



**Off-Base Drinking Water Sample Results,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Figure, SDG 320-45950-1**

*Naval Air Station Willow Grove
Willow Grove, Pennsylvania*

August 2019

"WGNA-120618-RW-0344", "537", "RES", "320-45950-1", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "28.7", "ng/L", "", "0.889", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267.2", "10.00", "1.87", ""

"WGNA-120618-RW-0344", "537", "RES", "320-45950-1", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "21.9", "ng/L", "M", "2.53", "DL", "", "TRG", "", "", "6.55", "LOQ", "YES", "-99", "", "267.2", "10.00", "5.61", ""

"WGNA-120618-RW-0344", "537", "RES", "320-45950-1", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "16.2", "ng/L", "", "0.599", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267.2", "10.00", "1.87", ""

"WGNA-120618-RW-0344", "537", "RES", "320-45950-1", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "4.33", "ng/L", "J", "0.749", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267.2", "10.00", "1.87", ""

"WGNA-120618-RW-0344", "537", "RES", "320-45950-1", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "5.11", "ng/L", "", "1.22", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267.2", "10.00", "2.81", ""

"WGNA-120618-RW-0344", "537", "RES", "320-45950-1", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "47.2", "ng/L", "", "0.440", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267.2", "10.00", "0.936", ""

"WGNA-120618-RW-0344", "537", "RES", "320-45950-1", "TALSAC", "STL00993", "13C2 PFHxA", "86.6", "ng/L", "", "-99", "DL", "", "SURR", "93", "", "-99", "LOQ", "YES", "93.6", "", "267.2", "10.00", "0", ""

"WGNA-120618-RW-0344", "537", "RES", "320-45950-1", "TALSAC", "STL00996", "13C2 PFDA", "87.0", "ng/L", "", "-99", "DL", "", "SURR", "93", "", "-99", "LOQ", "YES", "93.6", "", "267.2", "10.00", "0", ""

"NAWC-120618-FRB-269", "537", "RES", "320-45950-10", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "1.89", "ng/L", "U", "0.897", "DL", "", "TRG", "", "", "4.72", "LOQ", "YES", "-99", "", "264.7", "10.00", "1.89", ""

"NAWC-120618-FRB-269", "537", "RES", "320-45950-10", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "5.67", "ng/L", "U M", "2.55", "DL", "", "TRG", "", "", "6.61", "LOQ", "YES", "-99", "", "264.7", "10.00", "5.67", ""

"NAWC-120618-FRB-269", "537", "RES", "320-45950-10", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "1.89", "ng/L", "U M", "0.604", "DL", "", "TRG", "", "", "4.72", "LOQ", "YES", "-99", "", "264.7", "10.00", "1.89", ""

"NAWC-120618-FRB-269", "537", "RES", "320-45950-10", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "1.89", "ng/L", "U", "0.756", "DL", "", "TRG", "", "", "4.72", "LOQ", "YES", "-99", "", "264.7", "10.00", "1.89", ""

"NAWC-120618-FRB-269", "537", "RES", "320-45950-10", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "2.83", "ng/L", "U", "1.23", "DL", "", "TRG", "", "", "4.72", "LOQ", "YES", "-99", "", "264.7", "10.00", "2.83", ""

"NAWC-120618-FRB-269", "537", "RES", "320-45950-10", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "0.944", "ng/L", "U", "0.444", "DL", "", "TRG", "", "", "4.72", "LOQ", "YES", "-99", "", "264.7", "10.00", "0.944", ""

"NAWC-120618-FRB-269", "537", "RES", "320-45950-10", "TALSAC", "STL00993", "13C2 PFHxA", "94.8", "ng/L", "", "-99", "DL", "", "SURR", "100", "", "-99", "LOQ", "YES", "94.4", "", "264.7", "10.00", "0", ""

"NAWC-120618-FRB-269", "537", "RES", "320-45950-10", "TALSAC", "STL00996", "13C2 PFDA", "92.8", "ng/L", "", "-99", "DL", "", "SURR", "98", "", "-99", "LOQ", "YES", "94.4", "", "264.7", "10.00", "0", ""

"NAWC-120618-RW-311", "537", "RES", "320-45950-11", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "22.8", "ng/L", "", "0.917", "DL", "", "TRG", "", "", "4.83", "LOQ", "YES", "-99", "", "258.9", "10.00", "1.93", ""

"NAWC-120618-RW-311", "537", "RES", "320-45950-11", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "22.8", "ng/L", "M", "2.61", "DL", "", "TRG", "", "", "6.76", "LOQ", "YES", "-99", "", "258.9", "10.00", "5.79", ""

"NAWC-120618-RW-311", "537", "RES", "320-45950-11", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "4.46", "ng/L", "J", "0.618", "DL", "", "TRG", "", "", "4.83", "LOQ", "YES", "-99", "", "258.9", "10.00", "1.93", ""

"NAWC-120618-RW-311", "537", "RES", "320-45950-11", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "8.38", "ng/L", "", "0.772", "DL", "", "TRG", "", "", "4.83", "LOQ", "YES", "-99", "", "258.9", "10.00", "1.93", ""

"NAWC-120618-RW-311", "537", "RES", "320-45950-11", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "5.59", "ng/L", "", "1.26", "DL", "", "TRG", "", "", "4.83", "LOQ", "YES", "-99", "", "258.9", "10.00", "2.90", ""

"NAWC-120618-RW-311", "537", "RES", "320-45950-11", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "2.34", "ng/L", "J", "0.454", "DL", "", "TRG", "", "", "4.83", "LOQ", "YES", "-99", "", "258.9", "10.00", "0.966", ""

"NAWC-120618-RW-311", "537", "RES", "320-45950-11", "TALSAC", "STL00993", "13C2 PFHxA", "98.6", "ng/L", "", "-99", "DL", "", "SURR", "102", "", "-99", "LOQ", "YES", "96.6", "", "258.9", "10.00", "0", ""

"NAWC-120618-RW-311", "537", "RES", "320-45950-11", "TALSAC", "STL00996", "13C2 PFDA", "91.9", "ng/L", "", "-99", "DL", "", "SURR", "95", "", "-99", "LOQ", "YES", "96.6", "", "258.9", "10.00", "0", ""

"NAWC-120618-RW-311MS", "537", "RES", "320-45950-11MS", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "24.97", "ng/L", "4", "0.909", "DL", "", "SPK", "62", "", "4.79", "LOQ", "YES", "3.55", "NAWC-120618-RW-311", "261.2", "10.00", "1.91", ""

"NAWC-120618-RW-311MS", "537", "RES", "320-45950-11MS", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "27.00", "ng/L", "M 4", "2.58", "DL", "", "SPK", "109", "", "6.70", "LOQ", "YES", "3.83", "NAWC-120618-RW-

311","261.2","10.00","5.74", ""
"NAWC-120618-RW-311MS", "537", "RES", "320-45950-11MS", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "8.250", "ng/L", "", "0.613", "DL", "", "SPK", "109", "", "4.79", "LOQ", "YES", "3.48", "NAWC-120618-RW-311", "261.2", "10.00", "1.91", ""
"NAWC-120618-RW-311MS", "537", "RES", "320-45950-11MS", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "12.32", "ng/L", "M", "0.766", "DL", "", "SPK", "117", "", "4.79", "LOQ", "YES", "3.38", "NAWC-120618-RW-311", "261.2", "10.00", "1.91", ""
"NAWC-120618-RW-311MS", "537", "RES", "320-45950-11MS", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "9.406", "ng/L", "", "1.24", "DL", "", "SPK", "100", "", "4.79", "LOQ", "YES", "3.83", "NAWC-120618-RW-311", "261.2", "10.00", "2.87", ""
"NAWC-120618-RW-311MS", "537", "RES", "320-45950-11MS", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "6.051", "ng/L", "", "0.450", "DL", "", "SPK", "97", "", "4.79", "LOQ", "YES", "3.83", "NAWC-120618-RW-311", "261.2", "10.00", "0.957", ""
"NAWC-120618-RW-311MS", "537", "RES", "320-45950-11MS", "TALSAC", "STL00993", "13C2 PFHxA", "105.8", "ng/L", "", "-99", "DL", "", "SURR", "111", "", "-99", "LOQ", "YES", "95.7", "NAWC-120618-RW-311", "261.2", "10.00", "0", ""
"NAWC-120618-RW-311MS", "537", "RES", "320-45950-11MS", "TALSAC", "STL00996", "13C2 PFDA", "102.8", "ng/L", "", "-99", "DL", "", "SURR", "107", "", "-99", "LOQ", "YES", "95.7", "NAWC-120618-RW-311", "261.2", "10.00", "0", ""
"NAWC-120618-RW-311MSD", "537", "RES", "320-45950-11MSD", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "25.98", "ng/L", "4", "0.913", "DL", "", "SPK", "90", "4", "4.81", "LOQ", "YES", "3.57", "NAWC-120618-RW-311", "260", "10.00", "1.92", ""
"NAWC-120618-RW-311MSD", "537", "RES", "320-45950-11MSD", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "24.86", "ng/L", "M 4", "2.60", "DL", "", "SPK", "52", "8", "6.73", "LOQ", "YES", "3.85", "NAWC-120618-RW-311", "260", "10.00", "5.77", ""
"NAWC-120618-RW-311MSD", "537", "RES", "320-45950-11MSD", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "8.416", "ng/L", "", "0.615", "DL", "", "SPK", "113", "2", "4.81", "LOQ", "YES", "3.50", "NAWC-120618-RW-311", "260", "10.00", "1.92", ""
"NAWC-120618-RW-311MSD", "537", "RES", "320-45950-11MSD", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "12.74", "ng/L", "", "0.769", "DL", "", "SPK", "128", "3", "4.81", "LOQ", "YES", "3.40", "NAWC-120618-RW-311", "260", "10.00", "1.92", ""
"NAWC-120618-RW-311MSD", "537", "RES", "320-45950-11MSD", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "8.972", "ng/L", "", "1.25", "DL", "", "SPK", "88", "5", "4.81", "LOQ", "YES", "3.85", "NAWC-120618-RW-311", "260", "10.00", "2.88", ""
"NAWC-120618-RW-311MSD", "537", "RES", "320-45950-11MSD", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "5.804", "ng/L", "", "0.452", "DL", "", "SPK", "90", "4", "4.81", "LOQ", "YES", "3.85", "NAWC-120618-RW-311", "260", "10.00", "0.962", ""
"NAWC-120618-RW-311MSD", "537", "RES", "320-45950-11MSD", "TALSAC", "STL00993", "13C2 PFHxA", "94.02", "ng/L", "", "-99", "DL", "", "SURR", "98", "", "-99", "LOQ", "YES", "96.2", "NAWC-120618-RW-311", "260", "10.00", "0", ""
"NAWC-120618-RW-311MSD", "537", "RES", "320-45950-11MSD", "TALSAC", "STL00996", "13C2 PFDA", "92.10", "ng/L", "", "-99", "DL", "", "SURR", "96", "", "-99", "LOQ", "YES", "96.2", "NAWC-120618-RW-311", "260", "10.00", "0", ""
"NAWC-120618-FRB-311", "537", "RES", "320-45950-12", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "1.88", "ng/L", "U", "0.892", "DL", "", "TRG", "", "", "4.69", "LOQ", "YES", "-99", "", "266.4", "10.00", "1.88", ""
"NAWC-120618-FRB-311", "537", "RES", "320-45950-12", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "5.63", "ng/L", "U M", "2.53", "DL", "", "TRG", "", "", "6.57", "LOQ", "YES", "-99", "", "266.4", "10.00", "5.63", ""
"NAWC-120618-FRB-311", "537", "RES", "320-45950-12", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "1.88", "ng/L", "U", "0.601", "DL", "", "TRG", "", "", "4.69", "LOQ", "YES", "-99", "", "266.4", "10.00", "1.88", ""
"NAWC-120618-FRB-311", "537", "RES", "320-45950-12", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "1.88", "ng/L", "U", "0.751", "DL", "", "TRG", "", "", "4.69", "LOQ", "YES", "-99", "", "266.4", "10.00", "1.88", ""
"NAWC-120618-FRB-311", "537", "RES", "320-45950-12", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "2.82", "ng/L", "U M", "1.22", "DL", "", "TRG", "", "", "4.69", "LOQ", "YES", "-99", "", "266.4", "10.00", "2.82", ""
"NAWC-120618-FRB-311", "537", "RES", "320-45950-12", "TALSAC", "375-95-1", "Perfluorononanoic acid

(PFNA),"0.938","ng/L","U","0.441","DL","","TRG","","","4.69","LOQ","YES","-99","","266.4","10.00","0.938",""
"NAWC-120618-FRB-311","537","RES","320-45950-12","TALSAC","STL00993","13C2
PFHxA","88.7","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","93.8","","266.4","10.00","0",""
"NAWC-120618-FRB-311","537","RES","320-45950-12","TALSAC","STL00996","13C2
PFDA","91.0","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","93.8","","266.4","10.00","0",""
"WGNA-120618-RW-3409","537","RES","320-45950-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","18.1","ng/L","","0.916","DL","","TRG","","","4.82","LOQ","YES","-99","","259.3","10.00","1.93",""
"WGNA-120618-RW-3409","537","RES","320-45950-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","14.7","ng/L","M","2.60","DL","","TRG","","","6.75","LOQ","YES","-99","","259.3","10.00","5.78",""
"WGNA-120618-RW-3409","537","RES","320-45950-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","7.04","ng/L","","0.617","DL","","TRG","","","4.82","LOQ","YES","-99","","259.3","10.00","1.93",""
"WGNA-120618-RW-3409","537","RES","320-45950-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","8.16","ng/L","","0.771","DL","","TRG","","","4.82","LOQ","YES","-99","","259.3","10.00","1.93",""
"WGNA-120618-RW-3409","537","RES","320-45950-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.38","ng/L","J","1.25","DL","","TRG","","","4.82","LOQ","YES","-99","","259.3","10.00","2.89",""
"WGNA-120618-RW-3409","537","RES","320-45950-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","2.00","ng/L","J","0.453","DL","","TRG","","","4.82","LOQ","YES","-99","","259.3","10.00","0.964",""
"WGNA-120618-RW-3409","537","RES","320-45950-13","TALSAC","STL00993","13C2
PFHxA","94.5","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","96.4","","259.3","10.00","0",""
"WGNA-120618-RW-3409","537","RES","320-45950-13","TALSAC","STL00996","13C2
PFDA","90.0","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","96.4","","259.3","10.00","0",""
"WGNA-120618-FRB-3409","537","RES","320-45950-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","1.91","ng/L","U","0.906","DL","","TRG","","","4.77","LOQ","YES","-99","","262.1","10.00","1.91",""
"WGNA-120618-FRB-3409","537","RES","320-45950-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","5.72","ng/L","U M","2.58","DL","","TRG","","","6.68","LOQ","YES","-99","","262.1","10.00","5.72",""
"WGNA-120618-FRB-3409","537","RES","320-45950-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","1.91","ng/L","U","0.610","DL","","TRG","","","4.77","LOQ","YES","-99","","262.1","10.00","1.91",""
"WGNA-120618-FRB-3409","537","RES","320-45950-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","1.91","ng/L","U","0.763","DL","","TRG","","","4.77","LOQ","YES","-99","","262.1","10.00","1.91",""
"WGNA-120618-FRB-3409","537","RES","320-45950-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","2.86","ng/L","U","1.24","DL","","TRG","","","4.77","LOQ","YES","-99","","262.1","10.00","2.86",""
"WGNA-120618-FRB-3409","537","RES","320-45950-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","0.954","ng/L","U M","0.448","DL","","TRG","","","4.77","LOQ","YES","-99","","262.1","10.00","0.954",""
"WGNA-120618-FRB-3409","537","RES","320-45950-14","TALSAC","STL00993","13C2
PFHxA","89.6","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","95.4","","262.1","10.00","0",""
"WGNA-120618-FRB-3409","537","RES","320-45950-14","TALSAC","STL00996","13C2
PFDA","91.1","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","95.4","","262.1","10.00","0",""
"NAWC-120618-RW-207","537","RES","320-45950-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","5.07","ng/L","","0.931","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","1.96",""
"NAWC-120618-RW-207","537","RES","320-45950-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.00","ng/L","M","2.65","DL","","TRG","","","6.86","LOQ","YES","-99","","255.1","10.00","5.88",""
"NAWC-120618-RW-207","537","RES","320-45950-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","1.31","ng/L","J","0.627","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","1.96",""
"NAWC-120618-RW-207","537","RES","320-45950-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","1.50","ng/L","J","0.784","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","1.96",""
"NAWC-120618-RW-207","537","RES","320-45950-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","2.60","ng/L","J","1.27","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","2.94",""
"NAWC-120618-RW-207","537","RES","320-45950-15","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","0.971","ng/L","J","0.461","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","0.980",""
"NAWC-120618-RW-207","537","RES","320-45950-15","TALSAC","STL00993","13C2
PFHxA","105","ng/L","","-99","DL","","SURR","107","","-99","LOQ","YES","98.0","","255.1","10.00","0",""
"NAWC-120618-RW-207","537","RES","320-45950-15","TALSAC","STL00996","13C2
PFDA","90.3","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","98.0","","255.1","10.00","0",""
"NAWC-120618-FRB-207","537","RES","320-45950-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS),"1.90","ng/L","U","0.904","DL","","TRG","","","4.76","LOQ","YES","-99","","262.6","10.00","1.90",""
"NAWC-120618-FRB-207","537","RES","320-45950-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"5.71","ng/L","U M","2.57","DL","","TRG","","","6.66","LOQ","YES","-99","","262.6","10.00","5.71",""
"NAWC-120618-FRB-207","537","RES","320-45950-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"1.90","ng/L","U","0.609","DL","","TRG","","","4.76","LOQ","YES","-99","","262.6","10.00","1.90",""
"NAWC-120618-FRB-207","537","RES","320-45950-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"1.90","ng/L","U","0.762","DL","","TRG","","","4.76","LOQ","YES","-99","","262.6","10.00","1.90",""
"NAWC-120618-FRB-207","537","RES","320-45950-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"2.86","ng/L","U M","1.24","DL","","TRG","","","4.76","LOQ","YES","-99","","262.6","10.00","2.86",""
"NAWC-120618-FRB-207","537","RES","320-45950-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"0.952","ng/L","U M","0.447","DL","","TRG","","","4.76","LOQ","YES","-99","","262.6","10.00","0.952",""
"NAWC-120618-FRB-207","537","RES","320-45950-16","TALSAC","STL00993","13C2
PFHxA","89.5","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","95.2","","262.6","10.00","0",""
"NAWC-120618-FRB-207","537","RES","320-45950-16","TALSAC","STL00996","13C2
PFDA","85.8","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","95.2","","262.6","10.00","0",""
"WGNA-120618-DUP-54","537","RES","320-45950-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"26.9","ng/L","","0.913","DL","","TRG","","","4.81","LOQ","YES","-99","","260","10.00","1.92",""
"WGNA-120618-DUP-54","537","RES","320-45950-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"28.7","ng/L","M","2.60","DL","","TRG","","","6.73","LOQ","YES","-99","","260","10.00","5.77",""
"WGNA-120618-DUP-54","537","RES","320-45950-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"14.8","ng/L","","0.615","DL","","TRG","","","4.81","LOQ","YES","-99","","260","10.00","1.92",""
"WGNA-120618-DUP-54","537","RES","320-45950-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"12.2","ng/L","","0.769","DL","","TRG","","","4.81","LOQ","YES","-99","","260","10.00","1.92",""
"WGNA-120618-DUP-54","537","RES","320-45950-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"8.70","ng/L","","1.25","DL","","TRG","","","4.81","LOQ","YES","-99","","260","10.00","2.88",""
"WGNA-120618-DUP-54","537","RES","320-45950-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"2.45","ng/L","J","0.452","DL","","TRG","","","4.81","LOQ","YES","-99","","260","10.00","0.962",""
"WGNA-120618-DUP-54","537","RES","320-45950-17","TALSAC","STL00993","13C2
PFHxA","108","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","96.2","","260","10.00","0",""
"WGNA-120618-DUP-54","537","RES","320-45950-17","TALSAC","STL00996","13C2
PFDA","99.9","ng/L","","-99","DL","","SURR","104","","-99","LOQ","YES","96.2","","260","10.00","0",""
"WGNA-120618-FRB-0344","537","RES","320-45950-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"1.96","ng/L","U","0.931","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","1.96",""
"WGNA-120618-FRB-0344","537","RES","320-45950-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"5.88","ng/L","U M","2.65","DL","","TRG","","","6.86","LOQ","YES","-99","","255.1","10.00","5.88",""
"WGNA-120618-FRB-0344","537","RES","320-45950-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"1.96","ng/L","U","0.627","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","1.96",""
"WGNA-120618-FRB-0344","537","RES","320-45950-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"1.96","ng/L","U","0.784","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","1.96",""
"WGNA-120618-FRB-0344","537","RES","320-45950-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"2.94","ng/L","U","1.27","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","2.94",""
"WGNA-120618-FRB-0344","537","RES","320-45950-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"0.980","ng/L","U","0.461","DL","","TRG","","","4.90","LOQ","YES","-99","","255.1","10.00","0.980",""
"WGNA-120618-FRB-0344","537","RES","320-45950-2","TALSAC","STL00993","13C2
PFHxA","105","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","98.0","","255.1","10.00","0",""
"WGNA-120618-FRB-0344","537","RES","320-45950-2","TALSAC","STL00996","13C2
PFDA","103","ng/L","","-99","DL","","SURR","105","","-99","LOQ","YES","98.0","","255.1","10.00","0",""
"WGNA-120618-RW-0386","537","RES","320-45950-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"27.7","ng/L","","0.927","DL","","TRG","","","4.88","LOQ","YES","-99","","256.1","10.00","1.95",""
"WGNA-120618-RW-0386","537","RES","320-45950-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"20.0","ng/L","M","2.64","DL","","TRG","","","6.83","LOQ","YES","-99","","256.1","10.00","5.86",""
"WGNA-120618-RW-0386","537","RES","320-45950-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"19.5","ng/L","","0.625","DL","","TRG","","","4.88","LOQ","YES","-99","","256.1","10.00","1.95",""
"WGNA-120618-RW-0386","537","RES","320-45950-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)", "13.3", "ng/L", "", "0.781", "DL", "", "TRG", "", "", "4.88", "LOQ", "YES", "-99", "", "256.1", "10.00", "1.95", ""
"WGNA-120618-RW-0386", "537", "RES", "320-45950-3", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "4.18", "ng/L", "J", "1.27", "DL", "", "TRG", "", "", "4.88", "LOQ", "YES", "-99", "", "256.1", "10.00", "2.93", ""
"WGNA-120618-RW-0386", "537", "RES", "320-45950-3", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "1.62", "ng/L", "J", "0.459", "DL", "", "TRG", "", "", "4.88", "LOQ", "YES", "-99", "", "256.1", "10.00", "0.976", ""
"WGNA-120618-RW-0386", "537", "RES", "320-45950-3", "TALSAC", "STL00993", "13C2
PFHxA", "96.2", "ng/L", "", "-99", "DL", "", "SURR", "99", "", "-99", "LOQ", "YES", "97.6", "", "256.1", "10.00", "0", ""
"WGNA-120618-RW-0386", "537", "RES", "320-45950-3", "TALSAC", "STL00996", "13C2
PFDA", "97.3", "ng/L", "", "-99", "DL", "", "SURR", "100", "", "-99", "LOQ", "YES", "97.6", "", "256.1", "10.00", "0", ""
"WGNA-120618-FRB-0386", "537", "RES", "320-45950-4", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "1.84", "ng/L", "U", "0.875", "DL", "", "TRG", "", "", "4.60", "LOQ", "YES", "-99", "", "271.5", "10.00", "1.84", ""
"WGNA-120618-FRB-0386", "537", "RES", "320-45950-4", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "5.52", "ng/L", "U M", "2.49", "DL", "", "TRG", "", "", "6.45", "LOQ", "YES", "-99", "", "271.5", "10.00", "5.52", ""
"WGNA-120618-FRB-0386", "537", "RES", "320-45950-4", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "1.84", "ng/L", "U", "0.589", "DL", "", "TRG", "", "", "4.60", "LOQ", "YES", "-99", "", "271.5", "10.00", "1.84", ""
"WGNA-120618-FRB-0386", "537", "RES", "320-45950-4", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "1.84", "ng/L", "U", "0.737", "DL", "", "TRG", "", "", "4.60", "LOQ", "YES", "-99", "", "271.5", "10.00", "1.84", ""
"WGNA-120618-FRB-0386", "537", "RES", "320-45950-4", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "2.76", "ng/L", "U", "1.20", "DL", "", "TRG", "", "", "4.60", "LOQ", "YES", "-99", "", "271.5", "10.00", "2.76", ""
"WGNA-120618-FRB-0386", "537", "RES", "320-45950-4", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "0.921", "ng/L", "U", "0.433", "DL", "", "TRG", "", "", "4.60", "LOQ", "YES", "-99", "", "271.5", "10.00", "0.921", ""
"WGNA-120618-FRB-0386", "537", "RES", "320-45950-4", "TALSAC", "STL00993", "13C2
PFHxA", "84.5", "ng/L", "", "-99", "DL", "", "SURR", "92", "", "-99", "LOQ", "YES", "92.1", "", "271.5", "10.00", "0", ""
"WGNA-120618-FRB-0386", "537", "RES", "320-45950-4", "TALSAC", "STL00996", "13C2
PFDA", "82.1", "ng/L", "", "-99", "DL", "", "SURR", "89", "", "-99", "LOQ", "YES", "92.1", "", "271.5", "10.00", "0", ""
"NAWC-120618-RW-180", "537", "RES", "320-45950-5", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "40.3", "ng/L", "", "0.911", "DL", "", "TRG", "", "", "4.79", "LOQ", "YES", "-99", "", "260.8", "10.00", "1.92", ""
"NAWC-120618-RW-180", "537", "RES", "320-45950-5", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "11.9", "ng/L", "M", "2.59", "DL", "", "TRG", "", "", "6.71", "LOQ", "YES", "-99", "", "260.8", "10.00", "5.75", ""
"NAWC-120618-RW-180", "537", "RES", "320-45950-5", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "13.2", "ng/L", "", "0.613", "DL", "", "TRG", "", "", "4.79", "LOQ", "YES", "-99", "", "260.8", "10.00", "1.92", ""
"NAWC-120618-RW-180", "537", "RES", "320-45950-5", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "3.86", "ng/L", "J", "0.767", "DL", "", "TRG", "", "", "4.79", "LOQ", "YES", "-99", "", "260.8", "10.00", "1.92", ""
"NAWC-120618-RW-180", "537", "RES", "320-45950-5", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "4.86", "ng/L", "", "1.25", "DL", "", "TRG", "", "", "4.79", "LOQ", "YES", "-99", "", "260.8", "10.00", "2.88", ""
"NAWC-120618-RW-180", "537", "RES", "320-45950-5", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "1.80", "ng/L", "J", "0.451", "DL", "", "TRG", "", "", "4.79", "LOQ", "YES", "-99", "", "260.8", "10.00", "0.959", ""
"NAWC-120618-RW-180", "537", "RES", "320-45950-5", "TALSAC", "STL00993", "13C2
PFHxA", "97.6", "ng/L", "", "-99", "DL", "", "SURR", "102", "", "-99", "LOQ", "YES", "95.9", "", "260.8", "10.00", "0", ""
"NAWC-120618-RW-180", "537", "RES", "320-45950-5", "TALSAC", "STL00996", "13C2
PFDA", "94.4", "ng/L", "", "-99", "DL", "", "SURR", "98", "", "-99", "LOQ", "YES", "95.9", "", "260.8", "10.00", "0", ""
"NAWC-120618-FRB-180", "537", "RES", "320-45950-6", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "1.79", "ng/L", "U", "0.851", "DL", "", "TRG", "", "", "4.48", "LOQ", "YES", "-99", "", "279", "10.00", "1.79", ""
"NAWC-120618-FRB-180", "537", "RES", "320-45950-6", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "5.38", "ng/L", "U", "2.42", "DL", "", "TRG", "", "", "6.27", "LOQ", "YES", "-99", "", "279", "10.00", "5.38", ""
"NAWC-120618-FRB-180", "537", "RES", "320-45950-6", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "1.79", "ng/L", "U", "0.573", "DL", "", "TRG", "", "", "4.48", "LOQ", "YES", "-99", "", "279", "10.00", "1.79", ""
"NAWC-120618-FRB-180", "537", "RES", "320-45950-6", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "1.79", "ng/L", "U", "0.717", "DL", "", "TRG", "", "", "4.48", "LOQ", "YES", "-99", "", "279", "10.00", "1.79", ""
"NAWC-120618-FRB-180", "537", "RES", "320-45950-6", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "2.69", "ng/L", "U M", "1.16", "DL", "", "TRG", "", "", "4.48", "LOQ", "YES", "-99", "", "279", "10.00", "2.69", ""
"NAWC-120618-FRB-180", "537", "RES", "320-45950-6", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "0.896", "ng/L", "U", "0.421", "DL", "", "TRG", "", "", "4.48", "LOQ", "YES", "-99", "", "279", "10.00", "0.896", ""
"NAWC-120618-FRB-180", "537", "RES", "320-45950-6", "TALSAC", "STL00993", "13C2

PFHxA", "84.8", "ng/L", "", "-99", "DL", "", "SURR", "95", "", "-99", "LOQ", "YES", "89.6", "", "279", "10.00", "0", ""
"NAWC-120618-FRB-180", "537", "RES", "320-45950-6", "TALSAC", "STL00996", "13C2
PFDA", "88.9", "ng/L", "", "-99", "DL", "", "SURR", "99", "", "-99", "LOQ", "YES", "89.6", "", "279", "10.00", "0", ""
"NAWC-120618-RW-276", "537", "RES", "320-45950-7", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "18.4", "ng/L", "", "0.905", "DL", "", "TRG", "", "", "4.76", "LOQ", "YES", "-99", "", "262.4", "10.00", "1.91", ""
"NAWC-120618-RW-276", "537", "RES", "320-45950-7", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "23.1", "ng/L", "M", "2.57", "DL", "", "TRG", "", "", "6.67", "LOQ", "YES", "-99", "", "262.4", "10.00", "5.72", ""
"NAWC-120618-RW-276", "537", "RES", "320-45950-7", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "9.53", "ng/L", "", "0.610", "DL", "", "TRG", "", "", "4.76", "LOQ", "YES", "-99", "", "262.4", "10.00", "1.91", ""
"NAWC-120618-RW-276", "537", "RES", "320-45950-7", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "5.20", "ng/L", "M", "0.762", "DL", "", "TRG", "", "", "4.76", "LOQ", "YES", "-99", "", "262.4", "10.00", "1.91", ""
"NAWC-120618-RW-276", "537", "RES", "320-45950-7", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "7.50", "ng/L", "", "1.24", "DL", "", "TRG", "", "", "4.76", "LOQ", "YES", "-99", "", "262.4", "10.00", "2.86", ""
"NAWC-120618-RW-276", "537", "RES", "320-45950-7", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "3.77", "ng/L", "J", "0.448", "DL", "", "TRG", "", "", "4.76", "LOQ", "YES", "-99", "", "262.4", "10.00", "0.953", ""
"NAWC-120618-RW-276", "537", "RES", "320-45950-7", "TALSAC", "STL00993", "13C2
PFHxA", "97.6", "ng/L", "", "-99", "DL", "", "SURR", "102", "", "-99", "LOQ", "YES", "95.3", "", "262.4", "10.00", "0", ""
"NAWC-120618-RW-276", "537", "RES", "320-45950-7", "TALSAC", "STL00996", "13C2
PFDA", "88.7", "ng/L", "", "-99", "DL", "", "SURR", "93", "", "-99", "LOQ", "YES", "95.3", "", "262.4", "10.00", "0", ""
"NAWC-120618-FRB-276", "537", "RES", "320-45950-8", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "1.85", "ng/L", "U", "0.879", "DL", "", "TRG", "", "", "4.62", "LOQ", "YES", "-99", "", "270.3", "10.00", "1.85", ""
"NAWC-120618-FRB-276", "537", "RES", "320-45950-8", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "5.55", "ng/L", "U M", "2.50", "DL", "", "TRG", "", "", "6.47", "LOQ", "YES", "-99", "", "270.3", "10.00", "5.55", ""
"NAWC-120618-FRB-276", "537", "RES", "320-45950-8", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "1.85", "ng/L", "U", "0.592", "DL", "", "TRG", "", "", "4.62", "LOQ", "YES", "-99", "", "270.3", "10.00", "1.85", ""
"NAWC-120618-FRB-276", "537", "RES", "320-45950-8", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "1.85", "ng/L", "U", "0.740", "DL", "", "TRG", "", "", "4.62", "LOQ", "YES", "-99", "", "270.3", "10.00", "1.85", ""
"NAWC-120618-FRB-276", "537", "RES", "320-45950-8", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "2.77", "ng/L", "U M", "1.20", "DL", "", "TRG", "", "", "4.62", "LOQ", "YES", "-99", "", "270.3", "10.00", "2.77", ""
"NAWC-120618-FRB-276", "537", "RES", "320-45950-8", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "0.925", "ng/L", "U", "0.435", "DL", "", "TRG", "", "", "4.62", "LOQ", "YES", "-99", "", "270.3", "10.00", "0.925", ""
"NAWC-120618-FRB-276", "537", "RES", "320-45950-8", "TALSAC", "STL00993", "13C2
PFHxA", "88.3", "ng/L", "", "-99", "DL", "", "SURR", "96", "", "-99", "LOQ", "YES", "92.5", "", "270.3", "10.00", "0", ""
"NAWC-120618-FRB-276", "537", "RES", "320-45950-8", "TALSAC", "STL00996", "13C2
PFDA", "85.6", "ng/L", "", "-99", "DL", "", "SURR", "93", "", "-99", "LOQ", "YES", "92.5", "", "270.3", "10.00", "0", ""
"NAWC-120618-RW-269", "537", "RES", "320-45950-9", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "26.6", "ng/L", "", "0.890", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267", "10.00", "1.87", ""
"NAWC-120618-RW-269", "537", "RES", "320-45950-9", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "26.0", "ng/L", "M", "2.53", "DL", "", "TRG", "", "", "6.55", "LOQ", "YES", "-99", "", "267", "10.00", "5.62", ""
"NAWC-120618-RW-269", "537", "RES", "320-45950-9", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "14.2", "ng/L", "", "0.599", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267", "10.00", "1.87", ""
"NAWC-120618-RW-269", "537", "RES", "320-45950-9", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "13.1", "ng/L", "M", "0.749", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267", "10.00", "1.87", ""
"NAWC-120618-RW-269", "537", "RES", "320-45950-9", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "7.45", "ng/L", "", "1.22", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267", "10.00", "2.81", ""
"NAWC-120618-RW-269", "537", "RES", "320-45950-9", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "2.37", "ng/L", "J", "0.440", "DL", "", "TRG", "", "", "4.68", "LOQ", "YES", "-99", "", "267", "10.00", "0.936", ""
"NAWC-120618-RW-269", "537", "RES", "320-45950-9", "TALSAC", "STL00993", "13C2
PFHxA", "95.0", "ng/L", "", "-99", "DL", "", "SURR", "102", "", "-99", "LOQ", "YES", "93.6", "", "267", "10.00", "0", ""
"NAWC-120618-RW-269", "537", "RES", "320-45950-9", "TALSAC", "STL00996", "13C2
PFDA", "90.8", "ng/L", "", "-99", "DL", "", "SURR", "97", "", "-99", "LOQ", "YES", "93.6", "", "267", "10.00", "0", ""
"LLCS 320-265071/2-A", "537", "RES", "LLCS 320-265071/2-A", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic
acid
(PFOS)", "3.774", "ng/L", "J", "0.950", "DL", "", "SPK", "102", "", "5.00", "LOQ", "YES", "3.71", "", "250.00", "10.00", "2.00", ""

"LLCS 320-265071/2-A", "537", "RES", "LLCS 320-265071/2-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "3.602", "ng/L", "J", "2.70", "DL", "", "SPK", "90", "", "7.00", "LOQ", "YES", "4.00", "", "250.00", "10.00", "6.00", ""

"LLCS 320-265071/2-A", "537", "RES", "LLCS 320-265071/2-A", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "3.574", "ng/L", "J", "0.640", "DL", "", "SPK", "98", "", "5.00", "LOQ", "YES", "3.64", "", "250.00", "10.00", "2.00", ""

"LLCS 320-265071/2-A", "537", "RES", "LLCS 320-265071/2-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "3.287", "ng/L", "J", "0.800", "DL", "", "SPK", "93", "", "5.00", "LOQ", "YES", "3.54", "", "250.00", "10.00", "2.00", ""

"LLCS 320-265071/2-A", "537", "RES", "LLCS 320-265071/2-A", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "3.654", "ng/L", "J", "1.30", "DL", "", "SPK", "91", "", "5.00", "LOQ", "YES", "4.00", "", "250.00", "10.00", "3.00", ""

"LLCS 320-265071/2-A", "537", "RES", "LLCS 320-265071/2-A", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "3.800", "ng/L", "J", "0.470", "DL", "", "SPK", "95", "", "5.00", "LOQ", "YES", "4.00", "", "250.00", "10.00", "1.00", ""

"LLCS 320-265071/2-A", "537", "RES", "LLCS 320-265071/2-A", "TALSAC", "STL00993", "13C2 PFHxA", "100.3", "ng/L", "", "-99", "DL", "", "SURR", "100", "", "-99", "LOQ", "YES", "100", "", "250.00", "10.00", "0", ""

"LLCS 320-265071/2-A", "537", "RES", "LLCS 320-265071/2-A", "TALSAC", "STL00996", "13C2 PFDA", "100.2", "ng/L", "", "-99", "DL", "", "SURR", "100", "", "-99", "LOQ", "YES", "100", "", "250.00", "10.00", "0", ""

"MB 320-265071/1-A", "537", "RES", "MB 320-265071/1-A", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "2.00", "ng/L", "U", "0.950", "DL", "", "TRG", "", "", "5.00", "LOQ", "YES", "-99", "", "250.00", "10.00", "2.00", ""

"MB 320-265071/1-A", "537", "RES", "MB 320-265071/1-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "6.00", "ng/L", "U", "2.70", "DL", "", "TRG", "", "", "7.00", "LOQ", "YES", "-99", "", "250.00", "10.00", "6.00", ""

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"MB 320-265071/1-A", "537", "RES", "MB 320-265071/1-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "2.00", "ng/L", "U", "0.800", "DL", "", "TRG", "", "", "5.00", "LOQ", "YES", "-99", "", "250.00", "10.00", "2.00", ""

"MB 320-265071/1-A", "537", "RES", "MB 320-265071/1-A", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "3.00", "ng/L", "U", "1.30", "DL", "", "TRG", "", "", "5.00", "LOQ", "YES", "-99", "", "250.00", "10.00", "3.00", ""

"MB 320-265071/1-A", "537", "RES", "MB 320-265071/1-A", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "1.00", "ng/L", "U", "0.470", "DL", "", "TRG", "", "", "5.00", "LOQ", "YES", "-99", "", "250.00", "10.00", "1.00", ""

"MB 320-265071/1-A", "537", "RES", "MB 320-265071/1-A", "TALSAC", "STL00993", "13C2 PFHxA", "83.27", "ng/L", "", "-99", "DL", "", "SURR", "83", "", "-99", "LOQ", "YES", "100", "", "250.00", "10.00", "0", ""

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"Unknown","Unknown","WGNA-120618-FRB-0386","12/06/2018 09:05","AQ","320-45950-4","FB",,"5.00","537","METHOD","RES","12/13/2018 12:59","12/15/2018 09:15","TALSAC","COA","WET","NA","1","NA","NA",,"100","320-265071","320-265071","NA","320-265452","320-45950-1","12/07/2018 09:15","12/09/2018 12:40",,"

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"Unknown","Unknown","NAWC-120618-FRB-180","12/06/2018 09:35","AQ","320-45950-6","FB",,"5.00","537","METHOD","RES","12/13/2018 12:59","12/15/2018 09:30","TALSAC","COA","WET","NA","1","NA","NA",,"100","320-265071","320-265071","NA","320-265452","320-45950-1","12/07/2018 09:15","12/09/2018 12:40",,"

"Unknown","Unknown","NAWC-120618-RW-276","12/06/2018 10:10","AQ","320-45950-7","NM",,"5.00","537","METHOD","RES","12/13/2018 12:59","12/15/2018 09:38","TALSAC","COA","WET","NA","1","NA","NA",,"100","320-265071","320-265071","NA","320-265452","320-45950-1","12/07/2018 09:15","12/09/2018 12:40",,"

"Unknown","Unknown","NAWC-120618-FRB-276","12/06/2018 10:05","AQ","320-45950-8","FB",,"5.00","537","METHOD","RES","12/13/2018 12:59","12/15/2018 09:45","TALSAC","COA","WET","NA","1","NA","NA",,"100","320-265071","320-265071","NA","320-265452","320-45950-1","12/07/2018 09:15","12/09/2018 12:40",,"

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08:38", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-265071", "320-265071", "NA", "320-265452", "320-45950-1", "12/13/2018 12:59", "12/09/2018 12:40", ""
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08:46", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-265071", "320-265071", "NA", "320-265452", "320-45950-1", "12/13/2018 12:59", "12/09/2018 12:40", ""

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Samples with detections and their associated FRBs are summarized below. No positive results were detected in the FRB samples.

<u>Sample</u>	<u>Associated FRB</u>
NAWC-120618-RW-180	NAWC-120618-FRB-180
NAWC-120618-RW-207	NAWC-120618-FRB-207
NAWC-120618-RW-269	NAWC-120618-FRB-269
NAWC-120618-RW-276	NAWC-120618-FRB-276
NAWC-120618-RW-311	NAWC-120618-FRB-311
WGNA-120618-DUP-54	NAWC-120618-FRB-269
WGNA-120618-RW-0344	WGNA-120618-FRB-0344
WGNA-120618-RW-0386	WGNA-120618-FRB-0386
WGNA-120618-RW-3409	WGNA-120618-FRB-3409

Non-detected results were reported to the Limit of Detection (LOD).

The buffering agent Trizma was added to all drinking water samples.

Executive Summary

Laboratory Performance: No issues.

Other Factors Affecting Data Quality: Results below the RL were estimated.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009), US EPA National Functional Guidelines for Organic Data Review (January 2017), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (July 2013) as applicable. The text of this report has been formulated to address only those areas affecting data quality.



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Terri L. Solomon
Chemist/Data Validator



Tetra Tech, Inc.
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TO: A. FREBOWITZ
SDG: 320-45950-1

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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 ($< 2 \times$ IDL for inorganics and $<$ 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-WE04 SDG: 320-45950-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-120618-FRB-180			NAWC-120618-FRB-207			NAWC-120618-FRB-269			NAWC-120618-FRB-276		
	LAB_ID	320-45950-6			320-45950-16			320-45950-10			320-45950-8		
	SAMP_DATE	12/6/2018			12/6/2018			12/6/2018			12/6/2018		
	QC_TYPE	FB			FB			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID (PFOA)	5.38	U		5.71	U		5.67	U		5.55	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	1.79	U		1.9	U		1.89	U		1.85	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	2.69	U		2.86	U		2.83	U		2.77	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1.79	U		1.9	U		1.89	U		1.85	U		
PERFLUORONONANOIC ACID (PFNA)	0.896	U		0.952	U		0.944	U		0.925	U		
PERFLUOROOCTANESULFONIC ACID (PFOS)	1.79	U		1.9	U		1.89	U		1.85	U		

PROJ_NO: 08005-WE04 SDG: 320-45950-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-120618-FRB-311			NAWC-120618-RW-180			NAWC-120618-RW-207			NAWC-120618-RW-269		
	LAB_ID	320-45950-12			320-45950-5			320-45950-15			320-45950-9		
	SAMP_DATE	12/6/2018			12/6/2018			12/6/2018			12/6/2018		
	QC_TYPE	FB			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID (PFOA)	5.63	U		11.9			8			26			
PERFLUOROBUTANESULFONIC ACID (PFBS)	1.88	U		3.86	J	P	1.5	J	P	13.1			
PERFLUOROHEPTANOIC ACID (PFHPA)	2.82	U		4.86			2.6	J	P	7.45			
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1.88	U		13.2			1.31	J	P	14.2			
PERFLUORONONANOIC ACID (PFNA)	0.938	U		1.8	J	P	0.971	J	P	2.37	J	P	
PERFLUOROOCTANESULFONIC ACID (PFOS)	1.88	U		40.3			5.07			26.6			

PROJ_NO: 08005-WE04 SDG: 320-45950-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-120618-RW-276			NAWC-120618-RW-311			WGNA-120618-DUP-54			WGNA-120618-FRB-0344		
	LAB_ID	320-45950-7			320-45950-11			320-45950-17			320-45950-2		
	SAMP_DATE	12/6/2018			12/6/2018			12/6/2018			12/6/2018		
	QC_TYPE	NM			NM			FD			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							NAWC-120618-RW-269					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID (PFOA)	23.1			22.8			28.7			5.88	U		
PERFLUOROBUTANESULFONIC ACID (PFBS)	5.2			8.38			12.2			1.96	U		
PERFLUOROHEPTANOIC ACID (PFHPA)	7.5			5.59			8.7			2.94	U		
PERFLUOROHEXANESULFONIC ACID (PFHXS)	9.53			4.46	J	P	14.8			1.96	U		
PERFLUORONONANOIC ACID (PFNA)	3.77	J	P	2.34	J	P	2.45	J	P	0.98	U		
PERFLUOROOCTANESULFONIC ACID (PFOS)	18.4			22.8			26.9			1.96	U		

PROJ_NO: 08005-WE04 SDG: 320-45950-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-120618-FRB-0386			WGNA-120618-FRB-3409			WGNA-120618-RW-0344			WGNA-120618-RW-0386		
	LAB_ID	320-45950-4			320-45950-14			320-45950-1			320-45950-3		
	SAMP_DATE	12/6/2018			12/6/2018			12/6/2018			12/6/2018		
	QC_TYPE	FB			FB			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID (PFOA)	5.52	U		5.72	U		21.9			20			
PERFLUOROBUTANESULFONIC ACID (PFBS)	1.84	U		1.91	U		4.33	J	P	13.3			
PERFLUOROHEPTANOIC ACID (PFHPA)	2.76	U		2.86	U		5.11			4.18	J	P	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	1.84	U		1.91	U		16.2			19.5			
PERFLUORONONANOIC ACID (PFNA)	0.921	U		0.954	U		47.2			1.62	J	P	
PERFLUOROOCTANESULFONIC ACID (PFOS)	1.84	U		1.91	U		28.7			27.7			

PROJ_NO: 08005-WE04 SDG: 320-45950-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-120618-RW-3409		
	LAB_ID	320-45950-13		
	SAMP_DATE	12/6/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID (PFOA)	14.7			
PERFLUOROBUTANESULFONIC ACID (PFBS)	8.16			
PERFLUOROHEPTANOIC ACID (PFHPA)	4.38	J	P	
PERFLUOROHEXANESULFONIC ACID (PFHXS)	7.04			
PERFLUORONONANOIC ACID (PFNA)	2	J	P	
PERFLUOROOCTANESULFONIC ACID (PFOS)	18.1			

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-RW-0344 Lab Sample ID: 320-45950-1
 Matrix: Water Lab File ID: 2018.12.14_537A_024.d
 Analysis Method: 537 Date Collected: 12/06/2018 08:40
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 267.2 (mL) Date Analyzed: 12/15/2018 08:53
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28.7		4.68	1.87	0.889
335-67-1	Perfluorooctanoic acid (PFOA)	21.9	M	6.55	5.61	2.53
375-95-1	Perfluorononanoic acid (PFNA)	47.2		4.68	0.936	0.440
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16.2		4.68	1.87	0.599
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.11		4.68	2.81	1.22
375-73-5	Perfluorobutanesulfonic acid (PFBS)	4.33	J	4.68	1.87	0.749

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	93		70-130

Maria J. Salmeron
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-FRB-0344 Lab Sample ID: 320-45950-2
 Matrix: Water Lab File ID: 2018.12.14_537A_025.d
 Analysis Method: 537 Date Collected: 12/06/2018 08:35
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 255.1(mL) Date Analyzed: 12/15/2018 09:00
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.96	U	4.90	1.96	0.931
335-67-1	Perfluorooctanoic acid (PFOA)	5.88	U M	6.86	5.88	2.65
375-95-1	Perfluorononanoic acid (PFNA)	0.980	U	4.90	0.980	0.461
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.96	U	4.90	1.96	0.627
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.94	U	4.90	2.94	1.27
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.96	U	4.90	1.96	0.784

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	105		70-130

Waleed Salem
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-RW-0386 Lab Sample ID: 320-45950-3
 Matrix: Water Lab File ID: 2018.12.14_537A_026.d
 Analysis Method: 537 Date Collected: 12/06/2018 09:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 256.1(mL) Date Analyzed: 12/15/2018 09:08
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	27.7		4.88	1.95	0.927
335-67-1	Perfluorooctanoic acid (PFOA)	20.0	M	6.83	5.86	2.64
375-95-1	Perfluorononanoic acid (PFNA)	1.62	J	4.88	0.976	0.459
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	19.5		4.88	1.95	0.625
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.18	J	4.88	2.93	1.27
375-73-5	Perfluorobutanesulfonic acid (PFBS)	13.3		4.88	1.95	0.781

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	100		70-130

Maria L. Salomon
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-FRB-0386 Lab Sample ID: 320-45950-4
 Matrix: Water Lab File ID: 2018.12.14_537A_027.d
 Analysis Method: 537 Date Collected: 12/06/2018 09:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 271.5 (mL) Date Analyzed: 12/15/2018 09:15
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.84	U	4.60	1.84	0.875
335-67-1	Perfluorooctanoic acid (PFOA)	5.52	U M	6.45	5.52	2.49
375-95-1	Perfluorononanoic acid (PFNA)	0.921	U	4.60	0.921	0.433
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.84	U	4.60	1.84	0.589
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.76	U	4.60	2.76	1.20
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.84	U	4.60	1.84	0.737

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	89		70-130

Mariel S. Salomon
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-180 Lab Sample ID: 320-45950-5
 Matrix: Water Lab File ID: 2018.12.14_537A_028.d
 Analysis Method: 537 Date Collected: 12/06/2018 09:40
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 260.8(mL) Date Analyzed: 12/15/2018 09:23
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	40.3		4.79	1.92	0.911
335-67-1	Perfluorooctanoic acid (PFOA)	11.9	M	6.71	5.75	2.59
375-95-1	Perfluorononanoic acid (PFNA)	1.80	J	4.79	0.959	0.451
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13.2		4.79	1.92	0.613
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.86		4.79	2.88	1.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.86	J	4.79	1.92	0.767

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	98		70-130

Nami L. Salem
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-180 Lab Sample ID: 320-45950-6
 Matrix: Water Lab File ID: 2018.12.14_537A_029.d
 Analysis Method: 537 Date Collected: 12/06/2018 09:35
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 279(mL) Date Analyzed: 12/15/2018 09:30
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.79	U	4.48	1.79	0.851
335-67-1	Perfluorooctanoic acid (PFOA)	5.38	U	6.27	5.38	2.42
375-95-1	Perfluorononanoic acid (PFNA)	0.896	U	4.48	0.896	0.421
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.79	U	4.48	1.79	0.573
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.69	U M	4.48	2.69	1.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.79	U	4.48	1.79	0.717

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	99		70-130

W. J. Salem
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-276 Lab Sample ID: 320-45950-7
 Matrix: Water Lab File ID: 2018.12.14_537A_030.d
 Analysis Method: 537 Date Collected: 12/06/2018 10:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 262.4 (mL) Date Analyzed: 12/15/2018 09:38
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18.4		4.76	1.91	0.905
335-67-1	Perfluorooctanoic acid (PFOA)	23.1	M	6.67	5.72	2.57
375-95-1	Perfluorononanoic acid (PFNA)	3.77	J	4.76	0.953	0.448
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.53		4.76	1.91	0.610
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.50		4.76	2.86	1.24
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.20	M	4.76	1.91	0.762

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	93		70-130

Mari of Salem
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-276 Lab Sample ID: 320-45950-8
 Matrix: Water Lab File ID: 2018.12.14_537A_031.d
 Analysis Method: 537 Date Collected: 12/06/2018 10:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 270.3(mL) Date Analyzed: 12/15/2018 09:45
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.85	U	4.62	1.85	0.879
335-67-1	Perfluorooctanoic acid (PFOA)	5.55	U M	6.47	5.55	2.50
375-95-1	Perfluorononanoic acid (PFNA)	0.925	U	4.62	0.925	0.435
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.85	U	4.62	1.85	0.592
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.77	U M	4.62	2.77	1.20
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.85	U	4.62	1.85	0.740

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	93		70-130

Steve L. Selman
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-269 Lab Sample ID: 320-45950-9
 Matrix: Water Lab File ID: 2018.12.14_537A_034.d
 Analysis Method: 537 Date Collected: 12/06/2018 11:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 267(mL) Date Analyzed: 12/15/2018 10:08
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26.6		4.68	1.87	0.890
335-67-1	Perfluorooctanoic acid (PFOA)	26.0	M	6.55	5.62	2.53
375-95-1	Perfluorononanoic acid (PFNA)	2.37	J	4.68	0.936	0.440
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	14.2		4.68	1.87	0.599
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.45		4.68	2.81	1.22
375-73-5	Perfluorobutanesulfonic acid (PFBS)	13.1	M	4.68	1.87	0.749

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	97		70-130

Waqar A. Saleem
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-269 Lab Sample ID: 320-45950-10
 Matrix: Water Lab File ID: 2018.12.14_537A_035.d
 Analysis Method: 537 Date Collected: 12/06/2018 11:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 264.7(mL) Date Analyzed: 12/15/2018 10:15
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.89	U	4.72	1.89	0.897
335-67-1	Perfluorooctanoic acid (PFOA)	5.67	U M	6.61	5.67	2.55
375-95-1	Perfluorononanoic acid (PFNA)	0.944	U	4.72	0.944	0.444
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.89	U M	4.72	1.89	0.604
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.83	U	4.72	2.83	1.23
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.89	U	4.72	1.89	0.756

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	98		70-130

W. J. Selman
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-311 Lab Sample ID: 320-45950-11
 Matrix: Water Lab File ID: 2018.12.14_537A_036.d
 Analysis Method: 537 Date Collected: 12/06/2018 12:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 258.9(mL) Date Analyzed: 12/15/2018 10:23
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22.8		4.83	1.93	0.917
335-67-1	Perfluorooctanoic acid (PFOA)	22.8	M	6.76	5.79	2.61
375-95-1	Perfluorononanoic acid (PFNA)	2.34	J	4.83	0.966	0.454
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	4.46	J	4.83	1.93	0.618
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.59		4.83	2.90	1.26
375-73-5	Perfluorobutanesulfonic acid (PFBS)	8.38		4.83	1.93	0.772

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	95		70-130

Tari L. Salem
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-311 Lab Sample ID: 320-45950-12
 Matrix: Water Lab File ID: 2018.12.14_537A_039.d
 Analysis Method: 537 Date Collected: 12/06/2018 12:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 266.4 (mL) Date Analyzed: 12/15/2018 10:45
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.88	U	4.69	1.88	0.892
335-67-1	Perfluorooctanoic acid (PFOA)	5.63	U M	6.57	5.63	2.53
375-95-1	Perfluorononanoic acid (PFNA)	0.938	U	4.69	0.938	0.441
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.88	U	4.69	1.88	0.601
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.82	U M	4.69	2.82	1.22
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.88	U	4.69	1.88	0.751

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	97		70-130

Maria L. Salmeron
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-RW-3409 Lab Sample ID: 320-45950-13
 Matrix: Water Lab File ID: 2018.12.14_537A_040.d
 Analysis Method: 537 Date Collected: 12/06/2018 13:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 259.3(mL) Date Analyzed: 12/15/2018 10:52
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18.1		4.82	1.93	0.916
335-67-1	Perfluorooctanoic acid (PFOA)	14.7	M	6.75	5.78	2.60
375-95-1	Perfluorononanoic acid (PFNA)	2.00	J	4.82	0.964	0.453
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.04		4.82	1.93	0.617
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.38	J	4.82	2.89	1.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	8.16		4.82	1.93	0.771

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	93		70-130

Steve L. Selman
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-FRB-3409 Lab Sample ID: 320-45950-14
 Matrix: Water Lab File ID: 2018.12.14_537A_041.d
 Analysis Method: 537 Date Collected: 12/06/2018 13:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 262.1(mL) Date Analyzed: 12/15/2018 11:00
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.91	U	4.77	1.91	0.906
335-67-1	Perfluorooctanoic acid (PFOA)	5.72	U M	6.68	5.72	2.58
375-95-1	Perfluorononanoic acid (PFNA)	0.954	U M	4.77	0.954	0.448
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.91	U	4.77	1.91	0.610
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.86	U	4.77	2.86	1.24
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.91	U	4.77	1.91	0.763

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	96		70-130

Wesley L. Selman
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-207 Lab Sample ID: 320-45950-15
 Matrix: Water Lab File ID: 2018.12.14_537A_042.d
 Analysis Method: 537 Date Collected: 12/06/2018 14:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 255.1(mL) Date Analyzed: 12/15/2018 11:07
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.07		4.90	1.96	0.931
335-67-1	Perfluorooctanoic acid (PFOA)	8.00	M	6.86	5.88	2.65
375-95-1	Perfluorononanoic acid (PFNA)	0.971	J	4.90	0.980	0.461
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.31	J	4.90	1.96	0.627
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.60	J	4.90	2.94	1.27
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.50	J	4.90	1.96	0.784

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	92		70-130

Steve J. Salmeron
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-207 Lab Sample ID: 320-45950-16
 Matrix: Water Lab File ID: 2018.12.14_537A_043.d
 Analysis Method: 537 Date Collected: 12/06/2018 14:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 262.6(mL) Date Analyzed: 12/15/2018 11:15
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.90	U	4.76	1.90	0.904
335-67-1	Perfluorooctanoic acid (PFOA)	5.71	U M	6.66	5.71	2.57
375-95-1	Perfluorononanoic acid (PFNA)	0.952	U M	4.76	0.952	0.447
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.90	U	4.76	1.90	0.609
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.86	U M	4.76	2.86	1.24
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.90	U	4.76	1.90	0.762

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	90		70-130

Mari L. Salem
01/11/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-DUP-54 Lab Sample ID: 320-45950-17
 Matrix: Water Lab File ID: 2018.12.14_537A_046.d
 Analysis Method: 537 Date Collected: 12/06/2018 07:00
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 260 (mL) Date Analyzed: 12/15/2018 11:37
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265456 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26.9		4.81	1.92	0.913
335-67-1	Perfluorooctanoic acid (PFOA)	28.7	M	6.73	5.77	2.60
375-95-1	Perfluorononanoic acid (PFNA)	2.45	J	4.81	0.962	0.452
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	14.8		4.81	1.92	0.615
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.70		4.81	2.88	1.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	12.2		4.81	1.92	0.769

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	104		70-130

Hani L. Salem
01/11/2019

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-RW-0344 Lab Sample ID: 320-45950-1
 Matrix: Water Lab File ID: 2018.12.14_537A_024.d
 Analysis Method: 537 Date Collected: 12/06/2018 08:40
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 267.2 (mL) Date Analyzed: 12/15/2018 08:53
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28.7		4.68	1.87	0.889
335-67-1	Perfluorooctanoic acid (PFOA)	21.9	M	6.55	5.61	2.53
375-95-1	Perfluorononanoic acid (PFNA)	47.2		4.68	0.936	0.440
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16.2		4.68	1.87	0.599
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.11		4.68	2.81	1.22
375-73-5	Perfluorobutanesulfonic acid (PFBS)	4.33	J	4.68	1.87	0.749

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-FRB-0344 Lab Sample ID: 320-45950-2
 Matrix: Water Lab File ID: 2018.12.14_537A_025.d
 Analysis Method: 537 Date Collected: 12/06/2018 08:35
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 255.1(mL) Date Analyzed: 12/15/2018 09:00
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.96	U	4.90	1.96	0.931
335-67-1	Perfluorooctanoic acid (PFOA)	5.88	U M	6.86	5.88	2.65
375-95-1	Perfluorononanoic acid (PFNA)	0.980	U	4.90	0.980	0.461
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.96	U	4.90	1.96	0.627
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.94	U	4.90	2.94	1.27
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.96	U	4.90	1.96	0.784

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	105		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-RW-0386 Lab Sample ID: 320-45950-3
 Matrix: Water Lab File ID: 2018.12.14_537A_026.d
 Analysis Method: 537 Date Collected: 12/06/2018 09:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 256.1(mL) Date Analyzed: 12/15/2018 09:08
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	27.7		4.88	1.95	0.927
335-67-1	Perfluorooctanoic acid (PFOA)	20.0	M	6.83	5.86	2.64
375-95-1	Perfluorononanoic acid (PFNA)	1.62	J	4.88	0.976	0.459
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	19.5		4.88	1.95	0.625
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.18	J	4.88	2.93	1.27
375-73-5	Perfluorobutanesulfonic acid (PFBS)	13.3		4.88	1.95	0.781

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	100		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-FRB-0386 Lab Sample ID: 320-45950-4
 Matrix: Water Lab File ID: 2018.12.14_537A_027.d
 Analysis Method: 537 Date Collected: 12/06/2018 09:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 271.5 (mL) Date Analyzed: 12/15/2018 09:15
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.84	U	4.60	1.84	0.875
335-67-1	Perfluorooctanoic acid (PFOA)	5.52	U M	6.45	5.52	2.49
375-95-1	Perfluorononanoic acid (PFNA)	0.921	U	4.60	0.921	0.433
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.84	U	4.60	1.84	0.589
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.76	U	4.60	2.76	1.20
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.84	U	4.60	1.84	0.737

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	89		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-180 Lab Sample ID: 320-45950-5
 Matrix: Water Lab File ID: 2018.12.14_537A_028.d
 Analysis Method: 537 Date Collected: 12/06/2018 09:40
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 260.8 (mL) Date Analyzed: 12/15/2018 09:23
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	40.3		4.79	1.92	0.911
335-67-1	Perfluorooctanoic acid (PFOA)	11.9	M	6.71	5.75	2.59
375-95-1	Perfluorononanoic acid (PFNA)	1.80	J	4.79	0.959	0.451
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13.2		4.79	1.92	0.613
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.86		4.79	2.88	1.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.86	J	4.79	1.92	0.767

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-180 Lab Sample ID: 320-45950-6
 Matrix: Water Lab File ID: 2018.12.14_537A_029.d
 Analysis Method: 537 Date Collected: 12/06/2018 09:35
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 279(mL) Date Analyzed: 12/15/2018 09:30
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.79	U	4.48	1.79	0.851
335-67-1	Perfluorooctanoic acid (PFOA)	5.38	U	6.27	5.38	2.42
375-95-1	Perfluorononanoic acid (PFNA)	0.896	U	4.48	0.896	0.421
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.79	U	4.48	1.79	0.573
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.69	U M	4.48	2.69	1.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.79	U	4.48	1.79	0.717

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-276 Lab Sample ID: 320-45950-7
 Matrix: Water Lab File ID: 2018.12.14_537A_030.d
 Analysis Method: 537 Date Collected: 12/06/2018 10:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 262.4 (mL) Date Analyzed: 12/15/2018 09:38
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18.4		4.76	1.91	0.905
335-67-1	Perfluorooctanoic acid (PFOA)	23.1	M	6.67	5.72	2.57
375-95-1	Perfluorononanoic acid (PFNA)	3.77	J	4.76	0.953	0.448
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.53		4.76	1.91	0.610
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.50		4.76	2.86	1.24
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.20	M	4.76	1.91	0.762

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-276 Lab Sample ID: 320-45950-8
 Matrix: Water Lab File ID: 2018.12.14_537A_031.d
 Analysis Method: 537 Date Collected: 12/06/2018 10:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 270.3(mL) Date Analyzed: 12/15/2018 09:45
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.85	U	4.62	1.85	0.879
335-67-1	Perfluorooctanoic acid (PFOA)	5.55	U M	6.47	5.55	2.50
375-95-1	Perfluorononanoic acid (PFNA)	0.925	U	4.62	0.925	0.435
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.85	U	4.62	1.85	0.592
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.77	U M	4.62	2.77	1.20
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.85	U	4.62	1.85	0.740

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-269 Lab Sample ID: 320-45950-9
 Matrix: Water Lab File ID: 2018.12.14_537A_034.d
 Analysis Method: 537 Date Collected: 12/06/2018 11:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 267(mL) Date Analyzed: 12/15/2018 10:08
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26.6		4.68	1.87	0.890
335-67-1	Perfluorooctanoic acid (PFOA)	26.0	M	6.55	5.62	2.53
375-95-1	Perfluorononanoic acid (PFNA)	2.37	J	4.68	0.936	0.440
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	14.2		4.68	1.87	0.599
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.45		4.68	2.81	1.22
375-73-5	Perfluorobutanesulfonic acid (PFBS)	13.1	M	4.68	1.87	0.749

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	97		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-269 Lab Sample ID: 320-45950-10
 Matrix: Water Lab File ID: 2018.12.14_537A_035.d
 Analysis Method: 537 Date Collected: 12/06/2018 11:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 264.7(mL) Date Analyzed: 12/15/2018 10:15
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.89	U	4.72	1.89	0.897
335-67-1	Perfluorooctanoic acid (PFOA)	5.67	U M	6.61	5.67	2.55
375-95-1	Perfluorononanoic acid (PFNA)	0.944	U	4.72	0.944	0.444
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.89	U M	4.72	1.89	0.604
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.83	U	4.72	2.83	1.23
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.89	U	4.72	1.89	0.756

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-311 Lab Sample ID: 320-45950-11
 Matrix: Water Lab File ID: 2018.12.14_537A_036.d
 Analysis Method: 537 Date Collected: 12/06/2018 12:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 258.9(mL) Date Analyzed: 12/15/2018 10:23
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22.8		4.83	1.93	0.917
335-67-1	Perfluorooctanoic acid (PFOA)	22.8	M	6.76	5.79	2.61
375-95-1	Perfluorononanoic acid (PFNA)	2.34	J	4.83	0.966	0.454
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	4.46	J	4.83	1.93	0.618
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.59		4.83	2.90	1.26
375-73-5	Perfluorobutanesulfonic acid (PFBS)	8.38		4.83	1.93	0.772

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	95		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-311 Lab Sample ID: 320-45950-12
 Matrix: Water Lab File ID: 2018.12.14_537A_039.d
 Analysis Method: 537 Date Collected: 12/06/2018 12:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 266.4 (mL) Date Analyzed: 12/15/2018 10:45
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.88	U	4.69	1.88	0.892
335-67-1	Perfluorooctanoic acid (PFOA)	5.63	U M	6.57	5.63	2.53
375-95-1	Perfluorononanoic acid (PFNA)	0.938	U	4.69	0.938	0.441
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.88	U	4.69	1.88	0.601
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.82	U M	4.69	2.82	1.22
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.88	U	4.69	1.88	0.751

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	97		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-RW-3409 Lab Sample ID: 320-45950-13
 Matrix: Water Lab File ID: 2018.12.14_537A_040.d
 Analysis Method: 537 Date Collected: 12/06/2018 13:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 259.3(mL) Date Analyzed: 12/15/2018 10:52
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18.1		4.82	1.93	0.916
335-67-1	Perfluorooctanoic acid (PFOA)	14.7	M	6.75	5.78	2.60
375-95-1	Perfluorononanoic acid (PFNA)	2.00	J	4.82	0.964	0.453
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.04		4.82	1.93	0.617
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.38	J	4.82	2.89	1.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	8.16		4.82	1.93	0.771

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-FRB-3409 Lab Sample ID: 320-45950-14
 Matrix: Water Lab File ID: 2018.12.14_537A_041.d
 Analysis Method: 537 Date Collected: 12/06/2018 13:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 262.1(mL) Date Analyzed: 12/15/2018 11:00
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.91	U	4.77	1.91	0.906
335-67-1	Perfluorooctanoic acid (PFOA)	5.72	U M	6.68	5.72	2.58
375-95-1	Perfluorononanoic acid (PFNA)	0.954	U M	4.77	0.954	0.448
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.91	U	4.77	1.91	0.610
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.86	U	4.77	2.86	1.24
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.91	U	4.77	1.91	0.763

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	96		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-RW-207 Lab Sample ID: 320-45950-15
 Matrix: Water Lab File ID: 2018.12.14_537A_042.d
 Analysis Method: 537 Date Collected: 12/06/2018 14:10
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 255.1(mL) Date Analyzed: 12/15/2018 11:07
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.07		4.90	1.96	0.931
335-67-1	Perfluorooctanoic acid (PFOA)	8.00	M	6.86	5.88	2.65
375-95-1	Perfluorononanoic acid (PFNA)	0.971	J	4.90	0.980	0.461
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.31	J	4.90	1.96	0.627
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.60	J	4.90	2.94	1.27
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.50	J	4.90	1.96	0.784

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	92		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: NAWC-120618-FRB-207 Lab Sample ID: 320-45950-16
 Matrix: Water Lab File ID: 2018.12.14_537A_043.d
 Analysis Method: 537 Date Collected: 12/06/2018 14:05
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 262.6(mL) Date Analyzed: 12/15/2018 11:15
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265454 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.90	U	4.76	1.90	0.904
335-67-1	Perfluorooctanoic acid (PFOA)	5.71	U M	6.66	5.71	2.57
375-95-1	Perfluorononanoic acid (PFNA)	0.952	U M	4.76	0.952	0.447
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.90	U	4.76	1.90	0.609
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.86	U M	4.76	2.86	1.24
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.90	U	4.76	1.90	0.762

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	90		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: WGNA-120618-DUP-54 Lab Sample ID: 320-45950-17
 Matrix: Water Lab File ID: 2018.12.14_537A_046.d
 Analysis Method: 537 Date Collected: 12/06/2018 07:00
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 260 (mL) Date Analyzed: 12/15/2018 11:37
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265456 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26.9		4.81	1.92	0.913
335-67-1	Perfluorooctanoic acid (PFOA)	28.7	M	6.73	5.77	2.60
375-95-1	Perfluorononanoic acid (PFNA)	2.45	J	4.81	0.962	0.452
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	14.8		4.81	1.92	0.615
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.70		4.81	2.88	1.25
375-73-5	Perfluorobutanesulfonic acid (PFBS)	12.2		4.81	1.92	0.769

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	104		70-130

Appendix C

Support Documentation

ANALYTE	ORIGINAL	DUPLICATE		RL	RPD	RPD > 30% Aqueous	ORIGINAL SAMPLE	DUPLICATE	DIFFERENCE >2XRL
	120618-RW-269	DUP-54	CONC >2xRL				SAMPLE CONC >2xRL		
PENTADECAFLUOROOCTANOIC ACID (PFOA)	26	28.7	6.55	9.87	FALSE	TRUE	TRUE	FALSE	
PERFLUOROBUTANESULFONIC ACID (PFBS)	13.1	12.2	4.68	7.11	FALSE	TRUE	TRUE	FALSE	
PERFLUOROHEPTANOIC ACID (PFHPA)	7.45	8.7	4.68	15.48	FALSE	FALSE	FALSE	FALSE	
PERFLUOROHXANSULFONIC ACID (PFHXS)	14.2	14.8	4.68	4.14	FALSE	TRUE	TRUE	FALSE	
PERFLUORONONANOIC ACID (PFNA)	2.37	2.45	4.68	3.32	FALSE	FALSE	FALSE	FALSE	
PERFLUOROOCTANESULFONIC ACID (PFOS)	26.6	26.9	4.68	1.12	FALSE	TRUE	TRUE	FALSE	

Regulatory Program: DW NPDES RCRA Other:

Client Contact TetraTech 234 Mall Boulevard Suite 260 King of Prussia, PA 19406 610-382-2924 610-491-9688 Project Name: WE04 Site: WE04 P O # 1132358 (through EarthToxics)	Project Manager: Andy Frebowitz Tel/Fax: 610.382.2920 <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below 21 <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	Site Contact: Mary Kay Bond Lab Contact: Dave Alltucker	Date: 12/6/2018 Carrier: FedEx	COC No: 1 of 1 COCs Sampler: Mary Kay Bond For Lab Use Only: Walk-in Client: Lab Sampling: ob / SDG No.:
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Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	EPA 537 UCMR3	Sample Specific Notes:
WGNA-120618-RW-0344	12/6/2018	08:40	G	DW	2	N	Y		
WGNA-120618-FRB-0344	12/6/2018	08:35	G	DW	2	N	Y		Field Reagent Blank
WGNA-120618-RW-0386	12/6/2018	09:10	G	DW	2	N	Y		
WGNA-120618-FRB-0386	12/6/2018	09:05	G	DW	2	N	Y		Field Reagent Blank
NAWC-120618-RW-180	12/6/2018	09:40	G	DW	2	N	Y		
NAWC-120618-FRB-180	12/6/2018	09:35	G	DW	2	N	Y		Field Reagent Blank
NAWC-120618-RW-276	12/6/2018	10:10	G	DW	2	N	Y		
NAWC-120618-FRB-276	12/6/2018	10:05	G	DW	2	N	Y		Field Reagent Blank
NAWC-120618-RW-269	12/6/2018	11:10	G	DW	2	N	Y		
NAWC-120618-FRB-269	12/6/2018	11:05	G	DW	2	N	Y		Field Reagent Blank
NAWC-120618-RW-311	12/6/2018	12:10	G	DW	6	N	Y		MS/MSD
NAWC-120618-FRB-311	12/6/2018	12:05	G	DW	2	N	Y		Field Reagent Blank
WGNA-120618-RW-3409	12/6/2018	13:10	G	DW	2	N	Y		
WGNA-120618-FRB-3409	12/6/2018	13:05	G	DW	2	N	Y		Field Reagent Blank
NAWC-120618-RW-207	12/6/2018	14:10	G	DW	2	N	Y		
NAWC-120618-FRB-207	12/6/2018	14:05	G	DW	2	N	Y		Field Reagent Blank
WGNA-120618-DUP-54	12/6/2018	07:00	G	DW	2	N	Y		DUPLICATE
						6			

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months
--	--

Fed Ex Tracking: 7739 0345 9480

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: 50	Corr'd: 5.0	Therm ID No.: AK5
Relinquished by: Mary Kay Bond	Company: Tetra Tech	Date/Time: 12/6/2018 16:00	Received by: [Signature]	Company: TAPSON
Relinquished by:	Company:	Date/Time:	Received by:	Company:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:

Page 449 of 450

Job Narrative
320-45950-1

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 5.0° C.

LCMS

Method(s) 537. 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.

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

Organic Prep

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

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-45950-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

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)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-45950-1

Method	Method Description	Protocol	Laboratory
537	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC
537	Extraction of Perfluorinated Alkyl Acids	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-45950-1

Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-45950-1	WGNA-120618-RW-0344	Water	12/06/18 08:40	12/07/18 09:15
320-45950-2	WGNA-120618-FRB-0344	Water	12/06/18 08:35	12/07/18 09:15
320-45950-3	WGNA-120618-RW-0386	Water	12/06/18 09:10	12/07/18 09:15
320-45950-4	WGNA-120618-FRB-0386	Water	12/06/18 09:05	12/07/18 09:15
320-45950-5	NAWC-120618-RW-180	Water	12/06/18 09:40	12/07/18 09:15
320-45950-6	NAWC-120618-FRB-180	Water	12/06/18 09:35	12/07/18 09:15
320-45950-7	NAWC-120618-RW-276	Water	12/06/18 10:10	12/07/18 09:15
320-45950-8	NAWC-120618-FRB-276	Water	12/06/18 10:05	12/07/18 09:15
320-45950-9	NAWC-120618-RW-269	Water	12/06/18 11:10	12/07/18 09:15
320-45950-10	NAWC-120618-FRB-269	Water	12/06/18 11:05	12/07/18 09:15
320-45950-11	NAWC-120618-RW-311	Water	12/06/18 12:10	12/07/18 09:15
320-45950-12	NAWC-120618-FRB-311	Water	12/06/18 12:05	12/07/18 09:15
320-45950-13	WGNA-120618-RW-3409	Water	12/06/18 13:10	12/07/18 09:15
320-45950-14	WGNA-120618-FRB-3409	Water	12/06/18 13:05	12/07/18 09:15
320-45950-15	NAWC-120618-RW-207	Water	12/06/18 14:10	12/07/18 09:15
320-45950-16	NAWC-120618-FRB-207	Water	12/06/18 14:05	12/07/18 09:15
320-45950-17	WGNA-120618-DUP-54	Water	12/06/18 07:00	12/07/18 09:15

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-45950-1

SDG No.: _____

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-120618-RW-034 4	320-45950-1	93	93
WGNA-120618-FRB-03 44	320-45950-2	108	105
WGNA-120618-RW-038 6	320-45950-3	99	100
WGNA-120618-FRB-03 86	320-45950-4	92	89
NAWC-120618-RW-180	320-45950-5	102	98
NAWC-120618-FRB-18 0	320-45950-6	95	99
NAWC-120618-RW-276	320-45950-7	102	93
NAWC-120618-FRB-27 6	320-45950-8	96	93
NAWC-120618-RW-269	320-45950-9	102	97
NAWC-120618-FRB-26 9	320-45950-10	100	98
NAWC-120618-RW-311	320-45950-11	102	95
NAWC-120618-FRB-31 1	320-45950-12	95	97
WGNA-120618-RW-340 9	320-45950-13	98	93
WGNA-120618-FRB-34 09	320-45950-14	94	96
NAWC-120618-RW-207	320-45950-15	107	92
NAWC-120618-FRB-20 7	320-45950-16	94	90
WGNA-120618-DUP-54	320-45950-17	112	104
	MB 320-265071/1-A	83	79
	LLCS 320-265071/2-A	100	100
NAWC-120618-RW-311 LMS	320-45950-11 LMS	111	107
NAWC-120618-RW-311 LMSD	320-45950-11 LMSD	98	96

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2018.12.14_537A_022.d

Lab ID: LLCS 320-265071/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	3.71	3.774 J	102	50-150	
Perfluorooctanoic acid (PFOA)	4.00	3.602 J	90	50-150	
Perfluorononanoic acid (PFNA)	4.00	3.800 J	95	50-150	
Perfluorohexanesulfonic acid (PFHxS)	3.64	3.574 J	98	50-150	
Perfluoroheptanoic acid (PFHpA)	4.00	3.654 J	91	50-150	
Perfluorobutanesulfonic acid (PFBS)	3.54	3.287 J	93	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.12.14_537A_037.d
 Lab ID: 320-45950-11 LMS Client ID: NAWC-120618-RW-311 LMS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	LMS CONCENTRATION (ng/L)	LMS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	3.55	22.8	24.97	62	50-150	4
Perfluorooctanoic acid (PFOA)	3.83	22.8	27.00	109	50-150	M 4
Perfluorononanoic acid (PFNA)	3.83	2.34 J	6.051	97	50-150	
Perfluorohexanesulfonic acid (PFHxS)	3.48	4.46 J	8.250	109	50-150	
Perfluoroheptanoic acid (PFHpA)	3.83	5.59	9.406	100	50-150	
Perfluorobutanesulfonic acid (PFBS)	3.38	8.38	12.32	117	50-150	M

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-45950-1

SDG No.: _____

Matrix: Water Level: Low

Lab File ID: 2018.12.14_537A_038.d

Lab ID: 320-45950-11 LMSD

Client ID: NAWC-120618-RW-311 LMSD

COMPOUND	SPIKE ADDED (ng/L)	LMSD CONCENTRATION (ng/L)	LMSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	3.57	25.98	90	4	50	50-150	4
Perfluorooctanoic acid (PFOA)	3.85	24.86	52	8	50	50-150	M 4
Perfluorononanoic acid (PFNA)	3.85	5.804	90	4	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	3.50	8.416	113	2	50	50-150	
Perfluoroheptanoic acid (PFHpA)	3.85	8.972	88	5	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	3.40	12.74	128	3	50	50-150	

Column to be used to flag recovery and RPD values

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab File ID: 2018.12.14_537A_023.d Lab Sample ID: MB 320-265071/1-A
 Matrix: Water Date Extracted: 12/13/2018 12:59
 Instrument ID: A8_N Date Analyzed: 12/15/2018 08:46
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-265071/2-A	2018.12.14_537A_022.d	12/15/2018 08:38
WGNA-120618-RW-0344	320-45950-1	2018.12.14_537A_024.d	12/15/2018 08:53
WGNA-120618-FRB-0344	320-45950-2	2018.12.14_537A_025.d	12/15/2018 09:00
WGNA-120618-RW-0386	320-45950-3	2018.12.14_537A_026.d	12/15/2018 09:08
WGNA-120618-FRB-0386	320-45950-4	2018.12.14_537A_027.d	12/15/2018 09:15
NAWC-120618-RW-180	320-45950-5	2018.12.14_537A_028.d	12/15/2018 09:23
NAWC-120618-FRB-180	320-45950-6	2018.12.14_537A_029.d	12/15/2018 09:30
NAWC-120618-RW-276	320-45950-7	2018.12.14_537A_030.d	12/15/2018 09:38
NAWC-120618-FRB-276	320-45950-8	2018.12.14_537A_031.d	12/15/2018 09:45
NAWC-120618-RW-269	320-45950-9	2018.12.14_537A_034.d	12/15/2018 10:08
NAWC-120618-FRB-269	320-45950-10	2018.12.14_537A_035.d	12/15/2018 10:15
NAWC-120618-RW-311	320-45950-11	2018.12.14_537A_036.d	12/15/2018 10:23
NAWC-120618-RW-311 LMS	320-45950-11 LMS	2018.12.14_537A_037.d	12/15/2018 10:30
NAWC-120618-RW-311 LMSD	320-45950-11 LMSD	2018.12.14_537A_038.d	12/15/2018 10:37
NAWC-120618-FRB-311	320-45950-12	2018.12.14_537A_039.d	12/15/2018 10:45
WGNA-120618-RW-3409	320-45950-13	2018.12.14_537A_040.d	12/15/2018 10:52
WGNA-120618-FRB-3409	320-45950-14	2018.12.14_537A_041.d	12/15/2018 11:00
NAWC-120618-RW-207	320-45950-15	2018.12.14_537A_042.d	12/15/2018 11:07
NAWC-120618-FRB-207	320-45950-16	2018.12.14_537A_043.d	12/15/2018 11:15
WGNA-120618-DUP-54	320-45950-17	2018.12.14_537A_046.d	12/15/2018 11:37

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-265071/1-A
 Matrix: Water Lab File ID: 2018.12.14_537A_023.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 12/13/2018 12:59
 Sample wt/vol: 250.00 (mL) Date Analyzed: 12/15/2018 08:46
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 265452 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.00	U	5.00	2.00	0.950
335-67-1	Perfluorooctanoic acid (PFOA)	6.00	U	7.00	6.00	2.70
375-95-1	Perfluorononanoic acid (PFNA)	1.00	U	5.00	1.00	0.470
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.00	U	5.00	2.00	0.640
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.00	U	5.00	3.00	1.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.00	U	5.00	2.00	0.800

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	83		70-130
STL00996	13C2 PFDA	79		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 12/07/2018 15:50
 Calibration ID: 42659

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	3528472	3.19	2654650	3.59		
UPPER LIMIT	5292708	3.69	3981975	4.09		
LOWER LIMIT	1764236	2.69	1327325	3.09		
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCVL 320-263818/10		3854163	3.20	2764360	3.59	
ICV 320-263818/12		3693184	3.19	2637299	3.57	
CCVL 320-265448/1		3592718	3.19	2583847	3.57	
CCV 320-265452/17 CCVIS		3325094	3.17	2396693	3.57	
LLCS 320-265071/2-A		3607848	3.17	2624418	3.56	
MB 320-265071/1-A		3652125	3.19	2697411	3.57	
320-45950-1	WGNA-120618-RW-0344	3576074	3.17	2645600	3.56	
320-45950-2	WGNA-120618-FRB-0344	3477069	3.19	2726020	3.58	
320-45950-3	WGNA-120618-RW-0386	3664765	3.17	2873168	3.56	
320-45950-4	WGNA-120618-FRB-0386	3858971	3.19	2648905	3.57	
320-45950-5	NAWC-120618-RW-180	3594942	3.19	2793203	3.57	
320-45950-6	NAWC-120618-FRB-180	3667999	3.17	2628962	3.56	
320-45950-7	NAWC-120618-RW-276	3535948	3.17	2860628	3.56	
320-45950-8	NAWC-120618-FRB-276	3587289	3.17	2744059	3.56	
CCV 320-265452/29 CCVIS		3457050	3.17	2730528	3.56	
CCV 320-265454/29 CCVIS		3457050	3.17	2730528	3.56	
320-45950-9	NAWC-120618-RW-269	3599727	3.17	2641554	3.57	
320-45950-10	NAWC-120618-FRB-269	3692902	3.19	2730608	3.57	
320-45950-11	NAWC-120618-RW-311	3497083	3.17	2639585	3.56	
320-45950-11 LMS	NAWC-120618-RW-311 LMS	3444736	3.17	2727267	3.56	
320-45950-11 LMSD	NAWC-120618-RW-311 LMSD	3706683	3.19	2666327	3.57	
320-45950-12	NAWC-120618-FRB-311	3718299	3.17	2761113	3.56	
320-45950-13	WGNA-120618-RW-3409	3707966	3.17	2772673	3.56	
320-45950-14	WGNA-120618-FRB-3409	3745490	3.17	2600839	3.56	
320-45950-15	NAWC-120618-RW-207	3731194	3.17	2823056	3.56	
320-45950-16	NAWC-120618-FRB-207	3797323	3.19	2671703	3.58	
CCV 320-265454/41 CCVIS		3603244	3.17	2670076	3.56	

13PFOA = 13C2 PFOA
 PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
 RT Limit = ± 0.5 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.: 320-45950-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 12/07/2018 15:50
 Calibration ID: 42659

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	3528472	3.19	2654650	3.59		
UPPER LIMIT	5292708	3.69	3981975	4.09		
LOWER LIMIT	1764236	2.69	1327325	3.09		
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCV 320-265456/41 CCVIS			3603244	3.17	2670076	3.56
320-45950-17	WGNA-120618-DUP-54		3341495	3.19	2682685	3.57
CCV 320-265456/44 CCVIS			3723547	3.17	2643672	3.56

13PFOA = 13C2 PFOA
 PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
 RT Limit = ± 0.5 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.: 320-45950-1
 SDG No.: _____
 Sample No.: CCV 320-265452/17 Date Analyzed: 12/15/2018 08:23
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.12.14_537A_020 Heated Purge: (Y/N) N
 Calibration ID: 42659

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	3325094	3.17	2396693	3.57		
UPPER LIMIT	4655132	3.67	3355370	4.07		
LOWER LIMIT	2327566	2.67	1677685	3.07		
LAB SAMPLE ID	CLIENT SAMPLE ID					
LLCS 320-265071/2-A		3607848	3.17	2624418	3.56	
MB 320-265071/1-A		3652125	3.19	2697411	3.57	
320-45950-1	WGNA-120618-RW-0344	3576074	3.17	2645600	3.56	
320-45950-2	WGNA-120618-FRB-0344	3477069	3.19	2726020	3.58	
320-45950-3	WGNA-120618-RW-0386	3664765	3.17	2873168	3.56	
320-45950-4	WGNA-120618-FRB-0386	3858971	3.19	2648905	3.57	
320-45950-5	NAWC-120618-RW-180	3594942	3.19	2793203	3.57	
320-45950-6	NAWC-120618-FRB-180	3667999	3.17	2628962	3.56	
320-45950-7	NAWC-120618-RW-276	3535948	3.17	2860628	3.56	
320-45950-8	NAWC-120618-FRB-276	3587289	3.17	2744059	3.56	

13PFOA = 13C2 PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 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.: 320-45950-1
 SDG No.: _____
 Sample No.: CCV 320-265452/29 Date Analyzed: 12/15/2018 09:53
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.12.14_537A_032 Heated Purge: (Y/N) N
 Calibration ID: 42659

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	3457050	3.17	2730528	3.56		
UPPER LIMIT	4839870	3.67	3822739	4.06		
LOWER LIMIT	2419935	2.67	1911370	3.06		
LAB SAMPLE ID	CLIENT SAMPLE ID					
LLCS 320-265071/2-A		3607848	3.17	2624418	3.56	
MB 320-265071/1-A		3652125	3.19	2697411	3.57	
320-45950-1	WGNA-120618-RW-0344	3576074	3.17	2645600	3.56	
320-45950-2	WGNA-120618-FRB-0344	3477069	3.19	2726020	3.58	
320-45950-3	WGNA-120618-RW-0386	3664765	3.17	2873168	3.56	
320-45950-4	WGNA-120618-FRB-0386	3858971	3.19	2648905	3.57	
320-45950-5	NAWC-120618-RW-180	3594942	3.19	2793203	3.57	
320-45950-6	NAWC-120618-FRB-180	3667999	3.17	2628962	3.56	
320-45950-7	NAWC-120618-RW-276	3535948	3.17	2860628	3.56	
320-45950-8	NAWC-120618-FRB-276	3587289	3.17	2744059	3.56	

13PFOA = 13C2 PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 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.: 320-45950-1
 SDG No.: _____
 Sample No.: CCV 320-265454/29 Date Analyzed: 12/15/2018 09:53
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.12.14_537A_032 Heated Purge: (Y/N) N
 Calibration ID: 42659

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	3457050	3.17	2730528	3.56		
UPPER LIMIT	4839870	3.67	3822739	4.06		
LOWER LIMIT	2419935	2.67	1911370	3.06		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-45950-9	NAWC-120618-RW-269	3599727	3.17	2641554	3.57	
320-45950-10	NAWC-120618-FRB-269	3692902	3.19	2730608	3.57	
320-45950-11	NAWC-120618-RW-311	3497083	3.17	2639585	3.56	
320-45950-11 LMS	NAWC-120618-RW-311 LMS	3444736	3.17	2727267	3.56	
320-45950-11 LMSD	NAWC-120618-RW-311 LMSD	3706683	3.19	2666327	3.57	
320-45950-12	NAWC-120618-FRB-311	3718299	3.17	2761113	3.56	
320-45950-13	WGNA-120618-RW-3409	3707966	3.17	2772673	3.56	
320-45950-14	WGNA-120618-FRB-3409	3745490	3.17	2600839	3.56	
320-45950-15	NAWC-120618-RW-207	3731194	3.17	2823056	3.56	
320-45950-16	NAWC-120618-FRB-207	3797323	3.19	2671703	3.58	

13PFOA = 13C2 PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 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.: 320-45950-1
 SDG No.: _____
 Sample No.: CCV 320-265454/41 Date Analyzed: 12/15/2018 11:22
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.12.14_537A_044 Heated Purge: (Y/N) N
 Calibration ID: 42659

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	3603244	3.17	2670076	3.56		
UPPER LIMIT	5044542	3.67	3738106	4.06		
LOWER LIMIT	2522271	2.67	1869053	3.06		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-45950-9	NAWC-120618-RW-269	3599727	3.17	2641554	3.57	
320-45950-10	NAWC-120618-FRB-269	3692902	3.19	2730608	3.57	
320-45950-11	NAWC-120618-RW-311	3497083	3.17	2639585	3.56	
320-45950-11 LMS	NAWC-120618-RW-311 LMS	3444736	3.17	2727267	3.56	
320-45950-11 LMSD	NAWC-120618-RW-311 LMSD	3706683	3.19	2666327	3.57	
320-45950-12	NAWC-120618-FRB-311	3718299	3.17	2761113	3.56	
320-45950-13	WGNA-120618-RW-3409	3707966	3.17	2772673	3.56	
320-45950-14	WGNA-120618-FRB-3409	3745490	3.17	2600839	3.56	
320-45950-15	NAWC-120618-RW-207	3731194	3.17	2823056	3.56	
320-45950-16	NAWC-120618-FRB-207	3797323	3.19	2671703	3.58	

13PFOA = 13C2 PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 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.: 320-45950-1
 SDG No.: _____
 Sample No.: CCV 320-265456/41 Date Analyzed: 12/15/2018 11:22
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.12.14_537A_044 Heated Purge: (Y/N) N
 Calibration ID: 42659

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	3603244	3.17	2670076	3.56		
UPPER LIMIT	5044542	3.67	3738106	4.06		
LOWER LIMIT	2522271	2.67	1869053	3.06		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-45950-17	WGNA-120618-DUP-54		3341495	3.19	2682685	3.57

13PFOA = 13C2 PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 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.: 320-45950-1
 SDG No.: _____
 Sample No.: CCV 320-265456/44 Date Analyzed: 12/15/2018 11:45
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.12.14_537A_047 Heated Purge: (Y/N) N
 Calibration ID: 42659

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	3723547	3.17	2643672	3.56		
UPPER LIMIT	5212966	3.67	3701141	4.06		
LOWER LIMIT	2606483	2.67	1850570	3.06		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-45950-17	WGNA-120618-DUP-54		3341495	3.19	2682685	3.57

13PFOA = 13C2 PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1 Analy Batch No.: 263818

SDG No.: _____

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

Calibration Start Date: 12/07/2018 15:06 Calibration End Date: 12/07/2018 15:50 Calibration ID: 42659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263818/2	2018.12.07_537ICAL_003.d
Level 2	IC 320-263818/3	2018.12.07_537ICAL_004.d
Level 3	IC 320-263818/4	2018.12.07_537ICAL_005.d
Level 4	IC 320-263818/5	2018.12.07_537ICAL_006.d
Level 5	IC 320-263818/6	2018.12.07_537ICAL_007.d
Level 6	IC 320-263818/7	2018.12.07_537ICAL_008.d
Level 7	IC 320-263818/8	2018.12.07_537ICAL_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Perfluorobutanesulfonic acid (PFBS)	1.0988 1.1767	1.2086 1.1302	1.0474	1.1169	1.0674	Ave		1.1209			5.1		30.0				
Perfluoroheptanoic acid (PFHpA)	1.2239 1.0659	1.0707 1.0573	1.0359	1.0224	0.9766	Ave		1.0647			7.3		30.0				
Perfluorohexanesulfonic acid (PFHxS)	1.4212 1.5811	1.4959 1.4890	1.3853	1.5308	1.4287	Ave		1.4760			4.6		30.0				
Perfluorooctanoic acid (PFOA)	1.2538 1.0902	1.0919 1.0484	1.0827	1.0711	0.9868	Ave		1.0893			7.5		30.0				
Perfluorooctanesulfonic acid (PFOS)	1.2739 1.0826	1.1148 1.0827	1.0146	1.0841	1.0634	Ave		1.1023			7.4		30.0				
Perfluorononanoic acid (PFNA)	0.8864 0.8230	0.8400 0.8262	0.8111	0.8329	0.8003	Ave		0.8314			3.3		30.0				
13C2 PFHxA	0.9542 0.9684	0.9959 0.9973	0.9365	0.9604	0.8704	Ave		0.9547			4.5		30.0				
13C2 PFDA	0.7164 0.7292	0.7303 0.7164	0.7050	0.7335	0.6982	Ave		0.7184			1.9		30.0				

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

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1 Analy Batch No.: 263818

SDG No.: _____

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

Calibration Start Date: 12/07/2018 15:06 Calibration End Date: 12/07/2018 15:50 Calibration ID: 42659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263818/2	2018.12.07_537ICAL_003.d
Level 2	IC 320-263818/3	2018.12.07_537ICAL_004.d
Level 3	IC 320-263818/4	2018.12.07_537ICAL_005.d
Level 4	IC 320-263818/5	2018.12.07_537ICAL_006.d
Level 5	IC 320-263818/6	2018.12.07_537ICAL_007.d
Level 6	IC 320-263818/7	2018.12.07_537ICAL_008.d
Level 7	IC 320-263818/8	2018.12.07_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
Perfluorobutanesulfonic acid (PFBS)	PFOS	Ave	27320 5447804	62153 10829607	265789	1062646	2667621	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	43264 7185923	80008 14333785	365716	1393593	3642688	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	36374 7535367	79188 14686493	361859	1499172	3675806	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	44364 7357085	81675 14227009	382620	1461416	3684632	0.0250 5.01	0.0501 10.0	0.250	1.00	2.50
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	33250 5261445	60183 10890349	270284	1082696	2790009	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid (PFNA)	13PF OA	Ave	31332 5548381	62765 11200160	286352	1135323	2985342	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C2 PFHxA	13PF OA	Ave	3372926 3264066	3720908 3379961	3306344	3272924	3246608	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDA	13PF OA	Ave	2532483 2457743	2728445 2428151	2488961	2499615	2604411	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD

FORM VI
 LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
 READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1 Analy Batch No.: 263818

SDG No.: _____

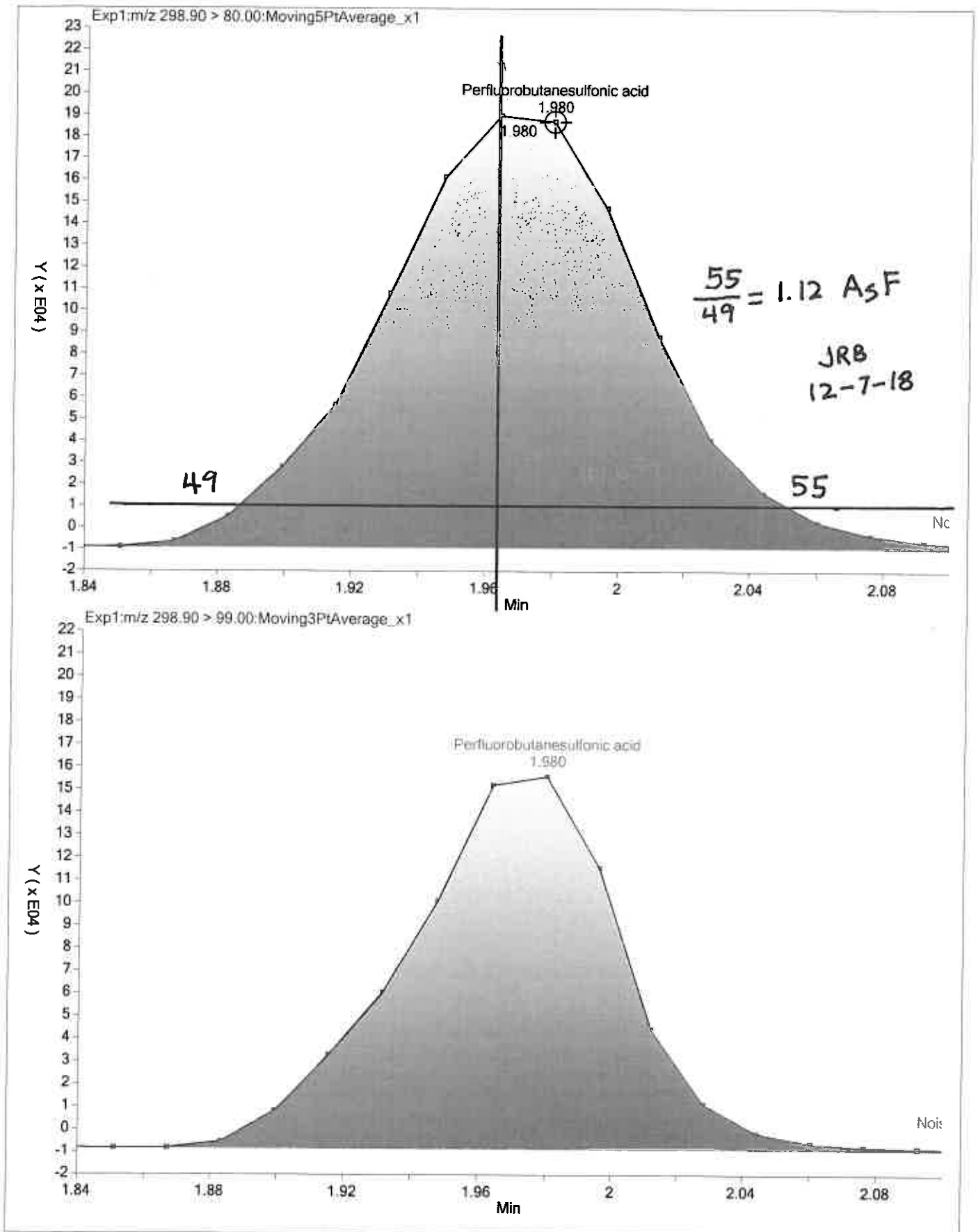
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

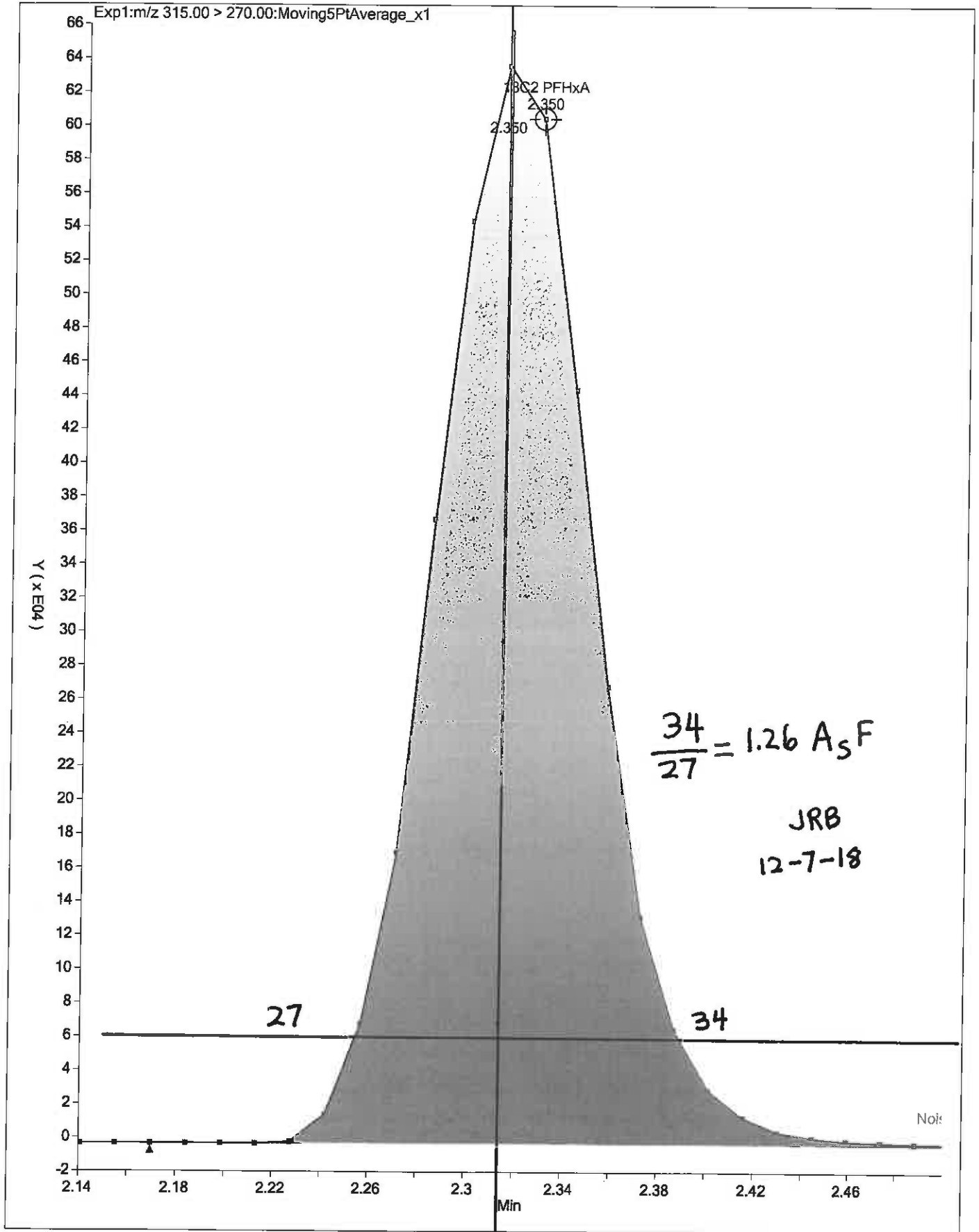
Calibration Start Date: 12/07/2018 15:06 Calibration End Date: 12/07/2018 15:50 Calibration ID: 42659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-263818/2	2018.12.07_537ICAL_003.d
Level 2	IC 320-263818/3	2018.12.07_537ICAL_004.d
Level 3	IC 320-263818/4	2018.12.07_537ICAL_005.d
Level 4	IC 320-263818/5	2018.12.07_537ICAL_006.d
Level 5	IC 320-263818/6	2018.12.07_537ICAL_007.d
Level 6	IC 320-263818/7	2018.12.07_537ICAL_008.d
Level 7	IC 320-263818/8	2018.12.07_537ICAL_009.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
Perfluorobutanesulfonic acid (PFBS)	-2.0 0.8	7.8	-6.6	-0.4	-4.8	5.0	50 30	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	15.0 -0.7	0.6	-2.7	-4.0	-8.3	0.1	50 30	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-3.7 0.9	1.3	-6.1	3.7	-3.2	7.1	50 30	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	15.1 -3.8	0.2	-0.6	-1.7	-9.4	0.1	50 30	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	15.6 -1.8	1.1	-8.0	-1.7	-3.5	-1.8	50 30	30	30	30	30	30
Perfluorononanoic acid (PFNA)	6.6 -0.6	1.0	-2.4	0.2	-3.7	-1.0	50 30	30	30	30	30	30
13C2 PFHxA	-0.1 4.5	4.3	-1.9	0.6	-8.8	1.4	30 30	30	30	30	30	30
13C2 PFDA	-0.3 -0.3	1.6	-1.9	2.1	-2.8	1.5	30 30	30	30	30	30	30





FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-263818/10 Calibration Date: 12/07/2018 16:05
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.07_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.084		9.00	0.0442	-3.3	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.081		1.00	0.0500	1.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.539		3.00	0.0455	4.2	50.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	1.107		2.00	0.0501	1.6	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.8012		5.00	0.0500	-3.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.251		4.00	0.0464	13.5	50.0
13C2 PFHxA	Ave	0.9547	0.9343		2.45	2.50	-2.1	30.0
13C2 PFDA	Ave	0.7184	0.6646		2.31	2.50	-7.5	30.0
d5-NEtFOSAA	Ave	1.065	1.074		2.52	2.50	0.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: ICV 320-263818/12 Calibration Date: 12/07/2018 16:20
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.07_537ICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.102		9.00	1.77	-1.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.021		1.92	2.00	-4.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.548		1.91	1.82	4.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	1.035		1.90	2.00	-4.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.058		1.78	1.85	-4.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.7865		5.00	2.00	-5.4	30.0
13C2 PFHxA	Ave	0.9547	0.9303		2.44	2.50	-2.6	30.0
13C2 PFDA	Ave	0.7184	0.6774		2.36	2.50	-5.7	30.0
d5-NEtFOSAA	Ave	1.065	1.097		2.57	2.50	2.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-265448/1 Calibration Date: 12/15/2018 06:23
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.14_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.176		9.00	0.0442	4.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.066		1.00	0.0500	0.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.517		3.00	0.0455	2.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	1.218		2.00	0.0501	11.8	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.100		4.00	0.0464	-0.2	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.7624		5.00	0.0500	-8.3	50.0
13C2 PFHxA	Ave	0.9547	0.9417		2.47	2.50	-1.4	30.0
13C2 PFDA	Ave	0.7184	0.7220		2.51	2.50	0.5	30.0
d5-NEtFOSAA	Ave	1.065	1.123		2.64	2.50	5.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265452/17 Calibration Date: 12/15/2018 08:23
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.14_537A_020.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.235		9.00	0.884	10.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.090		1.02	1.00	2.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.619		3.00	0.910	9.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	1.111		1.02	1.00	2.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.8327		5.00	1.00	0.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.093		4.00	0.928	-0.8	30.0
13C2 PFHxA	Ave	0.9547	0.9735		2.55	2.50	2.0	30.0
13C2 PFDA	Ave	0.7184	0.7296		2.54	2.50	1.6	30.0
d5-NEtFOSAA	Ave	1.065	0.9879		2.32	2.50	-7.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265452/29 Calibration Date: 12/15/2018 09:53
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.14_537A_032.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.174		4.63	4.42	4.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.042		4.89	5.00	-2.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.507		4.65	4.55	2.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	1.138		5.23	5.01	4.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.042		4.39	4.64	-5.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.8532		5.13	5.00	2.6	30.0
13C2 PFHxA	Ave	0.9547	0.9832		2.58	2.50	3.0	30.0
13C2 PFDA	Ave	0.7184	0.6887		2.40	2.50	-4.1	30.0
d5-NEtFOSAA	Ave	1.065	1.035		2.43	2.50	-2.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265454/29 Calibration Date: 12/15/2018 09:53
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.14_537A_032.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.174		4.63	4.42	4.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.042		4.89	5.00	-2.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.507		4.65	4.55	2.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	1.138		5.23	5.01	4.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.042		4.39	4.64	-5.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.8532		5.13	5.00	2.6	30.0
13C2 PFHxA	Ave	0.9547	0.9832		2.58	2.50	3.0	30.0
13C2 PFDA	Ave	0.7184	0.6887		2.40	2.50	-4.1	30.0
d5-NEtFOSAA	Ave	1.065	1.035		2.43	2.50	-2.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265454/41 Calibration Date: 12/15/2018 11:22
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.14_537A_044.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.115		9.00	0.884	-0.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.020		0.958	1.00	-4.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.483		3.00	0.910	0.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	0.9811		0.902	1.00	-9.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.024		4.00	0.928	-7.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.8057		5.00	1.00	-3.1	30.0
13C2 PFHxA	Ave	0.9547	0.9300		2.44	2.50	-2.6	30.0
13C2 PFDA	Ave	0.7184	0.6473		2.25	2.50	-9.9	30.0
d5-NEtFOSAA	Ave	1.065	1.117		2.62	2.50	4.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265456/41 Calibration Date: 12/15/2018 11:22
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.14_537A_044.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.115		9.00	0.884	-0.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.020		0.958	1.00	-4.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.483		3.00	0.910	0.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	0.9811		0.902	1.00	-9.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.024		4.00	0.928	-7.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.8057		5.00	1.00	-3.1	30.0
13C2 PFHxA	Ave	0.9547	0.9300		2.44	2.50	-2.6	30.0
13C2 PFDA	Ave	0.7184	0.6473		2.25	2.50	-9.9	30.0
d5-NEtFOSAA	Ave	1.065	1.117		2.62	2.50	4.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1
 SDG No.: _____
 Lab Sample ID: CCV 320-265456/44 Calibration Date: 12/15/2018 11:45
 Instrument ID: A8_N Calib Start Date: 12/07/2018 15:06
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 12/07/2018 15:50
 Lab File ID: 2018.12.14_537A_047.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	1.121	1.166		4.60	4.42	4.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.065	1.010		4.74	5.00	-5.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.476	1.519		4.68	4.55	2.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.089	1.002		4.60	5.01	-8.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.102	1.057		4.45	4.64	-4.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8314	0.7727		4.65	5.00	-7.1	30.0
13C2 PFHxA	Ave	0.9547	0.9356		2.45	2.50	-2.0	30.0
13C2 PFDA	Ave	0.7184	0.6906		2.40	2.50	-3.9	30.0
d5-NEtFOSAA	Ave	1.065	1.087		2.55	2.50	2.0	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1

SDG No.: _____

Instrument ID: A8_N Start Date: 12/07/2018 15:06

Analysis Batch Number: 263818 End Date: 12/07/2018 16:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-263818/2		12/07/2018 15:06	1	2018.12.07_537I CAL_003.d	GeminiC18 3x100 3(mm)
IC 320-263818/3		12/07/2018 15:13	1	2018.12.07_537I CAL_004.d	GeminiC18 3x100 3(mm)
IC 320-263818/4		12/07/2018 15:21	1	2018.12.07_537I CAL_005.d	GeminiC18 3x100 3(mm)
IC 320-263818/5 ICISAV		12/07/2018 15:28	1	2018.12.07_537I CAL_006.d	GeminiC18 3x100 3(mm)
IC 320-263818/6		12/07/2018 15:36	1	2018.12.07_537I CAL_007.d	GeminiC18 3x100 3(mm)
IC 320-263818/7		12/07/2018 15:43	1	2018.12.07_537I CAL_008.d	GeminiC18 3x100 3(mm)
IC 320-263818/8		12/07/2018 15:50	1	2018.12.07_537I CAL_009.d	GeminiC18 3x100 3(mm)
CCVL 320-263818/10		12/07/2018 16:05	1	2018.12.07_537I CAL_011.d	GeminiC18 3x100 3(mm)
ICB 320-263818/11		12/07/2018 16:13	1		GeminiC18 3x100 3(mm)
ICV 320-263818/12		12/07/2018 16:20	1	2018.12.07_537I CAL_013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1

SDG No.: _____

Instrument ID: A8_N Start Date: 12/15/2018 06:23

Analysis Batch Number: 265448 End Date: 12/15/2018 07:16

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-265448/1		12/15/2018 06:23	1	2018.12.14_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-265448/2 CCVIS		12/15/2018 06:31	1		GeminiC18 3x100 3(mm)
ZZZZZ		12/15/2018 06:46	1		GeminiC18 3x100 3(mm)
ZZZZZ		12/15/2018 06:53	1		GeminiC18 3x100 3(mm)
ZZZZZ		12/15/2018 07:01	1		GeminiC18 3x100 3(mm)
ZZZZZ		12/15/2018 07:08	1		GeminiC18 3x100 3(mm)
CCV 320-265448/8 CCVIS		12/15/2018 07:16	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1

SDG No.: _____

Instrument ID: A8_N Start Date: 12/15/2018 08:23

Analysis Batch Number: 265452 End Date: 12/15/2018 09:53

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-265452/17 CCVIS		12/15/2018 08:23	1	2018.12.14_537A 020.d	GeminiC18 3x100 3(mm)
LLCS 320-265071/2-A		12/15/2018 08:38	1	2018.12.14_537A 022.d	GeminiC18 3x100 3(mm)
MB 320-265071/1-A		12/15/2018 08:46	1	2018.12.14_537A 023.d	GeminiC18 3x100 3(mm)
320-45950-1		12/15/2018 08:53	1	2018.12.14_537A 024.d	GeminiC18 3x100 3(mm)
320-45950-2		12/15/2018 09:00	1	2018.12.14_537A 025.d	GeminiC18 3x100 3(mm)
320-45950-3		12/15/2018 09:08	1	2018.12.14_537A 026.d	GeminiC18 3x100 3(mm)
320-45950-4		12/15/2018 09:15	1	2018.12.14_537A 027.d	GeminiC18 3x100 3(mm)
320-45950-5		12/15/2018 09:23	1	2018.12.14_537A 028.d	GeminiC18 3x100 3(mm)
320-45950-6		12/15/2018 09:30	1	2018.12.14_537A 029.d	GeminiC18 3x100 3(mm)
320-45950-7		12/15/2018 09:38	1	2018.12.14_537A 030.d	GeminiC18 3x100 3(mm)
320-45950-8		12/15/2018 09:45	1	2018.12.14_537A 031.d	GeminiC18 3x100 3(mm)
CCV 320-265452/29 CCVIS		12/15/2018 09:53	1	2018.12.14_537A 032.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1

SDG No.: _____

Instrument ID: A8_N Start Date: 12/15/2018 09:53

Analysis Batch Number: 265454 End Date: 12/15/2018 11:22

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-265454/29 CCVIS		12/15/2018 09:53	1	2018.12.14_537A 032.d	GeminiC18 3x100 3(mm)
320-45950-9		12/15/2018 10:08	1	2018.12.14_537A 034.d	GeminiC18 3x100 3(mm)
320-45950-10		12/15/2018 10:15	1	2018.12.14_537A 035.d	GeminiC18 3x100 3(mm)
320-45950-11		12/15/2018 10:23	1	2018.12.14_537A 036.d	GeminiC18 3x100 3(mm)
320-45950-11 LMS		12/15/2018 10:30	1	2018.12.14_537A 037.d	GeminiC18 3x100 3(mm)
320-45950-11 LMSD		12/15/2018 10:37	1	2018.12.14_537A 038.d	GeminiC18 3x100 3(mm)
320-45950-12		12/15/2018 10:45	1	2018.12.14_537A 039.d	GeminiC18 3x100 3(mm)
320-45950-13		12/15/2018 10:52	1	2018.12.14_537A 040.d	GeminiC18 3x100 3(mm)
320-45950-14		12/15/2018 11:00	1	2018.12.14_537A 041.d	GeminiC18 3x100 3(mm)
320-45950-15		12/15/2018 11:07	1	2018.12.14_537A 042.d	GeminiC18 3x100 3(mm)
320-45950-16		12/15/2018 11:15	1	2018.12.14_537A 043.d	GeminiC18 3x100 3(mm)
CCV 320-265454/41 CCVIS		12/15/2018 11:22	1	2018.12.14_537A 044.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1

SDG No.: _____

Instrument ID: A8_N Start Date: 12/15/2018 11:22

Analysis Batch Number: 265456 End Date: 12/15/2018 11:45

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-265456/41 CCVIS		12/15/2018 11:22	1	2018.12.14_537A 044.d	GeminiC18 3x100 3(mm)
320-45950-17		12/15/2018 11:37	1	2018.12.14_537A 046.d	GeminiC18 3x100 3(mm)
CCV 320-265456/44 CCVIS		12/15/2018 11:45	1	2018.12.14_537A 047.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-45950-1

SDG No.: _____

Batch Number: 265071 Batch Start Date: 12/13/18 12:58 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 12/13/18 17:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00091
MB 320-265071/1		537, 537				250.00 mL	10.00 mL	7 SU	500 uL
LLCS 320-265071/2		537, 537				250.00 mL	10.00 mL	7 SU	500 uL
320-45950-A-1	WGNA-120618-RW-0 344	537, 537	T	295.89 g	28.71 g	267.2 mL	10.00 mL	7 SU	500 uL
320-45950-A-2	WGNA-120618-FRB- 0344	537, 537	T	283.65 g	28.60 g	255.1 mL	10.00 mL	7 SU	500 uL
320-45950-A-3	WGNA-120618-RW-0 386	537, 537	T	284.20 g	28.07 g	256.1 mL	10.00 mL	7 SU	500 uL
320-45950-A-4	WGNA-120618-FRB- 0386	537, 537	T	299.48 g	27.98 g	271.5 mL	10.00 mL	7 SU	500 uL
320-45950-A-5	NAWC-120618-RW-1 80	537, 537	T	289.54 g	28.76 g	260.8 mL	10.00 mL	7 SU	500 uL
320-45950-A-6	NAWC-120618-FRB- 180	537, 537	T	306.40 g	27.38 g	279 mL	10.00 mL	7 SU	500 uL
320-45950-A-7	NAWC-120618-RW-2 76	537, 537	T	291.97 g	29.53 g	262.4 mL	10.00 mL	7 SU	500 uL
320-45950-A-8	NAWC-120618-FRB- 276	537, 537	T	297.61 g	27.31 g	270.3 mL	10.00 mL	7 SU	500 uL
320-45950-A-9	NAWC-120618-RW-2 69	537, 537	T	295.52 g	28.48 g	267 mL	10.00 mL	7 SU	500 uL
320-45950-A-10	NAWC-120618-FRB- 269	537, 537	T	292.89 g	28.18 g	264.7 mL	10.00 mL	7 SU	500 uL
320-45950-A-11	NAWC-120618-RW-3 11	537, 537	T	287.50 g	28.59 g	258.9 mL	10.00 mL	7 SU	500 uL
320-45950-A-11 LMS	NAWC-120618-RW-3 11	537, 537	T	290.04 g	28.83 g	261.2 mL	10.00 mL	7 SU	500 uL
320-45950-A-11 LMSD	NAWC-120618-RW-3 11	537, 537	T	288.44 g	28.40 g	260 mL	10.00 mL	7 SU	500 uL
320-45950-A-12	NAWC-120618-FRB- 311	537, 537	T	294.44 g	28.03 g	266.4 mL	10.00 mL	7 SU	500 uL
320-45950-A-13	WGNA-120618-RW-3 409	537, 537	T	287.27 g	27.94 g	259.3 mL	10.00 mL	7 SU	500 uL
320-45950-A-14	WGNA-120618-FRB- 3409	537, 537	T	289.30 g	27.24 g	262.1 mL	10.00 mL	7 SU	500 uL
320-45950-A-15	NAWC-120618-RW-2 07	537, 537	T	283.67 g	28.57 g	255.1 mL	10.00 mL	7 SU	500 uL
320-45950-A-16	NAWC-120618-FRB- 207	537, 537	T	290.01 g	27.42 g	262.6 mL	10.00 mL	7 SU	500 uL
320-45950-A-17	WGNA-120618-DUP- 54	537, 537	T	287.97 g	27.97 g	260 mL	10.00 mL	7 SU	500 uL

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.: 320-45950-1

SDG No.: _____

Batch Number: 265071 Batch Start Date: 12/13/18 12:58 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 12/13/18 17:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-SU 00088	LC537LSP 00002	AnalysisComment			
MB 320-265071/1		537, 537		500 uL		Chlorine, ND			
LLCS 320-265071/2		537, 537		500 uL	500 uL	Chlorine, ND			
320-45950-A-1	WGNA-120618-RW-0 344	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-2	WGNA-120618-FRB- 0344	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-3	WGNA-120618-RW-0 386	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-4	WGNA-120618-FRB- 0386	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-5	NAWC-120618-RW-1 80	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-6	NAWC-120618-FRB- 180	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-7	NAWC-120618-RW-2 76	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-8	NAWC-120618-FRB- 276	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-9	NAWC-120618-RW-2 69	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-10	NAWC-120618-FRB- 269	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-11	NAWC-120618-RW-3 11	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-11 LMS	NAWC-120618-RW-3 11	537, 537	T	500 uL	500 uL	Chlorine, ND			
320-45950-A-11 LMSD	NAWC-120618-RW-3 11	537, 537	T	500 uL	500 uL	Chlorine, ND			
320-45950-A-12	NAWC-120618-FRB- 311	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-13	WGNA-120618-RW-3 409	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-14	WGNA-120618-FRB- 3409	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-15	NAWC-120618-RW-2 07	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-16	NAWC-120618-FRB- 207	537, 537	T	500 uL		Chlorine, ND			
320-45950-A-17	WGNA-120618-DUP- 54	537, 537	T	500 uL		Chlorine, ND			

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.: 320-45950-1

SDG No.: _____

Batch Number: 265071 Batch Start Date: 12/13/18 12:58 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 12/13/18 17:45

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client labels match TAlabels, SKD12/13/18
Analyst ID - Final Volume Step	SKD
Internal Standard ID#	1451881
Manifold ID	537 Manifold, Y
Methanol ID	1463359
pH Indicator ID	3718
Pipette ID	I46162G
Analyst ID - IS Reagent Drop	SKD
Analyst ID - IS Reagent Drop Witness	KJP
Analyst ID - SU Reagent Drop	SKD
Analyst ID - SU Reagent Drop Witness	MYV
Analyst ID - TA Reagent Drop	SKD
Analyst ID - TA Reagent Drop Witness	MYV
SPE Cartridge Lot ID	6413968-05
Trizma ID	SLBR524N
Reagent Water ID	12/13/18

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.

PFAS Calibration Calculations:

Initial Calibration
Instrument A8_N

12/7/2018

PFHxS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
0.0228	36374	2688817	2.39	1.41805	1.4212
0.0455	79188	2780606	2.39	1.49591	1.4959
0.228	361859	2744259	2.39	1.38222	1.3853
0.91	1499172	2572185	2.39	1.53076	1.5308
2.28	3675806	2702834	2.39	1.42560	1.4287
4.55	7535367	2503333	2.39	1.58115	1.5811
9.1	14686493	2590519	2.39	1.48898	1.489
Average				1.47467	1.476
Standard Deviation				0.0699	
RSD				0.0474	
%RSD				4.73871	4.6

Continuing Calibration
PFHxS

12/15/2018 @ 8:23

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
0.91	1477848	2396693	2.39	1.6195	9.7204328	1.619	9.7

Sample Identification
Compound

NAWC-120618-RW-311
PFHxS

Compound Area	188228	Average RRF	1.476
Internal Standard Amount (ng)	2.39	Sample Volume(ml)	258.9
Dilution Factor	1	Volume Extract (ml)	10
Internal Standard Area	2639585		
Concentration	4.4599 ng/L		
Reported Result	4.46 ng/L		

MS/MSD %R

NAWC-120618-RW-311			
PFOA MS %R	Spike amount	MS concentration	Sample Result
108.91	3.48	8.25	4.46
PFOA MSD %R	Spike amount	MSD concentration	Sample Result
113.03	3.5	8.416	4.46
MS/MSD RPD			
	1.99		

Surrogate PFHxA

Compound Area	3409421		
Internal Standard Amount (ng)	10		
Dilution Factor	1	Volume Extract (ml)	1
Internal Standard Area	3497083	Injection Volume (µl)	1
Average RRF	0.9547		
Concentration	10.2119		
Surrogate %R	102.12	Spike amount	10

LCS %R

320-265071/2-A			
PFOA	Spike amount	LCS concentration	
98.19	3.64	3.574	

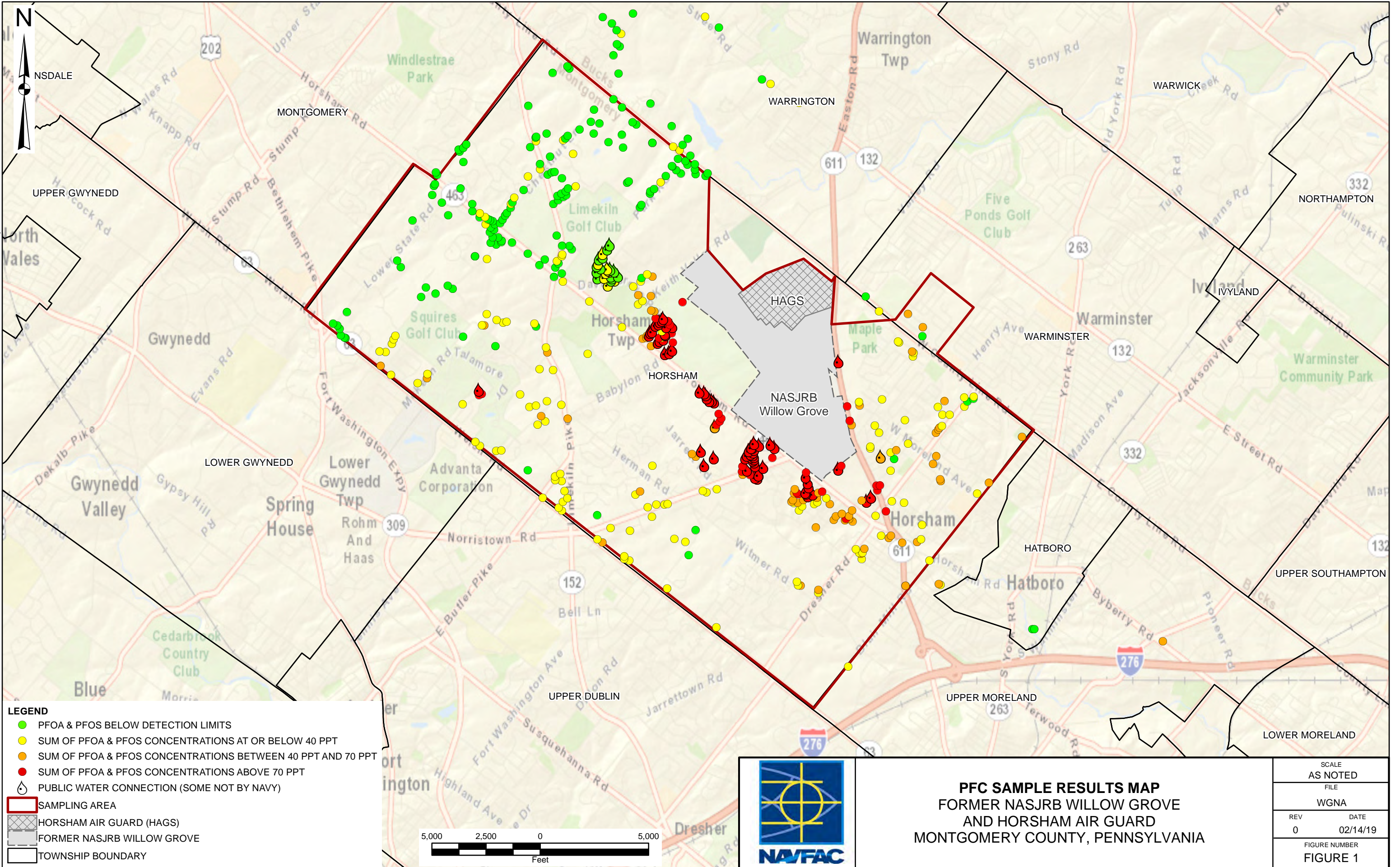
TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\chromna\Sacramento\ChromData\A8_N\20181214-69230.b\2018.12.14_537A_036.d
 Lims ID: 320-45950-A-11-A
 Client ID: NAWC-120618-RW-311
 Sample Type: Client
 Inject. Date: 15-Dec-2018 10:23:03 ALS Bottle#: 24 Worklist Smp#: 33
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-45950-a-11-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\chromna\Sacramento\ChromData\A8_N\20181214-69230.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Dec-2018 11:16:45 Calib Date: 07-Dec-2018 15:50:53
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\chromna\Sacramento\ChromData\A8_N\20181207-68811.b\2018.12.07_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: CTX0303

First Level Reviewer: barnettj Date: 17-Dec-2018 11:07:55
 Ratio Calibration: None

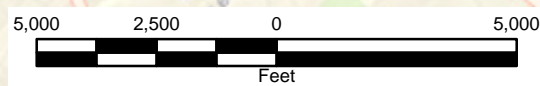
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.964	1.964	0.0	1.000	268457	0.2169	Target=1.52	364	
298.90 > 99.00	1.964	1.964	0.0	1.000	188657		1.42(0.00-0.00)	192	
13 Perfluorohexanoic acid									
313.00 > 269.00	2.318	2.302	0.016	0.731	231895	0.1985	Target=10.04	49.7	
313.00 > 119.00	2.318	2.302	0.016	0.731	22866		10.14(0.00-0.00)	75.9	
\$ 2 13C2 PFHxA									
315.00 > 270.00	2.318	2.318	0.0	1.000	3409421	2.55		5198	
4 Perfluoroheptanoic acid									
363.00 > 319.00	2.752	2.753	-0.001	1.000	215436	0.1447	Target=2.50	29.3	
363.00 > 169.00	2.752	2.753	-0.001	1.000	90519		2.38(0.00-0.00)	107	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	2.769	2.753	0.016	1.000	188228	0.1155	Target=2.91	141	
399.00 > 99.00	2.769	2.753	0.016	1.000	66506		2.83(0.00-0.00)	68.4	
* 5 13C2 PFOA									
415.00 > 370.00	3.171	3.171	0.0		3497083	2.50		7145	
6 Perfluorooctanoic acid									
413.00 > 369.00	3.171	3.171	0.0	1.000	901058	0.5914	Target=1.80	95.2	M
413.00 > 169.00	3.171	3.171	0.0	1.000	511411		1.76(0.00-0.00)	252	M
* 7 13C4 PFOS									
503.00 > 80.00	3.557	3.557	0.0		2639585	2.39		4946	
8 Perfluorooctanesulfonic acid									
499.00 > 80.00	3.557	3.573	-0.016	1.000	718006	0.5898	Target=4.83	610	
499.00 > 99.00	3.557	3.573	-0.016	1.000	128116		5.60(0.00-0.00)	268	
9 Perfluorononanoic acid									
463.00 > 419.00	3.573	3.573	0.0	1.000	70461	0.0606	Target=3.74	19.0	
463.00 > 169.00	3.573	3.573	0.0	1.000	17207		4.09(0.00-0.00)	59.7	

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LEGEND

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- HORSHAM AIR GUARD (HAGS)
- FORMER NASJRB WILLOW GROVE
- TOWNSHIP BOUNDARY



**PFC SAMPLE RESULTS MAP
FORMER NASJRB WILLOW GROVE
AND HORSHAM AIR GUARD
MONTGOMERY COUNTY, PENNSYLVANIA**

SCALE AS NOTED	
FILE WGNA	
REV 0	DATE 02/14/19
FIGURE NUMBER FIGURE 1	