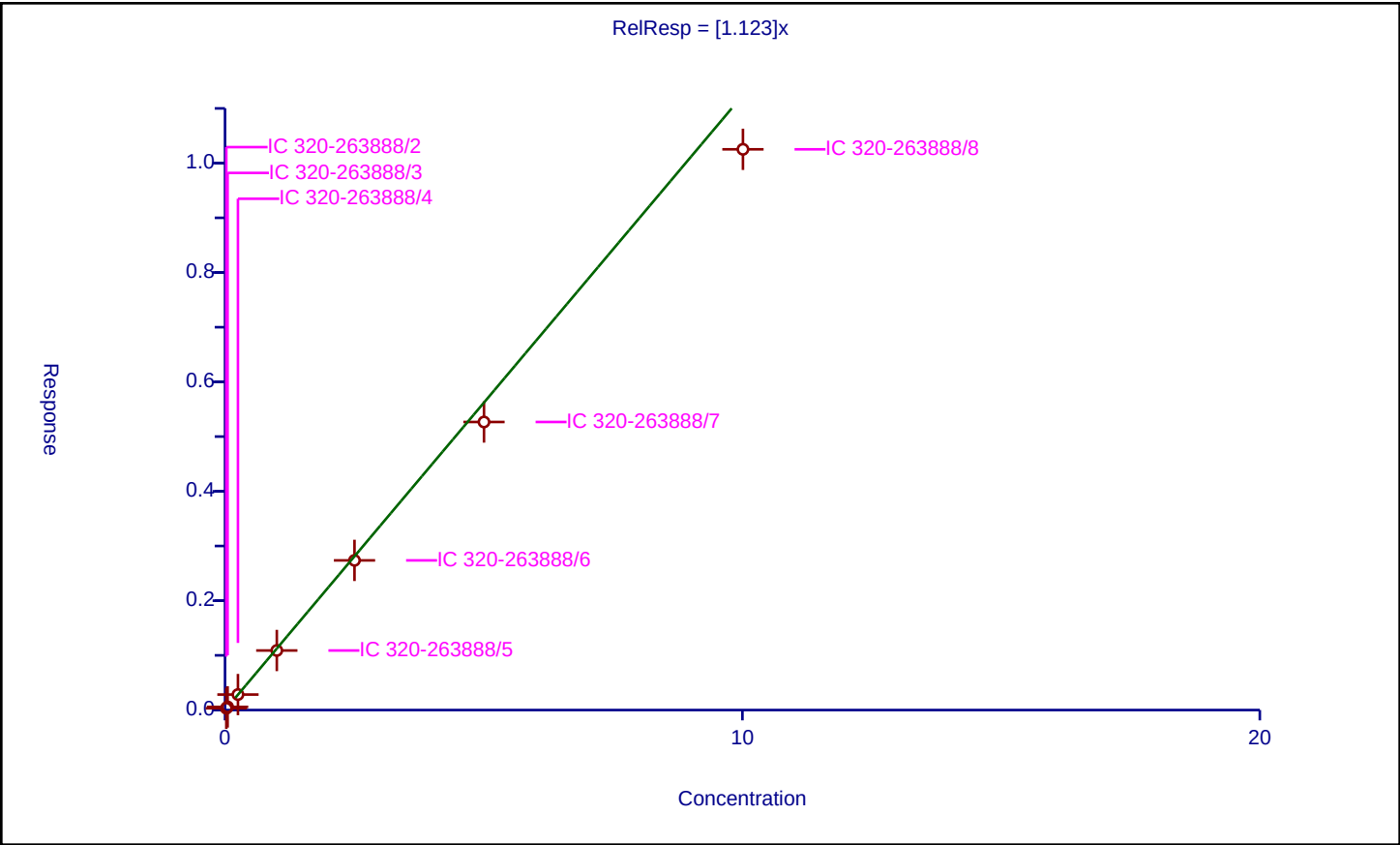
Calibration

/ Perfluorooctanoic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

Curve Coefficients	
Intercept:	0
Slope:	1.123
Error Coefficients	
Standard Error:	9130000
Relative Standard Error:	8.6
Correlation Coefficient:	0.998
Coefficient of Determination (Adjusted):	0.990

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025025	0.033025	2.5	4828869.0	1.319694	Y
2	IC 320-263888/3	0.05005	0.057709	2.5	4923339.0	1.153033	Y
3	IC 320-263888/4	0.25025	0.283455	2.5	4711848.0	1.132688	Y
4	IC 320-263888/5	1.001	1.088834	2.5	4865135.0	1.087746	Y
5	IC 320-263888/6	2.5025	2.736494	2.5	4950786.0	1.093504	Y
6	IC 320-263888/7	5.005	5.26683	2.5	4821820.0	1.052314	Y
7	IC 320-263888/8	10.01	10.252047	2.5	4645140.0	1.024181	Y



Calibration

/ Perfluorooctanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

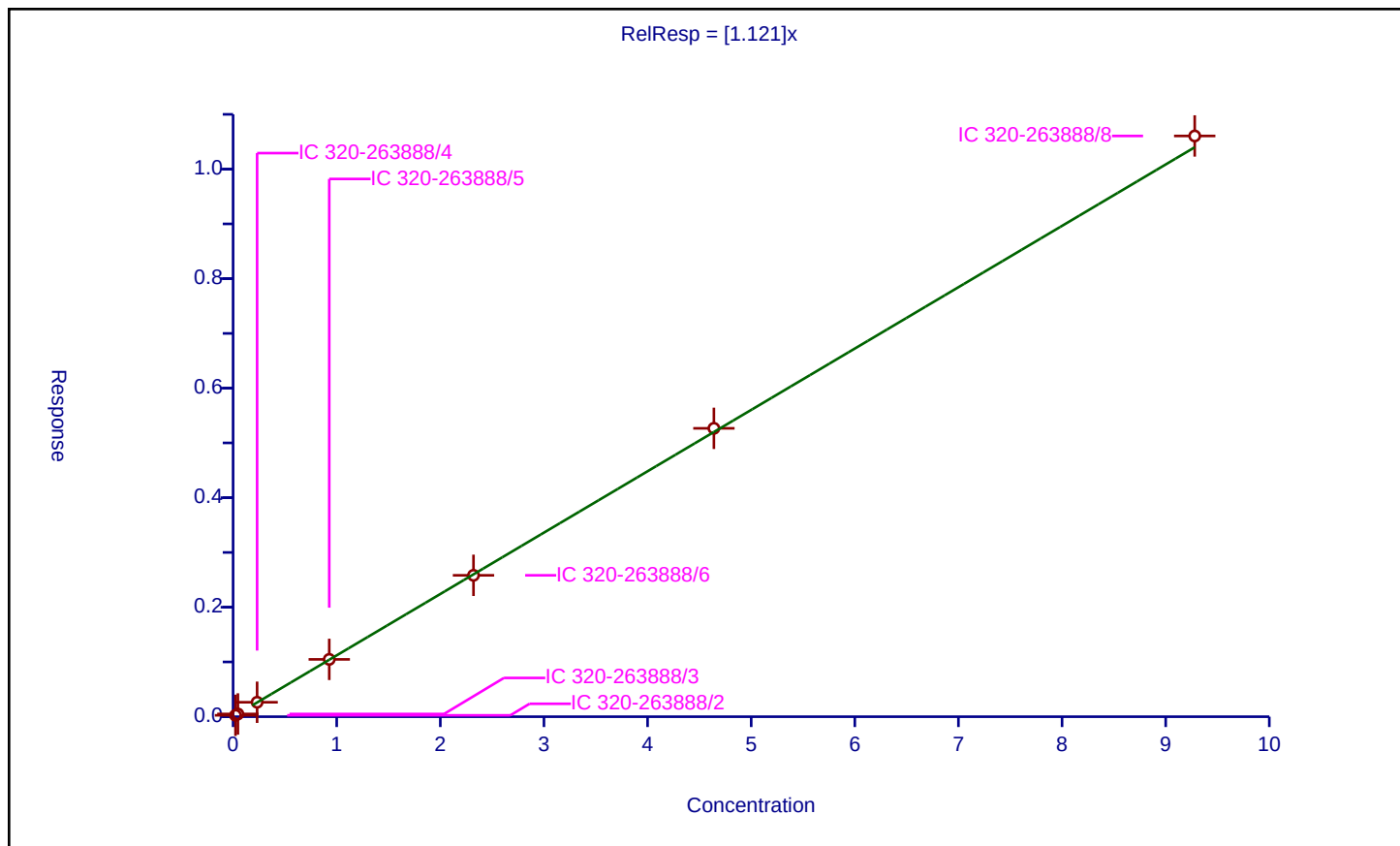
Curve Coefficients

Intercept: 0
 Slope: 1.121

Error Coefficients

Standard Error: 7250000
 Relative Standard Error: 2.0
 Correlation Coefficient: 0.999
 Coefficient of Determination (Adjusted): 1.000

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.0232	0.025684	2.39	3839340.0	1.107089	Y
2	IC 320-263888/3	0.0464	0.050083	2.39	3809435.0	1.079367	Y
3	IC 320-263888/4	0.232	0.264114	2.39	3598667.0	1.138422	Y
4	IC 320-263888/5	0.928	1.046879	2.39	3697359.0	1.128102	Y
5	IC 320-263888/6	2.32	2.582023	2.39	3685010.0	1.112941	Y
6	IC 320-263888/7	4.64	5.266583	2.39	3690547.0	1.135039	Y
7	IC 320-263888/8	9.28	10.605611	2.39	3420592.0	1.142846	Y



Calibration

/ Perfluorononanoic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

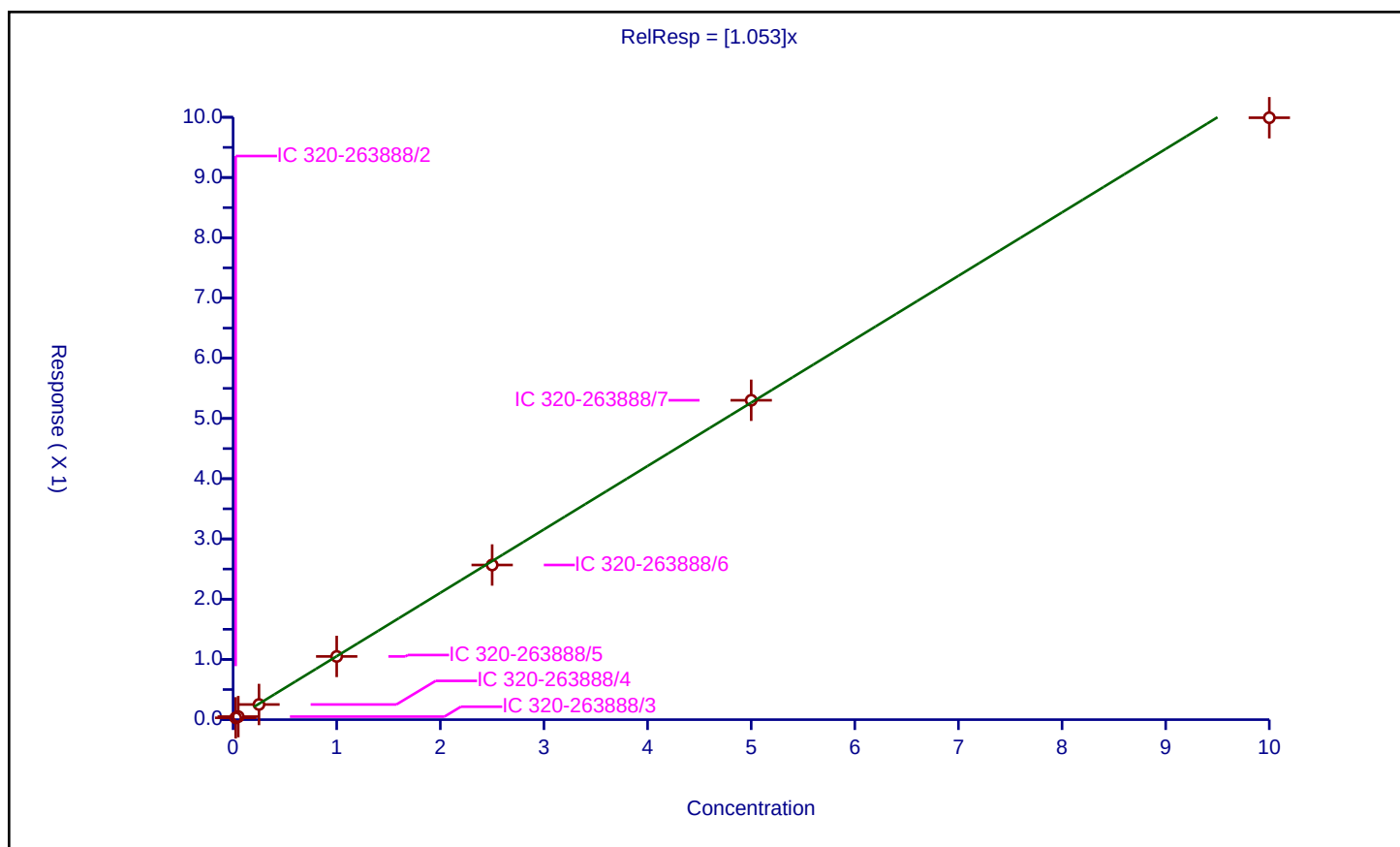
Curve Coefficients

Intercept: 0
Slope: 1.053

Error Coefficients

Standard Error: 7560000
Relative Standard Error: 7.1
Correlation Coefficient: 0.999
Coefficient of Determination (Adjusted): 0.993

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.030361	2.5	3912198.0	1.214432	Y
2	IC 320-263888/3	0.05	0.050543	2.5	4062511.0	1.010865	Y
3	IC 320-263888/4	0.25	0.251771	2.5	4031300.0	1.007082	Y
4	IC 320-263888/5	1.0	1.049321	2.5	4081734.0	1.049321	Y
5	IC 320-263888/6	2.5	2.567638	2.5	4012443.0	1.027055	Y
6	IC 320-263888/7	5.0	5.301865	2.5	4012004.0	1.060373	Y
7	IC 320-263888/8	10.0	9.992341	2.5	3959575.0	0.999234	Y



Calibration

/ Perfluorononanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

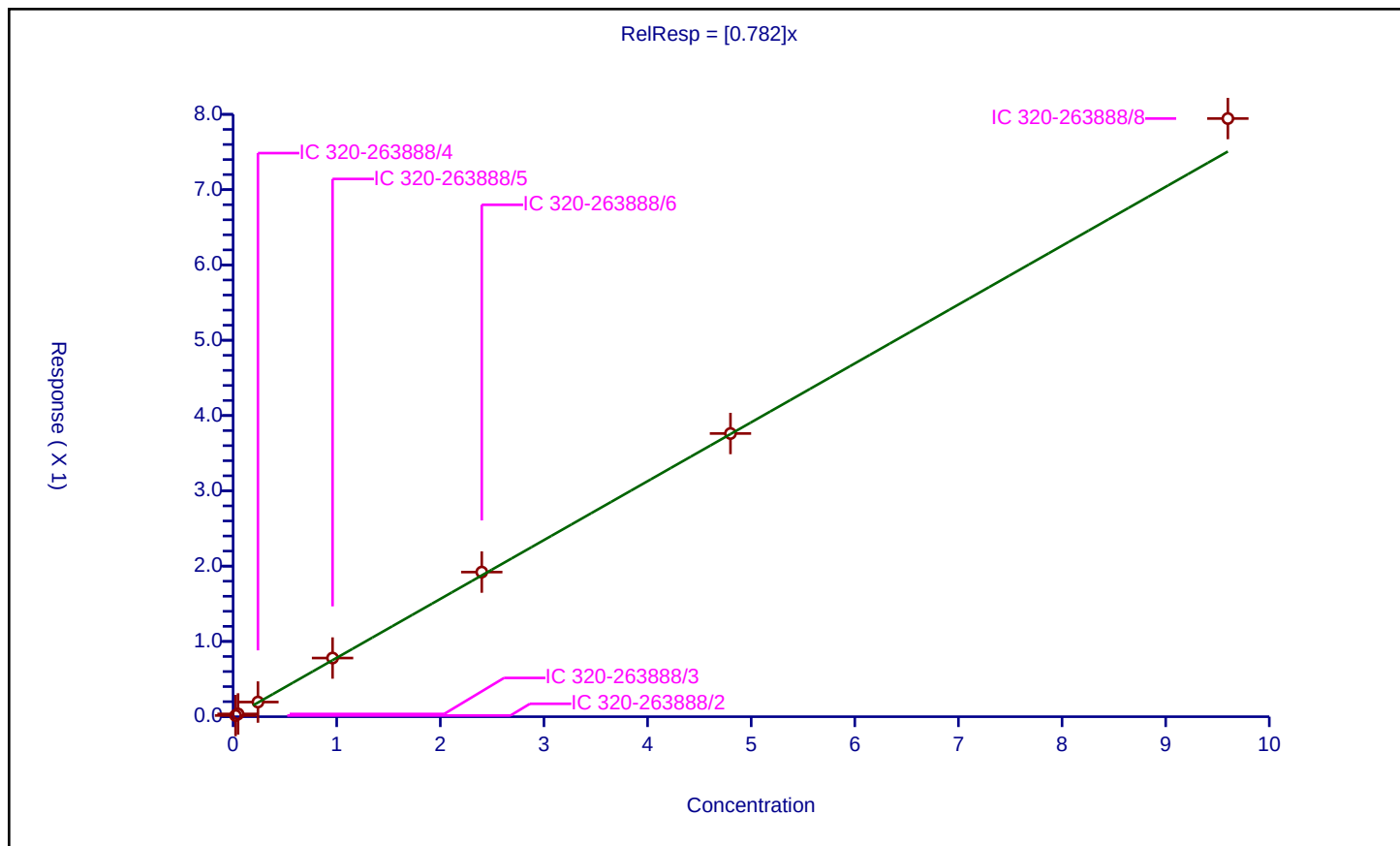
Curve Coefficients

Intercept: 0
 Slope: 0.782

Error Coefficients

Standard Error: 5370000
 Relative Standard Error: 6.7
 Correlation Coefficient: 1.000
 Coefficient of Determination (Adjusted): 0.995

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.024	0.016126	2.39	3839340.0	0.671914	Y
2	IC 320-263888/3	0.048	0.036862	2.39	3809435.0	0.767951	Y
3	IC 320-263888/4	0.24	0.194617	2.39	3598667.0	0.810903	Y
4	IC 320-263888/5	0.96	0.779151	2.39	3697359.0	0.811616	Y
5	IC 320-263888/6	2.4	1.920821	2.39	3685010.0	0.800342	Y
6	IC 320-263888/7	4.8	3.761335	2.39	3690547.0	0.783612	Y
7	IC 320-263888/8	9.6	7.94457	2.39	3420592.0	0.827559	Y



Calibration

/ 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

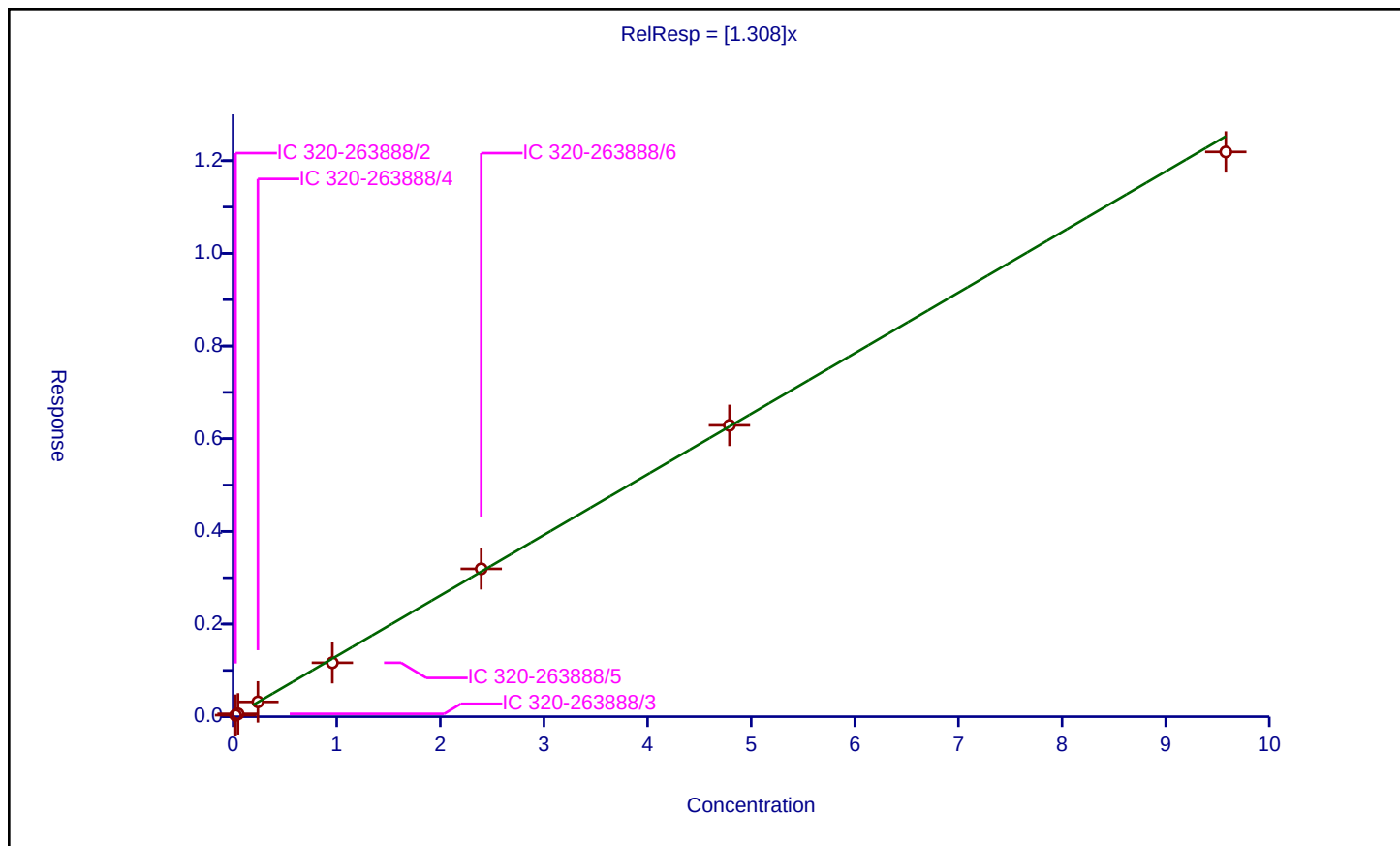
Curve Coefficients

Intercept: 0
 Slope: 1.308

Error Coefficients

Standard Error: 2200000
 Relative Standard Error: 4.1
 Correlation Coefficient: 0.999
 Coefficient of Determination (Adjusted): 0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.02395	0.033123	2.395	922564.0	1.382993	Y
2	IC 320-263888/3	0.0479	0.062306	2.395	924043.0	1.300751	Y
3	IC 320-263888/4	0.2395	0.320003	2.395	868680.0	1.336131	Y
4	IC 320-263888/5	0.958	1.164712	2.395	934799.0	1.215775	Y
5	IC 320-263888/6	2.395	3.19163	2.395	884111.0	1.332622	Y
6	IC 320-263888/7	4.79	6.288267	2.395	943788.0	1.312791	Y
7	IC 320-263888/8	9.58	12.189404	2.395	904430.0	1.27238	Y



Calibration

/ Perfluorodecanoic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

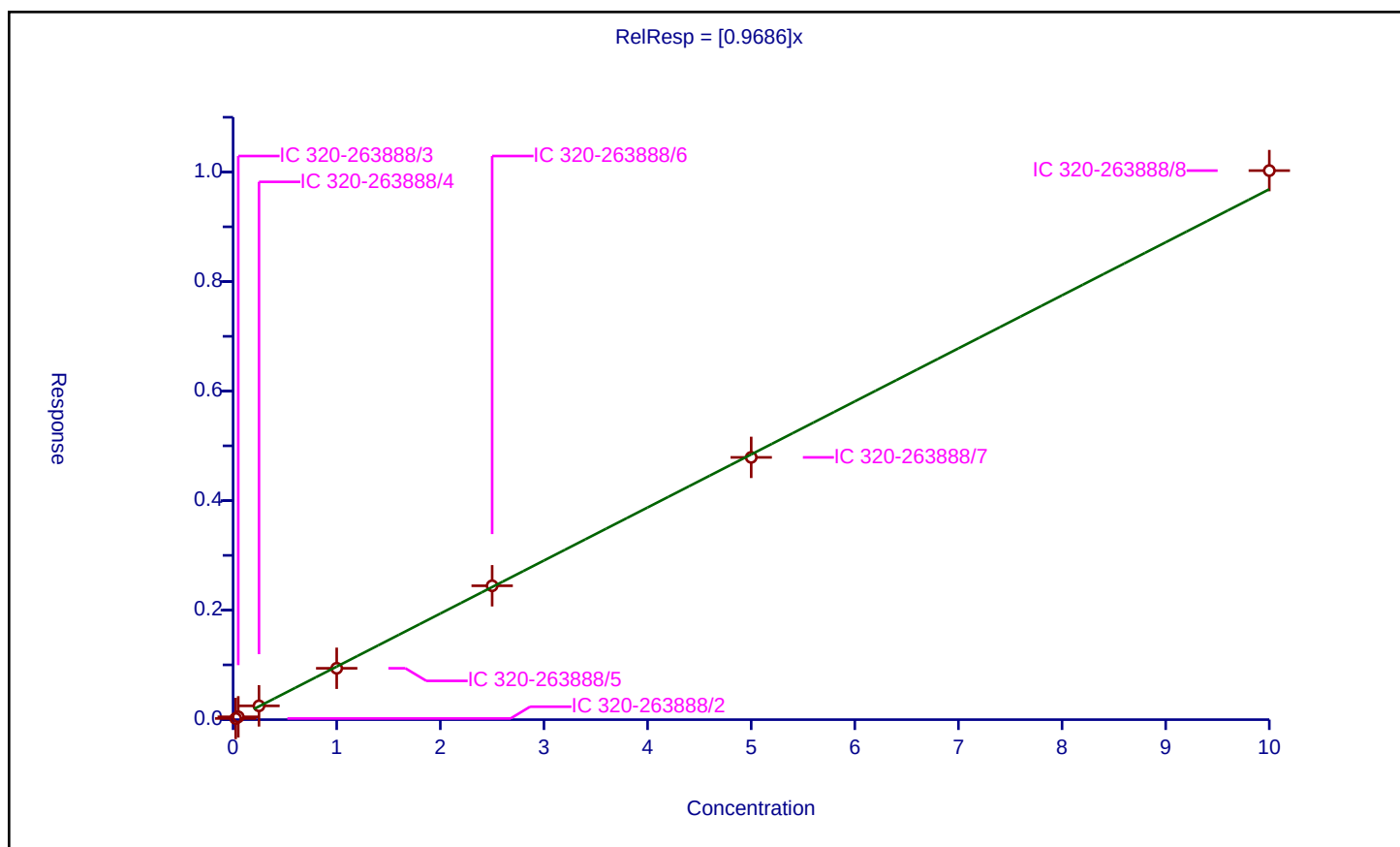
Curve Coefficients

Intercept: 0
Slope: 0.9686

Error Coefficients

Standard Error: 6470000
Relative Standard Error: 5.8
Correlation Coefficient: 0.999
Coefficient of Determination (Adjusted): 0.996

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.021599	2.5	3521168.0	0.863946	Y
2	IC 320-263888/3	0.05	0.05163	2.5	3681074.0	1.032593	Y
3	IC 320-263888/4	0.25	0.251855	2.5	3500314.0	1.007421	Y
4	IC 320-263888/5	1.0	0.93778	2.5	3800614.0	0.93778	Y
5	IC 320-263888/6	2.5	2.44461	2.5	3554606.0	0.977844	Y
6	IC 320-263888/7	5.0	4.789505	2.5	3790048.0	0.957901	Y
7	IC 320-263888/8	10.0	10.026051	2.5	3385143.0	1.002605	Y



Calibration

/ Perfluorooctanesulfonamide

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

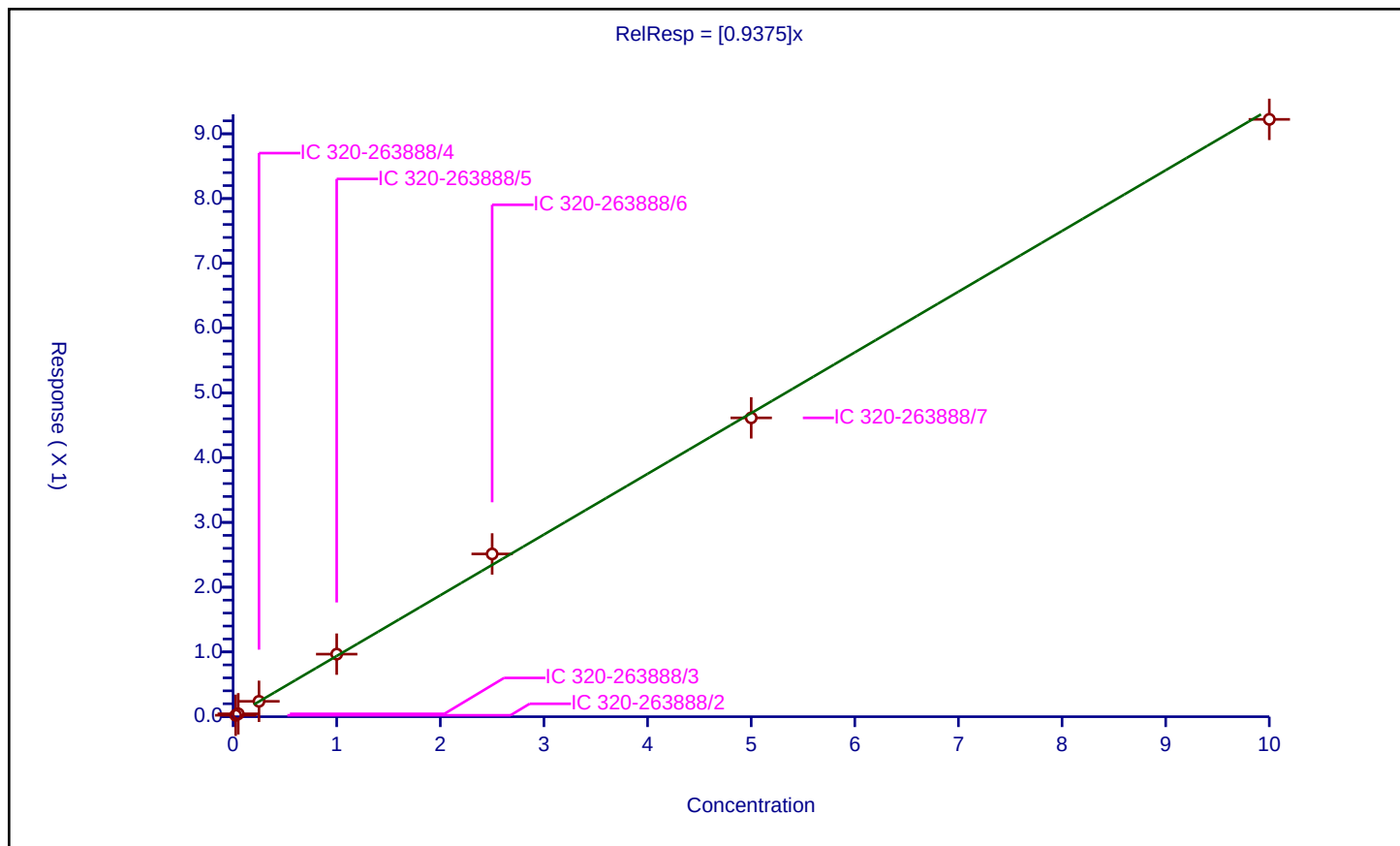
Curve Coefficients

Intercept: 0
 Slope: 0.9375

Error Coefficients

Standard Error: 9560000
 Relative Standard Error: 4.2
 Correlation Coefficient: 0.997
 Coefficient of Determination (Adjusted): 0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.022509	2.5	5734441.0	0.900367	Y
2	IC 320-263888/3	0.05	0.04473	2.5	5803663.0	0.89459	Y
3	IC 320-263888/4	0.25	0.237785	2.5	5725680.0	0.951139	Y
4	IC 320-263888/5	1.0	0.966094	2.5	5883149.0	0.966094	Y
5	IC 320-263888/6	2.5	2.513002	2.5	5697512.0	1.005201	Y
6	IC 320-263888/7	5.0	4.6142	2.5	5878788.0	0.92284	Y
7	IC 320-263888/8	10.0	9.22296	2.5	5366514.0	0.922296	Y



Calibration

/ N-methylperfluorooctanesulfonamidoacetic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

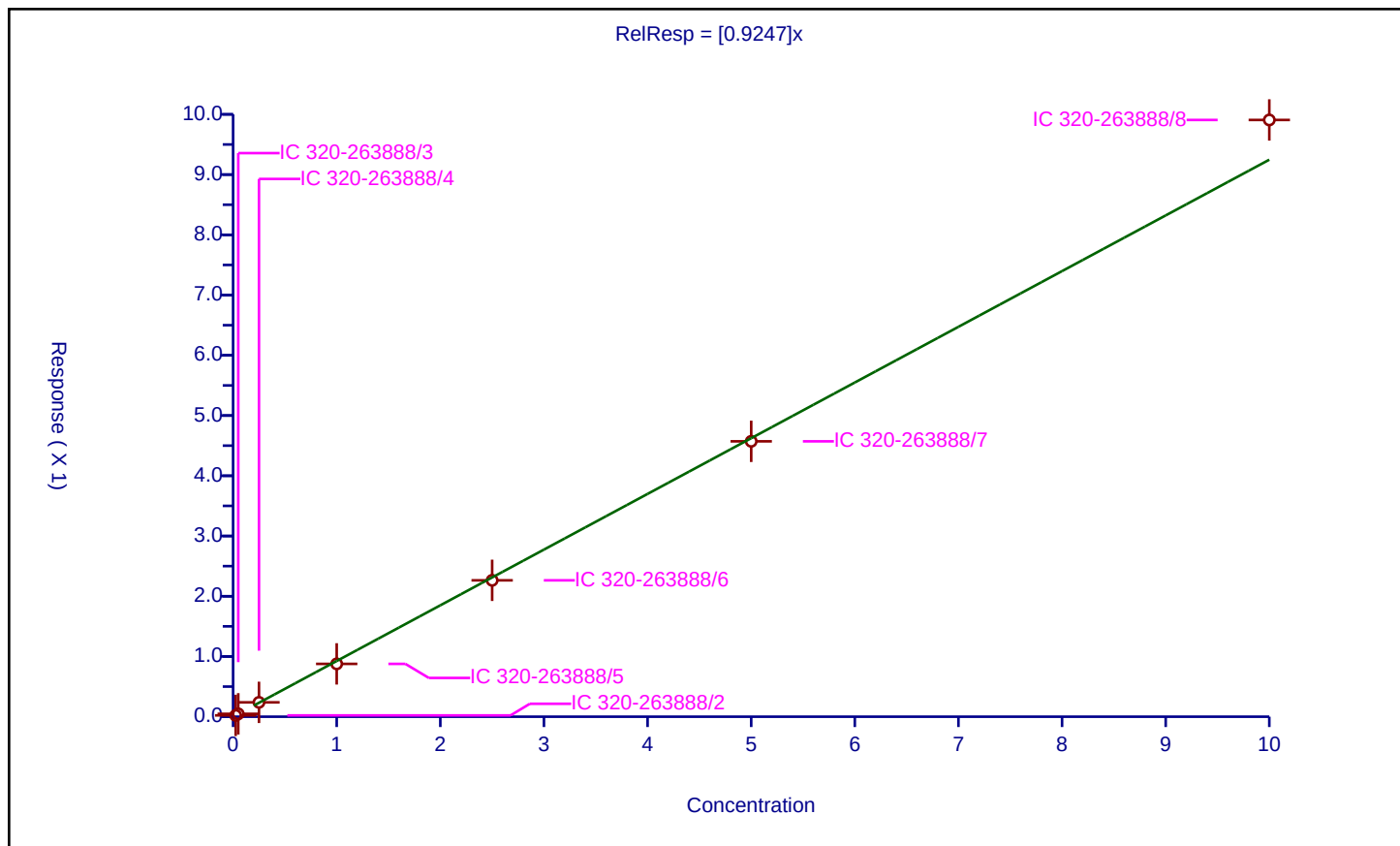
Curve Coefficients

Intercept: 0
Slope: 0.9247

Error Coefficients

Standard Error: 3410000
Relative Standard Error: 4.6
Correlation Coefficient: 1.000
Coefficient of Determination (Adjusted): 0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.021953	2.5	1903135.0	0.87813	Y
2	IC 320-263888/3	0.05	0.047647	2.5	1887162.0	0.952939	Y
3	IC 320-263888/4	0.25	0.238501	2.5	1762047.0	0.954004	Y
4	IC 320-263888/5	1.0	0.877244	2.5	2055768.0	0.877244	Y
5	IC 320-263888/6	2.5	2.264018	2.5	1920937.0	0.905607	Y
6	IC 320-263888/7	5.0	4.571835	2.5	1990092.0	0.914367	Y
7	IC 320-263888/8	10.0	9.907219	2.5	1832735.0	0.990722	Y



Calibration

/ Perfluorodecanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

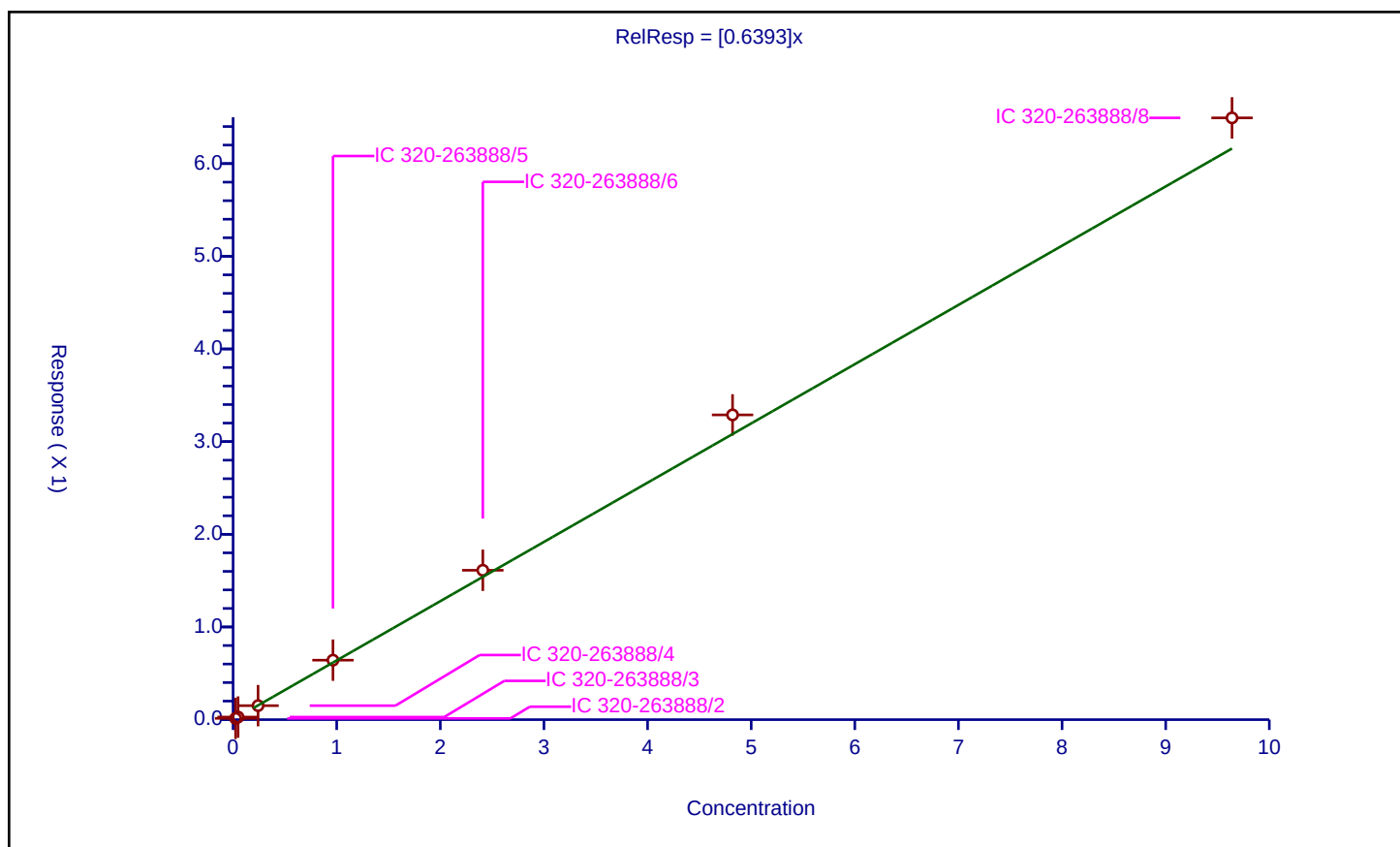
Curve Coefficients

Intercept: 0
 Slope: 0.6393

Error Coefficients

Standard Error: 4460000
 Relative Standard Error: 7.0
 Correlation Coefficient: 0.998
 Coefficient of Determination (Adjusted): 0.994

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.0241	0.013836	2.39	3839340.0	0.574097	Y
2	IC 320-263888/3	0.0482	0.028156	2.39	3809435.0	0.584149	Y
3	IC 320-263888/4	0.241	0.150906	2.39	3598667.0	0.626166	Y
4	IC 320-263888/5	0.964	0.641792	2.39	3697359.0	0.665759	Y
5	IC 320-263888/6	2.41	1.612096	2.39	3685010.0	0.66892	Y
6	IC 320-263888/7	4.82	3.288524	2.39	3690547.0	0.682266	Y
7	IC 320-263888/8	9.64	6.49347	2.39	3420592.0	0.673597	Y



Calibration

/ Perfluoroundecanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

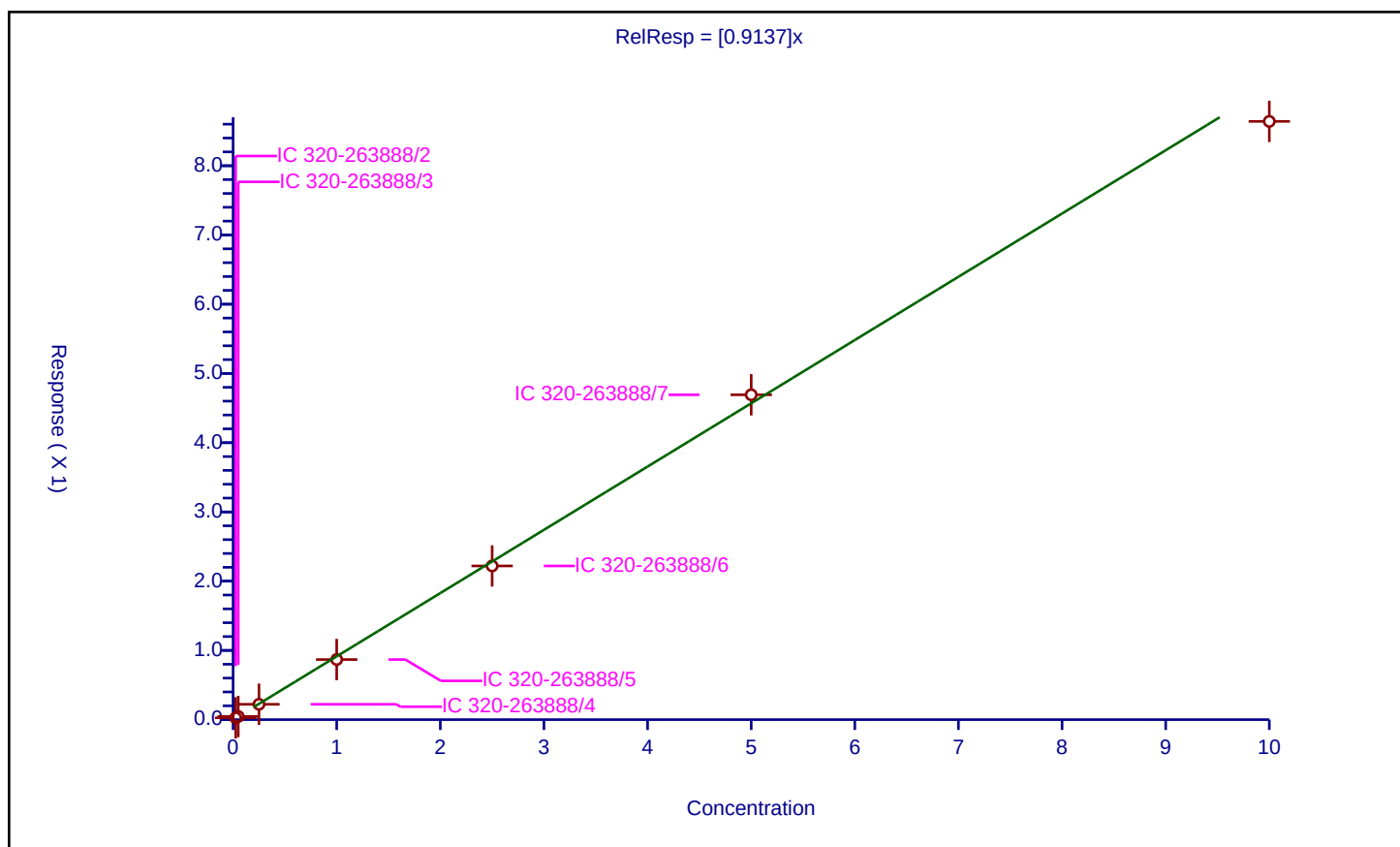
Curve Coefficients

Intercept: 0
 Slope: 0.9137

Error Coefficients

Standard Error: 4630000
 Relative Standard Error: 6.6
 Correlation Coefficient: 0.998
 Coefficient of Determination (Adjusted): 0.994

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.025909	2.5	2804546.0	1.036353	Y
2	IC 320-263888/3	0.05	0.045698	2.5	2924195.0	0.913961	Y
3	IC 320-263888/4	0.25	0.221832	2.5	2908878.0	0.887328	Y
4	IC 320-263888/5	1.0	0.868094	2.5	2905371.0	0.868094	Y
5	IC 320-263888/6	2.5	2.219911	2.5	2815537.0	0.887965	Y
6	IC 320-263888/7	5.0	4.691781	2.5	2830496.0	0.938356	Y
7	IC 320-263888/8	10.0	8.640582	2.5	2787447.0	0.864058	Y



Calibration

/ N-ethylperfluorooctanesulfonamidoacetic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

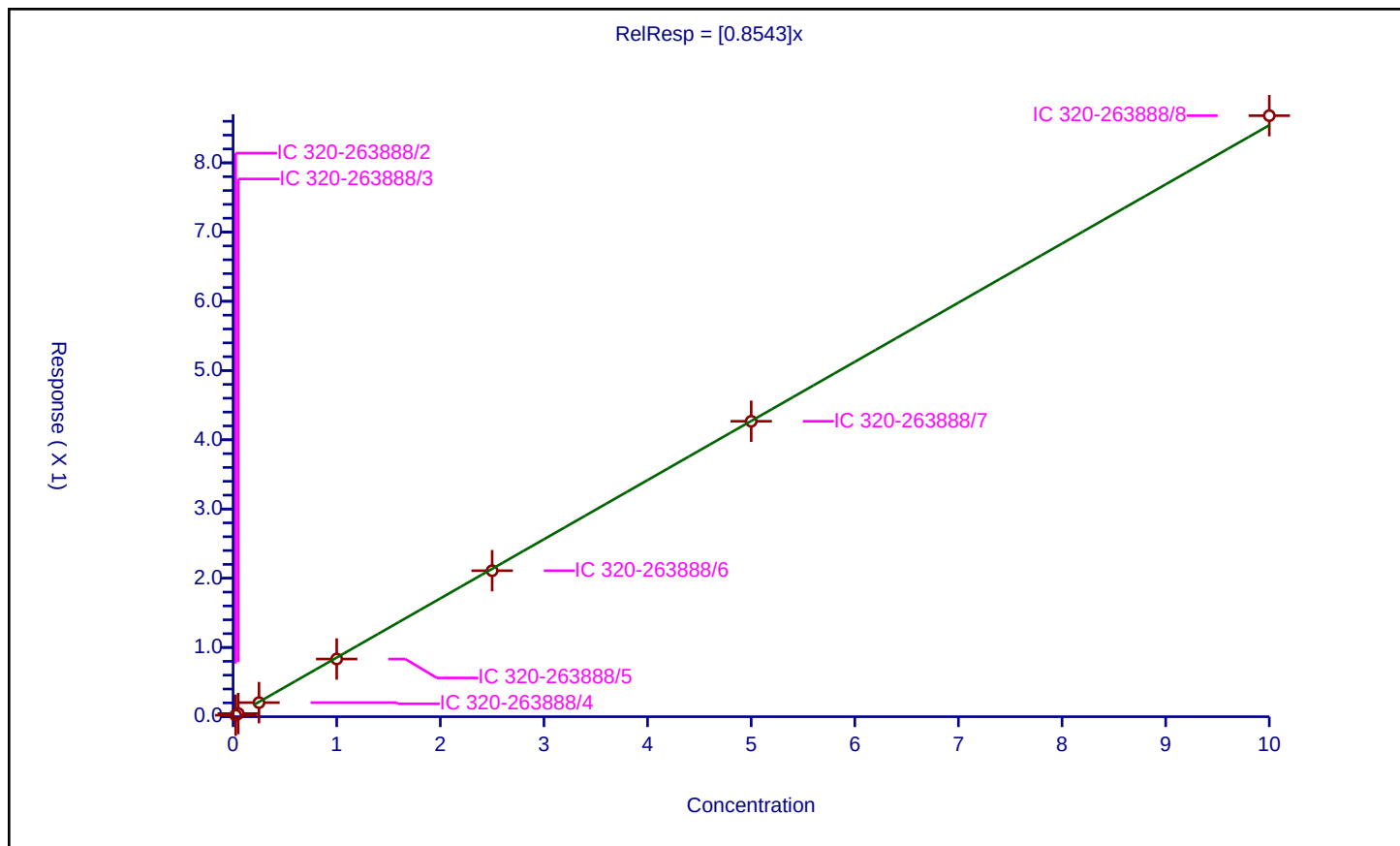
Curve Coefficients

Intercept: 0
 Slope: 0.8543

Error Coefficients

Standard Error: 3110000
 Relative Standard Error: 3.6
 Correlation Coefficient: 0.999
 Coefficient of Determination (Adjusted): 0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.021425	2.5	1973935.0	0.857019	Y
2	IC 320-263888/3	0.05	0.045552	2.5	2007117.0	0.911033	Y
3	IC 320-263888/4	0.25	0.203467	2.5	2033921.0	0.813866	Y
4	IC 320-263888/5	1.0	0.833405	2.5	2061954.0	0.833405	Y
5	IC 320-263888/6	2.5	2.108964	2.5	2045443.0	0.843585	Y
6	IC 320-263888/7	5.0	4.267129	2.5	2018360.0	0.853426	Y
7	IC 320-263888/8	10.0	8.681045	2.5	1882597.0	0.868105	Y



Calibration

/ Perfluorododecanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

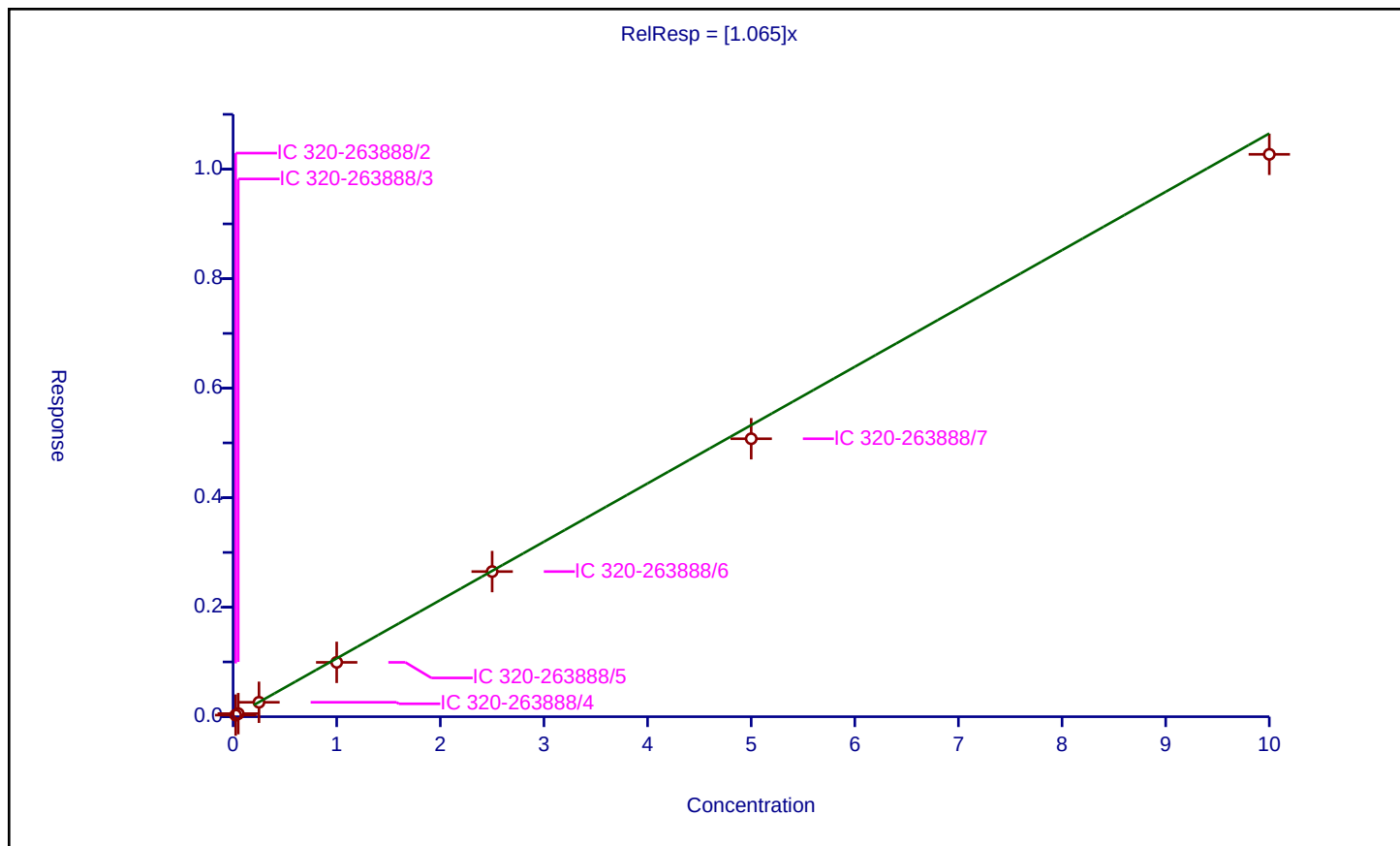
Curve Coefficients

Intercept: 0
 Slope: 1.065

Error Coefficients

Standard Error: 5610000
 Relative Standard Error: 6.2
 Correlation Coefficient: 1.000
 Coefficient of Determination (Adjusted): 0.995

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.029502	2.5	2911099.0	1.18007	Y
2	IC 320-263888/3	0.05	0.056342	2.5	2921731.0	1.126832	Y
3	IC 320-263888/4	0.25	0.263375	2.5	3009330.0	1.0535	Y
4	IC 320-263888/5	1.0	0.992841	2.5	2986227.0	0.992841	Y
5	IC 320-263888/6	2.5	2.650553	2.5	2935236.0	1.060221	Y
6	IC 320-263888/7	5.0	5.076265	2.5	2902486.0	1.015253	Y
7	IC 320-263888/8	10.0	10.270158	2.5	2908000.0	1.027016	Y



Calibration

/ Perfluorotridecanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

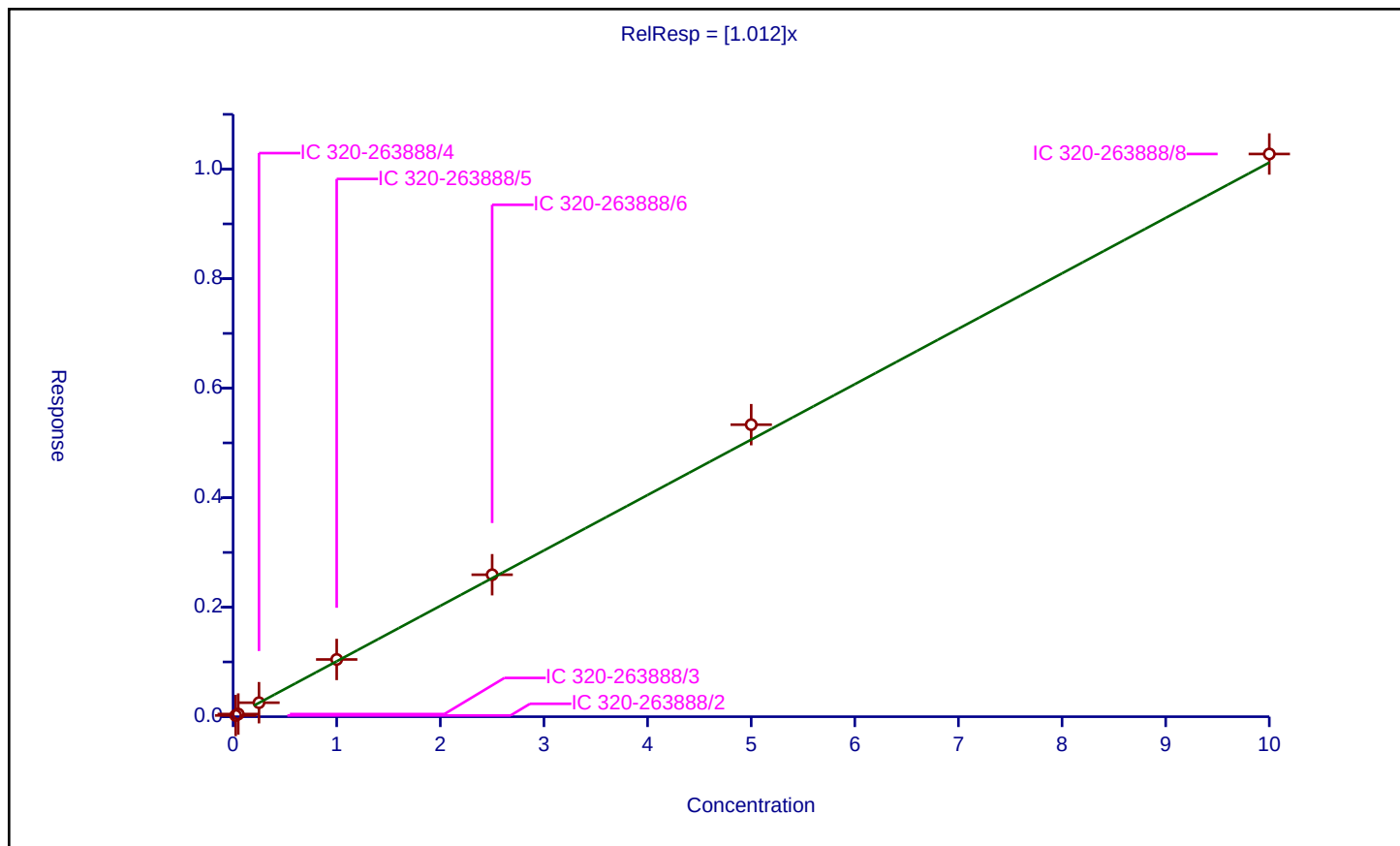
Curve Coefficients

Intercept: 0
 Slope: 1.012

Error Coefficients

Standard Error: 5660000
 Relative Standard Error: 5.3
 Correlation Coefficient: 1.000
 Coefficient of Determination (Adjusted): 0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.022694	2.5	2911099.0	0.907767	Y
2	IC 320-263888/3	0.05	0.048816	2.5	2921731.0	0.976322	Y
3	IC 320-263888/4	0.25	0.255883	2.5	3009330.0	1.02353	Y
4	IC 320-263888/5	1.0	1.045466	2.5	2986227.0	1.045466	Y
5	IC 320-263888/6	2.5	2.592878	2.5	2935236.0	1.037151	Y
6	IC 320-263888/7	5.0	5.333226	2.5	2902486.0	1.066645	Y
7	IC 320-263888/8	10.0	10.276506	2.5	2908000.0	1.027651	Y



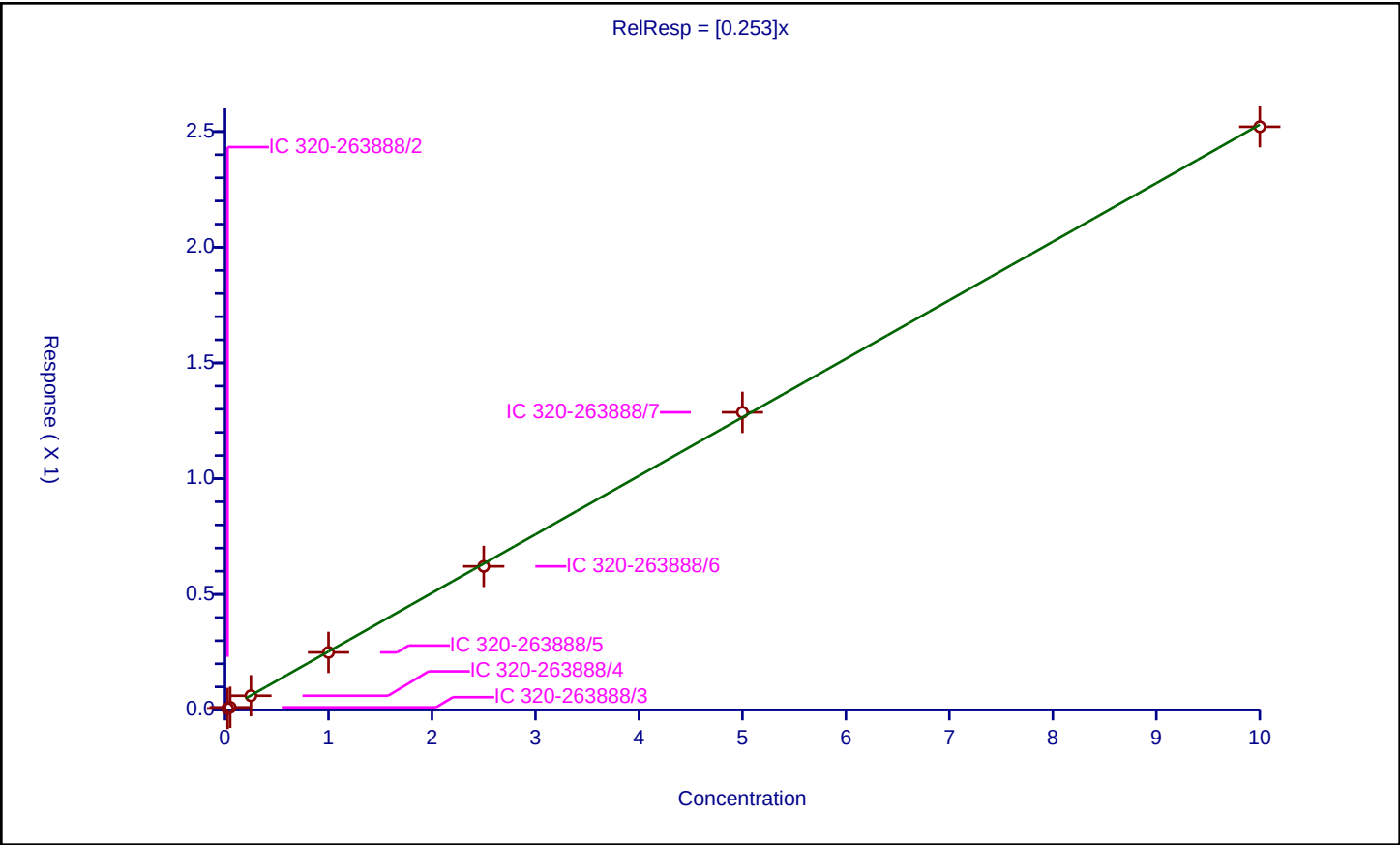
Calibration

/ Perfluorotetradecanoic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

Curve Coefficients	
Intercept:	0
Slope:	0.253
Error Coefficients	
Standard Error:	1580000
Relative Standard Error:	4.4
Correlation Coefficient:	0.998
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263888/2	0.025	0.006892	2.5	3308673.0	0.275669	Y
2	IC 320-263888/3	0.05	0.012011	2.5	3462400.0	0.240224	Y
3	IC 320-263888/4	0.25	0.062075	2.5	3467600.0	0.248301	Y
4	IC 320-263888/5	1.0	0.24916	2.5	3427528.0	0.24916	Y
5	IC 320-263888/6	2.5	0.620937	2.5	3463798.0	0.248375	Y
6	IC 320-263888/7	5.0	1.286463	2.5	3505989.0	0.257293	Y
7	IC 320-263888/8	10.0	2.520828	2.5	3275425.0	0.252083	Y



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: ICV 320-263888/10 Calibration Date: 12/08/2018 06:16

Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01

Lab File ID: 2018.12.07ICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9132	0.9513		2.60	2.50	4.2	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.095	1.096		2.50	2.50	0.0	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.9874	0.9814		2.20	2.21	-0.6	30.0
4:2 FTS	AveID	0.1892	0.1963		2.42	2.34	3.7	30.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	0.9574		2.36	2.50	-5.4	30.0
Perfluoropentanesulfonic acid	AveID	0.8643	0.8939		2.43	2.35	3.4	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.129	1.078		2.39	2.50	-4.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.062	1.052		2.26	2.28	-1.0	30.0
6:2 FTS	AveID	1.556	1.583		2.42	2.38	1.7	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.286	1.346		2.49	2.38	4.7	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.149		2.56	2.50	2.3	30.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.121	1.083		2.24	2.31	-3.4	30.0
Perfluorononanoic acid (PFNA)	AveID	1.053	1.042		2.47	2.50	-1.0	30.0
Perfluorononanesulfonic acid	AveID	0.7820	0.8148		2.50	2.40	4.2	30.0
8:2 FTS	AveID	1.308	1.316		2.42	2.40	0.6	30.0
Perfluorodecanoic acid (PFDA)	AveID	0.9686	0.9669		2.50	2.50	-0.2	30.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.9375	0.9815		2.62	2.50	4.7	30.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	0.9247	1.043		2.82	2.50	12.8	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6393	0.6504		2.45	2.41	1.7	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9137	0.8805		2.41	2.50	-3.6	30.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.8543	0.9298		2.72	2.50	8.8	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.065	1.116		2.62	2.50	4.8	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	1.012	1.122		2.77	2.50	10.9	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2530	0.2545		2.51	2.50	0.6	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9150		2.59	2.50	3.5	30.0
13C4 PFBA	Ave	1.505	1.461		2.43	2.50	-2.9	30.0
13C5 PFPeA	Ave	0.9872	0.9649		2.44	2.50	-2.3	30.0
13C3 PFBS	Ave	1.529	1.489		2.26	2.33	-2.6	30.0
13C2 PFHxA	Ave	1.031	1.031		2.50	2.50	-0.0	30.0
13C4 PFHpA	Ave	0.9896	1.014		2.56	2.50	2.5	30.0
18O2 PFHxS	Ave	1.192	1.145		2.27	2.37	-3.9	30.0
M2-6:2 FTS	Ave	0.1789	0.1816		2.41	2.38	1.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: ICV 320-263888/10 Calibration Date: 12/08/2018 06:16
 Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01
 Lab File ID: 2018.12.07ICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9852	0.9569		2.43	2.50	-2.9	30.0
13C4 PFOS	Ave	0.7858	0.7801		2.37	2.39	-0.7	30.0
13C5 PFNA	Ave	0.8198	0.7986		2.44	2.50	-2.6	30.0
13C2 PFDA	Ave	0.7365	0.7324		2.49	2.50	-0.6	30.0
M2-8:2 FTS	Ave	0.1946	0.1977		2.43	2.40	1.6	30.0
13C8 FOSA	Ave	1.170	1.130		2.41	2.50	-3.5	30.0
d3-NMeFOSAA	Ave	0.3898	0.3920		2.51	2.50	0.6	30.0
13C2 PFUnA	Ave	0.5834	0.5699		2.44	2.50	-2.3	30.0
d5-NEtFOSAA	Ave	0.4094	0.4076		2.49	2.50	-0.4	30.0
13C2 PFDoA	Ave	0.6009	0.5760		2.40	2.50	-4.2	30.0
13C2 PFTeDA	Ave	0.6981	0.6755		2.42	2.50	-3.2	30.0
13C2 PFHxDA	Ave	1.226	1.222		2.49	2.50	-0.3	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Instrument ID: A8_N Start Date: 12/27/2018 17:38Analysis Batch Number: 267787 End Date: 12/27/2018 18:23

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 320-267787/1		12/27/2018 17:38	1	2018.12.27LLBB_ 004.d	GeminiC18 3x100 3(mm)
CCVL 320-267787/2		12/27/2018 17:45	1	2018.12.27LLBB_ 005.d	GeminiC18 3x100 3(mm)
CCV 320-267787/3 CCVIS		12/27/2018 17:53	1	2018.12.27LLBB_ 006.d	GeminiC18 3x100 3(mm)
ZZZZZ		12/27/2018 18:00	1		GeminiC18 3x100 3(mm)
ZZZZZ		12/27/2018 18:08	1		GeminiC18 3x100 3(mm)
ZZZZZ		12/27/2018 18:15	1		GeminiC18 3x100 3(mm)
CCV 320-267787/7		12/27/2018 18:23	1		GeminiC18 3x100 3(mm)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCVL 320-267787/2 Calibration Date: 12/27/2018 17:45

Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01

Lab File ID: 2018.12.27LLBB_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9132	0.7952		0.0435	0.0500	-12.9	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.095	1.173		0.0535	0.0500	7.1	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.9874	0.9295		0.0416	0.0442	-5.9	30.0
4:2 FTS	AveID	0.1892	0.2519		0.622	0.467	33.1*	30.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	0.9230		0.0456	0.0500	-8.8	30.0
Perfluoropentanesulfonic acid	AveID	0.8643	0.8023		0.0435	0.0469	-7.2	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.129	1.093		0.0484	0.0500	-3.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.062	1.149		0.0492	0.0455	8.2	30.0
6:2 FTS	AveID	1.556	1.593		0.485	0.474	2.4	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.286	1.279		0.0473	0.0476	-0.6	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.233		0.0549	0.0501	9.7	30.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.121	1.052		0.0435	0.0464	-6.1	30.0
Perfluorononanoic acid (PFNA)	AveID	1.053	0.9570		0.0455	0.0500	-9.1	30.0
Perfluorononanesulfonic acid	AveID	0.7820	0.7032		0.0432	0.0480	-10.1	30.0
8:2 FTS	AveID	1.308	1.287		0.471	0.479	-1.6	30.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.9375	0.9448		0.0504	0.0500	0.8	30.0
Perfluorodecanoic acid (PFDA)	AveID	0.9686	0.9267		0.0478	0.0500	-4.3	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.9247	0.9202		0.498	0.500	-0.5	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6393	0.6340		0.0478	0.0482	-0.8	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9137	0.9070		0.0496	0.0500	-0.7	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8543	0.7868		0.460	0.500	-7.9	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.065	0.9332		0.0438	0.0500	-12.4	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	1.012	0.9783		0.0483	0.0500	-3.3	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2530	0.2478		0.0490	0.0500	-2.1	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.304		0.0509	0.0500	1.9	30.0
13C4 PFBA	Ave	1.505	1.518		2.52	2.50	0.9	30.0
13C5 PFPeA	Ave	0.9872	0.9278		2.35	2.50	-6.0	30.0
13C3 PFBS	Ave	1.529	1.478		2.25	2.33	-3.3	30.0
13C2 PFHxA	Ave	1.031	1.049		2.54	2.50	1.7	30.0
13C4 PFHpA	Ave	0.9896	1.030		2.60	2.50	4.0	30.0
18O2 PFHxS	Ave	1.192	1.177		2.33	2.37	-1.3	30.0
M2-6:2 FTS	Ave	0.1789	0.2301		3.05	2.38	28.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-267787/2 Calibration Date: 12/27/2018 17:45
 Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01
 Lab File ID: 2018.12.27LLBB_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9852	0.9932		2.52	2.50	0.8	30.0
13C4 PFOS	Ave	0.7858	0.7672		2.33	2.39	-2.4	30.0
13C5 PFNA	Ave	0.8198	0.7984		2.43	2.50	-2.6	30.0
13C8 FOSA	Ave	1.170	1.124		2.40	2.50	-3.9	30.0
M2-8:2 FTS	Ave	0.1946	0.2390		2.94	2.40	22.9	30.0
13C2 PFDA	Ave	0.7365	0.7010		2.38	2.50	-4.8	30.0
d3-NMeFOSAA	Ave	0.3898	0.4190		2.69	2.50	7.5	30.0
13C2 PFUnA	Ave	0.5834	0.6029		2.58	2.50	3.3	30.0
d5-NEtFOSAA	Ave	0.4094	0.4618		2.82	2.50	12.8	30.0
13C2 PFDoA	Ave	0.6009	0.6090		2.53	2.50	1.3	30.0
13C2 PFTeDA	Ave	0.6981	0.7067		2.53	2.50	1.2	30.0
13C2 PFHxDA	Ave	1.226	1.219		2.48	2.50	-0.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCV 320-267787/3 Calibration Date: 12/27/2018 17:53

Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01

Lab File ID: 2018.12.27LLBB_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9132	0.8822		0.966	1.00	-3.4	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.095	1.047		0.956	1.00	-4.4	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.9874	0.8981		0.804	0.884	-9.0	30.0
4:2 FTS	AveID	0.1892	0.2266		1.12	0.934	19.7	30.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	0.9177		0.907	1.00	-9.3	30.0
Perfluoropentanesulfonic acid	AveID	0.8643	0.8460		0.918	0.938	-2.1	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.129	0.9385		0.832	1.00	-16.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.062	0.9510		0.815	0.910	-10.5	30.0
6:2 FTS	AveID	1.556	1.466		0.893	0.948	-5.8	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.286	1.335		0.988	0.952	3.8	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.025		0.912	1.00	-8.8	30.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.121	1.034		0.857	0.928	-7.7	30.0
Perfluorononanoic acid (PFNA)	AveID	1.053	0.9495		0.902	1.00	-9.8	30.0
Perfluorononanesulfonic acid	AveID	0.7820	0.7803		0.958	0.960	-0.2	30.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.9375	0.9102		0.971	1.00	-2.9	30.0
8:2 FTS	AveID	1.308	1.207		0.884	0.958	-7.7	30.0
Perfluorodecanoic acid (PFDA)	AveID	0.9686	0.9562		0.987	1.00	-1.3	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.9247	0.8500		0.919	1.00	-8.1	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6393	0.6188		0.933	0.964	-3.2	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9137	0.7885		0.863	1.00	-13.7	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8543	0.8005		0.937	1.00	-6.3	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.065	0.9346		0.878	1.00	-12.2	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	1.012	0.9541		0.943	1.00	-5.7	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2530	0.2313		0.914	1.00	-8.6	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8950		0.999	1.00	-0.1	30.0
13C4 PFBA	Ave	1.505	1.454		2.42	2.50	-3.3	30.0
13C5 PFPeA	Ave	0.9872	0.8855		2.24	2.50	-10.3	30.0
13C3 PFBS	Ave	1.529	1.425		2.17	2.33	-6.8	30.0
13C2 PFHxA	Ave	1.031	0.9879		2.40	2.50	-4.2	30.0
13C4 PFHpA	Ave	0.9896	0.9820		2.48	2.50	-0.8	30.0
18O2 PFHxS	Ave	1.192	1.130		2.24	2.37	-5.2	30.0
M2-6:2 FTS	Ave	0.1789	0.2279		3.03	2.38	27.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCV 320-267787/3 Calibration Date: 12/27/2018 17:53
 Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01
 Lab File ID: 2018.12.27LLBB_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9852	0.9669		2.45	2.50	-1.9	30.0
13C4 PFOS	Ave	0.7858	0.7335		2.23	2.39	-6.7	30.0
13C5 PFNA	Ave	0.8198	0.7796		2.38	2.50	-4.9	30.0
13C8 FOSA	Ave	1.170	1.085		2.32	2.50	-7.3	30.0
13C2 PFDA	Ave	0.7365	0.7046		2.39	2.50	-4.3	30.0
M2-8:2 FTS	Ave	0.1946	0.2284		2.81	2.40	17.4	30.0
d3-NMeFOSAA	Ave	0.3898	0.3987		2.56	2.50	2.3	30.0
13C2 PFUnA	Ave	0.5834	0.5797		2.48	2.50	-0.6	30.0
d5-NEtFOSAA	Ave	0.4094	0.4093		2.50	2.50	-0.0	30.0
13C2 PFDoA	Ave	0.6009	0.5770		2.40	2.50	-4.0	30.0
13C2 PFTeDA	Ave	0.6981	0.6445		2.31	2.50	-7.7	30.0
13C2 PFHxDA	Ave	1.226	1.037		2.11	2.50	-15.4	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Instrument ID: A8_N Start Date: 12/28/2018 01:52Analysis Batch Number: 267814 End Date: 12/28/2018 02:45

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-267814/1		12/28/2018 01:52	1	2018.12.27LLBB_ 068.d	GeminiC18 3x100 3(mm)
MB 320-267590/1-A		12/28/2018 02:00	1	2018.12.27LLBB_ 069.d	GeminiC18 3x100 3(mm)
LCS 320-267590/2-A		12/28/2018 02:07	1	2018.12.27LLBB_ 070.d	GeminiC18 3x100 3(mm)
LCSD 320-267590/3-A		12/28/2018 02:15	1	2018.12.27LLBB_ 071.d	GeminiC18 3x100 3(mm)
320-45943-2 RE		12/28/2018 02:22	1	2018.12.27LLBB_ 072.d	GeminiC18 3x100 3(mm)
320-45943-3 RE		12/28/2018 02:30	1	2018.12.27LLBB_ 073.d	GeminiC18 3x100 3(mm)
320-45943-4 RE		12/28/2018 02:37	1	2018.12.27LLBB_ 074.d	GeminiC18 3x100 3(mm)
CCV 320-267814/8		12/28/2018 02:45	1	2018.12.27LLBB_ 075.d	GeminiC18 3x100 3(mm)

PFBA ONLY

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCV 320-267814/1 Calibration Date: 12/28/2018 01:52

Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01

Lab File ID: 2018.12.27LLBB_068.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9132	0.8772		0.961	1.00	-3.9	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.095	1.080		0.986	1.00	-1.4	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.9874	0.9082		0.813	0.884	-8.0	30.0
4:2 FTS	AveID	0.1892	0.2298		1.13	0.934	21.4	30.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	0.8929		0.882	1.00	-11.8	30.0
Perfluoropentanesulfonic acid	AveID	0.8643	0.8330		0.904	0.938	-3.6	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.129	0.9543		0.846	1.00	-15.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.062	0.9677		0.829	0.910	-8.9	30.0
6:2 FTS	AveID	1.556	1.439		0.877	0.948	-7.5	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.286	1.227		0.908	0.952	-4.6	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.057		0.941	1.00	-5.9	30.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.121	0.9921		0.822	0.928	-11.5	30.0
Perfluorononanoic acid (PFNA)	AveID	1.053	0.9939		0.944	1.00	-5.6	30.0
Perfluorononanesulfonic acid	AveID	0.7820	0.7664		0.941	0.960	-2.0	30.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.9375	0.9204		0.982	1.00	-1.8	30.0
8:2 FTS	AveID	1.308	1.220		0.894	0.958	-6.7	30.0
Perfluorodecanoic acid (PFDA)	AveID	0.9686	0.8676		0.896	1.00	-10.4	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.9247	0.8514		0.921	1.00	-7.9	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6393	0.6173		0.931	0.964	-3.4	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9137	0.8436		0.923	1.00	-7.7	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8543	0.7569		0.886	1.00	-11.4	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.065	0.9661		0.907	1.00	-9.3	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	1.012	0.9404		0.929	1.00	-7.1	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2530	0.2404		0.950	1.00	-5.0	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8871		0.990	1.00	-1.0	30.0
13C4 PFBA	Ave	1.505	1.449		2.41	2.50	-3.7	30.0
13C5 PFPeA	Ave	0.9872	0.9181		2.33	2.50	-7.0	30.0
13C3 PFBS	Ave	1.529	1.470		2.24	2.33	-3.9	30.0
13C2 PFHxA	Ave	1.031	1.032		2.50	2.50	0.0	30.0
13C4 PFHpA	Ave	0.9896	0.9940		2.51	2.50	0.4	30.0
18O2 PFHxS	Ave	1.192	1.136		2.25	2.37	-4.7	30.0
M2-6:2 FTS	Ave	0.1789	0.2369		3.14	2.38	32.4*	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCV 320-267814/1 Calibration Date: 12/28/2018 01:52
 Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01
 Lab File ID: 2018.12.27LLBB_068.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9852	0.9813		2.49	2.50	-0.4	30.0
13C4 PFOS	Ave	0.7858	0.7652		2.33	2.39	-2.6	30.0
13C5 PFNA	Ave	0.8198	0.8010		2.44	2.50	-2.3	30.0
13C8 FOSA	Ave	1.170	1.113		2.38	2.50	-4.9	30.0
13C2 PFDA	Ave	0.7365	0.7449		2.53	2.50	1.1	30.0
M2-8:2 FTS	Ave	0.1946	0.2444		3.01	2.40	25.6	30.0
d3-NMeFOSAA	Ave	0.3898	0.4155		2.66	2.50	6.6	30.0
13C2 PFUnA	Ave	0.5834	0.5697		2.44	2.50	-2.3	30.0
d5-NEtFOSAA	Ave	0.4094	0.4507		2.75	2.50	10.1	30.0
13C2 PFDoA	Ave	0.6009	0.5969		2.48	2.50	-0.7	30.0
13C2 PFTeDA	Ave	0.6981	0.6621		2.37	2.50	-5.2	30.0
13C2 PFHxDA	Ave	1.226	1.074		2.19	2.50	-12.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCV 320-267814/8 Calibration Date: 12/28/2018 02:45

Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01

Lab File ID: 2018.12.27LLBB_075.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9132	0.8990		2.46	2.50	-1.6	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.095	1.012		2.31	2.50	-7.6	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.9874	0.9404		2.10	2.21	-4.8	30.0
4:2 FTS	AveID	0.1892	0.2361		2.91	2.34	24.8	30.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	0.9052		2.24	2.50	-10.6	30.0
Perfluoropentanesulfonic acid	AveID	0.8643	0.8562		2.32	2.35	-0.9	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.129	0.9901		2.19	2.50	-12.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.062	0.9767		2.09	2.28	-8.0	30.0
6:2 FTS	AveID	1.556	1.522		2.32	2.37	-2.1	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.286	1.291		2.39	2.38	0.4	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.011		2.25	2.50	-10.0	30.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.121	1.060		2.19	2.32	-5.4	30.0
Perfluorononanoic acid (PFNA)	AveID	1.053	0.9558		2.27	2.50	-9.2	30.0
Perfluorononanesulfonic acid	AveID	0.7820	0.7994		2.45	2.40	2.2	30.0
8:2 FTS	AveID	1.308	1.199		2.20	2.40	-8.3	30.0
Perfluorodecanoic acid (PFDA)	AveID	0.9686	0.9317		2.40	2.50	-3.8	30.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.9375	0.9566		2.55	2.50	2.0	30.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	0.9247	0.8439		2.28	2.50	-8.7	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6393	0.6496		2.45	2.41	1.6	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9137	0.8154		2.23	2.50	-10.8	30.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.8543	0.8205		2.40	2.50	-4.0	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.065	0.9568		2.25	2.50	-10.2	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	1.012	0.9457		2.34	2.50	-6.6	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2530	0.2350		2.32	2.50	-7.1	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8511		2.41	2.50	-3.7	30.0
13C4 PFBA	Ave	1.505	1.486		2.47	2.50	-1.3	30.0
13C5 PFPeA	Ave	0.9872	0.9671		2.45	2.50	-2.0	30.0
13C3 PFBS	Ave	1.529	1.458		2.22	2.33	-4.6	30.0
13C2 PFHxA	Ave	1.031	1.025		2.49	2.50	-0.6	30.0
13C4 PFHpA	Ave	0.9896	1.013		2.56	2.50	2.3	30.0
18O2 PFHxS	Ave	1.192	1.185		2.35	2.37	-0.6	30.0
M2-6:2 FTS	Ave	0.1789	0.2230		2.96	2.38	24.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCV 320-267814/8 Calibration Date: 12/28/2018 02:45
 Instrument ID: A8_N Calib Start Date: 12/08/2018 05:16
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/08/2018 06:01
 Lab File ID: 2018.12.27LLBB_075.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9852	0.9702		2.46	2.50	-1.5	30.0
13C4 PFOS	Ave	0.7858	0.7764		2.36	2.39	-1.2	30.0
13C5 PFNA	Ave	0.8198	0.8550		2.61	2.50	4.3	30.0
13C8 FOSA	Ave	1.170	1.114		2.38	2.50	-4.8	30.0
13C2 PFDA	Ave	0.7365	0.7437		2.52	2.50	1.0	30.0
M2-8:2 FTS	Ave	0.1946	0.2533		3.12	2.40	30.2*	30.0
d3-NMeFOSAA	Ave	0.3898	0.4418		2.83	2.50	13.3	30.0
13C2 PFUnA	Ave	0.5834	0.6167		2.64	2.50	5.7	30.0
d5-NEtFOSAA	Ave	0.4094	0.4651		2.84	2.50	13.6	30.0
13C2 PFDoA	Ave	0.6009	0.6268		2.61	2.50	4.3	30.0
13C2 PFTeDA	Ave	0.6981	0.7189		2.57	2.50	3.0	30.0
13C2 PFHxDA	Ave	1.226	1.207		2.46	2.50	-1.6	30.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-45943-1</u>
SDG No.: _____	
Client Sample ID: _____	Lab Sample ID: <u>ICB 320-263888/9</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.12.07ICAL_012.d</u>
Analysis Method: <u>EPA 537 (Mod)</u>	Date Collected: _____
Extraction Method: _____	Date Extracted: _____
Sample wt/vol: <u>1(mL)</u>	Date Analyzed: <u>12/08/2018 06:09</u>
Con. Extract Vol.: _____	Dilution Factor: <u>1</u>
Injection Volume: <u>20(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>263888</u>	Units: <u>ng/mL</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	0.040	U	0.050	0.040	0.0088
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.040	U	0.050	0.040	0.012
307-24-4	Perfluorohexanoic acid (PFHxA)	0.040	U	0.050	0.040	0.015
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.040	U	0.050	0.040	0.0063
335-67-1	Perfluorooctanoic acid (PFOA)	0.040	U	0.050	0.040	0.021
375-95-1	Perfluorononanoic acid (PFNA)	0.040	U	0.050	0.040	0.0068
335-76-2	Perfluorodecanoic acid (PFDA)	0.040	U	0.050	0.040	0.0078
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.040	U	0.050	0.040	0.028
307-55-1	Perfluorododecanoic acid (PFDoA)	0.040	U	0.050	0.040	0.014
72629-94-8	Perfluorotridecanoic acid (PFTriA)	0.040	U	0.050	0.040	0.033
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.040	U	0.050	0.040	0.0073
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.040	U	0.050	0.040	0.0050
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.00961	J	0.050	0.040	0.0043
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.040	U	0.050	0.040	0.0048
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.040	U	0.050	0.040	0.014
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.040	U	0.050	0.040	0.0080
754-91-6	Perfluorooctanesulfonamide (PFOSA)	0.040	U	0.050	0.040	0.0088

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: ICB 320-263888/9
 Matrix: Water Lab File ID: 2018.12.07ICAL_012.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/08/2018 06:09
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 263888 Units: ng/mL

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	99		50-150
STL00992	13C4 PFBA	100		50-150
STL01893	13C5 PFPeA	99		50-150
STL00993	13C2 PFHxA	102		50-150
STL01892	13C4 PFHpA	100		50-150
STL00990	13C4 PFOA	98		50-150
STL00995	13C5 PFNA	98		50-150
STL00996	13C2 PFDA	100		50-150
STL00997	13C2 PFUnA	97		50-150
STL00998	13C2 PFDoA	100		50-150
STL00994	18O2 PFHxS	98		50-150
STL02116	13C2 PFTeDA	98		50-150
STL00991	13C4 PFOS	98		50-150
STL02337	13C3 PFBS	97		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: CCB 320-267787/1
 Matrix: Water Lab File ID: 2018.12.27LLBB_004.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/27/2018 17:38
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 267787 Units: ng/mL

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	0.040	U M	0.050	0.040	0.0088
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.040	U M	0.050	0.040	0.012
307-24-4	Perfluorohexanoic acid (PFHxA)	0.040	U	0.050	0.040	0.015
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.040	U	0.050	0.040	0.0063
335-67-1	Perfluorooctanoic acid (PFOA)	0.040	U M	0.050	0.040	0.021
375-95-1	Perfluorononanoic acid (PFNA)	0.040	U	0.050	0.040	0.0068
335-76-2	Perfluorodecanoic acid (PFDA)	0.040	U	0.050	0.040	0.0078
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.040	U	0.050	0.040	0.028
307-55-1	Perfluorododecanoic acid (PFDoA)	0.040	U	0.050	0.040	0.014
72629-94-8	Perfluorotridecanoic acid (PFTriA)	0.040	U	0.050	0.040	0.033
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.040	U	0.050	0.040	0.0073
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.040	U	0.050	0.040	0.0050
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.00721	J M	0.050	0.040	0.0043
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.040	U	0.050	0.040	0.0048
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.040	U	0.050	0.040	0.014
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.040	U	0.050	0.040	0.0080
754-91-6	Perfluorooctanesulfonamide (PFOSA)	0.040	U M	0.050	0.040	0.0088

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: CCB 320-267787/1
 Matrix: Water Lab File ID: 2018.12.27LLBB_004.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/27/2018 17:38
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 267787 Units: ng/mL

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	97		50-150
STL00992	13C4 PFBA	101		50-150
STL01893	13C5 PFPeA	98		50-150
STL00993	13C2 PFHxA	101		50-150
STL01892	13C4 PFHpA	102		50-150
STL00990	13C4 PFOA	103		50-150
STL00995	13C5 PFNA	103		50-150
STL00996	13C2 PFDA	100		50-150
STL00997	13C2 PFUnA	108		50-150
STL00998	13C2 PFDoA	105		50-150
STL00994	18O2 PFHxS	97		50-150
STL02116	13C2 PFTeDA	104		50-150
STL00991	13C4 PFOS	101		50-150
STL02337	13C3 PFBS	99		50-150

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Instrument ID: A9 Start Date: 12/07/2018 03:11Analysis Batch Number: 263574 End Date: 12/07/2018 04:11

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-263574/2		12/07/2018 03:11	1	2018.12.06ICALB 002.d	Acquity 2.1 (mm)
IC 320-263574/3		12/07/2018 03:18	1	2018.12.06ICALB 003.d	Acquity 2.1 (mm)
IC 320-263574/4		12/07/2018 03:26	1	2018.12.06ICALB 004.d	Acquity 2.1 (mm)
IC 320-263574/5 ICIS		12/07/2018 03:33	1	2018.12.06ICALB 005.d	Acquity 2.1 (mm)
IC 320-263574/6		12/07/2018 03:41	1	2018.12.06ICALB 006.d	Acquity 2.1 (mm)
IC 320-263574/7		12/07/2018 03:48	1	2018.12.06ICALB 007.d	Acquity 2.1 (mm)
IC 320-263574/8		12/07/2018 03:55	1	2018.12.06ICALB 008.d	Acquity 2.1 (mm)
ICB 320-263574/9		12/07/2018 04:03	1	2018.12.06ICALB 009.d	Acquity 2.1 (mm)
ICV 320-263574/10		12/07/2018 04:11	1	2018.12.06ICALB 010.d	Acquity 2.1 (mm)

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263574

SDG No.: _____

Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 03:11 Calibration End Date: 12/07/2018 03:55 Calibration ID: 42635

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263574/2	2018.12.06ICALB_002.d
Level 2	IC 320-263574/3	2018.12.06ICALB_003.d
Level 3	IC 320-263574/4	2018.12.06ICALB_004.d
Level 4	IC 320-263574/5	2018.12.06ICALB_005.d
Level 5	IC 320-263574/6	2018.12.06ICALB_006.d
Level 6	IC 320-263574/7	2018.12.06ICALB_007.d
Level 7	IC 320-263574/8	2018.12.06ICALB_008.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	1.0606 0.9162	1.0241 0.8494	0.9850	0.9719	0.9803	AveID		0.9696				7.2		20.0			
Perfluoropentanoic acid (PFPeA)	1.2257 0.9479	1.1251 0.8796	1.0616	1.0220	1.0392	AveID		1.0430				10.8		20.0			
Perfluorobutanesulfonic acid (PFBS)	1.0078 0.9739	1.0453 0.8790	0.9870	1.0367	1.0529	AveID		0.9975				6.0		20.0			
4:2 FTS	0.1685 0.1780	0.1805 0.1652	0.1714	0.1774	0.1689	AveID		0.1728				3.4		20.0			
Perfluorohexanoic acid (PFHxA)	1.0190 0.8498	0.8725 0.7556	0.9221	0.9014	0.8507	AveID		0.8816				9.1		20.0			
Perfluoropentanesulfonic acid	0.4887 0.5011	0.5146 0.4543	0.5029	0.4765	0.4844	AveID		0.4889				4.1		20.0			
Perfluoroheptanoic acid (PFHpA)	1.2794 0.9857	1.0975 0.8785	1.2089	1.1014	1.0264	AveID		1.0826				12.5		20.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4498 1.1485	1.3302 1.1546	1.1849	1.1316	1.2405	AveID		1.2343				9.5		20.0			
6:2 FTS	1.8992 2.0573	2.2791 2.1109	2.1906	2.1517	2.1468	AveID		2.1194				5.6		20.0			
Perfluoroheptanesulfonic Acid (PFHpS)	1.0313 1.0325	1.0744 0.9705	1.0996	1.1019	1.1527	AveID		1.0661				5.6		20.0			
Perfluorooctanoic acid (PFOA)	+++++ 0.9256	1.1140 0.8147	1.0972	1.1150	1.0796	AveID		1.0244				12.2		20.0			
Perfluorooctanesulfonic acid (PFOS)	0.9584 1.0782	1.0219 1.0708	1.0926	1.1276	1.1855	AveID		1.0764				6.8		20.0			
Perfluorononanoic acid (PFNA)	1.1102 0.9368	1.0655 0.8018	1.0969	1.0823	0.9727	AveID		1.0094				11.1		20.0			
Perfluorononanesulfonic acid	0.6205 0.6212	0.6678 0.5874	0.7031	0.7092	0.6879	AveID		0.6567				7.2		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263574
SDG No.: _____
Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N
Calibration Start Date: 12/07/2018 03:11 Calibration End Date: 12/07/2018 03:55 Calibration ID: 42635

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorooctanesulfonamide (FOSA)	3.1100 2.7443	3.0264 2.4864	3.0818	3.1005	2.8381	AveID		2.9125				8.1		20.0			
Perfluorodecanoic acid (PFDA)	1.2910 0.9310	1.1584 0.8695	1.2135	1.2756	1.0950	AveID		1.1192				14.7		20.0			
8:2 FTS	12.821 13.682	13.695 13.297	13.855	16.047	15.434	AveID		14.119				8.3		20.0			
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.9435 0.9033	0.7812 0.8324	0.9039	0.8782	0.8506	AveID		0.8704				6.2		20.0			
Perfluorodecanesulfonic acid (PFDS)	0.9159 0.8939	0.9074 0.8201	0.9873	0.9646	1.0755	AveID		0.9378				8.6		20.0			
Perfluoroundecanoic acid (PFUnA)	0.9889 0.8067	0.8801 0.6952	0.9153	0.8571	0.8431	AveID		0.8552				10.7		20.0			
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.6902 0.8763	0.8515 0.8272	0.8182	0.8477	0.8234	AveID		0.8192				7.4		20.0			
Perfluorododecanoic acid (PFDoA)	1.1047 0.8952	1.0377 0.7613	1.1036	1.0425	1.0767	AveID		1.0031				12.8		20.0			
Perfluorotridecanoic acid (PFTriA)	0.8692 0.7596	0.8668 0.6522	0.9020	0.8572	0.8653	AveID		0.8246				10.7		20.0			
Perfluorotetradecanoic acid (PFTeA)	0.2121 0.1818	0.1835 0.1805	0.1749	0.1742	0.1748	AveID		0.1831				7.3		20.0			
13C4 PFBA	0.9262 0.9861	0.9329 0.9822	0.9186	0.9429	0.9887	Ave		0.9539				3.2		20.0			
13C5 PFPeA	0.8110 0.8440	0.7655 0.8501	0.7967	0.8055	0.8266	Ave		0.8142				3.6		20.0			
13C3 PFBS	1.1934 1.1517	1.1027 1.1911	1.1341	1.1475	1.1804	Ave		1.1573				2.9		20.0			
13C2 PFHxA	0.9049 0.9074	0.8622 0.9415	0.8677	0.8944	0.9151	Ave		0.8990				3.1		20.0			
13C4 PFHpA	1.0641 1.1019	1.1182 1.0787	1.0656	1.0893	1.1023	Ave		1.0886				1.9		20.0			
18O2 PFHxS	0.6840 0.7174	0.6878 0.6709	0.6862	0.7177	0.6776	Ave		0.6917				2.7		20.0			
M2-6:2 FTS	0.0878 0.0885	0.0824 0.0827	0.0882	0.0864	0.0864	Ave		0.0861				3.0		20.0			
13C4 PFOA	0.9956 1.0068	0.9778 0.9842	0.9924	0.9859	0.9836	Ave		0.9895				1.0		20.0			
13C4 PFOS	0.7060 0.7012	0.6926 0.6711	0.6680	0.6868	0.6441	Ave		0.6814				3.2		20.0			
13C5 PFNA	0.9372 0.9135	0.8997 0.8991	0.8961	0.8801	0.9740	Ave		0.9142				3.5		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263574

SDG No.: _____

Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 03:11 Calibration End Date: 12/07/2018 03:55 Calibration ID: 42635

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
13C8 FOSA	0.4620 0.4317	0.4305 0.4107	0.4468	0.4377	0.4422	Ave		0.4374				3.6		20.0			
M2-8:2 FTS	0.0117 0.0121	0.0114 0.0115	0.0117	0.0103	0.0107	Ave		0.0113				5.6		20.0			
13C2 PFDA	0.9844 0.9788	0.9693 0.9050	0.9655	0.9460	0.9627	Ave		0.9588				2.8		20.0			
d3-NMeFOSAA	0.4248 0.4278	0.4210 0.4387	0.3988	0.4195	0.4363	Ave		0.4238				3.1		20.0			
13C2 PFAUnA	0.8522 0.8224	0.8171 0.7943	0.8040	0.8525	0.8627	Ave		0.8293				3.2		20.0			
d5-NEtFOSAA	0.3623 0.3486	0.3456 0.3385	0.3742	0.3502	0.3786	Ave		0.3569				4.3		20.0			
13C2 PFDoA	1.0246 1.0252	1.0076 0.9783	0.9706	1.0045	0.9366	Ave		0.9925				3.3		20.0			
13C2 PFTeDA	0.7950 0.8113	0.7695 0.8076	0.7855	0.7985	0.7724	Ave		0.7914				2.1		20.0			
13C2 PFHxDA	0.7999 0.8270	0.7148 0.8110	0.7701	0.8041	0.7975	Ave		0.7892				4.7		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263574

SDG No.: _____

Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 03:11 Calibration End Date: 12/07/2018 03:55 Calibration ID: 42635

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263574/2	2018.12.06ICALB_002.d
Level 2	IC 320-263574/3	2018.12.06ICALB_003.d
Level 3	IC 320-263574/4	2018.12.06ICALB_004.d
Level 4	IC 320-263574/5	2018.12.06ICALB_005.d
Level 5	IC 320-263574/6	2018.12.06ICALB_006.d
Level 6	IC 320-263574/7	2018.12.06ICALB_007.d
Level 7	IC 320-263574/8	2018.12.06ICALB_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	83937 15255080	134770 26184716	797898	3273262	6543504	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	84942 13509191	121494 23467961	745833	2940426	5799686	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	90849 16741639	143730 29051287	872655	3756372	7418078	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	16051 3233602	26223 5766958	160120	679301	1256984	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	78790 13020503	106112 22327036	705624	2879650	5256114	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanesulfonic acid		AveID	46749 9141012	75080 15929410	471824	1832099	3621491	0.0235 4.69	0.0469 9.38	0.235	0.938	2.35
Perfluoroheptanoic acid (PFHpA)		AveID	116324 18340514	173126 29742770	1135958	4285135	7638809	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	77112 12659990	117447 22126360	652430	2639849	5164472	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
6:2 FTS		AveID	13503 2915305	25102 5194072	161549	629816	1186826	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	59227 11637437	99938 19462004	616669	2573257	4771892	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorooctanoic acid (PFOA)		AveID	+++++ 15751171	153814 25192629	961179	3930140	7177134	+++++ 5.01	0.0501 10.0	0.250	1.00	2.50
Perfluorooctanesulfonic acid (PFOS)		AveID	53656 11845626	26660 20931676	597305	2566814	4784115	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid (PFNA)		AveID	88902 14448884	135228 22626203	866804	3402004	6397140	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorononanesulfonic acid		AveID	35933 7060057	62639 11877424	397655	1670031	2871698	0.0240 4.80	0.0480 9.60	0.240	0.960	2.40
Perfluorooctanesulfonamide (FOSA)		AveID	122759 20002243	183789 32051634	1214423	4847332	8472638	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263574

SDG No.: _____

Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 03:11 Calibration End Date: 12/07/2018 03:55 Calibration ID: 42635

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorodecanoic acid (PFDA)		AveID	108592 15385676	158406 24696338	1033201	4310230	7117113	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
8:2 FTS		AveID	12300 2682084	21101 4578346	137173	567379	1063292	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)		AveID	34246 6525581	46401 11461188	317915	1315689	2505483	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	53264 10201541	85472 16652366	560674	2280899	4508460	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
Perfluoroundecanoic acid (PFUnA)		AveID	72013 11201018	101441 17331647	648978	2609979	4910867	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)		AveID	21369 5158335	41519 8787853	270042	1060366	2104857	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorododecanoic acid (PFDoA)		AveID	96710 15495379	147490 23376557	944560	3740299	6809111	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic acid (PFTriA)		AveID	76093 13149306	123197 20024988	772025	3075431	5471767	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	14411 2490741	19924 4574989	121138	496949	911463	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PF OA	Ave	7913912 8325188	6580214 7706658	8100581	8419837	6675011	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PF OA	Ave	6929834 7125505	5399088 6670072	7025457	7192931	5580895	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3 PFBS	13PF OA	Ave	9483811 9042308	7233149 8692070	9301517	9529619	7411901	2.33 2.33	2.33 2.33	2.33	2.33	2.33
13C2 PFHxA	13PF OA	Ave	7732048 7660506	6081254 7387602	7652157	7986210	6178647	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFHpA	13PF OA	Ave	9092006 9302917	7886985 8464351	9396826	9726558	7442204	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PF OA	Ave	5529353 5729501	4589168 4980296	5724232	6062632	4327866	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2 FTS	13PF OA	Ave	712482 710026	551855 616451	739027	733299	553999	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C4 PFOA	13PF OA	Ave	8507401 8500097	6897016 7722619	8751644	8803210	6641096	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFOS	13PF OA	Ave	5767166 5659063	4670445 5034440	5631921	5862524	4157226	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PF OA	Ave	8007939 7712203	6345975 7054588	7902533	7858499	6576402	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 FOSA	13PF OA	Ave	3947297 3644286	3036402 3222755	3940633	3908525	2985331	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2 FTS	13PF OA	Ave	95935 98015	77041 86079	99006	88391	68895	2.40 2.40	2.40 2.40	2.40	2.40	2.40

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263574

SDG No.: _____

Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 03:11 Calibration End Date: 12/07/2018 03:55 Calibration ID: 42635

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C2 PFDA	13PF OA	Ave	8411234 8263075	6836989 7100956	8514345	8447125	6499495	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	3629648 3611970	2969798 3442201	3517092	3745449	2945665	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	7282018 6942772	5763014 6232580	7090461	7612518	5824916	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	3096158 2943341	2437885 2655788	3300247	3127021	2556165	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	8754800 8654978	7106702 7676158	8559039	8969509	6323862	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFTeDA	13PF OA	Ave	6793009 6849299	5427444 6336537	6927320	7130191	5214966	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFHxDA	13PF OA	Ave	6834908 6981596	5041617 6363155	6791723	7180003	5384511	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD
AveID = Average isotope dilution

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263574

SDG No.: _____

Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 03:11 Calibration End Date: 12/07/2018 03:55 Calibration ID: 42635

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263574/2	2018.12.06ICALB_002.d
Level 2	IC 320-263574/3	2018.12.06ICALB_003.d
Level 3	IC 320-263574/4	2018.12.06ICALB_004.d
Level 4	IC 320-263574/5	2018.12.06ICALB_005.d
Level 5	IC 320-263574/6	2018.12.06ICALB_006.d
Level 6	IC 320-263574/7	2018.12.06ICALB_007.d
Level 7	IC 320-263574/8	2018.12.06ICALB_008.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanoic acid (PFBA)	9.4 -12.4	5.6	1.6	0.2	1.1	-5.5	30 30	30	30	30	30	30
Perfluoropentanoic acid (PFPeA)	17.5 -15.7	7.9	1.8	-2.0	-0.4	-9.1	30 30	30	30	30	30	30
Perfluorobutanesulfonic acid (PFBS)	1.0 -11.9	4.8	-1.1	3.9	5.6	-2.4	30 30	30	30	30	30	30
4:2 FTS	-2.5 -4.4	4.4	-0.8	2.7	-2.3	3.0	30 30	30	30	30	30	30
Perfluorohexanoic acid (PFHxA)	15.6 -14.3	-1.0	4.6	2.3	-3.5	-3.6	30 30	30	30	30	30	30
Perfluoropentanesulfonic acid	0.0 -7.1	5.2	2.9	-2.5	-0.9	2.5	30 30	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	18.2 -18.9	1.4	11.7	1.7	-5.2	-8.9	30 30	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	17.5 -6.5	7.8	-4.0	-8.3	0.5	-7.0	30 30	30	30	30	30	30
6:2 FTS	-10.4 -0.4	7.5	3.4	1.5	1.3	-2.9	30 30	30	30	30	30	30
Perfluoroheptanesulfonic Acid (PFHpS)	-3.3 -9.0	0.8	3.1	3.4	8.1	-3.2	30 30	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	++++ -20.5	8.7	7.1	8.8	5.4	-9.6	30 30	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-11.0 -0.5	-5.1	1.5	4.8	10.1	0.2	30 30	30	30	30	30	30
Perfluorononanoic acid (PFNA)	10.0 -20.6	5.5	8.7	7.2	-3.6	-7.2	30 30	30	30	30	30	30
Perfluorononanesulfonic acid	-5.5 -10.6	1.7	7.1	8.0	4.7	-5.4	30 30	30	30	30	30	30
Perfluorooctanesulfonamide (FOSA)	6.8 -14.6	3.9	5.8	6.5	-2.6	-5.8	30 30	30	30	30	30	30

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1 Analy Batch No.: 263574

SDG No.: _____

Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 03:11 Calibration End Date: 12/07/2018 03:55 Calibration ID: 42635

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorodecanoic acid (PFDA)	15.4 -22.3	3.5	8.4	14.0	-2.2	-16.8	30 30	30	30	30	30	30
8:2 FTS	-9.2 -5.8	-3.0	-1.9	13.7	9.3	-3.1	30 30	30	30	30	30	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	8.4 -4.4	-10.3	3.8	0.9	-2.3	3.8	30 30	30	30	30	30	30
Perfluorodecanesulfonic acid (PFDS)	-2.3 -12.6	-3.2	5.3	2.9	14.7	-4.7	30 30	30	30	30	30	30
Perfluoroundecanoic acid (PFUnA)	15.6 -18.7	2.9	7.0	0.2	-1.4	-5.7	30 30	30	30	30	30	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	-15.8 1.0	3.9	-0.1	3.5	0.5	7.0	30 30	30	30	30	30	30
Perfluorododecanoic acid (PFDoA)	10.1 -24.1	3.4	10.0	3.9	7.3	-10.8	30 30	30	30	30	30	30
Perfluorotridecanoic acid (PFTriA)	5.4 -20.9	5.1	9.4	4.0	4.9	-7.9	30 30	30	30	30	30	30
Perfluorotetradecanoic acid (PFTeA)	15.8 -1.4	0.2	-4.5	-4.9	-4.6	-0.7	30 30	30	30	30	30	30

Calibration

/ Perfluorobutanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

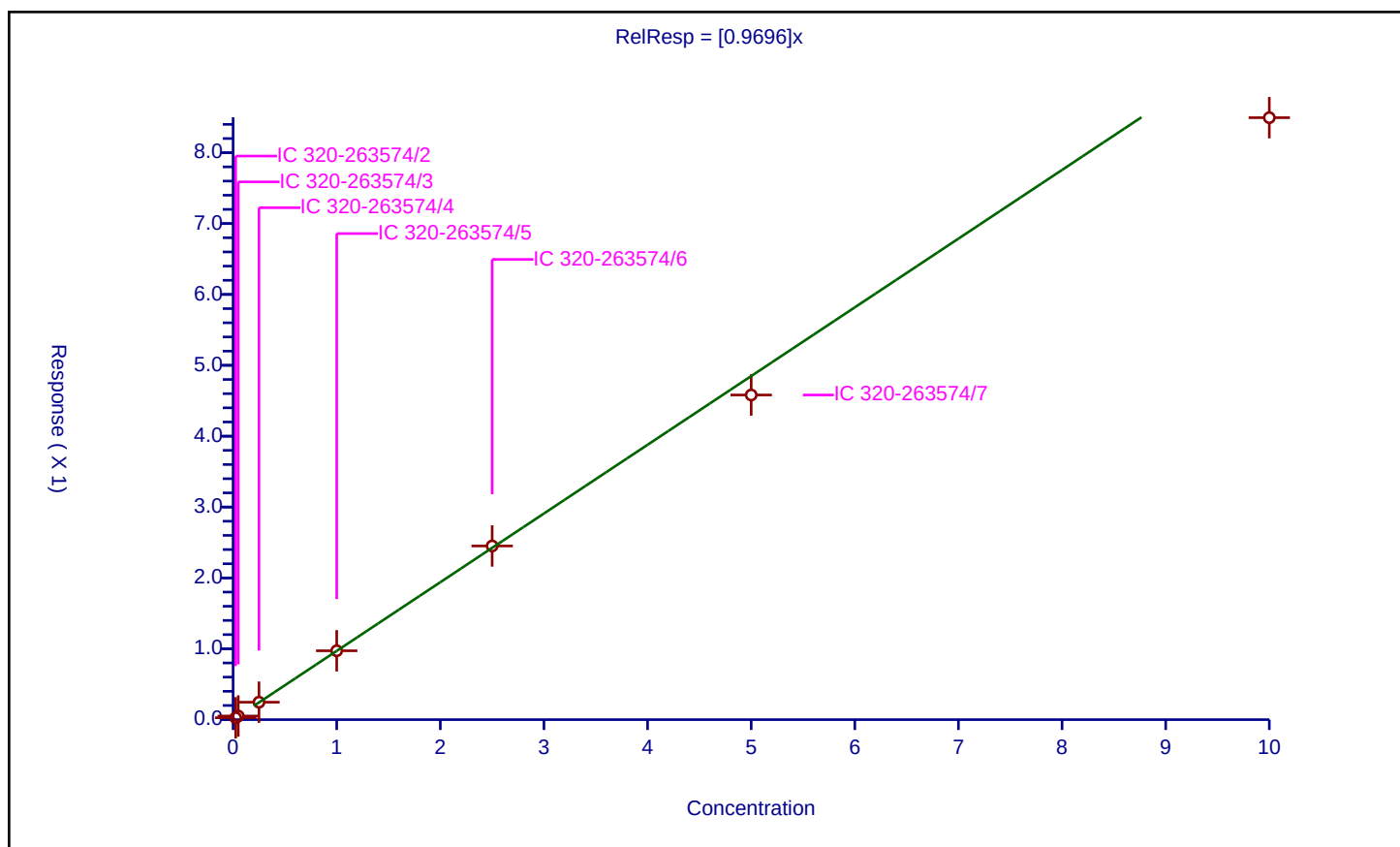
Curve Coefficients

Intercept: 0
 Slope: 0.9696

Error Coefficients

Standard Error: 12700000
 Relative Standard Error: 7.2
 Correlation Coefficient: 0.994
 Coefficient of Determination (Adjusted): 0.993

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.026516	2.5	7913912.0	1.060626	Y
2	IC 320-263574/3	0.05	0.051203	2.5	6580214.0	1.024055	Y
3	IC 320-263574/4	0.25	0.246247	2.5	8100581.0	0.984989	Y
4	IC 320-263574/5	1.0	0.97189	2.5	8419837.0	0.97189	Y
5	IC 320-263574/6	2.5	2.450747	2.5	6675011.0	0.980299	Y
6	IC 320-263574/7	5.0	4.581002	2.5	8325188.0	0.9162	Y
7	IC 320-263574/8	10.0	8.494186	2.5	7706658.0	0.849419	Y



Calibration

/ Perfluoropentanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

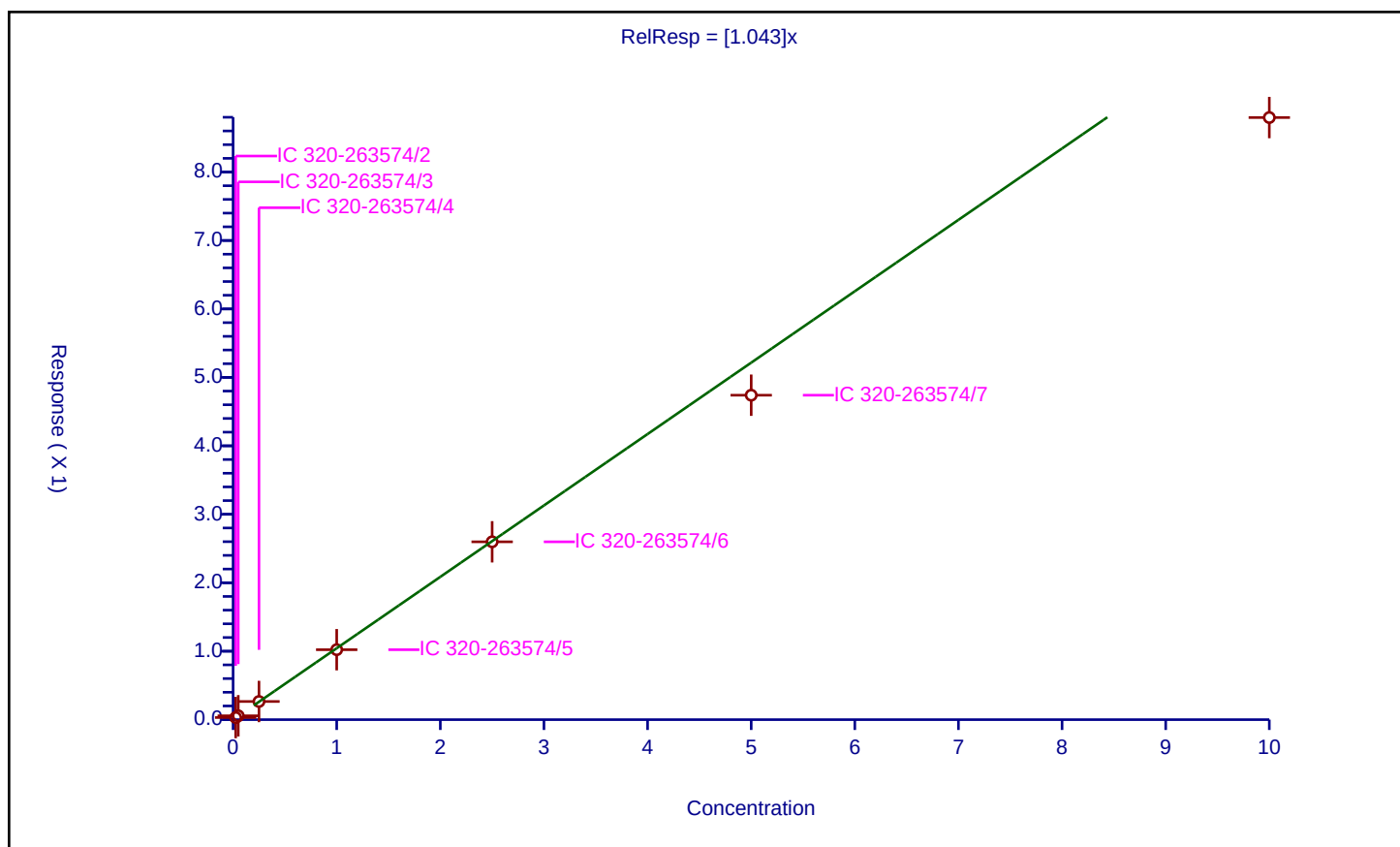
Curve Coefficients

Intercept: 0
 Slope: 1.043

Error Coefficients

Standard Error: 11400000
 Relative Standard Error: 10.8
 Correlation Coefficient: 0.994
 Coefficient of Determination (Adjusted): 0.984

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.030644	2.5	6929834.0	1.225744	Y
2	IC 320-263574/3	0.05	0.056257	2.5	5399088.0	1.125134	Y
3	IC 320-263574/4	0.25	0.265404	2.5	7025457.0	1.061615	Y
4	IC 320-263574/5	1.0	1.021985	2.5	7192931.0	1.021985	Y
5	IC 320-263574/6	2.5	2.598009	2.5	5580895.0	1.039204	Y
6	IC 320-263574/7	5.0	4.739731	2.5	7125505.0	0.947946	Y
7	IC 320-263574/8	10.0	8.795992	2.5	6670072.0	0.879599	Y



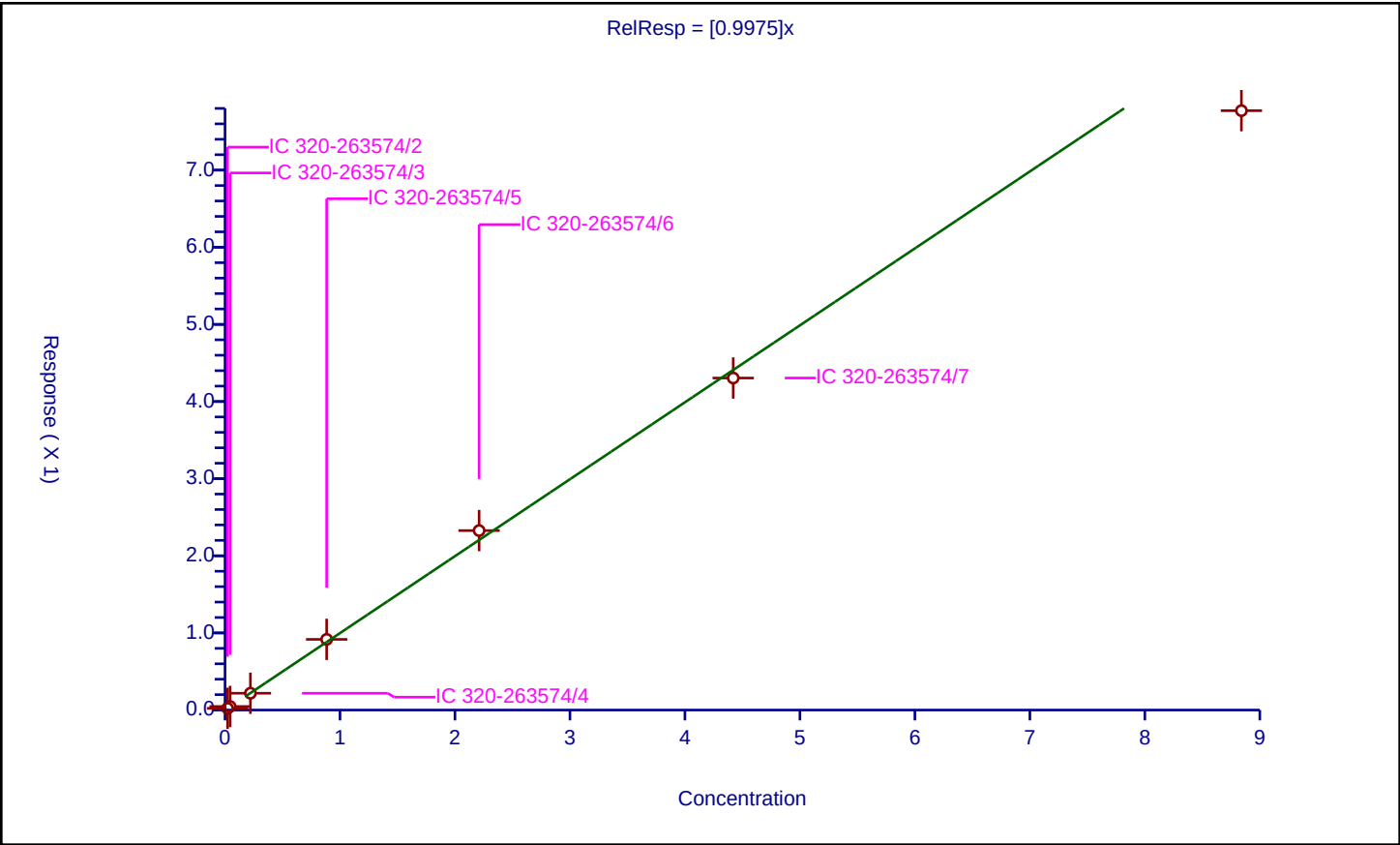
Calibration

/ Perfluorobutanesulfonic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

Curve Coefficients	
Intercept:	0
Slope:	0.9975
Error Coefficients	
Standard Error:	14100000
Relative Standard Error:	6.0
Correlation Coefficient:	0.995
Coefficient of Determination (Adjusted):	0.995

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.0221	0.022272	2.325	9483811.0	1.007785	Y
2	IC 320-263574/3	0.0442	0.0462	2.325	7233149.0	1.045251	Y
3	IC 320-263574/4	0.221	0.218128	2.325	9301517.0	0.987005	Y
4	IC 320-263574/5	0.884	0.916465	2.325	9529619.0	1.036725	Y
5	IC 320-263574/6	2.21	2.326938	2.325	7411901.0	1.052913	Y
6	IC 320-263574/7	4.42	4.304688	2.325	9042308.0	0.973911	Y
7	IC 320-263574/8	8.84	7.770789	2.325	8692070.0	0.879049	Y



Calibration

/ 1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2)

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

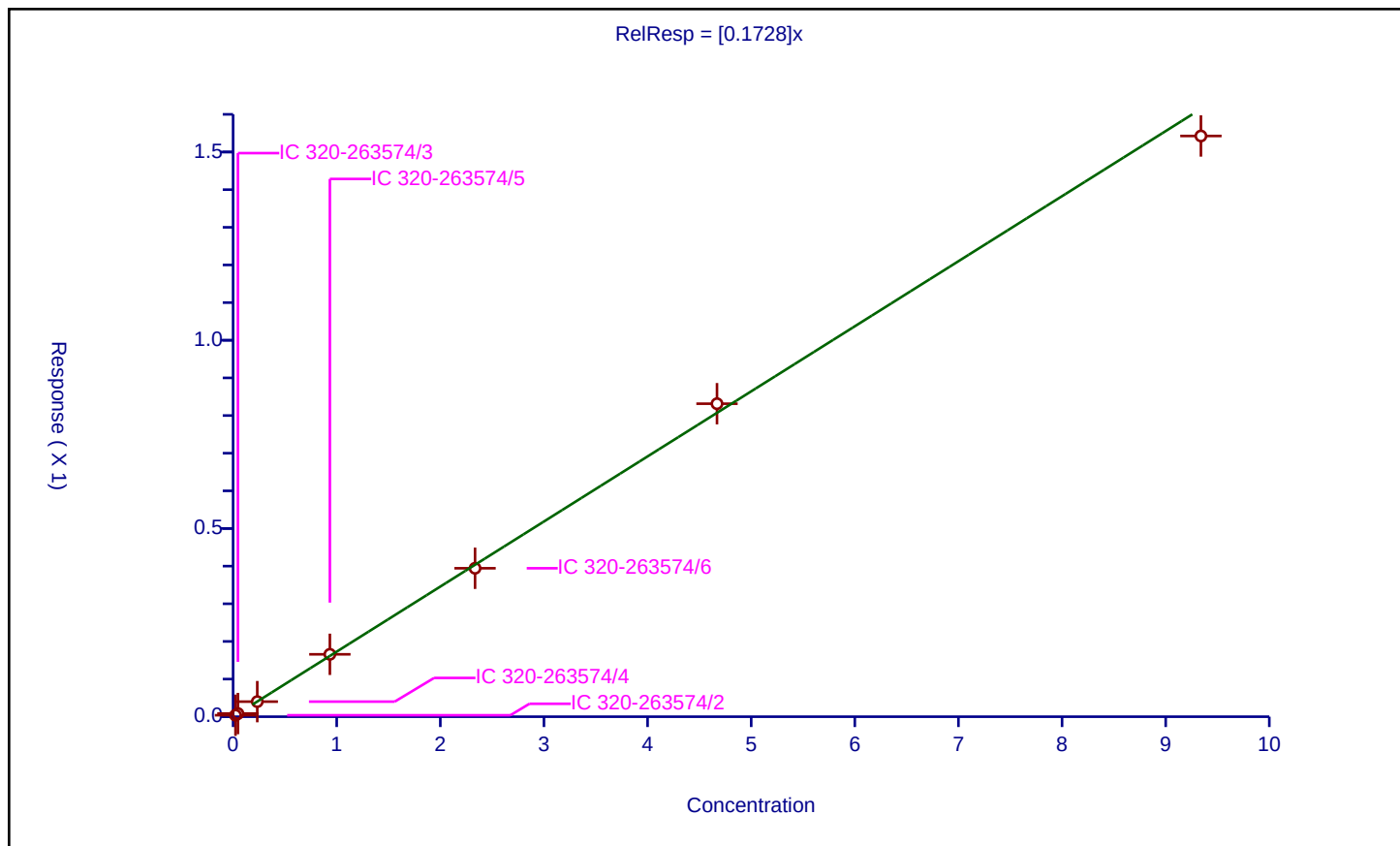
Curve Coefficients

Intercept: 0
 Slope: 0.1728

Error Coefficients

Standard Error: 2760000
 Relative Standard Error: 3.4
 Correlation Coefficient: 0.995
 Coefficient of Determination (Adjusted): 0.999

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.02335	0.003935	2.325	9483811.0	0.168521	Y
2	IC 320-263574/3	0.0467	0.008429	2.325	7233149.0	0.180493	Y
3	IC 320-263574/4	0.2335	0.040023	2.325	9301517.0	0.171407	Y
4	IC 320-263574/5	0.934	0.165733	2.325	9529619.0	0.177445	Y
5	IC 320-263574/6	2.335	0.394297	2.325	7411901.0	0.168864	Y
6	IC 320-263574/7	4.67	0.831439	2.325	9042308.0	0.178038	Y
7	IC 320-263574/8	9.34	1.542576	2.325	8692070.0	0.165158	Y



Calibration

/ Perfluorohexanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

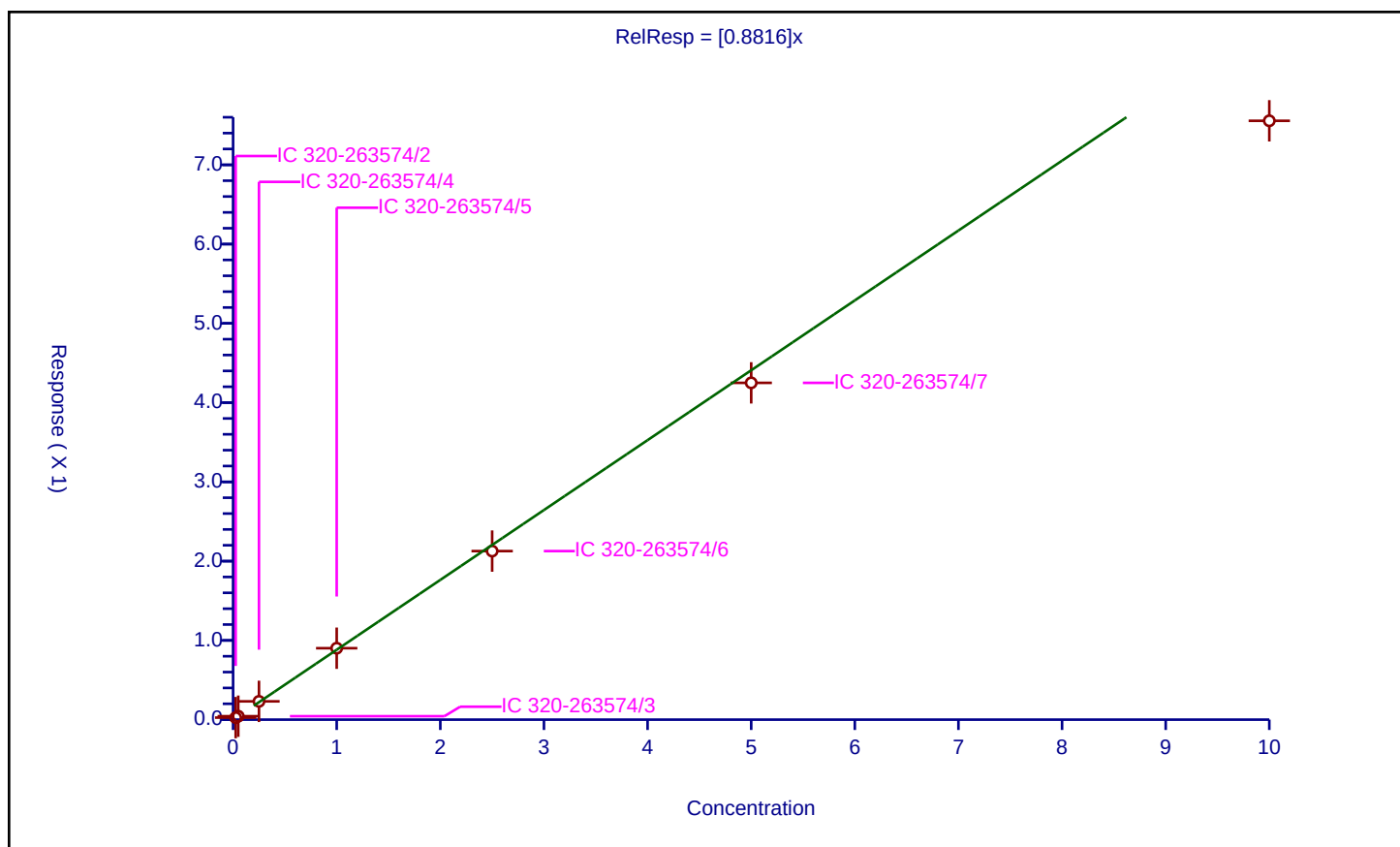
Curve Coefficients

Intercept: 0
 Slope: 0.8816

Error Coefficients

Standard Error: 10800000
 Relative Standard Error: 9.1
 Correlation Coefficient: 0.993
 Coefficient of Determination (Adjusted): 0.989

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.025475	2.5	7732048.0	1.019006	Y
2	IC 320-263574/3	0.05	0.043623	2.5	6081254.0	0.872452	Y
3	IC 320-263574/4	0.25	0.230531	2.5	7652157.0	0.922124	Y
4	IC 320-263574/5	1.0	0.901444	2.5	7986210.0	0.901444	Y
5	IC 320-263574/6	2.5	2.126725	2.5	6178647.0	0.85069	Y
6	IC 320-263574/7	5.0	4.249231	2.5	7660506.0	0.849846	Y
7	IC 320-263574/8	10.0	7.555576	2.5	7387602.0	0.755558	Y



Calibration

/ Perfluoropentanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

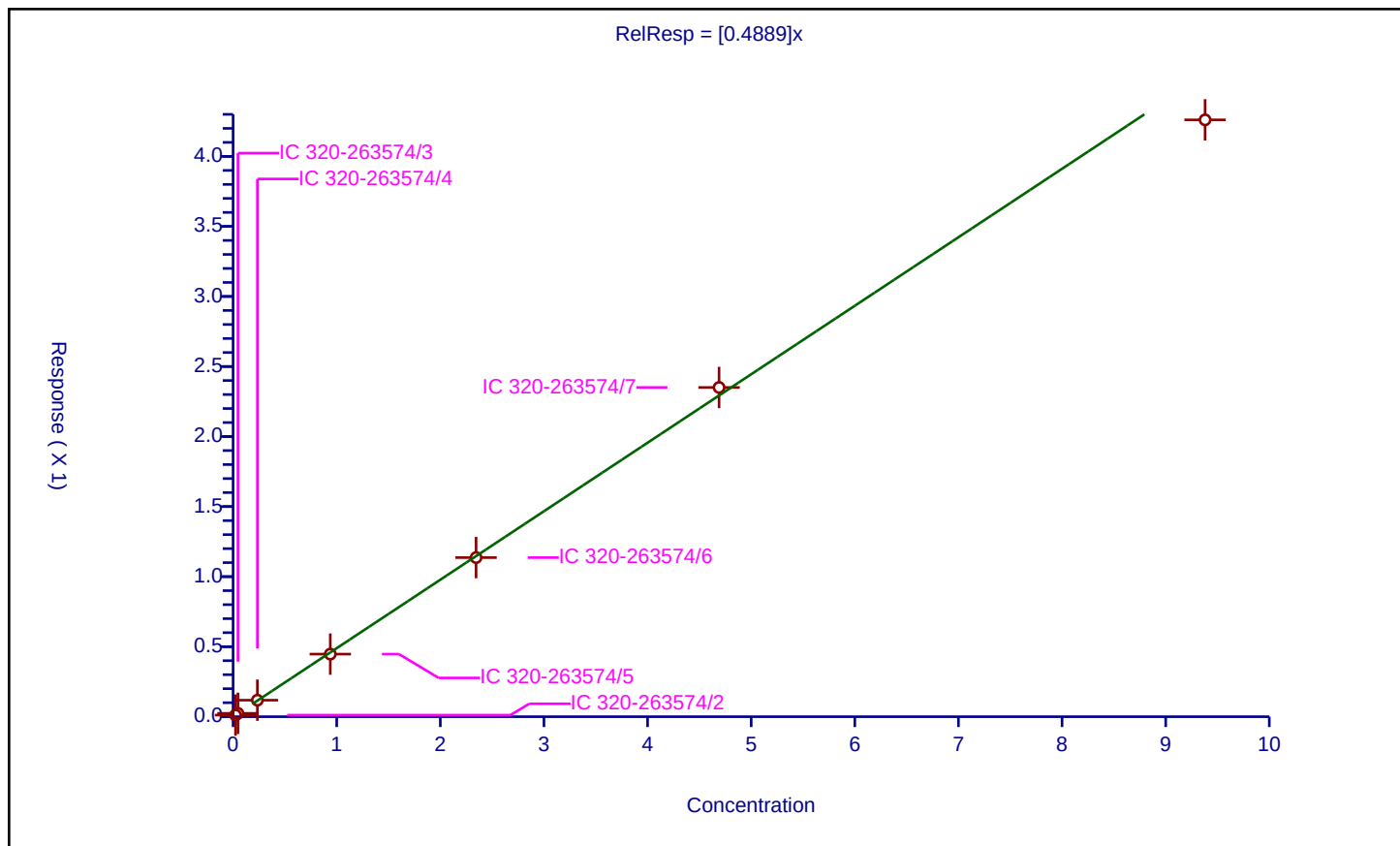
Curve Coefficients

Intercept: 0
 Slope: 0.4889

Error Coefficients

Standard Error: 7680000
 Relative Standard Error: 4.1
 Correlation Coefficient: 0.994
 Coefficient of Determination (Adjusted): 0.998

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.02345	0.011461	2.325	9483811.0	0.488731	Y
2	IC 320-263574/3	0.0469	0.024133	2.325	7233149.0	0.514573	Y
3	IC 320-263574/4	0.2345	0.117937	2.325	9301517.0	0.502929	Y
4	IC 320-263574/5	0.938	0.446989	2.325	9529619.0	0.476534	Y
5	IC 320-263574/6	2.345	1.136006	2.325	7411901.0	0.484438	Y
6	IC 320-263574/7	4.69	2.350379	2.325	9042308.0	0.501147	Y
7	IC 320-263574/8	9.38	4.260881	2.325	8692070.0	0.454252	Y



Calibration

/ Perfluoroheptanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

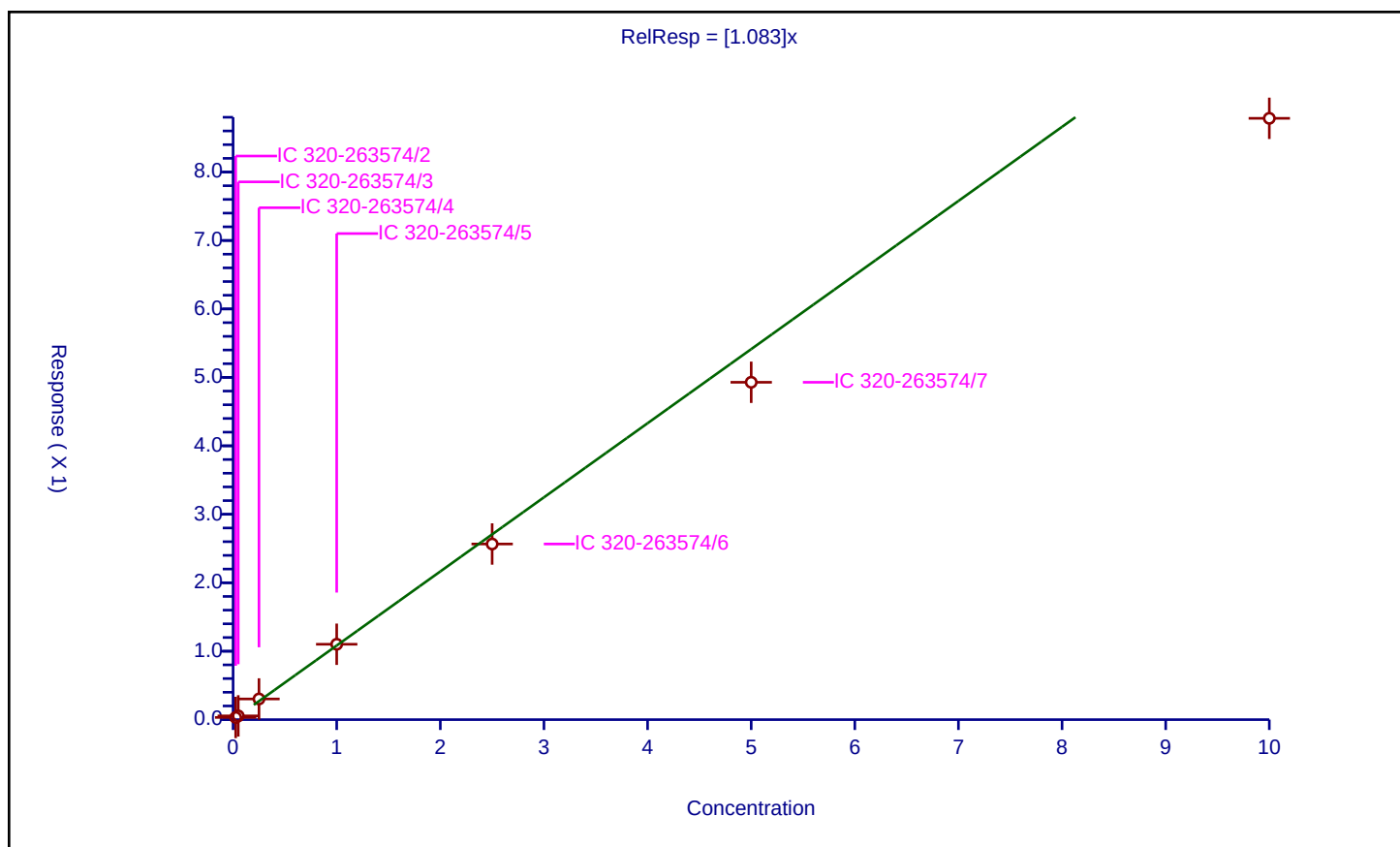
Curve Coefficients

Intercept: 0
 Slope: 1.083

Error Coefficients

Standard Error: 14700000
 Relative Standard Error: 12.5
 Correlation Coefficient: 0.988
 Coefficient of Determination (Adjusted): 0.979

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.031985	2.5	9092006.0	1.27941	Y
2	IC 320-263574/3	0.05	0.054877	2.5	7886985.0	1.097542	Y
3	IC 320-263574/4	0.25	0.302219	2.5	9396826.0	1.208874	Y
4	IC 320-263574/5	1.0	1.101401	2.5	9726558.0	1.101401	Y
5	IC 320-263574/6	2.5	2.566044	2.5	7442204.0	1.026418	Y
6	IC 320-263574/7	5.0	4.9287	2.5	9302917.0	0.98574	Y
7	IC 320-263574/8	10.0	8.784717	2.5	8464351.0	0.878472	Y



Calibration

/ Perfluorohexanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

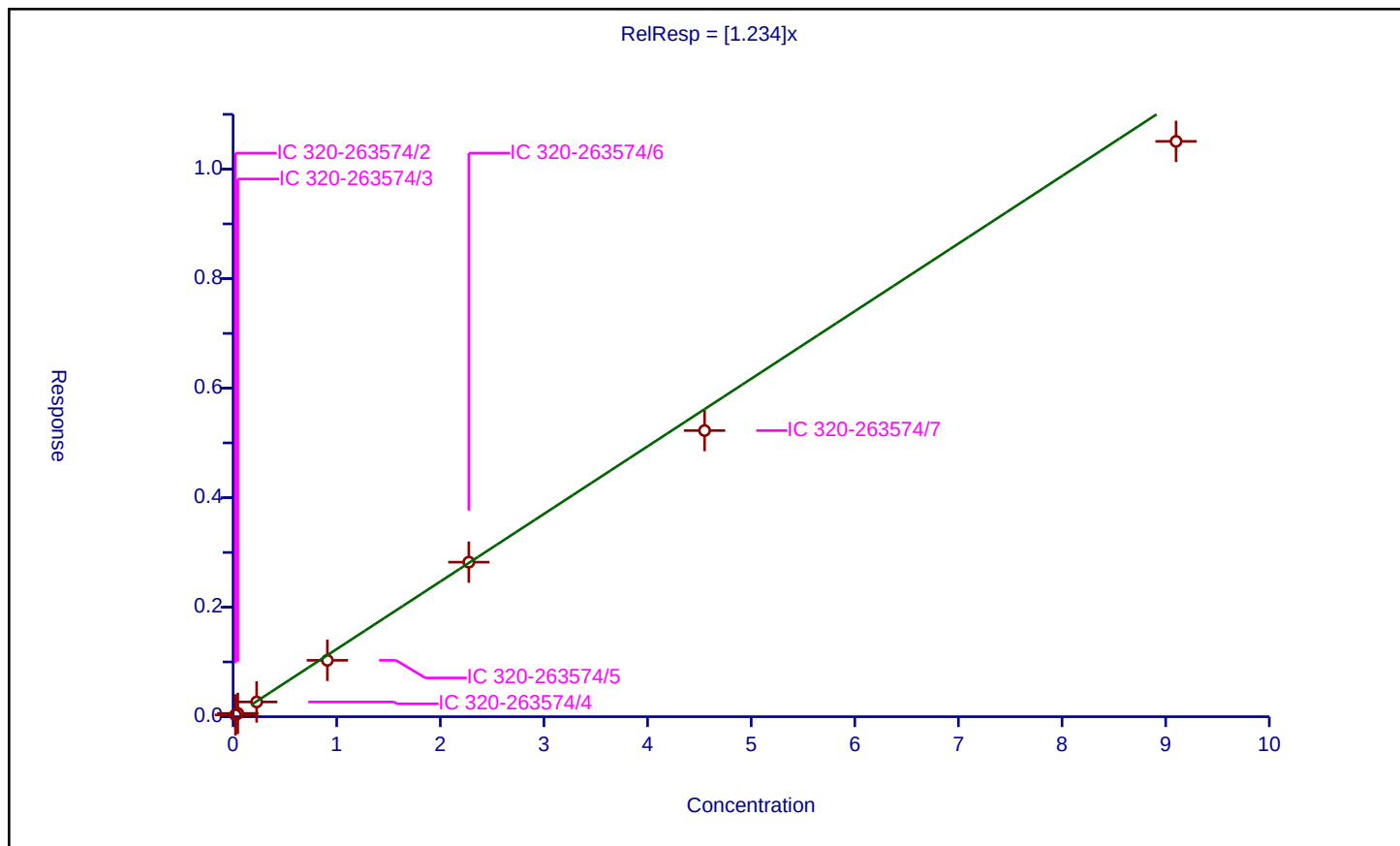
Curve Coefficients

Intercept: 0
 Slope: 1.234

Error Coefficients

Standard Error: 10700000
 Relative Standard Error: 9.5
 Correlation Coefficient: 0.994
 Coefficient of Determination (Adjusted): 0.988

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.02275	0.032982	2.365	5529353.0	1.449764	Y
2	IC 320-263574/3	0.0455	0.060526	2.365	4589168.0	1.330233	Y
3	IC 320-263574/4	0.2275	0.269555	2.365	5724232.0	1.184858	Y
4	IC 320-263574/5	0.91	1.029791	2.365	6062632.0	1.131638	Y
5	IC 320-263574/6	2.275	2.822171	2.365	4327866.0	1.240515	Y
6	IC 320-263574/7	4.55	5.225739	2.365	5729501.0	1.148514	Y
7	IC 320-263574/8	9.1	10.507175	2.365	4980296.0	1.154635	Y



Calibration

/ 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

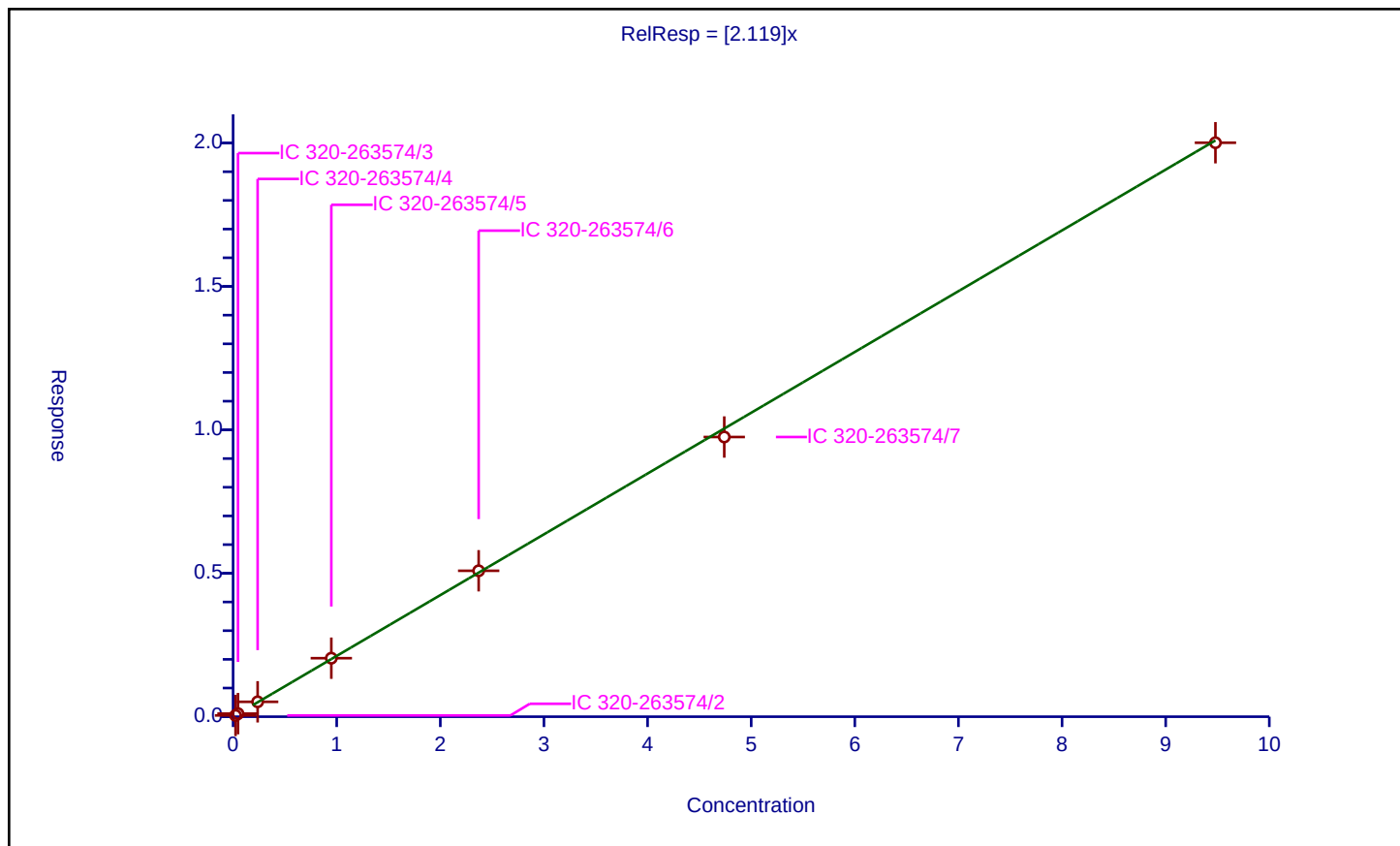
Curve Coefficients

Intercept: 0
 Slope: 2.119

Error Coefficients

Standard Error: 2490000
 Relative Standard Error: 5.6
 Correlation Coefficient: 0.995
 Coefficient of Determination (Adjusted): 0.996

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.0237	0.045011	2.375	712482.0	1.899204	Y
2	IC 320-263574/3	0.0474	0.108031	2.375	551855.0	2.279127	Y
3	IC 320-263574/4	0.237	0.519168	2.375	739027.0	2.190581	Y
4	IC 320-263574/5	0.948	2.039841	2.375	733299.0	2.15173	Y
5	IC 320-263574/6	2.37	5.087937	2.375	553999.0	2.146809	Y
6	IC 320-263574/7	4.74	9.751543	2.375	710026.0	2.057288	Y
7	IC 320-263574/8	9.48	20.011195	2.375	616451.0	2.110886	Y



Calibration

/ Perfluoroheptanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

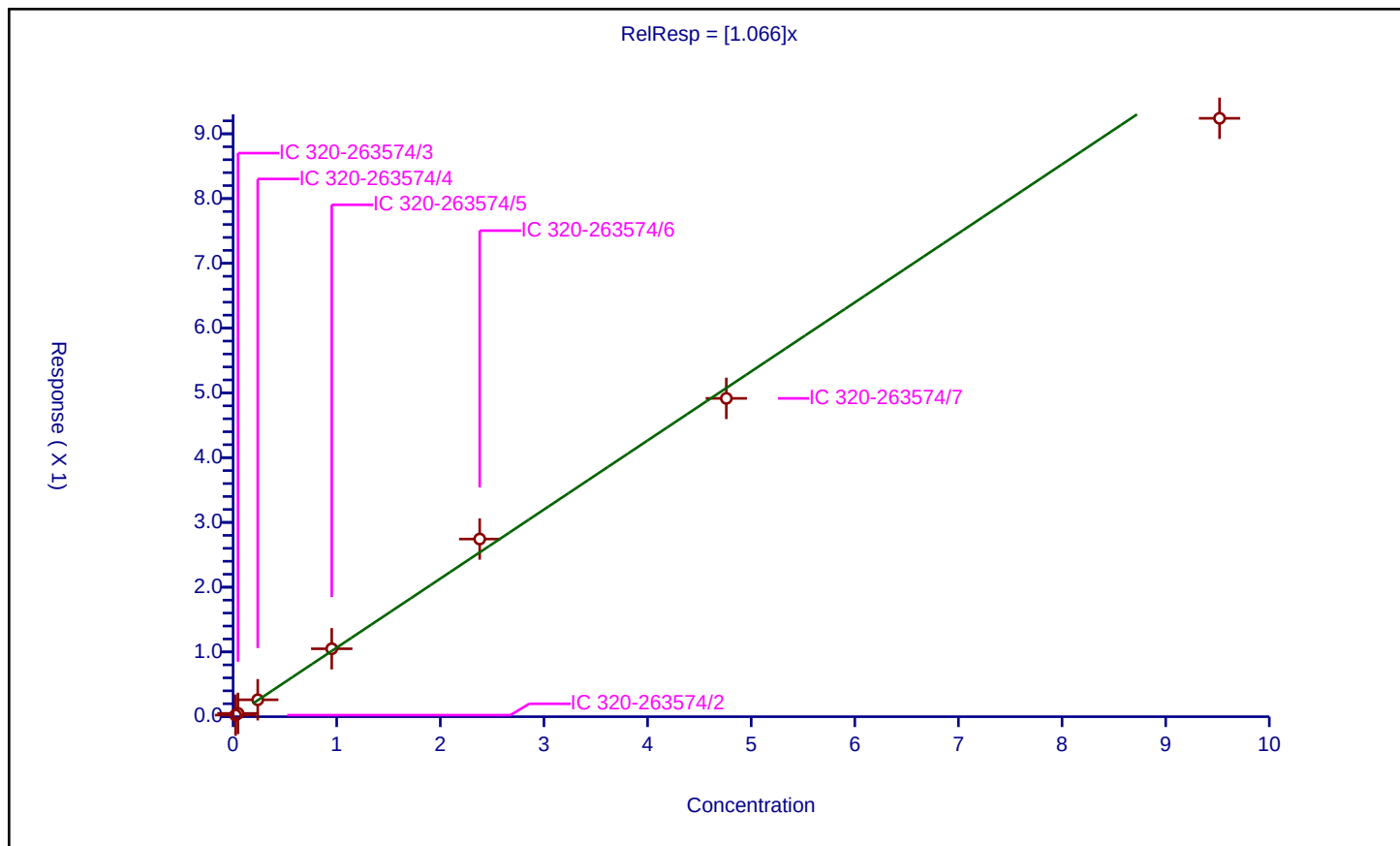
Curve Coefficients

Intercept: 0
 Slope: 1.066

Error Coefficients

Standard Error: 9520000
 Relative Standard Error: 5.6
 Correlation Coefficient: 0.991
 Coefficient of Determination (Adjusted): 0.996

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.0238	0.024545	2.39	5767166.0	1.031284	Y
2	IC 320-263574/3	0.0476	0.051141	2.39	4670445.0	1.074393	Y
3	IC 320-263574/4	0.238	0.261694	2.39	5631921.0	1.099554	Y
4	IC 320-263574/5	0.952	1.049051	2.39	5862524.0	1.101944	Y
5	IC 320-263574/6	2.38	2.743373	2.39	4157226.0	1.152678	Y
6	IC 320-263574/7	4.76	4.914855	2.39	5659063.0	1.032533	Y
7	IC 320-263574/8	9.52	9.239198	2.39	5034440.0	0.970504	Y



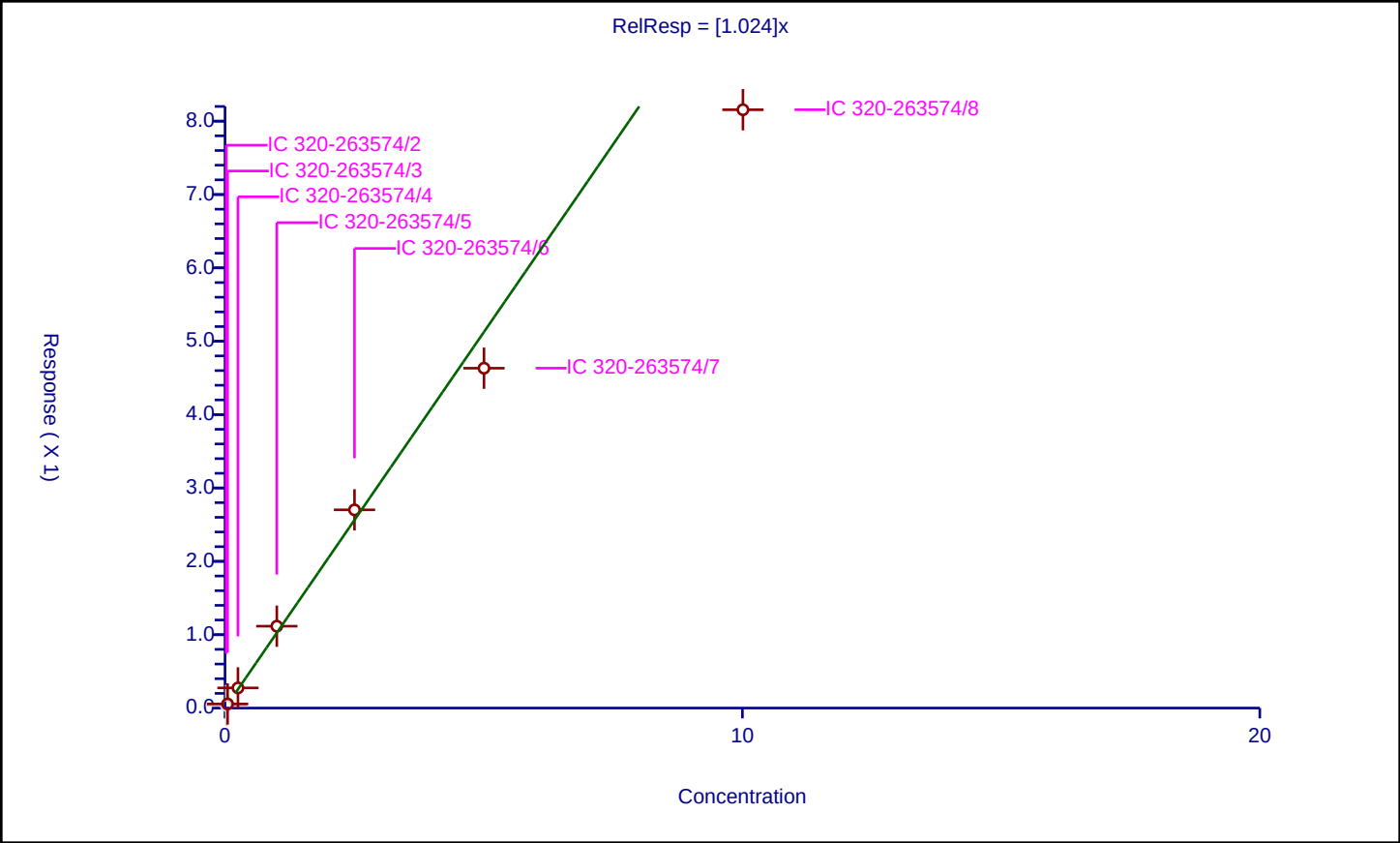
Calibration

/ Perfluorooctanoic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

Curve Coefficients	
Intercept:	0
Slope:	1.024
Error Coefficients	
Standard Error:	13800000
Relative Standard Error:	12.2
Correlation Coefficient:	0.985
Coefficient of Determination (Adjusted):	0.982

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025025	0.036219	2.5	8507401.0	1.447315	N
2	IC 320-263574/3	0.05005	0.055754	2.5	6897016.0	1.113962	Y
3	IC 320-263574/4	0.25025	0.274571	2.5	8751644.0	1.097187	Y
4	IC 320-263574/5	1.001	1.11611	2.5	8803210.0	1.114995	Y
5	IC 320-263574/6	2.5025	2.701788	2.5	6641096.0	1.079636	Y
6	IC 320-263574/7	5.005	4.632644	2.5	8500097.0	0.925603	Y
7	IC 320-263574/8	10.01	8.155468	2.5	7722619.0	0.814732	Y



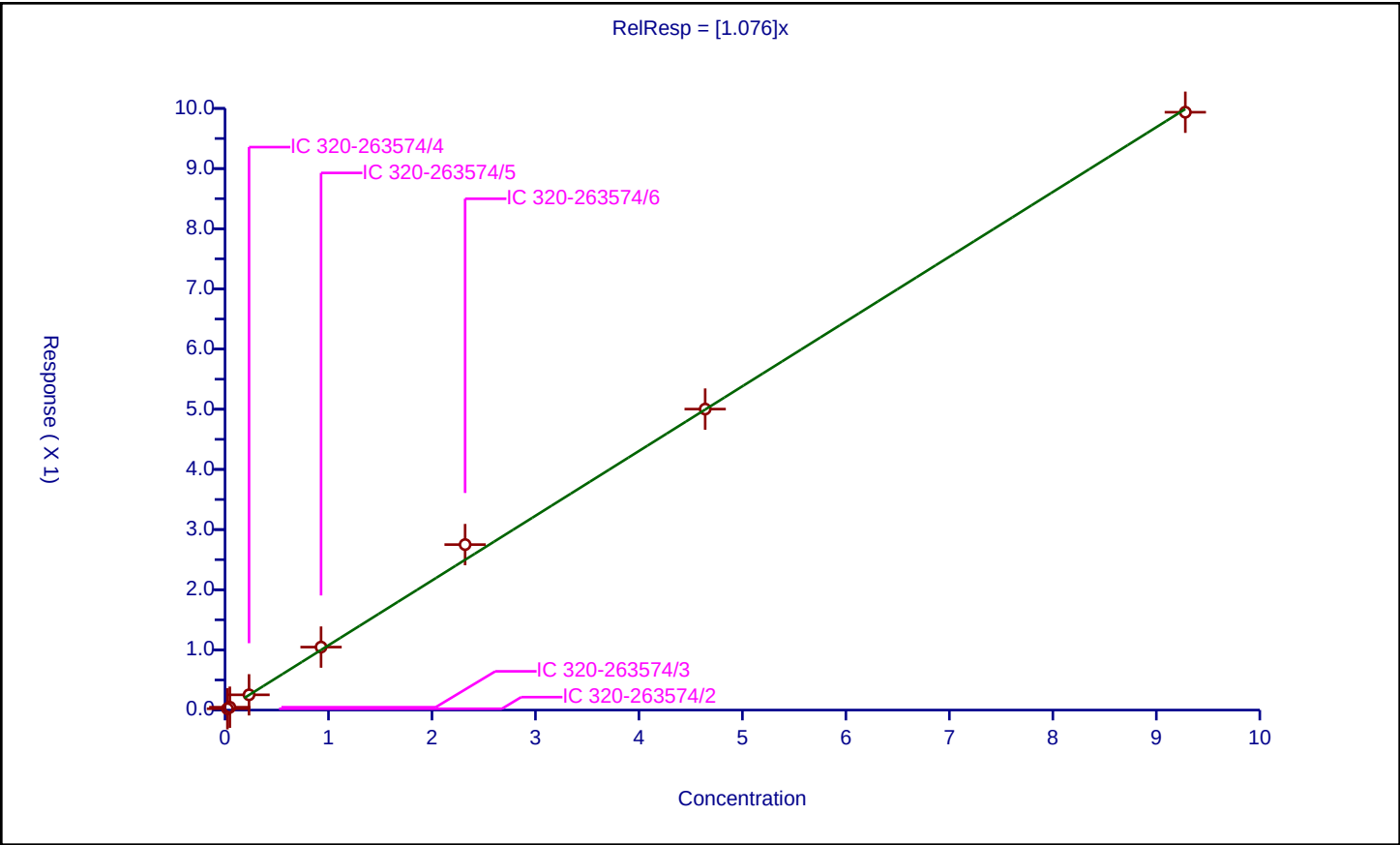
Calibration

/ Perfluorooctanesulfonic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

Curve Coefficients	
Intercept:	0
Slope:	1.076
Error Coefficients	
Standard Error:	10100000
Relative Standard Error:	6.8
Correlation Coefficient:	0.995
Coefficient of Determination (Adjusted):	0.995

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.0232	0.022236	2.39	5767166.0	0.958442	Y
2	IC 320-263574/3	0.0464	0.047417	2.39	4670445.0	1.021913	Y
3	IC 320-263574/4	0.232	0.253476	2.39	5631921.0	1.092571	Y
4	IC 320-263574/5	0.928	1.046424	2.39	5862524.0	1.127612	Y
5	IC 320-263574/6	2.32	2.7504	2.39	4157226.0	1.185517	Y
6	IC 320-263574/7	4.64	5.00278	2.39	5659063.0	1.078185	Y
7	IC 320-263574/8	9.28	9.936896	2.39	5034440.0	1.070786	Y



Calibration

/ Perfluorononanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

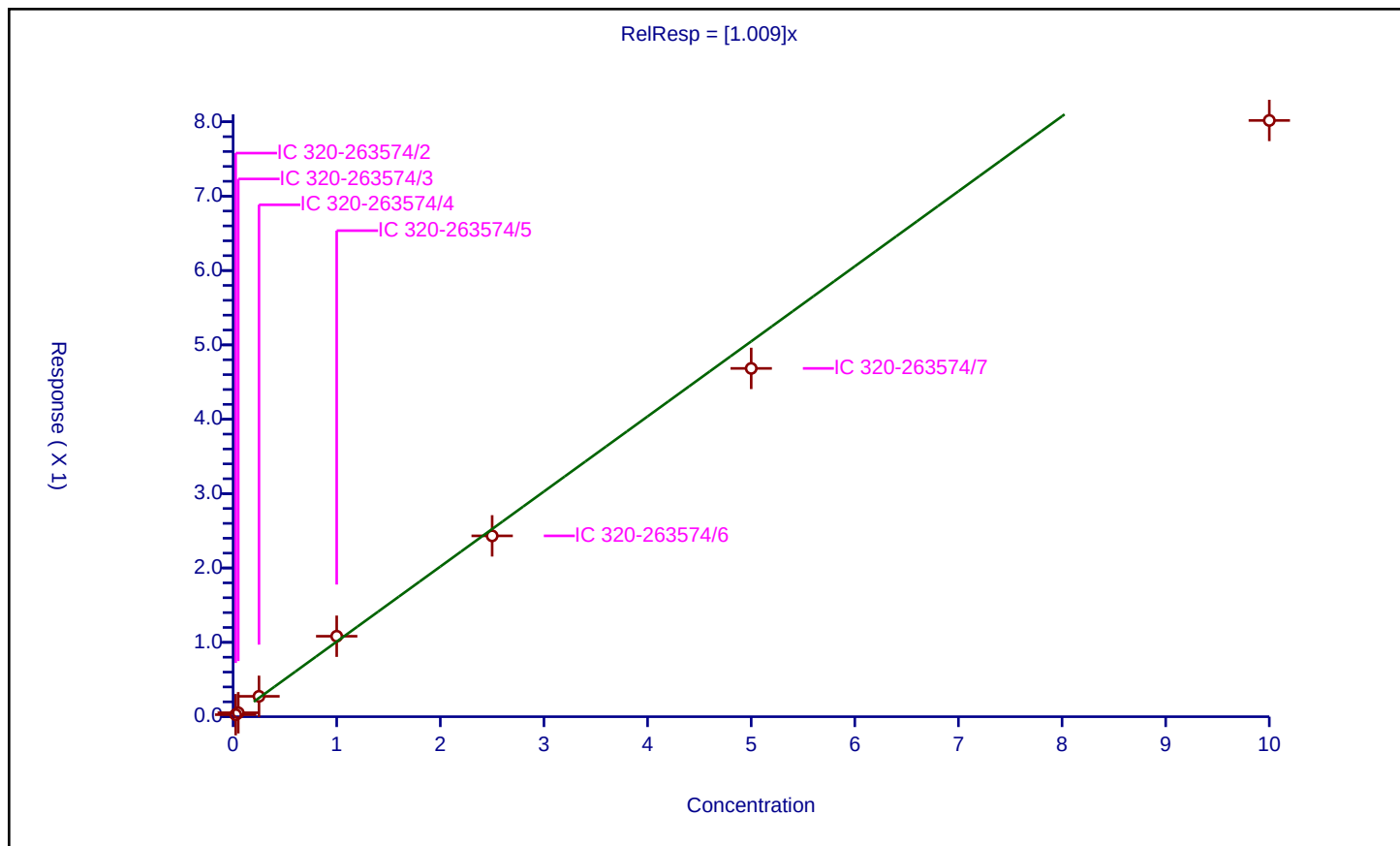
Curve Coefficients

Intercept: 0
 Slope: 1.009

Error Coefficients

Standard Error: 11400000
 Relative Standard Error: 11.1
 Correlation Coefficient: 0.983
 Coefficient of Determination (Adjusted): 0.984

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.027754	2.5	8007939.0	1.110173	Y
2	IC 320-263574/3	0.05	0.053273	2.5	6345975.0	1.065463	Y
3	IC 320-263574/4	0.25	0.274217	2.5	7902533.0	1.096869	Y
4	IC 320-263574/5	1.0	1.082269	2.5	7858499.0	1.082269	Y
5	IC 320-263574/6	2.5	2.431854	2.5	6576402.0	0.972742	Y
6	IC 320-263574/7	5.0	4.683773	2.5	7712203.0	0.936755	Y
7	IC 320-263574/8	10.0	8.018258	2.5	7054588.0	0.801826	Y



Calibration

/ Perfluorononanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

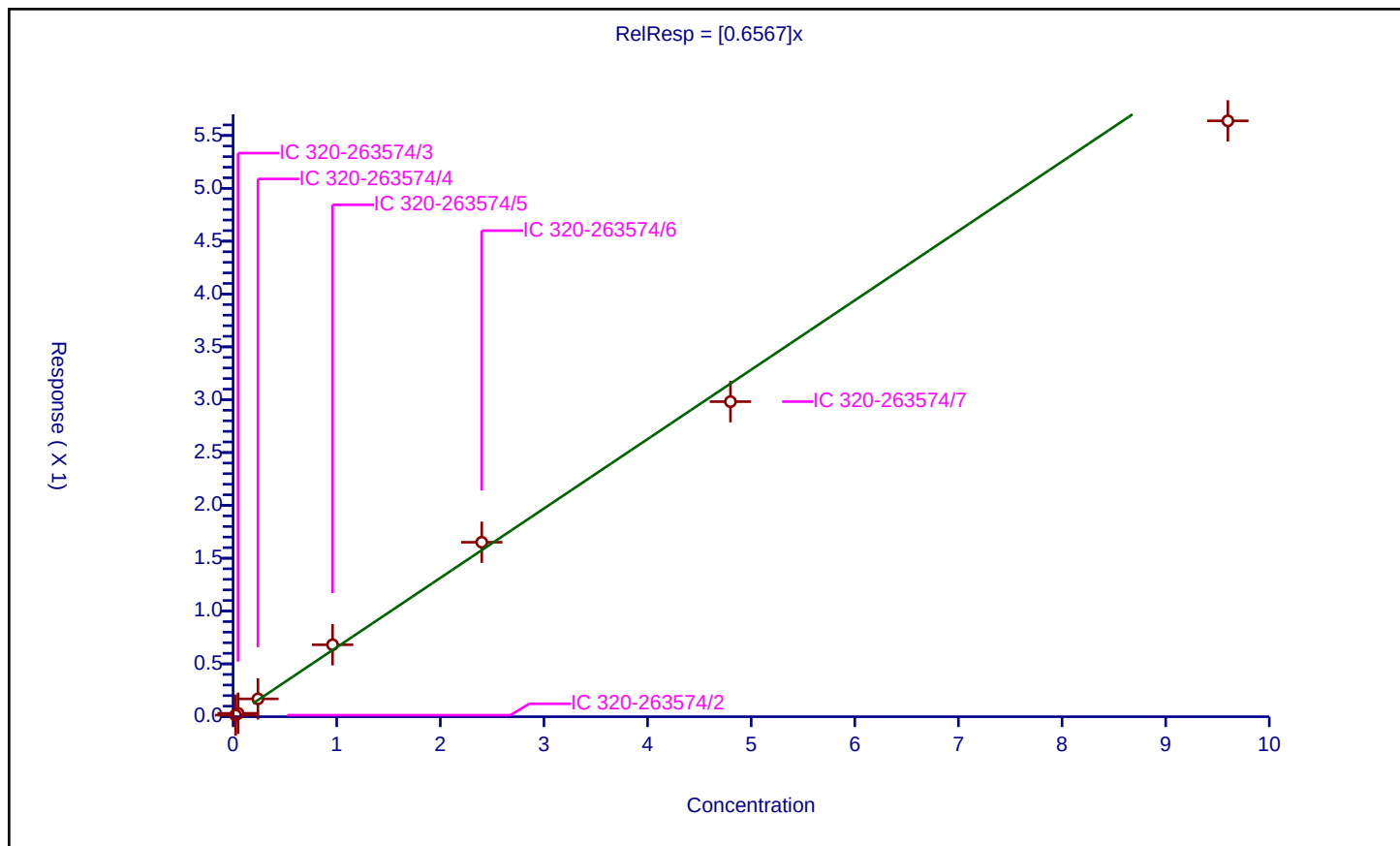
Curve Coefficients

Intercept: 0
 Slope: 0.6567

Error Coefficients

Standard Error: 5800000
 Relative Standard Error: 7.2
 Correlation Coefficient: 0.991
 Coefficient of Determination (Adjusted): 0.994

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.024	0.014891	2.39	5767166.0	0.620466	Y
2	IC 320-263574/3	0.048	0.032054	2.39	4670445.0	0.667795	Y
3	IC 320-263574/4	0.24	0.168752	2.39	5631921.0	0.703131	Y
4	IC 320-263574/5	0.96	0.680829	2.39	5862524.0	0.709196	Y
5	IC 320-263574/6	2.4	1.650947	2.39	4157226.0	0.687894	Y
6	IC 320-263574/7	4.8	2.981684	2.39	5659063.0	0.621184	Y
7	IC 320-263574/8	9.6	5.63857	2.39	5034440.0	0.587351	Y



Calibration

/ Perfluorooctanesulfonamide

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

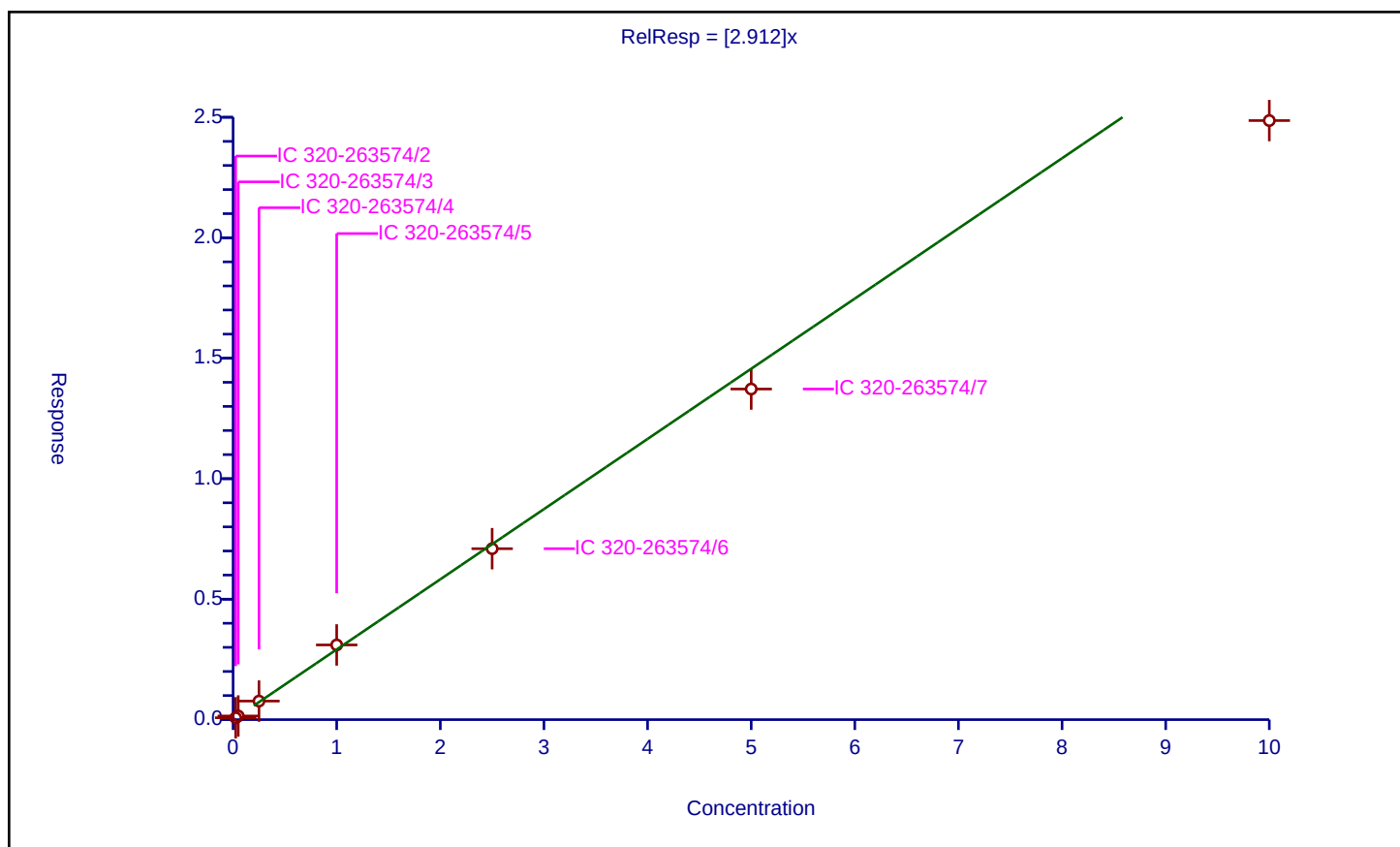
Curve Coefficients

Intercept: 0
 Slope: 2.912

Error Coefficients

Standard Error: 15900000
 Relative Standard Error: 8.1
 Correlation Coefficient: 0.986
 Coefficient of Determination (Adjusted): 0.992

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.077749	2.5	3947297.0	3.109951	Y
2	IC 320-263574/3	0.05	0.151321	2.5	3036402.0	3.026427	Y
3	IC 320-263574/4	0.25	0.770449	2.5	3940633.0	3.081797	Y
4	IC 320-263574/5	1.0	3.100487	2.5	3908525.0	3.100487	Y
5	IC 320-263574/6	2.5	7.095225	2.5	2985331.0	2.83809	Y
6	IC 320-263574/7	5.0	13.721647	2.5	3644286.0	2.744329	Y
7	IC 320-263574/8	10.0	24.863536	2.5	3222755.0	2.486354	Y



Calibration

/ 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

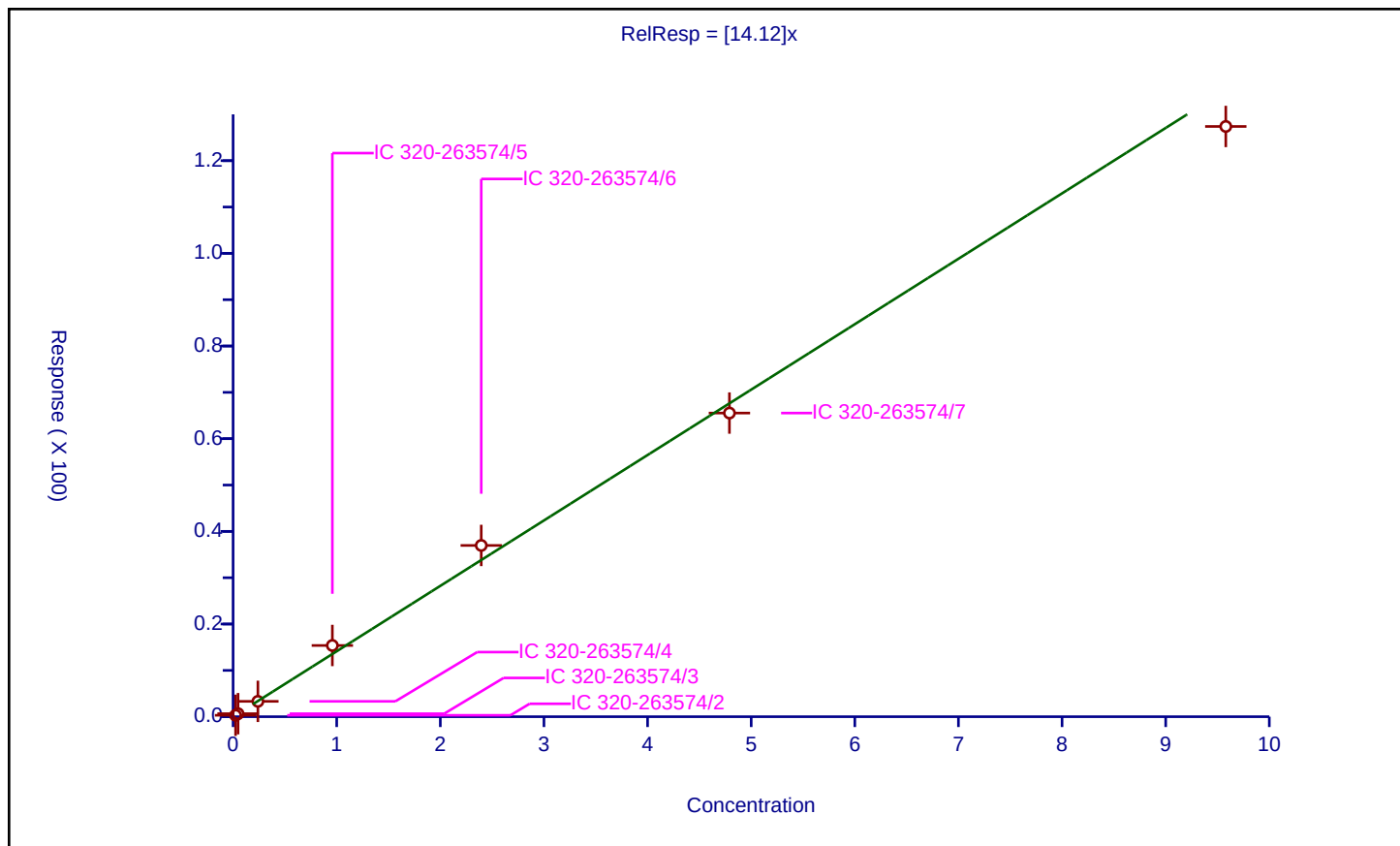
Curve Coefficients

Intercept: 0
 Slope: 14.12

Error Coefficients

Standard Error: 2220000
 Relative Standard Error: 8.3
 Correlation Coefficient: 0.992
 Coefficient of Determination (Adjusted): 0.992

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.02395	0.307067	2.395	95935.0	12.821181	Y
2	IC 320-263574/3	0.0479	0.655974	2.395	77041.0	13.694656	Y
3	IC 320-263574/4	0.2395	3.318277	2.395	99006.0	13.855019	Y
4	IC 320-263574/5	0.958	15.373428	2.395	88391.0	16.04742	Y
5	IC 320-263574/6	2.395	36.963268	2.395	68895.0	15.433515	Y
6	IC 320-263574/7	4.79	65.536818	2.395	98015.0	13.682008	Y
7	IC 320-263574/8	9.58	127.384596	2.395	86079.0	13.296931	Y



Calibration

/ Perfluorodecanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

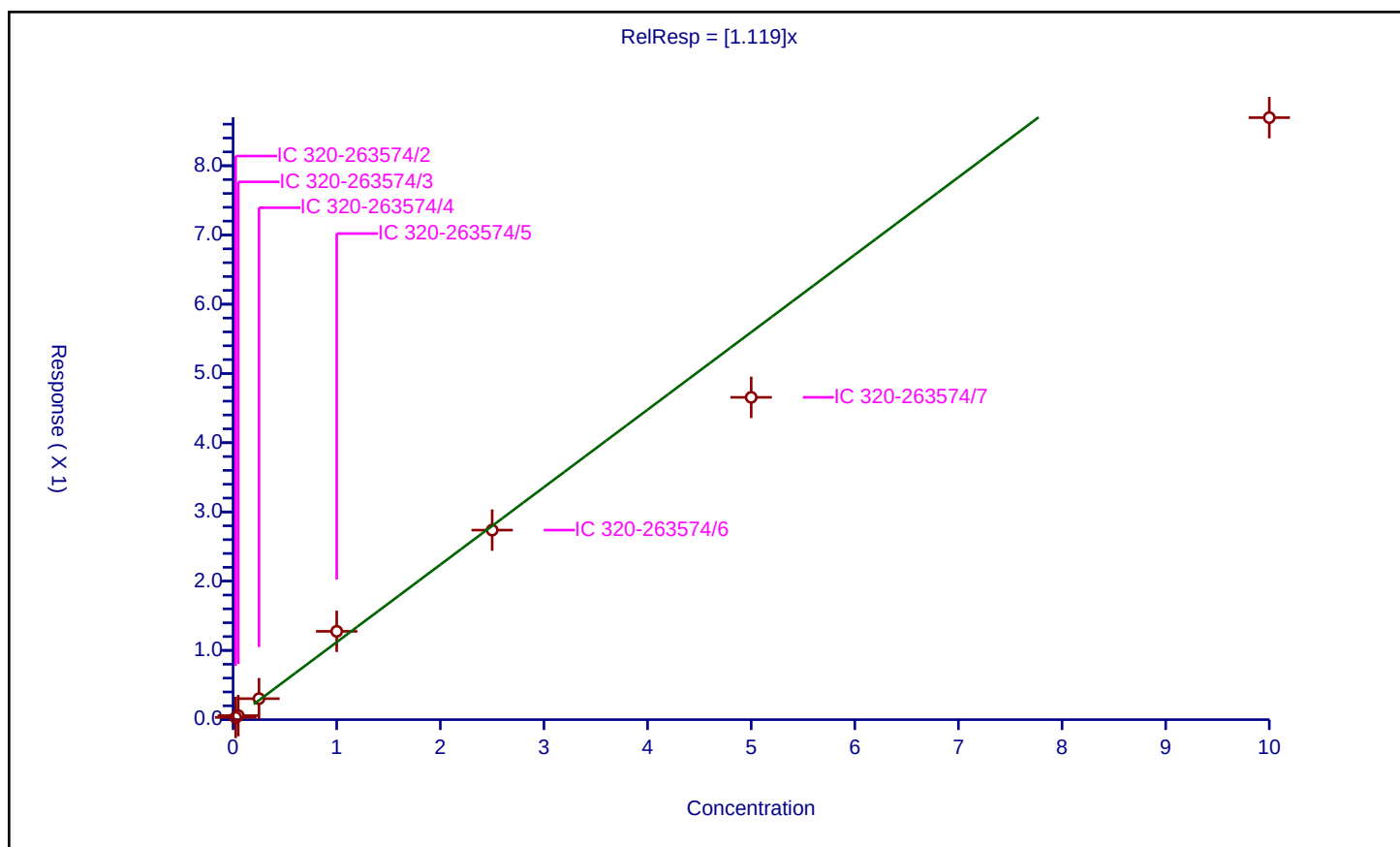
Curve Coefficients

Intercept: 0
 Slope: 1.119

Error Coefficients

Standard Error: 12400000
 Relative Standard Error: 14.7
 Correlation Coefficient: 0.985
 Coefficient of Determination (Adjusted): 0.971

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.032276	2.5	8411234.0	1.291035	Y
2	IC 320-263574/3	0.05	0.057922	2.5	6836989.0	1.158449	Y
3	IC 320-263574/4	0.25	0.303371	2.5	8514345.0	1.213483	Y
4	IC 320-263574/5	1.0	1.27565	2.5	8447125.0	1.27565	Y
5	IC 320-263574/6	2.5	2.737564	2.5	6499495.0	1.095026	Y
6	IC 320-263574/7	5.0	4.654949	2.5	8263075.0	0.93099	Y
7	IC 320-263574/8	10.0	8.694723	2.5	7100956.0	0.869472	Y



Calibration

/ N-methylperfluorooctanesulfonamidoacetic acid

Curve Type: Average
Weighting: Conc_Sq
Origin: Force
Dependency: Response
Calib Mode: IsoDil
Response Base: AREA
RF Rounding: 0

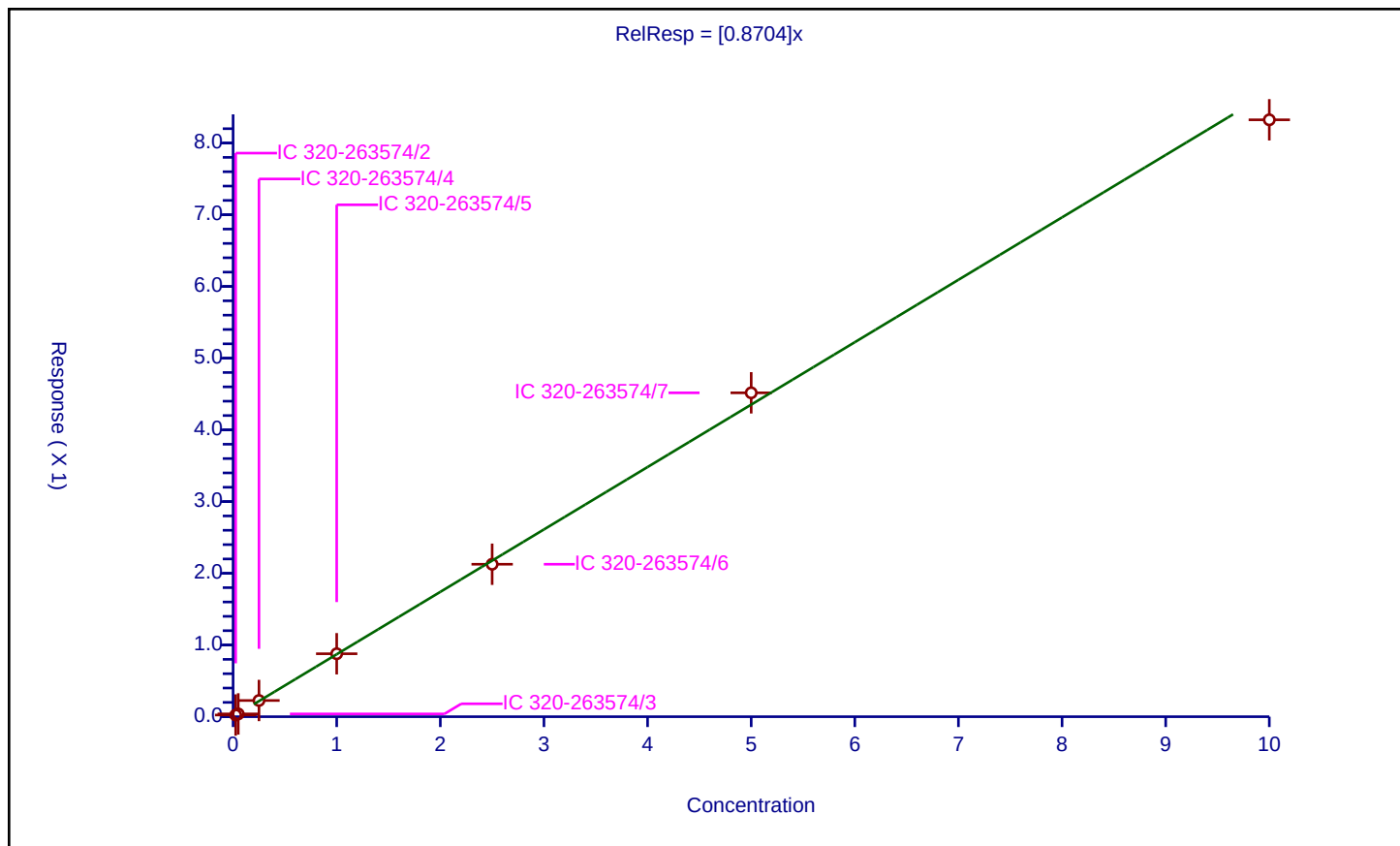
Curve Coefficients

Intercept: 0
Slope: 0.8704

Error Coefficients

Standard Error: 5510000
Relative Standard Error: 6.2
Correlation Coefficient: 0.994
Coefficient of Determination (Adjusted): 0.995

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.023588	2.5	3629648.0	0.943507	Y
2	IC 320-263574/3	0.05	0.039061	2.5	2969798.0	0.781215	Y
3	IC 320-263574/4	0.25	0.225979	2.5	3517092.0	0.903914	Y
4	IC 320-263574/5	1.0	0.878192	2.5	3745449.0	0.878192	Y
5	IC 320-263574/6	2.5	2.126415	2.5	2945665.0	0.850566	Y
6	IC 320-263574/7	5.0	4.516636	2.5	3611970.0	0.903327	Y
7	IC 320-263574/8	10.0	8.324026	2.5	3442201.0	0.832403	Y



Calibration

/ Perfluorodecanesulfonic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

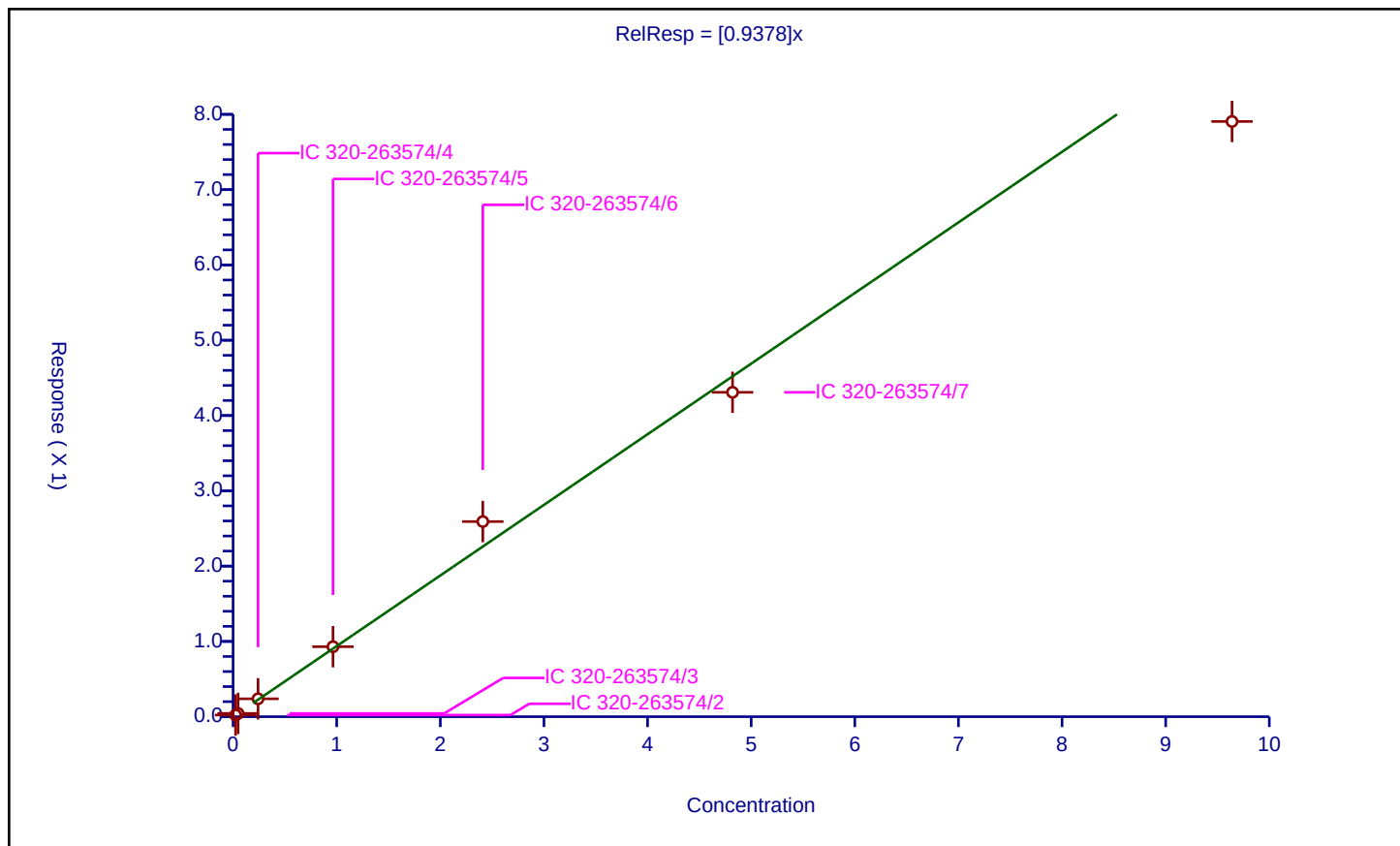
Curve Coefficients

Intercept: 0
 Slope: 0.9378

Error Coefficients

Standard Error: 8240000
 Relative Standard Error: 8.6
 Correlation Coefficient: 0.989
 Coefficient of Determination (Adjusted): 0.991

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.0241	0.022073	2.39	5767166.0	0.915909	Y
2	IC 320-263574/3	0.0482	0.043738	2.39	4670445.0	0.907437	Y
3	IC 320-263574/4	0.241	0.237931	2.39	5631921.0	0.987267	Y
4	IC 320-263574/5	0.964	0.929864	2.39	5862524.0	0.964589	Y
5	IC 320-263574/6	2.41	2.591925	2.39	4157226.0	1.075488	Y
6	IC 320-263574/7	4.82	4.308431	2.39	5659063.0	0.893865	Y
7	IC 320-263574/8	9.64	7.905379	2.39	5034440.0	0.82006	Y



Calibration

/ Perfluoroundecanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

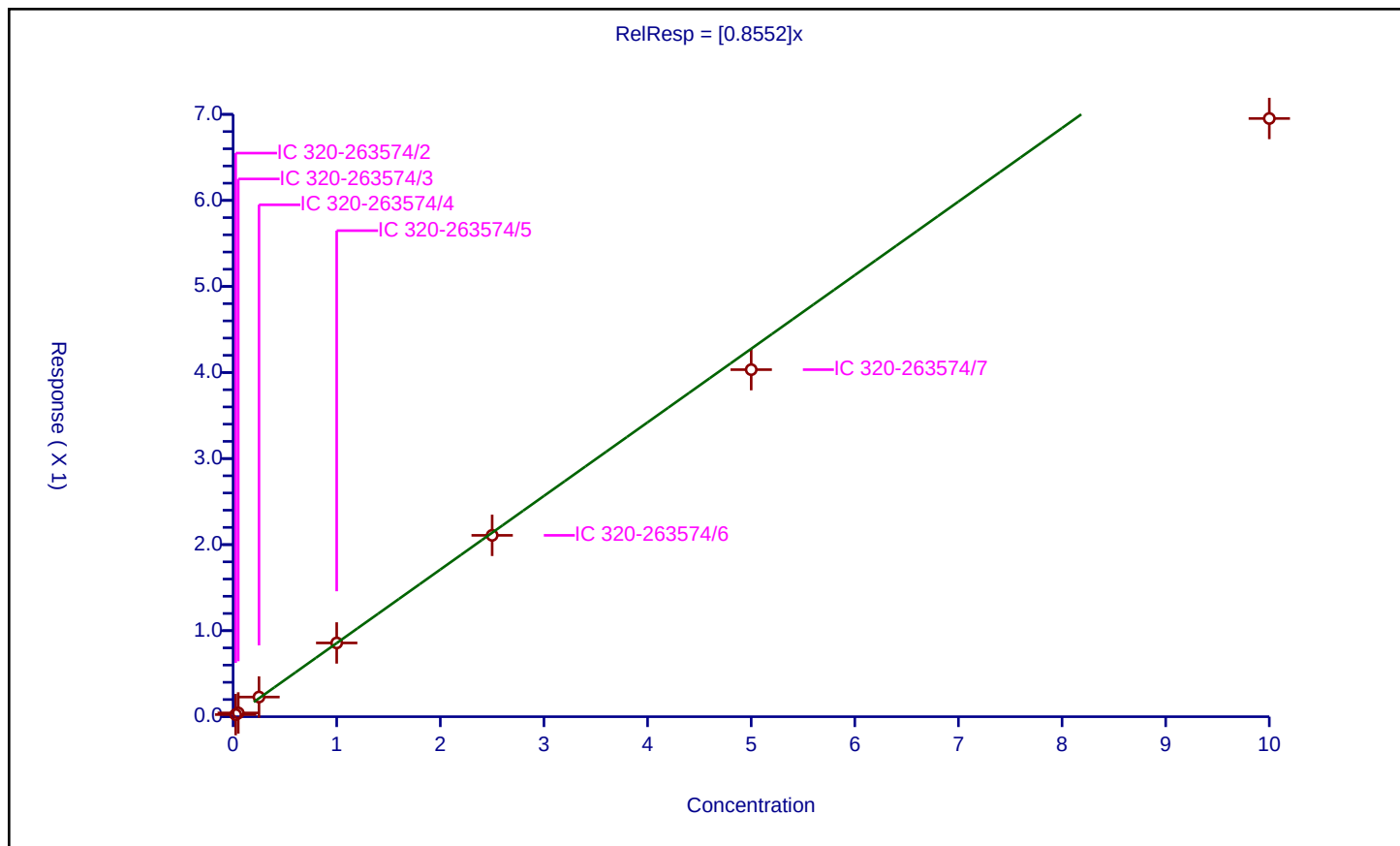
Curve Coefficients

Intercept: 0
 Slope: 0.8552

Error Coefficients

Standard Error: 8730000
 Relative Standard Error: 10.7
 Correlation Coefficient: 0.982
 Coefficient of Determination (Adjusted): 0.985

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.024723	2.5	7282018.0	0.988915	Y
2	IC 320-263574/3	0.05	0.044005	2.5	5763014.0	0.880104	Y
3	IC 320-263574/4	0.25	0.228821	2.5	7090461.0	0.915283	Y
4	IC 320-263574/5	1.0	0.857134	2.5	7612518.0	0.857134	Y
5	IC 320-263574/6	2.5	2.107699	2.5	5824916.0	0.843079	Y
6	IC 320-263574/7	5.0	4.033338	2.5	6942772.0	0.806668	Y
7	IC 320-263574/8	10.0	6.952036	2.5	6232580.0	0.695204	Y



Calibration

/ N-ethylperfluorooctanesulfonamidoacetic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

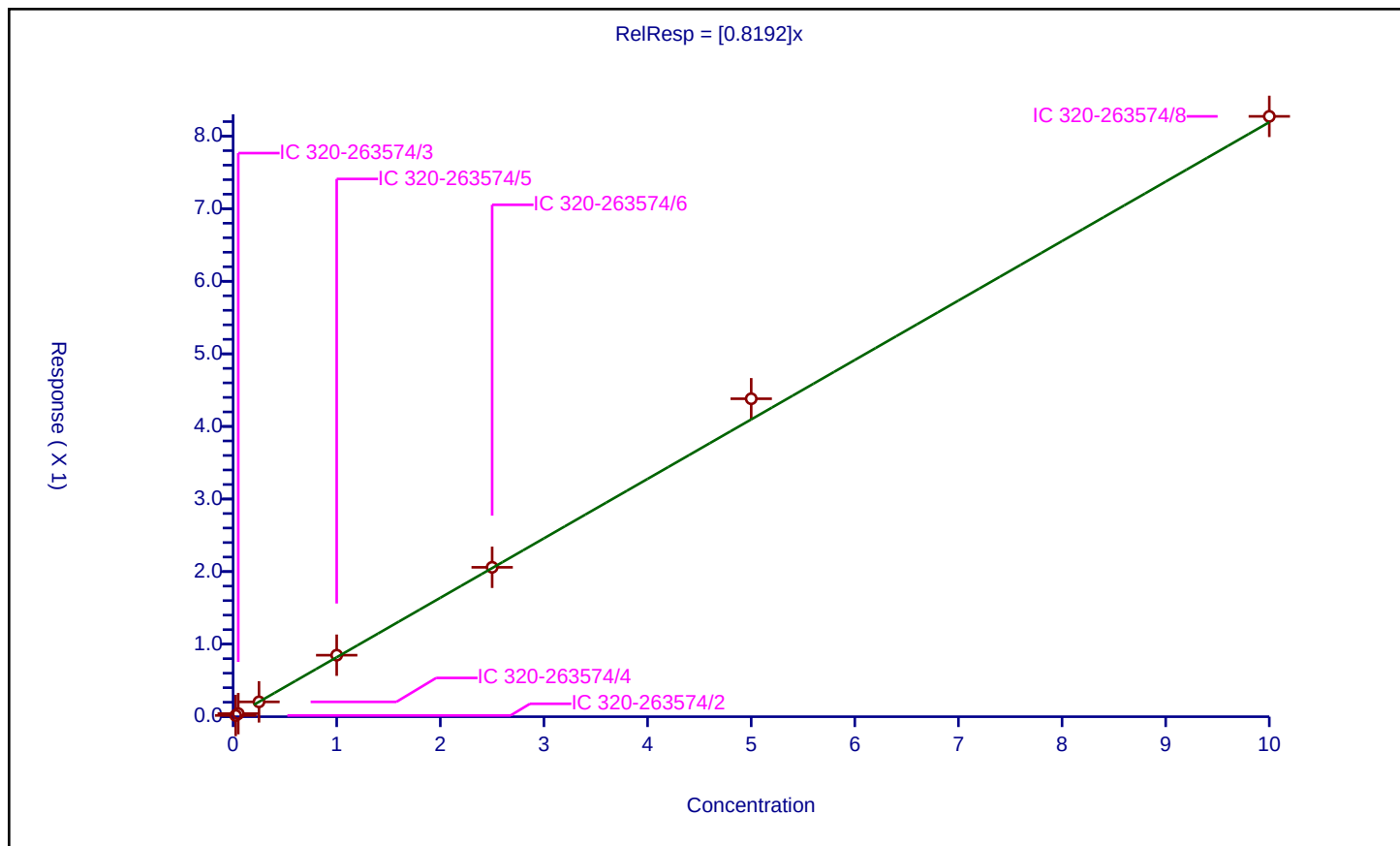
Curve Coefficients

Intercept: 0
 Slope: 0.8192

Error Coefficients

Standard Error: 4270000
 Relative Standard Error: 7.4
 Correlation Coefficient: 0.993
 Coefficient of Determination (Adjusted): 0.994

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.017254	2.5	3096158.0	0.690178	Y
2	IC 320-263574/3	0.05	0.042577	2.5	2437885.0	0.851537	Y
3	IC 320-263574/4	0.25	0.204562	2.5	3300247.0	0.818248	Y
4	IC 320-263574/5	1.0	0.847745	2.5	3127021.0	0.847745	Y
5	IC 320-263574/6	2.5	2.058608	2.5	2556165.0	0.823443	Y
6	IC 320-263574/7	5.0	4.38136	2.5	2943341.0	0.876272	Y
7	IC 320-263574/8	10.0	8.272359	2.5	2655788.0	0.827236	Y



Calibration

/ Perfluorododecanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

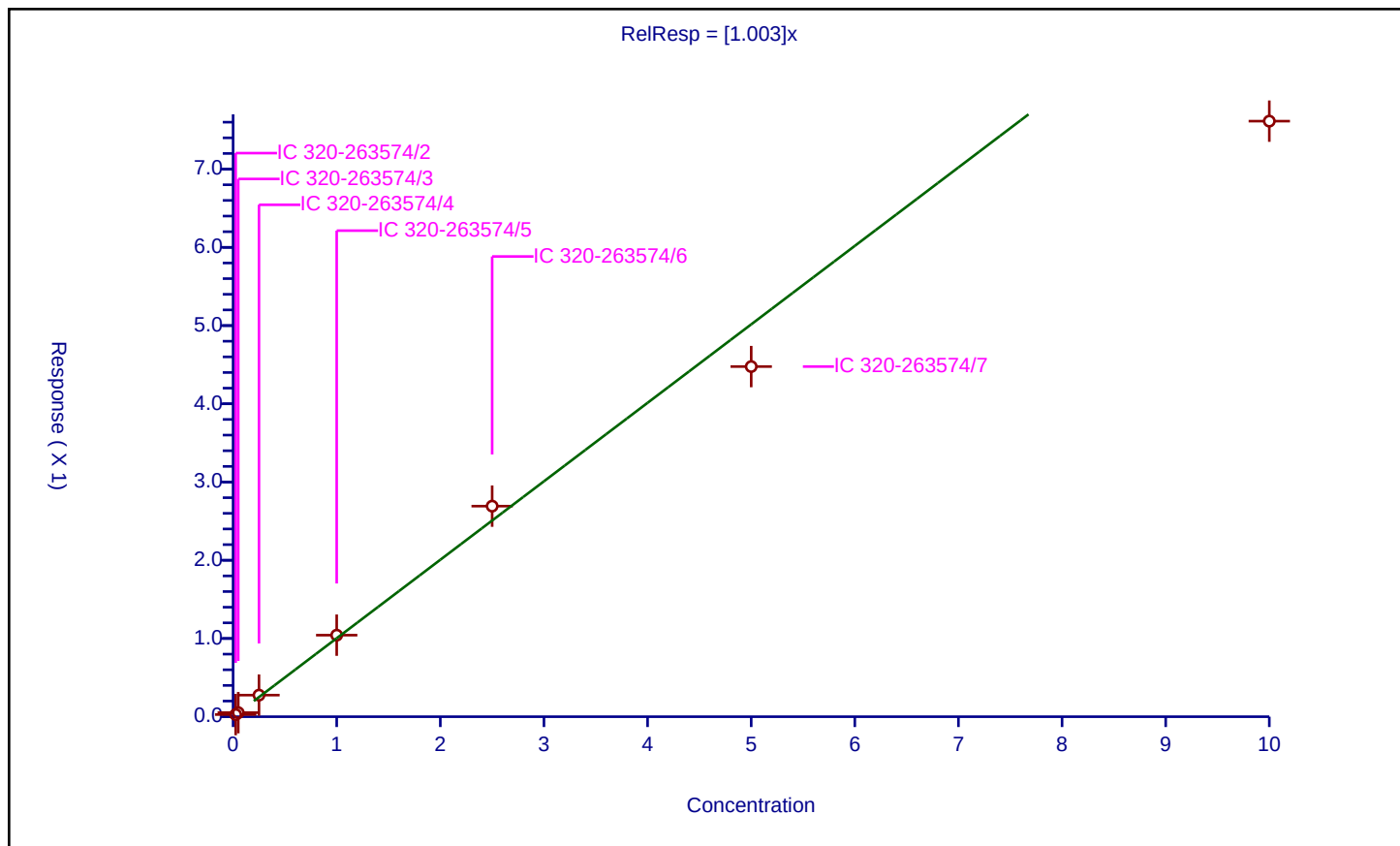
Curve Coefficients

Intercept: 0
 Slope: 1.003

Error Coefficients

Standard Error: 11900000
 Relative Standard Error: 12.8
 Correlation Coefficient: 0.977
 Coefficient of Determination (Adjusted): 0.979

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.027616	2.5	8754800.0	1.104651	Y
2	IC 320-263574/3	0.05	0.051884	2.5	7106702.0	1.037682	Y
3	IC 320-263574/4	0.25	0.275895	2.5	8559039.0	1.103582	Y
4	IC 320-263574/5	1.0	1.042504	2.5	8969509.0	1.042504	Y
5	IC 320-263574/6	2.5	2.691833	2.5	6323862.0	1.076733	Y
6	IC 320-263574/7	5.0	4.475857	2.5	8654978.0	0.895171	Y
7	IC 320-263574/8	10.0	7.613365	2.5	7676158.0	0.761336	Y



Calibration

/ Perfluorotridecanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

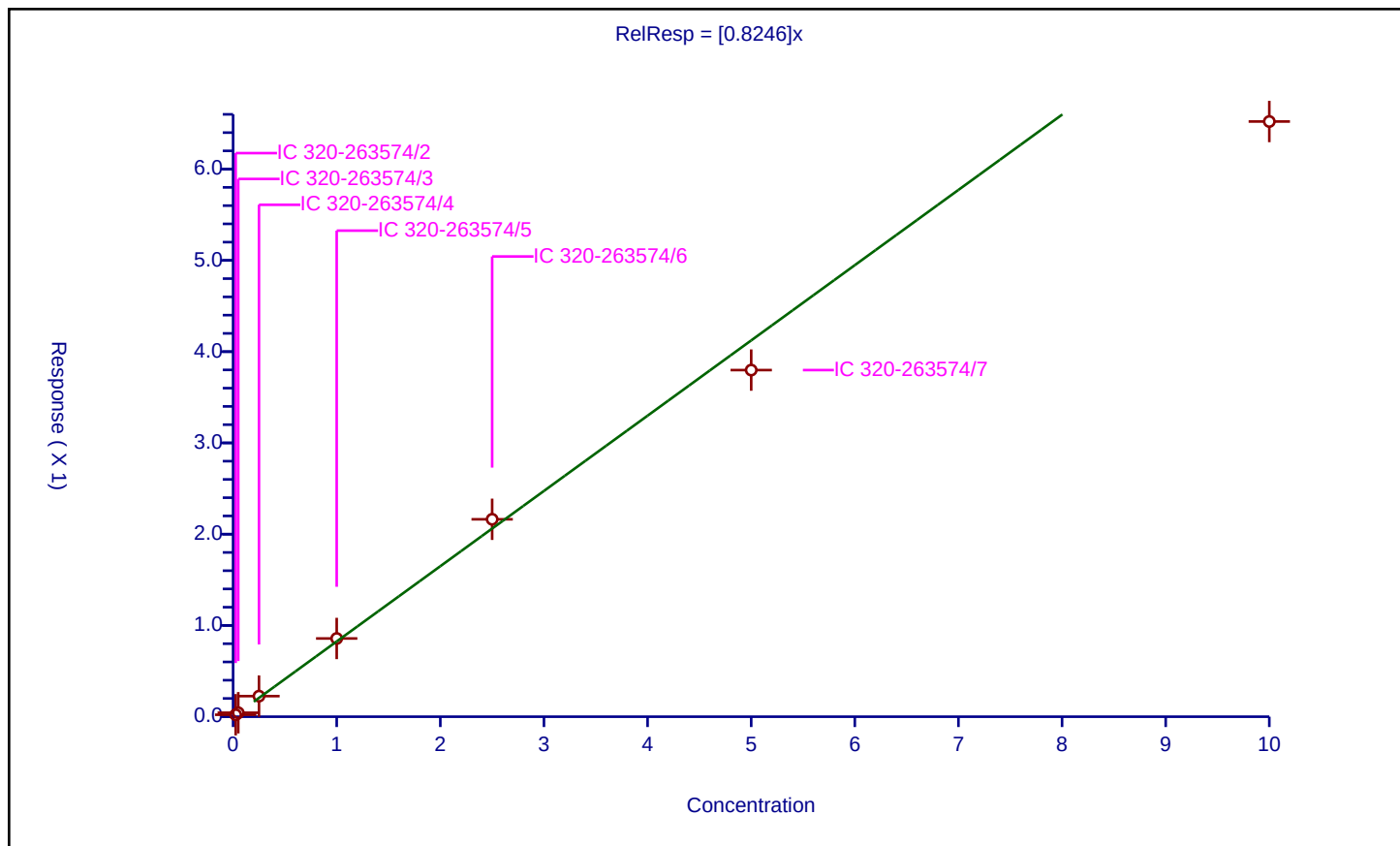
Curve Coefficients

Intercept: 0
 Slope: 0.8246

Error Coefficients

Standard Error: 10100000
 Relative Standard Error: 10.7
 Correlation Coefficient: 0.979
 Coefficient of Determination (Adjusted): 0.985

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.021729	2.5	8754800.0	0.869157	Y
2	IC 320-263574/3	0.05	0.043338	2.5	7106702.0	0.866766	Y
3	IC 320-263574/4	0.25	0.2255	2.5	8559039.0	0.902	Y
4	IC 320-263574/5	1.0	0.85719	2.5	8969509.0	0.85719	Y
5	IC 320-263574/6	2.5	2.163143	2.5	6323862.0	0.865257	Y
6	IC 320-263574/7	5.0	3.798192	2.5	8654978.0	0.759638	Y
7	IC 320-263574/8	10.0	6.521813	2.5	7676158.0	0.652181	Y



Calibration

/ Perfluorotetradecanoic acid

Curve Type: Average
 Weighting: Conc_Sq
 Origin: Force
 Dependency: Response
 Calib Mode: IsoDil
 Response Base: AREA
 RF Rounding: 0

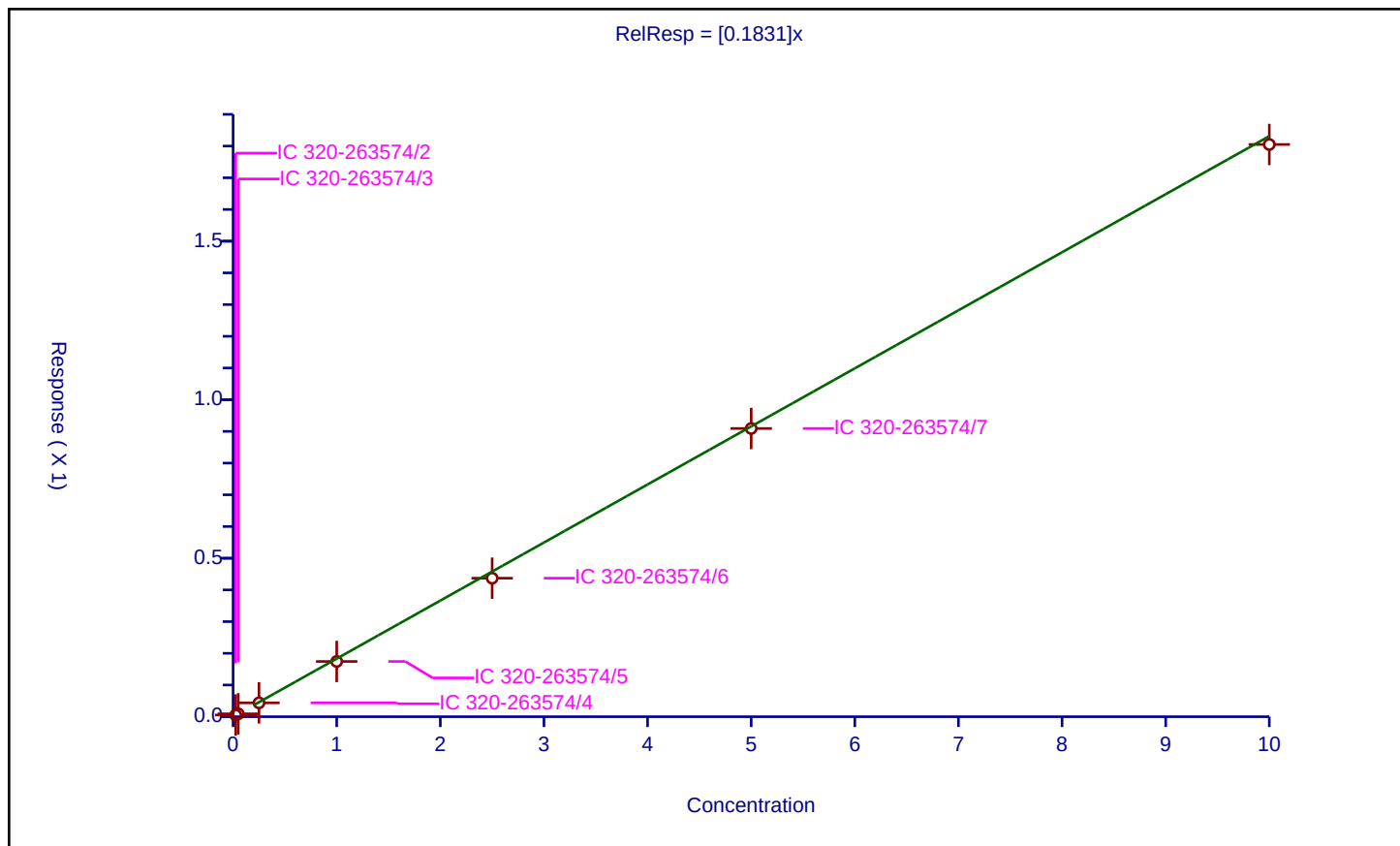
Curve Coefficients

Intercept: 0
 Slope: 0.1831

Error Coefficients

Standard Error: 2170000
 Relative Standard Error: 7.3
 Correlation Coefficient: 0.995
 Coefficient of Determination (Adjusted): 0.993

ID	Level	Concentration	Rel. Resp.	IS Amount	IS Response	RRF	Used
1	IC 320-263574/2	0.025	0.005304	2.5	6793009.0	0.212145	Y
2	IC 320-263574/3	0.05	0.009177	2.5	5427444.0	0.183549	Y
3	IC 320-263574/4	0.25	0.043717	2.5	6927320.0	0.17487	Y
4	IC 320-263574/5	1.0	0.174241	2.5	7130191.0	0.174241	Y
5	IC 320-263574/6	2.5	0.436946	2.5	5214966.0	0.174778	Y
6	IC 320-263574/7	5.0	0.909123	2.5	6849299.0	0.181825	Y
7	IC 320-263574/8	10.0	1.805004	2.5	6336537.0	0.1805	Y



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: ICV 320-263574/10 Calibration Date: 12/07/2018 04:11

Instrument ID: A9 Calib Start Date: 12/07/2018 03:11

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55

Lab File ID: 2018.12.06ICALB_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9696	0.9689		2.50	2.50	-0.0	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.043	1.007		2.41	2.50	-3.4	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.998	1.014		2.25	2.21	1.6	30.0
4:2 FTS	AveID	0.1728	0.1659		2.24	2.34	-4.0	30.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8816	0.8911		2.53	2.50	1.1	30.0
Perfluoropentanesulfonic acid	AveID	0.4889	0.5016		2.41	2.35	2.6	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.083	1.033		2.39	2.50	-4.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.234	1.153		2.13	2.28	-6.6	30.0
6:2 FTS	AveID	2.119	2.198		2.46	2.38	3.7	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.066	1.079		2.40	2.38	1.2	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.024	1.052		2.57	2.50	2.7	30.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.076	1.082		2.33	2.31	0.5	30.0
Perfluorononanoic acid (PFNA)	AveID	1.009	1.001		2.48	2.50	-0.9	30.0
Perfluorononanesulfonic acid	AveID	0.6567	0.6863		2.51	2.40	4.5	30.0
Perfluorooctanesulfonamide (FOSA)	AveID	2.912	3.050		2.62	2.50	4.7	30.0
8:2 FTS	AveID	14.12	12.73		2.16	2.40	-9.8	30.0
Perfluorodecanoic acid (PFDA)	AveID	1.119	1.134		2.53	2.50	1.3	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.8704	1.074		3.08	2.50	23.3	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.9378	0.9611		2.47	2.41	2.5	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.8552	0.8486		2.48	2.50	-0.8	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8192	0.9775		2.98	2.50	19.3	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.003	0.9930		2.47	2.50	-1.0	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8246	0.8394		2.54	2.50	1.8	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1831	0.1755		2.40	2.50	-4.1	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9275		2.66	2.50	6.4	30.0
13C4 PFBA	Ave	0.9539	0.9790		2.57	2.50	2.6	30.0
13C5 PFPeA	Ave	0.8142	0.8498		2.61	2.50	4.4	30.0
13C3 PFBS	Ave	1.157	1.178		2.37	2.33	1.8	30.0
13C2 PFHxA	Ave	0.8990	0.9130		2.54	2.50	1.6	30.0
13C4 PFHpA	Ave	1.089	1.142		2.62	2.50	4.9	30.0
18O2 PFHxS	Ave	0.6917	0.7093		2.43	2.37	2.6	30.0
M2-6:2 FTS	Ave	0.0861	0.0853		2.35	2.38	-0.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: ICV 320-263574/10 Calibration Date: 12/07/2018 04:11
 Instrument ID: A9 Calib Start Date: 12/07/2018 03:11
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55
 Lab File ID: 2018.12.06ICALB_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9895	0.9737		2.46	2.50	-1.6	30.0
13C4 PFOS	Ave	0.6814	0.7050		2.47	2.39	3.5	30.0
13C5 PFNA	Ave	0.9142	0.9478		2.59	2.50	3.7	30.0
13C8 FOSA	Ave	0.4374	0.4336		2.48	2.50	-0.9	30.0
13C2 PFDA	Ave	0.9588	0.9443		2.46	2.50	-1.5	30.0
M2-8:2 FTS	Ave	0.0113	0.0117		2.46	2.40	2.9	30.0
d3-NMeFOSAA	Ave	0.4238	0.4135		2.44	2.50	-2.5	30.0
13C2 PFUnA	Ave	0.8293	0.8316		2.51	2.50	0.3	30.0
d5-NEtFOSAA	Ave	0.3569	0.3549		2.49	2.50	-0.6	30.0
13C2 PFDoA	Ave	0.9925	1.037		2.61	2.50	4.5	30.0
13C2 PFTeDA	Ave	0.7914	0.8066		2.55	2.50	1.9	30.0
13C2 PFHxDA	Ave	0.7892	0.7956		2.52	2.50	0.8	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-45943-1

SDG No.: _____

Instrument ID: A9Start Date: 12/13/2018 11:29Analysis Batch Number: 265099End Date: 12/13/2018 15:59

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 320-265099/1		12/13/2018 11:29	1	2018.12.13LLAA_004.d	Acquity 2.1 (mm)
CCVL 320-265099/2		12/13/2018 11:37	1	2018.12.13LLAA_005.d	Acquity 2.1 (mm)
CCV 320-265099/3 CCVIS		12/13/2018 11:44	1	2018.12.13LLAA_020.d	Acquity 2.1 (mm)
MB 320-264674/1-A		12/13/2018 13:59	1	2018.12.13LLAA_038.d	Acquity 2.1 (mm)
ZZZZZ		12/13/2018 14:07	1		Acquity 2.1 (mm)
ZZZZZ		12/13/2018 14:14	1		Acquity 2.1 (mm)
ZZZZZ		12/13/2018 14:22	1		Acquity 2.1 (mm)
ZZZZZ		12/13/2018 14:29	1		Acquity 2.1 (mm)
ZZZZZ		12/13/2018 14:37	1		Acquity 2.1 (mm)
ZZZZZ		12/13/2018 14:44	1		Acquity 2.1 (mm)
ZZZZZ		12/13/2018 14:52	1		Acquity 2.1 (mm)
ZZZZZ		12/13/2018 14:59	1		Acquity 2.1 (mm)
ZZZZZ		12/13/2018 15:07	1		Acquity 2.1 (mm)
CCV 320-265099/14		12/13/2018 15:14	1	2018.12.13LLAA_048.d	Acquity 2.1 (mm)
320-45943-1		12/13/2018 15:22	1	2018.12.13LLAA_049.d	Acquity 2.1 (mm)
ZZZZZ		12/13/2018 15:29	1		Acquity 2.1 (mm)
320-45943-3		12/13/2018 15:37	1	2018.12.13LLAA_051.d	Acquity 2.1 (mm)
320-45943-4		12/13/2018 15:44	1	2018.12.13LLAA_052.d	Acquity 2.1 (mm)
ZZZZZ		12/13/2018 15:52	1		Acquity 2.1 (mm)
CCV 320-265099/20		12/13/2018 15:59	1	2018.12.13LLAA_054.d	Acquity 2.1 (mm)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCVL 320-265099/2 Calibration Date: 12/13/2018 11:37

Instrument ID: A9 Calib Start Date: 12/07/2018 03:11

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55

Lab File ID: 2018.12.13LLAA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9696	0.9374		0.0483	0.0500	-3.3	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.043	1.088		0.0521	0.0500	4.3	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.998	0.9705		0.0430	0.0442	-2.7	30.0
4:2 FTS	AveID	0.1728	0.1452		0.392	0.467	-16.0	30.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8816	0.9148		0.0519	0.0500	3.8	30.0
Perfluoropentanesulfonic acid	AveID	0.4889	0.4728		0.0454	0.0469	-3.3	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.083	1.120		0.0517	0.0500	3.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.234	1.353		0.0499	0.0455	9.6	30.0
6:2 FTS	AveID	2.119	2.090		0.467	0.474	-1.4	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.066	1.137		0.0508	0.0476	6.6	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.024	1.235		0.0603	0.0501	20.5	30.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.076	1.099		0.0474	0.0464	2.1	30.0
Perfluorononanoic acid (PFNA)	AveID	1.009	1.036		0.0513	0.0500	2.6	30.0
Perfluorononanesulfonic acid	AveID	0.6567	0.6450		0.0471	0.0480	-1.8	30.0
Perfluorooctanesulfonamide (FOSA)	AveID	2.912	2.870		0.0493	0.0500	-1.5	30.0
8:2 FTS	AveID	14.12	13.65		0.463	0.479	-3.3	30.0
Perfluorodecanoic acid (PFDA)	AveID	1.119	1.145		0.0512	0.0500	2.3	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.8704	0.7990		0.459	0.500	-8.2	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.9378	0.9336		0.0480	0.0482	-0.5	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.8552	1.014		0.0593	0.0500	18.5	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8192	0.8352		0.510	0.500	1.9	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.003	1.031		0.0514	0.0500	2.8	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8246	0.8629		0.0523	0.0500	4.6	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1831	0.1743		0.0476	0.0500	-4.8	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.376		0.0474	0.0500	-5.3	30.0
13C4 PFBA	Ave	0.9539	0.9816		2.57	2.50	2.9	30.0
13C5 PFPeA	Ave	0.8142	0.8295		2.55	2.50	1.9	30.0
13C3 PFBS	Ave	1.157	1.200		2.41	2.33	3.7	30.0
13C2 PFHxA	Ave	0.8990	0.9439		2.62	2.50	5.0	30.0
13C4 PFHpA	Ave	1.089	1.116		2.56	2.50	2.5	30.0
18O2 PFHxS	Ave	0.6917	0.7243		2.48	2.37	4.7	30.0
M2-6:2 FTS	Ave	0.0861	0.0748		2.06	2.38	-13.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-265099/2 Calibration Date: 12/13/2018 11:37
 Instrument ID: A9 Calib Start Date: 12/07/2018 03:11
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55
 Lab File ID: 2018.12.13LLAA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9895	1.004		2.54	2.50	1.4	30.0
13C4 PFOS	Ave	0.6814	0.7170		2.51	2.39	5.2	30.0
13C5 PFNA	Ave	0.9142	0.9175		2.51	2.50	0.4	30.0
13C8 FOSA	Ave	0.4374	0.4844		2.77	2.50	10.7	30.0
13C2 PFDA	Ave	0.9588	0.9886		2.58	2.50	3.1	30.0
M2-8:2 FTS	Ave	0.0113	0.0101		2.14	2.40	-10.7	30.0
d3-NMeFOSAA	Ave	0.4238	0.4186		2.47	2.50	-1.2	30.0
13C2 PFUnA	Ave	0.8293	0.7932		2.39	2.50	-4.4	30.0
d5-NEtFOSAA	Ave	0.3569	0.3365		2.36	2.50	-5.7	30.0
13C2 PFDoA	Ave	0.9925	0.9650		2.43	2.50	-2.8	30.0
13C2 PFTeDA	Ave	0.7914	0.7503		2.37	2.50	-5.2	30.0
13C2 PFHxDA	Ave	0.7892	0.7294		2.31	2.50	-7.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCV 320-265099/3 Calibration Date: 12/13/2018 11:44

Instrument ID: A9 Calib Start Date: 12/07/2018 03:11

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55

Lab File ID: 2018.12.13LLAA_020.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9696	0.9683		2.50	2.50	-0.1	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.043	1.031		2.47	2.50	-1.1	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.998	1.026		2.27	2.21	2.9	30.0
4:2 FTS	AveID	0.1728	0.1481		2.00	2.34	-14.3	30.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8816	0.8712		2.47	2.50	-1.2	30.0
Perfluoropentanesulfonic acid	AveID	0.4889	0.4905		2.35	2.35	0.3	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.083	1.070		2.47	2.50	-1.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.234	1.255		2.31	2.28	1.7	30.0
6:2 FTS	AveID	2.119	2.166		2.42	2.37	2.2	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.066	1.078		2.41	2.38	1.1	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.024	1.061		2.59	2.50	3.6	
Perfluorooctanesulfonic acid (PFOS)	AveID	1.076	1.105		2.38	2.32	2.6	30.0
Perfluorononanoic acid (PFNA)	AveID	1.009	0.9682		2.40	2.50	-4.1	30.0
Perfluorononanesulfonic acid	AveID	0.6567	0.6803		2.49	2.40	3.6	30.0
Perfluorooctanesulfonamide (FOSA)	AveID	2.912	3.000		2.58	2.50	3.0	30.0
8:2 FTS	AveID	14.12	13.88		2.35	2.40	-1.7	30.0
Perfluorodecanoic acid (PFDA)	AveID	1.119	1.155		2.58	2.50	3.2	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.8704	0.8898		2.56	2.50	2.2	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.9378	0.9298		2.39	2.41	-0.8	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.8552	0.8276		2.42	2.50	-3.2	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8192	0.8466		2.58	2.50	3.3	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.003	1.060		2.64	2.50	5.7	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8246	0.8667		2.63	2.50	5.1	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1831	0.1770		2.42	2.50	-3.3	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8955		2.57	2.50	2.7	30.0
13C4 PFBA	Ave	0.9539	0.9647		2.53	2.50	1.1	30.0
13C5 PFPeA	Ave	0.8142	0.8333		2.56	2.50	2.4	30.0
13C3 PFBS	Ave	1.157	1.180		2.37	2.33	2.0	30.0
13C2 PFHxA	Ave	0.8990	0.9270		2.58	2.50	3.1	30.0
13C4 PFHpA	Ave	1.089	1.108		2.54	2.50	1.7	30.0
18O2 PFHxS	Ave	0.6917	0.7048		2.41	2.37	1.9	30.0
M2-6:2 FTS	Ave	0.0861	0.0719		1.99	2.38	-16.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265099/3 Calibration Date: 12/13/2018 11:44
 Instrument ID: A9 Calib Start Date: 12/07/2018 03:11
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55
 Lab File ID: 2018.12.13LLAA_020.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9895	0.9699		2.45	2.50	-2.0	30.0
13C4 PFOS	Ave	0.6814	0.7242		2.54	2.39	6.3	30.0
13C5 PFNA	Ave	0.9142	0.9306		2.54	2.50	1.8	30.0
13C8 FOSA	Ave	0.4374	0.4426		2.53	2.50	1.2	30.0
M2-8:2 FTS	Ave	0.0113	0.0097		2.05	2.40	-14.2	30.0
13C2 PFDA	Ave	0.9588	0.9059		2.36	2.50	-5.5	30.0
d3-NMeFOSAA	Ave	0.4238	0.3571		2.11	2.50	-15.7	30.0
13C2 PFUnA	Ave	0.8293	0.7977		2.40	2.50	-3.8	30.0
d5-NEtFOSAA	Ave	0.3569	0.3355		2.35	2.50	-6.0	30.0
13C2 PFDoA	Ave	0.9925	0.9047		2.28	2.50	-8.8	30.0
13C2 PFTeDA	Ave	0.7914	0.7446		2.35	2.50	-5.9	30.0
13C2 PFHxDA	Ave	0.7892	0.7679		2.43	2.50	-2.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCV 320-265099/14 Calibration Date: 12/13/2018 15:14

Instrument ID: A9 Calib Start Date: 12/07/2018 03:11

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55

Lab File ID: 2018.12.13LLAA_048.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9696	0.9755		1.01	1.00	0.6	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.043	1.042		0.999	1.00	-0.0	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.998	1.041		0.923	0.884	4.4	30.0
4:2 FTS	AveID	0.1728	0.1516		0.819	0.934	-12.3	30.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8816	0.8585		0.974	1.00	-2.6	30.0
Perfluoropentanesulfonic acid	AveID	0.4889	0.4956		0.951	0.938	1.4	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.083	1.141		1.05	1.00	5.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.234	1.231		0.907	0.910	-0.3	30.0
6:2 FTS	AveID	2.119	2.176		0.973	0.948	2.7	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.066	1.083		0.967	0.952	1.5	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.024	1.070		1.05	1.00	4.5	
Perfluorooctanesulfonic acid (PFOS)	AveID	1.076	1.099		0.947	0.928	2.1	30.0
Perfluorononanoic acid (PFNA)	AveID	1.009	1.128		1.12	1.00	11.7	30.0
Perfluorononanesulfonic acid	AveID	0.6567	0.6494		0.949	0.960	-1.1	30.0
Perfluorooctanesulfonamide (FOSA)	AveID	2.912	3.203		1.10	1.00	10.0	30.0
8:2 FTS	AveID	14.12	15.26		1.04	0.958	8.1	30.0
Perfluorodecanoic acid (PFDA)	AveID	1.119	1.247		1.11	1.00	11.4	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.8704	0.8610		0.989	1.00	-1.1	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.9378	0.9694		0.996	0.964	3.4	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.8552	0.9353		1.09	1.00	9.4	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8192	0.8632		1.05	1.00	5.4	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.003	1.105		1.10	1.00	10.2	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8246	0.8783		1.07	1.00	6.5	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1831	0.1585		0.865	1.00	-13.5	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9536		1.07	1.00	7.5	30.0
13C4 PFBA	Ave	0.9539	0.9544		2.50	2.50	0.0	30.0
13C5 PFPeA	Ave	0.8142	0.8208		2.52	2.50	0.8	30.0
13C3 PFBS	Ave	1.157	1.166		2.34	2.33	0.8	30.0
13C2 PFHxA	Ave	0.8990	0.9060		2.52	2.50	0.8	30.0
13C4 PFHpA	Ave	1.089	1.117		2.57	2.50	2.6	30.0
18O2 PFHxS	Ave	0.6917	0.6912		2.36	2.37	-0.0	30.0
M2-6:2 FTS	Ave	0.0861	0.0723		1.99	2.38	-16.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265099/14 Calibration Date: 12/13/2018 15:14
 Instrument ID: A9 Calib Start Date: 12/07/2018 03:11
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55
 Lab File ID: 2018.12.13LLAA_048.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9895	0.9702		2.45	2.50	-2.0	30.0
13C4 PFOS	Ave	0.6814	0.6976		2.45	2.39	2.4	30.0
13C5 PFNA	Ave	0.9142	0.8702		2.38	2.50	-4.8	30.0
13C8 FOSA	Ave	0.4374	0.4482		2.56	2.50	2.5	30.0
13C2 PFDA	Ave	0.9588	0.9121		2.38	2.50	-4.9	30.0
M2-8:2 FTS	Ave	0.0113	0.0095		2.00	2.40	-16.3	30.0
d3-NMeFOSAA	Ave	0.4238	0.3694		2.18	2.50	-12.9	30.0
13C2 PFUnA	Ave	0.8293	0.7603		2.29	2.50	-8.3	30.0
d5-NEtFOSAA	Ave	0.3569	0.3234		2.27	2.50	-9.4	30.0
13C2 PFDoA	Ave	0.9925	0.9330		2.35	2.50	-6.0	30.0
13C2 PFTeDA	Ave	0.7914	0.7638		2.41	2.50	-3.5	30.0
13C2 PFHxDA	Ave	0.7892	0.7415		2.35	2.50	-6.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCV 320-265099/20 Calibration Date: 12/13/2018 15:59

Instrument ID: A9 Calib Start Date: 12/07/2018 03:11

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55

Lab File ID: 2018.12.13LLAA_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9696	0.9644		2.49	2.50	-0.5	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.043	0.9852		2.36	2.50	-5.5	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.998	1.045		2.31	2.21	4.7	30.0
4:2 FTS	AveID	0.1728	0.1481		2.00	2.34	-14.3	30.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8816	0.9082		2.58	2.50	3.0	30.0
Perfluoropentanesulfonic acid	AveID	0.4889	0.5363		2.57	2.35	9.7	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.083	1.053		2.43	2.50	-2.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.234	1.203		2.22	2.28	-2.5	30.0
6:2 FTS	AveID	2.119	2.015		2.25	2.37	-4.9	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.066	1.111		2.48	2.38	4.2	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.024	1.048		2.56	2.50	2.3	
Perfluorooctanesulfonic acid (PFOS)	AveID	1.076	1.076		2.32	2.32	-0.0	30.0
Perfluorononanoic acid (PFNA)	AveID	1.009	1.026		2.54	2.50	1.7	30.0
Perfluorononanesulfonic acid	AveID	0.6567	0.6504		2.38	2.40	-1.0	30.0
Perfluorooctanesulfonamide (FOSA)	AveID	2.912	3.120		2.68	2.50	7.1	30.0
8:2 FTS	AveID	14.12	14.86		2.52	2.40	5.3	30.0
Perfluorodecanoic acid (PFDA)	AveID	1.119	1.123		2.51	2.50	0.3	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.8704	0.8580		2.46	2.50	-1.4	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.9378	1.014		2.61	2.41	8.2	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.8552	0.8464		2.47	2.50	-1.0	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8192	0.7902		2.41	2.50	-3.5	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.003	0.9878		2.46	2.50	-1.5	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8246	0.8247		2.50	2.50	0.0	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1831	0.1750		2.39	2.50	-4.5	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9074		2.60	2.50	4.0	30.0
13C4 PFBA	Ave	0.9539	0.9748		2.55	2.50	2.2	30.0
13C5 PFPeA	Ave	0.8142	0.8496		2.61	2.50	4.3	30.0
13C3 PFBS	Ave	1.157	1.161		2.33	2.33	0.3	30.0
13C2 PFHxA	Ave	0.8990	0.9015		2.51	2.50	0.3	30.0
13C4 PFHpA	Ave	1.089	1.090		2.50	2.50	0.1	30.0
18O2 PFHxS	Ave	0.6917	0.7180		2.45	2.37	3.8	30.0
M2-6:2 FTS	Ave	0.0861	0.0802		2.21	2.38	-6.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265099/20 Calibration Date: 12/13/2018 15:59
 Instrument ID: A9 Calib Start Date: 12/07/2018 03:11
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55
 Lab File ID: 2018.12.13LLAA_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9895	0.9903		2.50	2.50	0.0	30.0
13C4 PFOS	Ave	0.6814	0.7257		2.55	2.39	6.5	30.0
13C5 PFNA	Ave	0.9142	0.9143		2.50	2.50	0.0	30.0
13C8 FOSA	Ave	0.4374	0.4200		2.40	2.50	-4.0	30.0
13C2 PFDA	Ave	0.9588	0.9471		2.47	2.50	-1.2	30.0
M2-8:2 FTS	Ave	0.0113	0.0100		2.12	2.40	-11.5	30.0
d3-NMeFOSAA	Ave	0.4238	0.4086		2.41	2.50	-3.6	30.0
13C2 PFUnA	Ave	0.8293	0.8052		2.43	2.50	-2.9	30.0
d5-NEtFOSAA	Ave	0.3569	0.3401		2.38	2.50	-4.7	30.0
13C2 PFDoA	Ave	0.9925	1.016		2.56	2.50	2.4	30.0
13C2 PFTeDA	Ave	0.7914	0.7781		2.46	2.50	-1.7	30.0
13C2 PFHxDA	Ave	0.7892	0.8333		2.64	2.50	5.6	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Instrument ID: A9 Start Date: 12/24/2018 11:35Analysis Batch Number: 267151 End Date: 12/24/2018 12:42

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 320-267151/1		12/24/2018 11:35	1	2018.12.24LLAA_004.d	Acquity 2.1 (mm)
CCVL 320-267151/2		12/24/2018 11:42	1	2018.12.24LLAA_005.d	Acquity 2.1 (mm)
CCV 320-267151/3 CCVIS		12/24/2018 11:50	1	2018.12.24LLAA_006.d	Acquity 2.1 (mm)
ZZZZZ		12/24/2018 11:57	1		Acquity 2.1 (mm)
LCS 320-264674/2-A		12/24/2018 12:05	1	2018.12.24LLAA_008.d	Acquity 2.1 (mm)
ZZZZZ		12/24/2018 12:12	1		Acquity 2.1 (mm)
320-45943-2		12/24/2018 12:20	1	2018.12.24LLAA_010.d	Acquity 2.1 (mm)
ZZZZZ		12/24/2018 12:27	5		Acquity 2.1 (mm)
320-45943-1 DL		12/24/2018 12:35	10	2018.12.24LLAA_012.d	Acquity 2.1 (mm)
CCV 320-267151/10		12/24/2018 12:42	1	2018.12.24LLAA_013.d	Acquity 2.1 (mm)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCVL 320-267151/2 Calibration Date: 12/24/2018 11:42

Instrument ID: A9 Calib Start Date: 12/07/2018 03:11

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55

Lab File ID: 2018.12.24LLAA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9696	0.9722		0.0501	0.0500	0.3	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.043	1.064		0.0510	0.0500	2.0	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.998	0.9247		0.0410	0.0442	-7.3	30.0
4:2 FTS	AveID	0.1728	0.1526		0.412	0.467	-11.7	30.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8816	0.9141		0.0518	0.0500	3.7	30.0
Perfluoropentanesulfonic acid	AveID	0.4889	0.4486		0.0430	0.0469	-8.2	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.083	1.166		0.0539	0.0500	7.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.234	1.326		0.0489	0.0455	7.4	30.0
6:2 FTS	AveID	2.119	2.111		0.472	0.474	-0.4	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.066	1.020		0.0455	0.0476	-4.4	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.024	1.204		0.0588	0.0501	17.6	30.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.076	1.019		0.0439	0.0464	-5.3	30.0
Perfluorononanoic acid (PFNA)	AveID	1.009	1.132		0.0561	0.0500	12.1	30.0
Perfluorooctanesulfonamide (FOSA)	AveID	2.912	2.922		0.0502	0.0500	0.3	30.0
Perfluorononanesulfonic acid	AveID	0.6567	0.6269		0.0458	0.0480	-4.5	30.0
8:2 FTS	AveID	14.12	14.87		0.504	0.479	5.3	30.0
Perfluorodecanoic acid (PFDA)	AveID	1.119	1.258		0.0562	0.0500	12.4	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.8704	0.8587		0.493	0.500	-1.4	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.9378	0.9207		0.0473	0.0482	-1.8	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.8552	0.997		0.0583	0.0500	16.5	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8192	0.7963		0.486	0.500	-2.8	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.003	1.062		0.0530	0.0500	5.9	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8246	0.8981		0.0545	0.0500	8.9	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1831	0.1704		0.0465	0.0500	-6.9	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.349		0.0458	0.0500	-8.4	30.0
13C4 PFBA	Ave	0.9539	0.9097		2.38	2.50	-4.6	30.0
13C5 PFPeA	Ave	0.8142	0.8444		2.59	2.50	3.7	30.0
13C3 PFBS	Ave	1.157	1.195		2.40	2.33	3.3	30.0
13C2 PFHxA	Ave	0.8990	0.9301		2.59	2.50	3.5	30.0
13C4 PFHpA	Ave	1.089	1.078		2.48	2.50	-1.0	30.0
18O2 PFHxS	Ave	0.6917	0.6996		2.39	2.37	1.1	30.0
M2-6:2 FTS	Ave	0.0861	0.0799		2.20	2.38	-7.2	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-267151/2 Calibration Date: 12/24/2018 11:42
 Instrument ID: A9 Calib Start Date: 12/07/2018 03:11
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55
 Lab File ID: 2018.12.24LLAA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9895	0.9757		2.47	2.50	-1.4	30.0
13C4 PFOS	Ave	0.6814	0.7369		2.58	2.39	8.1	30.0
13C5 PFNA	Ave	0.9142	0.8963		2.45	2.50	-2.0	30.0
13C8 FOSA	Ave	0.4374	0.4602		2.63	2.50	5.2	30.0
13C2 PFDA	Ave	0.9588	0.9858		2.57	2.50	2.8	30.0
M2-8:2 FTS	Ave	0.0113	0.0107		2.25	2.40	-6.0	30.0
d3-NMeFOSAA	Ave	0.4238	0.3833		2.26	2.50	-9.6	30.0
13C2 PFUnA	Ave	0.8293	0.8681		2.62	2.50	4.7	30.0
d5-NEtFOSAA	Ave	0.3569	0.3323		2.33	2.50	-6.9	30.0
13C2 PFDoA	Ave	0.9925	1.011		2.55	2.50	1.8	30.0
13C2 PFTeDA	Ave	0.7914	0.7724		2.44	2.50	-2.4	30.0
13C2 PFHxDA	Ave	0.7892	0.6336		2.01	2.50	-19.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCV 320-267151/3 Calibration Date: 12/24/2018 11:50

Instrument ID: A9 Calib Start Date: 12/07/2018 03:11

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55

Lab File ID: 2018.12.24LLAA_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9696	0.9182		0.947	1.00	-5.3	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.043	1.007		0.966	1.00	-3.4	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.998	0.9283		0.823	0.884	-6.9	30.0
4:2 FTS	AveID	0.1728	0.1399		0.756	0.934	-19.1	30.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8816	0.8505		0.965	1.00	-3.5	30.0
Perfluoropentanesulfonic acid	AveID	0.4889	0.4946		0.949	0.938	1.2	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.083	1.043		0.963	1.00	-3.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.234	1.157		0.853	0.910	-6.3	30.0
6:2 FTS	AveID	2.119	1.997		0.893	0.948	-5.8	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.066	0.9836		0.878	0.952	-7.7	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.024	1.021		0.997	1.00	-0.3	
Perfluorooctanesulfonic acid (PFOS)	AveID	1.076	0.9910		0.854	0.928	-7.9	30.0
Perfluorononanoic acid (PFNA)	AveID	1.009	0.9714		0.962	1.00	-3.8	30.0
Perfluorooctanesulfonamide (FOSA)	AveID	2.912	3.004		1.03	1.00	3.1	30.0
Perfluorononanesulfonic acid	AveID	0.6567	0.6723		0.983	0.960	2.4	30.0
Perfluorodecanoic acid (PFDA)	AveID	1.119	1.067		0.954	1.00	-4.6	30.0
8:2 FTS	AveID	14.12	13.53		0.918	0.958	-4.2	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.8704	0.8025		0.922	1.00	-7.8	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.9378	0.9898		1.02	0.964	5.5	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.8552	0.8111		0.948	1.00	-5.2	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8192	0.7349		0.897	1.00	-10.3	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.003	0.9589		0.956	1.00	-4.4	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8246	0.8052		0.976	1.00	-2.4	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1831	0.1501		0.819	1.00	-18.1	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8698		0.977	1.00	-2.3	30.0
13C4 PFBA	Ave	0.9539	0.8893		2.33	2.50	-6.8	30.0
13C5 PFPeA	Ave	0.8142	0.7878		2.42	2.50	-3.2	30.0
13C3 PFBS	Ave	1.157	1.124		2.26	2.33	-2.9	30.0
13C2 PFHxA	Ave	0.8990	0.8340		2.32	2.50	-7.2	30.0
13C4 PFHpA	Ave	1.089	1.049		2.41	2.50	-3.6	30.0
18O2 PFHxS	Ave	0.6917	0.6552		2.24	2.37	-5.3	30.0
M2-6:2 FTS	Ave	0.0861	0.0763		2.11	2.38	-11.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCV 320-267151/3 Calibration Date: 12/24/2018 11:50
 Instrument ID: A9 Calib Start Date: 12/07/2018 03:11
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55
 Lab File ID: 2018.12.24LLAA_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9895	0.9863		2.49	2.50	-0.3	30.0
13C4 PFOS	Ave	0.6814	0.7269		2.55	2.39	6.7	30.0
13C5 PFNA	Ave	0.9142	0.8812		2.41	2.50	-3.6	30.0
13C8 FOSA	Ave	0.4374	0.4456		2.55	2.50	1.9	30.0
13C2 PFDA	Ave	0.9588	0.9813		2.56	2.50	2.3	30.0
M2-8:2 FTS	Ave	0.0113	0.0105		2.21	2.40	-7.6	30.0
d3-NMeFOSAA	Ave	0.4238	0.3571		2.11	2.50	-15.8	30.0
13C2 PFUnA	Ave	0.8293	0.8357		2.52	2.50	0.8	30.0
d5-NEtFOSAA	Ave	0.3569	0.3217		2.25	2.50	-9.9	30.0
13C2 PFDoA	Ave	0.9925	0.996		2.51	2.50	0.3	30.0
13C2 PFTeDA	Ave	0.7914	0.7726		2.44	2.50	-2.4	30.0
13C2 PFHxDA	Ave	0.7892	0.6228		1.97	2.50	-21.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Lab Sample ID: CCV 320-267151/10 Calibration Date: 12/24/2018 12:42

Instrument ID: A9 Calib Start Date: 12/07/2018 03:11

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55

Lab File ID: 2018.12.24LLAA_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9696	0.8923		2.30	2.50	-8.0	30.0
Perfluoropentanoic acid (PFPeA)	AveID	1.043	0.9473		2.27	2.50	-9.2	30.0
Perfluorobutanesulfonic acid (PFBS)	AveID	0.998	0.9331		2.07	2.21	-6.5	30.0
4:2 FTS	AveID	0.1728	0.1473		1.99	2.34	-14.8	30.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8816	0.8647		2.45	2.50	-1.9	30.0
Perfluoropentanesulfonic acid	AveID	0.4889	0.5015		2.40	2.35	2.6	30.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.083	0.9544		2.20	2.50	-11.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.234	1.143		2.11	2.28	-7.4	30.0
6:2 FTS	AveID	2.119	2.082		2.33	2.37	-1.8	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.066	0.9466		2.11	2.38	-11.2	30.0
Perfluorooctanoic acid (PFOA)	AveID	1.024	1.041		2.54	2.50	1.7	
Perfluorooctanesulfonic acid (PFOS)	AveID	1.076	0.9926		2.14	2.32	-7.8	30.0
Perfluorononanoic acid (PFNA)	AveID	1.009	0.9613		2.38	2.50	-4.8	30.0
Perfluorooctanesulfonamide (FOSA)	AveID	2.912	2.842		2.44	2.50	-2.4	30.0
Perfluorononanesulfonic acid	AveID	0.6567	0.6120		2.24	2.40	-6.8	30.0
8:2 FTS	AveID	14.12	12.40		2.10	2.40	-12.2	30.0
Perfluorodecanoic acid (PFDA)	AveID	1.119	1.080		2.41	2.50	-3.5	30.0
N-methylperfluorooctanesulfo namidoacetic acid (NMeFOSAA)	AveID	0.8704	0.8240		2.37	2.50	-5.3	30.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.9378	0.9390		2.41	2.41	0.1	30.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.8552	0.7673		2.24	2.50	-10.3	30.0
N-ethylperfluorooctanesulfon amidoacetic acid (NEtFOSAA)	AveID	0.8192	0.8048		2.46	2.50	-1.8	30.0
Perfluorododecanoic acid (PFDoA)	AveID	1.003	0.9193		2.29	2.50	-8.4	30.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8246	0.7461		2.26	2.50	-9.5	30.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1831	0.1519		2.07	2.50	-17.1	30.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8857		2.54	2.50	1.5	30.0
13C4 PFBA	Ave	0.9539	0.9740		2.55	2.50	2.1	30.0
13C5 PFPeA	Ave	0.8142	0.8557		2.63	2.50	5.1	30.0
13C3 PFBS	Ave	1.157	1.158		2.33	2.33	0.0	30.0
13C2 PFHxA	Ave	0.8990	0.8942		2.49	2.50	-0.5	30.0
13C4 PFHpA	Ave	1.089	1.133		2.60	2.50	4.1	30.0
18O2 PFHxS	Ave	0.6917	0.7032		2.40	2.37	1.7	30.0
M2-6:2 FTS	Ave	0.0861	0.0768		2.12	2.38	-10.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Lab Sample ID: CCV 320-267151/10 Calibration Date: 12/24/2018 12:42
 Instrument ID: A9 Calib Start Date: 12/07/2018 03:11
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/07/2018 03:55
 Lab File ID: 2018.12.24LLAA_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	0.9895	1.004		2.54	2.50	1.5	30.0
13C4 PFOS	Ave	0.6814	0.7455		2.61	2.39	9.4	30.0
13C5 PFNA	Ave	0.9142	0.9359		2.56	2.50	2.4	30.0
13C8 FOSA	Ave	0.4374	0.4701		2.69	2.50	7.5	30.0
13C2 PFDA	Ave	0.9588	0.997		2.60	2.50	3.9	30.0
M2-8:2 FTS	Ave	0.0113	0.0118		2.48	2.40	3.6	30.0
d3-NMeFOSAA	Ave	0.4238	0.3835		2.26	2.50	-9.5	30.0
13C2 PFUnA	Ave	0.8293	0.8583		2.59	2.50	3.5	30.0
d5-NEtFOSAA	Ave	0.3569	0.3297		2.31	2.50	-7.6	30.0
13C2 PFDoA	Ave	0.9925	1.052		2.65	2.50	6.0	30.0
13C2 PFTeDA	Ave	0.7914	0.7744		2.45	2.50	-2.1	30.0
13C2 PFHxDA	Ave	0.7892	0.6880		2.18	2.50	-12.8	30.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: ICB 320-263574/9
 Matrix: Water Lab File ID: 2018.12.06ICALB_009.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/07/2018 04:03
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 263574 Units: ng/mL

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	0.040	U	0.050	0.040	0.0088
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.040	U	0.050	0.040	0.012
307-24-4	Perfluorohexanoic acid (PFHxA)	0.040	U	0.050	0.040	0.015
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.040	U	0.050	0.040	0.0063
335-67-1	Perfluorooctanoic acid (PFOA)	0.040	U	0.050	0.040	0.021
375-95-1	Perfluorononanoic acid (PFNA)	0.040	U	0.050	0.040	0.0068
335-76-2	Perfluorodecanoic acid (PFDA)	0.040	U	0.050	0.040	0.0078
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.040	U	0.050	0.040	0.028
307-55-1	Perfluorododecanoic acid (PFDoA)	0.040	U	0.050	0.040	0.014
72629-94-8	Perfluorotridecanoic acid (PFTrIA)	0.040	U	0.050	0.040	0.033
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.00993	J	0.050	0.040	0.0073
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.040	U	0.050	0.040	0.0050
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.00952	J M	0.050	0.040	0.0043
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.040	U	0.050	0.040	0.0048
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.040	U M	0.050	0.040	0.014
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.040	U	0.050	0.040	0.0080
754-91-6	Perfluorooctanesulfonamide (FOSA)	0.040	U	0.050	0.040	0.0088

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: ICB 320-263574/9
 Matrix: Water Lab File ID: 2018.12.06ICALB_009.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/07/2018 04:03
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 263574 Units: ng/mL

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	100		50-150
STL00992	13C4 PFBA	96		50-150
STL01893	13C5 PFPeA	98		50-150
STL00993	13C2 PFHxA	100		50-150
STL01892	13C4 PFHpA	101		50-150
STL00990	13C4 PFOA	99		50-150
STL00995	13C5 PFNA	98		50-150
STL00996	13C2 PFDA	102		50-150
STL00997	13C2 PFUnA	96		50-150
STL00998	13C2 PFDoA	99		50-150
STL00994	18O2 PFHxS	105		50-150
STL02116	13C2 PFTeDA	103		50-150
STL00991	13C4 PFOS	104		50-150
STL02337	13C3 PFBS	98		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: CCB 320-265099/1
 Matrix: Water Lab File ID: 2018.12.13LLAA_004.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/13/2018 11:29
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265099 Units: ng/mL

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	0.040	U M	0.050	0.040	0.0088
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.040	U M	0.050	0.040	0.012
307-24-4	Perfluorohexanoic acid (PFHxA)	0.040	U	0.050	0.040	0.015
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.040	U M	0.050	0.040	0.0063
335-67-1	Perfluorooctanoic acid (PFOA)	0.040	U M	0.050	0.040	0.021
375-95-1	Perfluorononanoic acid (PFNA)	0.040	U M	0.050	0.040	0.0068
335-76-2	Perfluorodecanoic acid (PFDA)	0.040	U	0.050	0.040	0.0078
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.040	U	0.050	0.040	0.028
307-55-1	Perfluorododecanoic acid (PFDoA)	0.040	U	0.050	0.040	0.014
72629-94-8	Perfluorotridecanoic acid (PFTriA)	0.040	U	0.050	0.040	0.033
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.040	U	0.050	0.040	0.0073
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.040	U M	0.050	0.040	0.0050
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.00795	J M	0.050	0.040	0.0043
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.040	U	0.050	0.040	0.0048
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.040	U M	0.050	0.040	0.014
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.040	U M	0.050	0.040	0.0080
754-91-6	Perfluorooctanesulfonamide (FOSA)	0.040	U	0.050	0.040	0.0088

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: CCB 320-265099/1
 Matrix: Water Lab File ID: 2018.12.13LLAA_004.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/13/2018 11:29
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265099 Units: ng/mL

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	108		50-150
STL00992	13C4 PFBA	104		50-150
STL01893	13C5 PFPeA	107		50-150
STL00993	13C2 PFHxA	103		50-150
STL01892	13C4 PFHpA	101		50-150
STL00990	13C4 PFOA	102		50-150
STL00995	13C5 PFNA	99		50-150
STL00996	13C2 PFDA	98		50-150
STL00997	13C2 PFUnA	100		50-150
STL00998	13C2 PFDoA	99		50-150
STL00994	18O2 PFHxS	107		50-150
STL02116	13C2 PFTeDA	102		50-150
STL00991	13C4 PFOS	104		50-150
STL02337	13C3 PFBS	112		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: CCB 320-267151/1
 Matrix: Water Lab File ID: 2018.12.24LLAA_004.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/24/2018 11:35
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 267151 Units: ng/mL

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
375-22-4	Perfluorobutanoic acid (PFBA)	0.040	U M	0.050	0.040	0.0088
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.040	U M	0.050	0.040	0.012
307-24-4	Perfluorohexanoic acid (PFHxA)	0.040	U	0.050	0.040	0.015
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.040	U M	0.050	0.040	0.0063
335-67-1	Perfluorooctanoic acid (PFOA)	0.040	U M	0.050	0.040	0.021
375-95-1	Perfluorononanoic acid (PFNA)	0.040	U M	0.050	0.040	0.0068
335-76-2	Perfluorodecanoic acid (PFDA)	0.040	U M	0.050	0.040	0.0078
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.040	U M	0.050	0.040	0.028
307-55-1	Perfluorododecanoic acid (PFDoA)	0.040	U M	0.050	0.040	0.014
72629-94-8	Perfluorotridecanoic acid (PFTrIA)	0.040	U M	0.050	0.040	0.033
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.040	U	0.050	0.040	0.0073
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.040	U M	0.050	0.040	0.0050
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.00749	J M	0.050	0.040	0.0043
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.040	U	0.050	0.040	0.0048
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.040	U	0.050	0.040	0.014
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.040	U M	0.050	0.040	0.0080
754-91-6	Perfluorooctanesulfonamide (FOSA)	0.040	U M	0.050	0.040	0.0088

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: CCB 320-267151/1
 Matrix: Water Lab File ID: 2018.12.24LLAA_004.d
 Analysis Method: EPA 537 (Mod) Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 1(mL) Date Analyzed: 12/24/2018 11:35
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 267151 Units: ng/mL

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01056	13C8 FOSA	104		50-150
STL00992	13C4 PFBA	93		50-150
STL01893	13C5 PFPeA	99		50-150
STL00993	13C2 PFHxA	102		50-150
STL01892	13C4 PFHpA	97		50-150
STL00990	13C4 PFOA	100		50-150
STL00995	13C5 PFNA	99		50-150
STL00996	13C2 PFDA	102		50-150
STL00997	13C2 PFUnA	101		50-150
STL00998	13C2 PFDoA	102		50-150
STL00994	18O2 PFHxS	102		50-150
STL02116	13C2 PFTeDA	94		50-150
STL00991	13C4 PFOS	105		50-150
STL02337	13C3 PFBS	100		50-150

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Batch Number: 264674 Batch Start Date: 12/12/18 07:31 Batch Analyst: Vang, Mai YeeBatch Method: 3535 Batch End Date: 12/12/18 14:50

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC ALL_SU 00143	LCPFC-IS 00121
MB 320-264674/1		3535, EPA 537 (Mod)				250.00 mL	10.00 mL	500 uL	500 uL
LCS 320-264674/2		3535, EPA 537 (Mod)				250.00 mL	10.00 mL	500 uL	500 uL
320-45943-A-1	TP-PFC-037-TPI	3535, EPA 537 (Mod)	T	289.19 g	28.31 g	260.9 mL	10.00 mL	500 uL	500 uL
320-45943-A-2	TP-PFC-037-MID-C ARBON	3535, EPA 537 (Mod)	T	291.10 g	27.42 g	263.7 mL	10.00 mL	500 uL	500 uL
320-45943-A-3	TP-PFC-037-TPE	3535, EPA 537 (Mod)	T	294.01 g	28.51 g	265.5 mL	10.00 mL	500 uL	500 uL
320-45943-A-4	TP-PFC-037-TPE-D	3535, EPA 537 (Mod)	T	293.47 g	27.61 g	265.9 mL	10.00 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00200					
MB 320-264674/1		3535, EPA 537 (Mod)							
LCS 320-264674/2		3535, EPA 537 (Mod)		500 uL					
320-45943-A-1	TP-PFC-037-TPI	3535, EPA 537 (Mod)	T						
320-45943-A-2	TP-PFC-037-MID-C ARBON	3535, EPA 537 (Mod)	T						
320-45943-A-3	TP-PFC-037-TPE	3535, EPA 537 (Mod)	T						
320-45943-A-4	TP-PFC-037-TPE-D	3535, EPA 537 (Mod)	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

EPA 537 (Mod)

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LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Batch Number: 264674 Batch Start Date: 12/12/18 07:31 Batch Analyst: Vang, Mai YeeBatch Method: 3535 Batch End Date: 12/12/18 14:50

Batch Notes	
Balance ID	QA-070
Batch Comment	TA labels match client IDs MYV 12-12-18. Envi Carb: 107566.
First End time	12/12/2018 14:50
H2O ID	12/10/18
Hexane ID	1451478
Manifold ID	Y and T
Methanol ID	1461881
Sodium Hydroxide ID	1453142
Pipette/Syringe/Dispenser ID	I46162G
Analyst ID - Reagent Drop	MYV
Analyst ID - IS Reagent Drop	MYV : 1435170
Analyst ID - IS Reagent Drop Witness	DTH
Solvent Lot #	1453049
Solvent Name	0.3% NH4OH/MeOH
SPE Cartridge Lot ID	004238285A
SPE Cartridge Type	WAX 500mg
SPE Disk Type	500mg
First Start time	12/12/2018 07:31

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Batch Number: 267590 Batch Start Date: 12/27/18 07:38 Batch Analyst: Vang, Mai YeeBatch Method: 3535 Batch End Date: 12/27/18 13:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC_ALL_SU 00151	LCPFC-IS 00118
MB 320-267590/1		3535, EPA 537 (Mod)				250.00 mL	10.00 mL	500 uL	500 uL
LCS 320-267590/2		3535, EPA 537 (Mod)				250.00 mL	10.00 mL	500 uL	500 uL
LCSD 320-267590/3		3535, EPA 537 (Mod)				250.00 mL	10.00 mL	500 uL	500 uL
320-45943-B-2	TP-PFC-037-MID-C ARBON	3535, EPA 537 (Mod)	T	327.67 g	28.30 g	299.4 mL	10.00 mL	500 uL	500 uL
320-45943-B-3	TP-PFC-037-TPE	3535, EPA 537 (Mod)	T	316.28 g	28.38 g	287.9 mL	10.00 mL	500 uL	500 uL
320-45943-B-4	TP-PFC-037-TPE-D	3535, EPA 537 (Mod)	T	320.89 g	27.54 g	293.4 mL	10.00 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00201					
MB 320-267590/1		3535, EPA 537 (Mod)							
LCS 320-267590/2		3535, EPA 537 (Mod)		500 uL					
LCSD 320-267590/3		3535, EPA 537 (Mod)		500 uL					
320-45943-B-2	TP-PFC-037-MID-C ARBON	3535, EPA 537 (Mod)	T						
320-45943-B-3	TP-PFC-037-TPE	3535, EPA 537 (Mod)	T						
320-45943-B-4	TP-PFC-037-TPE-D	3535, EPA 537 (Mod)	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

EPA 537 (Mod)

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LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45943-1

SDG No.: _____

Batch Number: 267590 Batch Start Date: 12/27/18 07:38 Batch Analyst: Vang, Mai YeeBatch Method: 3535 Batch End Date: 12/27/18 13:35

Batch Notes	
Balance ID	QA-078
Batch Comment	Client labels match TA labels, 12/27/18 MYV. ENVI Carb#: 107566
First End time	12/27/2018 13:35
H2O ID	12/24/18
Hexane ID	1451481
Manifold ID	R
Methanol ID	1470600
Sodium Hydroxide ID	1469021
Pipette/Syringe/Dispenser ID	N32761F
Analyst ID - Reagent Drop	MYV
Analyst ID - IS Reagent Drop	MYV
Analyst ID - IS Reagent Drop Witness	MNV
Solvent Lot #	1469056
Solvent Name	0.3% NH4OH/MeOH
SPE Cartridge Lot ID	004238285a
SPE Cartridge Type	WAX 500mg
First Start time	12/27/2018 07:38

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Sample Dilution Record

Method ID

PFC

Analyst (Print Name)

Jamie Yu

Reagent ID

66-80-20-0022

Date _____

12124110

<u>Job #</u>	<u>Sample #</u>	<u>Original F.V.</u> <u>(uL)</u>	<u>Aliquot (uL)</u>	<u>Dilution F.V.</u> <u>(uL)</u>	<u>Dilution Factor</u>
320-45945	2	10,000	60	200	5
320-45943	1	↓	30	↓	10
12/24/05					

Comments:

DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC
MID_ATLANTIC	BRUNSWICK_NAS	320-45943-1	SITE 00011	SITE 00011	TP-PFC-EFFLUENT	Monitoring well	3015831.52	384866.155	N6247016D9008	WE21	TETRA TECH, INC.	TP-PFC-037-TPE-D	Ground water	Field duplicate	6-Dec-18	537	Perfluoroalkyl Compounds
MID_ATLANTIC	BRUNSWICK_NAS	320-45943-1	SITE 00011	SITE 00011	TP-PFC-MIDPOINT	Monitoring well	3015831.52	384866.155	N6247016D9008	WE21	TETRA TECH, INC.	TP-PFC-037-MID-CARBON	Ground water	Normal (Regular)	6-Dec-18	537	Perfluoroalkyl Compounds
MID_ATLANTIC	BRUNSWICK_NAS	320-45943-1	SITE 00011	SITE 00011	TP-PFC-INFLUENT	Monitoring well	3015831.52	384866.155	N6247016D9008	WE21	TETRA TECH, INC.	TP-PFC-037-TPI	Ground water	Normal (Regular)	6-Dec-18	537	Perfluoroalkyl Compounds
MID_ATLANTIC	BRUNSWICK_NAS	320-45943-1	SITE 00011	SITE 00011	TP-PFC-EFFLUENT	Monitoring well	3015831.52	384866.155	N6247016D9008	WE21	TETRA TECH, INC.	TP-PFC-037-TPE	Ground water	Normal (Regular)	6-Dec-18	537	Perfluoroalkyl Compounds