



Groundwater Sample Results, Electronic Data Deliverable, Data Validation Report, and the Sample Location Report, SDG 320-24914-1

*Naval Air Warfare Center Trenton
Trenton, New Jersey*

August 2019

"GR4-20170109","537 (Modified)","RES","320-24914-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","89","ng/L","",1.3,"DL","",TRG","",4.0,"LOQ","YES",-99,"",249.4,"0.5","3.0",""

"GR4-20170109","537 (Modified)","RES","320-24914-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","13","ng/L","M","0.75","DL","",TRG","",2.5,"LOQ","YES",-99,"",249.4,"0.5","2.0",""

"GR4-20170109","537 (Modified)","RES","320-24914-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","1.8","ng/L","J","0.66","DL","",TRG","",2.5,"LOQ","YES",-99,"",249.4,"0.5","2.0",""

"GR4-20170109","537 (Modified)","RES","320-24914-1","TALSAC","STL00990","13C4 PFOA","69","ng/L","",-99,"DL","",TRG","69","",-99,"LOQ","YES","100","",249.4,"0.5","0",""

"GR4-20170109","537 (Modified)","RES","320-24914-1","TALSAC","STL00991","13C4 PFOS","120","ng/L","",-99,"DL","",TRG","122","",-99,"LOQ","YES","95.8","",249.4,"0.5","0",""

"GR4-20170109","537 (Modified)","RES","320-24914-1","TALSAC","STL00995","13C5 PFNA","50","ng/L","",-99,"DL","",TRG","50","",-99,"LOQ","YES","100","",249.4,"0.5","0",""

"DUP-01-20170109","537 (Modified)","DL","320-24914-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","1900","ng/L","D","6.5","DL","",TRG","",20,"LOQ","YES",-99,"",244.5,"0.5","15",""

"DUP-01-20170109","537 (Modified)","DL","320-24914-10","TALSAC","STL00991","13C4 PFOS","96","ng/L","",-99,"DL","",TRG","99","",-99,"LOQ","YES","97.8","",244.5,"0.5","0",""

"DUP-01-20170109","537 (Modified)","RES","320-24914-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","1600","ng/L","E","1.3","DL","",TRG","",4.1,"LOQ","NO",-99,"",244.5,"0.5","3.1",""

"DUP-01-20170109","537 (Modified)","RES","320-24914-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","110","ng/L","M","0.76","DL","",TRG","",2.6,"LOQ","YES",-99,"",244.5,"0.5","2.0",""

"DUP-01-20170109","537 (Modified)","RES","320-24914-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","8.9","ng/L","",0.67,"DL","",TRG","",2.6,"LOQ","YES",-99,"",244.5,"0.5","2.0",""

"DUP-01-20170109","537 (Modified)","RES","320-24914-10","TALSAC","STL00990","13C4 PFOA","88","ng/L","",-99,"DL","",TRG","86","",-99,"LOQ","YES","102","",244.5,"0.5","0",""

"DUP-01-20170109","537 (Modified)","RES","320-24914-10","TALSAC","STL00991","13C4 PFOS","72","ng/L","",-99,"DL","",TRG","74","",-99,"LOQ","YES","97.8","",244.5,"0.5","0",""

"DUP-01-20170109","537 (Modified)","RES","320-24914-10","TALSAC","STL00995","13C5 PFNA","59","ng/L","",-99,"DL","",TRG","58","",-99,"LOQ","YES","102","",244.5,"0.5","0",""

"RB-01-20170110","537 (Modified)","RES","320-24914-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","3.0","ng/L","U","1.3","DL","",TRG","",4.0,"LOQ","YES",-99,"",250.8,"0.5","3.0",""

"RB-01-20170110","537 (Modified)","RES","320-24914-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","2.0","ng/L","U","0.75","DL","",TRG","",2.5,"LOQ","YES",-99,"",250.8,"0.5","2.0",""

"RB-01-20170110","537 (Modified)","RES","320-24914-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","2.0","ng/L","U","0.65","DL","",TRG","",2.5,"LOQ","YES",-99,"",250.8,"0.5","2.0",""

"RB-01-20170110","537 (Modified)","RES","320-24914-11","TALSAC","STL00990","13C4 PFOA","130","ng/L","",-99,"DL","",TRG","132","",-99,"LOQ","YES","99.7","",250.8,"0.5","0",""

"RB-01-20170110","537 (Modified)","RES","320-24914-11","TALSAC","STL00991","13C4 PFOS","120","ng/L","",-99,"DL","",TRG","129","",-99,"LOQ","YES","95.3","",250.8,"0.5","0",""

"RB-01-20170110","537 (Modified)","RES","320-24914-11","TALSAC","STL00995","13C5 PFNA","150","ng/L","",-99,"DL","",TRG","146","",-99,"LOQ","YES","99.7","",250.8,"0.5","0",""

"GR4-20170109MS","537 (Modified)","RES","320-24914-1MS","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","128","ng/L","",1.3,"DL","",SPK","103","",4.1,"LOQ","YES","37.8","GR4-20170109","245.8","0.5","3.1",""

"GR4-20170109MS","537 (Modified)","RES","320-24914-1MS","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","55.5","ng/L","M","0.76","DL","",SPK","104","",2.5,"LOQ","YES","40.7","GR4-20170109","245.8","0.5","2.0",""

"GR4-20170109MS","537 (Modified)","RES","320-24914-1MS","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","40.6","ng/L","",0.67,"DL","",SPK","95","",2.5,"LOQ","YES","40.7","GR4-20170109","245.8","0.5","2.0",""

"GR4-20170109MS","537 (Modified)","RES","320-24914-1MS","TALSAC","STL00990","13C4 PFOA","75.1","ng/L","",-99,"DL","",SPK","74","",-99,"LOQ","YES","102","GR4-20170109","245.8","0.5","0",""

"GR4-20170109MS","537 (Modified)","RES","320-24914-1MS","TALSAC","STL00991","13C4 PFOS","116","ng/L","",-99,"DL","",SPK","119","",-99,"LOQ","YES","97.2","GR4-

20170109","245.8","0.5","0",""
"GR4-20170109MS","537 (Modified)","RES","320-24914-1MS","TALSAC","STL00995","13C5
PFNA","56.4","ng/L","",-99","DL","","SPK","55","",-99","LOQ","YES","102","GR4-20170109","245.8","0.5","0",""
"GR4-20170109MSD","537 (Modified)","RES","320-24914-1MSD","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","125","ng/L","","1.3","DL","","SPK","94","2","4.1","LOQ","YES","38.3","GR4-
20170109","242","0.5","3.1",""
"GR4-20170109MSD","537 (Modified)","RES","320-24914-1MSD","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","48.5","ng/L","M","0.77","DL","","SPK","86","13","2.6","LOQ","YES","41.3","GR4-
20170109","242","0.5","2.1",""
"GR4-20170109MSD","537 (Modified)","RES","320-24914-1MSD","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","37.0","ng/L","","0.68","DL","","SPK","85","9","2.6","LOQ","YES","41.3","GR4-
20170109","242","0.5","2.1",""
"GR4-20170109MSD","537 (Modified)","RES","320-24914-1MSD","TALSAC","STL00990","13C4
PFOA","88.7","ng/L","",-99","DL","","SPK","86","",-99","LOQ","YES","103","GR4-20170109","242","0.5","0",""
"GR4-20170109MSD","537 (Modified)","RES","320-24914-1MSD","TALSAC","STL00991","13C4
PFOS","117","ng/L","",-99","DL","","SPK","118","",-99","LOQ","YES","98.8","GR4-20170109","242","0.5","0",""
"GR4-20170109MSD","537 (Modified)","RES","320-24914-1MSD","TALSAC","STL00995","13C5
PFNA","77.9","ng/L","",-99","DL","","SPK","75","",-99","LOQ","YES","103","GR4-20170109","242","0.5","0",""
"GR3-20170109","537 (Modified)","RES","320-24914-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","120","ng/L","","1.3","DL","","TRG","","","4.0","LOQ","YES","-99","","251.2","0.5","3.0",""
"GR3-20170109","537 (Modified)","RES","320-24914-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","14","ng/L","M","0.74","DL","","TRG","","","2.5","LOQ","YES","-99","","251.2","0.5","2.0",""
"GR3-20170109","537 (Modified)","RES","320-24914-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","1.9","ng/L","J","0.65","DL","","TRG","","","2.5","LOQ","YES","-99","","251.2","0.5","2.0",""
"GR3-20170109","537 (Modified)","RES","320-24914-2","TALSAC","STL00990","13C4
PFOA","74","ng/L","",-99","DL","","TRG","74","",-99","LOQ","YES","99.5","","251.2","0.5","0",""
"GR3-20170109","537 (Modified)","RES","320-24914-2","TALSAC","STL00991","13C4
PFOS","110","ng/L","",-99","DL","","TRG","116","",-99","LOQ","YES","95.1","","251.2","0.5","0",""
"GR3-20170109","537 (Modified)","RES","320-24914-2","TALSAC","STL00995","13C5
PFNA","56","ng/L","",-99","DL","","TRG","56","",-99","LOQ","YES","99.5","","251.2","0.5","0",""
"GR2-20170109","537 (Modified)","DL","320-24914-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","420","ng/L","D","6.5","DL","","TRG","","","20","LOQ","YES","-99","","246.4","0.5","15",""
"GR2-20170109","537 (Modified)","DL","320-24914-3","TALSAC","STL00991","13C4
PFOS","140","ng/L","",-99","DL","","TRG","144","",-99","LOQ","YES","97.0","","246.4","0.5","0",""
"GR2-20170109","537 (Modified)","RES","320-24914-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","420","ng/L","E","1.3","DL","","TRG","","","4.1","LOQ","NO","-99","","246.4","0.5","3.0",""
"GR2-20170109","537 (Modified)","RES","320-24914-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","22","ng/L","M","0.76","DL","","TRG","","","2.5","LOQ","YES","-99","","246.4","0.5","2.0",""
"GR2-20170109","537 (Modified)","RES","320-24914-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","2.9","ng/L","M","0.66","DL","","TRG","","","2.5","LOQ","YES","-99","","246.4","0.5","2.0",""
"GR2-20170109","537 (Modified)","RES","320-24914-3","TALSAC","STL00990","13C4
PFOA","85","ng/L","",-99","DL","","TRG","84","",-99","LOQ","YES","101","","246.4","0.5","0",""
"GR2-20170109","537 (Modified)","RES","320-24914-3","TALSAC","STL00991","13C4
PFOS","110","ng/L","",-99","DL","","TRG","109","",-99","LOQ","YES","97.0","","246.4","0.5","0",""
"GR2-20170109","537 (Modified)","RES","320-24914-3","TALSAC","STL00995","13C5
PFNA","54","ng/L","",-99","DL","","TRG","54","",-99","LOQ","YES","101","","246.4","0.5","0",""
"GR-OF-20170109","537 (Modified)","DL","320-24914-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","610","ng/L","D","6.4","DL","","TRG","","","20","LOQ","YES","-99","","247.6","0.5","15",""
"GR-OF-20170109","537 (Modified)","DL","320-24914-4","TALSAC","STL00991","13C4
PFOS","130","ng/L","",-99","DL","","TRG","136","",-99","LOQ","YES","96.5","","247.6","0.5","0",""
"GR-OF-20170109","537 (Modified)","RES","320-24914-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","600","ng/L","E","1.3","DL","","TRG","","","4.0","LOQ","NO","-99","","247.6","0.5","3.0",""
"GR-OF-20170109","537 (Modified)","RES","320-24914-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","36","ng/L","M","0.76","DL","","TRG","","","2.5","LOQ","YES","-99","","247.6","0.5","2.0",""

"GR-OF-20170109","537 (Modified)","RES","320-24914-4","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","3.7","ng/L","","0.66","DL","","TRG","","","2.5","LOQ","YES","-99","","247.6","0.5","2.0",""

"GR-OF-20170109","537 (Modified)","RES","320-24914-4","TALSAC","STL00990","13C4 PFOA","100","ng/L","","-99","DL","","TRG","101","","-99","LOQ","YES","101","","247.6","0.5","0",""

"GR-OF-20170109","537 (Modified)","RES","320-24914-4","TALSAC","STL00991","13C4 PFOS","100","ng/L","","-99","DL","","TRG","108","","-99","LOQ","YES","96.5","","247.6","0.5","0",""

"GR-OF-20170109","537 (Modified)","RES","320-24914-4","TALSAC","STL00995","13C5 PFNA","75","ng/L","","-99","DL","","TRG","74","","-99","LOQ","YES","101","","247.6","0.5","0",""

"MH117-N-20170109","537 (Modified)","DL","320-24914-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","2100","ng/L","D","13","DL","","TRG","","","42","LOQ","YES","-99","","238.8","0.5","31",""

"MH117-N-20170109","537 (Modified)","DL","320-24914-5","TALSAC","STL00991","13C4 PFOS","140","ng/L","","-99","DL","","TRG","137","","-99","LOQ","YES","100","","238.8","0.5","0",""

"MH117-N-20170109","537 (Modified)","RES","320-24914-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","1800","ng/L","E","1.3","DL","","TRG","","","4.2","LOQ","NO","-99","","238.8","0.5","3.1",""

"MH117-N-20170109","537 (Modified)","RES","320-24914-5","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","110","ng/L","M","0.78","DL","","TRG","","","2.6","LOQ","YES","-99","","238.8","0.5","2.1",""

"MH117-N-20170109","537 (Modified)","RES","320-24914-5","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","9.4","ng/L","","0.68","DL","","TRG","","","2.6","LOQ","YES","-99","","238.8","0.5","2.1",""

"MH117-N-20170109","537 (Modified)","RES","320-24914-5","TALSAC","STL00990","13C4 PFOA","91","ng/L","","-99","DL","","TRG","87","","-99","LOQ","YES","105","","238.8","0.5","0",""

"MH117-N-20170109","537 (Modified)","RES","320-24914-5","TALSAC","STL00991","13C4 PFOS","72","ng/L","","-99","DL","","TRG","71","","-99","LOQ","YES","100","","238.8","0.5","0",""

"MH117-N-20170109","537 (Modified)","RES","320-24914-5","TALSAC","STL00995","13C5 PFNA","58","ng/L","","-99","DL","","TRG","56","","-99","LOQ","YES","105","","238.8","0.5","0",""

"MH117-T-20170109","537 (Modified)","DL","320-24914-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","1400","ng/L","D","13","DL","","TRG","","","40","LOQ","YES","-99","","248.6","0.5","30",""

"MH117-T-20170109","537 (Modified)","DL","320-24914-6","TALSAC","STL00991","13C4 PFOS","140","ng/L","","-99","DL","","TRG","142","","-99","LOQ","YES","96.1","","248.6","0.5","0",""

"MH117-T-20170109","537 (Modified)","RES","320-24914-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","1200","ng/L","E","1.3","DL","","TRG","","","4.0","LOQ","NO","-99","","248.6","0.5","3.0",""

"MH117-T-20170109","537 (Modified)","RES","320-24914-6","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","72","ng/L","M","0.75","DL","","TRG","","","2.5","LOQ","YES","-99","","248.6","0.5","2.0",""

"MH117-T-20170109","537 (Modified)","RES","320-24914-6","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","8.6","ng/L","","0.66","DL","","TRG","","","2.5","LOQ","YES","-99","","248.6","0.5","2.0",""

"MH117-T-20170109","537 (Modified)","RES","320-24914-6","TALSAC","STL00990","13C4 PFOA","94","ng/L","","-99","DL","","TRG","94","","-99","LOQ","YES","101","","248.6","0.5","0",""

"MH117-T-20170109","537 (Modified)","RES","320-24914-6","TALSAC","STL00991","13C4 PFOS","82","ng/L","","-99","DL","","TRG","85","","-99","LOQ","YES","96.1","","248.6","0.5","0",""

"MH117-T-20170109","537 (Modified)","RES","320-24914-6","TALSAC","STL00995","13C5 PFNA","59","ng/L","","-99","DL","","TRG","59","","-99","LOQ","YES","101","","248.6","0.5","0",""

"FB-01-20170109","537 (Modified)","RES","320-24914-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","3.0","ng/L","U","1.3","DL","","TRG","","","4.0","LOQ","YES","-99","","251.8","0.5","3.0",""

"FB-01-20170109","537 (Modified)","RES","320-24914-7","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","2.0","ng/L","U","0.74","DL","","TRG","","","2.5","LOQ","YES","-99","","251.8","0.5","2.0",""

"FB-01-20170109","537 (Modified)","RES","320-24914-7","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","2.0","ng/L","U","0.65","DL","","TRG","","","2.5","LOQ","YES","-99","","251.8","0.5","2.0",""

"FB-01-20170109","537 (Modified)","RES","320-24914-7","TALSAC","STL00990","13C4 PFOA","130","ng/L","","-99","DL","","TRG","130","","-99","LOQ","YES","99.3","","251.8","0.5","0",""

"FB-01-20170109","537 (Modified)","RES","320-24914-7","TALSAC","STL00991","13C4 PFOS","120","ng/L","","-99","DL","","TRG","125","","-99","LOQ","YES","94.9","","251.8","0.5","0",""

"FB-01-20170109","537 (Modified)","RES","320-24914-7","TALSAC","STL00995","13C5 PFNA","130","ng/L","","-99","DL","","TRG","135","","-99","LOQ","YES","99.3","","251.8","0.5","0",""

"SPRING-GR-20170109","537 (Modified)","RES","320-24914-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","12","ng/L","","1.3","DL","","TRG","","","4.0","LOQ","YES","-99","","252.8","0.5","3.0",""

"SPRING-GR-20170109","537 (Modified)","RES","320-24914-8","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","4.3","ng/L","","0.74","DL","","TRG","","","2.5","LOQ","YES",-99","","252.8","0.5","2.0",""

"SPRING-GR-20170109","537 (Modified)","RES","320-24914-8","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","4.8","ng/L","","0.65","DL","","TRG","","","2.5","LOQ","YES",-99","","252.8","0.5","2.0",""

"SPRING-GR-20170109","537 (Modified)","RES","320-24914-8","TALSAC","STL00990","13C4 PFOA","85","ng/L","","-99","DL","","TRG","86","","-99","LOQ","YES","98.9","","252.8","0.5","0",""

"SPRING-GR-20170109","537 (Modified)","RES","320-24914-8","TALSAC","STL00991","13C4 PFOS","110","ng/L","","-99","DL","","TRG","118","","-99","LOQ","YES","94.5","","252.8","0.5","0",""

"SPRING-GR-20170109","537 (Modified)","RES","320-24914-8","TALSAC","STL00995","13C5 PFNA","73","ng/L","","-99","DL","","TRG","74","","-99","LOQ","YES","98.9","","252.8","0.5","0",""

"FB-02-20170109","537 (Modified)","RES","320-24914-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","3.0","ng/L","U","1.3","DL","","TRG","","","4.0","LOQ","YES",-99","","252.7","0.5","3.0",""

"FB-02-20170109","537 (Modified)","RES","320-24914-9","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","2.0","ng/L","U","0.74","DL","","TRG","","","2.5","LOQ","YES",-99","","252.7","0.5","2.0",""

"FB-02-20170109","537 (Modified)","RES","320-24914-9","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","2.0","ng/L","U","0.65","DL","","TRG","","","2.5","LOQ","YES",-99","","252.7","0.5","2.0",""

"FB-02-20170109","537 (Modified)","RES","320-24914-9","TALSAC","STL00990","13C4 PFOA","130","ng/L","","-99","DL","","TRG","131","","-99","LOQ","YES","98.9","","252.7","0.5","0",""

"FB-02-20170109","537 (Modified)","RES","320-24914-9","TALSAC","STL00991","13C4 PFOS","120","ng/L","","-99","DL","","TRG","125","","-99","LOQ","YES","94.6","","252.7","0.5","0",""

"FB-02-20170109","537 (Modified)","RES","320-24914-9","TALSAC","STL00995","13C5 PFNA","130","ng/L","","-99","DL","","TRG","135","","-99","LOQ","YES","98.9","","252.7","0.5","0",""

"LCS 320-146172/2-A","537 (Modified)","RES","LCS 320-146172/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","37.0","ng/L","","1.3","DL","","SPK","100","","4.0","LOQ","YES","37.1","","250","0.5","3.0",""

"LCS 320-146172/2-A","537 (Modified)","RES","LCS 320-146172/2-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","38.8","ng/L","","0.75","DL","","SPK","97","","2.5","LOQ","YES","40.0","","250","0.5","2.0",""

"LCS 320-146172/2-A","537 (Modified)","RES","LCS 320-146172/2-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","37.7","ng/L","","0.65","DL","","SPK","94","","2.5","LOQ","YES","40.0","","250","0.5","2.0",""

"LCS 320-146172/2-A","537 (Modified)","RES","LCS 320-146172/2-A","TALSAC","STL00990","13C4 PFOA","126","ng/L","","-99","DL","","SPK","126","","-99","LOQ","YES","100","","250","0.5","0",""

"LCS 320-146172/2-A","537 (Modified)","RES","LCS 320-146172/2-A","TALSAC","STL00991","13C4 PFOS","119","ng/L","","-99","DL","","SPK","124","","-99","LOQ","YES","95.6","","250","0.5","0",""

"LCS 320-146172/2-A","537 (Modified)","RES","LCS 320-146172/2-A","TALSAC","STL00995","13C5 PFNA","130","ng/L","","-99","DL","","SPK","130","","-99","LOQ","YES","100","","250","0.5","0",""

"MB 320-146172/1-A","537 (Modified)","RES","MB 320-146172/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","3.0","ng/L","U","1.3","DL","","TRG","","","4.0","LOQ","YES",-99","","250","0.5","3.0",""

"MB 320-146172/1-A","537 (Modified)","RES","MB 320-146172/1-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","2.0","ng/L","U","0.75","DL","","TRG","","","2.5","LOQ","YES",-99","","250","0.5","2.0",""

"MB 320-146172/1-A","537 (Modified)","RES","MB 320-146172/1-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","2.0","ng/L","U","0.65","DL","","TRG","","","2.5","LOQ","YES",-99","","250","0.5","2.0",""

"MB 320-146172/1-A","537 (Modified)","RES","MB 320-146172/1-A","TALSAC","STL00990","13C4 PFOA","131","ng/L","","-99","DL","","TRG","131","","-99","LOQ","YES","100","","250","0.5","0",""

"MB 320-146172/1-A","537 (Modified)","RES","MB 320-146172/1-A","TALSAC","STL00991","13C4 PFOS","119","ng/L","","-99","DL","","TRG","124","","-99","LOQ","YES","95.6","","250","0.5","0",""

"MB 320-146172/1-A","537 (Modified)","RES","MB 320-146172/1-A","TALSAC","STL00995","13C5 PFNA","133","ng/L","","-99","DL","","TRG","133","","-99","LOQ","YES","100","","250","0.5","0",""

"WE08","NAWC Trenton","GR4-20170109","01/09/2017 10:50","AQ","320-24914-1","NM","","4.70","537 (Modified)","3535","RES","01/12/2017 14:01","01/13/2017 12:43","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""

"WE08","NAWC Trenton","DUP-01-20170109","01/09/2017 12:00","AQ","320-24914-10","FD","","4.70","537 (Modified)","3535","RES","01/12/2017 14:01","01/13/2017

14:28","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","DUP-01-20170109","01/09/2017 12:00","AQ","320-24914-10","FD","","4.70","537
(Modified)","3535","DL","01/12/2017 14:01","01/13/2017
16:44","TALSAC","COA","WET","NA","5","NA","NA","","100","320-146172","320-146172","NA","320-146416","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","RB-01-20170110","01/10/2017 11:00","AQ","320-24914-11","RB","","4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
14:36","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","GR4-20170109MS","01/09/2017 10:50","AQ","320-24914-1MS","MS","","4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
12:51","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","GR4-20170109MSD","01/09/2017 10:50","AQ","320-24914-1MSD","MSD","","4.70","537 (Modified)","3535","RES","01/12/2017 14:01","01/13/2017
12:58","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","GR3-20170109","01/09/2017 13:35","AQ","320-24914-2","NM","","4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
13:06","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","GR2-20170109","01/09/2017 11:45","AQ","320-24914-3","NM","","4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
13:13","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","GR2-20170109","01/09/2017 11:45","AQ","320-24914-3","NM","","4.70","537
(Modified)","3535","DL","01/12/2017 14:01","01/13/2017
16:51","TALSAC","COA","WET","NA","5","NA","NA","","100","320-146172","320-146172","NA","320-146416","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","GR-OF-20170109","01/09/2017 14:40","AQ","320-24914-4","NM","","4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
13:21","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","GR-OF-20170109","01/09/2017 14:40","AQ","320-24914-4","NM","","4.70","537
(Modified)","3535","DL","01/12/2017 14:01","01/13/2017
16:59","TALSAC","COA","WET","NA","5","NA","NA","","100","320-146172","320-146172","NA","320-146416","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","MH117-N-20170109","01/09/2017 15:40","AQ","320-24914-5","NM","","4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
13:28","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","MH117-N-20170109","01/09/2017 15:40","AQ","320-24914-5","NM","","4.70","537
(Modified)","3535","DL","01/12/2017 14:01","01/13/2017
16:29","TALSAC","COA","WET","NA","10","NA","NA","","100","320-146172","320-146172","NA","320-146416","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","MH117-T-20170109","01/09/2017 16:00","AQ","320-24914-6","NM","","4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
13:36","TALSAC","COA","WET","NA","1","NA","NA","","100","320-146172","320-146172","NA","320-146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","MH117-T-20170109","01/09/2017 16:00","AQ","320-24914-6","NM","","4.70","537
(Modified)","3535","DL","01/12/2017 14:01","01/13/2017
16:36","TALSAC","COA","WET","NA","10","NA","NA","","100","320-146172","320-146172","NA","320-146416","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""

"WE08","NAWC Trenton","FB-01-20170109","01/09/2017 16:25","AQ","320-24914-7","FB","", "4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
14:06","TALSAC","COA","WET","NA","1","NA","NA","", "100","320-146172","320-146172","NA","320-
146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","SPRING-GR-20170109","01/09/2017 17:05","AQ","320-24914-8","NM","", "4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
14:13","TALSAC","COA","WET","NA","1","NA","NA","", "100","320-146172","320-146172","NA","320-
146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","FB-02-20170109","01/09/2017 17:25","AQ","320-24914-9","FB","", "4.70","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
14:21","TALSAC","COA","WET","NA","1","NA","NA","", "100","320-146172","320-146172","NA","320-
146307","320-24914-1","01/11/2017 11:15","01/12/2017 08:36",""
"WE08","NAWC Trenton","LCS 320-146172/2-A","", "AQ","LCS 320-146172/2-A","LCS","", "-99","537
(Modified)","3535","RES","01/12/2017 14:01","01/13/2017
12:36","TALSAC","COA","WET","NA","1","NA","NA","", "100","320-146172","320-146172","NA","320-
146307","320-24914-1","01/12/2017 14:01","01/12/2017 08:36",""
"WE08","NAWC Trenton","MB 320-146172/1-A","", "AQ","MB 320-146172/1-A","MB","", "-99","537
(Modified)","3535","RES","01/12/2017 14:00","01/13/2017
12:28","TALSAC","COA","WET","NA","1","NA","NA","", "100","320-146172","320-146172","NA","320-
146307","320-24914-1","01/12/2017 14:00","01/12/2017 08:36",""



TO: MARY MANG **DATE:** FEBRUARY 21, 2017
FROM: MEGAN RITCHIE **COPIES:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION – PFC
FORMER NAWC TRENTON
SDG 320-24914-1
SAMPLES: 11 / Surface Water / PFC

GR2-20170109	MH117-T-20170109
GR3-20170109	SPRING-GR-20170109
GR4-20170109	DUP-01-20170109
GR-OF-20170109	FB-01-20170109
MH117-N-20170109	FB-02-20170109
	RB-01-20170110

Overview

The sample set for NAWC Trenton, SDG 320-24914-1 consists of eight (8) surface water environmental samples and three (3) field quality control (QC) blanks (designated FB- and RB-). One field duplicate pair (MH117-N-20170109 and DUP-01-20170109) was associated with this SDG. The samples were analyzed for select perfluorinated compounds (PFCs).

The samples were collected by Tetra Tech on January 9, 2017 and analyzed by Test America of West Sacramento, California. The analysis was conducted in accordance with EPA modified Method 537 analytical and reporting protocols.

The parameters contained in this SDG were validated with regard to the following parameters: data completeness, holding times, LCMS tuning, initial/continuing calibrations, laboratory method/calibration blanks, surrogate spike recoveries, laboratory control sample results, matrix spike/matrix spike duplicate results, field and laboratory duplicate results, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Minor

- Detected results reported below the Limit of Quantitation (LOQ) but above the Detection Limit (DL) were qualified as estimated (J).

Notes

Samples GR2-20170109, GR-OF-20170109, MH117-N-20170109, MH117-T-20170109, and DUP-01-20170109 were analyzed at dilutions because the concentrations of perfluorooctanesulfonic acid (PFOS) exceeded the instrument calibration range.

All analyses were conducted within the hold times specified by the site specific Quality Assurance Plan (QAPP) and the analytical method.

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

Two field reagent blanks were collected and submitted with the environmental samples. No target analytes were detected in the blanks.

TO: M. MANG
SDG: 320-24914-1

PAGE 2

Three target compounds were reported for this project. The analytes were perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), and perfluorononanoic acid (PFNA).

The sample name for GR-OF-20170109 was incorrectly listed on the COC as GR-OF-20160109. Tetra Tech contacted the laboratory prior to analysis and changed the name to GR-OF-20170109.

Executive Summary

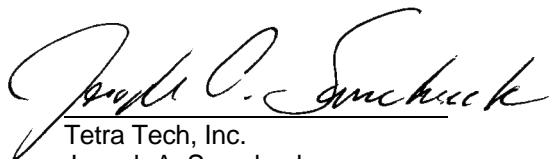
Laboratory Performance: None.

Other Factors Affecting Data Quality: Positive results below the LOQ were qualified as estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Superfund Organic Methods Data Review" (September 2016). The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Megan Ritchie
Chemist/Data Validator



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

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Data Qualifier Definitions

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

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and 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.
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.

Appendix A

Qualified Analytical Results

PROJ_NO: 08005-WE08 SDG: 320-24914-1 FRACTION: OS MEDIA: WATER	NSAMPLE	DUP-01-20170109			DUP-01-20170109-DL			FB-01-20170109			FB-02-20170109		
	LAB_ID	320-24914-10			320-24914-10			320-24914-7			320-24914-9		
	SAMP_DATE	1/9/2017			1/9/2017			1/9/2017			1/9/2017		
	QC_TYPE	FD			FD			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	MH117-N-20170109			MH117-N-20170109-DL								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		110						2	U		2	U	
PERFLUORONONANOIC ACID		8.9						2	U		2	U	
PERFLUOROOCTANE SULFONIC ACID					1900			3	U		3	U	

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-WE08 SDG: 320-24914-1 FRACTION: OS MEDIA: WATER	NSAMPLE	GR2-20170109			GR2-20170109-DL			GR3-20170109			GR4-20170109		
	LAB_ID	320-24914-3			320-24914-3			320-24914-2			320-24914-1		
	SAMP_DATE	1/9/2017			1/9/2017			1/9/2017			1/9/2017		
	QC_TYPE	NM			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		22						14			13		
PERFLUORONONANOIC ACID		2.9						1.9 J	P		1.8 J	P	
PERFLUOROOCTANE SULFONIC ACID					420			120			89		

PROJ_NO: 08005-WE08 SDG: 320-24914-1 FRACTION: OS MEDIA: WATER	NSAMPLE	GR-OF-20170109			GR-OF-20170109-DL			MH117-N-20170109			MH117-N-20170109-DL		
	LAB_ID	320-24914-4			320-24914-4			320-24914-5			320-24914-5		
	SAMP_DATE	1/9/2017			1/9/2017			1/9/2017			1/9/2017		
	QC_TYPE	NM			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		36						110					
PERFLUORONONANOIC ACID		3.7						9.4					
PERFLUOROOCTANE SULFONIC ACID					610						2100		

PROJ_NO: 08005-WE08 SDG: 320-24914-1 FRACTION: OS MEDIA: WATER	NSAMPLE	MH117-T-20170109			MH117-T-20170109-DL			RB-01-20170110			SPRING-GR-20170109		
	LAB_ID	320-24914-6			320-24914-6			320-24914-11			320-24914-8		
	SAMP_DATE	1/9/2017			1/9/2017			1/10/2017			1/9/2017		
	QC_TYPE	NM			NM			RB			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		72						2	U		4.3		
PERFLUORONONANOIC ACID		8.6						2	U		4.8		
PERFLUOROOCTANE SULFONIC ACID					1400			3	U		12		

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: GR4-20170109 Lab Sample ID: 320-24914-1
 Matrix: Water Lab File ID: 13JAN2017A_011.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 10:50
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 249.4 (mL) Date Analyzed: 01/13/2017 12:43
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	13	M	2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	89		4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	1.8	J	2.5	2.0	0.66

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	69		25-150
STL00991	13C4 PFOS	122		25-150
STL00995	13C5 PFNA	50		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: GR3-20170109 Lab Sample ID: 320-24914-2
 Matrix: Water Lab File ID: 13JAN2017A_014.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 13:35
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 251.2 (mL) Date Analyzed: 01/13/2017 13:06
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	14	M	2.5	2.0	0.74
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	120		4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	1.9	J	2.5	2.0	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	74		25-150
STL00991	13C4 PFOS	116		25-150
STL00995	13C5 PFNA	56		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: GR2-20170109 Lab Sample ID: 320-24914-3
 Matrix: Water Lab File ID: 13JAN2017A_015.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 11:45
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 246.4 (mL) Date Analyzed: 01/13/2017 13:13
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	22	M	2.5	2.0	0.76
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	420	E	4.1	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	2.9	M	2.5	2.0	0.66

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	84		25-150
STL00991	13C4 PFOS	109		25-150
STL00995	13C5 PFNA	54		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: GR2-20170109 DL Lab Sample ID: 320-24914-3 DL
 Matrix: Water Lab File ID: 13JAN2017B_008.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 11:45
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 246.4 (mL) Date Analyzed: 01/13/2017 16:51
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 5
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146416 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	420	D	20	15	6.5

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00991	13C4 PFOS	144		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: GR-OF-20170109 Lab Sample ID: 320-24914-4
 Matrix: Water Lab File ID: 13JAN2017A_016.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 14:40
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 247.6(mL) Date Analyzed: 01/13/2017 13:21
 Con. Extract Vol.: 0.5(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	36	M	2.5	2.0	0.76
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	600	E	4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	3.7		2.5	2.0	0.66

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	101		25-150
STL00991	13C4 PFOS	108		25-150
STL00995	13C5 PFNA	74		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: GR-OF-20170109 DL Lab Sample ID: 320-24914-4 DL
 Matrix: Water Lab File ID: 13JAN2017B_009.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 14:40
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 247.6(mL) Date Analyzed: 01/13/2017 16:59
 Con. Extract Vol.: 0.5(mL) Dilution Factor: 5
 Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146416 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	610	D	20	15	6.4

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00991	13C4 PFOS	136		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: MH117-N-20170109 Lab Sample ID: 320-24914-5
 Matrix: Water Lab File ID: 13JAN2017A_017.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 15:40
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 238.8 (mL) Date Analyzed: 01/13/2017 13:28
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	110	M	2.6	2.1	0.78
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1800	E	4.2	3.1	1.3
375-95-1	Perfluorononanoic acid (PFNA)	9.4		2.6	2.1	0.68

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	87		25-150
STL00991	13C4 PFOS	71		25-150
STL00995	13C5 PFNA	56		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: MH117-N-20170109 DL Lab Sample ID: 320-24914-5 DL
 Matrix: Water Lab File ID: 13JAN2017B_005.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 15:40
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 238.8 (mL) Date Analyzed: 01/13/2017 16:29
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 10
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146416 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2100	D	42	31	13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00991	13C4 PFOS	137		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: MH117-T-20170109 Lab Sample ID: 320-24914-6
 Matrix: Water Lab File ID: 13JAN2017A_018.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 16:00
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 248.6(mL) Date Analyzed: 01/13/2017 13:36
 Con. Extract Vol.: 0.5(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	72	M	2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1200	E	4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	8.6		2.5	2.0	0.66

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	94		25-150
STL00991	13C4 PFOS	85		25-150
STL00995	13C5 PFNA	59		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: MH117-T-20170109 DL Lab Sample ID: 320-24914-6 DL
 Matrix: Water Lab File ID: 13JAN2017B_006.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 16:00
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 248.6(mL) Date Analyzed: 01/13/2017 16:36
 Con. Extract Vol.: 0.5(mL) Dilution Factor: 10
 Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146416 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1400	D	40	30	13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00991	13C4 PFOS	142		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: FB-01-20170109 Lab Sample ID: 320-24914-7
 Matrix: Water Lab File ID: 13JAN2017A_022.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 16:25
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 251.8 (mL) Date Analyzed: 01/13/2017 14:06
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.5	2.0	0.74
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.5	2.0	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	130		25-150
STL00991	13C4 PFOS	125		25-150
STL00995	13C5 PFNA	135		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: SPRING-GR-20170109 Lab Sample ID: 320-24914-8
 Matrix: Water Lab File ID: 13JAN2017A_023.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 17:05
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 252.8 (mL) Date Analyzed: 01/13/2017 14:13
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.3		2.5	2.0	0.74
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	12		4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	4.8		2.5	2.0	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	86		25-150
STL00991	13C4 PFOS	118		25-150
STL00995	13C5 PFNA	74		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: FB-02-20170109 Lab Sample ID: 320-24914-9
 Matrix: Water Lab File ID: 13JAN2017A_024.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 17:25
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 252.7(mL) Date Analyzed: 01/13/2017 14:21
 Con. Extract Vol.: 0.5(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.5	2.0	0.74
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.5	2.0	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	131		25-150
STL00991	13C4 PFOS	125		25-150
STL00995	13C5 PFNA	135		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: DUP-01-20170109 Lab Sample ID: 320-24914-10
 Matrix: Water Lab File ID: 13JAN2017A_025.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 12:00
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 244.5 (mL) Date Analyzed: 01/13/2017 14:28
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	110	M	2.6	2.0	0.76
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1600	E	4.1	3.1	1.3
375-95-1	Perfluorononanoic acid (PFNA)	8.9		2.6	2.0	0.67

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	86		25-150
STL00991	13C4 PFOS	74		25-150
STL00995	13C5 PFNA	58		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: DUP-01-20170109 DL Lab Sample ID: 320-24914-10 DL
 Matrix: Water Lab File ID: 13JAN2017B_007.d
 Analysis Method: 537 (Modified) Date Collected: 01/09/2017 12:00
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 244.5 (mL) Date Analyzed: 01/13/2017 16:44
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 5
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146416 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1900	D	20	15	6.5

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00991	13C4 PFOS	99		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: RB-01-20170110 Lab Sample ID: 320-24914-11
 Matrix: Water Lab File ID: 13JAN2017A_026.d
 Analysis Method: 537 (Modified) Date Collected: 01/10/2017 11:00
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:01
 Sample wt/vol: 250.8 (mL) Date Analyzed: 01/13/2017 14:36
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.5	2.0	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	132		25-150
STL00991	13C4 PFOS	129		25-150
STL00995	13C5 PFNA	146		25-150

Appendix C

Support Documentation

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248


Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Mary Mang		Site Contact: Mary Mang		Date: 1/10/2017		COC No:	
TetraTech		Tel/Fax: 610-382-1174		Lab Contact: Karen Dahl		Carrier: FedEx		1 of 1 COCs	
234 Mall Boulevard Suite 260		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y / N) PFC 537 Modified - 250 mL Poly				Sampler: Chuck Meyer	
King of Prussia, PA 19406		<input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below _____						For Lab Use Only: Walk-in Client: _____ Lab Sampling: _____	
(610) 382-1174 Phone		<input type="checkbox"/> 2 weeks						Job / SDG No.: _____	
(610) 491-9645 FAX		<input checked="" type="checkbox"/> 1 week							
Project Name: NAWC Trenton		<input type="checkbox"/> 2 days							
Site: NAWC Trenton		<input type="checkbox"/> 1 day							
P O # 1132358 (through EarthToxics)									
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:			
GR4-20170109	1/9/2017	10:50	G	SW	6	N	Y	6	 320-24914 Chain of Custody
GR3-20170109	1/9/17	13:35	G	SW	2	N	N	2	
GR2-20170109	1/9/17	11:45	G	SW	2	N	N	2	
GR-OF-20160109	1/9/17	14:40	G	SW	2	N	N	2	
MH117-N-20170109	1/9/17	15:40	G	SW	2	N	N	2	
MH117-T-20170109	1/9/17	16:00	G	SW	2	N	N	2	
FB-01-20170109	1/9/17	16:25	G	DI	2	N	N	2	Field Reagent Blank
Spring-GR-20170109	1/9/17	17:05	G	SW	2	N	N	2	
FB-02-20170109	1/9/17	17:25	G	DI	2	N	N	2	Field Reagent Blank
DUP-01-20170109	1/9/17	12:00	G	SW	2	N	N	2	
RB-01-20170110	1/10/17	11:00	G	DI	2	N	N	2	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other						1			
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.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments: FedEx Air Bill 8109 8153 9428									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: 4.7		Corr'd: 3.8		Therm ID No.: 12	
Relinquished by: <i>[Signature]</i>		Company: Tetra Tech		Date/Time: 1/10/17 16:30		Received by: <i>[Signature]</i>		Company: <i>[Signature]</i>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

Job Narrative
320-24914-1
Contract Task Order: 1132358 WR-1
Site Name: NAWC Trenton
Tetra Tech Project Manager: Mary Mang

Comments

As requested, the id for sample 4 was changed from GR-OF-20160109 to GR-OF-20170109.

No additional comments.

Receipt

The samples were received on 1/11/2017 11:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

LCMS

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

Method(s) 537 (Modified): The concentration of Perfluorooctanesulfonic acid (PFOS) in the following samples exceeded the instrument calibration range: GR2-20170109 (320-24914-3), GR-OF-20170109 (320-24914-4), MH117-N-20170109 (320-24914-5), MH117-T-20170109 (320-24914-6) and DUP-01-20170109 (320-24914-10). The samples have been run at dilution and both sets of data have been reported.

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

Organic Prep

Method(s) 3535: The following samples were centrifuged prior to extraction: GR3-20170109 (320-24914-2) and SPRING-GR-20170109 (320-24914-8).

Method(s) 3535: The following sample was decanted prior to extraction due to excess sediment at the bottom of its bottle: SPRING-GR-20170109 (320-24914-8).

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFOA #	PFNA #	PFOS #
GR4-20170109	320-24914-1	69	50	122
GR3-20170109	320-24914-2	74	56	116
GR2-20170109	320-24914-3	84	54	109
GR-OF-20170109	320-24914-4	101	74	108
MH117-N-20170109	320-24914-5	87	56	71
MH117-T-20170109	320-24914-6	94	59	85
FB-01-20170109	320-24914-7	130	135	125
SPRING-GR-20170109	320-24914-8	86	74	118
FB-02-20170109	320-24914-9	131	135	125
DUP-01-20170109	320-24914-10	86	58	74
RB-01-20170110	320-24914-11	132	146	129
	MB 320-146172/1-A	131	133	124
	LCS 320-146172/2-A	126	130	124
GR4-20170109 MS	320-24914-1 MS	74	55	119
GR4-20170109 MSD	320-24914-1 MSD	86	75	118

	<u>QC LIMITS</u>
PFOA = 13C4 PFOA	25-150
PFOS = 13C4 PFOS	25-150
PFNA = 13C5 PFNA	25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFOS #
GR2-20170109 DL	320-24914-3 DL	144
GR-OF-20170109 DL	320-24914-4 DL	136
MH117-N-20170109 DL	320-24914-5 DL	137
MH117-T-20170109 DL	320-24914-6 DL	142
DUP-01-20170109 DL	320-24914-10 DL	99

PFOS = 13C4 PFOS

QC LIMITS
25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: 13JAN2017A_010.d
Lab ID: LCS 320-146172/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	40.0	38.8	97	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	37.0	100	60-140	
Perfluorononanoic acid (PFNA)	40.0	37.7	94	60-140	
13C4 PFOA	100	126	126	25-150	
13C4 PFOS	95.6	119	124	25-150	
13C5 PFNA	100	130	130	25-150	

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

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 13JAN2017A_012.d
 Lab ID: 320-24914-1 MS Client ID: GR4-20170109 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	40.7	13	55.5	104	60-140	M
Perfluorooctanesulfonic acid (PFOS)	37.8	89	128	103	60-140	
Perfluorononanoic acid (PFNA)	40.7	1.8 J	40.6	95	60-140	
13C4 PFOA	102	69	75.1	74	25-150	
13C4 PFOS	97.2	120	116	119	25-150	
13C5 PFNA	102	50	56.4	55	25-150	

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

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 13JAN2017A_013.d
 Lab ID: 320-24914-1 MSD Client ID: GR4-20170109 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanoic acid (PFOA)	41.3	48.5	86	13	30	60-140	M
Perfluorooctanesulfonic acid (PFOS)	38.3	125	94	2	30	60-140	
Perfluorononanoic acid (PFNA)	41.3	37.0	85	9	30	60-140	
13C4 PFOA	103	88.7	86			25-150	
13C4 PFOS	98.8	117	118			25-150	
13C5 PFNA	103	77.9	75			25-150	

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

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Lab File ID: 13JAN2017A_009.d Lab Sample ID: MB 320-146172/1-A
 Matrix: Water Date Extracted: 01/12/2017 14:00
 Instrument ID: A8_N Date Analyzed: 01/13/2017 12:28
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-146172/2-A	13JAN2017A_ 010.d	01/13/2017 12:36
GR4-20170109	320-24914-1	13JAN2017A_ 011.d	01/13/2017 12:43
GR4-20170109 MS	320-24914-1 MS	13JAN2017A_ 012.d	01/13/2017 12:51
GR4-20170109 MSD	320-24914-1 MSD	13JAN2017A_ 013.d	01/13/2017 12:58
GR3-20170109	320-24914-2	13JAN2017A_ 014.d	01/13/2017 13:06
GR2-20170109	320-24914-3	13JAN2017A_ 015.d	01/13/2017 13:13
GR-OF-20170109	320-24914-4	13JAN2017A_ 016.d	01/13/2017 13:21
MH117-N-20170109	320-24914-5	13JAN2017A_ 017.d	01/13/2017 13:28
MH117-T-20170109	320-24914-6	13JAN2017A_ 018.d	01/13/2017 13:36
FB-01-20170109	320-24914-7	13JAN2017A_ 022.d	01/13/2017 14:06
SPRING-GR-20170109	320-24914-8	13JAN2017A_ 023.d	01/13/2017 14:13
FB-02-20170109	320-24914-9	13JAN2017A_ 024.d	01/13/2017 14:21
DUP-01-20170109	320-24914-10	13JAN2017A_ 025.d	01/13/2017 14:28
RB-01-20170110	320-24914-11	13JAN2017A_ 026.d	01/13/2017 14:36
MH117-N-20170109 DL	320-24914-5 DL	13JAN2017B_ 005.d	01/13/2017 16:29
MH117-T-20170109 DL	320-24914-6 DL	13JAN2017B_ 006.d	01/13/2017 16:36
DUP-01-20170109 DL	320-24914-10 DL	13JAN2017B_ 007.d	01/13/2017 16:44
GR2-20170109 DL	320-24914-3 DL	13JAN2017B_ 008.d	01/13/2017 16:51
GR-OF-20170109 DL	320-24914-4 DL	13JAN2017B_ 009.d	01/13/2017 16:59

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-145640/4	09JAN2017A_004.d
Level 2	IC 320-145640/13	09JAN2017A_013.d
Level 3	IC 320-145640/5	09JAN2017A_005.d
Level 4	IC 320-145640/14	09JAN2017A_014.d
Level 5	IC 320-145640/6	09JAN2017A_006.d
Level 6	IC 320-145640/15	09JAN2017A_015.d
Level 7	IC 320-145640/7	09JAN2017A_007.d
Level 8	IC 320-145640/16	09JAN2017A_016.d
Level 9	IC 320-145640/8	09JAN2017A_008.d
Level 10	IC 320-145640/17	09JAN2017A_017.d
Level 11	IC 320-145640/9	09JAN2017A_009.d
Level 12	IC 320-145640/18	09JAN2017A_018.d

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.590 1.617		1.593		1.590		1.590		1.617		1.350 - 1.850	1.600
Perfluoropentanoic acid (PFPeA)	1.878 1.910		1.881		1.868		1.877		1.900		1.635 - 2.135	1.886
Perfluorobutanesulfonic acid (PFBS)	1.916 1.938		1.919		1.906		1.916		1.948		1.744 - 2.104	1.924
Perfluorohexanoic acid (PFHxA)	2.174 2.208		2.178		2.174		2.190		2.209		1.939 - 2.439	2.189
Perfluoroheptanoic acid (PFHpA)	2.513 2.553		2.516		2.514		2.538		2.547		2.280 - 2.780	2.530
Perfluorohexanesulfonic acid (PFHxS)	++++ 2.570		2.531		2.529		2.553		2.569		2.297 - 2.797	2.550
Perfluorooctanoic acid (PFOA)	++++ 2.917		2.872		2.862		2.904		2.913		2.641 - 3.141	2.894
6:2FTS		2.895 2.909		2.891		2.887		2.886		2.894	2.644 - 3.144	2.894
Perfluoroheptanesulfonic Acid (PFHpS)	2.879 2.917		2.880		2.878		2.912		2.921		2.648 - 3.148	2.898
Perfluorooctanesulfonic acid (PFOS)	++++ 3.168		3.237		3.235		3.168		3.282		2.981 - 3.481	3.218
Perfluorononanoic acid (PFNA)	3.235 3.286		3.237		3.243		3.286		3.282		3.011 - 3.511	3.262
Perfluorooctane Sulfonamide (FOSA)	3.549 3.599		3.559		3.548		3.602		3.591		3.324 - 3.824	3.575
Perfluorodecanoic acid (PFDA)	3.591 3.641		3.601		3.598		3.653		3.642		3.371 - 3.871	3.621
8:2FTS		3.635 3.655		3.630		3.635		3.632		3.644	3.389 - 3.889	3.639

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		3.810 3.830		3.797		3.802		3.798		3.811	3.558 - 4.058	3.808
Perfluorodecanesulfonic acid (PFDS)	3.900 3.955		3.910		3.908		3.956		3.945		3.679 - 4.179	3.929
Perfluoroundecanoic acid (PFUnA)	3.926 3.973		3.928		3.925		3.984		3.972		3.701 - 4.201	3.951
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		3.986 3.997		3.971		3.976		3.963		3.986	3.730 - 4.230	3.980
MeFOSA		4.095 4.108		4.084		4.088		4.085		4.099	3.843 - 4.343	4.093
Perfluorododecanoic acid (PFDoA)	4.231 4.268		4.224		4.220		4.275		4.264		3.997 - 4.497	4.247
N-EtFOSA-M		4.274 4.303		4.279		4.274		4.271		4.288	4.032 - 4.532	4.282
Perfluorotridecanoic Acid (PFTriA)	4.496 4.530		4.498		4.494		4.543		4.532		4.266 - 4.766	4.516
Perfluorotetradecanoic acid (PFTeA)	4.738 4.776		4.748		4.734		4.780		4.771		4.508 - 5.008	4.758
Perfluoro-n-hexadecanoic acid (PFHxDA)	5.158 5.195		5.164		5.166		5.199		5.200		4.930 - 5.430	5.180
Perfluoro-n-octadecanoic acid (PFODA)	5.536 5.567		5.541		5.533		5.582		5.568		5.304 - 5.804	5.555
13C4 PFBA	1.590 1.617		1.593		1.590		1.590		1.609		1.348 - 1.848	1.598
13C5-PFPeA	1.878 1.900		1.881		1.868		1.877		1.900		1.634 - 2.134	1.884
13C2 PFHxA	2.174 2.208		2.178		2.165		2.190		2.209		1.937 - 2.437	2.187
13C4-PFHpA	2.513 2.553		2.516		2.514		2.538		2.547		2.280 - 2.780	2.530
18O2 PFHxS	2.528 2.570		2.538		2.529		2.553		2.569		2.298 - 2.798	2.548
13C4 PFOA	2.871 2.909		2.872		2.870		2.912		2.913		2.641 - 3.141	2.891
M2-6:2FTS		2.895 2.909		2.891		2.895		2.886		2.894	2.645 - 3.145	2.895
13C4 PFOS	3.235 3.286		3.245		3.235		3.286		3.282		3.011 - 3.511	3.262
13C5 PFNA	3.244 3.286		3.245		3.235		3.278		3.289		3.013 - 3.513	3.263
13C8 FOSA	3.549 3.599		3.550		3.540		3.593		3.591		3.320 - 3.820	3.570
13C2 PFDA	3.591 3.649		3.601		3.598		3.644		3.642		3.371 - 3.871	3.621

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

ANALYTE	LVL 1 LVL 11	LVL 2 LVL 12	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	RT WINDOW	AVG RT
M2-8:2FTS		3.635 3.655		3.630		3.627		3.632		3.644	3.387 - 3.887	3.637
d3-NMeFOSAA		3.802 3.821		3.797		3.802		3.789		3.811	3.554 - 4.054	3.804
13C2 PFUnA	3.935 3.983		3.928		3.925		3.975		3.972		3.703 - 4.203	3.953
d5-NEtFOSAA		3.967 3.988		3.961		3.967		3.963		3.977	3.720 - 4.220	3.971
d-N-MeFOSA-M		4.087 4.108		4.084		4.088		4.085		4.099	3.842 - 4.342	4.092
13C2 PFDoA	4.222 4.268		4.224		4.220		4.275		4.264		3.995 - 4.495	4.246
d-N-EtFOSA-M		4.274 4.293		4.270		4.274		4.271		4.288	4.028 - 4.528	4.278
13C2-PFTeDA	4.738 4.776		4.748		4.734		4.780		4.771		4.508 - 5.008	4.758
13C2-PFHxDA	5.158 5.195		5.164		5.155		5.199		5.200		4.929 - 5.429	5.179

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

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-145640/4	09JAN2017A_004.d
Level 2	IC 320-145640/13	09JAN2017A_013.d
Level 3	IC 320-145640/5	09JAN2017A_005.d
Level 4	IC 320-145640/14	09JAN2017A_014.d
Level 5	IC 320-145640/6	09JAN2017A_006.d
Level 6	IC 320-145640/15	09JAN2017A_015.d
Level 7	IC 320-145640/7	09JAN2017A_007.d
Level 8	IC 320-145640/16	09JAN2017A_016.d
Level 9	IC 320-145640/8	09JAN2017A_008.d
Level 10	IC 320-145640/17	09JAN2017A_017.d
Level 11	IC 320-145640/9	09JAN2017A_009.d
Level 12	IC 320-145640/18	09JAN2017A_018.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4		B	M1	M2								
	LVL 5	LVL 6	LVL 7	LVL 8												
	LVL 9	LVL 10	LVL 11	LVL 12												
13C4 PFBA	362645 357766 350519		377473 367199 280701		Ave		349383.730				10.0		50.0			
13C5-PFPeA	295042 288686 271592		306164 289558 207771		Ave		276468.733				12.8		50.0			
13C2 PFHxA	271465 265303 258509		282399 271463 196771		Ave		257651.940				12.0		50.0			
13C4-PFHpA	240883 238762 215712		254138 235659 158307		Ave		223910.287				15.4		50.0			
18O2 PFHxS	336958 333848 325364		355044 342314 252855		Ave		324397.234				11.2		50.0			
13C4 PFOA	262172 261544 234218		276152 260165 157431		Ave		241947.147				18.0		50.0			
M2-6:2FTS		132786 139277 132400		131196 127709 137640	Ave		133501.189				3.2		50.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

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

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5 LVL 9	LVL 2 LVL 6 LVL 10	LVL 3 LVL 7 LVL 11	LVL 4 LVL 8 LVL 12		B	M1	M2								
13C4 PFOS	266073 262899 261832		287416 274723 204482		Ave		259570.774				11.0		50.0			
13C5 PFNA	195834 196292 181781		203903 194164 128427		Ave		183400.100				15.2		50.0			
13C8 FOSA	424597 420196 413432		440588 423459 335535		Ave		409634.530				9.1		50.0			
13C2 PFDA	184332 182877 183143		198987 196601 134767		Ave		180117.890				12.9		50.0			
M2-8:2FTS		130538 134906 136734		134253 130519 142867	Ave		134969.447				3.4		50.0			
d3-NMeFOSAA		84601 84679 83313		81774 81257 74747	Ave		81728.4933				4.5		50.0			
13C2 PFUnA	148737 145408 132762		155175 145156 87893		Ave		135855.327				18.1		50.0			
d5-NEtFOSAA		90505 94905 90732		92353 91808 82867	Ave		90528.4800				4.5		50.0			
d-N-MeFOSA-M		102037 105510 105166		101818 102588 99141	Ave		102710.210				2.3		50.0			
13C2 PFDoA	137729 137577 131561		144520 131933 96728		Ave		130008.173				13.1		50.0			
d-N-EtFOSA-M		99462 103846 102661		98787 98952 96983	Ave		100115.133				2.6		50.0			
13C2-PFTeDA	256597 242075 251951		265545 247483 189775		Ave		242237.813				11.1		50.0			
13C2-PFHxDA	138069 131038 138461		148672 134763 110522		Ave		133587.420				9.5		50.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) NCalibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

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 11	LVL 7 LVL 12	LVL 8	LVL 9	LVL 10												
Perfluorobutanoic acid (PFBA)	321442 213102	351826	326041	315880	311475	AveID		0.8732				7.5		35.0			
Perfluoropentanoic acid (PFPeA)	318206 169541	308193	299594	271790	277812	AveID		0.9834				9.6		35.0			
Perfluorobutanesulfonic acid (PFBS)	497052 293780	602784	533837	519994	529956	AveID		1.5145				13.2		50.0			
Perfluorohexanoic acid (PFHxA)	272454 160711	260257	258656	238099	247811	AveID		0.9250				6.7		35.0			
Perfluoroheptanoic acid (PFHpA)	247884 142563	238219	255074	211746	235932	AveID		0.9857				4.6		35.0			
Perfluorohexanesulfonic acid (PFHxS)	++++ 243722	371698	411090	336575	333568	AveID		1.0482				7.3		35.0			
Perfluorooctanoic acid (PFOA)	++++ 146821	276221	292893	236426	249321	AveID		1.0035				5.9		35.0			
6:2FTS	129435 108222	103146	123616	109986	119300	AveID		0.8666				9.0		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	295063 197198	331445	288623	292952	290660	AveID		1.0847				8.0		50.0			
Perfluorooctanesulfonic acid (PFOS)	++++ 218207	287477	272231	273007	252282	AveID		1.0126				5.4		35.0			
Perfluorononanoic acid (PFNA)	190330 119884	193409	193098	169749	183377	AveID		0.9528				2.7		35.0			
Perfluorooctane Sulfonamide (FOSA)	409156 243743	428417	427395	393623	421241	AveID		0.9377				11.3		35.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

CURVE EVALUATION

Lab Name: TestAmerica SacramentoJob No.: 320-24914-1Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_NGC Column: AcquityID: 2.1(mm)Heated Purge: (Y/N) NCalibration Start Date: 01/09/2017 13:31Calibration End Date: 01/09/2017 15:16Calibration ID: 27505

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Perfluorodecanoic acid (PFDA)	177296 124130	188884	176905	168082	169956	AveID		0.9300				3.0		35.0			
8:2FTS	131432	99674 113959	124558	112150	126130	AveID		0.8746				10.0		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	81135	66742 76245	80086	70926	78113	AveID		0.9263				9.1		35.0			
Perfluorodecanesulfonic acid (PFDS)	160268 131313	183725	175301	181746	160031	AveID		0.6377				5.9		50.0			
Perfluoroundecanoic acid (PFUnA)	165508 86389	143352	152387	125415	126505	AveID		0.9800				8.0		35.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	83469	66452 75623	80922	73837	78495	AveID		0.8454				7.8		35.0			
MeFOSA	92587	82638 91046	90909	76926	92545	AveID		0.8546				7.0		35.0			
Perfluorododecanoic acid (PFDoA)	124614 91759	127267	129775	122236	124185	AveID		0.9246				3.0		35.0			
N-EtFOSA-M	99256	83396 95471	96104	83275	99605	AveID		0.9272				7.3		35.0			
Perfluorotridecanoic Acid (PFTriA)	117046 87220	125097	129426	120205	115683	AveID		0.8916				4.5		50.0			
Perfluorotetradecanoic acid (PFTeA)	249342 150957	216958	239931	214630	211372	AveID		1.6406				5.9		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	282282 92900	120897	195362	121457	118024	L1ID	0.4283	0.9427							0.9990		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	85714 85645	108503	115812	121787	102144	AveID		0.7999				13.5		50.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

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

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-145640/4	09JAN2017A_004.d
Level 2	IC 320-145640/13	09JAN2017A_013.d
Level 3	IC 320-145640/5	09JAN2017A_005.d
Level 4	IC 320-145640/14	09JAN2017A_014.d
Level 5	IC 320-145640/6	09JAN2017A_006.d
Level 6	IC 320-145640/15	09JAN2017A_015.d
Level 7	IC 320-145640/7	09JAN2017A_007.d
Level 8	IC 320-145640/16	09JAN2017A_016.d
Level 9	IC 320-145640/8	09JAN2017A_008.d
Level 10	IC 320-145640/17	09JAN2017A_017.d
Level 11	IC 320-145640/9	09JAN2017A_009.d
Level 12	IC 320-145640/18	09JAN2017A_018.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
13C4 PFBA	Ave	18132250 14035072	18359938	18873649	17525932	17888278	50.0 50.0	50.0	50.0	50.0	50.0
13C5-PFPeA	Ave	14752095 10388559	14477908	15308194	13579579	14434285	50.0 50.0	50.0	50.0	50.0	50.0
13C2 PFHxA	Ave	13573271 9838566	13573169	14119971	12925450	13265155	50.0 50.0	50.0	50.0	50.0	50.0
13C4-PFHpA	Ave	12044155 7915336	11782960	12706919	10785607	11938109	50.0 50.0	50.0	50.0	50.0	50.0
18O2 PFHxS	Ave	15938128 11960026	16191475	16793586	15389703	15791017	47.3 47.3	47.3	47.3	47.3	47.3
13C4 PFOA	Ave	13108614 7871570	13008273	13807600	11710886	13077201	50.0 50.0	50.0	50.0	50.0	50.0
M2-6:2FTS	Ave	6615643	6307331 6537880	6066171	6231822	6288992	47.5	47.5 47.5	47.5	47.5	47.5
13C4 PFOS	Ave	12718288 9774256	13131755	13738465	12515576	12566558	47.8 47.8	47.8	47.8	47.8	47.8

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

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
13C5 PFNA	Ave	9791676 6421370	9708212	10195149	9089040	9814583	50.0 50.0	50.0	50.0	50.0	50.0
13C8 FOSA	Ave	21229846 16776754	21172948	22029403	20671594	21009814	50.0 50.0	50.0	50.0	50.0	50.0
13C2 PFDA	Ave	9216579 6738351	9830069	9949364	9157145	9143859	50.0 50.0	50.0	50.0	50.0	50.0
M2-8:2FTS	Ave	6462002	6252767 6843326	6251863	6430713	6549548	47.9	47.9 47.9	47.9	47.9	47.9
d3-NMeFOSAA	Ave	4233937	4230030 3737345	4062854	4088717	4165665	50.0	50.0 50.0	50.0	50.0	50.0
13C2 PFUnA	Ave	7436843 4394648	7257815	7758756	6638123	7270413	50.0 50.0	50.0	50.0	50.0	50.0
d5-NEtFOSAA	Ave	4745262	4525254 4143372	4590414	4617663	4536579	50.0	50.0 50.0	50.0	50.0	50.0
d-N-MeFOSA-M	Ave	5275515	5101842 4957068	5129394	5090921	5258323	50.0	50.0 50.0	50.0	50.0	50.0
13C2 PFDoA	Ave	6886474 4836420	6596653	7225986	6578052	6878867	50.0 50.0	50.0	50.0	50.0	50.0
d-N-EtFOSA-M	Ave	5192294	4973124 4849132	4947581	4939370	5133039	50.0	50.0 50.0	50.0	50.0	50.0
13C2-PFTeDA	Ave	12829867 9488741	12374174	13277272	12597564	12103726	50.0 50.0	50.0	50.0	50.0	50.0
13C2-PFHxDA	Ave	6903453 5526087	6738129	7433624	6923040	6551893	50.0 50.0	50.0	50.0	50.0	50.0

Curve Type Legend:

Ave = Average

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) NCalibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-145640/4	09JAN2017A_004.d
Level 2	IC 320-145640/13	09JAN2017A_013.d
Level 3	IC 320-145640/5	09JAN2017A_005.d
Level 4	IC 320-145640/14	09JAN2017A_014.d
Level 5	IC 320-145640/6	09JAN2017A_006.d
Level 6	IC 320-145640/15	09JAN2017A_015.d
Level 7	IC 320-145640/7	09JAN2017A_007.d
Level 8	IC 320-145640/16	09JAN2017A_016.d
Level 9	IC 320-145640/8	09JAN2017A_008.d
Level 10	IC 320-145640/17	09JAN2017A_017.d
Level 11	IC 320-145640/9	09JAN2017A_009.d
Level 12	IC 320-145640/18	09JAN2017A_018.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 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
			LVL 11	LVL 12				LVL 11	LVL 12			
Perfluorobutanoic acid (PFBA)		AveID	160721 42620436	7036524	326041	15793993	1557377	0.500 200	20.0	1.00	50.0	5.00
Perfluoropentanoic acid (PFPeA)		AveID	159103 33908231	6163858	299594	13589501	1389061	0.500 200	20.0	1.00	50.0	5.00
Perfluorobutanesulfonic acid (PFBS)		AveID	219697 51940263	10657228	471912	22983717	2342406	0.442 177	17.7	0.884	44.2	4.42
Perfluorohexanoic acid (PFHxA)		AveID	136227 32142166	5205130	258656	11904967	1239056	0.500 200	20.0	1.00	50.0	5.00
Perfluoroheptanoic acid (PFHpA)		AveID	123942 28512549	4764388	255074	10587301	1179661	0.500 200	20.0	1.00	50.0	5.00
Perfluorohexanesulfonic acid (PFHxS)		AveID	++++ 44357445	6764901	374092	15314165	1517736	++++ 182	18.2	0.910	45.5	4.55
Perfluorooctanoic acid (PFOA)		AveID	++++ 29364167	5524420	292893	11821302	1246605	++++ 200	20.0	1.00	50.0	5.00
6:2FTS		AveID	613524	48891 20518891	2343760	104267	5654816	4.74	0.474 190	19.0	0.948	47.4

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) NCalibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	140450 37546591	6310704	274769	13944527	1383541	0.476 190	19.0	0.952	47.6	4.76
Perfluorooctanesulfonic acid (PFOS)		AveID	++++ 40499129	5335568	252630	12667506	1170589	++++ 186	18.6	0.928	46.4	4.64
Perfluorononanoic acid (PFNA)		AveID	95165 23976816	3868179	193098	8487460	916884	0.500 200	20.0	1.00	50.0	5.00
Perfluorooctane Sulfonamide (FOSA)		AveID	204578 48748543	8568333	427395	19681169	2106204	0.500 200	20.0	1.00	50.0	5.00
Perfluorodecanoic acid (PFDA)		AveID	88648 24825913	3777687	176905	8404103	849782	0.500 200	20.0	1.00	50.0	5.00
8:2FTS		AveID	629557 21834494	47744	2386530	107440	6041633	4.79 192	0.479	19.2	0.958	47.9
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	405677 15249090	33371	1601725	70926	3905646	5.00 200	0.500	20.0	1.00	50.0
Perfluorodecanesulfonic acid (PFDS)		AveID	77249 25317110	3542226	168990	8760153	771350	0.482 193	19.3	0.964	48.2	4.82
Perfluoroundecanoic acid (PFUnA)		AveID	82754 17277703	2867030	152387	6270770	632525	0.500 200	20.0	1.00	50.0	5.00
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	417343 15124627	33226	1618448	73837	3924762	5.00 200	0.500	20.0	1.00	50.0
MeFOSA		AveID	462937 18209166	41319	1818170	76926	4627255	5.00 200	0.500	20.0	1.00	50.0
Perfluorododecanoic acid (PFDoA)		AveID	62307 18351830	2545344	129775	6111819	620927	0.500 200	20.0	1.00	50.0	5.00
N-EtFOSA-M		AveID	496282 19094248	41698	1922089	83275	4980246	5.00 200	0.500	20.0	1.00	50.0

RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1 Analy Batch No.: 145640

SDG No.: _____

Instrument ID: A8_N GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) NCalibration Start Date: 01/09/2017 13:31 Calibration End Date: 01/09/2017 15:16 Calibration ID: 27505

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6 LVL 11	LVL 2 LVL 7 LVL 12	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
Perfluorotridecanoic Acid (PFTriA)		AveID	58523 17443940	2501933	129426	6010249	578415	0.500 200	20.0	1.00	50.0	5.00
Perfluorotetradecanoic acid (PFTeA)		AveID	124671 30191429	4339153	239931	10731489	1056859	0.500 200	20.0	1.00	50.0	5.00
Perfluoro-n-hexadecanoic acid (PFHxDA)		L1ID	141141 18579953	2417937	195362	6072845	590121	0.500 200	20.0	1.00	50.0	5.00
Perfluoro-n-octadecanoic acid (PFODA)		AveID	42857 17128970	2170055	115812	6089373	510722	0.500 200	20.0	1.00	50.0	5.00

Curve Type Legend:

AveID = Average isotope dilution
L1ID = Linear 1/conc IsoDil

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Lab Sample ID: ICV 320-145640/11 Calibration Date: 01/09/2017 14:23

Instrument ID: A8_N Calib Start Date: 01/09/2017 13:31

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 01/09/2017 15:16

Lab File ID: 09JAN2017A_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8732	0.8577		49.1	50.0	-1.8	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9834	0.9782		49.7	50.0	-0.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.515	1.549		45.3	44.3	2.3	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9250	0.9052		48.9	50.0	-2.1	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9857	0.9620		48.8	50.0	-2.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.048	0.9630		43.4	47.3	-8.1	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.085	1.153		50.6	47.6	6.3	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.004	0.9875		49.2	50.0	-1.6	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9528	0.9548		50.1	50.0	0.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.013	0.9139		43.1	47.8	-9.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9377	0.9077		48.4	50.0	-3.2	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9300	0.8996		48.4	50.0	-3.3	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6377	0.6625		50.1	48.3	3.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9800	0.9539		48.7	50.0	-2.7	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9246	0.9064		49.0	50.0	-2.0	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8916	0.9306		52.2	50.0	4.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.641	1.616		49.3	50.0	-1.5	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9419		49.5	50.0	-1.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7999	0.8560		53.5	50.0	7.0	25.0
13C4 PFBA	Ave	349384	310703		44.5	50.0	-11.1	50.0
13C5-PFPeA	Ave	276469	239141		43.2	50.0	-13.5	50.0
13C2 PFHxA	Ave	257652	229935		44.6	50.0	-10.8	50.0
13C4-PFHpA	Ave	223910	193945		43.3	50.0	-13.4	50.0
18O2 PFHxS	Ave	324397	296095		43.2	47.3	-8.7	50.0
13C4 PFOA	Ave	241947	203669		42.1	50.0	-15.8	50.0
13C4 PFOS	Ave	259571	229948		42.3	47.8	-11.4	50.0
13C5 PFNA	Ave	183400	160008		43.6	50.0	-12.8	50.0
13C8 FOSA	Ave	409635	384192		46.9	50.0	-6.2	50.0
13C2 PFDA	Ave	180118	159346		44.2	50.0	-11.5	50.0
13C2 PFUnA	Ave	135855	117262		43.2	50.0	-13.7	50.0
13C2 PFDoA	Ave	130008	113417		43.6	50.0	-12.8	50.0
13C2-PFTeA	Ave	242238	216958		44.8	50.0	-10.4	50.0
13C2-PFHxDA	Ave	133587	124667		46.7	50.0	-6.7	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Lab Sample ID: CCV 320-146307/4 Calibration Date: 01/13/2017 11:51

Instrument ID: A8_N Calib Start Date: 01/09/2017 13:31

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 01/09/2017 15:16

Lab File ID: 13JAN2017A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8732	0.8782		1.01	1.00	0.6	50.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9834	1.018		1.03	1.00	3.5	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.515	1.467		0.856	0.884	-3.1	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9250	0.8969		0.970	1.00	-3.0	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9857	1.064		1.08	1.00	8.0	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.048	1.102		0.956	0.910	5.1	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.004	1.084		1.08	1.00	8.1	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.085	1.056		0.926	0.952	-2.7	50.0
Perfluorononanoic acid (PFNA)	AveID	0.9528	0.9105		0.956	1.00	-4.4	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.013	0.9609		0.881	0.928	-5.1	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9377	0.9608		1.02	1.00	2.5	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9300	0.9177		0.987	1.00	-1.3	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6377	0.5761		0.871	0.964	-9.7	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9800	1.017		1.04	1.00	3.8	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9246	0.9143		0.989	1.00	-1.1	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8916	0.8953		1.00	1.00	0.4	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.641	1.706		1.04	1.00	4.0	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.343		0.970	1.00	-3.0	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7999	0.7111		0.889	1.00	-11.1	50.0
13C4 PFBA	Ave	349384	353850		50.6	50.0	1.3	50.0
13C5-PFPeA	Ave	276469	275614		49.8	50.0	-0.3	50.0
13C2 PFHxA	Ave	257652	256197		49.7	50.0	-0.6	50.0
13C4-PFHpA	Ave	223910	225025		50.2	50.0	0.5	50.0
18O2 PFHxS	Ave	324397	332120		48.4	47.3	2.4	50.0
13C4 PFOA	Ave	241947	241186		49.8	50.0	-0.3	50.0
13C4 PFOS	Ave	259571	258895		47.7	47.8	-0.3	50.0
13C5 PFNA	Ave	183400	196000		53.4	50.0	6.9	50.0
13C8 FOSA	Ave	409635	407737		49.8	50.0	-0.5	50.0
13C2 PFDA	Ave	180118	181639		50.4	50.0	0.8	50.0
13C2 PFUnA	Ave	135855	132838		48.9	50.0	-2.2	50.0
13C2 PFDoA	Ave	130008	121470		46.7	50.0	-6.6	50.0
13C2-PFTeDA	Ave	242238	235548		48.6	50.0	-2.8	50.0
13C2-PFHxDA	Ave	133587	116384		43.6	50.0	-12.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Lab Sample ID: CCV 320-146307/6 Calibration Date: 01/13/2017 12:06

Instrument ID: A8_N Calib Start Date: 01/09/2017 13:31

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 01/09/2017 15:16

Lab File ID: 13JAN2017A_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8732	0.9117		52.2	50.0	4.4	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9834	0.999		50.8	50.0	1.6	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.515	1.636		47.7	44.2	8.0	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9250	0.9320		50.4	50.0	0.8	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.048	1.035		44.9	45.5	-1.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9857	0.9706		49.2	50.0	-1.5	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.085	1.155		50.7	47.6	6.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.004	0.9905		49.4	50.0	-1.3	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.013	1.059		48.5	46.4	4.5	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9528	0.9262		48.6	50.0	-2.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9377	0.9504		50.7	50.0	1.3	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9300	0.9549		51.3	50.0	2.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6377	0.6520		49.3	48.2	2.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9800	0.9585		48.9	50.0	-2.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9246	0.9585		51.8	50.0	3.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8916	0.8837		49.6	50.0	-0.9	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.641	1.655		50.5	50.0	0.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8556		44.9	50.0	-10.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7999	0.9017		56.4	50.0	12.7	25.0
13C4 PFBA	Ave	349384	326689		46.8	50.0	-6.5	50.0
13C5-PFPeA	Ave	276469	251822		45.5	50.0	-8.9	50.0
13C2 PFHxA	Ave	257652	220532		42.8	50.0	-14.4	50.0
13C4-PFHpA	Ave	223910	193769		43.3	50.0	-13.5	50.0
18O2 PFHxS	Ave	324397	290551		42.4	47.3	-10.4	50.0
13C4 PFOA	Ave	241947	207108		42.8	50.0	-14.4	50.0
13C4 PFOS	Ave	259571	235444		43.4	47.8	-9.3	50.0
13C5 PFNA	Ave	183400	164931		45.0	50.0	-10.1	50.0
13C8 FOSA	Ave	409635	377688		46.1	50.0	-7.8	50.0
13C2 PFDA	Ave	180118	157048		43.6	50.0	-12.8	50.0
13C2 PFUnA	Ave	135855	115762		42.6	50.0	-14.8	50.0
13C2 PFDoA	Ave	130008	108929		41.9	50.0	-16.2	50.0
13C2-PFTeA	Ave	242238	210834		43.5	50.0	-13.0	50.0
13C2-PFHxDA	Ave	133587	110867		41.5	50.0	-17.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Lab Sample ID: CCV 320-146307/20 Calibration Date: 01/13/2017 13:51

Instrument ID: A8_N Calib Start Date: 01/09/2017 13:31

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 01/09/2017 15:16

Lab File ID: 13JAN2017A_020.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8732	0.9548		21.9	20.0	9.3	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9834	1.097		22.3	20.0	11.5	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.515	1.731		20.2	17.7	14.3	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9250	0.9563		20.7	20.0	3.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9857	1.015		20.6	20.0	3.0	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.048	1.088		18.9	18.2	3.8	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.004	1.074		21.4	20.0	7.1	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.085	1.170		20.5	19.0	7.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.013	1.053		19.3	18.6	4.0	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9528	0.9798		20.6	20.0	2.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9377	1.046		22.3	20.0	11.5	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9300	1.007		21.7	20.0	8.3	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6377	0.6576		19.9	19.3	3.1	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9800	0.9885		20.2	20.0	0.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9246	0.9653		20.9	20.0	4.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8916	0.9375		21.0	20.0	5.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.641	1.660		20.2	20.0	1.2	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8654		17.9	20.0	-10.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7999	0.7253		18.1	20.0	-9.3	25.0
13C4 PFBA	Ave	349384	380241		54.4	50.0	8.8	50.0
13C5-PFPeA	Ave	276469	283018		51.2	50.0	2.4	50.0
13C2 PFHxA	Ave	257652	266267		51.7	50.0	3.3	50.0
13C4-PFHpA	Ave	223910	233826		52.2	50.0	4.4	50.0
18O2 PFHxS	Ave	324397	346669		50.5	47.3	6.9	50.0
13C4 PFOA	Ave	241947	259989		53.7	50.0	7.5	50.0
13C4 PFOS	Ave	259571	292751		53.9	47.8	12.8	50.0
13C5 PFNA	Ave	183400	216161		58.9	50.0	17.9	50.0
13C8 FOSA	Ave	409635	429970		52.5	50.0	5.0	50.0
13C2 PFDA	Ave	180118	189365		52.6	50.0	5.1	50.0
13C2 PFUnA	Ave	135855	147871		54.4	50.0	8.8	50.0
13C2 PFDoA	Ave	130008	135667		52.2	50.0	4.4	50.0
13C2-PFTeDA	Ave	242238	257529		53.2	50.0	6.3	50.0
13C2-PFHxDA	Ave	133587	125826		47.1	50.0	-5.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Lab Sample ID: CCV 320-146307/28 Calibration Date: 01/13/2017 14:51

Instrument ID: A8_N Calib Start Date: 01/09/2017 13:31

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 01/09/2017 15:16

Lab File ID: 13JAN2017A_028.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8732	0.9031		51.7	50.0	3.4	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9834	1.003		51.0	50.0	2.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.515	1.531		44.7	44.2	1.1	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9250	0.9144		49.4	50.0	-1.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.048	1.038		45.0	45.5	-1.0	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9857	0.9867		50.1	50.0	0.1	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.085	1.106		48.5	47.6	2.0	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.004	1.024		51.0	50.0	2.1	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.013	1.014		46.5	46.4	0.2	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9528	0.9649		50.6	50.0	1.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9377	0.9400		50.1	50.0	0.2	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9300	0.9315		50.1	50.0	0.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6377	0.6534		49.4	48.2	2.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9800	0.9416		48.0	50.0	-3.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9246	0.9297		50.3	50.0	0.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8916	0.8622		48.3	50.0	-3.3	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.641	1.650		50.3	50.0	0.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8446		44.3	50.0	-11.3	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7999	0.8473		53.0	50.0	5.9	25.0
13C4 PFBA	Ave	349384	324946		46.5	50.0	-7.0	50.0
13C5-PFPeA	Ave	276469	243424		44.0	50.0	-12.0	50.0
13C2 PFHxA	Ave	257652	212662		41.3	50.0	-17.5	50.0
13C4-PFHpA	Ave	223910	196823		44.0	50.0	-12.1	50.0
18O2 PFHxS	Ave	324397	301149		43.9	47.3	-7.2	50.0
13C4 PFOA	Ave	241947	213413		44.1	50.0	-11.8	50.0
13C4 PFOS	Ave	259571	250495		46.1	47.8	-3.5	50.0
13C5 PFNA	Ave	183400	172077		46.9	50.0	-6.2	50.0
13C8 FOSA	Ave	409635	391945		47.8	50.0	-4.3	50.0
13C2 PFDA	Ave	180118	167561		46.5	50.0	-7.0	50.0
13C2 PFUnA	Ave	135855	123350		45.4	50.0	-9.2	50.0
13C2 PFDoA	Ave	130008	122030		46.9	50.0	-6.1	50.0
13C2-PFTeA	Ave	242238	226914		46.8	50.0	-6.3	50.0
13C2-PFHxDA	Ave	133587	116221		43.5	50.0	-13.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Lab Sample ID: CCV 320-146416/3 Calibration Date: 01/13/2017 16:14

Instrument ID: A8_N Calib Start Date: 01/09/2017 13:31

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 01/09/2017 15:16

Lab File ID: 13JAN2017B_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8732	0.9089		52.0	50.0	4.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9834	0.9890		50.3	50.0	0.6	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.515	1.538		44.9	44.2	1.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9250	0.9192		49.7	50.0	-0.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.048	1.039		45.1	45.5	-0.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9857	0.9856		50.0	50.0	-0.0	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.004	1.053		52.4	50.0	4.9	25.0
Perfluorooctanesulfonic Acid (PFHpS)	AveID	1.085	1.144		50.2	47.6	5.4	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.013	1.023		46.9	46.4	1.0	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9528	0.9496		49.8	50.0	-0.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9377	0.9314		49.7	50.0	-0.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9300	0.9287		49.9	50.0	-0.1	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6377	0.6397		48.4	48.2	0.3	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9800	0.9667		49.3	50.0	-1.4	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9246	0.9587		51.8	50.0	3.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8916	0.9034		50.7	50.0	1.3	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.641	1.666		50.8	50.0	1.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9099		47.8	50.0	-4.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7999	0.8774		54.8	50.0	9.7	25.0
13C4 PFBA	Ave	349384	330160		47.2	50.0	-5.5	50.0
13C5-PFPeA	Ave	276469	252067		45.6	50.0	-8.8	50.0
13C2 PFHxA	Ave	257652	240361		46.6	50.0	-6.7	50.0
13C4-PFHpA	Ave	223910	201897		45.1	50.0	-9.8	50.0
18O2 PFHxS	Ave	324397	314436		45.8	47.3	-3.1	50.0
13C4 PFOA	Ave	241947	224680		46.4	50.0	-7.1	50.0
13C4 PFOS	Ave	259571	261709		48.2	47.8	0.8	50.0
13C5 PFNA	Ave	183400	180927		49.3	50.0	-1.3	50.0
13C8 FOSA	Ave	409635	417386		50.9	50.0	1.9	50.0
13C2 PFDA	Ave	180118	172754		48.0	50.0	-4.1	50.0
13C2 PFUnA	Ave	135855	124554		45.8	50.0	-8.3	50.0
13C2 PFDoA	Ave	130008	119182		45.8	50.0	-8.3	50.0
13C2-PFTeDA	Ave	242238	226600		46.8	50.0	-6.5	50.0
13C2-PFHxDA	Ave	133587	122219		45.7	50.0	-8.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Lab Sample ID: CCV 320-146416/10 Calibration Date: 01/13/2017 17:06

Instrument ID: A8_N Calib Start Date: 01/09/2017 13:31

GC Column: Acquity ID: 2.10 (mm) Calib End Date: 01/09/2017 15:16

Lab File ID: 13JAN2017B_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8732	0.9633		22.1	20.0	10.3	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9834	1.050		21.4	20.0	6.8	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.515	1.691		19.7	17.7	11.6	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.9250	0.9711		21.0	20.0	5.0	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9857	1.006		20.4	20.0	2.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.048	1.091		18.9	18.2	4.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.004	1.088		21.7	20.0	8.4	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.085	1.210		21.2	19.0	11.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.013	1.103		20.2	18.6	9.0	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9528	0.9887		20.8	20.0	3.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9377	1.060		22.6	20.0	13.1	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9300	0.9542		20.5	20.0	2.6	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6377	0.6794		20.5	19.3	6.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9800	1.040		21.2	20.0	6.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9246	0.9729		21.0	20.0	5.2	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8916	0.9327		20.9	20.0	4.6	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.641	1.707		20.8	20.0	4.0	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8829		18.3	20.0	-8.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7999	0.7075		17.7	20.0	-11.6	25.0
13C4 PFBA	Ave	349384	374515		53.6	50.0	7.2	50.0
13C5-PFPeA	Ave	276469	275576		49.8	50.0	-0.3	50.0
13C2 PFHxA	Ave	257652	261299		50.7	50.0	1.4	50.0
13C4-PFHpA	Ave	223910	229764		51.3	50.0	2.6	50.0
18O2 PFHxS	Ave	324397	347554		50.7	47.3	7.1	50.0
13C4 PFOA	Ave	241947	250138		51.7	50.0	3.4	50.0
13C4 PFOS	Ave	259571	279923		51.5	47.8	7.8	50.0
13C5 PFNA	Ave	183400	203336		55.4	50.0	10.9	50.0
13C8 FOSA	Ave	409635	437610		53.4	50.0	6.8	50.0
13C2 PFDA	Ave	180118	198475		55.1	50.0	10.2	50.0
13C2 PFUnA	Ave	135855	136074		50.1	50.0	0.2	50.0
13C2 PFDoA	Ave	130008	132488		51.0	50.0	1.9	50.0
13C2-PFTeDA	Ave	242238	247214		51.0	50.0	2.1	50.0
13C2-PFHxDA	Ave	133587	129411		48.4	50.0	-3.1	50.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-146172/1-A
 Matrix: Water Lab File ID: 13JAN2017A_009.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 01/12/2017 14:00
 Sample wt/vol: 250 (mL) Date Analyzed: 01/13/2017 12:28
 Con. Extract Vol.: 0.5 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 146307 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.3
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.5	2.0	0.65

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	131		25-150
STL00991	13C4 PFOS	124		25-150
STL00995	13C5 PFNA	133		25-150

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-24914-1

SDG No.: _____

Instrument ID: A8_NStart Date: 01/09/2017 13:08Analysis Batch Number: 145640End Date: 01/09/2017 15:38

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
RB 320-145640/1 CCB		01/09/2017 13:08	1		Acquity 2.1 (mm)
RB 320-145640/2 CCB		01/09/2017 13:16	1		Acquity 2.1 (mm)
RB 320-145640/3 CCB		01/09/2017 13:23	1		Acquity 2.1 (mm)
IC 320-145640/4		01/09/2017 13:31	1	09JAN2017A_004. d	Acquity 2.1 (mm)
IC 320-145640/5		01/09/2017 13:38	1	09JAN2017A_005. d	Acquity 2.1 (mm)
IC 320-145640/6		01/09/2017 13:46	1	09JAN2017A_006. d	Acquity 2.1 (mm)
IC 320-145640/7		01/09/2017 13:53	1	09JAN2017A_007. d	Acquity 2.1 (mm)
IC 320-145640/8		01/09/2017 14:01	1	09JAN2017A_008. d	Acquity 2.1 (mm)
IC 320-145640/9		01/09/2017 14:08	1	09JAN2017A_009. d	Acquity 2.1 (mm)
ICB 320-145640/10		01/09/2017 14:16	1		Acquity 2.1 (mm)
ICV 320-145640/11		01/09/2017 14:23	1	09JAN2017A_011. d	Acquity 2.1 (mm)
RB 320-145640/12 CCB		01/09/2017 14:31	1		Acquity 2.1 (mm)
IC 320-145640/13		01/09/2017 14:38	1	09JAN2017A_013. d	Acquity 2.1 (mm)
IC 320-145640/14		01/09/2017 14:46	1	09JAN2017A_014. d	Acquity 2.1 (mm)
IC 320-145640/15		01/09/2017 14:53	1	09JAN2017A_015. d	Acquity 2.1 (mm)
IC 320-145640/16		01/09/2017 15:01	1	09JAN2017A_016. d	Acquity 2.1 (mm)
IC 320-145640/17		01/09/2017 15:08	1	09JAN2017A_017. d	Acquity 2.1 (mm)
IC 320-145640/18		01/09/2017 15:16	1	09JAN2017A_018. d	Acquity 2.1 (mm)
ICB 320-145640/19		01/09/2017 15:23	1		Acquity 2.1 (mm)
ICV 320-145640/20		01/09/2017 15:31	1		Acquity 2.1 (mm)
RB 320-145640/21 CCB		01/09/2017 15:38	1		Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-24914-1

SDG No.: _____

Instrument ID: A8_NStart Date: 01/13/2017 11:28Analysis Batch Number: 146307End Date: 01/13/2017 14:58

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
RB 320-146307/1 CCB		01/13/2017 11:28	1		Acquity 2.1 (mm)
RB 320-146307/2 CCB		01/13/2017 11:36	1		Acquity 2.1 (mm)
RB 320-146307/3 CCB		01/13/2017 11:43	1		Acquity 2.1 (mm)
CCV 320-146307/4 CCVL		01/13/2017 11:51	1	13JAN2017A_004. d	Acquity 2.1 (mm)
CCV 320-146307/5 CCVL		01/13/2017 11:58	1		Acquity 2.1 (mm)
CCV 320-146307/6		01/13/2017 12:06	1	13JAN2017A_006. d	Acquity 2.1 (mm)
CCV 320-146307/7		01/13/2017 12:13	1		Acquity 2.1 (mm)
ZZZZZ		01/13/2017 12:21	1		Acquity 2.1 (mm)
MB 320-146172/1-A		01/13/2017 12:28	1	13JAN2017A_009. d	Acquity 2.1 (mm)
LCS 320-146172/2-A		01/13/2017 12:36	1	13JAN2017A_010. d	Acquity 2.1 (mm)
320-24914-1		01/13/2017 12:43	1	13JAN2017A_011. d	Acquity 2.1 (mm)
320-24914-1 MS		01/13/2017 12:51	1	13JAN2017A_012. d	Acquity 2.1 (mm)
320-24914-1 MSD		01/13/2017 12:58	1	13JAN2017A_013. d	Acquity 2.1 (mm)
320-24914-2		01/13/2017 13:06	1	13JAN2017A_014. d	Acquity 2.1 (mm)
320-24914-3		01/13/2017 13:13	1	13JAN2017A_015. d	Acquity 2.1 (mm)
320-24914-4		01/13/2017 13:21	1	13JAN2017A_016. d	Acquity 2.1 (mm)
320-24914-5		01/13/2017 13:28	1	13JAN2017A_017. d	Acquity 2.1 (mm)
320-24914-6		01/13/2017 13:36	1	13JAN2017A_018. d	Acquity 2.1 (mm)
ZZZZZ		01/13/2017 13:44	1		Acquity 2.1 (mm)
CCV 320-146307/20		01/13/2017 13:51	1	13JAN2017A_020. d	Acquity 2.1 (mm)
ZZZZZ		01/13/2017 13:58	1		Acquity 2.1 (mm)
320-24914-7		01/13/2017 14:06	1	13JAN2017A_022. d	Acquity 2.1 (mm)
320-24914-8		01/13/2017 14:13	1	13JAN2017A_023. d	Acquity 2.1 (mm)
320-24914-9		01/13/2017 14:21	1	13JAN2017A_024. d	Acquity 2.1 (mm)
320-24914-10		01/13/2017 14:28	1	13JAN2017A_025. d	Acquity 2.1 (mm)
320-24914-11		01/13/2017 14:36	1	13JAN2017A_026. d	Acquity 2.1 (mm)
RB 320-146307/27 CCB		01/13/2017 14:43	1		Acquity 2.1 (mm)
CCV 320-146307/28		01/13/2017 14:51	1	13JAN2017A_028. d	Acquity 2.1 (mm)
RB 320-146307/29 CCB		01/13/2017 14:58	1		Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/13/2017 15:59Analysis Batch Number: 146416 End Date: 01/13/2017 17:14

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
RB 320-146416/1 CCB		01/13/2017 15:59	1		Acquity 2.1 (mm)
ZZZZZ		01/13/2017 16:06	1		Acquity 2.1 (mm)
CCV 320-146416/3		01/13/2017 16:14	1	13JAN2017B_003. d	Acquity 2.1 (mm)
ZZZZZ		01/13/2017 16:21	1		Acquity 2.1 (mm)
320-24914-5 DL		01/13/2017 16:29	10	13JAN2017B_005. d	Acquity 2.1 (mm)
320-24914-6 DL		01/13/2017 16:36	10	13JAN2017B_006. d	Acquity 2.1 (mm)
320-24914-10 DL		01/13/2017 16:44	5	13JAN2017B_007. d	Acquity 2.1 (mm)
320-24914-3 DL		01/13/2017 16:51	5	13JAN2017B_008. d	Acquity 2.1 (mm)
320-24914-4 DL		01/13/2017 16:59	5	13JAN2017B_009. d	Acquity 2.1 (mm)
CCV 320-146416/10		01/13/2017 17:06	1	13JAN2017B_010. d	Acquity 2.1 (mm)
ZZZZZ		01/13/2017 17:14	1		Acquity 2.1 (mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Batch Number: 146172 Batch Start Date: 01/12/17 14:00 Batch Analyst: Kolstad, Kate MBatch Method: 3535 Batch End Date: 01/13/17 10:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFCSU 00047	LCPFCSP 00075
MB 320-146172/1		3535, 537 (Modified)				250 mL	0.5 mL	25 uL	
LCS 320-146172/2		3535, 537 (Modified)				250 mL	0.5 mL	25 uL	20 uL
320-24914-A-1	GR4-20170109	3535, 537 (Modified)	T	277.57 g	28.14 g	249.4 mL	0.5 mL	25 uL	
320-24914-A-1 MS	GR4-20170109	3535, 537 (Modified)	T	273.42 g	27.64 g	245.8 mL	0.5 mL	25 uL	20 uL
320-24914-A-1 MSD	GR4-20170109	3535, 537 (Modified)	T	269.50 g	27.48 g	242 mL	0.5 mL	25 uL	20 uL
320-24914-A-2	GR3-20170109	3535, 537 (Modified)	T	278.83 g	27.63 g	251.2 mL	0.5 mL	25 uL	
320-24914-A-3	GR2-20170109	3535, 537 (Modified)	T	274.09 g	27.73 g	246.4 mL	0.5 mL	25 uL	
320-24914-A-4	GR-OF-20170109	3535, 537 (Modified)	T	274.74 g	27.12 g	247.6 mL	0.5 mL	25 uL	
320-24914-A-5	MH117-N-20170109	3535, 537 (Modified)	T	265.90 g	27.15 g	238.8 mL	0.5 mL	25 uL	
320-24914-A-6	MH117-T-20170109	3535, 537 (Modified)	T	276.13 g	27.58 g	248.6 mL	0.5 mL	25 uL	
320-24914-A-7	FB-01-20170109	3535, 537 (Modified)	T	278.92 g	27.12 g	251.8 mL	0.5 mL	25 uL	
320-24914-A-8	SPRING-GR-20170109	3535, 537 (Modified)	T	279.73 g	26.92 g	252.8 mL	0.5 mL	25 uL	
320-24914-A-9	FB-02-20170109	3535, 537 (Modified)	T	279.34 g	26.69 g	252.7 mL	0.5 mL	25 uL	
320-24914-A-10	DUP-01-20170109	3535, 537 (Modified)	T	271.93 g	27.42 g	244.5 mL	0.5 mL	25 uL	
320-24914-A-11	RB-01-20170110	3535, 537 (Modified)	T	277.96 g	27.21 g	250.8 mL	0.5 mL	25 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.

537 (Modified)

Page 1 of 2

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24914-1

SDG No.: _____

Batch Number: 146172 Batch Start Date: 01/12/17 14:00 Batch Analyst: Kolstad, Kate MBatch Method: 3535 Batch End Date: 01/13/17 10:00

Batch Notes	
Balance ID	QA-070
H2O ID	CCB 1-5-17
Hexane ID	0000146278
Manifold ID	3, 10
Methanol ID	807185
Sodium Hydroxide ID	0.1N NaOH/H2O: 819948
Pipette ID	MD05306
Analyst ID - Reagent Drop	NSH
Analyst ID - SU Reagent Drop	NSH
Analyst ID - SU Reagent Drop Witness	KMK
Solvent Lot #	821930
Solvent Name	0.3% NH4OH/MeOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002836112A

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.

HPLC/LCMS Data Review Checklist

Job Number(s): 24914

Work List ID(s): 38797; 38830

Extraction Batch: 146172

Analysis Batch(es): 146307; 146416 (DL)

Delivery Rank 4

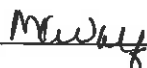
Due Date: 1/17/17

	1 st Level	2 nd Level	N/A
A. Calibration/Instrument Run QC			
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>145640</u>	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• RF _{average} criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).	✓	✓	
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?	✓	✓	
• All curve points show calculated concentrations.	✓	✓	
3. Peaks correctly ID'd by data system.	✓	✓	
5. Tune check frequency & criteria met and Tune check report attached.	✓	✓	
B. QA/QC			
1. Are all QC samples properly linked in TALS?	✓	✓	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	✓	✓	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	✓	✓	
4. Are MS/MSD recoveries and RPD within control limits?	✓	✓	
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted.	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?	✓	✓	
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation			
1. Are all non-conformances documented/attached? NCM#	✓	✓	
2. Do results make sense (e.g. dilutions, etc.)?	✓	✓	
3. Have all flags been reviewed for appropriateness?	✓	✓	
4. For level 3 and 4 reports, have forms and raw data been reviewed?	✓	✓	
5. Was QC Checker run for this job?	✓	✓	

*Upon completion of this checklist, the reviewer must scan and attach the checklist to the TALS job.

1st Level (Analyst): 

Date: 1/15/17

2nd Level Reviewer: 

Date: 1/19/2017

NCMS: 445 SBC 1/15/17
75433; 74963

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 13JAN2017A_PFC

Worklist Number: 38797

Instrument Name: A8_N

Chrom Method: A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170113-38797.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 146307	LC PFC ICAL Raw Batch: 146308	LC PFAS ICAL Raw Batch: 146309
# 1 RB	# 1 RB	# 1 RB	# 1 RB
# 2 RB	# 2 RB	# 2 RB	# 2 RB
# 3 RB	# 3 RB	# 3 RB	# 3 RB
# 4 CCV L2	# 4 CCV L2	# 4 CCV L2	# 4 CCV L2
# 5 CCV L2 ADD ON	# 5 CCV L2 ADD ON	# 5 CCV L2 ADD ON	# 5 CCV L2 ADD ON
# 6 CCV L5	# 6 CCV L5	# 6 CCV L5	# 6 CCV L5
# 7 CCV L5 ADD ON	# 7 CCV L5 ADD ON	# 7 CCV L5 ADD ON	# 7 CCV L5 ADD ON
# 8 RB	# 8 RB	# 8 RB	# 8 RB
# 9 MB 320-146172/1-A	# 9 MB 320-146172/1-A		
# 10 LCS 320-146172/2-A	# 10 LCS 320-146172/2-A		
# 11 320-24914-A-1-A	# 11 320-24914-A-1-A		
# 12 320-24914-A-1-B MS	# 12 320-24914-A-1-B MS		
# 13 320-24914-A-1-C MSD	# 13 320-24914-A-1-C MSD		
# 14 320-24914-A-2-A	# 14 320-24914-A-2-A		
# 15 320-24914-A-3-A	# 15 320-24914-A-3-A 5x 207.54		
# 16 320-24914-A-4-A	# 16 320-24914-A-4-A 5x 299.12		
# 17 320-24914-A-5-A	# 17 320-24914-A-5-A 10x 849.97		
# 18 320-24914-A-6-A	# 18 320-24914-A-6-A 10x 619.37		
# 19 RB	# 19 RB		# 19 RB
# 20 CCV L4	# 20 CCV L4		# 20 CCV L4
# 21 RB	# 21 RB		# 21 RB
# 22 320-24914-A-7-A	# 22 320-24914-A-7-A		
# 23 320-24914-A-8-A	# 23 320-24914-A-8-A		
# 24 320-24914-A-9-A	# 24 320-24914-A-9-A		
# 25 320-24914-A-10-A	# 25 320-24914-A-10-A 10x 779.62 5x		
# 26 320-24914-A-11-A	# 26 320-24914-A-11-A		
# 27 RB	# 27 RB		# 27 RB
# 28 CCV L5	# 28 CCV L5		# 28 CCV L5
# 29 RB	# 29 RB		# 29 RB

DIL 2

PFDA

PFOS

PFNA PFOS

E flag NCM

75433

Tune NCM

74763

+CV 145460 SBC 1/13/17

1CV 145640

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 13JAN2017B_PFC

Worklist Number: 38830

Instrument Name: A8_N

Chrom Method: A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170115-38830.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 146416	LC PFC ICAL Raw Batch: 146417	LC PFAS ICAL Raw Batch: 146418
# 1 RB	# 1 RB	# 1 RB	# 1 RB
# 2 RB	# 2 RB	# 2 RB	# 2 RB
# 3 CCV L5	# 3 CCV L5	# 3 CCV L5	# 3 CCV L5
# 4 RB	# 4 RB	# 4 RB	# 4 RB
# 5 320-24914-A-5-A	# 5 320-24914-A-5-A		
# 6 320-24914-A-6-A	# 6 320-24914-A-6-A		
# 7 320-24914-A-10-A	# 7 320-24914-A-10-A		
# 8 320-24914-A-3-A	# 8 320-24914-A-3-A		
# 9 320-24914-A-4-A	# 9 320-24914-A-4-A		
#10 CCV L4	#10 CCV L4	#10 CCV L4	#10 CCV L4
#11 RB	#11 RB	#11 RB	#11 RB

ICV 145640

CCV L2 146307

Box 46

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

A8 1/13/17

Batch Open: 1/12/2017 2:00:00PM

Batch End: 1/13/17 10:00

Solid-Phase Extraction (SPE)

DIL 2

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-146172/1 N/A	N/A		250 mL			N/A	N/A	N/A		MB 320-146172/1-A
			0.5 mL							
2 LCS-320-146172/2 N/A	N/A		250 mL			N/A	N/A	N/A		LCS 320-146172/2-A
			0.5 mL							
3 320-24914-A-1 (PFC_IDA_DOD5)	N/A (320-24914-1)	277.57 g	249.4 mL			1/17/17	4_Day_RUSH	4		320-24914-A-1-A
		28.14 g	0.5 mL							
4 320-24914-A-1-MS (PFC_IDA_DOD5)	N/A (320-24914-1)	273.42 g	245.8 mL			1/17/17	4_Day_RUSH	4		320-24914-A-1-B MS
		27.64 g	0.5 mL							
5 320-24914-A-1-MSD (PFC_IDA_DOD5)	N/A (320-24914-1)	269.50 g	242 mL			1/17/17	4_Day_RUSH	4		320-24914-A-1-C MSD
		27.48 g	0.5 mL							
6 320-24914-A-2 (PFC_IDA_DOD5)	N/A (320-24914-1)	278.83 g	251.2 mL			1/17/17	4_Day_RUSH	4		320-24914-A-2-A
		27.63 g	0.5 mL							
7 320-24914-A-3 (PFC_IDA_DOD5)	N/A (320-24914-1)	274.09 g	246.4 mL			1/17/17	4_Day_RUSH	4	5x PFOS 207	320-24914-A-3-A
		27.73 g	0.5 mL							
8 320-24914-A-4 (PFC_IDA_DOD5)	N/A (320-24914-1)	274.74 g	247.6 mL			1/17/17	4_Day_RUSH	4	5x PFOS 249	320-24914-A-4-A
		27.12 g	0.5 mL							
9 320-24914-A-5 (PFC_IDA_DOD5)	N/A (320-24914-1)	265.90 g	238.8 mL			1/17/17	4_Day_RUSH	4	10x PFOS 849	320-24914-A-5-A
		27.15 g	0.5 mL							
10 320-24914-A-6 (PFC_IDA_DOD5)	N/A (320-24914-1)	276.13 g	248.6 mL			1/17/17	4_Day_RUSH	4	10x PFOS 619	320-24914-A-6-A
		27.58 g	0.5 mL							

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)






Batch Number: 320-146172

Analyst: Kolstad, Kate M

Batch Open: 1/12/2017 2:00:00PM

Method Code: 320-3535_PFC-320

Batch End:

11	320-24914-A-7 (PFC_IDA_DOD5)	N/A (320-24914-1)	278.92 g	251.8 mL				1/17/17	4_Day_RUSH	4		
			27.12 g	0.5 mL								
12	320-24914-A-8 (PFC_IDA_DOD5)	N/A (320-24914-1)	279.73 g	252.8 mL				1/17/17	4_Day_RUSH	4		
			26.92 g	0.5 mL								
13	320-24914-A-9 (PFC_IDA_DOD5)	N/A (320-24914-1)	279.34 g	252.7 mL				1/17/17	4_Day_RUSH	4		
			26.69 g	0.5 mL								
14	320-24914-A-10 (PFC_IDA_DOD5)	N/A (320-24914-1)	271.93 g	244.5 mL				1/17/17	4_Day_RUSH	4	10x 779.62	
			27.42 g	0.5 mL								
15	320-24914-A-11 (PFC_IDA_DOD5)	N/A (320-24914-1)	277.96 g	250.8 mL				1/17/17	4_Day_RUSH	4		
			27.21 g	0.5 mL								

Page 601 of 610

01/19/2017

Printed : 1/12/2017

Page 2 of 6

TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-146172

Analyst: Kolstad, Kate M

Batch Open: 1/12/2017 2:00:00PM

Method Code: 320-3535_PFC-320

Batch End:

Batch Notes

Manifold ID 3, 10

Methanol ID 807185

Hexane ID 0000146278

Sodium Hydroxide ID 0.1N NaOH/H2O: 819948

First Start time NA

First End time NA

SPE Cartridge Type WAX 500mg

Solid Phase Extraction Disk ID 002836112A

Balance ID QA-070

H2O ID CCB 1-5-17

Pipette ID MD05306

Solvent Name 0.3% NH4OH/MeOH

Solvent Lot # 821930

Analyst ID - Reagent Drop NSH

Analyst ID - SU Reagent Drop NSH

Analyst ID - SU Reagent Drop KMK

Witness

Acid Name NA

Acid ID NA

Reagent ID NA

Reagent Lot Number NA

SOP Number WS-LC-0025

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-146172

Analyst: Kolstad, Kate M

Batch Open: 1/12/2017 2:00:00PM

Method Code: 320-3535_PFC-320

Batch End:

Batch Comment

Comments

320-24914-A-1

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-1~MS

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-1~MSD

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-2

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-3

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-4

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-5

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-6

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-7

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-8

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-9

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-10

Method Comments: Q5 - surface water from unknown site - screen samples

320-24914-A-11

Method Comments: Q5 - surface water from unknown site - screen samples

Page 609 of 610

01/19/2017

Printed : 1/12/2017

Page 4 of 6

TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-146172

Analyst: Kolstad, Kate M

Batch Open: 1/12/2017 2:00:00PM

Method Code: 320-3535_PFC-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-146172/1	LCMPFCSU_00047	25 uL	0.5 mL	NSH 1-12-17	KMK 1-12-17
LCS 320-146172/2	LCMPFCSU_00047	25 uL	0.5 mL		
LCS 320-146172/2	LCPFCSP_00075	20 mL	0.5 mL		
320-24914-A-1	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-1 MS	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-1 MS	LCPFCSP_00075	20 mL	0.5 mL		
320-24914-A-1 MSD	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-1 MSD	LCPFCSP_00075	20 mL	0.5 mL		
320-24914-A-2	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-3	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-4	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-5	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-6	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-7	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-8	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-9	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-10	LCMPFCSU_00047	25 uL	0.5 mL		
320-24914-A-11	LCMPFCSU_00047	25 uL	0.5 mL		

Page 604 of 610

01/19/2017

Printed : 1/12/2017

Page 5 of 6

TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-146172

Analyst: Kolstad, Kate M

Batch Open: 1/12/2017 2:00:00PM

Method Code: 320-3535_PFC-320

Batch End:

Other Reagents:

Reagent

Amount/Units

Lot#:

Page 605 of 610

01/19/2017

Printed : 1/12/2017

Page 6 of 6

TestAmerica Sacramento

Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): 146172

Test: 3535-PFC (push) (L)

Earliest Holding Time: 1-16-17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	/	/
All necessary NCMs filed (including holding time)	/	/
Method/sample/login/QAS checked and correct	/	/
Worksheet Tab	1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved	NA	NA
Weights in anticipated range and not targeted	/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	/	/
The pH is transcribed correctly in TALS	NA	NA
All additional information transcribed into TALS is correct and raw data is attached	/	/
Comments are transcribed correctly in TALS	/	/
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	/	/
All spike amounts correct and added to necessary samples and QC	/	/
Batch Information	1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly	/	/
All necessary 'batch information' complete and entered into TALS correctly	/	/

1st Level Reviewer: VPM

Date: 1/13/17

2nd Level Reviewer: COB

Date: 1/13/17

Comments: _____

Sample Dilution Record

Method ID PFC-IDR-DDDS

Job # 24914

Analyst (Print Name) Shyhanz Chandraseena Analyst Initials SBC

Date 1/13/17

[illegible]

8Bc 1/13/17

Comments:

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-24914-1</u>
SDG No.: _____	
Client Sample ID: <u>MH117-N-20170109 DL</u>	Lab Sample ID: <u>320-24914-5 DL</u>
Matrix: <u>Water</u>	Lab File ID: <u>13JAN2017B_005.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>01/09/2017 15:40</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/12/2017 14:01</u>
Sample wt/vol: <u>238.8 (mL)</u>	Date Analyzed: <u>01/13/2017 16:29</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>10</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>146416</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2100	D	42	31	13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00991	13C4 PFOS	137		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170115-38830.b\13JAN2017B_005.d
 Lims ID: 320-24914-A-5-A
 Client ID: MH117-N-20170109
 Sample Type: Client
 Inject. Date: 13-Jan-2017 16:29:15 ALS Bottle#: 46 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 10.0000
 Sample Info: 320-24914-a-5-a 10X
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170115-38830.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 15-Jan-2017 17:25:06 Calib Date: 09-Jan-2017 15:16:24
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170109-38635.b\09JAN2017A_018.d
 Column 1 : Det: EXP1
 Process Host: XAWRK004

First Level Reviewer: chandrasenas

Date: 15-Jan-2017 17:23:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.988	3.000	-0.012	1.000	1469568	4.74			6581	
413.00 > 169.00	2.964	3.000	-0.036	0.992	1075054		1.37(0.90-1.10)		23796	
D 14 13C4 PFOA										
417.00 > 372.00	2.988	3.000	-0.012		1544941	6.39		12.8	176646	
18 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.260	3.373	-0.113	1.000	35972132	99.9			163000	
499.00 > 99.00	3.359	3.373	-0.014	1.030	8520901		4.22(0.90-1.10)		211620	
D 17 13C4 PFOS										
503.00 > 80.00	3.386	3.390	-0.004		1699549	6.55		13.7	55112	
D 19 13C5 PFNA										
468.00 > 423.00	3.386	3.399	-0.013		1074668	5.86		11.7	118577	
20 Perfluorononanoic acid										
463.00 > 419.00	3.395	3.399	-0.004	1.000	97923	0.4782			1378	

PFOS calculation

$$(35972132 / 1699549) * (4.64 / 1.013) = 99.2$$

$$99.2 * DF10 * (500 \text{ uL} / 238.8 \text{ mL}) = 2077$$

Rounds to 2100 ng/L

DODCMD_ID	INSTALLATION_ID	SDG	SITE_NAME	NORM_SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	CONTRACT_ID	DO_CTO_NUMBER	CONTR_NAME	SAMPLE_NAME	SAMPLE_MATRIX_DESC	SAMPLE_TYPE_DESC	COLLECT_DATE	ANALYTICAL_METHOD	ANALYTICAL_METHOD_GRP_DESC
MID_ATLANTIC	TRENTON_NAWC	320-24914-1	EBS PHASE2	EBS PHASE2	OF4	Outfall	405496.72	522529.95	N6247016D9008	WE08	TETRA TECH, INC.	GR4-20170109	Surface water	Normal (Regular)	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1	EBS PHASE2	EBS PHASE2	MH-117N	Manhole/Catch basin	405494.71	522515.54	N6247016D9008	WE08	TETRA TECH, INC.	MH-117N-20170109-D	Surface water	Field duplicate	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1							N6247016D9008	WE08	TETRA TECH, INC.	FB-01-20170109	Water for QC samples	Field blank	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1	EBS PHASE2	EBS PHASE2	OF2	Outfall	405038.4	522631.5	N6247016D9008	WE08	TETRA TECH, INC.	GR2-20170109	Surface water	Normal (Regular)	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1	EBS PHASE2	EBS PHASE2	MH-117N	Manhole/Catch basin	405494.71	522515.54	N6247016D9008	WE08	TETRA TECH, INC.	MH-117N-20170109	Surface water	Normal (Regular)	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1	EBS PHASE2	EBS PHASE2	OF3	Outfall	405337.26	522550.06	N6247016D9008	WE08	TETRA TECH, INC.	GR3-20170109	Surface water	Normal (Regular)	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1							N6247016D9008	WE08	TETRA TECH, INC.	FB-02-20170109	Water for QC samples	Field blank	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1	EBS PHASE2	EBS PHASE2	MH-117T	Manhole/Catch basin	405494.71	522515.54	N6247016D9008	WE08	TETRA TECH, INC.	MH-117T-20170109	Surface water	Normal (Regular)	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1	EBS PHASE2	EBS PHASE2	SPRING-GR	Surface water body - nonspecific	404660.5878	523327.6676	N6247016D9008	WE08	TETRA TECH, INC.	SPRING-GR-20170109	Surface water	Normal (Regular)	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1	EBS PHASE2	EBS PHASE2	GR-OF	Outfall	406945.1	521719.82	N6247016D9008	WE08	TETRA TECH, INC.	GR-OF-20170109	Surface water	Normal (Regular)	9-Jan-17	537	Perfluoroalkyl Compounds
MID_ATLANTIC	TRENTON_NAWC	320-24914-1							N6247016D9008	WE08	TETRA TECH, INC.	RB-01-20170110	Water for QC samples	Equipment blank	10-Jan-17	537	Perfluoroalkyl Compounds