

- Legend**
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
 - AFFF Inspection Area
 - Installation Boundary
 - Cable Arresting System
 - Estimated Groundwater Flow Direction*

Note: Temporary wells were not installed because of airfield access limitations.

*Source: CH2M HILL, March 2010, Final Remedial Investigation Report – Sites 1, 2, 3, 4, 5A, and 5B, 158th Fighter Wing, Vermont Air National Guard Burlington Air National Guard Base, South Burlington, Vermont



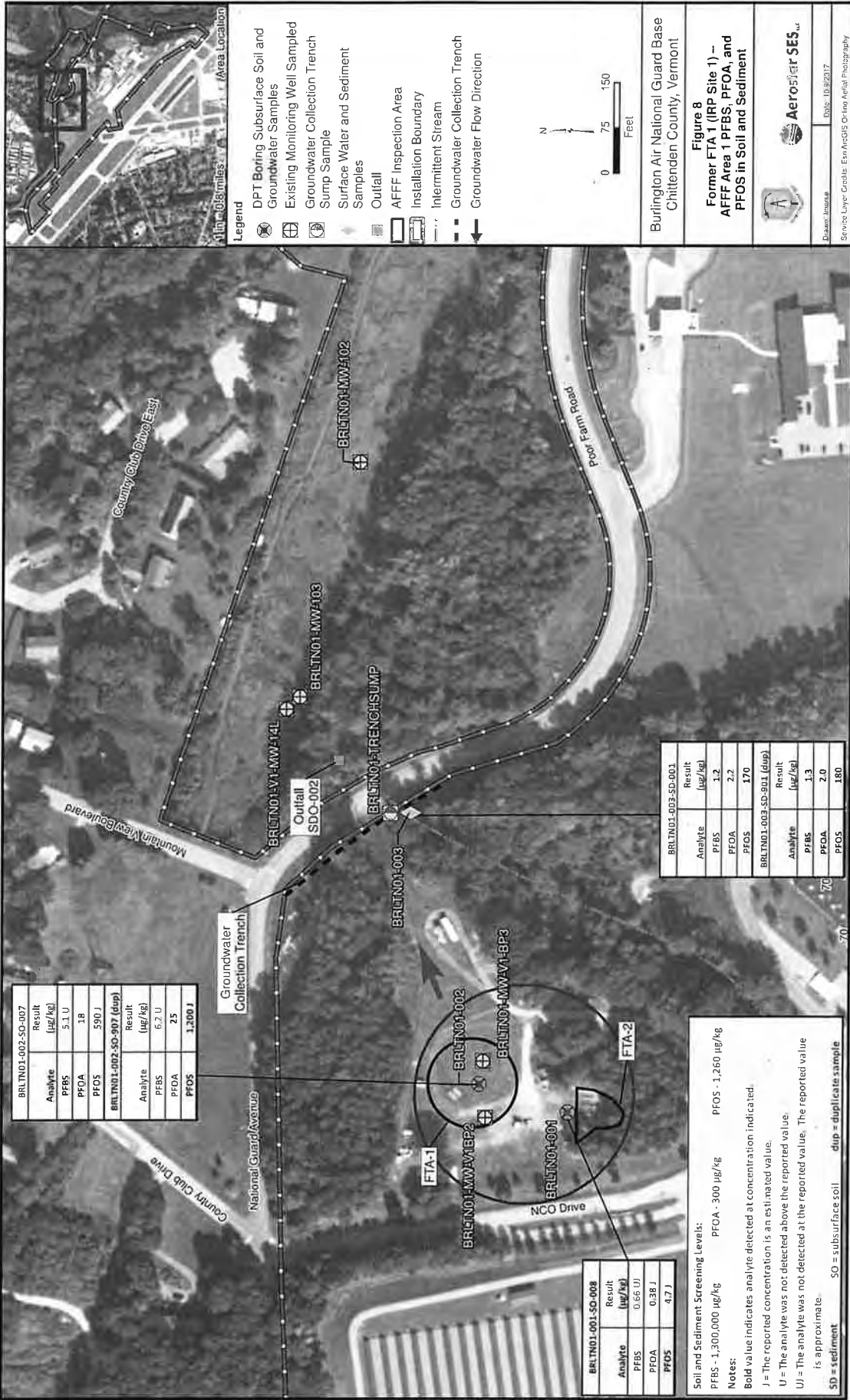
Burlington Air National Guard Base
Chittenden County, Vermont

Figure 7
F-16 Emergency Response Site –
AFFE Area 5 Sample Locations

Aerostar SES, Inc.

Drawn: Inhouse Date: 10/23/2017

Source Layer Credits: Esri/Aerostar Online Aerial Photography



BRLTN01-002-SO-007	
Analyte	Result (ug/kg)
PFBS	5.1 U
PFOA	18
PFOS	590 J

BRLTN01-002-SO-907 (dup)	
Analyte	Result (ug/kg)
PFBS	6.2 U
PFDA	25
PFOS	1,200 J

BRLTN01-001-SO-008	
Analyte	Result (ug/kg)
PFBS	0.66 UJ
PFOA	0.38 J
PFOS	4.7 J

Soil and Sediment Screening Levels:
 PFBS - 1,300,000 ug/kg PFOA - 300 ug/kg PFOS - 1,260 ug/kg

Notes:
 J = The reported concentration is an estimated value.
 U = The analyte was not detected above the reported value.
 UJ = The analyte was not detected at the reported value. The reported value is approximate.
 SO = sediment SD = subsurface soil dup = duplicate sample

BRLTN01-003-SD-001	
Analyte	Result (ug/kg)
PFBS	1.2
PFOA	2.2
PFOS	170

BRLTN01-003-SD-901 (dup)	
Analyte	Result (ug/kg)
PFBS	1.3
PFDA	2.0
PFOS	180

- Legend**
- DPT Boring Subsurface Soil and Groundwater Samples
 - Existing Monitoring Well Sampled
 - Groundwater Collection Trench
 - Sump Sample
 - Surface Water and Sediment Samples
 - Outfall
 - AFFF Inspection Area
 - Installation Boundary
 - Intermittent Stream
 - Groundwater Collection Trench
 - Groundwater Flow Direction

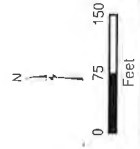
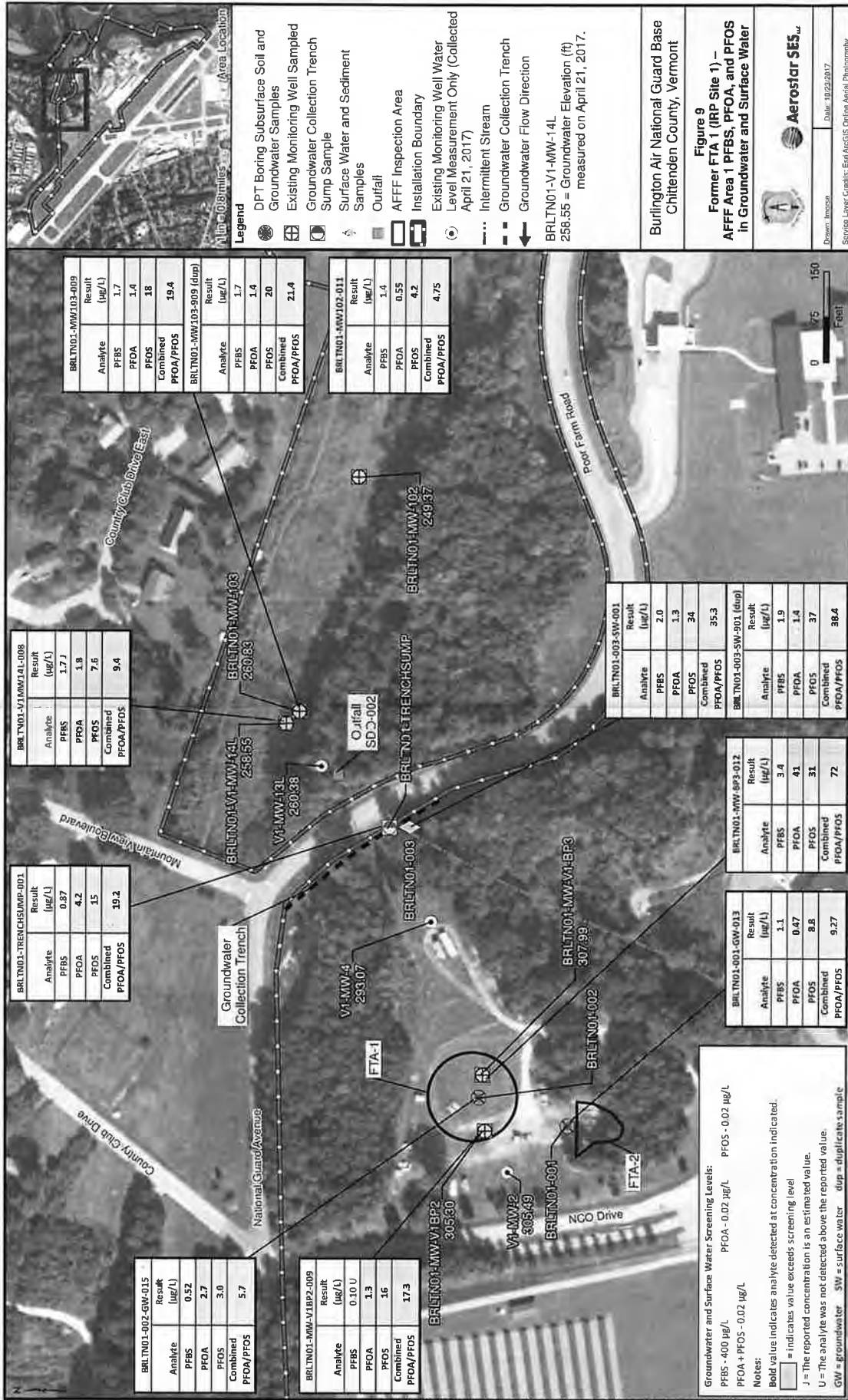


Figure 8
Former FTA 1 (IRP Site 1) -
FFFA Area 1 PFBS, PFOA, and
PFOS in Soil and Sediment

Burlington Air National Guard Base
 Chittenden County, Vermont

Aerostar SES

Date: 10/2/2017
 Service Layer Credits: Esri/ArcGIS Online/Aerial Photography



BRLTN01-MW-103-009		Result (µg/L)
Analyte		
PFBS	1.7	
PFOA	1.4	
PFOS	18	
Combined PFOA/PFOS	19.4	

BRLTN01-V1-MW-14L-008		Result (µg/L)
Analyte		
PFBS	1.7	
PFOA	1.8	
PFOS	7.6	
Combined PFOA/PFOS	9.4	

BRLTN01-TRENCHSUMP-001		Result (µg/L)
Analyte		
PFBS	0.87	
PFOA	4.2	
PFOS	15	
Combined PFOA/PFOS	19.2	

BRLTN01-002-GW-015		Result (µg/L)
Analyte		
PFBS	0.52	
PFOA	2.7	
PFOS	3.0	
Combined PFOA/PFOS	5.7	

BRLTN01-MW-V1-BP2-009		Result (µg/L)
Analyte		
PFBS	0.10	
PFOA	1.3	
PFOS	16	
Combined PFOA/PFOS	17.3	

BRLTN01-MW-102-011		Result (µg/L)
Analyte		
PFBS	1.4	
PFOA	0.55	
PFOS	4.2	
Combined PFOA/PFOS	4.75	

BRLTN01-003-SW-001		Result (µg/L)
Analyte		
PFBS	2.0	
PFOA	1.3	
PFOS	34	
Combined PFOA/PFOS	35.3	

BRLTN01-MW-003-012		Result (µg/L)
Analyte		
PFBS	3.4	
PFOA	41	
PFOS	31	
Combined PFOA/PFOS	72	

BRLTN01-001-GW-013		Result (µg/L)
Analyte		
PFBS	1.1	
PFOA	0.47	
PFOS	8.8	
Combined PFOA/PFOS	9.27	

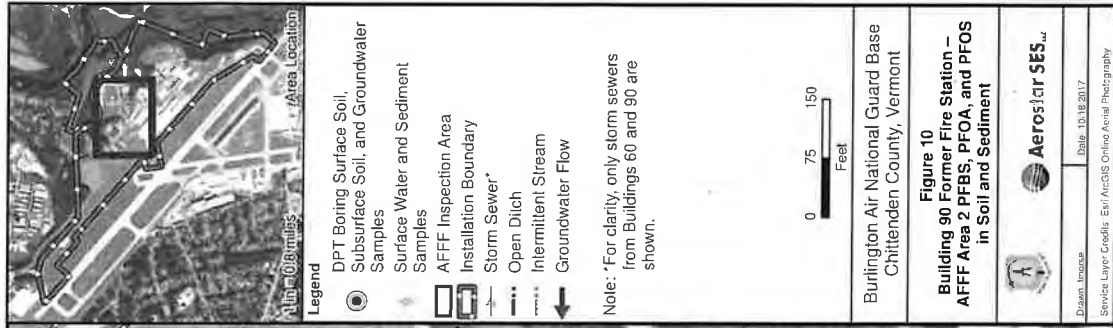
Groundwater and Surface Water Screening Levels:
 PFOA - 0.02 µg/L PFOS - 0.02 µg/L
 PFBS - 400 µg/L
 PFOA + PFOS - 0.02 µg/L

Notes:
 Bold value indicates analyte detected at concentration indicated.
 J = indicates value exceeds screening level
 U = The reported concentration is an estimated value.
 U = The analyte was not detected above the reported value.
 GW = groundwater SW = surface water dup = duplicate sample

Figure 9
Former FTA 1 (IRP Site 1) -
AFFE Area 1 PFBS, PFOA, and PFOS
in Groundwater and Surface Water

Burlington Air National Guard Base
 Chittenden County, Vermont

Aerostar SES
 Date: 10/22/2017
 Service Layer Credits: Esri/ArcGIS Online/AeS8 Photography



BRLT02-002-SS-001	
Result	
Analyte	(ug/kg)
PFBS	0.66 U
PFDA	0.91 J
PFOS	2.1

BRLT02-002-SO-020	
Result	
Analyte	(ug/kg)
PFBS	0.66 U
PFDA	0.52 J
PFOS	1.60

BRLT02-001-SS-001	
Result	
Analyte	(ug/kg)
PFBS	0.50 U
PFDA	0.53 J
PFOS	3.1 J

BRLT02-001-SS-901 (dup)	
Result	
Analyte	(ug/kg)
PFBS	0.28 J
PFDA	0.69 J
PFOS	2.8

BRLT02-001-SO-020	
Result	
Analyte	(ug/kg)
PFBS	0.58 U
PFDA	1.7
PFOS	1.60

BRLT02-003-SS-001	
Result	
Analyte	(ug/kg)
PFBS	0.66 U
PFDA	0.70 J
PFOS	5.6 J

BRLT02-003-SO-025	
Result	
Analyte	(ug/kg)
PFBS	0.52 U
PFDA	7.8 J
PFOS	20 J

BRLT02-004-SD-001	
Result	
Analyte	(ug/kg)
PFBS	0.72 U
PFDA	0.72 U
PFOS	2.3

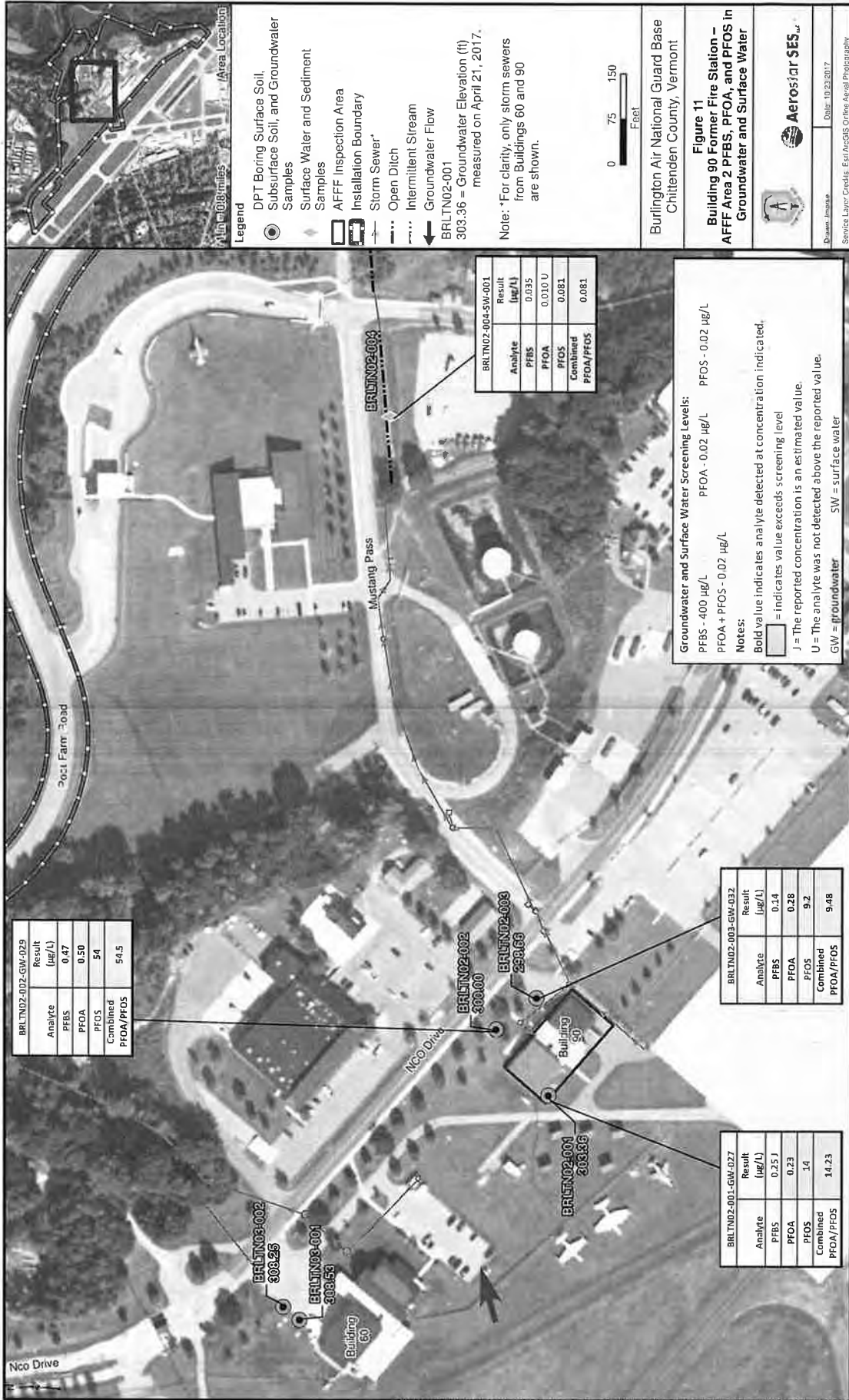
Soil and Sediment Screening Levels:	
PFBS	- 1,300,000 ug/kg
PFDA	- 300 ug/kg
PFOS	- 1,250 ug/kg

Notes:

- Bold value indicates analyte detected at concentration indicated.**
- J = The reported concentration is an estimated value.**
- U = The analyte was not detected above the reported value.**
- UI = The analyte was not detected at the reported value. The reported value is approximate.**
- SD = sediment** **SS = surface soil** **SO = subsurface soil**
- dup = duplicate sample**

Figure 10
 Burlington Air National Guard Base
 Chittenden County, Vermont
Building 90 Former Fire Station –
AFFF Area 2 PFBS, PFDA, and PFOS
in Soil and Sediment

Drawn: In-house
 Date: 10/18/2017



BRLTN02-002-GW-029	
Analyte	Result (µg/L)
PFBS	0.47
PFOA	0.50
PFOS	54
Combined PFOA/PFOS	54.5

BRLTN02-004-SW-001	
Analyte	Result (µg/L)
PFBS	0.035
PFOA	0.010 U
PFOS	0.081
Combined PFOA/PFOS	0.081

BRLTN02-003-GW-032	
Analyte	Result (µg/L)
PFBS	0.14
PFOA	0.28
PFOS	9.2
Combined PFOA/PFOS	9.48

BRLTN02-001-GW-027	
Analyte	Result (µg/L)
PFBS	0.25 J
PFOA	0.23
PFOS	14
Combined PFOA/PFOS	14.23

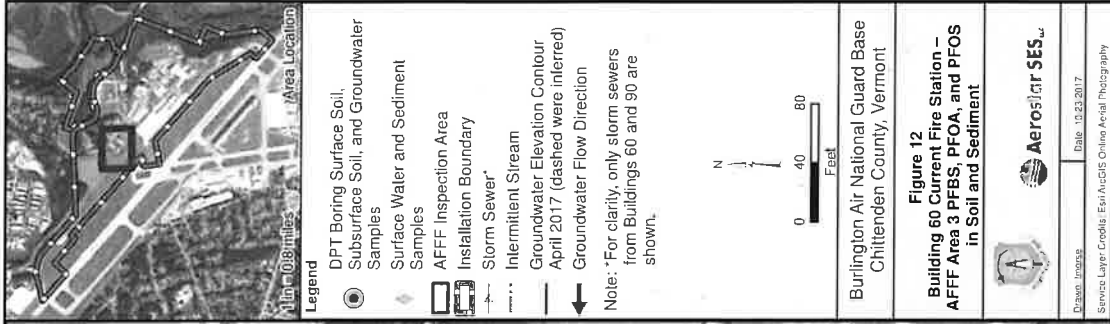
Groundwater and Surface Water Screening Levels:
 PFBS - 400 µg/L PFOA - 0.02 µg/L PFOS - 0.02 µg/L
 PFOA + PFOS - 0.02 µg/L

Notes:
 Bold value indicates analyte detected at concentration indicated,
 = Indicates value exceeds screening level
 J = The reported concentration is an estimated value.
 U = The analyte was not detected above the reported value.
 GW = Groundwater SW = Surface water

Figure 11
Building 90 Former Fire Station –
AFFF Area 2 PFBS, PFOA, and PFOS in
Groundwater and Surface Water

Burlington Air National Guard Base
 Chittenden County, Vermont

Aerospat SES, Inc.
 10/23/2017
 Service Layer Credits: Est/Acc/SI/Office Aerial Photography



BRLTN03-001-SS-001		BRLTN03-002-SS-001		BRLTN03-002-SO-015		BRLTN03-003-SB-001	
Analyte	Result (µg/kg)	Analyte	Result (µg/kg)	Analyte	Result (µg/kg)	Analyte	Result (µg/kg)
PFBS	0.71 J	PFBS	0.49 J	PFBS	0.43 J	PFBS	0.66 U
PFOA	0.92 J	PFOA	0.54 J	PFOA	0.54 J	PFOA	0.66 U
PFOS	170	PFOS	110	PFOS	110	PFOS	63

BRLTN03-001-SS-001		BRLTN03-001-SO-014	
Analyte	Result (µg/kg)	Analyte	Result (µg/kg)
PFBS	0.32 J	PFBS	0.37 J
PFOA	1.5 J	PFOA	1.0
PFOS	280	PFOS	140

Soil and Sediment Screening Levels:
 PFBS - 1,300,000 µg/kg PFOA - 300 µg/kg PFOS - 1,260 µg/kg

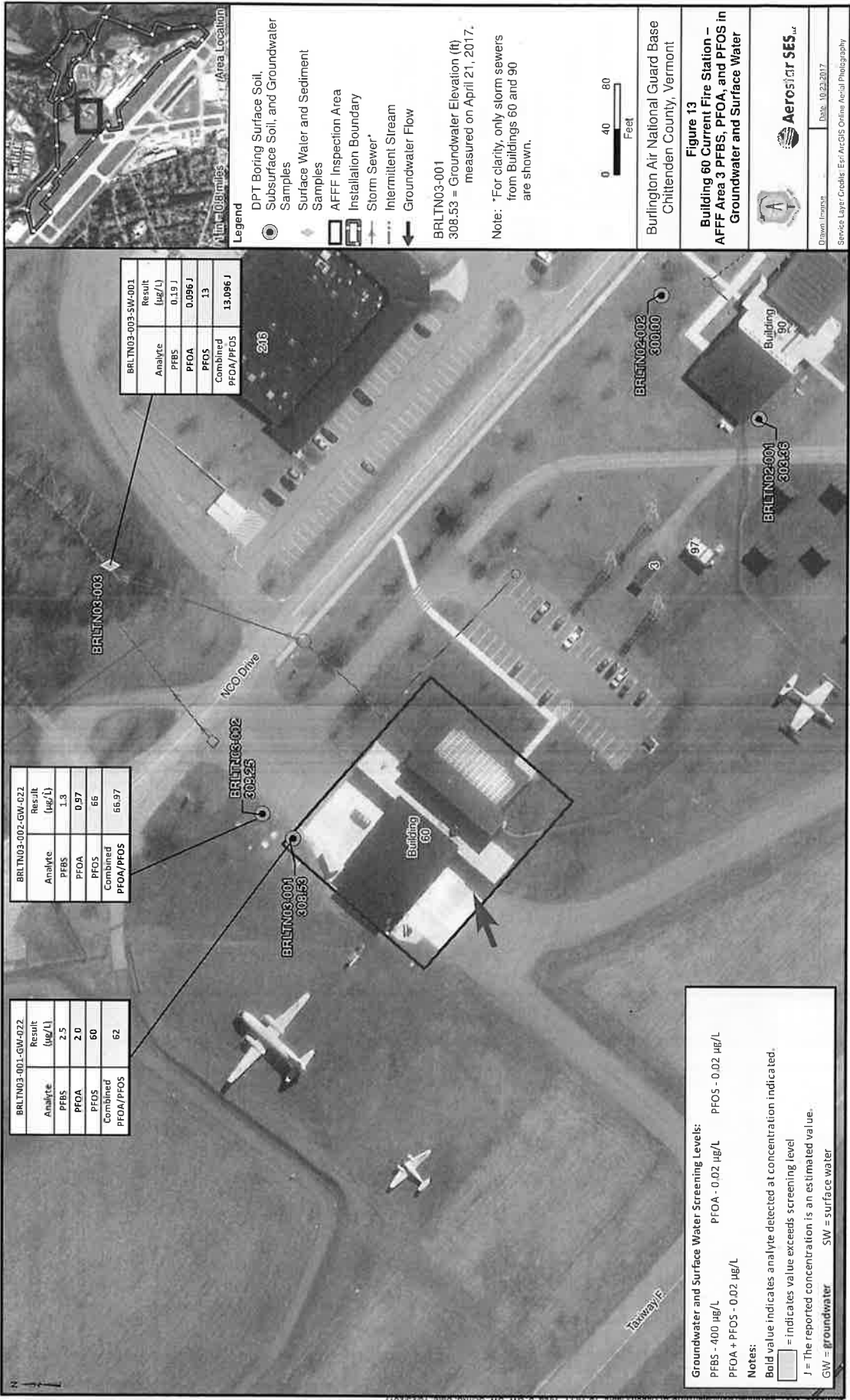
Notes:
 Bold value indicates analyte detected at concentration indicated.
 J = The reported concentration is an estimated value.
 U = The analyte was not detected above the reported value.
 SD = sediment SS = surface soil SO = subsurface soil

Figure 12
Building 60 Current Fire Station –
AFFE Area 3 PFBS, PFOA, and PFOS
in Soil and Sediment

Burlington Air National Guard Base
 Chittenden County, Vermont

Drawn: [Signature]
 Date: 10.23.2017

Source Layer Credits: Esri/ArcGIS Online/Aerial Photography



BRLTN03-001-SW-001	
Analyte	Result (ug/L)
PFBS	0.19 J
PFOA	0.096 J
PFOS	13
Combined PFOA/PFOS	13.096 J

BRLTN03-002-GW-022	
Analyte	Result (ug/L)
PFBS	1.3
PFOA	0.97
PFOS	56
Combined PFOA/PFOS	56.97

BRLTN03-001-GW-022	
Analyte	Result (ug/L)
PFBS	2.5
PFOA	2.0
PFOS	60
Combined PFOA/PFOS	62

Groundwater and Surface Water Screening Levels:
 PFBS - 400 ug/L PFOA - 0.02 ug/L PFOS - 0.02 ug/L
 PFOA + PFOS - 0.02 ug/L

Notes:
Bold value indicates analyte detected at concentration indicated.
 J = indicates value exceeds screening level
 J = The reported concentration is an estimated value.
 GW = groundwater
 SW = surface water

- Legend
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
 - ◇ Surface Water and Sediment Samples
 - AFFE Inspection Area
 - ▭ Installation Boundary
 - ▭ Storm Sewer
 - Intermittent Stream
 - Groundwater Flow

BRLTN03-001
 308.53 = Groundwater Elevation (ft)
 measured on April 21, 2017.

Note: *For clarity, only storm sewers from Buildings 60 and 90 are shown.

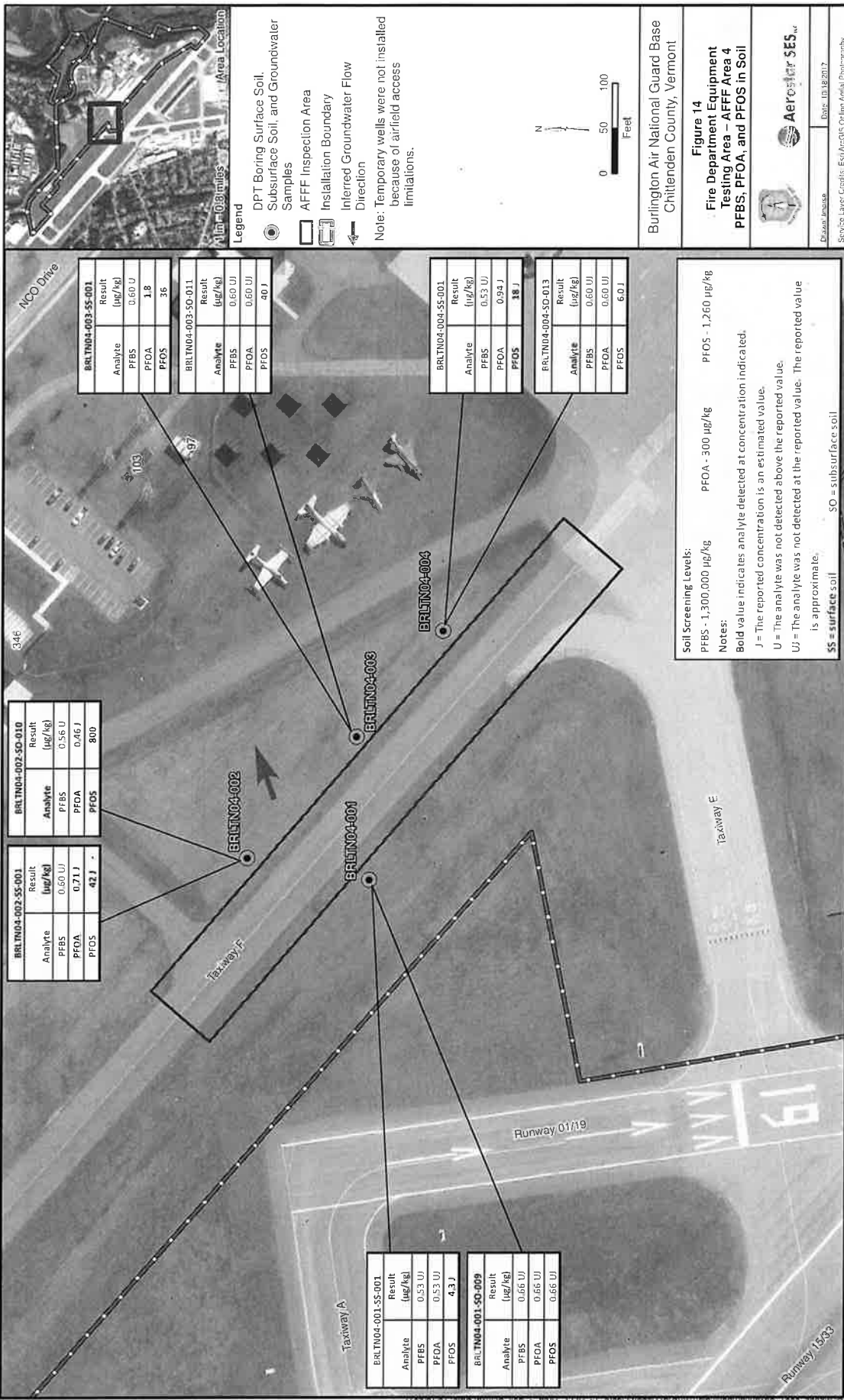


Burlington Air National Guard Base
 Chittenden County, Vermont

Figure 13
Building 60 Current Fire Station -
AFFF Area 3 PFBS, PFOA, and PFOS in
Groundwater and Surface Water

Aerostat SES

Drawn: Inverse Date: 10/23/2017
 Source Layer Credits: Esri/ArcGIS Online/Aerial Photography



NCO Drive

BRLTN04-002-SS-001		BRLTN04-002-SO-010	
Analyte	Result (ug/kg)	Analyte	Result (ug/kg)
PFBS	0.60 UJ	PFBS	0.56 U
PFDA	0.71 J	PFDA	0.46 J
PFOS	42 J	PFOS	800

BRLTN04-003-SS-001	
Analyte	Result (ug/kg)
PFBS	0.60 U
PFDA	1.8
PFOS	36

BRLTN04-003-SO-011	
Analyte	Result (ug/kg)
PFBS	0.60 UJ
PFDA	0.60 UJ
PFOS	40 J

BRLTN04-001-SS-001	
Analyte	Result (ug/kg)
PFBS	0.53 UJ
PFDA	0.53 UJ
PFOS	4.3 J

BRLTN04-001-SO-009	
Analyte	Result (ug/kg)
PFBS	0.66 UJ
PFDA	0.66 UJ
PFOS	0.66 UJ

BRLTN04-004-SS-001	
Analyte	Result (ug/kg)
PFBS	0.53 UJ
PFDA	0.94 J
PFOS	18 J

BRLTN04-004-SO-013	
Analyte	Result (ug/kg)
PFBS	0.60 UJ
PFDA	0.60 UJ
PFOS	6.0 J

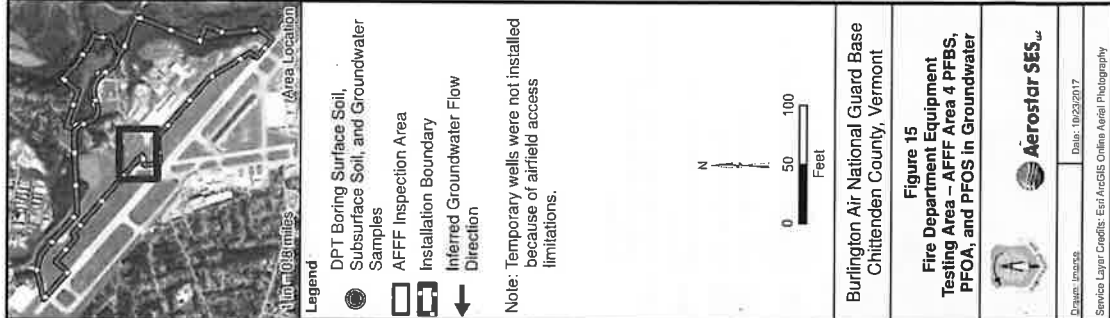
Soil Screening Levels:
 PFBS - 1,300,000 ug/kg
 PFDA - 300 ug/kg
 PFOS - 1,260 ug/kg

Notes:
 Bold value indicates analyte detected at concentration indicated.
 J = The reported concentration is an estimated value.
 U = The analyte was not detected above the reported value.
 UJ = The analyte was not detected at the reported value. The reported value is approximate.
 SS = surface soil
 SO = subsurface soil

Figure 14
 Fire Department Equipment Testing Area - AFF Area 4
 PFBS, PFDA, and PFOS in Soil

Burlington Air National Guard Base
 Chittenden County, Vermont

Date: 10/18/2017



BRLTN04-001-GW-013	
Analyte	Result (µg/L)
PFBS	0.013 J
PFDA	0.084
PFOS	0.10
Combined PFOA/PFOA	0.184

BRLTN04-002-GW-018	
Analyte	Result (µg/L)
PFBS	0.0052 J
PFDA	0.0081 J
PFOS	0.056
Combined PFOA/PFOA	0.0641 J

BRLTN04-003-GW-018	
Analyte	Result (µg/L)
PFBS	0.016 J
PFDA	0.023
PFOS	0.24
Combined PFOA/PFOA	0.263

BRLTN04-004-GW-018	
Analyte	Result (µg/L)
PFBS	0.059
PFDA	0.061
PFOS	0.26
Combined PFOA/PFOA	0.321

BRLTN04-004-GW-918 (dup)	
Analyte	Result (µg/L)
PFBS	0.044
PFDA	0.062
PFOS	0.26
Combined PFOA/PFOA	0.322

Groundwater Screening Levels:	
PFBS - 400 µg/L	PFDA - 0.02 µg/L
PFOA + PFOA - 0.02 µg/L	PFOS - 0.02 µg/L

Notes:

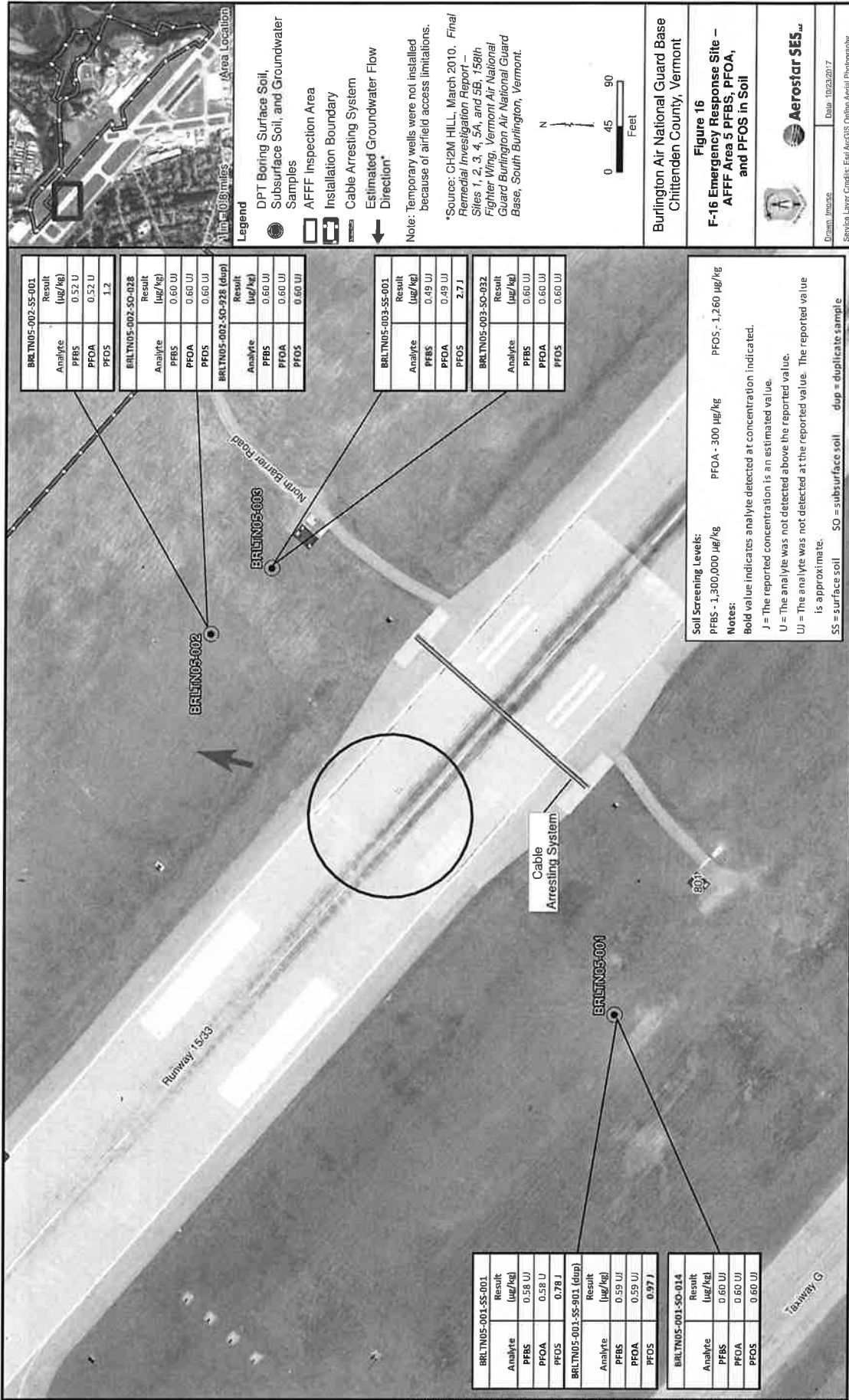
Bold value indicates analyte detected at concentration indicated.
 = indicates value exceeds screening level
 J = The reported concentration is an estimated value.
 GW = groundwater dup = duplicate sample

Figure 15
Fire Department Equipment Testing Area – AFF Area 4 PFBS, PFOA, and PFOS in Groundwater

Burlington Air National Guard Base
 Chittenden County, Vermont



Drawn: [Name]
 Date: 10/23/2017
 Services Layer Credits: Esri, ArcGIS Online, Aerial Photography



BRLTN05-002-SS-001	
Analyte	Result (ug/kg)
PFBS	0.52 U
PFOA	0.52 U
PFOS	1.2

BRLTN05-002-SO-028	
Analyte	Result (ug/kg)
PFBS	0.60 UJ
PFOA	0.60 UJ
PFOS	0.60 UJ

BRLTN05-002-SO-028 (dup)	
Analyte	Result (ug/kg)
PFBS	0.60 UJ
PFOA	0.60 UJ
PFOS	0.60 UJ

BRLTN05-003-SS-001	
Analyte	Result (ug/kg)
PFBS	0.49 UJ
PFOA	0.49 UJ
PFOS	2.7 J

BRLTN05-003-SO-032	
Analyte	Result (ug/kg)
PFBS	0.60 UJ
PFOA	0.60 UJ
PFOS	0.60 UJ

Soil Screening Levels:
 PFBS - 1,300,000 ug/kg PFOA - 300 ug/kg PFOS - 1,260 ug/kg

Notes:
 Bold value indicates analyte detected at concentration indicated.
 J = The reported concentration is an estimated value.
 U = The analyte was not detected above the reported value.
 UJ = The analyte was not detected at the reported value. The reported value is approximate.
 SS = surface soil SO = subsurface soil dup = duplicate sample

- Legend**
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
 - AFFF Inspection Area
 - Installation Boundary
 - Cable Arresting System
 - Estimated Groundwater Flow Direction*

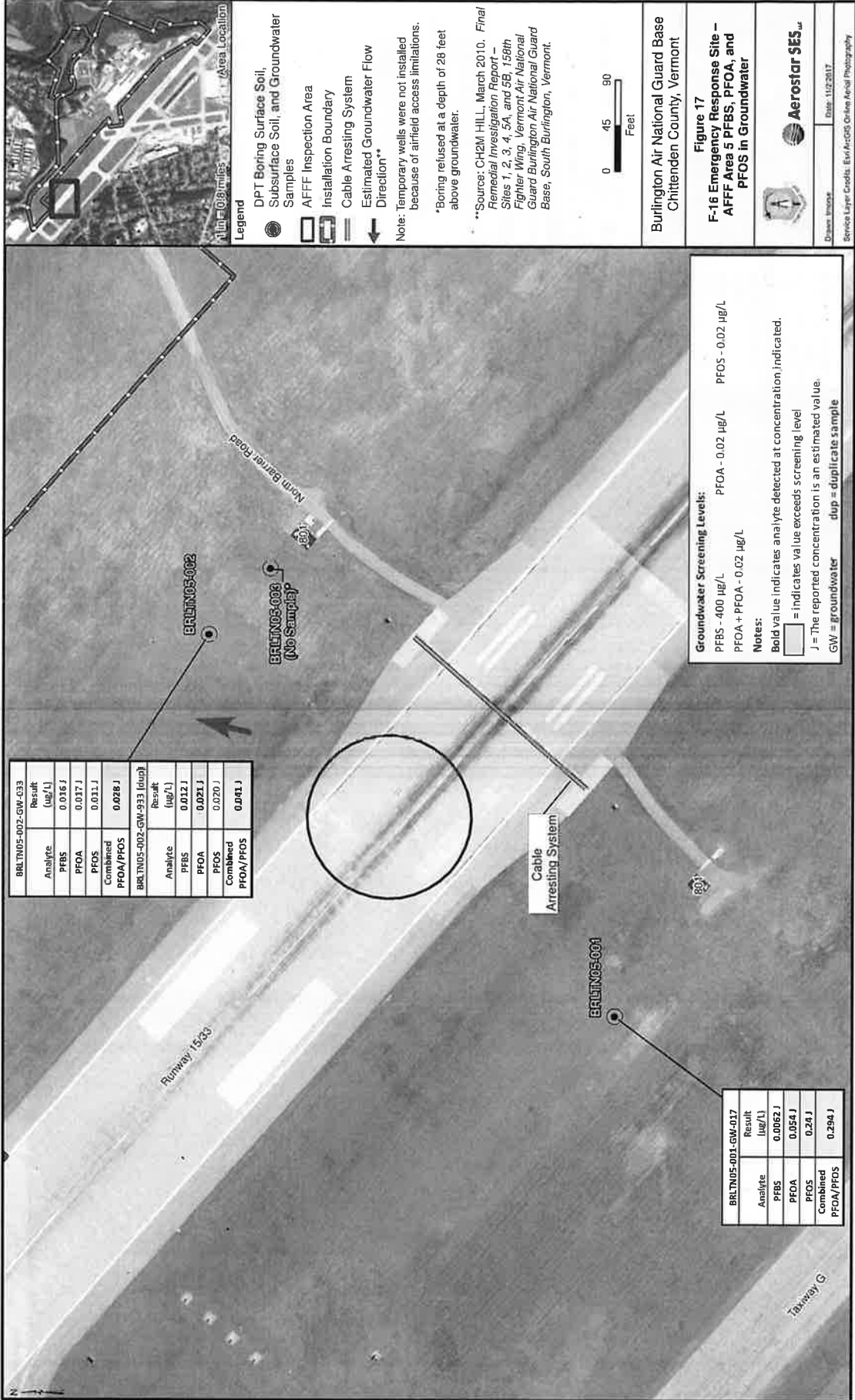
Note: Temporary wells were not installed because of airfield access limitations.
 *Source: CH2M HILL, March 2010. Final Remedial Investigation Report – Sites 1, 2, 3, 4, 5A, and 5B, 15/33R, Fighter Wing, Vermont Air National Guard Burlington Air National Guard Base, South Burlington, Vermont.

Figure 16
F-16 Emergency Response Site – AFFF Area 5 PFBS, PFOA, and PFOS in Soil

Burlington Air National Guard Base
 Chittenden County, Vermont

Aerosolar SES

Drawn: Inverse Date: 10/23/2017
 Service Layer Credits: Esri/ArcGIS Online, Aerial Photography



BRLTN05-002-GW-C33	
Analyte	Result (ug/L)
PFBS	0.016 J
PFOA	0.017 J
PFOS	0.011 J
Combined PFOA/PFOS	0.028 J

BRLTN05-002-GW-933 (dup)	
Analyte	Result (ug/L)
PFBS	0.012 J
PFOA	0.021 J
PFOS	0.020 J
Combined PFOA/PFOS	0.041 J

BRLTN05-001-GW-017	
Analyte	Result (ug/L)
PFBS	0.0062 J
PFOA	0.054 J
PFOS	0.24 J
Combined PFOA/PFOS	0.294 J

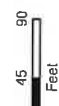
Groundwater Screening Levels:
 PFBS - 400 ug/L PFOA - 0.02 ug/L PFOS - 0.02 ug/L
 PFOA + PFOS - 0.02 ug/L

Notes:
 Bold value indicates analyte detected at concentration indicated.
 J = indicates value exceeds screening level
 J = The reported concentration is an estimated value.
 GW = groundwater dup = duplicate sample

- Legend**
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
 - AFFF Inspection Area
 - Installation Boundary
 - Cable Arresting System
 - Estimated Groundwater Flow Direction**

Note: Temporary wells were not installed because of airfield access limitations.
 *Boring refused at a depth of 28 feet above groundwater.

**Source: CHEM HILL, March 2010. Final Remedial Investigation Report – Sites 1, 2, 3, 4, 5A, and 5B, 158th Fighter Wing, Vermont Air National Guard Burlington Air National Guard Base, South Burlington, Vermont.



Burlington Air National Guard Base
 Chittenden County, Vermont

Figure 17
F-16 Emergency Response Site – AFFF Area 5 PFBS, PFOA, and PFOS in Groundwater

Aerostar SES, Inc.
 Date: 11/2/2017

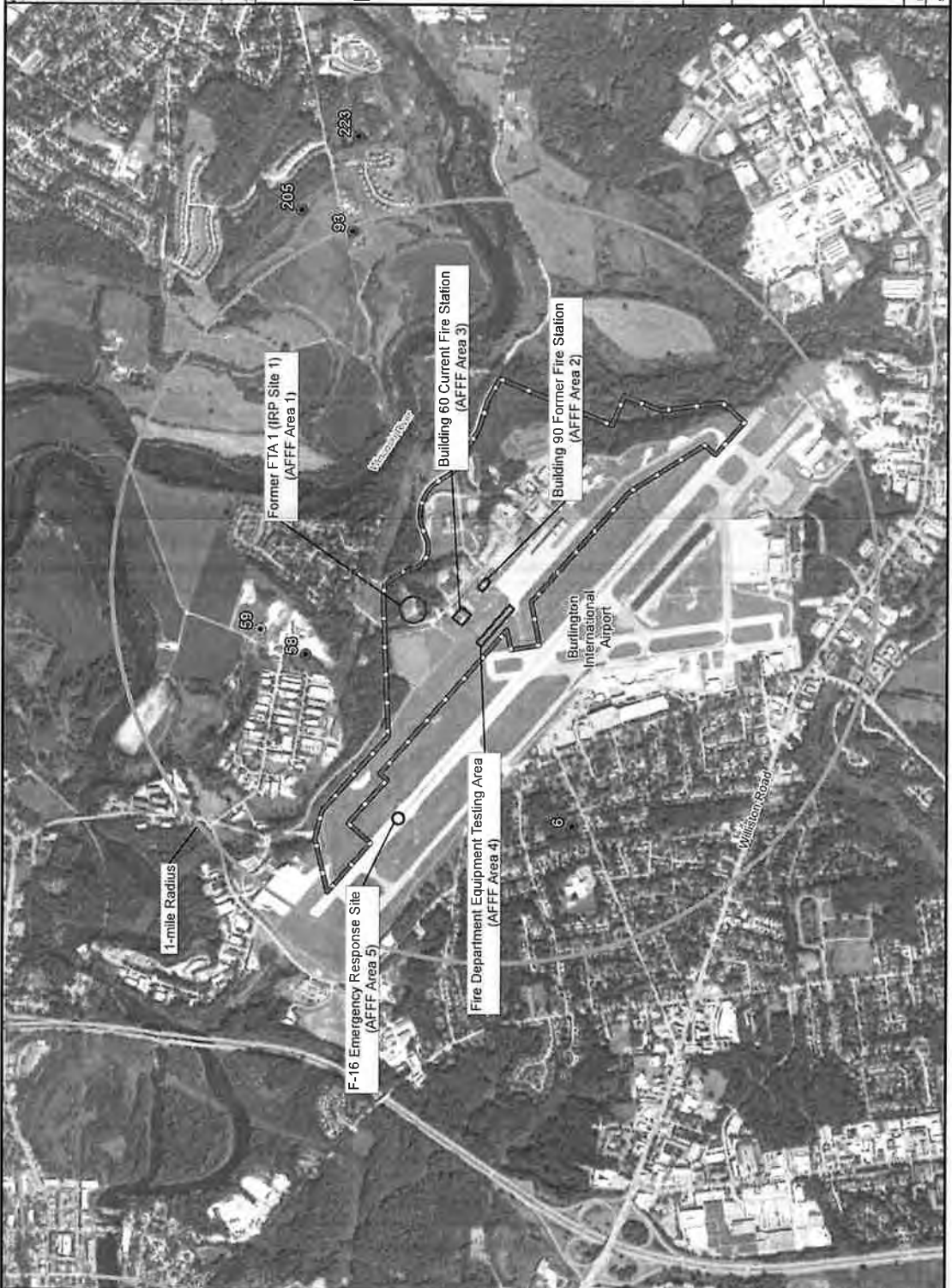
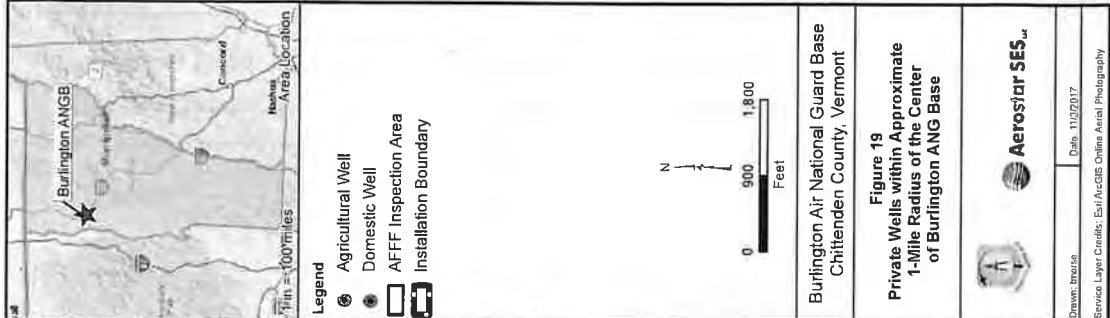
Service Layer Credits: EnviroSCOPE Online Aerial Photography

Era	Period	Epoch	Unit	Columnar Section	Thickness (feet)	Typical Lithologic Characteristics
		Recent	Fill		0 - 7'±	
Cenozoic	Quaternary	Pleistocene	Deltaic Deposits		9 - 50'±	Fine to Coarse Brown to Gray Sand to Sandy Silt
			Lucustrine/ Marine Deposits		0 - 50'±	Gray to Blue Gray Clay, and Silty Clay, Trace Gravel
			Gravelly Glacial Till and Boulders		0 - 22'±	Gray Nonstratified Boulders, Gravel, Sand, Silt and Clay Mixtures Angular to Subangular Cobbles
			Large Unconformity			
Paleozoic	Ordovician		Beekmantown Group Bascom Formation			White Crystalline Limestone

G:\M2032.0001_Savannah\Burlington\MXD\SI Report\Figure 18_Burlington_Stratigraphic.mxd; Date: 10/6/2017

Source: Roy F. Weston, Inc. (Weston), March 1986. *Installation Restoration Program Phase II - Confirmation/Quantification Stage 1, Final Report for Burlington Air National Guard Base, Vermont.*

**Figure 18 Generalized Stratigraphic Column
Burlington Air National Guard Base, Chittenden County, Vermont**



Burlington Air National Guard Base
Chittenden County, Vermont

Figure 19
Private Wells within Approximate
1-Mile Radius of the Center
of Burlington ANG Base

Drawn: btrous
Date: 11/02/2017
Source: Layer Credits: Esri/ArcGIS Online Aerial Photography

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Appendix B
Regional Screening Level Calculations

Default

Resident Equation Inputs for Soil

Variable	Value
THQ (target hazard quotient) unitless	1
TR (target risk) unitless	1.0E-6
LT (lifetime) years	70
ET _{roc} (exposure time) hours/day	24
ET _{roc,c} (child exposure time) hours/day	24
ET _{roc,a} (adult exposure time) hours/day	24
ET _{μ,c} (mutagenic exposure time) hours/day	24
ET _{μ,a} (mutagenic exposure time) hours/day	24
ET _{μ-1,c} (mutagenic exposure time) hours/day	24
ET _{μ-1,a} (mutagenic exposure time) hours/day	24
ED _{roc} (exposure duration) years	26
ED _{roc,c} (exposure duration - child) years	6
ED _{roc,a} (exposure duration - adult) years	20
ED _{μ,c} (mutagenic exposure duration) years	2
ED _{μ,a} (mutagenic exposure duration) years	4
ED _{μ-1,c} (mutagenic exposure duration) years	10
ED _{μ-1,a} (mutagenic exposure duration) years	10
BW _{roc,c} (body weight - child) kg	15
BW _{roc,a} (body weight - adult) kg	80
BW _{μ,c} (mutagenic body weight) kg	15
BW _{μ,a} (mutagenic body weight) kg	15
BW _{μ-1,c} (mutagenic body weight) kg	80
BW _{μ-1,a} (mutagenic body weight) kg	80
SA _{1,c-2,c} (skin surface area - child) cm ² /day	2373
SA _{1,c-2,a} (skin surface area - adult) cm ² /day	6032
SA ₀₋₂ (mutagenic skin surface area) cm ² /day	2373
SA ₂₋₆ (mutagenic skin surface area) cm ² /day	2373
SA ₆₋₁₆ (mutagenic skin surface area) cm ² /day	6032
SA ₁₆₋₂₆ (mutagenic skin surface area) cm ² /day	6032
EF _{roc} (exposure frequency) days/year	350
EF _{roc,c} (exposure frequency - child) days/year	350
EF _{roc,a} (exposure frequency - adult) days/year	350
EF ₀₋₂ (mutagenic exposure frequency) days/year	350

Default

Resident Equation Inputs for Soil

Variable	Value
EF_{3-f} (mutagenic exposure frequency) days/year	350
$EF_{A-1.6}$ (mutagenic exposure frequency) days/year	350
EF_{16-26} (mutagenic exposure frequency) days/year	350
$IFS_{rec-soil}$ (age-adjusted soil ingestion factor) mg/kg	36750
$IFSM_{rec-soil}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	166833.33
IRS_{rec-f} (soil intake rate - child) mg/day	200
IRS_{rec-s} (soil intake rate - adult) mg/day	100
$IRS_{0.2}$ (mutagenic soil intake rate) mg/day	200
IRS_{2-f} (mutagenic soil intake rate) mg/day	200
$IRS_{f-1.6}$ (mutagenic soil intake rate) mg/day	100
IRS_{16-26} (mutagenic soil intake rate) mg/day	100
AF_{res-a} (skin adherence factor - adult) mg/cm ²	0.07
AF_{res-c} (skin adherence factor - child) mg/cm ²	0.2
$AF_{0.2}$ (mutagenic skin adherence factor) mg/cm ²	0.2
AF_{2-6} (mutagenic skin adherence factor) mg/cm ²	0.2
AF_{6-16} (mutagenic skin adherence factor) mg/cm ²	0.07
AF_{16-26} (mutagenic skin adherence factor) mg/cm ²	0.07
$DFS_{rec-soil}$ (age-adjusted soil dermal factor) mg/kg	103390
$DFSM_{rec-soil}$ (mutagenic age-adjusted soil dermal factor) mg/kg	428260
City _{DEF} (Climate Zone) Selection	Default
A_i (acres)	0.5
Q/C_{min} (inverse of the ratio of the geometric mean air concentration to the emission flu	93.77
PEF (particulate emission factor) m ³ /kg	1359344438
A (PEF Dispersion Constant)	16.2302
B (PEF Dispersion Constant)	18.7762
C (PEF Dispersion Constant)	216.108
V (fraction of vegetative cover) unitless	0.5
U_m (mean annual wind speed) m/s	4.69
U_t (equivalent threshold value)	11.32
F(x) (function dependant on U_{ref}/U_t) unitless	0.194
City _{VE} (Climate Zone) Selection	Default
A_i (acres)	0.5
Q/C_{vol} (inverse of the ratio of the geometric mean air concentration to the emission flu	68.18

Default

Resident Equation Inputs for Soil

Variable	Value
foc (fraction organic carbon in soil) g/g	0.006
ρ_b (dry soil bulk density) g/cm ³	1.5
ρ_s (soil particle density) g/cm ³	2.65
n (total soil porosity) L _{void} /L _{total}	0.43396
n_a (air-filled soil porosity) L _{air} /L _{total}	0.28396
n_w (water-filled soil porosity) L _{water} /L _{total}	0.15
T (exposure interval) s	819936000
A (VF Dispersion Constant)	11.911
B (VF Dispersion Constant)	18.4385
C (VF Dispersion Constant)	209.7845
City _{VF-mass-loading} (Climate Zone) Selection	Default
VF _{mi} (volatilization factor - mass-limit) m ³ /kg	.
Q/C _{vol} (inverse of the ratio of the geometric mean air concentration to the emission fl	68.18365
A _e (acres)	0.5
T (exposure interval) yr	26
d _e (depth of source) m	.
ρ_b (dry soil bulk density) g/cm ³	1.5
A (VF Dispersion Constant - Mass Limit)	11.911
B (VF Dispersion Constant - Mass Limit)	18.4385
C (VF Dispersion Constant - Mass Limit)	209.7845

Default

Resident Risk-Based Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #27); H = HEAST; F = See FAQ; J = New Jersey; E = see user guide Section 2.3.5; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Chemical	CAS Number	Mutagen? VOC?	Ingestion SF		Inhalation Unit Risk (ug/m ³) ⁻¹	Chronic RfD		Chronic RfC		GIABS	ABS	RBA
			(mg/kg-day) ⁻¹	SFO Ref		(mg/kg-day)	Ref	(mg/m ³)	Ref			
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	No	No	-	-	2.00E-05	DW	-	-	1	0.1	1
Perfluorooctanoic acid (PFOA)	335-67-1	No	No	7.00E-02	D	2.00E-05	DW	-	-	1	0.1	1

Chemical	Volatilization Factor (m ³ /kg)	Henry's Law Constant (unitless)	S (mg/L)	K _{oc} (cm ³ /g)	Soil Saturation Concentration (mg/kg)	Particulate Emission Factor (m ³ /kg)	Ingestion SL		Dermal SL		Inhalation SL		Carcinogenic SL
							TR=1.0E-6 (mg/kg)	TR=1.0E-6 (mg/kg)	TR=1.0E-6 (mg/kg)	TR=1.0E-6 (mg/kg)	TR=1.0E-6 (mg/kg)	TR=1.0E-6 (mg/kg)	
Perfluorooctane sulfonic acid (PFOS)	-	-	6.80E+02	3.72E+02	-	1.36E+09	-	-	-	-	-	-	-
Perfluorooctanoic acid (PFOA)	-	-	9.50E+03	1.15E+02	-	1.36E+09	9.93E+00	3.53E+01	-	-	-	-	7.75E+00

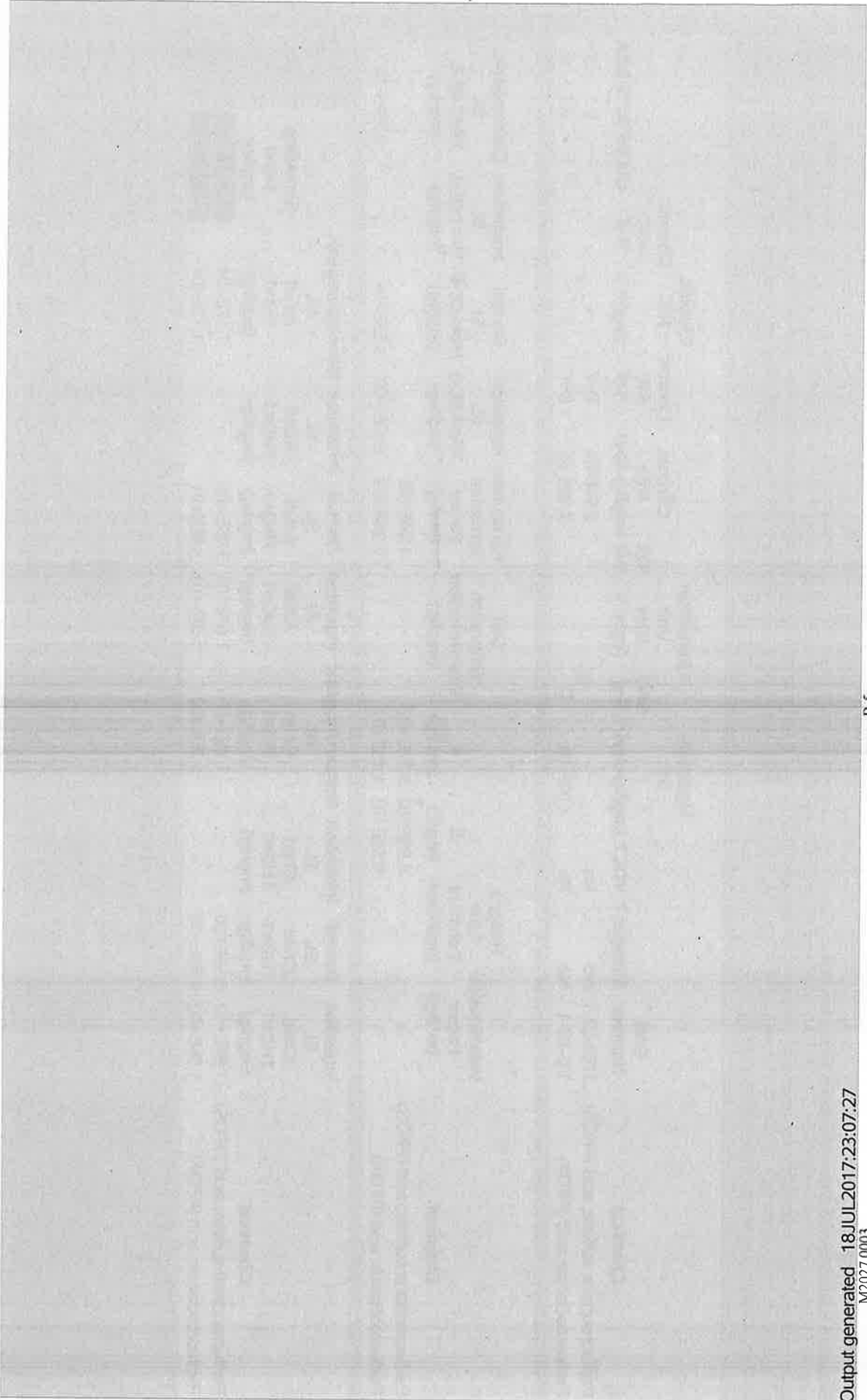
Chemical	Ingestion SL		Inhalation Noncarcinogenic SL		Dermal SL		Inhalation Noncarcinogenic SL		Dermal SL		Inhalation Noncarcinogenic SL		Screening Level (mg/kg)
	Child THQ=1 (mg/kg)	Adult THQ=1 (mg/kg)	Child THI=1 (mg/kg)	Adult THQ=1 (mg/kg)	Child THQ=1 (mg/kg)	Adult THQ=1 (mg/kg)	Child THQ=1 (mg/kg)	Adult THQ=1 (mg/kg)	Child THI=1 (mg/kg)	Adult THI=1 (mg/kg)	Child THI=1 (mg/kg)	Adult THI=1 (mg/kg)	
Perfluorooctane sulfonic acid (PFOS)	1.56E+00	6.59E+00	-	1.67E+01	1.26E+00	3.95E+01	1.67E+01	3.95E+01	1.17E+01	1.17E+01	1.26E+00	nc	1.26E+00 nc
Perfluorooctanoic acid (PFOA)	1.56E+00	6.59E+00	-	1.67E+01	1.26E+00	3.95E+01	1.67E+01	3.95E+01	1.17E+01	1.17E+01	1.26E+00	nc	1.26E+00 nc

Inhalation Unit Risk Toxicity Metadata

Chemical	CASNUM	Inhalation Unit Risk (µg/m ³) ⁻¹	Toxicity Source	EPA Cancer Classification	Inhalation Unit Risk Tumor Type	Inhalation Unit Risk Target Organ	Inhalation Unit Risk Species	Inhalation Unit Risk Method	Inhalation Unit Risk Route	Inhalation Unit Risk Treatment Duration	Inhalation Unit Risk Study Reference
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Perfluorooctane sulfonic acid (PFOS) 1763-23-1

Perfluorooctanoic acid (PFOA) 335-67-1



Oral Slope Factor Toxicity Metadata

Chemical	CASNUM	Oral Slope Factor (mg/kg-day) ⁻¹	Toxicity Source	EPA Cancer Classification	Oral Slope Factor Tumor Type	Oral Slope Factor Target Organ	Oral Slope Factor Species	Oral Slope Factor Method	Oral Slope Factor Route	Oral Slope Factor Treatment Duration	Oral Slope Factor Study Reference
Perfluorooctane sulfonic acid (PFOS)	1763-23-1				NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	335-67-1	7.00E-02	DWSHA	NA	NA	NA	NA	NA	NA	NA	NA

Oral Chronic Toxicity Metadata

Chemical	CASNUM	Chronic Oral Reference Dose (mg/kg-day)	Toxicity Source	Oral Chronic Reference Dose Basis	Oral Chronic Reference Dose Confidence Level	Oral Chronic Reference Dose Critical Effect
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	2.00E-05	DWSHA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	335-67-1	2.00E-05	DWSHA	NA	NA	NA

Oral Chronic Reference Dose Target Organ	Oral Chronic Reference Dose Modifying Factor	Oral Chronic Reference Dose Uncertainty Factor	Oral Chronic Reference Dose Species	Oral Chronic Reference Dose Route	Oral Chronic Reference Dose Study Duration	Oral Chronic Reference Dose Study Reference
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA

Chemical	CASNUM	Chronic Inhalation Reference Concentration (mg/m ³)	Toxicity Source	Inhalation Chronic Reference Concentration Basis	Inhalation Chronic Reference Concentration Level	Inhalation Chronic Reference Concentration Critical Effect
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	-	-	-	-	-
Perfluorooctanoic acid (PFOA)	335-67-1	-	-	-	-	-

Inhalation Chronic Reference Concentration Target Organ	Inhalation Chronic Reference Concentration Modifying Factor	Inhalation Chronic Reference Concentration Uncertainty Factor	Inhalation Chronic Reference Concentration Species	Inhalation Chronic Reference Concentration Route	Inhalation Chronic Reference Concentration Study Duration	Inhalation Chronic Reference Concentration Study Reference

Appendix C

Readiness Review Forms, Field Forms, and Boring Logs

SES FIELD READINESS REVIEW FORM

Employee Name: Franklin Johnson

Employee Number: 130253

Job Number: M2032.0001

Job Location: ANG Burlington

Job Tasks:

Surface Sampling, Groundwater Sampling, Soil Sampling – Surface Soil and subsurface soil, Soil boring logging, Surface water and sediment sampling, Mobilization/demobilization tasks

Equipment Needed:

Soil boring: Munsell Charts, Tape measure, pens, soil boring forms, USCS Table,

GW Sampling: YSI, peristaltic pump, multi-RAE, sample containers etc.

Sediment Sampling: Sample containers, spoons

SW Sampling: Sample containers, SW collection device

Proper PPE for all above tasks is a minimum Level D, plus nitriles.

Documents Needed:

Field forms: Boring log, GW sampling log, sample log, log book, calibration sheets

Significant training conducted prior to departure:

- Mid Project QC Rev 4 outline reviewed with personnel.

Equipment Packed for travel on: 04/06/17

Travel Dates: 04-16-17 through 04-25-17

Site Supervisor Signature



SES FIELD READINESS REVIEW FORM

Employee Name: Kaleb Brumbaugh

Employee Number: 130333

Job Number: M2032.0001

Job Location: ANG Burlington

Job Tasks:

Surface Sampling, Groundwater Sampling, Soil Sampling – Surface Soil and subsurface soil, Soil boring logging, Surface water and sediment sampling, Mobilization/demobilization tasks

Equipment Needed:

Soil boring: Munsell Charts, Tape measure, pens, soil boring forms, USCS Table,

GW Sampling: YSI, peristaltic pump, multi-RAE, sample containers etc.

Sediment Sampling: Sample containers, spoons

SW Sampling: Sample containers, SW collection device

Proper PPE for all above tasks is a minimum Level D, plus nitriles.

Documents Needed:

Field forms: Boring log, GW sampling log, sample log, log book, calibration sheets

Significant training conducted prior to departure:

- Mid Project QC Rev 4 outline reviewed with personnel.

Equipment Packed for travel on: 04/06/17

Travel Dates: 04-16-17 through 04-25-17

Site Supervisor Signature

Greg Carlson

SES FIELD READINESS REVIEW FORM

Employee Name: Ryan Reynolds

Employee Number:

Job Number: M2032.0001

Job Location: ANG Burlington

Job Tasks:

Surface Sampling, Groundwater Sampling, Soil Sampling – Surface Soil and subsurface soil, Soil boring logging, Surface water and sediment sampling, mobilization/demobilization tasks

Equipment Needed:

Soil boring: Munsell Charts, Tape measure, pens, soil boring forms, USCS Table,

GW Sampling: YSI, peristaltic pump, multi-RAE, sample containers etc.

Sediment Sampling: Sample containers, spoons

SW Sampling: Sample containers, SW collection device

Proper PPE for all above tasks is a minimum Level D, plus nitriles.

Documents Needed:

Field forms: Boring log, GW sampling log, sample log, log book, calibration sheets

Significant training conducted prior to departure:

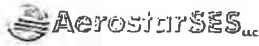
- Mid Project QC Rev 4 outline reviewed with personnel.

Equipment Packed for travel on: 04/06/17

Travel Dates: 04-16-17 through 04-25-17

Site Supervisor Signature

Greg Carlson



WELL DEVELOPMENT LOG

Project Name: SI of AFFF Savannah
 ASL Project No: M2032.0001
 Installation: Burlington ANG B
 Site: 02
 Date: 4/19/17
 Sample Technician: Nguyen Reynolds
 Well ID No.: BRLTN 02-001

Initial Measurements

Well Total Depth:	<u>30.45</u> ft BTOC	Water Level:	<u>22.13</u> ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = $(30.45 \text{ Ft} - 22.13 \text{ Ft}) \times 0.02 \text{ gal/ft} = 0.1664 \text{ Gal}$			
Calculated Well Volume:	<u>0.1664</u> Gallons	Well Diameter:	<u>0.75</u> Inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purgings Activities

Purging Method (pump type): Peristaltic Flow rate (Incl. units): 400 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
<u>16:31</u>	<u>400</u>	<u>0.02</u>	<u>8.71</u>	<u>0.163</u>	<u>8.65</u>	<u>22.13</u>	<u>8.45</u>	<u>-191.2</u>	<u>0.105</u>	
<u>16:41</u>	<u>400</u>	<u>7.89</u>	<u>8.76</u>	<u>0.169</u>	<u>8.59</u>	<u>-</u>	<u>4.00</u>	<u>-182.0</u>	<u>1.155</u>	
<u>16:51</u>	<u>400</u>	<u>4.73</u>	<u>8.80</u>	<u>0.170</u>	<u>8.11</u>	<u>-</u>	<u>5.08</u>	<u>-62.1</u>	<u>2.205</u>	
<u>17:01</u>	<u>400</u>	<u>2.13</u>	<u>8.74</u>	<u>0.168</u>	<u>7.85</u>	<u>-</u>	<u>5.30</u>	<u>-41.8</u>	<u>3.255</u>	
<u>17:11</u>	<u>400</u>	<u>1.74</u>	<u>8.76</u>	<u>0.167</u>	<u>7.70</u>	<u>-</u>	<u>5.38</u>	<u>-124.6</u>	<u>4.305</u>	
<u>17:21</u>	<u>400</u>	<u>1.70</u>	<u>8.72</u>	<u>0.166</u>	<u>7.53</u>	<u>-</u>	<u>5.47</u>	<u>-133.7</u>	<u>5.355</u>	

Results At End Of Purging: 1.70 8.72 0.166 7.53 * 5.47 -133.7 5.355

COMMENTS: Pump start @ 16:30
 Pump stop @ 17:21
 Final DTW = (16)
 * cannot fit water level probe down well with tubing inside



WELL DEVELOPMENT LOG

Project Name: SI of AFFF Sampling
 ASL Project No: M2032.001
 Installation: Burlington ANGCS
 Site: D2
 Date: 4/20/17
 Sample Technician: Rajan Royall
 Well ID No.: BRLTNO2-002

Initial Measurements

Well Total Depth: <u>31.55</u>	ft BTOC	Water Level: <u>27.44</u>	ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = <u>(31.55 Ft - 27.44 Ft) x 0.02 gal/ft = 0.0822 Gal</u>			
Calculated Well Volume: <u>0.0822</u>	Gallons	Well Diameter: <u>0.75</u>	inches
Calculations:	1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft	4" diameter = 0.653 gal/ft

Well Purging Activities

Purging Method (pump type): Peristaltic Flow rate (Incl. units): 330 ml

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
10:20	330	-00R-	9.26	0.138	8.34	-	5.85	-152.3	0.08	
10:30	330	10.9	9.35	0.138	8.31	-	5.83	-151.8	0.88	
10:40	330	1.45	9.41	0.136	7.95	-	5.85	-128.2	1.88	
10:50	330	1.27	9.49	0.134	7.89	-	5.86	-119.8	2.48	
11:00	330	0.80	9.53	0.133	7.80	-	5.79	-115.9	3.28	

Results At End Of Purging:

COMMENTS:

Pump started @ 10:19 * cannot fit water level probe in well while tubing is in.
 Pump finished @ 11:00



WELL DEVELOPMENT LOG

Project Name: SI of ATFF Savannah
 ASL Project No: M2032.0001
 Installation: Burington ANGB
 Site: 03
 Date: 4/20/17
 Sample Technician: Kellan Reynolds
 Well ID No.: 0 BRLTR02-003

Initial Measurements

Well Total Depth: <u>37.46</u>	ft BTOC	Water Level: <u>29.27</u>	ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC - STATIC DEPTH TO WATER) X WELL CAPACIT (only fill out if applicable) = $(37.46 \text{ Ft} - 29.27 \text{ Ft}) \times 0.02 \text{ gal/ft} = 0.1638 \text{ Gal}$			
Calculated Well Volume: <u>0.1638</u>	Gallons	Well Diameter: <u>0.75</u>	Inches
Calculations:		1" diameter = 0.041 gal/ft	2" diameter = 0.163 gal/ft
		4" diameter = 0.653 gal/ft	

Well Purging Activities

Purging Method (pump type): Peristaltic Flow rate (incl. units): 135 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
8:47	135	-0.0R-	7.71	0.167	8.53	-	4.76	-104.4	0.035	
8:57	135	-0.0F-	7.83	0.170	8.41	-	4.72	-100.8	0.385	
9:07	135	30.8	8.18	0.170	8.27	-	4.75	-109.2	0.735	
9:17	135	0.06	8.21	0.168	8.22	-	4.82	-117.8	1.085	
9:23	135	6.00	8.30	0.167	8.19	-	4.88	-120.1	1.435	
9:37	135	4.84	8.39	0.168	8.13	-	4.90	-119.8	1.785	
Results At End Of Purging:		4.84	8.39	0.168	8.13	*	4.90	-119.8	1.785	

COMMENTS: Purging started @ 8:46
 Purging ended @ 9:37
 * Cannot fit water level probe down well while tubing is inside
 * slow development due to low recharge rate



WELL DEVELOPMENT LOG

Project Name: SI AFF Cavernaria
ASL Project No: M2032.0001
Installation: Burlington ARB
Site: 03
Date: 4/19/17
Sample Technician: Kate Brumbaugh
Well ID No.: BRLT/03-001

Initial Measurements

Well Total Depth:	<u>25.7</u>	ft BTOC	Water Level:	<u>17</u>	ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = $(25.7 \text{ Ft} - 17 \text{ Ft}) \times 0.02 \text{ gal/ft} = 0.174 \text{ Gal}$					
Calculated Well Volume:	<u>0.174</u>	Gallons	Well Diameter:	<u>0.75</u>	inches
Calculations:	1" diameter = 0.041 gal/ft		2" diameter = 0.163 gal/ft		4" diameter = 0.653 gal/ft

Well Purging Activities

Purging Method (pump type): Peri Pump Flow rate (incl. units): 500 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
1510	500	OR	8.64	0.213	9.40	N/A	3.34	-281	500	
1520	1111	54.6	8.67	0.207	9.32		3.92	-286	1500	5000
1530	1111	26.2	8.66	0.208	9.21		3.86	-276	10500	
1540	1111	10.9	8.61	0.210	9.02		4.31	-261.6	15500	

Results At End Of Purging: 10.9 8.61 0.210 9.02 4.31 -261.6 15500 ml

COMMENTS:
0.75" well diameter equals 0.02"
OR = out of Range,
(Note: No GWL reading due to diameter of well & diameter of poly fiber 0.75")

WELL DEVELOPMENT LOG

Project Name: Burlington ANG 3 (PE) SL of AFFF sand in water
 ASL Project No: M2032.0001
 Installation: Burlington ANG 3
 Site: 03
 Date: 4/19/17
 Sample Technician: Ryan Kynard
 Well ID No.: BRLN03-002

Initial Measurements

Well Total Depth:	<u>25.45</u>	ft BTOC	Water Level:	<u>16.53</u>	ft BTOC
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH BTOC - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = $(25.45 \text{ Ft} - 16.53 \text{ Ft}) \times 0.02 \text{ gal/ft} = 0.1784 \text{ Gal}$					
Calculated Well Volume:	<u>0.1784</u>	Gallons	Well Diameter:	<u>0.75</u>	Inches
Calculations:	1" diameter = 0.041 gal/ft		2" diameter = 0.163 gal/ft		4" diameter = 0.653 gal/ft

Well Purging Activities

Purging Method (pump type): Peristaltic Flow rate (incl. units): 520 ml/min

Time	Flow Rate (ml/min)	Turbidity (NTUs)	Temp (°C)	Cond. (mS/Cm)	pH	Depth to water (BTOC)	DO (mg/l)	ORP	Total Gal Pumped	Comments
14:11	520	-00R-	8.67	0.173	8.16	-	7.39	-97.2	1.87	
14:21	520	33.2	8.66	0.174	8.21	-	6.98	-107.1	2.8	
14:31	520	20.7	8.65	0.174	8.23	-	6.46	-117.6	4.1	
14:36	520	16	8.64	0.175	8.19	-	6.45	-114.9	4.95	
14:41	520	14	8.65	0.175	8.10	-	6.47	-118.2	5.4	
14:46	520	6.25	8.63	0.175	8.06	-	6.40	-118.3	6.05	
<i>FD</i>										
Results At End Of Purging:										
		<u>6.25</u>	<u>8.63</u>	<u>0.175</u>	<u>8.06</u>	<u>16.50</u>	<u>6.40</u>	<u>-118.3</u>	<u>6.05</u>	

COMMENTS: Pump start @ 14:02
 Pump stop @ 14:46
 Final DTW = 16.50
 * Cannot fit water trap down well with tubing inside



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Savannah) M2032.0001 Installation: Burlington AFB
 WELL NO: BRLTN01-MW-V1BP2 SAMPLE ID: BRLTN01-MW-V1RP2-009 DATE: 04/20/2017

PURGING DATA
 WELL DIAMETER (inches): 2.0 TUBING DIAMETER (inches): 1/4 WELL SCREEN INTERVAL DEPTH: FI - FI STATIC DEPTH TO WATER (feet): 8.73 PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
 (only fill out if applicable) 9.08 ft 8.73 ft x 0.16 gal/ft = 0.06 Gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
 (only fill out if applicable) D.N.A. = gal + (x Ft) + gal = gal Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 9.0 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 9.0 PURGING INITIATED AT: 1632 PURGING ENDED AT: 1703 TOTAL VOLUME PURGED (gallons): L = 4.50

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm) ml/min	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mS/cm or µS/cm)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1632				8.73								
1642	1.05	1.05	150	8.99	5.98	5.86	0.052	5.61	69.3	10.2	clear	none
1647	0.75	2.25	150	8.99	5.72	5.79	0.054	5.50	93.5	6.73	clear	none
1653	0.75	3.00	150	8.95	5.68	5.81	0.054	5.45	100.4	14.2	clear	none
1658	0.75	3.75	150	8.97	5.36	5.71	0.055	5.36	108.7	16.7	clear	none
1703	0.75	4.50	150	8.99	5.44	5.60	0.055	5.44	117.2	13.6	clear	none

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 6.88
 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0005; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
 PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA
 SAMPLED BY (PRINT) / AFFILIATION: Franklin Johns / ASL SAMPLER(S) SIGNATURE(S): Franklin Johns
 PUMP OR TUBING DEPTH IN WELL (feet): 9.0 TUBING MATERIAL CODE: PE FIELD-FILTERED: Y (N) Filtration Equipment Type: n/a mm
 FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N) (replaced) DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling	SAMPLE PUMP FLOW RATE (mL per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
BRLTN01-MW-V1RP2-009	1	PE	250	EPA 537M	APP	✓	150

REMARKS:

Well Abandoned? Y (N) Date Well Abandoned: Well Measurement Method: Probe Tape Other

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
 SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Savannah) M2032.0001 Installation: Burlington AFB
 WELL: BR11V1-BP3 SAMPLE ID: BR11V01-BP3-012 DATE: 4/20/17

PURGING DATA
 WELL DIAMETER (inches): 3 in TUBING DIAMETER (inches): 1/4" WELL SCREEN INTERVAL DEPTH: FI - FI STATIC DEPTH TO WATER (feet): 11.5 PURGE PUMP TYPE OR BAILER: PP
 WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
 (only fill out if applicable) = $(13.68 \text{ ft} - 11.5 \text{ ft}) \times 0.37 \text{ gal/ft} = 0.8066 \text{ gal}$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
 (only fill out if applicable) = $0 \text{ gal} + (0.0026 \times 16 \text{ ft}) + 0.1 \text{ gal} = 0.1416 \text{ gal}$ Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 12 FINAL PUMP OR TUBING DEPTH IN WELL (feet): _____ PURGING INITIATED AT: 1536 PURGING ENDED AT: _____ TOTAL VOLUME PURGED (gallons): _____

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µS/cm or µS/cm)	DISSOLVED OXYGEN (mg/L)	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1536												
1536												
1550	400ml	400ml	200	12.1	6.92	7.7	0.288	0.96	1.0	44.3	slimy	none
1555	1000	1400ml	1111									
1603												
1604	150ml	1550ml	150ml	12.0	6.83	7.14	0.300	1.29	8.1	44.3	slimy	none
1605												
1625												
1628												

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
 TUBING INSIDE DIA. CAPACITY (Gal/ft): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.010; 5/8" = 0.016
 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA
 SAMPLED BY (PRINT) / AFFILIATION: Maleh Brumhaugh SAMPLER(S) SIGNATURE(S): _____ SAMPLING INITIATED AT: 1625 SAMPLING ENDED AT: 1628
 PUMP OR TUBING: _____ TUBING: _____ FIELD-FILTERED: Y NP mm
 DEPTH IN WELL (feet): _____ MATERIAL CODE: PE Filtration Equipment Type: _____
 FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling	SAMPLE PUMP FLOW RATE (mL per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
<u>BR11V01-BP3-012</u>	<u>1</u>	<u>110 PE</u>	<u>250</u>	<u>537M</u>	<u>PP</u>	<u>✓</u>	

REMARKS: Pumped Dry 6/11/1536-1538, 1550-1555, 1603-1605, 1625-1628

Well Abandoned? Y(N) Date Well Abandoned: _____
 Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; B = Silicone; T = Teflon; O = Other (Specify)
 SAMPLING EQUIPMENT CODES: AFP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Sneeze Method (Tubing Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Savannah) M2032.0001 Installation: Burlington AFB
 WELL NO: BRLTNO1-MW-102 SAMPLE ID: BRLTNO1-MW-102-048 DATE: 4/18/17

PURGING DATA
 WELL DIAMETER: 2" TUBING DIAMETER: 1/4" WELL SCREEN INTERVAL DEPTH: 6.81 FL - 18.81 FL STATIC DEPTH TO WATER (feet): 8.46 PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
 (only fill out if applicable) = (18.81 FL - 8.46 FL) x 0.16 gal/ft = 1.304 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
 (only fill out if applicable) = 0 gal + 60026 x 15 Ft + 0 gal = 0.139 gal
 Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 11 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 11 PURGING INITIATED AT: 16:12 PURGING ENDED AT: 16:40 TOTAL VOLUME PURGED (gallons): 2.57

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
16:18	0.36	0.36	0.09	8.81	8.25	5.14	567	70.2	169.9	2.72	clear	none
16:31	5.4	5.76	0.09	9.37	6.55	4.82	589	59.2	148.1	2.72	clear	none
16:34	0.27	6.03	0.09	9.40	6.62	4.70	537	57.2	138.3	2.73	clear	none
16:37	0.27	6.30	0.09	9.62	6.70	4.67	532	52.1	132.7	2.97	clear	none
16:40	0.27	6.57	0.09	9.88	6.80	4.59	528	55.3	134.2	4.38	clear	none
16:41												

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 8" = 2.58
 TUBING INSIDE DIA. CAPACITY (Gal./Ft): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
 PURGING EQUIPMENT CODES: B = Bailer, BP = Bladder Pump, ESP = Electric Submersible Pump, PP = Peristaltic Pump, O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Kyan Reynolds / Aerostar SAMPLER(S) SIGNATURE(S): Kyan Reynolds SAMPLING INITIATED AT: 16:45 SAMPLING ENDED AT: 16:46
 PUMP OR TUBING: H TUBING: H FIELD-FILTERED: Y N Filtration Equipment Type: mm
 DEPTH IN WELL (feet): 11 MATERIAL CODE: PE
 FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low-Flow Sampling	SAMPLE PUMP FLOW RATE (mL per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
BRLTNO1-MW-102-04	1	HDPE	290ml	537M	APP	<input checked="" type="checkbox"/>	0.09

REMARKS: PP

Well Abandoned? Y N Date Well Abandoned: _____
 Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicons; T = Teflon; O = Other (Specify)
 SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPF = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFV Areas (Savannah) M2032.0001 Installation: Burlington AFB

WELL NO: BRLTN01-MW-103 SAMPLE ID: BRLTN01-MW-103-009 DATE: 4/18/17

PURGING DATA

WELL DIAMETER (inches): 2" TUBING DIAMETER (inches): 1/4" WELL SCREEN INTERVAL DEPTH: 3.75 Ft - 13.75 Ft STATIC DEPTH TO WATER (feet): 3.35 PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
 $= (13.75 \text{ Ft} - 3.35 \text{ Ft}) \times 0.10 \text{ gal/ft} = 1.04 \text{ gal}$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
 $= 0 \text{ gal} + (0.0026 \times 14 \text{ Ft}) + 0.1 \text{ gal} = 0.1364 \text{ gal}$

Location (Circle one):
 Monitoring Well Temporary Well
Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 9 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 9 PURGING INITIATED AT: 17:18 PURGING ENDED AT: 17:52 TOTAL VOLUME PURGED (gallons): 2.25

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or $\mu\text{S/cm}$	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
17:22	0.36	0.36	0.09	3.59	7.26	3.88	554	0.84	104.0	57.1	clear	none
17:41	0.27	1.71	0.09	3.80	7.10	3.17	583	0.88	107.3	4.99	clear	none
17:44	0.27	1.98	0.09	3.80	7.09	3.14	584	0.67	106.3	5.00	clear	none
17:47	0.27	2.25	0.09	3.81	7.08	3.13	584	0.67	106.0	5.08	clear	none
FS												

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.64; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal/Ft): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.016; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan Reynolds / Aerostar SAMPLER(S) SIGNATURE(S): Ryan Reynolds SAMPLING INITIATED AT: 17:52 SAMPLING ENDED AT: ENDED AT:
PUMP/OR TUBING DEPTH IN WELL (feet): 9 TUBING MATERIAL CODE: PE FIELD-FILTERED: Y N Filtration Equipment Type:
FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling	SAMPLE PUMP FLOW RATE (mL per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
BRLTN01-MW-103-009	2	HDPE	250ml	537 M	APP	<input checked="" type="checkbox"/>	0.09
BRLTN01-MW-103-909	1	HDPE	250ml	537 M	APP	<input checked="" type="checkbox"/>	0.04
FS							

REMARKS: Parent + MS/MSD + field dup

Well Abandoned? Y N Date Well Abandoned:

Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Draw Method (Tubing Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Savannah) M2032.0001 Installation: Burlington AFB
 WELL NO: ~~BRLNT01-VI-MW14L~~ ¹²⁰ SAMPLE ID: BRLNT01-VI-MW14L-008 DATE: 4/19/17

PURGING DATA
 WELL DIAMETER (inches): 2 TUBING DIAMETER (inches): 1/4 WELL SCREEN INTERVAL DEPTH: 2.75_{ft} - 12.75_{ft} STATIC DEPTH TO WATER (feet): 10.90 - 11.05 PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
 (only fill out if applicable) $12.75 \text{ ft} - 11.05 \text{ ft} \times 0.19 \text{ gal/ft} = 1.392 \text{ gal}$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
 (only fill out if applicable) $0 \text{ gal} + (0.0026 \times 14 \text{ ft}) + 0.1 \text{ gal} = 0.1364 \text{ gal}$ Location (Circle one): Monitoring Well Temporary Well Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 8 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 8 PURGING INITIATED AT: 12:42 PURGING ENDED AT: 13:20 TOTAL VOLUME PURGED (gallons): 3.04

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
12:43												
12:43	0.08	0.08	0.08	4.16	8.04	5.48	552	0.35	-30.8	11.0	clear	none
13:00	1.44	1.44	0.08	4.11	8.14	5.34	550	0.26	-51.9	5.12	clear	none
13:10	0.80	2.24	0.08	4.11	8.16	5.31	549	0.31	-41.8	4.05	clear	none
13:15	0.40	2.64	0.08	4.11	8.10	5.17	546	0.30	-55.3	3.44	clear	none
13:20	0.40	3.04	0.08	4.11	8.12	5.17	546	0.24	-57.0	2.73	clear	none

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.66; 5" = 1.02; 6" = 1.47; 12" = 5.88
 TUBING INSIDE DIA. CAPACITY (Gal./ft): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
 PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; ESP = Electro Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Kevin Reynolds / Aerostar SES SAMPLER(S) SIGNATURE(S): Kevin Reynolds
 SAMPLING INITIATED AT: 13:21 SAMPLING ENDED AT: 13:22
 PUMP OR TUBING: 8 TUBING: PE MATERIAL CODE: PE FIELD-FILTERED: Y (N) Filtration Equipment Type: mm
 FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling	SAMPLE PUMP FLOW RATE (mL per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
BRLNT01-VI-MW14L-008	1	HDPE	250ml	537M	APP	✓	0.08

REMARKS:

Well Abandoned? (Y)N Date Well Abandoned: Well Measurement Method: Probe Tape Other

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
 SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electro Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Sream Method (Tubing Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFV Areas (Savannah) M2032.0001 Installation: Burlington AFB

WELL NO: BRLTN02-001-CW-027 SAMPLE ID: BRLTN02-001-CW-027 DATE: 4/20/17

PURGING DATA

WELL DIAMETER (inches): 0.75 TUBING DIAMETER (inches): 1/4" WELL SCREEN INTERVAL DEPTH: 245 Ft - 2245 Ft STATIC DEPTH TO WATER (feet): 25.9 PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
 (only fill out if applicable) = $(2245 \text{ Ft} - 25.9 \text{ Ft}) \times 0.02 \text{ gal/Ft} = 0.131 \text{ gal}$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
 (only fill out if applicable) = $0 \text{ gal} + (0.002 \times 37 \text{ Ft}) + 0.1 \text{ gal} = 0.1962 \text{ gal}$

Location (Circle one):
 Monitoring Well Temporary Well
 Other

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 27 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 27 PURGING INITIATED AT: 14:05 PURGING ENDED AT: 14:35 TOTAL VOLUME PURGED (gallons): 12/00

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or <u>µS/cm</u>	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
14:15	0.7	0.7	0.07	-	7.78	9.42	237	5.81	-47.0	908	brown	none
14:20	0.35	1.05	0.07	-	7.80	9.39	240	5.74	-48.1	5.98	clear	none
14:25	0.35	1.40	0.07	-	7.71	9.30	245	5.63	-44.9	4.22	clear	none
14:30	0.35	1.75	0.07	-	7.69	9.29	246	5.66	-44.7	2.52	clear	none
14:35	0.35	2.00	0.07	-	7.91	9.28	245	5.70	-42.1	1.50	clear	none

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
 TUBING INSIDE DIA. CAPACITY (Gal/Ft): 1/8" = 0.0005; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.009; 1/2" = 0.019; 5/8" = 0.016
 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Jayann Foytolds / ASL SAMPLER(S) SIGNATURE(S): Jayann Foytolds SAMPLING INITIATED AT: 14:35 SAMPLING ENDED AT: 14:36

PUMP OR TUBING DEPTH IN WELL (feet): 27 TUBING MATERIAL CODE: PE FIELD-FILTERED: Y N Filtration Equipment Type: _____

FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling	SAMPLE PUMP FLOW RATE (mL per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
<u>BRLTN02-001-CW-027</u>	<u>1</u>	<u>HDPE</u>	<u>250mL</u>	<u>537M</u>	<u>APD</u>	<input checked="" type="checkbox"/>	

REMARKS: Final DTW = 25.8 ft

Well Abandoned? N Date Well Abandoned: 04/21/2017
 Well Measurement Method: Probe Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
 SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Savannah) M2032.0001 Installation: Burlington AFB

WELL NO: BRLTNOZ-MW00Z SAMPLE ID: BRLTNOZ-002-GW-029 DATE: 4/21/17

PURGING DATA

WELL DIAMETER (inches): 0.75 TUBING DIAMETER (inches): 1/4 WELL SCREEN INTERVAL DEPTH: 21.55 - 31.55 STATIC DEPTH TO WATER (feet): 27.43 PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)

$$= (31.55 \text{ Ft} - 27.43 \text{ Ft}) \times 0.02 \text{ gal/ft} = 0.082 \text{ gal}$$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)

$$= 0 \text{ gal} + (0.0026 \times 37 \text{ Ft}) + 0.1 \text{ gal} = 0.1982 \text{ gal}$$

Location (Circle one):
Monitoring Well
Other: Temporary Well

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 29 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 29 PURGING INITIATED AT: 8:16 PURGING ENDED AT: 8:35 TOTAL VOLUME PURGED (gallons): 1.52

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mv)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
8:26	0.80	0.80	0.08	-	7.63	9.35	298	10.36	-39.6	21.1	clear	none
8:29	0.84	1.04	0.08	-	7.69	9.35	298	11.38	-40.2	16.4	clear	none
8:32	0.84	1.28	0.08	-	7.61	9.34	297	11.40	-41.9	8.17	clear	none
8:35	0.84	1.52	0.08	-	7.59	9.33	297	11.42	-45.1	0.57	clear	none
[Handwritten 'EJ' and a diagonal line across the table]												

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.56
 TUBING INSIDE DIA. CAPACITY (Gal./Ft): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.016; 5/8" = 0.032
 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ryan Reynolds / ASL SAMPLED BY SIGNATURE: Ryan Reynolds SAMPLING INITIATED AT: 8:36 SAMPLING ENDED AT: 8:38
 PUMP OR TUBING DEPTH IN WELL (feet): 29 TUBING MATERIAL CODE: PE FIELD-FILTERED: Y (N) Filtration Equipment Type: mm
 FIELD DECONTAMINATION: PUMP Y (N) TUBING Y (N (replaced)) DUPLICATE: Y (N)

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling	SAMPLE PUMP FLOW RATE (mL per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
BRLTNOZ-002-GW-029	1	HDPE	250ml	537M	APP	✓	300
[Handwritten 'EJ' and a diagonal line across the table]							

REMARKS:

Well Abandoned? (Y/N) Date Well Abandoned: 04/21/2017

Well Measurement Method: (Probe) Tape Other

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
 SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RPPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFV Areas (Savannah) M2032.0001 Installation: Burlington AFB

WELL NO: BRLTN02-003 SAMPLE ID: BRLTN02-003-GW-032 DATE: 04/21/2017

PURGING DATA: WELL DIAMETER 0.75 TUBING DIAMETER 1/4 WELL SCREEN INTERVAL DEPTH: 27.46 FL - 37.46 FL STATIC DEPTH TO WATER (feet): 29.25 PURGE PUMP TYPE OR BAILER: P.P

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY = (37.46 FL - 29.25 FL) x 0.02 gal/ft = 0.16 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME = gal + (x FL) + gal = gal Location (Circle one): Monitoring Well Temporary Well

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 32.0 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 32.0 PURGING INITIATED AT: 0822 PURGING ENDED AT: 0857 TOTAL VOLUME PURGED (gallons): 3.5

Table with columns: TIME, VOLUME PURGED (gallons), CUMUL VOLUME PURGED (gallons), PURGE RATE (gpm), DEPTH TO WATER (feet), pH, TEMP (°C), COND. (mS/cm or µS/cm), DISSOLVED OXYGEN (mg/L), ORP (mV), TURBIDITY (NTUs), COLOR (describe), ODOR (describe). Rows include data for times 0822, 0832, 0842, 0852, 0857.

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.86 TUBING INSIDE DIA. CAPACITY (Gal./Fl.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; EGP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Franklin Johnson / ASL SAMPLER(S) SIGNATURE(S): [Signature] SAMPLING INITIATED AT: 0900 SAMPLING ENDED AT: ENDED AT: FIELD-FILTERED: Y (N) Filtration Equipment Type: n/a mm

FIELD DECONTAMINATION: PUMP Y (N) TUBING Y N (Replaced) DUPLICATE: Y (N)

Table with columns: SAMPLE ID CODE, # CONTAINERS, MATERIAL CODE, VOLUME (mL), INTENDED ANALYSIS AND/OR METHOD, SAMPLING EQUIPMENT CODE, Low Flow Sampling, SAMPLE PUMP FLOW RATE (mL per minute). Row includes data for BRLTN02-003-GW-032.

REMARKS:

No Depth To Water readings due to 0.75" well and 1/4" tubing diameter, and diameter of WLM probe Well Abandoned? (X)N Date Well Abandoned: 04/21/2017

Well Measurement Method: (Probe) Tape Other

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify) SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; EGP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Srew Method (Tubing Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFF Areas (Savannah) M2032.0001 Installation: Burlington AFB
 WELL NO: BRLTN03-001-GW-022 SAMPLE ID: BRLTN03-001-GW-022 DATE: 4/20/17

PURGING DATA
 WELL DIAMETER (inches): 0.75 TUBING DIAMETER (inches): 1/4 WELL SCREEN INTERVAL DEPTH: 17.7 ft - 27.7 ft STATIC DEPTH TO WATER (feet): 18.90 PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
 (only fill out if applicable) = 27.7 ft - 18.90 ft x 0.02 gal/ft = 0.176 gal

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
 (only fill out if applicable) = 0 gal + (0.0026 x 25 ft) + 0.1 gal = 0.165 gal
 Location (Circle one): Monitoring Well Temporary Well

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 22 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 22 PURGING INITIATED AT: 12:48 PURGING ENDED AT: 13:03 TOTAL VOLUME PURGED (gallons): 1.196

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. mS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
12:49	0.092	0.092	0.092	-	9.72	8.63	319	4.14	-264.0	599	light brown	none
12:52	0.276	0.368	0.092	-	9.73	8.66	318	3.94	-264.7	18.6	clear	none
12:56	0.276	0.644	0.092	-	9.72	8.64	319	3.97	-263.9	15.1	clear	none
12:58	0.276	0.920	0.092	-	9.69	8.64	318	4.08	-263.4	13.4	clear	none
13:01	0.276	1.196	0.092	-	9.60	8.70	319	4.10	-266.6	7.7	clear	none

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.68
 TUBING INSIDE DIA. CAPACITY (Gal./ft): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.016; 5/8" = 0.016
 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA
 SAMPLED BY (PRINT & AFFILIATION): Ryan Reynolds / ASL SAMPLE(S) SIGNATURE(S): Ryan Reynolds
 PUMP OR TUBING DEPTH IN WELL (feet): 22 TUBING MATERIAL CODE: PE FIELD-FILTERED: Y N Filter Size: mm
 FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) DUPLICATE: Y N

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling	SAMPLE PUMP FLOW RATE (mL per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
BRLTN03-001-GW-022	1	HDPE	250ml	SB7M	APP	✓	350

REMARKS: Find DTW = 18.80

Well Abandoned? N Date Well Abandoned: 04/21/2017
 Well Measurement Method: Probe Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
 SAMPLING EQUIPMENT CODES: APP = Alter Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Siphon Method (Using Gravity Drain); O = Other (Specify)



GROUNDWATER SAMPLING LOG

PROJECT: SI of AFFV Areas (Savannah) M2032.0001 Installation: Burlington AFB

WELL NO: N/A SAMPLE ID: BRLTN03-002-GW-022 DATE: 4/20/17

PURGING DATA

WELL DIAMETER (inches): 0.75 TUBING DIAMETER (inches): 1/4" WELL SCREEN INTERVAL DEPTH: 27.45 Ft - 17.45 Ft STATIC DEPTH TO WATER (feet): 18.4 PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable) $27.45 - 18.4 = 9.05 \text{ Ft} \times 0.002 \text{ gal/ft} = 0.181 \text{ gal}$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable) = gal + $0.0026 \times 25 \text{ Ft}$ + 0.1 gal = 0.165 gal

Location (Circle one):
Monitoring Well Other Temporary Well

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 22 FINAL PUMP OR TUBING DEPTH IN WELL (feet): 22 PURGING INITIATED AT: 12:00 PURGING ENDED AT: 12:12 TOTAL VOLUME PURGED (gallons): 0.96

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard unite)	TEMP. (°C)	COND. mS/cm or µS/cm	DISSOLVED OXYGEN mg/L	ORP (mV)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
12:03	0.24	0.24	0.08	-	7.85	8.53	266	0.52	-34.4	36.7	light brown	none
12:06	0.24	0.48	0.08	-	7.88	8.51	265	0.67	-42.4	14.9	clear	none
12:09	0.24	0.72	0.08	-	7.84	8.55	265	0.70	-43.1	10.0	clear	none
12:12	0.24	0.96	0.08	-	7.83	8.56	265	0.79	-42.8	5.4	clear	none

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 6.88
TUBING INSIDE DIA. CAPACITY (Gal/Ft): 3/16" = 0.0005; 1/8" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Stephen Reynolds / ASL SAMPLE(S) SIGNATURE(S): Stephen Reynolds SAMPLING INITIATED AT: 12:13 SAMPLING ENDED AT: 12:14
PUMP OR TUBING DEPTH IN WELL (feet): 22 TUBING MATERIAL CODE: PE FIELD-FILTERED: Y N Filtration Equipment Type: _____
FIELD DECONTAMINATION: PUMP Y N TUBING Y N (replaced) _____ DUPLICATE: Y N

SAMPLE ID CODE	SAMPLE CONTAINER SPECIFICATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	Low Flow Sampling <input checked="" type="checkbox"/>	SAMPLE PUMP FLOW RATE (ml-per minute)
	# CONTAINERS	MATERIAL CODE	VOLUME (mL)				
BRLTN03-002-GW-022	1	HDPE	250ml	S37M	APP	<input checked="" type="checkbox"/>	0.08

REMARKS: Depth to water N/A due to diameter of well, diameter of poly flow w/d. diameter of water level probe, ended sampling. DTW = 18.4

Well Abandoned? Date Well Abandoned: 04/21/2017
Well Measurement Method: Probe Tape Other _____

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RPPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Savannah)

ASL Project No: M2032.0001

Installation: Burlington ARB

Date: 04/20/2017

Sample Technician(s): Franklin Johnson

Station ID: BRLTNO1-001

Location Description: 150 ft due south from Monitoring well BRLTNO1-MW-V1BP2

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch River/Stream	Holding Pond/Lagoon Trench	Lake/Pond Other
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SEDIMENT SAMPLE

Sample ID: _____ Sample Collection Time: _____
Sample Depth: _____ Sediment Description: _____
Collection Method: _____ Analysis/Method: _____
Sample Container: _____ Preservative: _____

SURFACE WATER SAMPLE

Sample ID: _____ Sample Collection Time: _____
Sample Depth: _____ Collection Method: _____
Analysis/Method: _____ Sample Container: _____
Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): Hydropunch Monitoring Well Temporary Well
Other _____

GROUNDWATER GRAB SAMPLE

Sample ID: BRLTNO1-001-GW-013 Sample Collection Time: 1425
Sample Depth: 13 ft BGS Collection Method: PP
Analysis/Method: EPA 537M Sample Container: 250 mL PE
Preservative: N/A Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS:



SAMPLE COLLECTION LOG SEDIMENT AND SURFACE WATER

Project Name: SEVENOAKS AFFF SIO MAHA DISTRICT

ASL Project No: M2027-0003 *M2032.0001*

Installation: WRIGHT PATTERSON AFB Ft. Belvoir ANG

Date: 4/19/17

Sample Technician(s): Kaleb Brunberg

Station ID: BRLW01-002

Location Description: 1350 SE to Guard Shack on NCO Drive

Type(s) of Sample (circle all that apply):	Sediment	Surface Water	<u>Ground Water</u>
Sample Collected from (circle one):	Channel/Ditch	Holding Pond/Lagoon	Lake/Pond
	River/Stream	Trench	<u>Other</u> <i>Reels</i>
SEDIMENT SAMPLE			
Sample ID: _____	Sample Collection Time: _____		
Sample Depth: _____	Sediment Description: _____		
Collection Method: _____	Analysis/Method: _____		
Sample Container: _____	Preservative: _____		
SURFACE WATER SAMPLE			
Sample ID: _____	Sample Collection Time: _____		
Sample Depth: _____	Collection Method: _____		
Analysis/Method: _____	Sample Container: _____		
Preservative: _____	Water Quality (circle one): Clear Cloudy Turbid <u>Other</u>		
GROUND WATER SAMPLE			
Sample ID: <u>BRLW01-002-GW-015</u>	Sample Collection Time: <u>0850</u>		
Sample Depth: <u>15</u>	Collection Method: <u>grab w/ PP</u>		
Analysis/Method: <u>SZFM</u>	Sample Container: <u>(2) 250 mL</u>		
Preservative: <u>N/A</u>	Water Quality (circle one): Clear Cloudy <u>Turbid</u> Other		

COMMENTS: 2 samples taken due to turbid



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Savannah)

ASL Project No: M2032.0001

Installation: Burlington ARB

Date: 4/18/97

Sample Technician(s): Kaleb Brumhangh

Station ID: BRLTNO1

Location Description: 90°E to Peer Farm RD 15 meters

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch River/Stream	Holding Pond/Lagoon Trench	Lake/Pond <u>Other</u> <u>Crack</u>
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SEDIMENT SAMPLE

Sample ID: BRLTNO1-003-SD-001/MS/MSD/901 Sample Collection Time: 1310

Sample Depth: 0-0.5' Sediment Description: Silty Sand

Collection Method: grab Analysis/Method: S37M

Sample Container: HDPE Preservative: N/A

SURFACE WATER SAMPLE

Sample ID: BRLTNO1-003-SW-001/MS/MSD/901 Sample Collection Time: 1310

Sample Depth: 0-0.5' Collection Method: grab

Analysis/Method: S37M Sample Container: HDPE

Preservative: N/A Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one):	Hydropunch	Monitoring Well	Temporary Well	Other
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GROUNDWATER GRAB SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Collection Method: _____

Analysis/Method: _____ Sample Container: _____

Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS:

BRLTN-RS-001 assoc w/ BRLTNO1-003-SD-001/MS/MSD/901



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Savannah)

ASL Project No: M2032.0001

Installation: Burlington

Date: 4/18/17

Sample Technician(s): Kaleb Brumbaugh

Station ID: BRLT02

Location Description: 52° NE to Mustang Pass, 10 meters

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch	Holding Pond/Lagoon	Lake/Pond
	River/Stream	Trench	Other

SEDIMENT SAMPLE

Sample ID: BRLT02-004-SD-001 Sample Collection Time: 1454

Sample Depth: 0-0.5' Sediment Description: Silty Sand

Collection Method: grab Analysis/Method: 537

Sample Container: HDPE Preservative: N/A

SURFACE WATER SAMPLE

Sample ID: BRLT02-004-SW-001 Sample Collection Time: 1500

Sample Depth: 0-0.5' Collection Method: grab

Analysis/Method: 537m Sample Container: HDPE

Preservative: N/A Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one):

Hydropunch Monitoring Well Temporary Well

Other _____

GROUNDWATER GRAB SAMPLE

Sample ID: ~~KB~~ Sample Collection Time: _____

Sample Depth: _____ Collection Method: _____

Analysis/Method: _____ Sample Container: _____

Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS:



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Savannah)

ASL Project No: M2032.0001

Installation: Burlington

Date: 4/18/17

Sample Technician(s): Kaleb Brumbaugh

Station ID: ~~BRLTNO3-003~~ ^{PS} BRLTNO3

Location Description: 211st SW to NCO Drive 80meters

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch River/Stream	Holding Pond/Lagoon Trench	Lake/Pond <u>Other</u> Creek
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SEDIMENT SAMPLE

Sample ID: BRLTNO3-003-SD-001

Sample Collection Time: _____

Sample Depth: 0-0.5'

Sediment Description: Sand trace silt

Collection Method: grab

Analysis/Method: 537M

Sample Container: HDPE

Preservative: N/A

SURFACE WATER SAMPLE

Sample ID: BRLTNO3-003-SW-001

Sample Collection Time: 1356

Sample Depth: 0-0.5'

Collection Method: grab

Analysis/Method: 537M

Sample Container: HDPE

Preservative: N/A

Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): XKB

Hydropunch

Monitoring Well

Temporary Well

Other _____

GROUNDWATER GRAB SAMPLE

Sample ID: _____

Sample Collection Time: _____

Sample Depth: _____

Collection Method: _____

Analysis/Method: _____

Sample Container: _____

Preservative: _____

Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS:



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Omaha)

ASL Project No: M2027.0003

Installation: Burlington ANG

Date: 04/20/2017

Sample Technician(s): Franklin Johnson

Station ID: BRLTN04-001-SS-001 FT BRLTN04-001

Location Description: Approx 40 ft SW from edge of Foxtrot Runway

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch	Holding Pond/Lagoon	Lake/Pond
	River/Stream	Trench	Other

SEDIMENT SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Sediment Description: _____

Collection Method: _____ Analysis/Method: FT

Sample Container: _____ Preservative: _____

SURFACE WATER SAMPLE

Sample ID: BRLTN04-001-GW-013 Sample Collection Time: _____

Sample Depth: 13 ft BGS FT Collection Method: _____

Analysis/Method: FT Sample Container: _____

Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): Hydropunch Monitoring Well Temporary Well

Other _____

GROUNDWATER GRAB SAMPLE

Sample ID: BRLTN04-001-GW-013 Sample Collection Time: 1235

Sample Depth: 13 ft BGS Collection Method: PP

Analysis/Method: EPA 537M Sample Container: 250 mL PE

Preservative: N/A Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS:



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Omaha)

ASL Project No: M2027.0003

Installation: Burlington AFB

Date: 04/20/2017

Sample Technician(s): Franklin Johnson

Station ID: BLRTN04-002

Location Description: Apex 50 ft NE from edge of Foxrot Runway

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch River/Stream	Holding Pond/Lagoon Trench	Lake/Pond Other
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SEDIMENT SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Sediment Description: _____

Collection Method: _____ Analysis/Method: _____

Sample Container: _____ Preservative: _____

SURFACE WATER SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Collection Method: _____

Analysis/Method: _____ Sample Container: _____

Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): Hydropunch Monitoring Well Temporary Well

Other _____

GROUNDWATER GRAB SAMPLE

Sample ID: BLRTN04-002-GW-018 Sample Collection Time: 0910

Sample Depth: 18 ft BGS Collection Method: PP

Analysis/Method: EPA 537M Sample Container: 250 mL PE

Preservative: n/a Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS:



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Savannah)

ASL Project No: M2032.0001

Installation: Burlington ANG

Date: 04/20/2017

Sample Technician(s): Franklin Johnson

Station ID: BRLTN04-003

Location Description: Aprox 50 ft NE from edge of Fostrot Runway.

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch River/Stream	Holding Pond/Lagoon Trench	Lake/Pond Other
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SEDIMENT SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Sediment Description: _____

Collection Method: _____ Analysis/Method: _____

Sample Container: _____ Preservative: _____

SURFACE WATER SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Collection Method: _____

Analysis/Method: _____ Sample Container: _____

Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): Hydropunch Monitoring Well Temporary Well

Other _____

GROUNDWATER GRAB SAMPLE

Sample ID: BRLTN04-003-GW-018 Sample Collection Time: 1020

Sample Depth: 18 ft BGS Collection Method: PP

Analysis/Method: EPA 537 M Sample Container: 250 mL PE

Preservative: n/a Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS:



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Savannah)

ASL Project No: M2032.0001

Installation: Burlington ANG

Date: 04/20/2017

Sample Technician(s): Franklin Johnson

Station ID: BRLTN04-004

Location Description: Approx 50 ft NE from edge of Fostrot Runway.

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch	Holding Pond/Lagoon	Lake/Pond
	River/Stream	Trench	Other

SEDIMENT SAMPLE

Sample ID: _____ Sample Collection Time: _____
Sample Depth: _____ Sediment Description: _____
Collection Method: _____ Analysis/Method: _____
Sample Container: _____ Preservative: _____

SURFACE WATER SAMPLE

Sample ID: _____ Sample Collection Time: _____
Sample Depth: _____ Collection Method: _____
Analysis/Method: _____ Sample Container: _____
Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): Hydropunch Monitoring Well Temporary Well
Other _____

GROUNDWATER GRAB SAMPLE

Sample ID: BRLTN04-004-GW-018 Sample Collection Time: 1200
Sample Depth: BRLTN 04-004-GW-918 Collection Method: PP
18 ft BGS
Analysis/Method: EPA 537M Sample Container: 250 mL PE
Preservative: n/a Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS:



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Savannah)

ASL Project No: M2032.0001

Installation: Burlington ARB

Date: 04/19/2017

Sample Technician(s): B. Odom, F. Johnson

Station ID: BRLTNS-001

Location Description: Approx 200 ft heading SW of old main Runway

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch River/Stream	Holding Pond/Lagoon Trench	Lake/Pond Other
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SEDIMENT SAMPLE

Sample ID: _____	Sample Collection Time: _____
Sample Depth: _____	Sediment Description: _____
Collection Method: _____	Analysis/Method: _____
Sample Container: _____	Preservative: _____

SURFACE WATER SAMPLE

Sample ID: _____	Sample Collection Time: _____
Sample Depth: _____	Collection Method: _____
Analysis/Method: _____	Sample Container: _____
Preservative: _____	Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): Hydropunch Monitoring Well Temporary Well
Other _____

GROUNDWATER GRAB SAMPLE

Sample ID: <u>BRLTNS-001-GW-017</u>	Sample Collection Time: <u>1115</u>
Sample Depth: <u>17 ft BGS</u>	Collection Method: <u>PP</u>
Analysis/Method: <u>EPA 537M</u>	Sample Container: <u>250 mL PE</u>
Preservative: <u>N/A</u>	Water Quality (circle one): Clear Cloudy <u>Turbid</u> Other

REMARKS:



SAMPLE COLLECTION LOG

Project Name: SI of AFFF Areas (Savannah)

ASL Project No: M2032.0001

Installation: Burlington ANG

Date: 04/19/2017

Sample Technician(s): B. Odom, Franklin Johnson

Station ID: BRLTN05-003 P BRLTN05-002

Location Description: Aprox 200 meters heading NE from edge of main Runway

Surface Water and/or Sediment Sample Collected from (circle one):	Channel/Ditch	Holding Pond/Lagoon	Lake/Pond
	River/Stream	Trench	Other

SEDIMENT SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Sediment Description: _____

Collection Method: _____ Analysis/Method: _____

Sample Container: _____ Preservative: _____

SURFACE WATER SAMPLE

Sample ID: _____ Sample Collection Time: _____

Sample Depth: _____ Collection Method: _____

Analysis/Method: _____ Sample Container: _____

Preservative: _____ Water Quality (circle one): Clear Cloudy Turbid Other

Groundwater Sample Collected from (circle one): Hydropunch Monitoring Well Temporary Well

Other: _____

BRLTN05-002-GW-083 **GROUNDWATER GRAB SAMPLE**

Sample ID: BRLTN05-002-GW-083 Sample Collection Time: 1655

Sample Depth: 13 ft 865 Collection Method: PP

Analysis/Method: EPA 537M Sample Container: 250 mL PE

Preservative: n/a Water Quality (circle one): Clear Cloudy Turbid Other

REMARKS: 3 bottles collected 1 normal +1MS/MSD and 1 duplicate sample



BORING LOG - BRLTN01-001

(Page 1 of 1)

Site Name : AFFF Area 01
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe 7822DT
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/20/17
 DTW During Drilling (ft) : 8.5
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/20/17
 End Date : 04/20/17
 Northing : 721506.03
 Easting : 1470502.76
 Surface Elev. (ft)* : 311.90
 Total Depth (ft)** : 15.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
			DESCRIPTION								
0					0						No temporary well installed.
1				(0.0 - 3.0) SILTY SAND, 10YR 4/3, brown, sub-angular fine gravel, moist, no odor		SM					
2		100									
3				(3.0 - 5.0) SAND, well graded, 10YR 6/1, gray, fine to coarse grained, no odor		SW					
4											
5				(5.0 - 9.0) SILTY SAND, 10YR 4/3, brown, fine grained sand, ~ 5% silt, wet below 8.5 ft bgs	0						
6											
7						SM					
8		70							SO	BRLTN01-001-SO-008 Note: Interval 7.0 - 8.0 ft	
9								▼			
10				(9.0 - 15.0) SILT, 10YR 5/1, brown, uniform color and texture, wet, no odor							
11					0						
12						ML					
13		100							GW	BRLTN01-001-GW-013 Note: Interval 11.0 - 15.0 ft	Geoprobe SP16 Screen Interval (11.0 - 15.0 ft)
14											
15	Total Depth of Boring 15.0 feet										

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BORING LOG - BRLTN01-002
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Site Name : AFFF Area 01
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe 7822 DT
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/19/17
 DTW During Drilling (ft) : 8.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/19/17
 End Date : 04/19/17
 Northing : 721651.86
 Easting : 1470549.34
 Surface Elev. (ft)* : 311.21
 Total Depth (ft)* : 15.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
			DESCRIPTION								
0				(0.0 - 3.0) SILTY SAND, 10YR 4/3, brown, sub-angular fine gravel, strong fuel odor	68						No temporary well installed.
1						SM					
2											
3	1	100		(3.0 - 5.0) SAND, well graded, 10YR 6/1, gray, fine to coarse grained, moist, strong fuel odor							
4						SW					
5				(5.0 - 15.0) SAND, poorly graded, 10YR 2/1, black, fine grained, strong fuel odor, wet below 8 ft bgs	112						
6											
7											
8	2	76								BRLTN01-002-SO-007 BRLTN01-002-SO-907 Note: Interval 6.0 - 7.0 ft	
9											
10						SP					
11					95						
12											
13	3	100									
14											
15											
Total Depth of Boring 15.0 feet											
										BRLTN01-002-GW-015 Note: Interval 11.0 - 15.0 ft	Geoprobe SP16 Screen Interval (11.0 - 15.0 ft)

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BORING LOG - BRLTN02-001

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Site Name : AFFF Area 02
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe 7822 DT
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/21/17
 DTW During Drilling (ft) : 21.0
 Logged By : Franklin Johnson

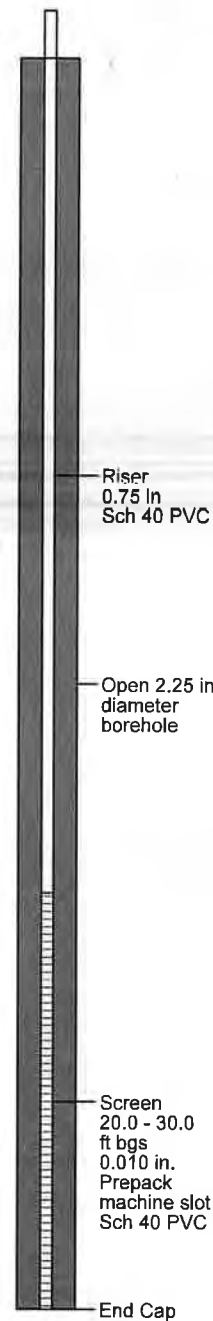
AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Burlington Air National Guard Base

Start Date : 04/18/2017
 End Date : 04/18/2017
 Northing : 720614.44
 Easting : 1470801.08
 Surface Elev. (ft)* : 326.01
 Total Depth (ft)** : 30.0

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels ▼ During Drilling	Measurements *North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	Temporary Well: BRLTN02-001 Elev (TOC): 328.41
0											
1	1	100			0				SS	BRLTN02-001-SS-001 BRLTN02-001-SS-901 Note: Interval 0.0 - 0.5 ft	
2											
3											
4											
5					0						
6											
7	2	64				SM					
8											
9											
10					0						
11											
12											
13	3	64									
14											
15											
16					0	SP					
17											
18	4	68									
19											
20					0				SO	BRLTN02-001-SO-020 Note: Interval 19.0 - 20.0 ft	
21											
22	5	70				SM					
23											
24											
25											
26											
27	6	70				SM					
28											
29											
30											

Total Depth of Boring 30.0 feet



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BORING LOG - BRLTN02-002
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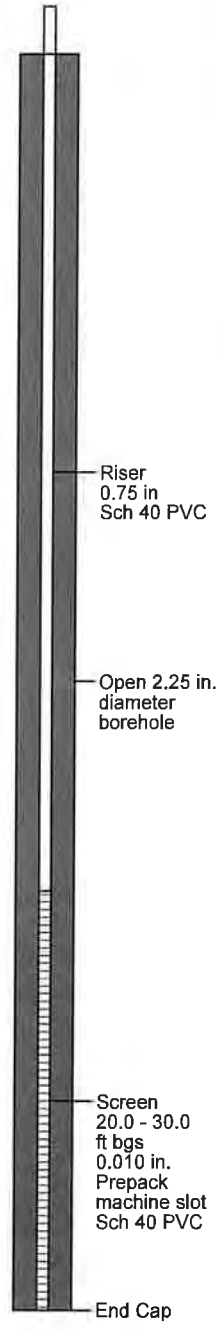
Site Name : AFFF Area 02
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe 7822 DT
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/21/17
 DTW During Drilling (ft) : 21.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/18/2017
 End Date : 04/18/2017
 Northing : 720700.71
 Easting : 1470910.10
 Surface Elev. (ft)* : 324.92
 Total Depth (ft)** : 30.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	DESCRIPTION	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	Water Levels ▼ During Drilling Measurements *North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)	Temporary Well: BRLTN02-002 Elev (TOC): 327.43
0			(0.0 - 5.0) SILTY SAND, 10YR 4/3, brown, fine sub-angular gravels, moist, no odor	0				SS	BRLTN02-002-SS-001 Note: Interval 0.0 - 0.5 ft		
1											
2		100			SM						
3											
4											
5			(5.0 - 13.0) SAND, well graded, 10YR 4/3, brown, fine to medium grained, ~ 5% sub-angular gravel, moist, no odor	0							
6											
7		64									
8											
9					SW						
10											
11											
12											
13		64	(13.0 - 15.0) SAND, well graded, 10YR 5/4, grayish brown, fine to medium grained, ~ 5% sub-angular gravel, moist, no odor	0							
14											
15					SW						
16			(15.0 - 21.0) SAND, poorly graded, 10YR 5/2, grayish brown, fine grained, moist no odor	0							
17											
18		68									
19					SP						
20											
21											
22			(21.0 - 30.0) SILTY SAND, 10YR 3/2, very dark grayish brown, uniform texture and color, wet below 21.0 ft bgs	0					BRLTN02-002-SO-020 Note: Interval 19.0 - 20.0 ft		
23											
24											
25											
26					SM						
27											
28		100									
29											
30											



Total Depth of Boring 30.0 feet

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BORING LOG - BRLTN02-003

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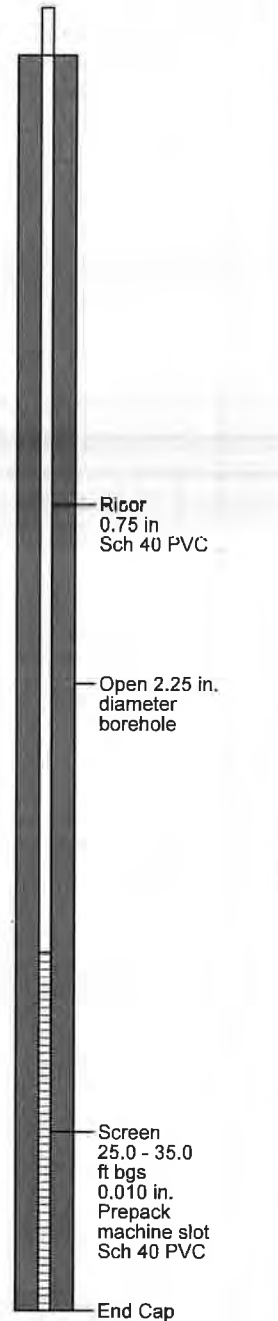
Site Name : AFFF Area 02
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe 7822 DT
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/21/17
 DTW During Drilling (ft) : 26.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/18/2017
 End Date : 04/18/2017
 Northing : 720633.94
 Easting : 1470962.30
 Surface Elev. (ft)* : 325.28
 Total Depth (ft)** : 35.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	Temporary Well: BRLTN02-003 Elev. TOC: 327.95
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
DESCRIPTION											
0					0				SS	BRLTN02-003-SS-001 Note: Interval 0.0 - 0.5 ft	
1		100		(0.0 - 13.0) SILTY SAND, 10YR 3/2, brown, ~ 5% sub-angular fine gravel							
2					0						
3											
4											
5											
6											
7		64				SM					
8											
9											
10											
11											
12											
13		78		(13.0 - 25.0) SAND, poorly graded, 10YR 6/2, light grayish brown, fine grained uniform texture and color, moist, no odor							
14											
15											
16											
17											
18		84									
19											
20						SP					
21				20.0 ft bgs, color grading to brown 10YR 4/2							
22											
23											
24											
25		88							SO	BRLTN02-003-SO-025 Note: Interval 24.0 - 25.0 ft	
26											
27											
28											
29											
30						SM					
31											
32											
33		100									
34											
35											



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Total Depth of Boring 35.0 feet



BORING LOG - BRLTN03-001
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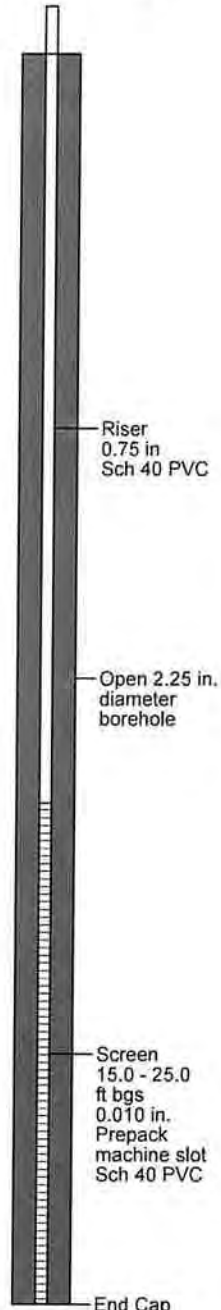
Site Name : AFFF Area 03
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe 7822 DT
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/21/17
 DTW During Drilling (ft) : 15.0
 Logged By : F. Johnson/R. Reynolds

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/18/2017
 End Date : 04/18/2017
 Northing : 721023.55
 Easting : 1470428.44
 Surface Elev. (ft)* : 324.45
 Total Depth (ft)** : 25.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	Temporary Well: BRLTN03-001 Elev. TOC: 327.4
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
DESCRIPTION											
0											
1									SS	BRLTN03-001-SS-001 Note: Interval 0.0 - 0.5 ft	
2	1	100									
3											
4											
5											
6											
7											
8	2	100									
9											
10											
11											
12											
13	3	100									
14									SO	BRLTN03-001-SO-014 Note: Interval 13.0 - 14.0 ft	
15											
16											
17											
18	4	100									
19											
20											
21											
22											
23	5	100									
24											
25											
Total Depth of Boring 25.0 feet											



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BORING LOG - BRLTN03-002

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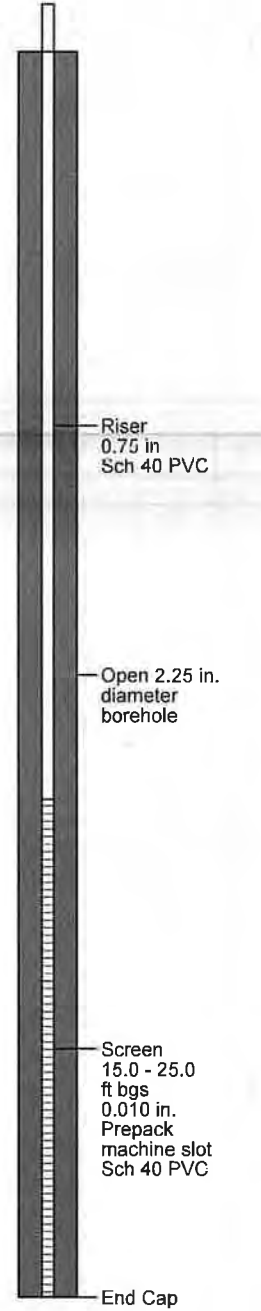
Site Name : AFFF Area 03
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe 7822 DT
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/21/17
 DTW During Drilling (ft) : 16.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/18/2017
 End Date : 04/18/2017
 Northing : 721050.72
 Easting : 1470450.06
 Surface Elev. (ft)* : 323.78
 Total Depth (ft)** : 25.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	Temporary Well: BRLTN03-002 Elev. TOC: 326.60
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
			DESCRIPTION								
0				(0.0 - 2.0) SANDY SILT, 7.5YR 4/3, ~ 5% fine well rounded gravel, damp, no odor	0	ML			SS	BRLTN03-002-SS-001 Note: Interval 0.0 - 0.5 ft	
1				(2.0 - 8.0) SILTY SAND, 7.5YR 3/2, dark brown, fine grained, ~ 5% fine well rounded gravel, damp, no odor							
2	1	100									
3				(8.0 - 10.0) SILTY SAND, 7.5YR 3/2, dark brown, fine to medium grained, damp, no odor							
4											
5											
6				(10.0 - 18.0) SAND, poorly graded, 10YR 3/2, dark brown, fine grained, moist, no odor	0	SM					
7											
8	2	60									
9											
10				wet, 16.0 ft bgs							
11											
12											
13	3	64									
14											
15				(18.0 - 25.0) SAND, poorly graded, 7.5YR 3/2, dark brown, fine grained, wet, no odor					SO	BRLTN03-002-SO-015 Note: Interval 14.0 - 15.0 ft	
16											
17											
18	4	64									
19											
20					20.0 ft bgs, color grades to 10YR 4/2, dark grayish brown						
21											
22											
23	5	100									
24											
25					0						
Total Depth of Boring 25.0 feet											



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BORING LOG - BRLTN04-001
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Site Name : AFFF Area 04
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe SP16
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/20/17
 DTW During Drilling (ft) : 10.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/20/2017
 End Date : 04/20/2017
 Northing : 720457.07
 Easting : 1470205.47
 Surface Elev. (ft)* : 314.9
 Total Depth (ft)** : 15.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
DESCRIPTION											
0					0				SS	BRLTN04-001-SS-001 Note: Interval 0.0 - 0.5 ft	No temporary well installed.
1						SM					
2		100									
3											
4											
5					0						
6						SW					
7											
8		88									
9									SO	BRLTN04-001-SO-009 Note: Interval 8.0 - 9.0 ft	
10					0						
11											
12						SM					
13		100							GW	BRLTN04-001-GW-013 Note: Interval 11.0 - 15.0 ft	Geoprobe SP16 Screen Interval (11.0 - 15.0 ft)
14											
15											
Total Depth of Boring 15.0 feet											

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BORING LOG - BRLTN04-002

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Site Name : AFFF Area 04
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe SP16
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/20/17
 DTW During Drilling (ft) : 11.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/20/2017
 End Date : 04/20/2017
 Northing : 720591.69
 Easting : 1470229.55
 Surface Elev. (ft)* : 315.9
 Total Depth (ft)** : 20.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
			DESCRIPTION								
0					0				SS	BRLTN04-002-SS-001 Note: Interval 0.0 - 0.5 ft	No temporary well installed.
1				(0.0 - 2.0) SILTY SAND, 10YR 3/2, very dark grayish brown, moist, no odor		SM					
2		100									
3				(2.0 - 10.0) SAND, poorly graded, 10YR 4/3, brown, moist, no odor							
4											
5					0						
6											
7						SP					
8		84									
9											
10									SO	BRLTN04-002-SO-010 Note: Interval 9.0 - 10.0 ft	
11											
12											
13											
14											
15											
16											
17						SM					
18		100							GW	BRLTN04-002-GW-018 Note: Interval 16.0 - 20.0 ft	Geoprobe SP16 Screen Interval (16.0 - 20.0 ft)
19											
20											
Total Depth of Boring 20.0 feet											

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BORING LOG - BRLTN04-003
(Page 1 of 1)

Site Name : AFFF Area 04
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe SP16
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/20/17
 DTW During Drilling (ft) : 12.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/20/2017
 End Date : 04/20/2017
 Northing : 720471.62
 Easting : 1470363.64
 Surface Elev. (ft)* : 318.1
 Total Depth (ft)** : 20.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
DESCRIPTION											
0					0				SS	BRLTN04-003-SS-001 Note: Interval 0.0 - 0.5 ft	No temporary well installed.
1						SM					
2	1	100									
3											
4											
5					0						
6						SW					
7	2	70									
8											
9											
10					0				SO	BRLTN04-003-SO-011 Note: Interval 10.0 - 11.0 ft	
11											
12	3	72						▼			
13											
14											
15					0	SM					
16											
17	4	100									
18									GW	BRLTN04-003-GW-018 Note: Interval 16.0 - 20.0 ft	
19											
20											
Total Depth of Boring 20.0 feet											

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BORING LOG - BRLTN04-004

Site Name : AFFF Area 04
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe SP16
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/20/17
 DTW During Drilling (ft) : 14.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/20/2017
 End Date : 04/20/2017
 Northing : 720376.62
 Easting : 1470480.79
 Surface Elev. (ft) : 317.3
 Total Depth (ft) : 20.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
DESCRIPTION											
0					0				SS	BRLTN04-004-SS-001	No temporary well installed.
1				(0.0 - 2.0) SILTY SAND, 10YR 3/2, very dark grayish brown, moist, no odor		SM				Note: Interval 0.0 - 0.5 ft	
2	1	100		(2.0 - 10.5) SAND, well graded, 10YR 3/3, dark brown, medium to coarse grained, moist, no odor							
3											
4											
5											
6											
7	2	70									
8											
9											
10					0						
11				(10.5 - 20.0) SILTY SAND, 10YR 4/2, dark grayish brown, fine grained sand with silt							
12											
13	3	72							SO	BRLTN04-004-SO-013	Note: Interval 12.0 - 13.0 ft
14				Wet, 14.0 ft bgs				▼			
15					0	SM					
16											
17											
18	4	100							GW	BRLTN04-004-GW-018 BRLTN04-004-GW-918	Geoprobe SP16 Screen Interval (16.0 - 20.0 ft)
19										Note: Interval 16.0 - 20.0 ft	
20											
Total Depth of Boring 20.0 feet											

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BORING LOG - BRLTN05-001
(Page 1 of 1)

Site Name : AFFF Area 05
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe SP16
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/19/17
 DTW During Drilling (ft) : 15.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/19/2017
 End Date : 04/19/2017
 Northing : 721549.53
 Easting : 1467447.41
 Surface Elev. (ft) : 306.3
 Total Depth (ft) : 19.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
			DESCRIPTION								
0				(0.0 - 6.5) SAND, poorly graded, 10YR 5/3, brown, fine grained, moist	0				SS	BRLTN05-001-SS-001 BRLTN05-001-SS-901 Note: Interval 0.0 - 0.5 ft	No temporary well installed.
1		100									
2											
3											
4											
5					0						
6											
7				(6.5 - 6.7) SILTY CLAY, 10YR 4/1, dark gray, low plasticity, soft, moist, no odor		CL					
8		82		(6.7 - 10.0) SAND, well graded, 10YR 5/3, brown, fine to medium grained, moist							
9											
10											
11											
12											
13		84		(10.0 - 19.0) SAND, poorly graded, 10YR 5/3, brown, uniform color, no odor,							
14									SO	BRLTN05-001-SO-014 Note: Interval 13.0 - 14.0 ft	
15				Wet, 15 ft bgs	0				▼		
16											
17		100							GW	BRLTN05-001-GW-017 Note: Interval 15.0 - 19.0 ft	Geoprobe SP16 Screen Interval (15.0 - 19.0 ft)
18											
19											
Total Depth of Boring 19 feet											

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Aerostar SES uc

BORING LOG - BRLTN05-002

(Page 1 of 1)

Site Name : AFFF Area 05
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe SP16
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/21/17
 DTW During Drilling (ft) : 29.0
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

Start Date : 04/19/2017
 End Date : 04/19/2017
 Northing : 721950.17
 Easting : 1467824.96
 Surface Elev. (ft)* : 302.9
 Total Depth (ft)** : 36.0

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
			DESCRIPTION								
0					0				SS	BRLTN05-002-SS-001 Note: Interval 0.0 - 0.5 ft	No temporary well installed.
1				(0.0 - 5.0) SILTY SAND, 7.5YR 3/2, dark brown, silt fine grained sand, moist, no odor		SM					
2	1	100									
3											
4											
5					0						
6				(5.0 - 10.0) SAND, poorly graded, 10YR 4/2, dark grayish brown, fine grained		SP					
7	2	86									
8											
9											
10					0						
11				(10.0 - 34.0) SILT, 10YR 5/2, grayish brown, moist							
12											
13	3	80									
14											
15					0						
16											
17											
18	4	80									
19											
20					0						
21											
22	5	100				ML					
23											
24					0						
25											
26	6	100							SO	BRLTN05-002-SO-028 BRLTN05-002-SO-928 Note: Interval 27.0 - 28.0 ft	
27											
28					0						
29											
30	7	100		Wet 29 ft bgs							
31											
32					0				GW		
33											
34	8	100								BRLTN05-002-GW-033 BRLTN05-002-GW-933 Note: Interval 32.0 - 33.0 ft	Geoprobe SP16 Screen Interval (30.0 - 34.0 ft)
35				(34.0 - 36.0) SAND, poorly graded, 10YR 5/3, brown, fine grained, wet, no odor		SP					
36					0						
Total Depth of Boring 36.0 feet											

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BORING LOG - BRLTN05-003
(Page 1 of 1)

Site Name : AFFF Area 05
 Drilling Company : Cascade Drilling
 Drilling Method : Geoprobe SP16
 Driller : Chris Aldrich
 Borehole Diameter : 2.25 in.
 Boring Completion : Abandoned Bentonite Chips
 Abandonment Date : 04/21/17
 DTW During Drilling (ft) : Not Encountered
 Logged By : Franklin Johnson

AFFF Areas (Savannah District)
 AFFF Site Inspection
 Project# M2032.0001

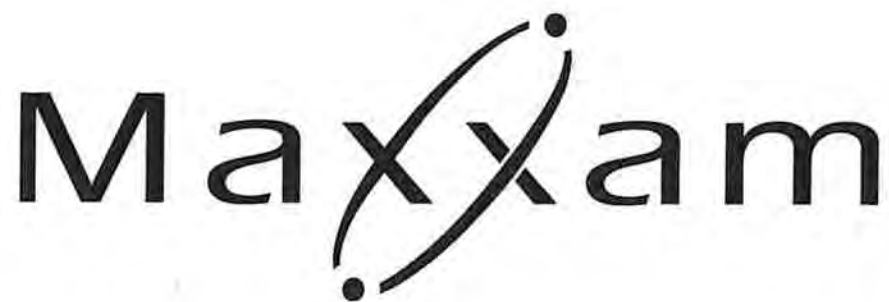
Start Date : 04/19/2017
 End Date : 04/19/2017
 Northing : 721889.89
 Easting : 1467890.35
 Surface Elev. (ft)* : 305.9
 Total Depth (ft)** : 32.5

Burlington Air National Guard Base

DEPTH IN FEET (BGS)	INTERVAL	% RECOVERY	Water Levels	Measurements	PID (ppm)	USCS	Munsell Soil Color	Depth to Water (DTW)	SAMPLE TYPE	SAMPLE ID	REMARKS
			▼ During Drilling	*North American Vertical Datum (NAVD88) feet (ft) **Below Ground Surface (BGS) feet (ft)							
			DESCRIPTION								
0					0				SS	BRLTN05-003-SS-001 Note: Interval 0.0 - 0.5 ft	No temporary well installed.
1				(0.0 - 5.0) SILTY SAND, 7.5YR 3/2, dark brown, silt and fine grained sand, moist, no odor							
2	1	100				SM					
3											
4											
5											
6				(5.0 - 10.0) SAND, poorly graded, 10YR 4/2, fine grained, moist, no odor	0						
7											
8	2	100				SP					
9											
10											
11				(10.0 - 32.5) SILT, 10YR5/2, grayish brown, moist, no odor	0						
12											
13	3	125									
14											
15											
16											
17	4	125									
18											
19											
20											
21	5	100				ML					No groundwater encountered during drilling.
22											
23											
24											
25	6	100									
26											
27											
28	7	100									
29											
30											
31	8	100							SO	BRLTN05-003-SO-032 Note: Interval 31.0 - 32.0 ft	
32											
33	Total Depth of Boring 32.5 feet										

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Appendix D
Laboratory Case Narratives
Data Validation Report
and
Analytical Data Sheets



Prepared for: Aerostar SES LLC

Project: M2032.0001 (SAVANNAH) BURLINGTON

Analytical Data Package (Level IV)

Analysis: PFOS and PFOA in water and soil (Method 537 mod.)

Maxxam Job #: B780315

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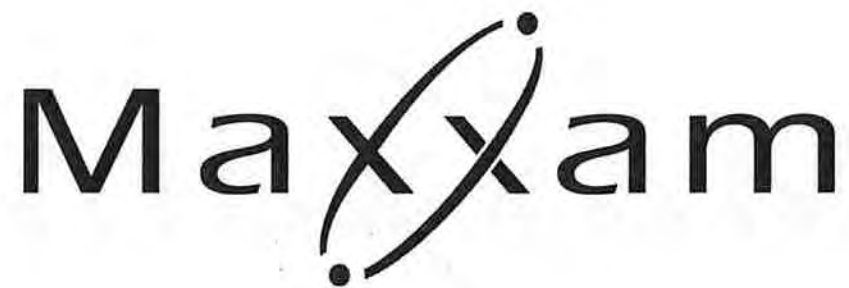


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 3.2 Sample Chromatograms

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6. Continuing Calibration

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I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

Review Performed By:

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Glossary of Terms

- **Detection Limit (DL)** this can also be called **Method Detection Limit (MDL)**: The lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not a false positive value. (Clarification): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence. At the DL, the false positive rate (Type I error) is 1%.
- **Limit of Detection (LOD)**: An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. (Clarification): The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.
- **Limits of Quantitation (LOQ)** this can also be called **Reporting Detection Limit (RDL)**: The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. (Clarification): The lowest concentration that produces a quantitative result within specified limits of precision and bias. For DoD projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard.
- **Acceptance Criteria** are values used by the laboratory to determine that a process is in control.
- **Accuracy** is the degree of agreement of a measured value with the true or expected value.
- **Calibration Standards** are a set of solutions containing the analytes of interest at a specified concentration.
- **Calibration Verification Standard** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid
- **Certified Reference Material** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.

- **Internal Standard** a deuterated or ¹³C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variability.
- **Isomer** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.
- **Method Blank** is a laboratory control sample using reagents that are known to be free of contamination.
- **Precision** is the degree of agreement between the data generated from repetitive measurements under specific conditions.
- **Quality Assurance** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.
- **Quality Control** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.
- **RSD** is the relative standard deviation.
- **Blank Spike** is a laboratory control sample that has been fortified with native analytes of interest.
- **Window Defining Mixture** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.
- **RPD** or Relative Percent Difference. A measure used to compare duplicate sample analysis.
- **EMPC/NDR** – Peak detected does not meet ratio criteria and has resulted in a higher detection limit.



1.0 Project Narrative

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Maxxam Job: B780315 – Soil Analysis

Sample Analysis

Soil samples were initially pre-screened and estimated concentrations were obtained so that samples could be appropriately diluted for quantitative analysis on QC batches 4966650 (2017/05/09), 4966664 (2017/05/09) and 4966672 (2017/05/09). Due to high concentrations, 10x dilutions were required for Perfluorooctanesulfonate (PFOS) in the following samples:

EGG575 BRLTN01-003-SD-001
EGG576 BRLTN01-003-SD-901
EGG579 BRLTN03-003-SD-001
EGG589 BRLTN03-002-SS-001
EGG590 BRLTN03-002-SO-015
EGG592 BRLTN03-001-SS-001
EGG593 BRLTN03-001-SO-014
EGG596 BRLTN02-001-SO-020
EGG599 BRLTN02-002-SO-020

Detection limits were adjusted accordingly for this analyte.

High concentrations of target analytes were detected in several samples during pre-screening. These samples were diluted prior to analysis, with additional dilutions for the following selected analytes:

EGG602 BRLTN01-002-SO-007 Perfluorooctanesulfonate (PFOS), Perfluorooctane sulfonamide (PFOSA)
EGG603 BRLTN01-002-SO-907 Perfluorooctanesulfonate (PFOS), Perfluorooctane sulfonamide (PFOSA)

Detection limits were adjusted accordingly for these samples.

The following sample was analyzed on QC batch 4966664 (2017/05/09) immediately after the Matrix Spike/Matrix Spike Duplicate (MS/MSD) which contained high concentrations of Perfluorooctanesulfonate (PFOS):

EGG594 BRLTN02-001-SS-001

Because an Instrument Blank (IB) was not injected prior to this sample to eliminate the possibility of potential carryover from the MS/MSD, the sample was re-extracted and re-analyzed on QC batch 4994232 (2017/05/27) for Perfluorooctanesulfonate (PFOS), past the method defined hold time. Because of their chemical structures, per- and polyfluorinated alkyl substances (PFAS) are chemically and biologically stable in the environment and resist typical environmental degradation processes. This would suggest the hold time exceedance would not have a significant impact on the data quality.

Data was evaluated in accordance with acceptance criteria specified in DoD QSM 5.1.

QC Samples

Matrix Spike and Matrix Spike Duplicate (MS/MSD) was performed on sample EGG602 (BRLTN01-002-SO-007) on QC batch 4966672 (2017/05/09). Due to high concentrations of target analytes in the native sample, the undiluted native sample was not analyzed, and MS/MSD recoveries could not be calculated.

Extracted Internal Standard Analytes

Isotopically labeled $^{13}\text{C}_2$ -Perfluoroundecanoic acid (MPFUnA) and $^{13}\text{C}_8$ -Perfluorooctane sulfonamide (MPFOSA) are used as internal standards to quantify native Perfluoroundecanoic acid (PFUnA) and Perfluorooctane sulfonamide (PFOSA) respectively. The recoveries observed for selected extracted internal standard analytes were below the defined lower control limit (LCL) for the following samples:

EGG610 BRLTN05-002-SS-001 (MPFUnA)

EGG611 BRLTN05-002-SO-028 (MPFOSA)
EGG612 BRLTN05-002-SO-928 (MPFOSA)

When quantifying analytes using isotope dilution techniques, the extracted internal standard analytes differ from the native compounds only in the presence of the stable isotopes. The physical and chemical behavior of each extracted internal standard analyte is virtually identical to its unlabeled or "native" analog. Any loss (or apparent gain) of the native compound that may occur during any of the sample preparation, extraction, cleanup or determinative steps will be mirrored by a similar loss (or apparent gain) of the extracted internal standard analyte, and as such can be accounted for and corrected. Therefore, the quantification of these target compounds is not affected by the low (or high) recoveries, provided the instrument response for the native and labeled compounds is distinguishable from the instrument or background noise.

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

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Maxxam Job: B780315 – Water Analysis

Sample Analysis

Water samples were initially pre-screened and estimated concentrations were obtained so that samples could be appropriately diluted for quantitative analysis on QC batches 4963000 (2017/05/05) and 4963931 (2017/05/03). The following sample required 20x dilutions for selected analytes:

EGG583 BRLTN01-MW102-011 Perfluorobutanesulfonate (PFBS), Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

Detection limits were adjusted accordingly for these analytes.

High concentrations of target analytes were detected in several samples during pre-screening. These samples were diluted prior to analysis, with the following selected analytes requiring further dilutions:

EGG577 BRLTN01-003-SW-001 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

EGG578 BRLTN01-003-SW-901 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

EGG580 BRLTN03-003-SW-001 Perfluorooctanesulfonate (PFOS)

EGG583 BRLTN01-MW102-011 Perfluorobutanesulfonate (PFBS), Perfluorohexanoic acid (PFHxA), Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

EGG584 BRLTN01-MW103-009 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

EGG585 BRLTN01-MW103-909 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

EGG586 BRLTN01-002-GW-015 Perfluorohexanesulfonate (PFHxS)

EGG587 BRLTN01-TRENCHSUMP-001 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

EGG588 BRLTN01-VIMW14L-008 Perfluorohexanesulfonate (PFHxS)

EGG615 BRLTN03 002 GW-022 Perfluorooctanesulfonate (PFOS)

EGG616 BRLTN03-001-GW-022 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

EGG617 BRLTN02-001-GW-027 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS), 6:2 Fluorotelomersulfonate (6:2FTS)

EGG618 BRLTN01-001-GW-013 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS), 6:2 Fluorotelomersulfonate (6:2FTS)

Detection limits were adjusted accordingly for these samples.

The following sample was initially analyzed on QC batch 4963000 (2017/05/05):

EGG577 BRLTN01-003-SW-001

Due to failure of QC acceptance criteria on this batch, this sample was re-extracted and re-analyzed on QC batch 4974570 (2017/05/09) past the method defined hold time.

All other water samples were initially analyzed on QC batch 4963931 (2017/05/03). The concentration of 6:2 Fluorotelomersulfonate (6:2FTS) in the Blank (Method Blank) was above the defined upper control limit in this batch. As a result, samples were re-extracted and re-analyzed for this analyte on QC batch 4978406 (2017/05/11) past the method defined hold time, with the exception of the following sample:

EGG607 BRLTN05-001-GW-017

This sample could not be re-extracted due to limited sample volume, and the result for 6:2 Fluorotelomersulfonate (6:2FTS) was reported from QC batch 4963931 (2017/05/03) and should be used with discretion.

Because of their chemical structures, per- and polyfluorinated alkyl substances (PFAS) are chemically and biologically stable in the environment and resist typical environmental degradation processes. This would suggest the hold time exceedance would not have a significant impact on the data quality.

Data was evaluated in accordance with acceptance criteria specified in DoD QSM 5.1.

QC Samples

Matrix Spike and Matrix Spike Duplicate (MS/MSD) was required on the following samples:

EGG577 *BRLTN01-003-SW-001*

EGG584 *BRLTN01-MW103-009*

Due to high concentrations of target analytes in the native samples, Matrix Duplicates (MDs) were prepared instead for these samples, in addition to Spike Duplicates (LCS Duplicates).

Extracted Internal Standard Analytes

Isotopically labeled $^{13}\text{C}_2$ -Perfluorododecanoic acid (MPFDoA) is used as an internal standard to quantify native Perfluorododecanoic acid (PFDoA). The recovery observed for this extracted internal standard analyte was below the defined lower control limit (LCL) for the following sample:

EGG607 *BRLTN05-001-GW-017*

When quantifying analytes using isotope dilution techniques, the extracted internal standard analytes differ from the native compounds only in the presence of the stable isotopes. The physical and chemical behavior of each extracted internal standard analyte is virtually identical to its unlabeled or "native" analog. Any loss (or apparent gain) of the native compound that may occur during any of the sample preparation, extraction, cleanup or determinative steps will be mirrored by a similar loss (or apparent gain) of the extracted internal standard analyte, and as such can be accounted for and corrected. Therefore, the quantification of these target compounds is not affected by the low (or high) recoveries, provided the instrument response for the native and labeled compounds is distinguishable from the instrument or background noise.

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

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PROJECT NARRATIVE

Maxxam Analytics
 Client Project #: M2032.0001 (SAVANNAH)



Client: Aerostar SES LLC
 Client Project: M2032.0001 (SAVANNAH)

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run	Initial Calibration
PFOS and PFOA in soil by SPE/LCMS						
EGG575	BRLTN01-003-SD-001	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG576	BRLTN01-003-SD-901	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG579	BRLTN03-003-SD-001	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG581	BRLTN02-004-SD-001	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG589	BRLTN03-002-SS-001	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG590	BRLTN03-002-SO-015	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG592	BRLTN03-001-SS-001	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG593	BRLTN03-001-SS-014	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09 & 2017/05/27
EGG594	BRLTN02-001-SS-001	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG595	BRLTN02-001-SS-901	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG596	BRLTN02-001-SO-020	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG597	BRLTN02-002-SS-001	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG598	BRLTN02-003-SS-001	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG599	BRLTN02-002-SO-020	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG600	BRLTN02-003-SO-025	2017/04/18	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG602	BRLTN01-002-SO-007	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG603	BRLTN01-002-SO-907	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG604	BRLTN05-001-SS-001	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG605	BRLTN05-001-SS-901	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG606	BRLTN05-001-SO-014	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG608	BRLTN05-003-SS-001	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG609	BRLTN05-003-SO-032	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG610	BRLTN05-002-SS-001	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG611	BRLTN05-002-SO-028	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
EGG612	BRLTN05-002-SO-928	2017/04/19	2017/04/21	2017/05/03	2017/05/09	2017/05/09
PFOS and PFOA in water by SPE/LCMS						
EGG574	BRLTN-RS-001	2017/04/18	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG577	BRLTN01-003-SW-001	2017/04/18	2017/04/21	2017/05/09	2017/05/12	2017/05/09
EGG577 Dup	BRLTN01-003-SW-001	2017/04/18	2017/04/21	2017/05/09	2017/05/12	2017/05/09
EGG578	BRLTN01-003-SW-901	2017/04/18	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG580	BRLTN03-003-SW-001	2017/04/18	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG582	BRLTN02-004-SW-001	2017/04/18	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG583	BRLTN01-MW102-011	2017/04/18	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG584	BRLTN01-MW103-009	2017/04/18	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG584 Dup	BRLTN01-MW103-009	2017/04/18	2017/04/21	2017/05/02	2017/05/03	2017/05/03
EGG585	BRLTN01-MW103-909	2017/04/18	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG586	BRLTN01-002-GW-015	2017/04/19	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG587	BRLTN01-TRENCHSUMP-001	2017/04/19	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG588	BRLTN01-V1MW14L-008	2017/04/19	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG591	BRLTN-SB-001	2017/04/18	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG601	BRLTN-RS-002	2017/04/19	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG607	BRLTN05-001-GW-017	2017/04/19	2017/04/21	2017/05/02	2017/05/03	2017/05/03
EGG613	BRLTN05-002-GW-033	2017/04/19	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG614	BRLTN05-002-GW-933	2017/04/19	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG615	BRLTN03-002-GW-022	2017/04/20	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG616	BRLTN03-001-GW-022	2017/04/20	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG617	BRLTN02-001-GW-027	2017/04/20	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11
EGG618	BRLTN01-001-GW-013	2017/04/20	2017/04/21	2017/05/11	2017/05/11	2017/05/03 & 2017/05/11

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: Samples "BRLTN05-002-GW-033" and "BRLTN05-002-GW-933" were listed as soils on the CoC. Proceeded with water analysis as the samples are liquid and the sample ID indicated GW.

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: Due to rework requirements, the following samples were extracted for past the recommended hold time of 14 days: Samples EGG574, EGG578, EGG580, EGG582, EGG583, EGG584, EGG585, EGG586, EGG587, EGG588, EGG591, EGG601, EGG613, EGG614, EGG615, EGG616, EGG617, and EGG618 for 6:2 FTS, sample EGG594 for PFOS, and sample EGG577 for all analytes.

b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

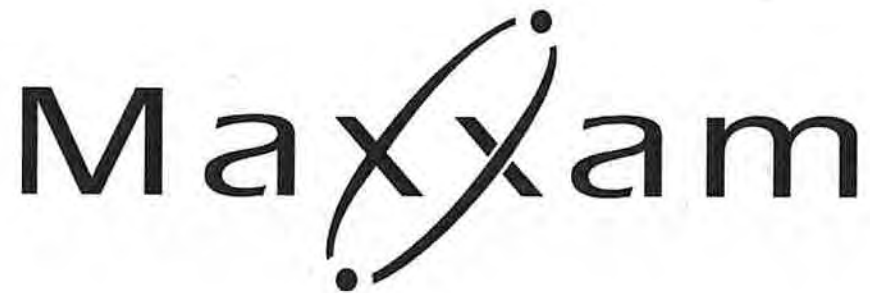
d) All analytes requiring manual integration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.


Project Manager- Site Assessment
and Remediation/ Ultra Trace

2017/06/23
Date



2.1 Sample Custody

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com



1006 Floyd Calkers Court
Oak Ridge, TN 37830
866-481-7837

Chain of Custody Record/
Analysis Req.

21-Apr-17 14:11

Melissa DiGrazia
B780315

Job No: M2032-0001 (Savannah)
Installation: *Edwards Landing*

Project Name: Site Inspections of Fire Fighting Foam Usage at Various Air Force Bases in the Eastern United States
Analytical Project Manager: Brian Olson, *BOlson@epersonnel.com* (478) 297-4700
Send Data to: Jeremy Vazco, *jvazco@epersonnel.net* (866) 443-7004

Sample(s): *Kyle Brownbaugh, Ryan Reynolds*
Laboratory Name/Address: *Micromass Analytical*
390 Cayuga Rd.
Chesham, NY 14228
Phone: (800) 877-8760, ext. 8784
Email: *Micromass@micromass.com*

PS4 ENV-767

MAZSAM use only	Sample ID	Date Collected	Time Collected	Sample Type	Matrix	NOTES
	BRLTN-05-001	4/18/17	12:50	ED	WA	(Spore) ass. w/ <i>Sordaria</i> base
	BRLTN01-003-SD-001	4/18/17	13:00	N	SE	Present + <i>M. sp.</i>
	BRLTN01-003-SD-001	4/18/17	13:10	FD	SE	
	BRLTN01-003-SD-001	4/18/17	13:10	N	WS	
	BRLTN01-003-SD-001	4/18/17	13:10	FD	WS	
	BRLTN01-003-SD-001	4/18/17	13:50	N	SE	
	BRLTN01-003-SD-001	4/18/17	13:50	N	WS	
	BRLTN01-003-SD-001	4/18/17	13:50	N	SE	
	BRLTN01-003-SD-001	4/18/17	13:50	N	WS	
	BRLTN01-MW103-011	4/18/17	16:45	N	WG	
	BRLTN01-MW103-009	4/18/17	17:52	N	WG	
	BRLTN01-MW103-000	4/18/17	17:52	FD	WG	
	BRLTN01-003-SD-005	4/19/17	08:50	N	WS	
	BRLTN01-TRENCHSUMP-001	4/19/17	11:30	N	WG	
	BRLTN01-Y100100-005	4/19/17	13:21	N	WS	

RECEIVED BY: *[Signature]* Date: 4/19/17

RECEIVED BY: *[Signature]* Date: 4/19/17

Signature: *[Signature]* Date: 4/19/17

Signature: *[Signature]* Date: 4/19/17

Total # of Containers: 10



1200 Floyd Coker Court
Oak Ridge, TN 37830
865-481-7837

Chain of Custody Record/
Analysis Request Number:

409
Page 2 of 3

Project Name: Site Inspections of Pave Fighting Fozon Usage at Various Air Force Bases in the Eastern United States
Job No.: 82032.0001 (Savannah)
Distribution: *Redacted*

Analyst: *Redacted*
Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Blank

Matrix:
WG = Groundwater
SO = Soil
WP = Potable Water
BE = Sediment
MS = Surface Water
WQ = Field QC (AS, EB)

Laboratory Name/Address:
Mossman Analytics, Inc.
6749 Chesapeake Rd.
Mechanicville, Ontario
L9R1ZL8
Contact: Melissa DiGrella
Phone: (605) 817-6700, ext. 8784
Email: MCDiGrella@mossman.ca

Sample ID: BRLTN03-002-SS-001
Date Collected: 04/18/2017
Time Collected: 0852
Sample Type: N
Matrix: SO

BRLTN03-002-SS-002
04/18/2017
0945
N
SO

BRLTN-SB-001
04/18/2017
0919
AB
WQ

BRLTN03-001-SS-001
04/18/2017
1037
N
SO

BRLTN03-001-SS-002
04/18/2017
1120
N
SO

BRLTN02-001-SS-001
04/18/2017
1255
N
SO

BRLTN02-001-SS-002
04/18/2017
1255
FD
SO

BRLTN02-001-SS-003
04/18/2017
1405
N
SO

BRLTN02-002-SS-001
04/18/2017
1445
N
SO

BRLTN02-002-SS-002
04/18/2017
1600
N
SO

BRLTN02-002-SS-003
04/18/2017
1530
N
SO

BRLTN-RS-002
04/18/2017
1705
N
SO

BRLTN-RS-001
04/18/2017
0730
EB
WQ

BRLTN01-002-SS-007
04/18/2017
0840
N
SO

BRLTN01-002-SS-008
04/18/2017
0840
FD
SO

NOTES:
Normal + MS/MSD

SPAWN DATABANK with sample
Normal + MS/MSD, High VOC
High VOC

ANALYST	DATE	TIME	STATUS

RECEIVED BY:	DATE:	TIME:
<i>Frank Johnson</i>	04/18/2017	14:11

PARAMS REC'D	DATE/TIME
PARAMS REC	04/18/2017 14:11



Project Name: 8th Inspectorial of Fire Fighting Foam Usage at Various Air Force Bases in the Eastern United States
 Aerosar Project Manager: Brian Olson
 Send Data to: prance@aerosar.net
 Send Date to: 6740 Campobello Rd. Mississauga, Ontario L5N2L8

1006 Floyd Culler Ct., Oak Ridge, TN 37830
 865-481-7937

Chain of Custody Record/
 Analysis Request Number:

Job No.: M2032.0091 (Saraswati)
 Installation: Baxling, IN

Contact: Melissa DiGrazia
 Phone: (800) 817-6708, ext. 6784
 Email: MDGrazia@aerosar.net

Laboratory Name/Address:
 Maxam Analytics, Inc.
 290 Cayuga Rd
 Cheektowage, NY 14228

Please indicate "HOLD FOR PICKUP"

Sample ID	Date Collected	Time Collected	Sample Type	Matrix
BRLTN05-001-55-001	4/19/2017	1025	N	SO
BRLTN05-001-55-901	4/19/2017	1025	FD	SO
BRLTN05-001-50-014	4/19/2017	1100	N	SO
BRLTN05-001-6W-017	4/19/2017	1115	N	WG
BRLTN05-003-55-001	4/19/2017	1145	N	SO
BRLTN05-003-50-032	4/19/2017	1147	N	SO
BRLTN05-002-55-001	04/19/2017	1500	N	SO
BRLTN05-002-50-078	04/19/2017	1625	N	SO
BRLTN05-002-50-928	04/19/2017	1625	FD	SO
BRLTN05-002-6W-033	04/19/2017	1655	N	SO
BRLTN05-002-6W-493	04/19/2017	1655	FD	SO
BRLTN03-002-6W-022	04/20/2017	1213	N	WG
BRLTN03-001-6W-077	04/20/2017	1303	N	WG
BRLTN02-001-6W-027	04/20/2017	1435	N	WG
BRLTN01-001-6W-013	04/20/2017	1425	N	WG

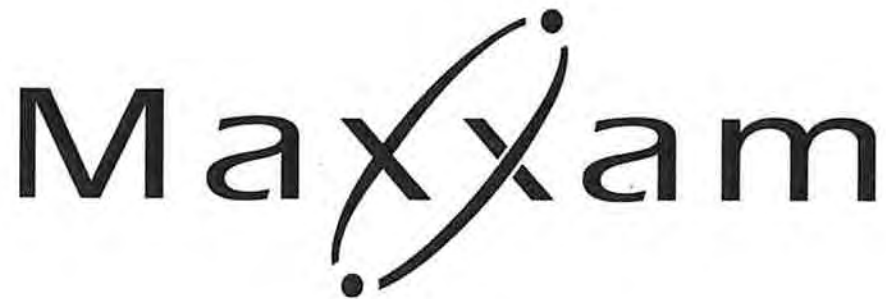
Sample Types:
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 AB = Ambient Blank or Field Reagent Blank
 EB = Equipment Rinse

Matrix:
 WG = Groundwater
 SO = Soil
 WP = Potable Water
 SE = Sediment
 WQ = Surface Water
 WQ = Field OC (AB, EB)

NOTES:
 Normal + MS/MSD

ANALYSIS	LEVEL	ANALYST	LEVEL	ANALYST

RECEIVED BY	Date/Time	Signature
[Signature]	4/12/17	C. 1850
[Signature]	4/13/17	1.9 2-4/20/17



Prepared for: Aerostar SES LLC

Project: M2032.0001 (SAVANNAH)
BURLINGTON

Analytical Data Package (Level IV)

Analysis: PFOS and PFOA in water and soil (Method 537 mod.)

Maxxam Job #: B780516

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
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1-800-668-0639
www.maxxamanalytics.com



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I hereby certify that to the best of my knowledge all analytical data presented in this report:

- Has been checked for completeness.
- Is accurate, legible and error free.
- Has been conducted in accordance with approved SOP's and that all deviations are clearly listed in the Case Narrative.
- This report has been generated in .pdf format.

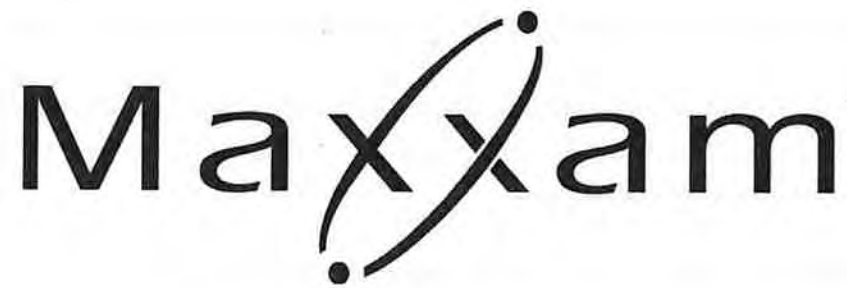
Review Performed By:

Maxxam Analytics International
6740 Campobello Rd.
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Glossary of Terms

- **Detection Limit (DL)** this can also be called **Method Detection Limit (MDL)**: The lowest concentration or amount of the target analyte that can be identified, measured, and reported with confidence that the analyte concentration is not a false positive value. (Clarification): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence. At the DL, the false positive rate (Type I error) is 1%.
- **Limit of Detection (LOD)**: An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. (Clarification): The smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.
- **Limits of Quantitation (LOQ)** this can also be called **Reporting Detection Limit (RDL)**: The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. (Clarification): The lowest concentration that produces a quantitative result within specified limits of precision and bias. For DoD projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard.
- **Acceptance Criteria** are values used by the laboratory to determine that a process is in control.
- **Accuracy** is the degree of agreement of a measured value with the true or expected value.
- **Calibration Standards** are a set of solutions containing the analytes of interest at a specified concentration.
- **Calibration Verification Standard** consists of a calibration standard solution of intermediate concentration (mid-point initial calibration level) used to access whether the initial calibration is still valid
- **Certified Reference Material** is a stable homogenous material that is certified by repetitive analysis from a supplier who is certified to generate said materials.

- **Internal Standard** a deuterated or ¹³C-labelled analyte that is added to a sample extract prior to instrumental analysis to compensate for injection variability.
- **Isomer** is a member of a group of compounds that differ from each other only in the locations of a specific number of common substituent atoms or groups of atoms on the parent compound.
- **Method Blank** is a laboratory control sample using reagents that are known to be free of contamination.
- **Precision** is the degree of agreement between the data generated from repetitive measurements under specific conditions.
- **Quality Assurance** is a system of activities whose purpose is to provide the producer or user of a product with the assurance that the product meets a defined standard of quality.
- **Quality Control** is the overall system of activities whose purpose is to control the quality of a product so that it meets the needs of the end user.
- **RSD** is the relative standard deviation.
- **Blank Spike** is a laboratory control sample that has been fortified with native analytes of interest.
- **Window Defining Mixture** is a solution containing only the earliest and latest eluting congeners within each homologous group of target analytes on a specified GC column.
- **RPD** or Relative Percent Difference. A measure used to compare duplicate sample analysis.
- **EMPC/NDR** – Peak detected does not meet ratio criteria and has resulted in a higher detection limit.



1.0 Project Narrative

Maxxam Analytics International
6740 Campobello Rd.
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Maxxam Job: B780516 – Soil Analysis

Sample Analysis

Soil samples were initially pre-screened and estimated concentrations were obtained so that samples could be appropriately diluted for quantitative analysis on QC batch 4972291 (2017/05/13). Due to high concentrations, dilutions were required for selected analytes in the following samples:

EGH831 *BRLTN04-002-SO-010* *Perfluorooctanesulfonate (PFOS)*

EGH850 *BRLTN-WS-001* *Perfluorooctanesulfonate (PFOS), Perfluorooctane sulfonamide (PFOSA)*

Detection limits were adjusted accordingly.

A typographical error was made when this QC batch was submitted for instrumental analysis. Sample EGH831 (*BRLTN04-002-SO-010, 100x dilution*) was incorrectly entered as EGH833 (100x dilution). The error was noted and a comment was added to the quantitation results table as well as the batch printout (worklist report). The result from this sample was correctly reported for sample EGH831.

Data was evaluated in accordance with acceptance criteria specified in DoD QSM 5.1.

Extracted Internal Standard Analytes

Isotopically labeled $^{13}\text{C}_2$ -Perfluorotetradecanoic acid (MPFTeDA) is used as an internal standard to quantify native Perfluorotridecanoic acid (PFTrDA) & Perfluorotetradecanoic acid (PFTeDA). The recoveries observed for this extracted internal standard analyte were below the defined lower control limit (LCL) for the following samples:

EGH834 *BRLTN04-003-SO-011*

EGH836 *BRLTN04-004-SS-001*

When quantifying analytes using isotope dilution techniques, the extracted internal standard analytes differ from the native compounds only in the presence of the stable isotopes. The physical and chemical behavior of each extracted internal standard analyte is virtually identical to its unlabeled or "native" analog. Any loss (or apparent gain) of the native compound that may occur during any of the sample preparation, extraction, cleanup or determinative steps will be mirrored by a similar loss (or apparent gain) of the extracted internal standard analyte, and as such can be accounted for and corrected. Therefore, the quantification of these target compounds is not affected by the low (or high) recoveries, provided the instrument response for the native and labeled compounds is distinguishable from the instrument or background noise.

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

Sin Chii Chia, B.Sc.

schia@maxxam.ca

Office 905 817 5700

Maxxam Job: B780516 – Water Analysis

Sample Analysis

Water samples were initially pre-screened and estimated concentrations were obtained so that samples could be appropriately diluted for quantitative analysis on QC batch 4968581 (2017/05/09). The following sample required 5x dilution for Perfluorohexanesulfonate (PFHxS):

EGH843 BRLTN04-001-GW-013

Detection limit was adjusted accordingly for this analyte.

High concentrations of target analytes were detected in several samples during pre-screening. These samples were diluted prior to analysis, with selected analytes requiring further dilutions:

EGH845 BRLTN01-MW-V1BP2-009 Perfluorooctanesulfonate (PFOS)

EGH846 BRLTN01-MW-BP3-012 Perfluorohexanesulfonate (PFHxS)

EGH847 BRLTN02-003-GW-032 Perfluorohexanesulfonate (PFHxS), Perfluorooctanesulfonate (PFOS)

EGH848 BRLTN02-002-GW-029 Perfluorooctanesulfonate (PFOS)

EGH849 BRLTN-WW-001 Perfluorooctanesulfonate (PFOS)

Detection limits were adjusted accordingly for these samples.

Data was evaluated in accordance with acceptance criteria specified in DoD QSM 5.1.

Extracted Internal Standard Analytes

Isotopically labeled $^{13}\text{C}_2$ -6:2 Fluorotelomersulfonate (M2-6:2FTS) and $^{13}\text{C}_2$ -8:2 Fluorotelomersulfonate (M2-8:2FTS) are used as internal standards to quantify native 6:2 Fluorotelomersulfonate (6:2FTS) and 8:2 Fluorotelomersulfonate (8:2FTS) respectively. The recoveries observed for selected extracted internal standard analytes were above the defined upper control limit (UCL) for the following samples:

EGH843 BRLTN04-001-GW-013 (M2-6:2FTS)

EGH849 BRLTN-WW-001 (M2-6:2FTS, M2-8:2FTS)

When quantifying analytes using isotope dilution techniques, the extracted internal standard analytes differ from the native compounds only in the presence of the stable isotopes. The physical and chemical behavior of each extracted internal standard analyte is virtually identical to its unlabeled or "native" analog. Any loss (or apparent gain) of the native compound that may occur during any of the sample preparation, extraction, cleanup or determinative steps will be mirrored by a similar loss (or apparent gain) of the extracted internal standard analyte, and as such can be accounted for and corrected. Therefore, the quantification of these target compounds is not affected by the low (or high) recoveries, provided the instrument response for the native and labeled compounds is distinguishable from the instrument or background noise.

Quantitation of PFAS

Many PFAS (e.g. PFOS) have several isomeric forms that may show up as separate or partially-merged peaks in the analytical chromatograms. These peaks will be integrated and the areas summed such that the result represents the concentration of the sum of the linear and branched isomers, per USEPA (2009). Instrumentation is calibrated using certified quantitative standards containing only the linear isomer for all target analytes, except Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonate (PFHxS), which are calibrated using certified branched and linear isomer mixtures. As additional certified reference materials containing branched and linear isomers become commercially available, they will be incorporated into the analytical method.

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Office 905 817 5700

PROJECT NARRATIVE

Maxxam Analytics
Client Project #: M2032.0001 (SAVANNAH)



Client: Aerostar SES LLC
Client Project: M2032.0001 (SAVANNAH)

I. SAMPLE RECEIPT/ANALYSIS

a) Sample Listing

Maxxam ID	Client Sample ID	Date Sampled	Date Received	Date Prepped	Date Run	Initial Calibration
PFOS and PFOA in soil						
EGH830	BRLTN04-002-SS-001	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH831	BRLTN04-002-SO-010	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH833	BRLTN04-003-SS-001	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH834	BRLTN04-003-SO-011	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH836	BRLTN04-004-SS-001	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH838	BRLTN04-004-SO-013	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH841	BRLTN04-001-SS-001	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH842	BRLTN04-001-SO-009	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH844	BRLTN01-001-SO-008	2017/04/20	2017/04/22	2017/05/05	2017/05/13	2017/05/13
EGH850	BRLTN-WS-001	2017/04/21	2017/04/22	2017/05/05	2017/05/13	2017/05/13
PFOS and PFOA in water						
EGH832	BRLTN04-002-GW-018	2017/04/20	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH835	BRLTN04-003-GW-018	2017/04/20	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH837	BRLTN-RS-003	2017/04/20	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH839	BRLTN04-004-GW-018	2017/04/20	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH840	BRLTN04-004-GW-918	2017/04/20	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH843	BRLTN04-001-GW-013	2017/04/20	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH845	BRLTN01-MW-V1BP2-009	2017/04/20	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH846	BRLTN01-MW-BP3-012	2017/04/20	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH847	BRLTN02-003-GW-032	2017/04/21	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH848	BRLTN02-002-GW-029	2017/04/21	2017/04/22	2017/05/04	2017/05/09	2017/05/09
EGH849	BRLTN-WW-001	2017/04/21	2017/04/22	2017/05/04	2017/05/09	2017/05/09

Run Date is defined as the date of injection of the last calibration standard (12 hours or less) prior to the samples analyzed within that run sequence. Therefore the time of calibration injection that defines the run date is always within 12 hours of the time of sample injection.

b) Shipping Problems: none encountered

c) Documentation Problems: none encountered

II. SAMPLE PREP:

No problems encountered

III. SAMPLE ANALYSIS:

See also comments within the appropriate Certificate of Analysis

a) Hold Times: all within recommended hold times

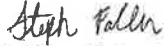
b) Instrument Calibration: all within control limits

c) Quality Control: All applicable QC meets control criteria, except where otherwise noted.

d) All analytes requiring manual intergration(s) are noted on the sample chromatograms

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for other than the conditions detailed above.

In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the cognizant laboratory official or his/her designee, as verified by this signature.



Project Manager- Site Assessment
and Remediation/ Ultra Trace

2017/06/15

Date



2.1 Sample Custody

Maxxam Analytics International
6740 Campobello Rd
Mississauga, Ontario, Canada
L5N 2L8
1-800-668-0639
www.maxxamanalytics.com

Aerostars 22-Apr-17 14:01 1006 Floyd Culler Court N 37830
 Project Name: Site Investigations at Fire Pit
 Project Base: In the Eastern United States
 Analyst: Melissa DiGrazia
 Analyst ID: B3780516

Client: PS4 ENV-939
 Project Manager: Brian O'Leary
 Contact: Frank Johnson
 Laboratory Name/Address: Laboratory Services
 1400 Campobello Rd
 Mechanicsville, VA 23103
 Phone: (800) 817-8796 ext. 8796
 Email: MFC@lab.com

Job No: M2032.0001 (12/2017)
 Installation: BRLTNY104

Chain of Custody Record/
 Analysis Request Number:

Sample ID	Date Collected	Time Collected	Sample Type	Matrix
BRLTNY04-002-SS-001	04/20/2017	0820	N	SO
BRLTNY04-002-SO-010	04/20/2017	0845	N	SO
BRLTNY04-002-GW-018	04/20/2017	0910	N	WG
BRLTNY04-003-SS-001	04/20/2017	0940	N	SO
BRLTNY04-003-SO-011	04/20/2017	1000	N	SO
BRLTNY04-003-GW-018	04/20/2017	1020	N	WG
BRLTNY04-004-SS-001	04/20/2017	1100	N	SO
BRLTNY04-004-SO-013	04/20/2017	1130	EB	WG
BRLTNY04-004-GW-018	04/20/2017	1200	N	WG
BRLTNY04-004-GW-118	04/20/2017	1200	FD	WG
BRLTNY04-001-SS-001	04/20/2017	1235	N	SO
BRLTNY04-001-SO-009	04/20/2017	1300	N	SO
BRLTNY04-001-GW-013	04/20/2017	1310	N	WG
BRLTNY04-001-SO-008	04/20/2017	1405	N	SO

RECEIVED BY: [Signature] Date: 04/21/17 18:00
 Project: BRLTNY104
 Analyst: ASL

RECEIVED BY: [Signature] Date: 04/21/17 14:01
 Project: BRLTNY104
 Analyst: ASL

Notes: Reports of Analytical Status following samples



1008 Floyd Culler Court
Oak Ridge, TN 37930
866-461-7827

**Chain of Custody Record/
Analysis Request Number**

APR No. M2032 0001 (Sample)

14781 287-2000
(866) 463-7804

Project Name: Site Inspections of Fire Fighting Foam Usage at Various Air
Force Bases in the Eastern United States

Project Manager: Brian Odom, bdom@aerostar.com
Jenny Vance, jvance@aerostar.com

Sample ID: *Frank Johnson*

Lab: *Frank Johnson*

Lab Address: 6740 Campbell Rd
Mississauga, Ontario
L4V 1S8

Lab Contact: (905) 817-8700 ext. 5756
Email: MDC@aerostar.com

Client: *MARINE DISPENS*

Phone: (888) 917-8700 ext. 5756
Email: MDC@aerostar.com

Please Indicate "HOLD FOR PICKUP"

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ANALYSIS

Sample Types:
N = Normal
FD = Field Duplicate
AB = Ambient Blank or Field Reagent Blank
EB = Equipment Blank

Matrix:
MCO = Groundwater
MSP = Surface Water
MSE = Sediment
MWS = Surface Water
MWD = Field DC (AR, FB)

Sample ID	Date Collected	Time Collected	Sample Type	Matrix
BRLTND1-MW-VLBP2-009	04/20/2017	1705	N	WG
BRLTND1-MW-BP3-012	04/20/2017	1628	N	WG
BRLTND2-003-GW-032	04/21/2017	0900	N	WG
BRLTN-02-02-GW-029	04/21/2017	0836	N	WG
BRLTN-WW-001	04/21/2017	1215	N	WG
BRLTN-WS-001	04/21/2017	1220	N	SO

Waste Water Sample
Waste Soil Sample

ROUTES

Route	Start Date	End Date	Start Time	End Time	Location	Signature
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

RECEIVED BY: *Kenneth Moore*
Date: *04/21/17*
Signature: *Kenneth Moore*

RECEIVED BY: *Kenneth Moore*
Date: *04/21/17*
Signature: *Kenneth Moore*

DATA VALIDATION REPORT

M2032.0001 (Savannah) Burlington

SAMPLE DELIVERY GROUP: B780315, B780516

**Prepared for
Aerostar SES LLC**

July 6, 2017

MEC^x, Inc.
8864 Interchange Drive
Houston, Texas 77054

www.mecx.net





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ACRONYMS AND ABBREVIATIONS

°C	Celsius
%	Percent
%D	percent difference
B	blank contamination
CB	calibration blank
CCAL	continuing calibration
CCB	continuing calibration blank
CCV	continuing calibration verification
COC	chain of custody
CLP	Contract Laboratory Program
EPA	US Environmental Protection Agency
ER	equipment rinsate
FB	field blank
FD	field duplicate
ICAL	initial calibration
ICB	initial calibration blank
ICL	instrument calibration limit
ICV	initial calibration verification
IS	internal standard
J	estimated value
LCS	laboratory control sample
LOD	limit of detection
LOQ	limit of quantification
MB	method blank
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
ND	nondetect
PARCC	precision, accuracy, representativeness, comparability, completeness
PFC	perfluorinated compound
QAPP	Quality Assurance Program Plan
QC	quality control
QSM	Quality Systems Manual
R	Rejected
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RSD	relative standard deviation
SDG	sample delivery group
TB	trip blank
U	not detected
UJ	not detected; associated value is an estimate



I. INTRODUCTION

Task Order Title: M2032.0001 (Savannah) Burlington

Contract: W9128F-15-D-0051

MEC^X Project No.: 1529.001H.01

Sample Delivery Groups: B780315, B780516

Project Manager: Jenny Vance

Matrix: Soil/Water

QC Level: Stage 2B, Stage 4

No. of Samples: 66

Laboratory: Maxxam

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Matrix	Collection	Method	Validation Level
BRLTN01-001-SO-008	EGH844	SO	2017-04-20 14:05	E537M	Stage 2B
BRLTN01-MW-BP3-012	EGH846	WG	2017-04-20 16:28	E537M	Stage 4
BRLTN01-MW-V1BP2-009	EGH845	WG	2017-04-20 17:05	E537M	Stage 2B
BRLTN02-002-GW-029	EGH848	WG	2017-04-21 08:36	E537M	Stage 2B
BRLTN02-003-GW-032	EGH847	WG	2017-04-21 09:00	E537M	Stage 2B
BRLTN04-001-GW-013	EGH843	WG	2017-04-20 13:12	E537M	Stage 2B
BRLTN04-001-SO-009	EGH842	SO	2017-04-20 13:00	E537M	Stage 2B
BRLTN04-001-SS-001	EGH841	SO	2017-04-20 12:35	E537M	Stage 2B
BRLTN04-002-GW-018	EGH832	WG	2017-04-20 09:10	E537M	Stage 2B
BRLTN04-002-SO-010	EGH831	SO	2017-04-20 08:45	E537M	Stage 2B
BRLTN04-002-SS-001	EGH830	SO	2017-04-20 08:20	E537M	Stage 2B
BRLTN04-003-GW-018	EGH835	WG	2017-04-20 10:20	E537M	Stage 2B
BRLTN04-003-SO-011	EGH834	SO	2017-04-20 10:00	E537M	Stage 2B
BRLTN04-003-SS-001	EGH833	SO	2017-04-20 09:40	E537M	Stage 2B
BRLTN04-004-GW-018	EGH839	WG	2017-04-20 12:00	E537M	Stage 2B
BRLTN04-004-GW-918	EGH840	WG	2017-04-20 12:00	E537M	Stage 2B
BRLTN04-004-SO-013	EGH838	SO	2017-04-20 11:30	E537M	Stage 2B
BRLTN04-004-SS-001	EGH836	SO	2017-04-20 11:00	E537M	Stage 4



Sample Name	Lab Sample Name	Matrix	Collection	Method	Validation Level
BRLTN-RS-003	EGH837	WQ	2017-04-20 11:10	E537M	Stage 2B
BRLTN-WS-001	EGH850	SO	2017-04-21 12:20	E537M	Stage 2B
BRLTN-WW-001	EGH849	WG	2017-04-21 12:15	E537M	Stage 2B
BRLTN01-001-GW-013	EGG618	WG	2017-04-20 14:25	E537M	Stage 2B
BRLTN01-002-GW-015	EGG586	WG	2017-04-19 08:50	E537M	Stage 4
BRLTN01-002-SO-007	EGG602	SO	2017-04-19 08:40	E537M	Stage 2B
BRLTN01-002-SO-907	EGG603	SO	2017-04-19 08:40	E537M	Stage 4
BRLTN01-003-SD-001	EGG575	SE	2017-04-18 13:10	E537M	Stage 4
BRLTN01-003-SD-901	EGG576	SE	2017-04-18 13:10	E537M	Stage 2B
BRLTN01-003-SW-001	EGG577	WS	2017-04-18 13:10	E537M	Stage 2B
BRLTN01-003-SW-901	EGG578	WS	2017-04-18 13:10	E537M	Stage 2B
BRLTN01-MW102-011	EGG583	WG	2017-04-18 16:45	E537M	Stage 2B
BRLTN01-MW103-009	EGG584	WG	2017-04-18 17:52	E537M	Stage 2B
BRLTN01-MW103-909	EGG585	WG	2017-04-18 17:52	E537M	Stage 2B
BRLTN01-TRENCHSUMP-001	EGG587	WG	2017-04-19 11:30	E537M	Stage 4
BRLTN01-V1MW14L-008	EGG588	WG	2017-04-19 13:21	E537M	Stage 2B
BRLTN02-001-GW-027	EGG617	WG	2017-04-20 14:35	E537M	Stage 2B
BRLTN02-001-SO-020	EGG596	SO	2017-04-18 14:05	E537M	Stage 2B
BRLTN02-001-SS-001	EGG594	SO	2017-04-18 12:55	E537M	Stage 2B
BRLTN02-001-SS-901	EGG595	SO	2017-04-18 12:55	E537M	Stage 4
BRLTN02-002-SO-020	EGG599	SO	2017-04-18 15:30	E537M	Stage 2B
BRLTN02-002-SS-001	EGG597	SO	2017-04-18 14:45	E537M	Stage 2B
BRLTN02-003-SO-025	EGG600	SO	2017-04-18 17:05	E537M	Stage 2B
BRLTN02-003-SS-001	EGG598	SO	2017-04-18 16:00	E537M	Stage 2B
BRLTN02-004-SD-001	EGG581	SE	2017-04-18 15:00	E537M	Stage 2B
BRLTN02-004-SW-001	EGG582	WS	2017-04-18 14:54	E537M	Stage 2B
BRLTN03-001-GW-022	EGG616	WG	2017-04-20 13:03	E537M	Stage 2B
BRLTN03-001-SO-014	EGG593	SO	2017-04-18 11:20	E537M	Stage 2B
BRLTN03-001-SS-001	EGG592	SO	2017-04-18 10:37	E537M	Stage 2B



Sample Name	Lab Sample Name	Matrix	Collection	Method	Validation Level
BRLTN03-002-GW-022	EGG615	WG	2017-04-20 12:13	E537M	Stage 2B
BRLTN03-002-SO-015	EGG590	SO	2017-04-18 09:45	E537M	Stage 2B
BRLTN03-002-SS-001	EGG589	SO	2017-04-18 08:52	E537M	Stage 2B
BRLTN03-003-SD-001	EGG579	SE	2017-04-18 13:56	E537M	Stage 2B
BRLTN03-003-SW-001	EGG580	WS	2017-04-18 13:56	E537M	Stage 2B
BRLTN05-001-GW-017	EGG607	WG	2017-04-19 11:15	E537M	Stage 2B
BRLTN05-001-SO-014	EGG606	SO	2017-04-19 11:00	E537M	Stage 2B
BRLTN05-001-SS-001	EGG604	SO	2017-04-19 10:25	E537M	Stage 2B
BRLTN05-001-SS-901	EGG605	SO	2017-04-19 10:25	E537M	Stage 2B
BRLTN05-002-GW-033	EGG613	WG	2017-04-19 16:55	E537M	Stage 2B
BRLTN05-002-GW-933	EGG614	WG	2017-04-19 16:55	E537M	Stage 2B
BRLTN05-002-SO-028	EGG611	SO	2017-04-19 16:25	E537M	Stage 2B
BRLTN05-002-SO-928	EGG612	SO	2017-04-19 16:25	E537M	Stage 2B
BRLTN05-002-SS-001	EGG610	SO	2017-04-19 15:00	E537M	Stage 2B
BRLTN05-003-SO-032	EGG609	SO	2017-04-19 14:17	E537M	Stage 2B
BRLTN05-003-SS-001	EGG608	SO	2017-04-19 11:45	E537M	Stage 2B
BRLTN-RS-001	EGG574	WQ	2017-04-18 12:50	E537M	Stage 2B
BRLTN-RS-002	EGG601	WQ	2017-04-19 07:30	E537M	Stage 2B
BRLTN-SB-001	EGG591	WQ	2017-04-18 09:19	E537M	Stage 2B



II. SAMPLE MANAGEMENT

According to the case narrative and the chains-of-custody (COCs) provided by the laboratory for sample delivery groups (SDGs) B780315, B780516:

- Cooler temperatures listed on the COCs were within the temperature limits of $<6^{\circ}\text{C}$ and $>0^{\circ}\text{C}$.
- Field and laboratory personnel signed and dated the COCs.



TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Definition
R	The sample results are rejected because of serious deficiencies in the ability to analyze the sample and to meet quality control (QC) criteria. The presence or absence of the analyte cannot be verified.
U	The analyte was analyzed for but was nondetect (ND) above the reported sample quantification limit.
B	The reported concentration is less than 5 times the concentration reported in an associated field or lab blank.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. J- denotes a low bias for the sample results and J+ for a high bias.
UJ	The material was analyzed for but was ND. The associated value is an estimate and may be inaccurate or imprecise.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Definition
01	Sample received outside of 4+/-2 degrees Celsius (°C)
01A	Improper sample preservation
02	Holding time exceeded
02A	Extraction
02B	Analysis
03	Instrument performance – outside criteria
03A*	Bromofluorobenzene (BFB)
03B*	Decafluorotriphenylphosphine (DFTPP)
03C*	dichlorodiphenyltrichloroethane (DDT) and/or endrin % breakdown exceeds criteria
03D	Retention time windows
03E	Resolution
04	ICAL results outside specified criteria
04A	Compound mean RRF QC criteria not met
04B	Individual % RSD criteria not met
04C	$r < 0.995$ or $r^2 < 0.99$
04D	ICAL % Recovery
05	Continuing calibration results outside specified criteria



Reason Code	Definition
05A	Compound mean RRF QC criteria not met
05B	Compound % Difference QC criteria not met
06	Result qualified as a result of the 5x/10x blank correction
06A	Method or preparation blank
06B	ICB or CCB
06C	ER
06D	TB
06E	FB
07	Surrogate recoveries outside control limits
07A	Sample
07B	Associated MB or LCS
08	MS/MSD/Duplicate results outside criteria
08A	MS and/or MSD recovery not within control limits (accuracy)
08B	% RPD outside acceptance criteria (precision)
09*	Post digestion spike outside criteria graphite furnace atomic absorption (GFAA)
10	Internal standards outside specified control limits
10A	Recovery
10B	Retention time
11	LCS recoveries outside specified limits
11A	Recovery
11B	% RPD (if run in duplicate)
12*	Interference check standard
13*	Serial dilution
14*	Tentatively identified compounds
15	Quantification
16	Multiple results available; alternate analysis preferred
17	Field duplicate RPD criteria is exceeded
18*	Percent difference between original and second column exceeds QC criteria
19	Professional judgment was used to qualify the data
20*	Pesticide clean-up checks
21	Target compound identification



Reason Code	Definition
22*	Radiological calibration
23*	Radiological quantification
24	Reported result and/or lab qualifier revised to reflect validation findings



III. METHOD ANALYSIS – PERFLUORINATED COMPOUNDS BY MODIFIED EPA METHOD 537

L. Calvin of MECX reviewed these SDGs July 6 to July 10, 2017

III.1. HOLDING TIMES

SDGs B780315, B780516

The holding times specified in the QAPP were met. Samples were extracted within 28 days of collection and analyzed within 45 days of extraction.

III.2. CALIBRATION

Calibration criteria were met, with exceptions noted in the tables below.

III.2.1. INITIAL CALIBRATION

SDGs B780315, B780516

Initial calibration criteria were met. Recoveries were within 70-130% for the lowest level of each initial calibration and 75-125% for the remaining levels, and all correlation coefficient r^2 values were within the control limit of ≥ 0.990 . The calculated peak asymmetry factors were within the control range of 0.8-1.5. MECX noted the laboratory utilized as the calibration method a weighted (1/X) linear initial calibration standard curve not forced through zero.

III.2.2. CONTINUING CALIBRATION

SDGs B780315, B780516

The initial calibration verification (ICV) and continuing calibration verification (CCV) recoveries were within the control limits of 75-125%. Low-level check standard (ICS) recoveries were within the control limits of 70-130%.

III.3. QUALITY CONTROL SAMPLES

III.3.1. METHOD BLANKS

The method blanks associated with the analyses of the soil and water samples had no target analyte detects above the respective soil and water detection limits (DLs), with exceptions noted in the table below. The method blank detects were not sufficient to qualify most results above the LOQ. Remaining detects were qualified as nondetects (U) at the LOD if detected below the LOD, or at the level of contamination if detected above.

Table 4-Method Blank Detects

SDG B780315

Method Blank Batch	Detect	Concentration	Affected Samples
4963931	6:2-FTS	0.014 µg/L	BRLTN05-001-GW-017
4966650	6:2-FTS	0.27 µg/Kg	BRLTN01-003-SD-001 BRLTN01-003-SD-901 BRLTN03-003-SD-001 BRLTN02-004-SD-001 BRLTN03-002-SS-001



Method Blank Batch	Detect	Concentration	Affected Samples
			BRLTN03-002-SO-015 BRLTN03-001-SS-001 BRLTN03-001-SO-014 BRLTN02-002-SS-001 BRLTN02-003-SS-001 BRLTN02-002-SO-020 BRLTN05-001-SS-001 BRLTN05-001-SS-901 BRLTN05-001-SO-014 BRLTN05-003-SS-001 BRLTN05-003-SO-032
4966650	PFDA	0.27 µg/Kg	ND in associated samples
4966672	PFTeDA	0.19 µg/Kg	BRLTN01-002-SO-007 BRLTN05-002-SS-001 BRLTN05-002-SO-028 BRLTN05-002-SO-928

III.3.2. LABORATORY CONTROL SAMPLES

SDGs B780315, B780516

Recoveries affecting sample data were within the control limits of 70-130%, and RPDs for LCS/LCSD pairs were within the control limit of ≤30%.

III.3.3. SURROGATE RECOVERY

Surrogate recoveries were not evaluated in samples analyzed at dilutions of 10× or greater, as the surrogates were considered diluted out. Individual analytes reported from those dilutions were not qualified. Surrogate standard recoveries were within the QAPP control limits of 80-140% for soils and 70-130% for waters, with exceptions listed in the tables below. Results associated with the recovery outliers were qualified as estimated (J or UJ) in the affected site samples.

Table 5-Surrogate Recoveries

SDG B780315

Surrogate	Sample	Recovery	Affected Target Analytes
13C4-perfluorooctanesulfonate	BRLTN01-V1MW14L-008	69	All sulfonate analytes
	BRLTN02-001-SS-001	79	
	BRLTN02-003-SS-001	70	
	BRLTN02-003-SO-025	70	
	BRLTN05-001-SS-001	71	
	BRLTN05-001-SS-901	63	
	BRLTN05-001-SO-014	73	
	BRLTN05-001-GW-017	64	



Surrogate	Sample	Recovery	Affected Target Analytes
	BRLTN05-003-SS-001	60	
	BRLTN05-003-SO-032	64	
	BRLTN05-002-SO-028	57	
	BRLTN05-002-SO-928	59	
	BRLTN05-002-GW-933	66	
	BRLTN02-001-GW-027	68	
13C4-perfluorooctanoic acid	BRLTN03-002-SO-015	75	All acid analytes
	BRLTN03-001-SS-001	76	
	BRLTN02-003-SS-001	71	
	BRLTN02-002-SO-020	71	
	BRLTN02-003-SO-025	73	
	BRLTN05-001-SS-901	66	
	BRLTN05-001-SO-014	76	
	BRLTN05-001-GW-017	65	
	BRLTN05-003-SS-001	71	
	BRLTN05-003-SO-032	63	
	BRLTN05-002-SO-028	60	
	BRLTN05-002-SO-928	66	
	BRLTN05-002-GW-933	66	
13C8-perfluorooctanesulfonamide	BRLTN01-V1MW14L-008	66	PFOSA
	BRLTN03-002-SS-001	71	
	BRLTN03-002-SO-015	60	
	BRLTN03-001-SS-001	62	
	BRLTN03-001-SO-014	69	
	BRLTN02-001-SS-001	70	
	BRLTN02-001-SO-020	72	
	BRLTN02-002-SS-001	62	
	BRLTN02-003-SS-001	52	
	BRLTN02-002-SO-020	60	
	BRLTN02-003-SO-025	58	
	BRLTN05-001-SS-001	67	
	BRLTN05-001-SS-901	58	
	BRLTN05-001-SO-014	53	
	BRLTN05-001-GW-017	54	
	BRLTN05-003-SS-001	57	
	BRLTN05-003-SO-032	51	
	BRLTN05-002-SS-001	69	
	BRLTN05-002-SO-028	47	
	BRLTN05-002-SO-928	47	



Surrogate	Sample	Recovery	Affected Target Analytes
	BRLTN05-002-GW-933	67	
	BRLTN03-002-GW-022	58	

SDG B780516

Surrogate	Sample	Recovery	Affected Analytes	Target
13C4-perfluorooctanesulfonate	BRLTN04-002-SS-001	62%	All sulfonate analytes	
	BRLTN04-003-SO-011	54%		
	BRLTN04-004-SS-001	72%		
	BRLTN04-004-SO-013	62%		
	BRLTN04-001-SS-001	60%		
	BRLTN04-001-SO-009	57%		
	BRLTN01-001-SO-008	73%		
13C4-perfluorooctanoic acid	BRLTN04-002-SS-001	71%	All acid analytes	
	BRLTN04-002-SO-010	74%		
	BRLTN04-003-SO-011	63%		
	BRLTN04-004-SS-001	75%		
	BRLTN04-004-SO-013	68%		
	BRLTN04-001-SS-001	76%		
	BRLTN04-001-SO-009	65%		
	BRLTN01-001-SO-008	77%		
	BRLTN-WS-001	65%		
13C8-perfluorooctanesulfonamide	BRLTN04-002-SS-001	74%	PFOSA	
	BRLTN04-003-SS-001	67%		
	BRLTN04-003-SO-011	60%		
	BRLTN04-004-SS-001	73%		
	BRLTN04-004-SO-013	66		
	BRLTN04-001-SS-001	73		
	BRLTN04-001-SO-009	61		
	BRLTN01-001-SO-008	72		

III.3.4. **MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were performed on the samples listed below. Recoveries were not evaluated for target analytes present in the parent sample at concentrations >4x the spike amount, or in parent samples requiring dilutions of 10x or greater. Qualifications were not assigned for a single recovery outlier not occurring in both the MS and MSD of a pair, or for parent sample nondetects associated with high recoveries. Nondetects in the parent sample were not qualified for RPD outliers. With exceptions noted below, recoveries and RPDs affecting sample data were within the control limits of 70-130% and ≤30%, respectively.



SDG B780315

MS/MSD analyses were performed on samples BRLTN05-002-GW-033, BRLTN01-003-SD-001, BRLTN02-001-SS-001, and BRLTN01-002-SO-007 for all analytes, and on sample BRLTN02-001-SS-001 for PFOS only. The RPD exceeded the control limit for PFOS in the MS/MSD of sample BRLTN02-001-SS-001 at 42%. The parent sample detect for PFOS was qualified as estimated (J). Evaluated recoveries and remaining RPDs were within the control limits.

Samples BRLTN01-003-SW-001 and BRLTN01-MW103-009 were designated on the COC for MS/MSD analyses; however, due to high concentrations of several target analytes in the native samples, the laboratory performed laboratory duplicate analyses instead. The laboratory duplicate analyses were not evaluated by the reviewer, as most RPDs were not calculated by the laboratory, and footnotes attributed RPD outliers to varying dilutions required.

SDG B780516

MS/MSD analyses were not performed on a sample in this SDG. MEC^X evaluated method accuracy and precision based on the LCS/LCSD results.

III.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

III.4.1. FIELD BLANKS AND EQUIPMENT BLANKS

The field and equipment blanks and detects, if any, are listed in the tables below. The detected concentrations were not considered sufficient to qualify site sample results.

Table 6-FB/EB Detects

SDG B780315

Field or Equipment Blank	Detects	Concentration
BRLTN-SB-001	none	N/A
BRLTN-RS-001	none	N/A
BRLTN-RS-002	none	N/A

SDG B780516

Field or Equipment Blank	Detects	Concentration
BRLTN-RS-003	none	N/A

III.4.2. FIELD DUPLICATES

Field duplicate pairs are listed below. RPDs for common detects above the LOQ were within the control limit of $\leq 30\%$, and detects below the LOQ in one or both samples of a pair were within the reasonable control limit of $\pm LOQ$, with exceptions noted in the tables below. Target analyte results for the outlier RPDs were qualified as estimated (J) in both samples of a pair.



Table 7-FD RPDs

SDG B780315

Seven field duplicate pairs were identified in this SDG, as noted in the table below.

Parent Sample	Field Duplicate	Target Analyte	RPD Outliers
BRLTN01-003-SD-001	BRLTN01-003-SD-901	N/A	none
BRLTN01-003-SW-001	BRLTN01-003-SW-901	N/A	none
BRLTN01-MW103-009	BRLTN01-MW103-909	N/A	none
BRLTN02-001-SS-001	BRLTN02-001-SS-901	PFHxS	51%
BRLTN01-002-SO-007	BRLTN01-002-SO-907	PFHxS PFOS	51% 68%
BRLTN05-001-SS-001	BRLTN05-001-SS-901	N/A	none
BRLTN05-002-SO-028	BRLTN05-002-SO-928	N/A	none

SDG B780516

One field duplicate pair was identified in this SDG, as noted in the table below.

Parent Sample	Field Duplicate	Target Analyte	RPD Outliers
BRLTN04-004-GW-018	BRLTN04-004-GW-918	N/A	none

III.5. INTERNAL STANDARDS PERFORMANCE

The applicable labeled internal standard recoveries were within the control limits of $\pm 50\%$ of the average peak areas of the initial calibration, except as noted in the tables below. Results for the associated target compounds were qualified as estimated (UJ or J) in the affected samples.

Table 8-Internal Standards Percent Recovery

SDG B780315

Internal Standard	% Recovery	Affected Samples	Associated Target Analyte(s)
MPFDoA	49%	BRLTN05-001-GW-017	PFDoA
MPFTeDA	48%	BRLTN05-001-SS-901	PFTeDA and PFTrDA
	21%	BRLTN05-001-GW-017	
MPFUnA	41%	BRLTN05-002-SS-001	PFUnA
MPFOSA	47%	BRLTN05-003-SO-032	PFOSA
	47%	BRLTN05-002-SO-028	
	47%	BRLTN05-002-SO-928	

SDG B780516

Internal Standard	% Recovery	Affected Samples	Associated Target Analyte(s)
MPFTeDA	45%	BRLTN04-003-SO-011	PFTeDA and PFTrDA
	46%	BRLTN04-004-SS-001	
M2-6:2-FTS	152%	BRLTN04-001-GW-013	6:2-FTS
	209%	BRLTN-WW-001	
M2-8:2-FTS	138%	BRLTN04-001-GW-013	8:2-FTS
	174%	BRLTN-WW-001	



III.6. COMPOUND IDENTIFICATION

SDGs B780315, B780516

Compound identification was verified for the following samples: soil samples BRLTN01-003-SD-001, BRLTN02-001-SS-901, BRLTN01-002-SO-907 (SDG B780315), and BRLTN04-004-SS-001 (SDG 780516), and water samples BRLTN01-002-GW-015, BRLTN01-TRENCHSUMP-001 (SDG B780315), and BRLTN01-MW-BP3-012 (SDG 780516). The laboratory analyzed for 18 perfluorinated compounds by modified EPA Method 537. Review of retention times and the ion chromatograms indicated no issues with compound identification.

III.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified and sample results reported on the sample result summaries were verified against the raw data for the samples listed above (see Compound Identification section). Quantitation verification was limited based upon the significant figures presented in the raw data and were therefore estimations of the actual sample amounts. The reviewer considered the concentration verified within that limitation. The laboratory calculated and reported compound-specific detection limits. Detects below the LOQ were qualified as estimated (J). Nondetects are valid to the LOD.

Most samples were initially analyzed undiluted. Eleven of 25 soil samples and 13 of 16 water site samples in SDG 780315, and two of 10 soil samples and five of 10 water site samples in SDG 780516 were reanalyzed at one or more dilutions to report various target analytes within the linear range of the calibration. Analytes were reported from the least dilute analysis possible of multiple dilutions to report all target analytes within the linear calibration range.

The laboratory integrated isomeric forms for the PFCs with linear and branched isomers as is required by Revision 1.1 of EPA Method 537.

III.8. SYSTEM PERFORMANCE

SDGs B780315, B780516

No issues were noted with system performance.



IV. SUMMARY AND CONCLUSIONS

MECX[®] evaluated a total of 1116 data records from field samples during the validation and qualified 415 records (37.2% of the data) as nondetect (U) or estimated values (J/UJ). The qualification was required for method blank contamination, surrogate recovery outliers, internal standard recovery outliers, MS/MSD precision outliers and field duplicate precision outliers. Nondetect compounds were flagged (U) to indicate that the compound was analyzed for but not detected above the laboratory detection limit (MDL). Specific qualification were discussed in the text above.

Overall, the quality of the data was acceptable. The precision (99.4%) was acceptable and while the accuracy results (61.4%) were lower, the accuracy was acceptable for the project. Other data quality indicators (DQI) (representativeness, comparability and completeness) met the project objectives. Each of these DQIs is discussed below.

IV.1. PRECISION

Precision is a measure of the agreement between duplicate sample measurements of the same quantity and is reflected in the relative percent difference (RPD) between spikes and the RPD for the field duplicate pair analysis. Precision was measured at 99.4%. Precision was considered acceptable for the project.

IV.2. ACCURACY

Accuracy is measured by the results from the recovery of known amounts of compounds or elements from laboratory control samples (LCS), matrix spikes (MS), internal standards and surrogate recoveries. Method blank contamination is also considered relevant to project accuracy. The accuracy was 61.4%. The lower accuracy value was largely due to the number of surrogate outliers in the soil samples.

Surrogates are added to the sample prior to extraction and are an indication of extraction and injection efficiency. The surrogates failed to meet the laboratory's QC acceptance criteria. The same surrogate compounds are also used as isotope dilution internal standards for specific target analytes. Sample concentrations were quantified by isotope dilution; therefore, the bias in the samples would be considered minimal. However, not all internal standard recoveries met the laboratory's QC acceptance criteria and separate qualifications were applied. The surrogate qualifications are considered a conservative measure.

IV.3. REPRESENTATIVENESS

The measures of representativeness – sample handling, analytical blank analysis, were met. Designated analytical protocols were followed. The laboratory did utilize a weighted 1/X calibration curve which was not forced through zero. Although this is a deviation from Method 537, it is acceptable on DoD projects and was considered acceptable by the reviewer. Holding times were met for all analyses. No analytical problems were noted which would impact data representativeness.



IV.4. COMPARABILITY

The samples were analyzed using appropriate approved methods of analysis. All data were reported correctly using standard units.

IV.5. COMPLETENESS

Completeness is the amount of validated data compared to the planned amount of data and is expressed as a percentage of the usable data divided by the total number of data points. Although one data point was rejected by the reviewer, it was not a target compound and was not counted against the overall percent completeness. Of the 1116 target data points, no data points were rejected, resulting in a completeness of 100%.

V. REFERENCES

Aerostar, 2016. *Final Quality Assurance Project Plan for Site Inspections of Fire Fighting Foam Usage at Various Air Force Bases in the Eastern United States*, January 2016.

Aerostar, 2016a. *Draft Final Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) for Site Inspections Fire Fighting Foam Usage at Various Air Force Bases in the Eastern United States, Addendum 14, Field Sampling Plan for Vermont Air National Guard Base, Chittenden County, Vermont*, February 2017.

Department of Defense (DOD), 2017. *DoD Quality Systems Manual for Environmental Laboratories*, Version 5.1. January 2017.

EPA, 2009. *Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)*, Version 1.1, September 2009. EPA Document #: EPA/600/R-08/092.

EPA, 2014. *EPA Contract Laboratory Program (CLP) National Functional Guidelines for Superfund Organic Methods Data Review*, EPA/540-R-014-002.

EPA (U.S. Environmental Protection Agency), January 2009. OSWER 9200-1-85. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. EPA-540/R-08-005.

Validated Sample Result Forms: B780315

Analysis Method: EPA 537 m

Sample Name: BRLTN01-001-GW-013 **Matrix Type:** W **Result Type:** TRG
Lab Sample Name: EGG618 **Sample Date/Time:** 2017-04-20 14:25 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.3	0.032	0.10	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.011	0.0072	0.020	0.040	ug/L	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.1	0.0096	0.020	0.040	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.36	0.013	0.028	0.040	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.020	0.0092	0.020	0.040	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.020	0.0080	0.020	0.040	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.020	0.0056	0.020	0.040	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.30	0.0066	0.020	0.040	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	6.1	0.068	0.20	0.40	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	1.8	0.0058	0.020	0.040	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.020	0.0092	0.020	0.040	ug/L	U	U	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	0.0080	0.0072	0.020	0.040	ug/L	J	J	
PERFLUOROOCCTANE SULFONATE	1763-23-1	8.8	0.052	0.20	0.40	ug/L			
PERFLUOROOCCTANOIC ACID	335-67-1	0.47	0.0092	0.020	0.040	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.91	0.0054	0.020	0.040	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.020	0.0076	0.020	0.040	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.020	0.0066	0.020	0.040	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.012	0.0086	0.020	0.040	ug/L	J	J	

Analysis Method: EPA 537 m

Sample Name: BRLTN01-002-GW-015 **Matrix Type:** W **Result Type:** TRG
Lab Sample Name: EGG586 **Sample Date/Time:** 2017-04-19 08:50 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.4	0.032	0.10	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.52	0.048	0.10	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.31	0.066	0.14	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.25	0.033	0.10	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	13	0.34	1.0	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	1.6	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	1.7	0.036	0.10	0.20	ug/L			
PERFLUOROOCCTANE SULFONATE	1763-23-1	3.0	0.026	0.10	0.20	ug/L			
PERFLUOROOCCTANOIC ACID	335-67-1	2.7	0.046	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.54	0.027	0.10	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.043	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name: BRLTN01-002-SO-007 **Matrix Type:** SO **Result Type:** TRG

Lab Sample Name: EGG602 **Sample Date/Time:** 2017-04-19 08:40 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<5.1	2.0	5.1	8.5	ug/kg	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<5.1	2.7	5.1	8.5	ug/kg	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<5.1	1.4	5.1	8.5	ug/kg	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	4.5	2.0	5.1	8.5	ug/kg	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<5.1	2.0	5.1	8.5	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	<3.4	1.1	3.4	8.5	ug/kg	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<5.1	1.9	5.1	8.5	ug/kg	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<5.1	1.4	5.1	8.5	ug/kg	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	28	2.0	5.1	8.5	ug/kg		J	17
PERFLUOROHEXANOIC ACID	307-24-4	17	1.6	5.1	8.5	ug/kg			
PERFLUORONONANOIC ACID	375-95-1	<5.1	1.4	5.1	8.5	ug/kg	U	U	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	940	22	51	85	ug/kg			
PERFLUOROOCCTANE SULFONATE	1763-23-1	590	18	51	85	ug/kg		J	17
PERFLUOROOCCTANOIC ACID	335-67-1	18	2.2	5.1	8.5	ug/kg			
PERFLUOROPENTANOIC ACID	2706-90-3	3.0	1.5	5.1	8.5	ug/kg	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	1.0	0.94	3.4	8.5	ug/kg	J	B	06A
PERFLUOROTRIDECANOIC ACID	72629-94-8	<3.4	1.0	3.4	8.5	ug/kg	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<5.1	1.5	5.1	8.5	ug/kg	U	U	

Analysis Method: EPA 537 m

Sample Name: BRLTN01-002-SO-907 **Matrix Type:** SO **Result Type:** TRG
Lab Sample Name: EGG603 **Sample Date/Time:** 2017-04-19 08:40 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<6.2	2.4	6.2	10	ug/kg	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<6.2	3.3	6.2	10	ug/kg	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	<6.2	1.8	6.2	10	ug/kg	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	4.6	2.4	6.2	10	ug/kg	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<6.2	2.4	6.2	10	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	2.8	1.3	4.1	10	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	<6.2	2.3	6.2	10	ug/kg	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	2.1	1.8	6.2	10	ug/kg	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	47	2.4	6.2	10	ug/kg		J	17
PERFLUOROHEXANOIC ACID	307-24-4	16	2.0	6.2	10	ug/kg			
PERFLUORONONANOIC ACID	375-95-1	3.2	1.8	6.2	10	ug/kg	J	J	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	1100	27	62	100	ug/kg			
PERFLUOROOCCTANE SULFONATE	1763-23-1	1200	22	62	100	ug/kg		J	17
PERFLUOROOCCTANOIC ACID	335-67-1	25	2.7	6.2	10	ug/kg			
PERFLUOROPENTANOIC ACID	2706-90-3	3.8	1.9	6.2	10	ug/kg	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<4.1	1.1	4.1	10	ug/kg	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<4.1	1.2	4.1	10	ug/kg	U	U	
PERFLUOROTRIDECANOIC ACID	2058-94-8	<6.2	1.9	6.2	10	ug/kg	U	U	

Analysis Method: EPA 537 m

Sample Name BRLTN01-003-SD-001 **Matrix Type:** SE **Result Type:** TRG

Lab Sample Name: EGG575 **Sample Date/Time:** 2017-04-18 13:10 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.2	0.23	0.60	1.0	ug/kg		B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.65	0.32	0.60	1.0	ug/kg	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.2	0.17	0.60	1.0	ug/kg			
PERFLUOROBUTANOIC ACID	375-22-4	0.53	0.23	0.60	1.0	ug/kg	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.60	0.23	0.60	1.0	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.28	0.13	0.40	1.0	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	0.23	0.22	0.60	1.0	ug/kg	J	J	
PERFLUOROHEPTANOIC ACID	375-85-9	0.51	0.17	0.60	1.0	ug/kg	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	16	0.23	0.60	1.0	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	1.9	0.19	0.60	1.0	ug/kg			
PERFLUORONONANOIC ACID	375-95-1	0.57	0.17	0.60	1.0	ug/kg	J	J	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	1.0	0.26	0.60	1.0	ug/kg			
PERFLUOROOCCTANE SULFONATE	1763-23-1	170	2.1	6.0	10	ug/kg			
PERFLUOROOCCTANOIC ACID	335-67-1	2.2	0.26	0.60	1.0	ug/kg			
PERFLUOROPENTANOIC ACID	2706-90-3	1.0	0.18	0.60	1.0	ug/kg			
PERFLUOROTETRADECANOIC ACID	376-06-7	0.16	0.11	0.40	1.0	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.17	0.12	0.40	1.0	ug/kg	J	J	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.19	0.18	0.60	1.0	ug/kg	J	J	

Analysis Method: EPA 537 m

Sample Name	BRLTN01-003-SD-901	Matrix Type:	SE	Result Type:	TRG				
Lab Sample Name:	EGG576	Sample Date/Time:	2017-04-18 13:10	Validation Level:	Stage 2B				
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.3	0.30	0.78	1.3	ug/kg	J	B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.49	0.42	0.78	1.3	ug/kg	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.3	0.22	0.78	1.3	ug/kg			
PERFLUOROBUTANOIC ACID	375-22-4	0.67	0.30	0.78	1.3	ug/kg	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.78	0.30	0.78	1.3	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.35	0.17	0.52	1.3	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	<0.78	0.29	0.78	1.3	ug/kg	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.67	0.22	0.78	1.3	ug/kg	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	19	0.30	0.78	1.3	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	1.9	0.25	0.78	1.3	ug/kg			
PERFLUORONONANOIC ACID	375-95-1	0.65	0.22	0.78	1.3	ug/kg	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.91	0.34	0.78	1.3	ug/kg	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	180	2.7	7.8	13	ug/kg			
PERFLUOROOCTANOIC ACID	335-67-1	2.0	0.34	0.78	1.3	ug/kg			
PERFLUOROPENTANOIC ACID	2706-90-3	0.98	0.23	0.78	1.3	ug/kg	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.24	0.14	0.52	1.3	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.17	0.16	0.52	1.3	ug/kg	J	J	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.78	0.23	0.78	1.3	ug/kg	U	U	

Analysis Method: EPA 537 m

Sample Name		Matrix Type:		Result Type:					
BRLTN01-003-SW-001		W		TRG					
Lab Sample Name:		Sample Date/Time:				Validation Level:			
EGG577		2017-04-18		13:10		Stage 2B			
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.3	0.032	0.10	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	2.0	0.048	0.10	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.43	0.066	0.4	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.50	0.033	0.10	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	14	0.34	1.0	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	2.7	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.097	0.046	0.10	0.20	ug/L	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.069	0.036	0.10	0.20	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	34	0.26	1.0	2.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	1.3	0.046	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.85	0.027	0.10	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.043	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name		Matrix Type:		Result Type:					
BRLTN01-003-SW-901		W		TRG					
Lab Sample Name:	Sample Date/Time:			Validation Level:					
EGG578	2017-04-18 13:10			Stage 2B					
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.4	0.032	0.10	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.14	0.036	0.10	0.20	ug/L	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.9	0.048	0.10	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.47	0.066	0.14	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.52	0.033	0.10	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	16	0.34	1.0	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	3.6	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.083	0.046	0.10	0.20	ug/L	J	J	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	0.086	0.036	0.10	0.20	ug/L	J	J	
PERFLUOROOCCTANE SULFONATE	1763-23-1	37	0.26	1.0	2.0	ug/L			
PERFLUOROOCCTANOIC ACID	335-67-1	1.4	0.046	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.95	0.027	0.10	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDÉCANOIC ACID	2058-94-8	<0.10	0.043	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name		Matrix Type:		Result Type:					
BRLTN01-MW102-011		W		TRG					
Lab Sample Name:		Sample Date/Time:		Validation Level:					
EGG583		2017-04-18 16:45		Stage 2B					
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.19	0.0032	0.010	0.020	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.010	0.0036	0.010	0.020	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.4	0.096	0.20	0.40	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.29	0.0066	0.014	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.010	0.0046	0.010	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.010	0.0040	0.010	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0028	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.28	0.0033	0.010	0.020	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	6.6	0.068	0.20	0.40	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	1.9	0.058	0.20	0.40	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.016	0.0046	0.010	0.020	ug/L	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.010	0.0036	0.010	0.020	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	4.2	0.052	0.20	0.40	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.55	0.0046	0.010	0.020	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.76	0.0027	0.010	0.020	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0043	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name	BRLTN01-MW103-009	Matrix Type:	W	Result Type:	TRG				
Lab Sample Name:	EGG584	Sample Date/Time:	2017-04-18 17:52	Validation Level:	Stage 2B				
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.80	0.032	0.10	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.7	0.048	0.10	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.38	0.066	0.14	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.45	0.033	0.10	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	12	0.34	1.0	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	2.5	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.046	0.046	0.10	0.20	ug/L	J	J	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROOCCTANE SULFONATE	1763-23-1	18	0.26	1.0	2.0	ug/L			
PERFLUOROOCCTANOIC ACID	335-67-1	1.4	0.046	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.85	0.027	0.10	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.043	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name: BRLTN01-MW103-909 **Matrix Type:** W **Result Type:** TRG
Lab Sample Name: EGG585 **Sample Date/Time:** 2017-04-18 17:52 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.69	0.032	0.10	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.7	0.048	0.10	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.33	0.066	0.14	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.44	0.033	0.10	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	12	0.34	1.0	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	2.3	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.056	0.046	0.10	0.20	ug/L	J	J	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROOCCTANE SULFONATE	1763-23-1	20	0.26	1.0	2.0	ug/L			
PERFLUOROOCCTANOIC ACID	335-67-1	1.4	0.046	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	1.0	0.027	0.10	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.043	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name		BRLTN01-TRENCHSUMP-00		Matrix Type: W		Result Type: TRG			
Lab Sample Name:		EGG587		Sample Date/Time: 2017-04-19 11:30		Validation Level: Stage 4			
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.10	0.032	0.10	0.20	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.87	0.048	0.10	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.43	0.066	0.14	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.60	0.033	0.10	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	13	0.17	0.50	2.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	5.9	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROOCTANE SULFONATE	1763-23-1	15	0.13	0.50	2.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	4.2	0.046	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	1.2	0.027	0.10	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.043	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name: BRLTN01-V1MW14L-008 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: EGG588 **Sample Date/Time:** 2017-04-19 13:21 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.92	0.032	0.10	0.20	ug/L		J	07
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.10	0.036	0.10	0.20	ug/L	U	UJ	07
PERFLUOROBUTANE SULFONATE	29420-43-3	1.7	0.048	0.10	0.20	ug/L		J	07
PERFLUOROBUTANOIC ACID	375-22-4	0.36	0.066	0.14	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.10	0.046	0.10	0.20	ug/L	U	UJ	07
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.50	0.033	0.10	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	13	0.17	0.50	1.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	2.4	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	<0.10	0.036	0.10	0.20	ug/L	U	UJ	07
PERFLUOROOCCTANE SULFONATE	1763-23-1	7.6	0.026	0.10	0.20	ug/L			
PERFLUOROOCCTANOIC ACID	335-67-1	1.8	0.046	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	1.0	0.027	0.10	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.064	0.043	0.10	0.20	ug/L	J	J	

Analysis Method: EPA 537 m

Sample Name	BRLTN02-001-GW-027	Matrix Type:	W	Result Type:	TRG				
Lab Sample Name:	EGG617	Sample Date/Time:	2017-04-20 14:35	Validation Level:	Stage 2B				
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.4	0.032	0.10	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.18	0.0072	0.020	0.040	ug/L		J	07
PERFLUOROBUTANE SULFONATE	29420-43-3	0.25	0.0096	0.020	0.040	ug/L		J	07
PERFLUOROBUTANOIC ACID	375-22-4	0.15	0.013	0.028	0.040	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.020	0.0092	0.020	0.040	ug/L	U	UJ	07
PERFLUORODECANOIC ACID	335-76-2	<0.020	0.0080	0.020	0.040	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.020	0.0056	0.020	0.040	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.20	0.0066	0.020	0.040	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	3.6	0.068	0.20	0.40	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.62	0.0058	0.020	0.040	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.028	0.0092	0.020	0.040	ug/L	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.022	0.0072	0.020	0.040	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	14	0.052	0.20	0.40	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.23	0.0092	0.020	0.040	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	0.41	0.0054	0.020	0.040	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.020	0.0076	0.020	0.040	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.020	0.0066	0.020	0.040	ug/L	U	U	
PERFLUOROIINDECANOIC ACID	2058-94-8	<0.020	0.0086	0.020	0.040	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name		BRLTN02-001-SO-020	Matrix Type:			SO	Result Type:				TRG
Lab Sample Name:		EGG596	Sample Date/Time:		2017-04-18	14:05	Validation Level:				Stage 2B
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code		
6:2 FLUOROTELOMER SULFONATE	27619-97-2	9.2	0.22	0.58	0.97	ug/kg					
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.86	0.31	0.58	0.97	ug/kg	J	J			
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.58	0.16	0.58	0.97	ug/kg	U	U			
PERFLUOROBUTANOIC ACID	375-22-4	0.60	0.22	0.58	0.97	ug/kg	J	J			
PERFLUORODECANE SULFONATE	335-77-3	<0.58	0.22	0.58	0.97	ug/kg	U	U			
PERFLUORODECANOIC ACID	335-76-2	0.29	0.13	0.39	0.97	ug/kg	J	J			
PERFLUORODODECANOIC ACID	307-55-1	<0.58	0.21	0.58	0.97	ug/kg	U	U			
PERFLUOROHEPTANOIC ACID	375-85-9	0.65	0.16	0.58	0.97	ug/kg	J	J			
PERFLUOROHEXANE SULFONATE	108427-53-8	2.7	0.22	0.58	0.97	ug/kg					
PERFLUOROHEXANOIC ACID	307-24-4	0.94	0.18	0.58	0.97	ug/kg	J	J			
PERFLUORONONANOIC ACID	375-95-1	1.6	0.16	0.58	0.97	ug/kg					
PERFLUOROOCTANE SULFONAMIDE	754-91-6	15	0.25	0.58	0.97	ug/kg		J	07		
PERFLUOROOCTANE SULFONATE	1763-23-1	160	2.0	5.8	9.7	ug/kg					
PERFLUOROOCTANOIC ACID	335-67-1	1.7	0.25	0.58	0.97	ug/kg					
PERFLUOROPENTANOIC ACID	2706-90-3	1.1	0.17	0.58	0.97	ug/kg					
PERFLUOROTETRADECANOIC ACID	376-06-7	0.17	0.11	0.39	0.97	ug/kg	J	J			
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.39	0.12	0.39	0.97	ug/kg	U	U			
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.58	0.17	0.58	0.97	ug/kg	U	U			

Analysis Method: EPA 537 m

Sample Name	BRLTN02-001-SS-001	Matrix Type:	SO	Result Type:	TRG				
Lab Sample Name:	EGG594	Sample Date/Time:	2017-04-18 12:55	Validation Level:	Stage 2B				
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.42	0.19	0.50	0.83	ug/kg	J	J	07
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.50	0.27	0.50	0.83	ug/kg	U	UJ	07
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.50	0.14	0.50	0.83	ug/kg	U	UJ	07
PERFLUOROBUTANOIC ACID	375-22-4	0.34	0.19	0.50	0.83	ug/kg	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.50	0.19	0.50	0.83	ug/kg	U	UJ	07
PERFLUORODECANOIC ACID	335-76-2	0.38	0.11	0.33	0.83	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	0.21	0.18	0.50	0.83	ug/kg	J	J	
PERFLUOROHEPTANOIC ACID	375-85-9	0.14	0.14	0.50	0.83	ug/kg	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	1.9	0.19	0.50	0.83	ug/kg		J	07;17
PERFLUOROHEXANOIC ACID	307-24-4	0.23	0.16	0.50	0.83	ug/kg	J	J	
PERFLUORONONANOIC ACID	375-95-1	0.46	0.14	0.50	0.83	ug/kg	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	5.7	0.22	0.50	0.83	ug/kg		J	07
PERFLUOROOCTANE SULFONATE	1763-23-1	31	0.20	0.56	0.94	ug/kg		J	07;08B
PERFLUOROOCTANOIC ACID	335-67-1	0.53	0.22	0.50	0.83	ug/kg	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.50	0.15	0.50	0.83	ug/kg	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.13	0.091	0.33	0.83	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.16	0.10	0.33	0.83	ug/kg	J	J	
PERFLUOROUNDECANOIC ACID	2058 94 8	0.17	0.15	0.50	0.83	ug/kg	J	J	

Analysis Method: EPA 537 m

Sample Name: BRLTN02-001-SS-901 **Matrix Type:** SO **Result Type:** TRG
Lab Sample Name: EGG595 **Sample Date/Time:** 2017-04-18 12:55 **Validation Level:** Stage 4

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.53	0.20	0.53	0.88	ug/kg	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.71	0.28	0.53	0.88	ug/kg	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.28	0.15	0.53	0.88	ug/kg	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.43	0.20	0.53	0.88	ug/kg	J	J	
PERFLUORODECANE SULFONATE	335-77-3	0.53	0.20	0.53	0.88	ug/kg	J	J	
PERFLUORODECANOIC ACID	335-76-2	0.45	0.11	0.35	0.88	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	<0.53	0.19	0.53	0.88	ug/kg	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.16	0.15	0.53	0.88	ug/kg	J	J	
PERFLUOROHXANE SULFONATE	108427-53-8	3.2	0.20	0.53	0.88	ug/kg		J	17
PERFLUOROHXANOIC ACID	307-24-4	0.25	0.17	0.53	0.88	ug/kg	J	J	
PERFLUORONONANOIC ACID	375-95-1	0.47	0.15	0.53	0.88	ug/kg	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	5.1	0.23	0.53	0.88	ug/kg			
PERFLUOROOCTANE SULFONATE	1763-23-1	28	0.18	0.53	0.88	ug/kg			
PERFLUOROOCTANOIC ACID	335-67-1	0.69	0.23	0.53	0.88	ug/kg	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.34	0.16	0.53	0.88	ug/kg	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.12	0.097	0.35	0.88	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.12	0.11	0.35	0.88	ug/kg	J	J	
PERFLUOROUNDDECANOIC ACID	2058-94-8	0.27	0.16	0.53	0.88	ug/kg	J	J	

Analysis Method: EPA 537 m

Sample Name	BRLTN02-002-SO-020	Matrix Type:	SO	Result Type:	TRG				
Lab Sample Name:	EGG599	Sample Date/Time:	2017-04-18 15:30	Validation Level:	Stage 2B				
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.2	0.25	0.66	1.1	ug/kg		B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	5.0	0.35	0.66	1.1	ug/kg			
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.66	0.19	0.66	1.1	ug/kg	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.66	0.25	0.66	1.1	ug/kg	U	UJ	07
PERFLUORODECANE SULFONATE	335-77-3	<0.66	0.25	0.66	1.1	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.41	0.14	0.44	1.1	ug/kg	J	J	07
PERFLUORODODECANOIC ACID	307-55-1	<0.66	0.24	0.66	1.1	ug/kg	U	UJ	07
PERFLUOROHEPTANOIC ACID	375-85-9	0.27	0.19	0.66	1.1	ug/kg	J	J	07
PERFLUOROHEXANE SULFONATE	108427-53-8	2.4	0.25	0.66	1.1	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	0.65	0.21	0.66	1.1	ug/kg	J	J	07
PERFLUORONONANOIC ACID	375-95-1	0.51	0.19	0.66	1.1	ug/kg	J	J	07
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	36	0.29	0.66	1.1	ug/kg		J	07
PERFLUOROOCCTANE SULFONATE	1763-23-1	160	2.3	6.6	1.1	ug/kg			
PERFLUOROOCCTANOIC ACID	335-67-1	0.52	0.29	0.66	1.1	ug/kg	J	J	07
PERFLUOROPENTANOIC ACID	2706-90-3	0.51	0.20	0.66	1.1	ug/kg	J	J	07
PERFLUOROTETRADECANOIC ACID	376-06-7	0.18	0.12	0.44	1.1	ug/kg	J	J	07
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.16	0.13	0.44	1.1	ug/kg	J	J	07
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.66	0.20	0.66	1.1	ug/kg	U	UJ	07

Analysis Method: EPA 537 m

Sample Name: BRLTN02-002-SS-001 **Matrix Type:** SO **Result Type:** TRG

Lab Sample Name: EGG597 **Sample Date/Time:** 2017-04-18 14:45 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.39	0.25	0.66	1.1	ug/kg	J	B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.47	0.35	0.66	1.1	ug/kg	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.66	0.19	0.66	1.1	ug/kg	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	0.98	0.25	0.66	1.1	ug/kg	J	J	
PERFLUORODECANE SULFONATE	335-77-3	0.77	0.25	0.66	1.1	ug/kg	J	J	
PERFLUORODECANOIC ACID	335-76-2	0.60	0.14	0.44	1.1	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	0.29	0.24	0.66	1.1	ug/kg	J	J	
PERFLUOROHEPTANOIC ACID	375-85-9	0.31	0.19	0.66	1.1	ug/kg	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	2.5	0.25	0.66	1.1	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	0.41	0.21	0.66	1.1	ug/kg	J	J	
PERFLUORONONANOIC ACID	375-95-1	0.92	0.19	0.66	1.1	ug/kg	J	J	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	1.3	0.29	0.66	1.1	ug/kg		J	07
PERFLUOROOCCTANE SULFONATE	1763-23-1	21	0.23	0.66	1.1	ug/kg			
PERFLUOROOCCTANOIC ACID	335-67-1	0.91	0.29	0.66	1.1	ug/kg	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.45	0.20	0.66	1.1	ug/kg	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.20	0.12	0.44	1.1	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.19	0.13	0.44	1.1	ug/kg	J	J	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.60	0.20	0.66	1.1	ug/kg	J	J	

Analysis Method: EPA 537 m

Sample Name	BRLTN02-003-SO-025	Matrix Type:	SO	Result Type:	TRG				
Lab Sample Name:	EGG600	Sample Date/Time:	2017-04-18 17:05	Validation Level:	Stage 2B				
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	18	0.20	0.52	0.87	ug/kg		J	07
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.32	0.28	0.52	0.87	ug/kg	J	J	07
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.52	0.15	0.52	0.87	ug/kg	U	UJ	07
PERFLUOROBUTANOIC ACID	375-22-4	0.34	0.20	0.52	0.87	ug/kg	J	J	07
PERFLUORODECANE SULFONATE	335-77-3	<0.52	0.20	0.52	0.87	ug/kg	U	UJ	07
PERFLUORODECANOIC ACID	335-76-2	0.21	0.11	0.35	0.87	ug/kg	J	J	07
PERFLUORODODECANOIC ACID	307-55-1	<0.52	0.19	0.52	0.87	ug/kg	U	UJ	07
PERFLUOROHEPTANOIC ACID	375-85-9	1.1	0.15	0.52	0.87	ug/kg		J	07
PERFLUOROHEXANE SULFONATE	108427-53-8	9.1	0.20	0.52	0.87	ug/kg		J	07
PERFLUOROHEXANOIC ACID	307-24-4	0.40	0.17	0.52	0.87	ug/kg	J	J	07
PERFLUORONONANOIC ACID	375-95-1	0.48	0.15	0.52	0.87	ug/kg	J	J	07
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.48	0.23	0.52	0.87	ug/kg	J	J	07
PERFLUOROOCTANE SULFONATE	1763-23-1	20	0.18	0.52	0.87	ug/kg		J	07
PERFLUOROOCTANOIC ACID	335-67-1	7.8	0.23	0.52	0.87	ug/kg		J	07
PERFLUOROPENTANOIC ACID	2706-90-3	0.56	0.16	0.52	0.87	ug/kg	J	J	07
PERFLUOROTETRADECANOIC ACID	376-06-7	0.12	0.096	0.35	0.87	ug/kg	J	J	07
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.15	0.10	0.35	0.87	ug/kg	J	J	07
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.52	0.16	0.52	0.87	ug/kg	U	UJ	07

Analysis Method: EPA 537 m

Sample Name BRLTN02-003-SS-001 **Matrix Type:** SO **Result Type:** TRG

Lab Sample Name: EGG598 **Sample Date/Time:** 2017-04-18 16:00 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.43	0.25	0.66	1.1	ug/kg	J	JB	06A;07
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.66	0.35	0.66	1.1	ug/kg	U	UJ	07
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.66	0.19	0.66	1.1	ug/kg	U	UJ	07
PERFLUOROBUTANOIC ACID	375-22-4	1.3	0.25	0.66	1.1	ug/kg		J	07
PERFLUORODECANE SULFONATE	335-77-3	<0.66	0.25	0.66	1.1	ug/kg	U	UJ	07
PERFLUORODECANOIC ACID	335-76-2	0.67	0.14	0.44	1.1	ug/kg	J	J	07
PERFLUORODODECANOIC ACID	307-55-1	0.40	0.24	0.66	1.1	ug/kg	J	J	07
PERFLUOROHEPTANOIC ACID	375-85-9	0.41	0.19	0.66	1.1	ug/kg	J	J	07
PERFLUOROHEXANE SULFONATE	108427-53-8	1.3	0.25	0.66	1.1	ug/kg		J	07
PERFLUOROHEXANOIC ACID	307-24-4	0.38	0.21	0.66	1.1	ug/kg	J	J	07
PERFLUORONONANOIC ACID	375-95-1	0.58	0.19	0.66	1.1	ug/kg	J	J	07
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.89	0.29	0.66	1.1	ug/kg	J	J	07
PERFLUOROOCTANE SULFONATE	1763-23-1	5.6	0.23	0.66	1.1	ug/kg		J	07
PERFLUOROOCTANOIC ACID	335-67-1	0.70	0.29	0.66	1.1	ug/kg	J	J	07
PERFLUOROPENTANOIC ACID	2706-90-3	0.48	0.20	0.66	1.1	ug/kg	J	J	07
PERFLUOROTETRADECANOIC ACID	376-06-7	0.30	0.12	0.44	1.1	ug/kg	J	J	07
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.26	0.13	0.44	1.1	ug/kg	J	J	07
PERFLUOROUNDECANOIC ACID	2058-94-8	0.48	0.20	0.66	1.1	ug/kg	J	J	07

Analysis Method: EPA 537 m

Sample Name BRLTN02-004-SD-001 **Matrix Type:** SE **Result Type:** TRG

Lab Sample Name: EGG581 **Sample Date/Time:** 2017-04-18 15:00 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.48	0.28	0.72	1.2	ug/kg	J	B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.40	0.38	0.72	1.2	ug/kg	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	<0.72	0.20	0.72	1.2	ug/kg	U	U	
PERFLUOROBUTANOIC ACID	375-22-4	<0.72	0.28	0.72	1.2	ug/kg	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.72	0.28	0.72	1.2	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.43	0.16	0.48	1.2	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	0.40	0.26	0.72	1.2	ug/kg	J	J	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.72	0.20	0.72	1.2	ug/kg	U	U	
PERFLUOROHXANE SULFONATE	108427-53-8	<0.72	0.28	0.72	1.2	ug/kg	U	U	
PERFLUOROHXANOIC ACID	307-24-4	<0.72	0.23	0.72	1.2	ug/kg	U	U	
PERFLUORONONANOIC ACID	375-95-1	<0.72	0.20	0.72	1.2	ug/kg	U	U	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	0.34	0.31	0.72	1.2	ug/kg	J	J	
PERFLUOROOCCTANE SULFONATE	1763-23-1	2.3	0.25	0.72	1.2	ug/kg			
PERFLUOROOCCTANOIC ACID	335-67-1	<0.72	0.31	0.72	1.2	ug/kg	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.72	0.22	0.72	1.2	ug/kg	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.40	0.13	0.48	1.2	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.24	0.14	0.48	1.2	ug/kg	J	J	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.27	0.22	0.72	1.2	ug/kg	J	J	

Analysis Method: EPA 537 m

Sample Name: BRLTN02-004-SW-001 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: EGG582 **Sample Date/Time:** 2017-04-18 14:54 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.012	0.0032	0.010	0.020	ug/L	J	J	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.0045	0.0036	0.010	0.020	ug/L	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.035	0.0048	0.010	0.020	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.046	0.0066	0.014	0.020	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.010	0.0046	0.010	0.020	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.010	0.0040	0.010	0.020	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.010	0.0028	0.010	0.020	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.027	0.0034	0.010	0.020	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.032	0.0029	0.010	0.020	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.010	0.0046	0.010	0.020	ug/L	U	U	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	<0.010	0.0036	0.010	0.020	ug/L	U	U	
PERFLUOROOCCTANE SULFONATE	1763-23-1	0.081	0.0026	0.010	0.020	ug/L			
PERFLUOROOCCTANOIC ACID	335-67-1	<0.010	0.0046	0.010	0.020	ug/L	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	0.012	0.0027	0.010	0.020	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.010	0.0038	0.010	0.020	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.010	0.0033	0.010	0.020	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.010	0.0043	0.010	0.020	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name		Matrix Type:		Result Type:					
BRLTN03-001-GW-022		W		TRG					
Lab Sample Name:		Sample Date/Time:				Validation Level:			
EGG616		2017-04-20		13:03		Stage 2B			
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	2.7	0.032	0.10	0.20	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.065	0.036	0.10	0.20	ug/L	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	2.5	0.048	0.10	0.20	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.57	0.066	0.14	0.20	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.58	0.033	0.10	0.20	ug/L			
PERFLUOROHEXANE SULFONATE	108427-53-8	43	0.17	0.50	1.0	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	3.4	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	0.11	0.046	0.10	0.20	ug/L	J	J	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROOCCTANE SULFONATE	1763-23-1	60	0.26	1.0	2.0	ug/L			
PERFLUOROOCCTANOIC ACID	335-67-1	2.0	0.046	0.10	0.20	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	1.0	0.027	0.10	0.20	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.043	0.10	0.20	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name		Matrix Type:		Result Type:					
BRLTN03-001-SO-014		SO		TRG					
Lab Sample Name:		Sample Date/Time:		Validation Level:					
EGG593		2017-04-18 11:20		Stage 2B					
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.84	0.20	0.53	0.88	ug/kg	J	B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.96	0.28	0.53	0.88	ug/kg			
PERFLUOROBUTANE SULFONATE	29420-43-3	0.37	0.15	0.53	0.88	ug/kg	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.53	0.20	0.53	0.88	ug/kg	U	U	
PERFLUORODECANE SULFONATE	335-77-3	<0.53	0.20	0.53	0.88	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.23	0.11	0.35	0.88	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	<0.53	0.19	0.53	0.88	ug/kg	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.46	0.15	0.53	0.88	ug/kg	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	25	0.20	0.53	0.88	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	0.26	0.17	0.53	0.88	ug/kg	J	J	
PERFLUORONONANOIC ACID	375-95-1	0.51	0.15	0.53	0.88	ug/kg	J	J	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.53	0.23	0.53	0.88	ug/kg	U	UJ	07
PERFLUOROOCTANE SULFONATE	1763-23-1	140	1.8	5.3	8.8	ug/kg			
PERFLUOROOCTANOIC ACID	335-67-1	1.0	0.23	0.53	0.88	ug/kg			
PERFLUOROPENTANOIC ACID	2706-90-3	<0.53	0.16	0.53	0.88	ug/kg	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.10	0.097	0.35	0.88	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.12	0.11	0.35	0.88	ug/kg	J	J	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.53	0.16	0.53	0.88	ug/kg	U	U	

Analysis Method: EPA 537 m

Sample Name: BRLTN03-001-SS-001 **Matrix Type:** SO **Result Type:** TRG
Lab Sample Name: EGG592 **Sample Date/Time:** 2017-04-18 10:37 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.37	0.21	0.55	0.92	ug/kg	J	B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	1.1	0.29	0.55	0.92	ug/kg			
PERFLUOROBUTANE SULFONATE	29420-43-3	0.32	0.16	0.55	0.92	ug/kg	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.38	0.21	0.55	0.92	ug/kg	J	J	07
PERFLUORODECANE SULFONATE	335-77-3	7.6	0.21	0.55	0.92	ug/kg			
PERFLUORODECANOIC ACID	335-76-2	0.39	0.12	0.37	0.92	ug/kg	J	J	07
PERFLUORODODECANOIC ACID	307-55-1	0.33	0.20	0.55	0.92	ug/kg	J	J	07
PERFLUOROHEPTANOIC ACID	375-85-9	<0.55	0.16	0.55	0.92	ug/kg	U	UJ	07
PERFLUOROHEXANE SULFONATE	108427-53-8	15	0.21	0.55	0.92	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	0.46	0.17	0.55	0.92	ug/kg	J	J	07
PERFLUORONONANOIC ACID	375-95-1	0.98	0.16	0.55	0.92	ug/kg		J	07
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	14	0.24	0.55	0.92	ug/kg		J	07
PERFLUOROOCCTANE SULFONATE	1763-23-1	280	1.9	5.5	9.2	ug/kg			
PERFLUOROOCCTANOIC ACID	335-67-1	1.5	0.24	0.55	0.92	ug/kg		J	07
PERFLUOROPENTANOIC ACID	2706-90-3	0.51	0.17	0.55	0.92	ug/kg	J	J	07
PERFLUOROTETRADECANOIC ACID	376-06-7	0.21	0.10	0.37	0.92	ug/kg	J	J	07
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.23	0.11	0.37	0.92	ug/kg	J	J	07
PERFLUOROUNDECANOIC ACID	2058-94-8	0.67	0.17	0.55	0.92	ug/kg	J	J	07

Analysis Method: EPA 537 m

Sample Name: BRLTN03-002-GW-022 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: EGG615 **Sample Date/Time:** 2017-04-20 12:13 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.6	0.064	0.20	0.40	ug/L			
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.29	0.072	0.20	0.40	ug/L	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	1.8	0.096	0.20	0.40	ug/L			
PERFLUOROBUTANOIC ACID	375-22-4	0.52	0.13	0.28	0.40	ug/L			
PERFLUORODECANE SULFONATE	335-77-3	<0.20	0.092	0.20	0.40	ug/L	U	U	
PERFLUORODECANOIC ACID	335-76-2	<0.20	0.080	0.20	0.40	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.20	0.056	0.20	0.40	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	0.36	0.066	0.20	0.40	ug/L	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	11	0.068	0.20	0.40	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	2.5	0.058	0.20	0.40	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.20	0.092	0.20	0.40	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.20	0.072	0.20	0.40	ug/L	U	UJ	07
PERFLUOROOCTANE SULFONATE	1763-23-1	66	0.26	1.0	2.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.97	0.092	0.20	0.40	ug/L			
PERFLUOROPENTANOIC ACID	2706-90-3	1.0	0.054	0.20	0.40	ug/L			
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.20	0.076	0.20	0.40	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.20	0.066	0.20	0.40	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.20	0.086	0.20	0.40	ug/L	U	U	

Analysis Method: EPA 537 m

Sample Name	BRLTN03-002-SO-015	Matrix Type:	SO	Result Type:	TRG				
Lab Sample Name:	EGG590	Sample Date/Time:	2017-04-18 09:45	Validation Level:	Stage 2B				
Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	1.6	0.23	0.60	1.0	ug/kg		B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	4.9	0.32	0.60	1.0	ug/kg			
PERFLUOROBUTANE SULFONATE	29420-43-3	0.49	0.17	0.60	1.0	ug/kg	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.39	0.23	0.60	1.0	ug/kg	J	J	07
PERFLUORODECANE SULFONATE	335-77-3	<0.60	0.23	0.60	1.0	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.32	0.13	0.40	1.0	ug/kg	J	J	07
PERFLUORODODECANOIC ACID	307-55-1	<0.60	0.22	0.60	1.0	ug/kg	U	UJ	07
PERFLUOROHEPTANOIC ACID	375-85-9	0.20	0.17	0.60	1.0	ug/kg	J	J	07
PERFLUOROHEXANE SULFONATE	108427-53-8	5.2	0.23	0.60	1.0	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	0.50	0.19	0.60	1.0	ug/kg	J	J	07
PERFLUORONONANOIC ACID	375-95-1	0.50	0.17	0.60	1.0	ug/kg	J	J	07
PERFLUOROOCTANE SULFONAMIDE	754-91-6	<0.60	0.26	0.60	1.0	ug/kg	U	UJ	07
PERFLUOROOCTANE SULFONATE	1763-23-1	110	2.1	6.0	10	ug/kg			
PERFLUOROOCTANOIC ACID	335-67-1	0.54	0.26	0.60	1.0	ug/kg	J	J	07
PERFLUOROPENTANOIC ACID	2706-90-3	0.46	0.18	0.60	1.0	ug/kg	J	J	07
PERFLUOROTETRADECANOIC ACID	376-06-7	0.15	0.11	0.40	1.0	ug/kg	J	J	07
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.16	0.12	0.40	1.0	ug/kg	J	J	07
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.60	0.18	0.60	1.0	ug/kg	U	UJ	07

Analysis Method: EPA 537 m

Sample Name BRLTN03-002-SS-001 **Matrix Type:** SO **Result Type:** TRG

Lab Sample Name: EGG589 **Sample Date/Time:** 2017-04-18 08:52 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.51	0.23	0.60	1.0	ug/kg	J	B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.75	0.32	0.60	1.0	ug/kg	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.71	0.17	0.60	1.0	ug/kg	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.68	0.23	0.60	1.0	ug/kg	J	J	
PERFLUORODECANE SULFONATE	335-77-3	<0.60	0.23	0.60	1.0	ug/kg	U	U	
PERFLUORODECANOIC ACID	335-76-2	0.82	0.13	0.40	1.0	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	0.56	0.22	0.60	1.0	ug/kg	J	J	
PERFLUOROHEPTANOIC ACID	375-85-9	0.31	0.17	0.60	1.0	ug/kg	J	J	
PERFLUOROHEXANE SULFONATE	108427-53-8	7.5	0.23	0.60	1.0	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	0.30	0.19	0.60	1.0	ug/kg	J	J	
PERFLUORONONANOIC ACID	375-95-1	0.90	0.17	0.60	1.0	ug/kg	J	J	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	3.2	0.26	0.60	1.0	ug/kg		J	07
PERFLUOROOCCTANE SULFONATE	1763-23-1	170	2.1	6.0	10	ug/kg			
PERFLUOROOCCTANOIC ACID	335-67-1	0.92	0.26	0.60	1.0	ug/kg	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.57	0.18	0.60	1.0	ug/kg	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.25	0.11	0.40	1.0	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.30	0.12	0.40	1.0	ug/kg	J	J	
PERFLUOROUNDECANOIC ACID	2058-94-8	0.93	0.18	0.60	1.0	ug/kg	J	J	

Analysis Method: EPA 537 m

Sample Name: BRLTN03-003-SD-001 **Matrix Type:** SE **Result Type:** TRG

Lab Sample Name: EGG579 **Sample Date/Time:** 2017-04-18 13:56 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	0.69	0.25	0.66	1.1	ug/kg	J	B	06A
8:2 FLUOROTELOMER SULFONATE	39108-34-4	0.66	0.35	0.66	1.1	ug/kg	J	J	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.43	0.19	0.66	1.1	ug/kg	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	<0.66	0.25	0.66	1.1	ug/kg	U	U	
PERFLUORODECANE SULFONATE	335-77-3	1.6	0.25	0.66	1.1	ug/kg			
PERFLUORODECANOIC ACID	335-76-2	0.31	0.14	0.44	1.1	ug/kg	J	J	
PERFLUORODODECANOIC ACID	307-55-1	0.24	0.24	0.66	1.1	ug/kg	J	J	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.66	0.19	0.66	1.1	ug/kg	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	2.1	0.25	0.66	1.1	ug/kg			
PERFLUOROHEXANOIC ACID	307-24-4	0.23	0.21	0.66	1.1	ug/kg	J	J	
PERFLUORONONANOIC ACID	375-95-1	<0.66	0.19	0.66	1.1	ug/kg	U	U	
PERFLUOROOCCTANE SULFONAMIDE	754-91-6	5.2	0.29	0.66	1.1	ug/kg			
PERFLUOROOCCTANE SULFONATE	1763-23-1	63	2.3	6.6	1.1	ug/kg			
PERFLUOROOCCTANOIC ACID	335-67-1	<0.66	0.29	0.66	1.1	ug/kg	U	U	
PERFLUOROPENTANOIC ACID	2706-90-3	<0.66	0.20	0.66	1.1	ug/kg	U	U	
PERFLUOROTETRADECANOIC ACID	376-06-7	0.17	0.12	0.44	1.1	ug/kg	J	J	
PERFLUOROTRIDECANOIC ACID	72629-94-8	0.16	0.13	0.44	1.1	ug/kg	J	J	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.66	0.20	0.66	1.1	ug/kg	U	U	

Analysis Method: EPA 537 m

Sample Name: BRLTN03-003-SW-001 **Matrix Type:** W **Result Type:** TRG

Lab Sample Name: EGG580 **Sample Date/Time:** 2017-04-18 13:56 **Validation Level:** Stage 2B

Analyte	CAS No	Result Value	DL	LOD	LOQ	Result Units	Lab Qualifier	Validation Qualifier	Validation Reason Code
6:2 FLUOROTELOMER SULFONATE	27619-97-2	<0.10	0.032	0.10	0.20	ug/L	U	U	
8:2 FLUOROTELOMER SULFONATE	39108-34-4	<0.10	0.036	0.10	0.20	ug/L	U	U	
PERFLUOROBUTANE SULFONATE	29420-43-3	0.19	0.048	0.10	0.20	ug/L	J	J	
PERFLUOROBUTANOIC ACID	375-22-4	0.083	0.066	0.14	0.20	ug/L	J	J	
PERFLUORODECANE SULFONATE	335-77-3	0.057	0.046	0.10	0.20	ug/L	J	J	
PERFLUORODECANOIC ACID	335-76-2	<0.10	0.040	0.10	0.20	ug/L	U	U	
PERFLUORODODECANOIC ACID	307-55-1	<0.10	0.028	0.10	0.20	ug/L	U	U	
PERFLUOROHEPTANOIC ACID	375-85-9	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROHEXANE SULFONATE	108427-53-8	0.99	0.034	0.10	0.20	ug/L			
PERFLUOROHEXANOIC ACID	307-24-4	0.22	0.029	0.10	0.20	ug/L			
PERFLUORONONANOIC ACID	375-95-1	<0.10	0.046	0.10	0.20	ug/L	U	U	
PERFLUOROOCTANE SULFONAMIDE	754-91-6	0.15	0.036	0.10	0.20	ug/L	J	J	
PERFLUOROOCTANE SULFONATE	1763-23-1	13	0.26	1.0	2.0	ug/L			
PERFLUOROOCTANOIC ACID	335-67-1	0.096	0.046	0.10	0.20	ug/L	J	J	
PERFLUOROPENTANOIC ACID	2706-90-3	0.11	0.027	0.10	0.20	ug/L	J	J	
PERFLUOROTETRADECANOIC ACID	376-06-7	<0.10	0.038	0.10	0.20	ug/L	U	U	
PERFLUOROTRIDECANOIC ACID	72629-94-8	<0.10	0.033	0.10	0.20	ug/L	U	U	
PERFLUOROUNDECANOIC ACID	2058-94-8	<0.10	0.043	0.10	0.20	ug/L	U	U	