APPENDIX A

BORING LOGS

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-128
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	8	1215 Lab sample			0-2 in. asphalt. 2-8 in. bright orange fine sand, trace silt	SP	dry	1.4
2	24							
	7	1215			Same as above	SP	dry	0.6
4	24							
	6	1220			Orange fine sand, gray subangular gravel up to 1 in, black coarse sand	SW	Low recovery Dry Looks like it fell from above	Not enough material
6	48							
8								
	12	1223			Red platy and subangular gravel, silty fine sand, some medium sand and pea gravel	GW	wet	0.8
10	24							
	12	1225			Same as above	GW		0.4
12	24				End of boring.			
14								
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-128	PAGE: 1 OF 1

BORING LOG FOR:	Beaton & Corbin Factory Site	BORING NO.:	SB-129
PROJECT NO.:	112G03599.03	START DATE:	11/28/11
LOGGED BY:	Robin Clark	COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx	MON. WELL NO.:	
GRD. SURFACE ELEVATION:		CHECKED BY:	

TRANSCRIBED BY: _____

ELEVATION FROM: _____

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	12 / 24	1050			0-2 in. asphalt. 2-10 in. Dark brown fine sand, trace silt	SP	Dry	10.7
2					10-12 in. bright orange fine sand	SP		
	16 / 24	1050 Lab sample			Same as above with medium sand	SP	Dry Duplicate lab sample	19.1
4								
	15 / 24	1055			0-6 in. Grey subangular gravel up to 1 in. 6-15 in. Red fine to medium sand, trace silt	GW SW	Dry Damp at bottom	4.6
6								
	15 / 24	1055			Red fine to medium sand	SW	Wet	1.6
8								
	15 / 24	1100			Same as above with little rounded gravel up to ½ in.	SW	Wet	1.5
10								
	18 / 24	1100			Same as above	SW	Wet	1.5
12					End of boring.			
	/							
14								
	/							
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT
METHOD OF ADVANCING BORING:	Direct push
METHOD OF SOIL SAMPLING:	Acetate liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: SB-129

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-130
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	18 / 24	1020			0-2 in. asphalt 2-4 in. Very dark grey fine to medium sand, little fine subangular gravel	SW	Dry Damp	7.4
2					4-16 in. brown fine to medium sand, trace silt. 16-18 in. bright orange fine to medium sand trace silt	SW SW		
	20 / 24	1020			Same as above	SW	Damp	1.7
4								
	12 / 24	1030			Light orange medium sand.	SP	Dry	30
6								
	12 / 24	1035			0-2 in. Bright orange platy gravel (crumbly) 2-12 in. orange silty sand, trace rounded gravel up to 1 in.	GW SM	Dry	27
8								
	16 / 24	1040 Lab sample			Red silty fine to medium sand, little subrounded fine gravel, trace silt.	SM	Wet	54
10								
	20 / 24	1040			Red fine to medium sand, trace silt	SW	Wet	26
12					End of boring.			
	/							
14								
	/							
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT
METHOD OF ADVANCING BORING:	Direct push
METHOD OF SOIL SAMPLING:	Acetate liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: SB-130

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-131
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	10 / 24	1357			0-2 in. asphalt 2-6 in. black medium sand, little fine rounded gravel	SP	Dry	0.6
2					6-10 in. dark orange brown fine sand, some silt	SP		
	18 / 24	1357			Orange fine sand	SP	Damp	0.6
4								
	8 / 24	1400			Red/brown silt, some medium sand, trace angular pea gravel	SM	Dry	1.2
6								
		No recovery			No sample recovery			NA
8								
	10 / 24	1405			Same as above (4-6 ft)	SM	Dry	1.4
10								
	12 / 24	1405 Lab sample			Red silt, trace clay and platy gravel	ML	Damp	1.8
12								
	18 / 24	1418			Same as above	ML	Wet	1.6
14								
	18 / 24	1418			Same as above	ML	Wet	1.4
16					End of boring.			

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-131	PAGE: 1 OF 1

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-132
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	6 / 24	1145			0-2 in. asphalt 2-6 in. brown fine sand, little silt and medium sand	SM	Damp	11.5
2								
	6 / 24	1145			Same as above	SM	Damp	23.5
4								
	15 / 24	1155			Dark red/orange silt, some fine sand	SM	Damp	5.1
6								
	12 / 24	1155			Olive brown fine sand, trace silt	SP	Wet	3.3
8								
	24 / 24	1200			Same as above, loose.	SP	Wet	3.6
10								
	18 / 24	1200 Lab sample			Dark red silt and fine sand, little coarse sand, platy gravel at bottom	SM	Wet	25.3
12					End of boring.			
	/							
14								
	/							
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-132	PAGE: 1 OF 1

BORING LOG FOR: Beaton & Corbin Factory Site
PROJECT NO.: 112G03599.03
LOGGED BY: Robin Clark
TRANSCRIBED BY:
DRILLED BY (Company/Driller): DrilEx
GRD. SURFACE ELEVATION:
ELEVATION FROM:

BORING NO.: SB-133
START DATE: 11/28/11
COMPLETION: DATE: 11/28/11
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	12 / 24	1337 Lab sample			0-2 in. asphalt 2-8 in. black gravelly fine sand	SP	Dry	0.8
2					8-12 in. orange fine to medium sand	SP		
	18 / 24	1337			Same as above	SP	Damp at bottom	0.7
4								
	15 / 24	1345			0-6 in. red silt 6-15 in. red silt some brown medium to coarse sand, fine sand at bottom	ML SM	Wet	0.5
6								
	18 / 24	1348			Brown fine sand	SP	Wet	0.4
8					End of boring			
	/							
10								
	/							
12								
	/							
14								
	/							
16								

TYPE OF DRILLING RIG: Geoprobe 6620 DT
METHOD OF ADVANCING BORING: Direct push
METHOD OF SOIL SAMPLING: Acetate liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: SB-133

TtNUS Form 0018

BORING LOG FOR:	Beaton & Corbin Factory Site	BORING NO.:	SB-200A
PROJECT NO.:	112G03599.03	START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:	COMPLETION: DATE: 11/28/11
DRILLED BY (Company/Driller):	DrilEx	MON. WELL NO.:	MW-200A
GRD. SURFACE ELEVATION:		ELEVATION FROM:	CHECKED BY:

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	24	1530			Dark brown very fine silty sand	SM	Dry	0.3
2	24							
	12	1530			Orange fine sand	SP	Dry	0.7
4	24							
	13	1535 Lab sample			Orange/brown fine to medium sand	SP	Damp	0.8
6	24							
	15	1535			Same as above with coarse sand	SW	Wet	0.5
8	24							
	24	1540			0-12 in. same as above 12-15 in. tan/yellow/black/brown medium to coarse sand (weathered granite)	SW SW	Wet	0.4
10	24				15-24 red fine sand	SP		
	24	1540			0-14 in. Red very fine sand 14-24 in. Red fine sand	SP SP	wet	0.7
12	24				End of boring.			
14								
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-200A	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-301
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	12	1500			0-8 in. brown topsoil (silty fine sand) 8-12 in. same as above with brick fragments	SM FILL	Dry	1.2
2	24							
	12	1500			Black very fine to medium silty sand, some subangular to subrounded gravel up to 1 in	SM	Dry	3.7
4	24							
	12	1503			Orange/brown fine to medium sand, trace silt	SP	Dry	2.1
6	24							
	12	1503 Lab sample			0-5 in. same as above 5-12 in. black very fine silty sand	SP SM	Damp Wet	61.3
8	24				Gray at bottom with medium sand End of boring.	SW		
10								
12								
14								
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-301	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-302
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	13 / 24	1512			0-2 in. asphalt 2-6 in. orange medium sand	SP	Dry	0.8
2					6-8 in. concrete 8-13 in. orange medium sand	FILL SP		
	15 / 24	1512			Orange fine sand, trace silt	SP	Dry	0.3
4								
	17 / 24	1530			0-10 in. same as above 10-17 in. dark red silt, some fine rounded gravel	SP GM	Damp	0.2
6								
	13 / 24	1530			Same as above	GM	Wet	0.9
8								
	18 / 24	1540 Lab sample			Red fine to coarse sand, little subangular to subrounded gravel, some silt	GM	Wet	1.2
10								
	18 / 24	1542			Red very fine to fine sand	SP	Wet	0.6
12					End of boring			
	/							
14								
	/							
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-302	PAGE: 1 OF 1

BORING LOG FOR: Beaton & Corbin Factory Site
PROJECT NO.: 112G03599.03
LOGGED BY: Robin Clark
TRANSCRIBED BY:
DRILLED BY (Company/Driller): DrilEx
GRD. SURFACE ELEVATION:
ELEVATION FROM:

BORING NO.: SB-303
START DATE: 11/28/11
COMPLETION: DATE: 11/28/11
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	12 / 24	1600			0-6 in brown topsoil (silty very fine sand) 6-10 in. red fine sand some medium sand	SM SP	Dry	0.4
2					10-12 in. black asphalt			
	11 / 24	1600 Lab sample			Red fine sand	SP	Dry	1.5
4								
	12 / 24	1610			Orange/ brown fine to medium sand	SW	Wet	0.1
6								
	12 / 24	1610			Same as above	SW	Wet	1.0
8								
	10 / 24	1615			Orange/brown fine to medium sand, trace coarse sand	SW	Wet	0.8
10								
	10 / 24	1615			Same as above	SW	Wet	0.7
12								
14								
16								

TYPE OF DRILLING RIG: Geoprobe 6620 DT
METHOD OF ADVANCING BORING: Direct push
METHOD OF SOIL SAMPLING: Acetate liner
METHOD OF ROCK CORING: NA
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Tetra Tech NUS, Inc.

BORING NO.: SB-303

TtNUS Form 0018

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-304
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	MW-301
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	12	1310			0-6 in. gray concrete		Dry	2.0
2					6-9 in. asphalt 9-12 brown fine silty sand	FILL SM	Damp	
		No sample						NA
4	48							
	15	1320 Lab sample			Orange/brown subrounded gravel up to 12 in., some medium to coarse sand	GW	Wet	18.0
6	24							
	8	1320			Orange/brown fine silty sand	SM	Wet	17.0
8	24							
	18	1330			Orange/brown fine sand grades to medium sand at bottom	SP	Wet	17.6
10	24							
	20	1330			Same as above with little coarse sand	SW	Wet	4.5
12	24							
14								
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-304	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-305
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	MW-304
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	12 / 24	0845			Brown fine to medium sand little rounded gravel up to 1 in.	SW	Damp	1.1
2								
	15 / 24	0845 2-3 ft lab sample			0-5 in. white granular substance 5-8 in. green granular substance	FILL FILL	Damp	0.6
4					8-15 in. brown fine to medium sand	SP		0.6
	18 / 24	0855			0-8 in. orange/brown fine to medium sand 8-18 in. red fine sand, some platy gravel and silt	SP GM	Dry	0.9
6								
	18 / 24	0855			Same as above	GM	Dry	0.4
8								
	20 / 24	0900			Red subangular to platy gravel and fine sand	GM	Wet	0.5
10								
	18 / 24	0900 Lab sample			Red fine to medium sand, little subangular gravel, some silt	GM	Wet	2.0
12								
	/							
14								
	/							
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT
METHOD OF ADVANCING BORING:	Direct push
METHOD OF SOIL SAMPLING:	Acetate liner
METHOD OF ROCK CORING:	NA
GROUNDWATER LEVELS:	Measured at 6.5 ft bgs after drilling, before well install.
OTHER OBSERVATIONS:	

Tetra Tech NUS, Inc.

BORING NO.: SB-305

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-306
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	MW-303
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	12	0945			Very dark brown silty fine sand	SM	Damp	2.1
2								
4	48							
	15	0950			Orange fine to medium sand, trace coarse sand	SW	Damp	0.6
6	24							
	12	0950			Dark red fine to medium sand, some fine rounded gravel and coarse sand	SW	Damp	0.7
8	24							
	12	0955			Brown fine to coarse sand	SW	Damp	0.8
10	24							
	13	0955			Red fine sand and subangular to subrounded gravel up to 1 in., some silt and Coarse sand (till)	GM	Damp	3.3
12	24							
14								
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-306	PAGE: 1 OF 1

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-307
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	MW-302
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	10	1425			0-2 in. dark brown very fine silty sand (topsoil) 2-10 in. orange/brown fine to medium sand, trace brick fragments	SM FILL	Dry	0.5
2								
4	48							
	11	1430			Same as above	FILL	Dry	0.4
6	24							
	12	1430			Red silt, some subangular to platy gravel up to ½ in.	GM	Dry	0.2
8	24							
	10	1440 Lab sample			Brick red subangular to subrounded gravel up to 1 in., and medium to coarse sand	GM	Wet	5.1
10	24							
	12	1440			Same as above with fine sand lens from 4-10 in.	GM	Wet	1.7
12	24							
14								
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-307	PAGE: 1 OF 1

TtNUS Form 0018

BORING LOG FOR:	Beaton & Corbin Factory Site			BORING NO.:	SB-308
PROJECT NO.:	112G03599.03			START DATE:	11/28/11
LOGGED BY:	Robin Clark	TRANSCRIBED BY:		COMPLETION: DATE:	11/28/11
DRILLED BY (Company/Driller):	DrilEx			MON. WELL NO.:	MW-305
GRD. SURFACE ELEVATION:		ELEVATION FROM:		CHECKED BY:	

DEPTH (FEET)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = PID [(PPM)]
	8 / 24	1105			Black and brown medium sand, some silt	SM	Dry	0.8
2								
	6 / 24	1105			Orange/brown silty fine sand	SM	Dry	0.7
4								
	15 / 24	1110			Orange fine sand, trace rounded gravel to 1 in	SP	Damp	0.8
6								
	12 / 24	1110			Orange fine sand	SP	Wet	0.5
8								
	24 / 24	1120			Same as above with little rounded gravel up to ½ in.	SP	Wet	0.8
10								
	24 / 24	1120 Lab sample			Same as above	SP	Wet	0.8
12					End of boring			
	/							
14								
	/							
16								

TYPE OF DRILLING RIG:	Geoprobe 6620 DT		*Tetra Tech NUS, Inc.*
METHOD OF ADVANCING BORING:	Direct push		
METHOD OF SOIL SAMPLING:	Acetate liner		
METHOD OF ROCK CORING:	NA		
GROUNDWATER LEVELS:			
OTHER OBSERVATIONS:		BORING NO.: SB-308	PAGE: 1 OF 1

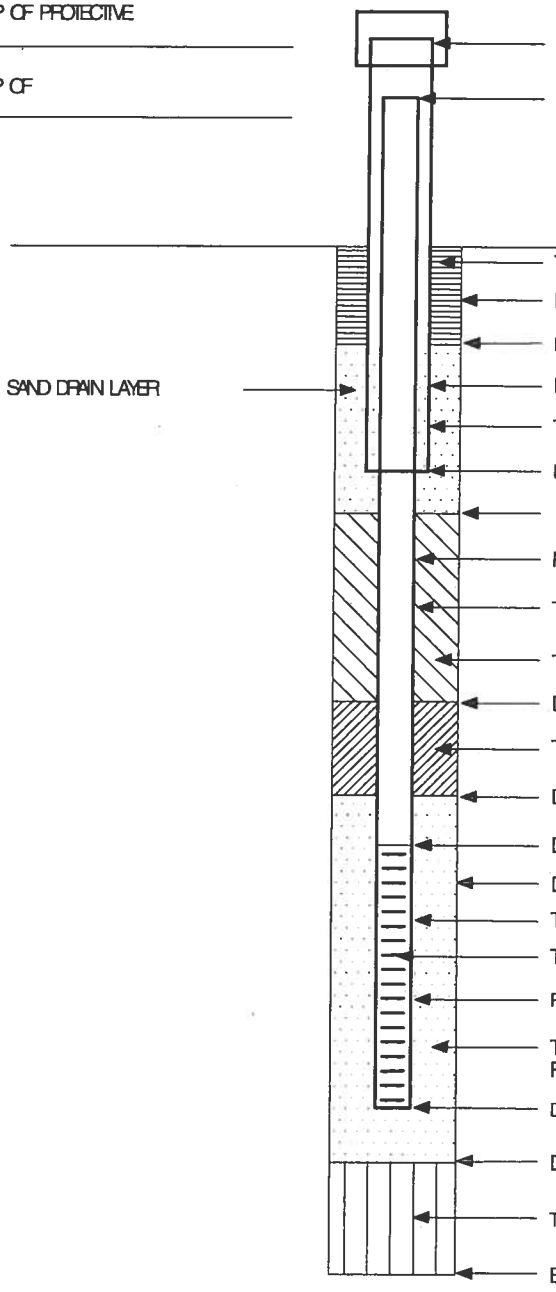
TtNUS Form 0018

APPENDIX C

WELL CONSTRUCTION LOGS

OVERBURDEN MONITORING WELL CONSTRUCTION LOG — **TETRA TECH**

PROJECT NAME:	Beaton & Cordin Factory Site	PROJECT NO:	112G03599.03
PROJECT LOCATION:	Southington, CT	WELL NO:	MW 301
CLIENT:		BORING NO:	SB 304
CONTRACTOR:	DrillEx	DRILLER:	T. LaFleche
LOGGED BY:	R Clark	DATE:	11/29/11
CHECKED BY:		DATE:	
		BORING LOCATION:	
		PAGE:	1 OF 1



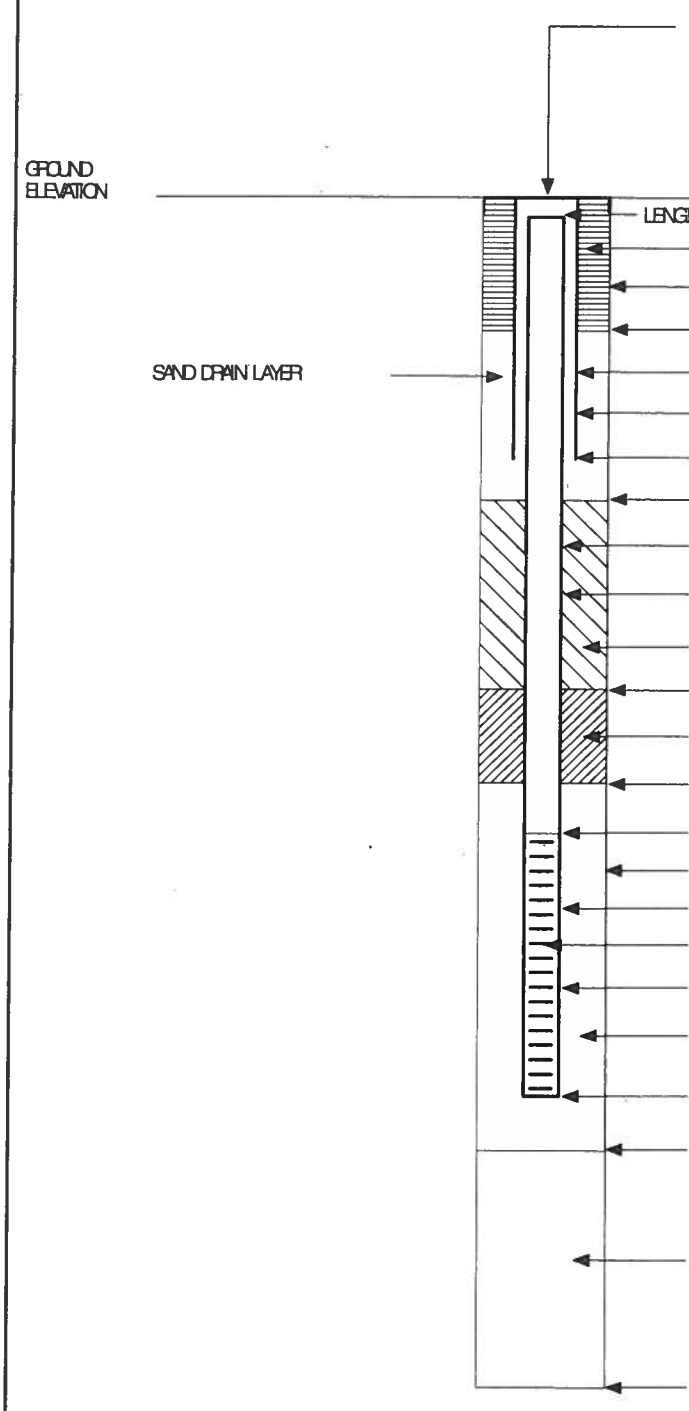
LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	
TYPE OF SURFACE SEAL	Cement
DIA SURFACE SEAL BGS (In.)	
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1/2
I.D. OF PROTECTIVE CASING (In.)	4
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	1
RISER PIPE (In.) I.D: ____ O.D:	1in
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand/cement
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	bentonite
DEPTH BOTTOM OF SEAL (Ft.)	0.2
DEPTH TOP OF PERVIOUS SECTION (Ft.)	3
DIAMETER OF BOREHOLE (In.)	2
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D: ____ O.D:	1 in.
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#1 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	13
DEPTH BOTTOM OF FILTER PACK (Ft.)	13
TYPE OF BACKFILL BELOW FILTER PACK	NA
END OF BORING (Ft.)	13

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Indicates that Surveyed Ground Elevation Not

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG **TETRA TECH**

PROJECT NAME:	Beaton & Cordin Factory Site	PROJECT NO:	112G03599.03
PROJECT LOCATION:	Southington, CT	WELL NO:	MW 302
CLIENT:		BORING NO:	SB 307
CONTRACTOR:		DRILLER:	T Lafleche
LOGGED BY:	R Clark	DATE:	11/29/11
CHECKED BY:		DATE:	
		BORING LOCATION:	
		PAGE:	1 OF 1



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Cement
DIA SURFACE SEAL BGS (In.)	
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1/2
I.D. OF PROTECTIVE CASING (In.)	4
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	1
RISER PIPE (In.) I.D.: ____ O.D:	1
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand/cement
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	bentonite
DEPTH BOTTOM OF SEAL (Ft.)	4
DEPTH TOP OF PERVIOUS SECTION (Ft.)	6
DIAMETER OF BOREHOLE (In.)	2
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: ____ O.D:	1
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#1 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	16
DEPTH BOTTOM OF FILTER PACK (Ft.)	16
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	NA
END OF BORING	16

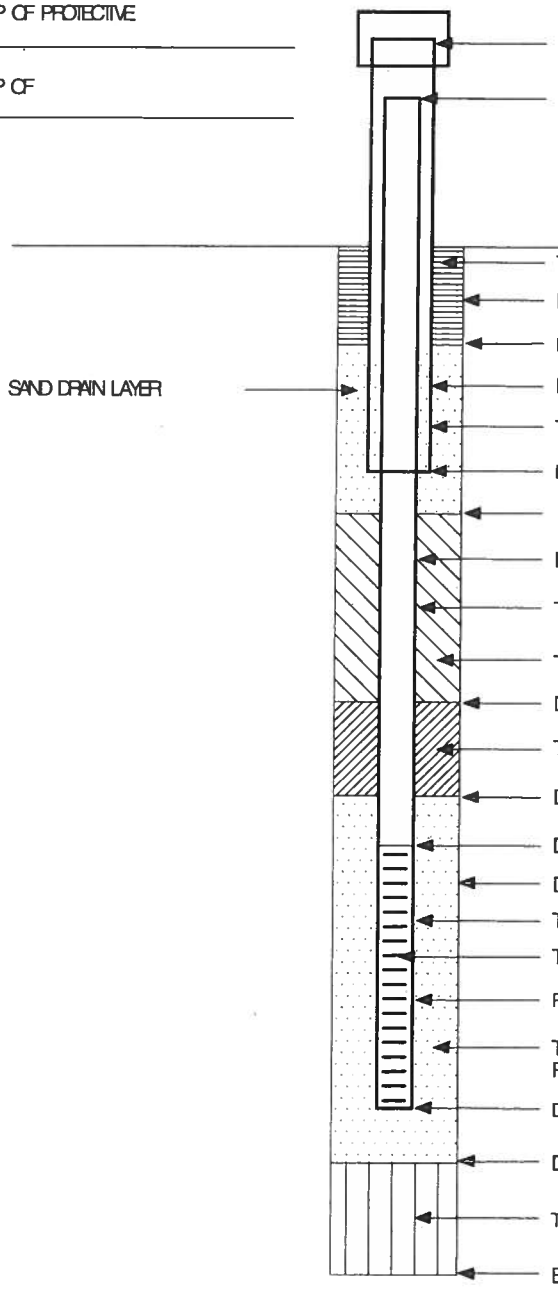
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation Indicates that Surveyed Ground Elevation is NOT Available.

OVERBURDEN MONITORING WELL CONSTRUCTION LOG — **TETRA TECH**

PROJECT NAME:	Beaton & Cordin Factory Site	PROJECT NO:	112G03599.03
PROJECT LOCATION:	Southington, CT	WELL NO:	MW 303
CLIENT:		BORING NO:	SB 306
CONTRACTOR:	DrillEx	DRILLER:	T. LaFleche
LOGGED BY:	R Clark	DATE:	11/29/11
CHECKED BY:		DATE:	
		BORING LOCATION:	

PAGE: 1 OF 1



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	
TYPE OF SURFACE SEAL	cement
DIA SURFACE SEAL BGS (In.)	
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1/2
I.D. OF PROTECTIVE CASING (In.)	4
TYPE OF PROTECTIVE CASING	steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	1
RISER PIPE (In.) I.D: ____ O.D:	1
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand/cement
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	bentonite
DEPTH BOTTOM OF SEAL (Ft.)	3
DEPTH TOP OF PERVIOUS SECTION (Ft.)	4
DIAMETER OF BOREHOLE (In.)	2
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D: ____ O.D:	1
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#1 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	14
DEPTH BOTTOM OF FILTER PACK (Ft.)	14
TYPE OF BACKFILL BELOW FILTER PACK	NA
END OF BORING (Ft.)	14

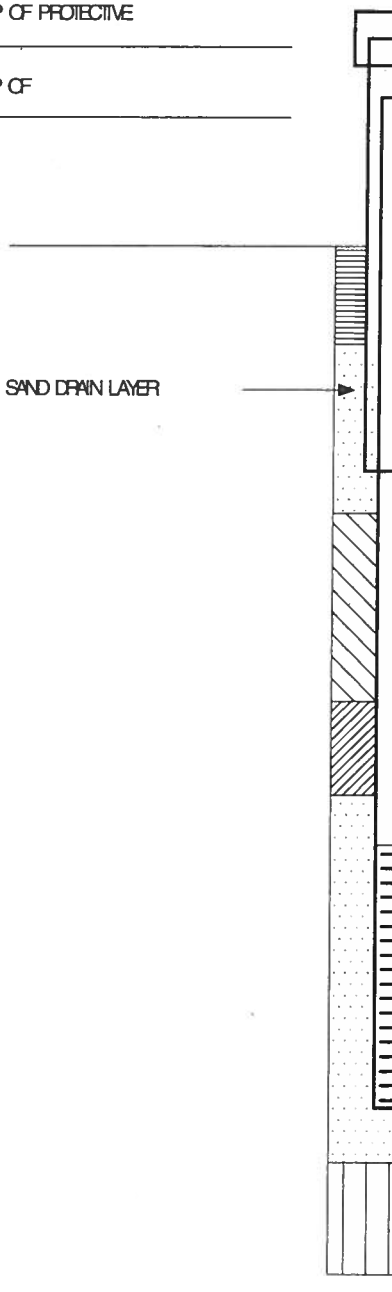
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Indicates that Surveyed Ground Elevation Not

OVERBURDEN MONITORING WELL CONSTRUCTION LOG — **TETRA TECH**

PROJECT NAME:	Beaton & Cordin Factory Site	PROJECT NO:	112G03599.03
PROJECT LOCATION:	Southington, CT	WELL NO:	MW 304
CLIENT:		BORING NO:	SB 305
CONTRACTOR:	DrillEx	DRILLER:	T. LaFleche
LOGGED BY:	R Clark	DATE:	11/29/11
CHECKED BY:		DATE:	
		BORING LOCATION:	

PAGE: 1 OF 1



LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	
TYPE OF SURFACE SEAL	cement
DIA SURFACE SEAL BGS (In.)	
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1/2
I.D. OF PROTECTIVE CASING (In.)	4
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	1
RISER PIPE (In.) I.D: ____ O.D:	1
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Sand/cement
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	bentonite
DEPTH BOTTOM OF SEAL (Ft.)	3
DEPTH TOP OF PERVIOUS SECTION (Ft.)	4
DIAMETER OF BOREHOLE (In.)	2
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D: ____ O.D:	1
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#1 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	14
DEPTH BOTTOM OF FILTER PACK (Ft.)	14
TYPE OF BACKFILL BELOW FILTER PACK	NA
END OF BORING (Ft.)	14

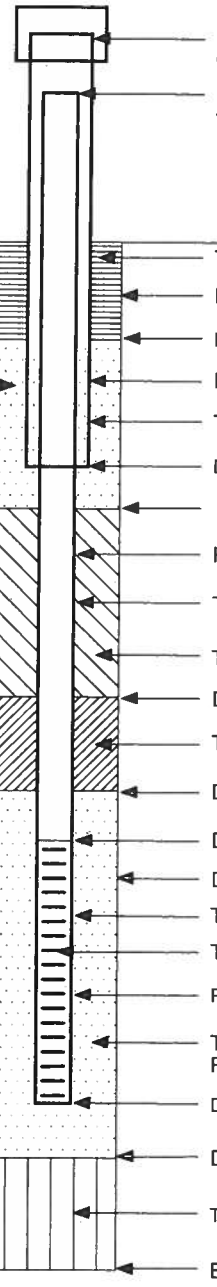
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Indicates that Surveyed Ground Elevation Not

OVERBURDEN MONITORING WELL CONSTRUCTION LOG — **TETRA TECH**

PROJECT NAME:	Beaton & Cordin Factory Site	PROJECT NO:	112G03599.03
PROJECT LOCATION:	Southington, CT	WELL NO:	MW 305
CLIENT:		BORING NO:	SB 308
CONTRACTOR:	DrillEx	DRILLER:	T LaFleche
LOGGED BY:	R Clark	DATE:	11/29/11
CHECKED BY:		DATE:	
		BORING LOCATION:	

PAGE 1 OF 1



ELEVATION TOP OF PROTECTIVE CASING	
ELEVATION TOP OF RISER PIPE	
GROUND ELEVATION	
LENGTH OF PROTECTIVE CASING ABOVE GROUND SURFACE (Ft.)	
LENGTH OF RISER PIPE ABOVE GROUND SURFACE (Ft.)	
TYPE OF SURFACE SEAL	cement
DIA SURFACE SEAL BGS (In.)	1 1/2
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	4
I.D. OF PROTECTIVE CASING (In.)	steel
TYPE OF PROTECTIVE CASING	1
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	1 O.D.: 1
RISER PIPE (In.) I.D.:	PVC
TYPE OF RISER PIPE	sand/cement
TYPE OF BACKFILL AROUND RISER PIPE	2
DEPTH TOP OF SEAL (Ft.)	bentonite
TYPE OF SEAL	3
DEPTH BOTTOM OF SEAL (Ft.)	4
DEPTH TOP OF PERVIOUS SECTION (Ft.)	2
DIAMETER OF BOREHOLE (In.)	PVC
TYPE OF PERVIOUS SECTION	10 slot
TYPE OF OPENINGS	1 O.D.: 1
PERVIOUS SECTION (In.) I.D.:	#1 Sand
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	14
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	14
DEPTH BOTTOM OF FILTER PACK (Ft.)	NA
TYPE OF BACKFILL BELOW FILTER PACK	14
END OF BORING (Ft.)	

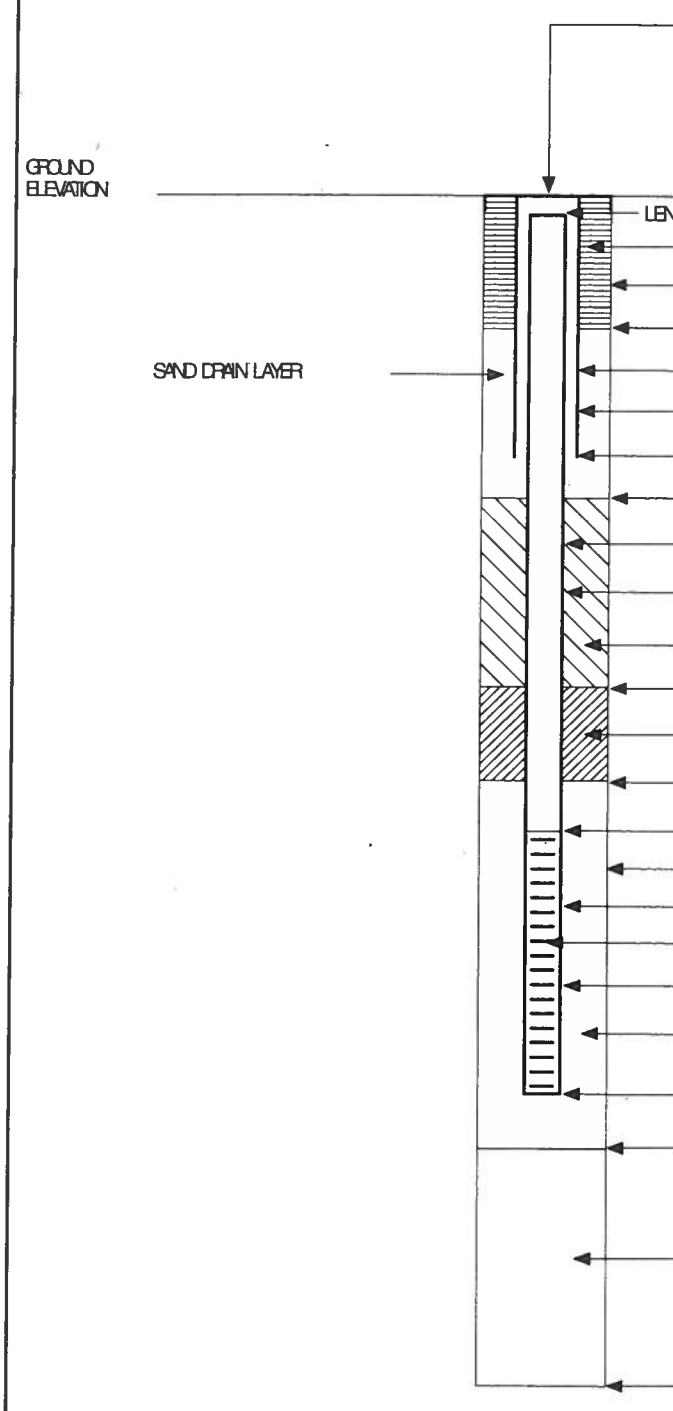
SAND DRAIN LAYER

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Indicates that Surveyed Ground Elevation Not

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — **TETRA TECH**

PROJECT NAME:	Beaton & Cordin Factory Site	PROJECT NO:	112G03599.03
PROJECT LOCATION:	Southington, CT	WELL NO:	MW 200A
CLIENT:		BORING NO:	SB 200A
CONTRACTOR:	Drilex	DRILLER:	T LaFleche
LOGGED BY:	R Clark	DATE:	11/29/11
CHECKED BY:		DATE:	
		BORING LOCATION:	
		PAGE:	1 OF 1



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)		
TYPE OF SURFACE SEAL		Cement
DIA SURFACE SEAL BGS (In.)		
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)		1/2
I.D. OF PROTECTIVE CASING (In.)		4
TYPE OF PROTECTIVE CASING		Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)		1
DEPTH BOTTOM OF DRAIN LAYER (Ft.)		1
RISER PIPE (In.)	I.D: ____	O.D: 1
TYPE OF RISER PIPE		PVC
TYPE OF BACKFILL AROUND RISER PIPE		Sand/cement
DEPTH TOP OF SEAL (Ft.)		2
TYPE OF SEAL		bentonite
DEPTH BOTTOM OF SEAL (Ft.)		3
DEPTH TOP OF PERVIOUS SECTION (Ft.)		4
DIAMETER OF BOREHOLE (In.)		2
TYPE OF PERVIOUS SECTION		PVC
TYPE OF OPENINGS		10-slot
PERVIOUS SECTION (In.)	I.D: ____	O.D: 1
TYPE OF FILTER PACK AROUND PERVIOUS SECTION		#1 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)		14
DEPTH BOTTOM OF FILTER PACK (Ft.)		14
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK		NA
END OF BORING		14

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation Indicates that Surveyed Ground Elevation is NOT Available.

APPENDIX D

WELL DEVELOPMENT LOGS

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW-06
Site: _____
Date Installed: _____
Date Developed: 11/30/11
Dev. Method: Suction
Pump Type: Peri

Depth to Bottom (ft.): 14.65
Static Water Level Before (ft.): 5.03
Static Water Level After (ft.): _____
Screen Length (ft.): Unkn
Specific Capacity: _____
Casing ID (in.): 2 in

Responsible Personnel: R Clark
Drilling Co.: DrillEx
Project Name: Beaton & Corbin Factory Site, Southington, CT
Project Number: 112G03599.03

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Turbidity	Remarks (odor, color, etc.)
1301	pump on -	silty	Soft bottom	
1312	1	5.55	OVR scale	reddish brn., silty
1318	2	5.80	↓	↓
1323	3	5.93	↓	↓
1330	4	6.00	43.7	Slowed pump - started off bottom
1341	4 1/2	5.48	30.2	Done

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 25
Site: _____
Date Installed: NA
Date Developed: 11-30-11
Dev. Method: suction
Pump Type: peri

Depth to Bottom (ft.): 35.15
Static Water Level Before (ft.): 6.10
Static Water Level After (ft.): _____
Screen Length (ft.): NA
Specific Capacity: ~~46~~
Casing ID (in.): NA

Responsible Personnel: K Tidwell
Drilling Co.: DrillEx
Project Name: Beaton & Corbin Factory Site, Southington, CT
Project Number: 112G03599.03

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Turbidity	Remarks (odor, color, etc.)
1436		pump on		
1443	¼	6.15	Very silty ~~Ad~~ difficult to pump	
1432	1½	6.16	very silty	
1453	2	6.16	clearing up but pumping debris	
1513	3	6.16	silty w/debris	
1525	4	6.16	154	
1530	4¾	6.16	10.71	
1531	~~5¼~~	Stopped purge reduced rate		4¾ gal
1536	5¼	6.13	5.46	

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Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW-200A
Site: _____
Date Installed: 11/29/11
Date Developed: 11/30/11
Dev. Method: SUCTION
Pump Type: peri

Depth to Bottom (ft.): 13.25
Static Water Level Before (ft.): 5.86
Static Water Level After (ft.): _____
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 1

Responsible Personnel: R Clark K Tidwell
Drilling Co.: DrillEx
Project Name: Beaton & Corbin Factory Site, Southington, CT
Project Number: 112G03599.03

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Turbidity	Remarks (odor, color, etc.)
0800	pump on	very silty		
0808	2	5.91	silty after purge - clearing up	
0815	3	5.90	291	
0825	Stopped surge - reduced rate			4 gallons
828	4 1/2	5.89	143	
834	4 3/4	5.86	20.1	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 301
Site: _____
Date Installed: 11/29/11
Date Developed: 11/30/11
Dev. Method: SUCTION
Pump Type: peri

Depth to Bottom (ft.): 15.75
Static Water Level Before (ft.): 7.65
Static Water Level After (ft.): _____
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 1

Responsible Personnel: R Clark
Drilling Co.: DrillEx
Project Name: Beaton & Corbin Factory Site, Southington, CT
Project Number: 112G03599.03

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Turbidity	Remarks (odor, color, etc.)
0918	pump on	very thick + silty	Brick red color	very soft bottom
0927	1	8.57	over scale	DK reddish brn
0932	2	8.52	still silty, hard bottom	continue surging
0939	3 1/2	8.56	766	pump intake at bottom
0940	pulled pump 1 ft off	bottom + reduced flow rate		
0944	3 3/4	7.95	241	water is orange colored
0945	increased pump rate w/ intake 1 ft off			bottom
0954	4	8.48	189	light orange
0959	4 3/4	8.47	164	slowed pump down
1006	5	7.87	~~209~~ 176	
1010	5 1/4	7.85	132	clearing up
1015	5 1/2	7.85	81.7	
1021	5 3/4	7.85	57.7	clear
1023	6	7.85	36.0	Done

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 302-MW
Site: _____
Date Installed: 11-27-11
Date Developed: 11-30-11
Dev. Method: Suction
Pump Type: peri

Depth to Bottom (ft.): 14.3
Static Water Level Before (ft.): 4.94
Static Water Level After (ft.): ~~4.93~~
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 1

Responsible Personnel: K Tidwell
Drilling Co.: DrillEx
Project Name: Beaton & Corbin Factory Site, Southington, CT
Project Number: 112G03599.03

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Turbidity	Remarks (odor, color, etc.)
0917	pump on	very silty		
0923	.5	5.2	Silty after purge	
0931	2	5	Silty cleaning up	
0939	2.5	4.95	934	Cleaning up quickly
0946	2 3/4	4.98	247	
~~0948~~	Stopped	purge reduced rate		3gal
0952	3.5	4.95	54.3	
09	4	4.95	25.1	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 303-MW
Site: _____
Date Installed: 11-29-11
Date Developed: 11-30-11
Dev. Method: SUCTION
Pump Type: PERI

Depth to Bottom (ft.): 16.35
Static Water Level Before (ft.): 4.7
Static Water Level After (ft.): _____
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 1

Responsible Personnel: K Tidwell
Drilling Co.: DrillEx
Project Name: Beaton & Corbin Factory Site, Southington, CT
Project Number: 112G03599.03

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Turbidity	Remarks (odor, color, etc.)
1306			Very Silty	
1315	.5	4.93	Very Silty	
1324	2	4.93	Silty Clearing up	
1334	3	4.87	Silty	
1339	3 1/2	4.85	273	
1345	3 3/4	4.87	247	
1355	5	4.83	216	
1405	6	4.83	18.5	
1410	6 1/4	Stopped purge reduced Rate		
1414	6 1/2	4.77	4.34	

ael 1/20

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: 304-MW
Site: _____
Date Installed: 11-29-11
Date Developed: 11-30-11
Dev. Method: Suction
Pump Type: peri

Depth to Bottom (ft.): 15.97
Static Water Level Before (ft.): 9.24
Static Water Level After (ft.): _____
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 1

Responsible Personnel: K Tidwell
Drilling Co.: DrillEx
Project Name: Beaton & Corbin Factory Site, Southington, CT
Project Number: 112G03599.03

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Turbidity	Remarks (odor, color, etc.)
1037	pump on		very silty	
1045	1	9.27	silty cleaning up	
1051	1 3/4	9.25	silty	
1056	2 1/4	9.25	241	
1100	2 3/4	stopped purge reduced rate		
1105	3	9.2	203	
1111	3 1/4	9.2	170	
1119	3 3/4	9.19	130	
1119	Increased rate			3 3/4 gal
1124	4	9.2	67.8	
1125	decreased rate			4 gal
1130	4 1/2	9.19	113	
1140	5	9.14	41.4	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 305
Site: _____
Date Installed: 11/29/11
Date Developed: 11/30/11
Dev. Method: Submersible
Pump Type: Peri.

Depth to Bottom (ft.): 16.40
Static Water Level Before (ft.): 7.91
Static Water Level After (ft.): _____
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 1

Responsible Personnel: R Clark
Drilling Co.: DrillEx
Project Name: Beaton & Corbin Factory Site, Southington, CT
Project Number: 112G03599.03

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Turbidity	Remarks (odor, color, etc.)
1044	pump on very silty		Bk Red/brn color	Soft bottom
1057	1	8.12	very silty	hard bottom
1103	2	8.11	Silty	Water is reddish brn
1110	3	8.08	overscale	Silty
1015	4	8.08	"	moved pump intake 1 ft off bottom
1123	4 1/2	8.08	257	reduced flow & rate
1130	4 3/4	7.98	97.6	clearing up
1135	5	7.98	41.5	clear
				Done

APPENDIX E

GROUNDWATER SAMPLING LOGS

TETRA TECH NUS, INC.

MONITORING WELL PURGE DATA SHEET – "LOW STRESS" GROUNDWATER

Site Name: Beaton & Corbin Factory Site, Southington, CT
Sample ID: MW- 06

Tetra Tech NUS Charge No. 112G03599.03 Page 1 of 1
QC: DUP01 MS/MSD (If applicable)

Sample Method: Low Stress (flow) with Peristaltic Pump
Depth Sampled: 2' off bottom bgs Screen Int. Depth unkn ft bgs
Sample Date & Time: 12/01/2011 1045 hours
Sampler(s):
Data Recorded By: RClark Signature:
Well Diameter/Total Depth 2" 14.6' (ft below TOR); Stickup FLUSH
Visual Evidence of Sheen (Yes/No) ;
Olfactory Evidence of Odor (Yes/No) ;
Weather: Sunny 40°

PID BZ= 0.0 / W= 0.0 / PW= 0.0 PPM.
Field Instrument Group A/B/C/D

Initial WL 5.01 ft BTOR;

Analyte	Preservative	Container requirements	Collected
VOC	4°C, HCL	12 2 x 40 ml vials	Yes / No
EPH	HCl 4°C	6 1 liter amb	Yes / No
RCRA 8 Total Metals	HNO3 4°C	B 500ml poly	Yes / No

Clock Time 24hr	Water Depth (ft below TOR)	Purge Rate ml/min	Temp °C	S. Cond. 2 mS/cm	DO mg/L	pH (S.U.)	ORP mV	Turbidity (NTU)	Cum. Volume Purged Gals.	Comments
0953	Pump	OFF	WL	5.01						
1001	5.26	175	12.65	305	1.06	6.30	88.0	57.1	1/4	
1012	5.28	150	12.60	297	0.45	6.23	95.6	21.7	3/4	
1020	5.29	150	12.56	297	0.54	6.19	90.4	14.6	1 1/4	
1027	5.30	150	12.70	294	0.44	6.20	87.3	10.50	1 1/2	
1032	5.30	150	12.72	294	0.43	6.27	78.3	9.82	1 3/4	
1037	5.30	150	12.68	293	0.35	6.22	83.1	9.77	2	

TtNUS Form 0009 (modified)

Saturated Screen Volume (gallons)_____. 2in Screen Volume = 0.163 gal/ft or 616 ml per foot.
BZ=Breathing Zone, W=Well, PW=Purge Water

Siemens per cm (same as umhos/cm) at 25 °C.
Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

MONITORING WELL PURGE DATA SHEET – "LOW STRESS" GROUNDWATER

Site Name: Beaton & Corbin Factory Site, Southington, CT
Sample ID: MW- 25

Tetra Tech NUS Charge No. 112G03599.03 Page 1 of 1
QC: _____ (If applicable)

Sample Method: Low Stress (flow) with Peristaltic Pump
Depth Sampled: 2' off bottom ft bgs Screen Int. Depth unk ft bgs
Sample Date & Time: 12/1 /2011 1220 hours
Sampler(s):
Data Recorded By: R Clark Signature: Rob
Well Diameter/Total Depth 2" 25' (ft below TOR); Stickup Flush
Visual Evidence of Sheen (Yes/No) _____;
Olfactory Evidence of Odor (Yes/No) _____;
Weather: Sunny 40°

PID BZ= 0.0 / W= 0.0 / PW= 0.0 PPM.
Field Instrument Group A/B/C/D

Initial WL 6.13 ft BTOR;

Analyte	Preservative	Container requirements	Collected
VOC	4°C, HCL	4 x 40 ml vials	Yes / No
EPH	HCL 4°C	2 amb liter	Yes / No
RCRA 8 Total Metals	4°C	1 500ml poly	Yes / No

Clock Time 24hr	Water Depth (ft below TOR)	Purge Rate ml/min	Temp °C	S. Cond. 2 mS/cm	DO mg/L	pH (S.U.)	ORP mV	Turbidity (NTU)	Cum. Volume Purged Gals.	Comments
1153	pump	on								
1158	6.17	250	12.33	505	4.01	6.69	123.7	1.58	1/2	
1206	6.17	250	12.74	509	3.73	6.69	121.7	1.17	3/4	
1211	6.17	250	12.77	510	3.73	6.68	122.3	0.59	1 1/4	
1216	6.17	250	12.84	511	3.86	6.67	123.3	0.65	2	
1220	6.17	250	12.91	511	3.81	6.67	124.4	0.45	2 1/4	

TtNUS Form 0009 (modified)

Saturated Screen Volume (gallons)_____. 2in Screen Volume = 0.163 gal/ft or 616 ml per foot.
BZ=Breathing Zone, W=Well, PW=Purge Water

Siemens per cm (same as umhos/cm) at 25 °C.
Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

MONITORING WELL PURGE DATA SHEET – "LOW STRESS" GROUNDWATER

Site Name: Beaton & Corbin Factory Site, Southington, CT
Sample ID: MW- 200A

Tetra Tech NUS Charge No. 112G03599.03 Page 1 of 1
QC: _____ (If applicable)

Sample Method: Low Stress (flow) with Peristaltic Pump
Depth Sampled: 2' off bottom ft bgs Screen Int. Depth 4-14 ft bgs
Sample Date & Time: 12 / 1 /2011 0845 hours
Sampler(s):
Data Recorded By: Kenneth Tidwell Signature: Kenneth Tidwell
Well Diameter/Total Depth 2" / 14' (ft below TOR); Stickup 2.0 bgs;
Visual Evidence of Sheen (Yes/No) _____;
Olfactory Evidence of Odor (Yes/No) _____;
Weather: SUNNY 30's F

PID BZ= 0.0 / W= 0.0 / PW= 0.0 PPM.
Field Instrument Group A/B/C/D

Initial WL 5.78 ft BTOR;

Analyte	Preservative	Container requirements	Collected
VOC	4°C, HCL	4 x 40 ml vials	Yes / No
EPH	HCl 4°C	2 amber liter	Yes / No
RCRA 8 Total Metals	HNO_3 4°C	500 ml poly	Yes / No

Clock Time 24hr	Water Depth (ft below TOR)	Purge Rate ml/min	Temp °C	S. Cond. 2 µS/cm	DO mg/L	pH (S.U.)	ORP mV	Turbidity (NTU)	Cum. Volume Purged Gals.	Comments
0813	5.28	NA								pump on
0819	5.30	200	9.92	376	6.02	6.25	175.1	14.1	1/4	
0824	5.30	200	9.99	379	5.93	6.28	151.0	3.64	3/4	
0830	5.30	150	9.70	393	5.71	6.27	136.2	3.23	1	
0837	5.30	150	9.74	393	5.81	6.27	136.6	0.93	1 1/4	
0842	5.30	150	9.79	382	5.82	6.27	134.4	0.55	1 1/2	

TtNUS Form 0009 (modified)

Saturated Screen Volume (gallons)_____. 2in Screen Volume = 0.163 gal/ft or 616 ml per foot.
BZ=Breathing Zone, W=Well, PW=Purge Water

Siemens per cm (same as umhos/cm) at 25 °C.
Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

MONITORING WELL PURGE DATA SHEET – "LOW STRESS" GROUNDWATER

Site Name: Beaton & Corbin Factory Site, Southington, CT
Sample ID: MW- 301

Tetra Tech NUS Charge No. 112G03599.03 Page 1 of 1
QC: _____ (If applicable)

Sample Method: Low Stress (flow) with Peristaltic Pump
Depth Sampled: ~~@~~ 2' from bottom ft bgs Screen Int. Depth 3-13 ft bgs
Sample Date & Time: 12/ 1 /2011 1215 hours
Sampler(s):
Data Recorded By: Kendall Tidwell Signature: Kendall Tidwell
Well Diameter/Total Depth 1" 13' (ft below TOR); Stickup _____;
Visual Evidence of Sheen (Yes/No) _____;
Olfactory Evidence of Odor (Yes/No) _____;
Weather: Sunny 40s °F

PID BZ=0.0 / W=0.01 / PW=0.0 PPM.
Field Instrument Group A/B/C/D

Initial WL 7.73 ft BTOR;

Analyte	Preservative	Container requirements	Collected
VOC	4°C, HCL	3 x 40 ml vials	Yes / No
EPH	HCL 4°C	2 amber Liter	Yes / No
RCRA 8 Total Metals	H_2SO_4 4°C	500 ml poly	Yes / No

Clock Time 24hr	Water Depth (ft below TOR)	Purge Rate ml/min	Temp °C	S. Cond. 2 mS/cm	DO mg/L	pH (S.U.)	ORP mV	Turbidity (NTU)	Cum. Volume Purged Gals.	Comments
1134	7.73	NA								pump on
1140	~~7.79~~	325	11.60	409	0.59	6.66	-215.19	33.2	3/4	
1145	7.93	300	11.65	409	0.53	6.66	-65.7	18.4	1 1/4	
1156	7.92	300	11.79	407	0.40	6.66	-71.4	11.5	1 1/2	
1155	7.92	300	11.40	409	0.46	6.65	-76.9	7.29	2	
1200	7.92	300	11.79	409	0.43	6.65	-172.5	4.97	2 1/4	
1205	7.93	300	11.76	408	0.40	6.65	-60.6	4.18	2 1/2	
1210	7.93	300	11.89	408	0.37	6.65	-60.3	3.06	2 3/4	
1215	7.93	300	12.06	408	0.36	6.65	-64.0	2.26	3	

TtNUS Form 0009 (modified)

Saturated Screen Volume (gallons)_____. 2in Screen Volume = 0.163 gal/ft or 616 ml per foot.
BZ=Breathing Zone, W=Well, PW=Purge Water

Siemens per cm (same as umhos/cm) at 25 °C.
Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

MONITORING WELL PURGE DATA SHEET – "LOW STRESS" GROUNDWATER

Site Name: Beaton & Corbin Factory Site, Southington, CT
Sample ID: MW- 302

Tetra Tech NUS Charge No. 112G03599.03 Page 1 of 1
QC: _____ (If applicable)

Sample Method: Low Stress (flow) with Peristaltic Pump
Depth Sampled: 2' off bottom ft bgs Screen Int. Depth 6-16 ft bgs
Sample Date & Time: 12/1 /2011 1031 hours
Sampler(s):
Data Recorded By: Kendall Tidwell Signature: Kendall Tidwell
Well Diameter/Total Depth 1" (ft below TOR); Stickup Ridox;
Visual Evidence of Sheen (Yes/No) No;
Olfactory Evidence of Odor (Yes/No) No;
Weather: Sunny 30s°F

PID BZ= 0.0 / W= 0.0 / PW= 0.0 PPM.
Field Instrument Group A/B/C/D

Initial WL 4.66 ft BTOR;

Analyte	Preservative	Container requirements	Collected
VOC	4°C, HCL	4 x 40 ml vials	Yes / No
EPH	HCL 4°C	2 amber 4 oz	Yes / No
RCRA 8 Total Metals	HNO_3 4°C	500 ml poly	Yes / No

Clock Time 24hr	Water Depth (ft below TOR)	Purge Rate ml/min	Temp °C	S. Cond. 2 mS/cm	DO mg/L	pH (S.U.)	ORP mV	Turbidity (NTU)	Cum. Volume Purged Gals.	Comments
0940	4.66	NA								pump on
0945	4.97	275	10.63	367	3.42	6.83	70.6	11.8	½	
0950	4.97	275	10.76	367	3.06	6.95	52.4	6.52	1¼	
0955	4.97	275	10.83	365	3.07	6.94	43.6	5.44	1½	
1000	4.97	275	10.77	362	2.93	6.93	34.2	2.22	1¾	
1005	4.97	275	10.83	360	2.72	6.91	32.2	4.91	2	
1010	4.97	275	10.91	355	2.41	6.90	32.2	4.61	2¼	
1015	4.97	275	10.95	354	2.30	6.89	4.0	6.53	2¾	
1020	4.97	275	10.91	352	2.31	6.85	29.8	5.24	3	
1028	4.97	275	10.88	351	2.76	6.83	91.0	2.54	3½	
1031	4.97	275	10.90	350	2.72	6.83	14.5	1.94	3½	

TtNUS Form 0009 (modified)

Saturated Screen Volume (gallons)_____. 2in Screen Volume = 0.163 gal/ft or 616 ml per foot.
BZ=Breathing Zone, W=Well, PW=Purge Water

Siemens per cm (same as umhos/cm) at 25 °C.
Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

MONITORING WELL PURGE DATA SHEET – "LOW STRESS" GROUNDWATER

Site Name: Beaton & Corbin Factory Site, Southington, CT
Sample ID: MW- 303

Tetra Tech NUS Charge No. 112G03599.03 Page 1 of 1
QC: _____ (If applicable)

Sample Method: Low Stress (flow) with Peristaltic Pump
Depth Sampled: 2' off bottom ft bgs Screen Int. Depth 4-14 ft bgs
Sample Date & Time: 12/1/2011 1600 hours
Sampler(s):
Data Recorded By: Kendall Tidwell Signature: Kendall Tidwell
Well Diameter/Total Depth 1" 14 (ft below TOR); Stickup _____;
Visual Evidence of Sheen (Yes/No) _____;
Olfactory Evidence of Odor (Yes/No) _____;
Weather: Sunny 40's F

PID BZ=0.0 / W=0.1 / PW=0.0 PPM.
Field Instrument Group A/B/C/D

Initial WL 9.75 ft BTOR;

Analyte	Preservative	Container requirements	Collected
VOC	4°C, HCL	3x 40 ml vials	(Yes) / No
EPH	HCL 4°C	2 amber Liters	(Yes) / No
RCRA 8 Total Metals	HNO_3 4°C	500 ml poly	(Yes) No

Clock Time 24hr	Water Depth (ft below TOR)	Purge Rate ml/min	Temp °C	S. Cond. 2 mS/cm	DO mg/L	pH (S.U.)	ORP mV	Turbidity (NTU)	Cum. Volume Purged Gals.	Comments
1524	9.75	NA								Pump on
1535	9.81	250	12.01	115	3.33	5.11	-175.7	19.2	1/4	
1540	9.81	275	12.13	117	2.88	5.04	-145.8	7.75	1/2	
1545	9.81	250	12.16	119	2.76	4.95	-159.0	3.86	1	
1550	9.81	250	12.13	121	2.67	4.92	-184.8	2.25	1 1/4	
1555	9.81	250	12.13	122	2.60	4.89	-177.2	0.84	1 3/4	
1600	9.81	250	12.16	122	2.50	4.88	177.2	0.44	2	

TtNUS Form 0009 (modified)

Saturated Screen Volume (gallons)_____. 2in Screen Volume = 0.163 gal/ft or 616 ml per foot.
BZ=Breathing Zone, W=Well, PW=Purge Water

Siemens per cm (same as umhos/cm) at 25 °C.
Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

MONITORING WELL PURGE DATA SHEET – "LOW STRESS" GROUNDWATER

Site Name: Beaton & Corbin Factory Site, Southington, CT
Sample ID: MW- 304

Tetra Tech NUS Charge No. 112G03599.03 Page 1 of 1
QC: _____ (If applicable)

Sample Method: Low Stress (flow) with Peristaltic Pump
Depth Sampled: 2' ~~from bottom~~ ft bgs Screen Int. Depth 4-14 ft bgs
Sample Date & Time: 12/1/2011 1410 hours
Sampler(s):
Data Recorded By: R Clark Signature: R Clark
Well Diameter/Total Depth 1 in 14ft (ft below TOR); Stickup _____;
Visual Evidence of Sheen (Yes/No) No;
Olfactory Evidence of Odor (Yes/No) No;
Weather: Sunny 50°

PID BZ=0.0 / W=0.0 / PW=0.0 PPM.
Field Instrument Group A/B/C/D

Initial WL 9.18 ft BTOR;

Analyte	Preservative	Container requirements	Collected
VOC	4°C, HCL	4 x 40 ml vials	(Yes) / No
EPH	HCL 4°C	2 1 Liter amber	Yes / (No)
RCRA 8 Total Metals	HNO3 4°C	1 500 ml poly	Yes / (No)

Clock Time 24hr	Water Depth (ft below TOR)	Purge Rate ml/min	Temp °C	S. Cond. 2 mS/cm	DO mg/L	pH (S.U.)	ORP mV	Turbidity (NTU)	Cum. Volume Purged Gals.	Comments
1340	pump	on								
1346	9.23	250	14.20	503	5.10	6.65	149.2	13.8	1/4	
1350	9.23	250	14.17	495	4.52	6.58	149.0	7.59	1/2	
1355	9.23	250	14.15	494	4.25	6.54	148.6	2.15	3/4	
1400	9.23	250	14.08	493	4.39	6.48	151.4	0.36	1	
1405	9.23	250	14.06	492	4.48	6.37	156.3	0.31	1 1/2	
1410	9.23	250	14.04	492	4.43	6.33	158.3	0.18	2.	

TtNUS Form 0009 (modified)

Saturated Screen Volume (gallons)_____. 2in Screen Volume = 0.163 gal/ft or 616 ml per foot.
BZ=Breathing Zone, W=Well, PW=Purge Water

Siemens per cm (same as umhos/cm) at 25 °C.
Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

MONITORING WELL PURGE DATA SHEET – "LOW STRESS" GROUNDWATER

Site Name: Beaton & Corbin Factory Site, Southington, CT
Sample ID: MW- 305

Tetra Tech NUS Charge No. 112G03599.03 Page 1 of 1
QC: _____ (If applicable)

Sample Method: Low Stress (flow) with Peristaltic Pump
Depth Sampled: 2' from bottom ft bgs Screen Int. Depth 4-14 ft bgs
Sample Date & Time: 12/1 /2011 1450 hours
Sampler(s):
Data Recorded By: Kendall Tidwell Signature: Kendall Tidwell
Well Diameter/Total Depth 1" 14' (ft below TOR); Stickup _____;
Visual Evidence of Sheen (Yes/No) _____;
Olfactory Evidence of Odor (Yes/No) _____;
Weather: Sunny 40s °F

PID BZ= 0.0 / W=0.0 / PW=0.0 PPM.
Field Instrument Group A/B/C/D

Initial WL 7.94 ft BTOR;

Analyte	Preservative	Container requirements	Collected
VOC	4°C, HCL	4x 40 ml vials	Yes / No
EPH	HCL 4°C	2 amber liter	Yes / No
RCRA 8 Total Metals	HNO_3, 4°C	500 ml poly	Yes / No

Clock Time 24hr	Water Depth (ft below TOR)	Purge Rate ml/min	Temp °C	S. Cond. 2 mS/cm	DO mg/L	pH (S.U.)	ORP mV	Turbidity (NTU)	Cum. Volume Purged Gals.	Comments
1408	7.94	NA								pump on
1416	7.99	250	12.13	359	2.10	6.34	-108.0	54.8	1/4	
1421	7.99	250	12.21	358	1.80	6.32	-104.7	33.4	1/4	
1426	7.99	250	12.25	356	1.83	6.32	-116.2	20.6	1/2	
1431	7.99	250	12.24	359	1.76	6.32	-102.1	10.63	1 3/4	
1436	7.98	250	12.30	358	1.65	6.32	-121.3	5.85	2 1/4	
1441	7.98	250	12.35	358	1.62	6.32	-136.2	3.27	2 1/2	
1444	7.98	250	12.39	358	1.62	6.32	-136.2	2.87	2 2/3	
1437	7.98	250	12.35	358	1.59	6.32	-132.0	2.17	2 3/4	
1450	7.98	250	12.33	357	1.63	6.32	-124.0	1.77	3	

TtNUS Form 0009 (modified)

Saturated Screen Volume (gallons)_____. 2in Screen Volume = 0.163 gal/ft or 616 ml per foot.
BZ=Breathing Zone, W=Well, PW=Purge Water

Siemens per cm (same as umhos/cm) at 25 °C.
Oxidation reduction potential (stand in for Eh).

APPENDIX F

RECOMMENDATION DETAILED COST ESTIMATE

APPENDIX F - PHASE II DETAILED COST
ORDER-OF-MAGNITUDE COST ESTIMATE
PHASE III INVESTIGATION
FINAL ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

Project Planning				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Work Plan	1	each	$5,000.00	$5,000
Health and Safety Plan	1	each	$2,000.00	$2,000
Specifications, Procurement, Purchase Requisitions	1	each	$2,000.00	$2,000
Total Project Planning				**$9,000**

Rental Equipment				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Photoionization Detector	1	week	$350.00	$350
Horiba Water Quality Instument	1	week	$300.00	$300
Oil-water Interface Probe	1	week	$75.00	$75
Scale Balance	1	week	$60.00	$60
Peristaltic Pump	1	week	$60.00	$60
4 12 volt power packs	1	week	$100.00	$100
GPS Survey Unit	1	week	$800.00	$800
Level	1	week	$75.00	$75
Total Rental Equipment for the Duration of the Project				**$1,820**

APPENDIX F - PHASE II DETAILED COST
ORDER-OF-MAGNITUDE COST ESTIMATE
PHASE III INVESTIGATION
FINAL ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

Drilling and Monitoring Well Installation				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Drill Rig and Crew	72	foot	$30.00	$2,160
Mob/demob	1	LS	$800.00	$800
Soil Sampling	36	each	$10.00	$360
Monitoring Well installation	24	foot	$30.00	$720
Protective Casings	2	each	$150.00	$300
Decontamination Station Setup/Breakdown	1	ls	$500.00	$500
IDW Containerization	4	each	$65.00	$260
\				**$5,100**

Soil and Groundwater Sample Collection Analysis and Data Validation				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Labor				
2 environmental sampler, 5 days, 10 hrs/day, & prep. & mob/demob	100	hours	$46.25	$4,625
Laboratory Services				
SVOCs in groundwater (8 samples & 2 QCs)	10	each	$360.00	$3,600
Metals in groundwater (8 samples & 2 QCs)	10	each	$95.00	$950
VOCs in groundwater (10 samples & 2 QCs)	12	each	$300.00	$3,600
VOCs in soil (14 samples & 2 QCs)	16	each	$185.00	$2,960
Metals in soil (6 samples & 2 QCs)	8	each	$95.00	$760
SPLP/metals (6 samples & 2 QCs)	8	each	$855.19	$6,842
Sample shipping	10	each	$75.00	$750
Data Validation				
Data evaluation and Validation	120	Hours	$85.00	$10,200
Travel and Per Diem				
Vehicle & gas	8	days	$100.00	$800
2 personnel, 4 days	8	days	$151.00	$1,208
Total Confirmation Sampling and Reporting				**$36,295**

APPENDIX F - PHASE II DETAILED COST
ORDER-OF-MAGNITUDE COST ESTIMATE
PHASE III INVESTIGATION
FINAL ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

Phase III Report				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Labor				
Project Manager/LEP	100	hours	$100.00	$10,000
Project Engineer	200	hours	$85.00	$17,000
Environmental Scientist	150	hours	$75.00	$11,250
Environmental Scientist	125	hours	$55.00	$6,875
Clerical	20	hours	$45.00	$900
Production Costs				
Copying	4500	page	$0.08	$360
Total Engineered Control				**$46,385**

TOTAL PHASE III INVSTIGATION COSTS **$98,600**

APPENDIX F - SOIL REMOVAL AND DISPOSAL
ORDER-OF-MAGNITUDE COST ESTIMATE
PHASE III INVESTIGATION
FINAL ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

EXCAVATION AND DISPOSAL				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Mobilization	1	LS	$15,000.00	$20,000
Excavation	15	day	$8,500.00	$127,500
Waste Characterization	2	each	$1,000.00	$2,000
Confirmation samples	20	each	$150.00	$3,000
Offsite Disposal (RCRA Subtitle C)	1000	ton	$250.00	$250,000
Offsite Disposal (RCRA Subtitle D)	1000	ton	$70.00	$70,000
Imported clean backfill	1200	ton	$25.00	$30,000
Backfilling and compaction	5	day	$8,500.00	$42,500
Site restoration	2	day	$3,500.00	$7,000
\				**$552,000**

TOTAL SOIL REMOVAL AND DISPOSAL (SUBTITLE C) **$482,000**
TOTAL SOIL REMOVAL AND DISPOSAL (SUBTITLE D) **$302,000**

APPENDIX F - DEBRIS REMOVAL AND DISPOSAL
ORDER-OF-MAGNITUDE COST ESTIMATE
PHASE III INVESTIGATION
FINAL ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

DEBRIS REMOVAL AND BUILDING DEMOLITION				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Mobilization	1	LS	$10,000.00	$10,000
Debris Loading	10	day	$3,500.00	$35,000
Asbestos/Lead Paint Survey	1	LS	$7,500.00	$7,500
Offsite Disposal (Construction Debris)	3000	ton	$30.00	$90,000
Offsite Disposal (ACM/Lead Paint containing)	3000	ton	$70.00	$210,000
Demolition of outbuildings	2	day	$3,500.00	$7,000
\				**$359,500**

TOTAL DEBRIS REMOVAL AND DISPOSAL (Construction Debris)) **$149,500**
TOTAL DEBRIS REMOVAL AND DISPOSAL (ACM/Lead Paint Containing) **$269,500**

APPENDIX F - OFFSITE MONITORING
ORDER-OF-MAGNITUDE COST ESTIMATE
PHASE III INVESTIGATION
FINAL ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

Rental Equipment				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Photoionization Detector	0.5	week	$350.00	$175
Horiba Water Quality Instument	0.5	week	$300.00	$150
Oil-water Interface Probe	0.5	week	$75.00	$38
Scale Balance	0.5	week	$60.00	$30
Peristaltic Pump	0.5	week	$60.00	$30
4 12 volt power packs	0.5	week	$100.00	$50
GPS Survey Unit	0.5	week	$800.00	$400
Level	0.5	week	$75.00	$38
Total Rental Equipment for the Duration of the Project				**$910**

Drilling and Monitoring Well Installation				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Drill Rig and Crew	24	foot	$30.00	$720
Mob/demob	1	LS	$800.00	$800
Soil Sampling	12	each	$10.00	$120
Monitoring Well installation	24	foot	$30.00	$720
Protective Casings	3	each	$150.00	$450
Decontamination Station Setup/Breakdown	1	ls	$500.00	$500
IDW Containerization	2	each	$65.00	$130
\				**$3,440**

APPENDIX F - OFFSITE MONITORING
ORDER-OF-MAGNITUDE COST ESTIMATE
PHASE III INVESTIGATION
FINAL ENVIRONMENTAL SITE ASSESSMENT
FORMER BEATON AND CORBIN FACTORY SITE
SOUTHINGTON, CONNECTICUT

Soil and Groundwater Sample Collection Analysis and Data Validation				
DIRECT COST	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**
Labor				
2 environmental sampler, 2 days, 10 hrs/day, & prep. & mob/demob	40	hours	$46.25	$1,850
Laboratory Services				
Metals in groundwater (3 samples & 2 QCs)	5	each	$95.00	$475
VOCs in groundwater (3 samples & 2 QCs)	5	each	$300.00	$1,500
Sample shipping	1	each	$75.00	$75
Data Validation				
Data evaluation and Validation	40	Hours	$85.00	$3,400
Travel and Per Diem				
Vehicle & gas	2	days	$100.00	$200
2 personnel, 4 days	2	days	$151.00	$302
Total Confirmation Sampling and Reporting				**$7,802**

TOTAL OFFSITE MONITORING COSTS **$12,152**

APPENDIX G

ENVIRONMENTAL PROFESSIONAL QUALIFICATIONS

BRANDON E. SMITH, P.E.
ENVIRONMENTAL ENGINEER / PROJECT MANAGER
WILMINGTON, MASSACHUSETTS

EDUCATION: B.S.; Environmental Engineering; Tufts University; February 2000
Graduate Studies; Geotechnical Engineering; Tufts University; 2000-2001

CERTIFICATIONS/ REGISTRATIONS: Professional Engineer, Commonwealth of Massachusetts; License 47384
Professional Engineer, State of Maine; License 11792

TRAINING: OSHA 1910.120 40-Hour HAZWOPER Training; January, 2000
OSHA 1910.120 8-Hour HAZWOPER Supervisor Training, March 2005
OSHA 1910.120 8-Hour HAZWOPER Refresher Training; Annually
OSHA 10-Hour Construction Safety Training, August 2009
OSHA 30-Hour Construction Safety Training, July 2010
Tetra Tech Level 1 Project Management Training; October 2007
Training Course for the NITON XRF Spectrum Analyzer; March 2003
EPA Region 1, Advanced FORMS II Lite Training Course; 2003
First Aid & CPR Training Course; November 2007
DOT 49 CFR 172.704 Hazardous Materials Shipping Training; Jan, 2008
Training Course for Innov-X Systems XFR Analyzer; April 2008

EXPERIENCE SUMMARY:

Mr. Smith has over 11 years of professional experience in the environmental engineering field. During that time he has performed a variety of roles in support of environmental projects under the US Environmental Protection Agency (EPA), US Navy CLEAN, Air Force Reserve Command (AFRC) and Air Force Center for Engineering and the Environment (AFCEE) contracts and for private clients. These roles include preparation of Phase II Remedial Investigations, Phase III Remedial Action Plans, Phase IV Remedial Implementation Plans, Feasibility Studies (FS), and CIS Specifications, Site Assessment Reports for Brownfields targeted sites, Sampling and Analysis Plans for site investigations, and RCRA Closures.

Mr. Smith has also accumulated a wide range of field experience as a resident engineer and field operations leader (FOL) including construction and remediation oversight; surveying; RCRA building inspection; drilling, field screening and soil, sediment, surface water, soil gas, and groundwater sampling.

As a project manager, Mr. Smith is responsible for managing all aspects of environmental projects: developing work plans, budgets, and schedules; directing field investigations; preparing technical evaluations and documents; preparing design drawings and specifications; managing contracts and supporting community relations activities. Mr. Smith has managed environmental project ranging in size up to $170,000.

PROJECT EXPERIENCE:

Project Manager; US EPA Region 1; Former Beaton and Corbin Site; $100,000; Southington, Connecticut; June 2011 to present.

Managing site assessment at the Former Beaton and Corbin Site, a former plumbing fixture manufacturer, including evaluation of data to determine appropriateness and scope of future remedial activities to support reuse of the site.

Project Manager; AFCEE; Site SS-20 – Westover Air Reserve Base; $48,000; Chicopee, Massachusetts; August 2010 to present.

Managing groundwater monitoring at Site SS-20 (Former Service Station, Former Building 1601) at Westover ARB in Chicopee, MA, including evaluation of data to determine appropriateness and scope of future remedial activities and AFCEE public meeting support.

Project Manager; AFCEE; Landfill A; Westover Air Reserve Base; $73,000; Chicopee, Massachusetts; September 2008 to August 2010.
Managed remedial work at Landfill A (Site LF-02) at Westover ARB in Chicopee, MA including Title II services providing field oversight for the construction of a landfill cap. A remedial action was conducted at LF-02 for a landfill cap under a separate contract. Title II services were required in order to provide appropriate field oversight for the subject project. These services consisted of supervision and inspection of the project (being completed under another contract) and included consultation during remediation, review and comment on submittals as requested, ensuring compliance with project planning documents, and performing oversight of the landfill cap construction at LF-02.

Project Manager; AFCEE; Sites FT-08 and SS-20 – Westover Air Reserve Base; $88,000; Chicopee, Massachusetts; September 2008 to December 2009.

Managed soil and groundwater monitoring work at Sites FT-08 (Current Fire Training Area) and SS-20 (Former Service Station, Former Building 1601) at Westover ARB in Chicopee, MA including evaluation of data to determine appropriateness and scope of future remedial activities. Additionally, SS-20 required an update based on new data to its Risk Assessment to determine to what degree an Activity Use Limitation may be required.

Environmental Engineer; U.S. Navy/CLEAN; Naval Air Station Brunswick; Brunswick, ME; May 2008 to Present. Support U.S. Navy BRAC office Base closure through a variety of tasks: Tasks include file searches, site reconnaissance/building inspection, development of sampling plans, implementation of sampling plans, oversight of subcontractors, interfacing with Navy and regulatory representatives, and preparation of summary reports, including MEDEP RCRA closure reports for approximately 230 buildings and land areas encompassing approximately 2,800 acres.

Environmental Engineer; U.S. Navy/CLEAN; Site 17; Naval Air Station Brunswick; Brunswick, ME; March 2009 to September 2010. Wrote the Statement of Work and Work Plan for a remedial action at Site 17 at Naval Air Station Brunswick, located in Brunswick, ME. The Remedial Action includes excavation and offsite disposal of pesticide and herbicide contaminated soil at Site 17, which formerly housed pest control operations that included storage, mixing, and disposal of pesticides and herbicides.

Project Manager/Environmental Engineer; U.S. Navy/CLEAN; Groundwater Treatment System, Tank Farm 5; $170,000; Naval Station Newport; Middletown, RI; August 2007 to August 2009.
Managed the deconstruction of a 50-gallon per minute (gpm) groundwater treatment system consisting of a building housing the organics and metals treatment process units, two lines of extraction wells, extraction well collection piping, and an effluent discharge line. Prepared the Basis of Design Report and Statement of Work (SOW) summarizing the recommended approach to conduct the dismantling and disposal/recycling of the groundwater treatment system and building located at Tank Farm 5 at Naval Station Newport.

Resident Engineer/Environmental Engineer; U.S. Navy/CLEAN; Old Fire Fighter Training Area (OFFTA); Naval Station Newport; Newport, RI; December 2007 to Present.
Observed and coordinated all onsite daily activities associated with Remedial Action at the Old Fire Fighter Training Area at NAVSTA Newport. The remedial action consisted of excavation and off-site disposal of petroleum-contaminated soil, and removal of foundations and pipelines associated with former operations at OFFTA and site restoration. Prepared the Remedial Action Close-Out Report. Provided engineering support for the design and construction of an offshore revetment along Narragansett Bay.

Environmental Engineer; U.S. Navy/CLEAN; Site 03; Naval Weapons Industrial Reserve Plant (NWIRP); Bedford, MA; March 2007 to July 2007.
Amended and updated the Feasibility Study (FS) for Site 03 at the Naval Weapons Industrial Reserve Plant, located in Bedford, MA. The Feasibility Study included screening technologies, developing remedial alternatives and performing detailed analysis of alternatives as specified in the National Contingency Plan (NCP).

Environmental Engineer; U.S. Navy/CLEAN; Tank Farms 4 & 5; Naval Station Newport; Middletown, RI; March 2007.
Prepared a technical memorandum summarizing the recommended approach to conduct the additional phases of remediation work at Tank Farms 4 and 5 located within Naval Station Newport (NAVSTA), located in Middletown (Tank Farm 5) and Portsmouth (Tank Farm 4), Rhode Island.

Environmental Engineer; U.S. Navy/CLEAN; Site 08 – Naval Underwater Systems Center (NUSC) Disposal Area; Naval Undersea Warfare Center; Newport, RI; March 2007.
Prepared cost estimates for remedial investigation activities at the Naval Undersea Systems Center (NUSC) disposal area at the Naval Undersea Warfare Center in Newport, RI.

Environmental Engineer/Resident Engineer; U.S. Navy/Clean; Melville Water Tower; Naval Station Newport; Portsmouth, RI; February 2007 to September 2008.
Calculated volume of lead-contaminated soil to be excavated and disposed of offsite following demolition of U.S. Navy water tower. Prepared cost estimates for excavation and disposal activities at the site. Observed and coordinated all onsite daily activities associated with Remedial Action. The remedial action consisted of excavation and off-site disposal of lead-

contaminated soil and site restoration. The remedial action was conducted under a short schedule so as not to disrupt activities at the adjacent Melville Elementary School. Prepared the Remedial Action Close-Out Report.

Resident Engineer/Environmental Engineer; US EPA; New Hampshire Plating Superfund Site; Merrimack, NH; September 2004 to July 2007. Assisted in preparation of remedial action specifications. Prepared Site Management Plan and Construction Quality Assurance Plan for the remedial action and evaluated remedial contractor bid packages. Observed and coordinated all onsite daily activities and procedures and conducted site inspections of the site preparation and well decommissioning activities associated with Phase I of the Remedial Action on behalf of EPA. Observed and coordinated all onsite daily activities associated with Phase II of the Remedial Action. The objective of the RA is to protect human health and the environment through on-site source control of metal-contaminated soils. Phase I, performed during winter conditions (December 2004 through March 2005), consisted of site preparation (land clearing and fencing relocation) and demolition of a solidified materials storage cell. The cell demolition required excavation of 9,700 cubic yards of soil cover and breaking up and crushing of the 6,300 cubic yards concrete-like monolith created by soil-cement solidification treatment during a previous removal action. Phase II encompassed the excavation of metal-contaminated soils present in four lagoons, adjacent wetlands, and the footprint of the former process building and treatment by a chemical fixation treatment system. Approximately 95,000 tons of metal-contaminated soil was treated. The treatment goal is to prevent further leaching of metal contaminants the underlying aquifer. The treated soil was consolidated into the former lagoons; the backfilled and covered areas were graded so that the flood storage capacity is maintained across the site.

Environmental Engineer/SSO; US EPA; Stevens Linen Bleachery Site; Dudley, MA; Brownfields Targeted Site Assessment; April 2005.
Oversaw HSA and drive-and-wash drilling and conducted groundwater sampling activities at this former industrial Site. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method.

Environmental Engineer/FOL; AFCEE; Construction Rubble Site; Westover Air Reserve Base; Chicopee, MA; August 2004 to September 2004.
Supervised all remedial actions at the Construction Rubble Site at Westover ARB in Chicopee, MA, which consisted of the excavation and removal of surficial construction debris, offsite disposal/recycling of construction debris material, and site restoration.

Environmental Engineer/FOL; US EPA; 28 River Street Site; Windsor, VT; Brownfields Targeted Site Assessment; July 2004 to September 2004.
Supervised all field activities and conducted groundwater sampling activities at this former industrial Site. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method.

Environmental Engineer; AFCEE; Zone 1; Westover Air Reserve Base; Chicopee, Massachusetts; January 2004 to September 2004.

Performed engineering calculations and wrote technical specifications for the design, construction, operation, and maintenance of a soil and groundwater remediation system. Soil remediation will be accomplished through the implementation of a combined soil-vapor extraction/bioventing system to remediate soil contaminated with volatile petroleum hydrocarbons. Groundwater remediation will be accomplished through the strategic application of an oxygen releasing compound to the delineated groundwater contaminant plume.

Environmental Engineer/FOL; US EPA; Gilbert & Bennett Lagoon Site; Redding, CT; Non-Targeted Brownfields Site Assessment; December 2003 to September 2004.
Wrote Sampling and Analysis Plan and Health & Safety Plan for this former lagoon waste site. Supervised and conducted all field activities at this Site. Advanced soil borings and installed monitoring wells using a HSA drill rig. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method. Wrote Non-Targeted Brownfields Site Assessment.

Environmental Engineer/SSO; US EPA; Seltsam Property; Foxborough, MA; Brownfields Targeted Site Assessment; December 2003 to September 2004; December 2005.
Conducted all field activities at this former junkyard. Advanced soil borings and installed monitoring wells using a Geoprobe drill rig and collected surficial soil samples. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method. Wrote Brownfields Targeted Site Assessment after additional characterization was performed in 2005.

Environmental Engineer/Field Engineer; Clark Oil; Remedial Investigation and Site Characterization; Vertex Engineering; Weymouth, MA; October to December 2003.
Assisted Vertex Engineering in the preparation of over 160 Phase II Environmental Site Assessments for gasoline stations located throughout Michigan, Wisconsin, Illinois, Indiana, and Ohio as part of their due-diligence project. Performed soil and groundwater sampling at several locations throughout Wisconsin, Illinois, Indiana, and Ohio.

Environmental Engineer/FOL; AFRC; Construction Rubble Site; Westover Air Reserve Base; Chicopee, MA; October 2003.
Supervised and conducted all field activities associated with the site investigation at the Construction Rubble Site at Westover ARB, Chicopee, MA.

Environmental Engineer/FOL; AFRC; Hangar Apron Area (SS-16); Westover Air Reserve Base; Chicopee, MA; September 2003 to January 2004.
Wrote drilling specifications for the Hangar Apron Area (SS-16) for a pre-design LNAPL investigation. Supervised and conducted all field activities associated with the LNAPL study at the Hangar Apron Area (SS-16). Wrote Pre-Remedial Investigation Report for SS-16.

Environmental Engineer; FORMS II Lite Standard Operating Procedure (SOP); August 2003.
Wrote Standard Operating Procedure for the use of the Field Operations Records Management System II Lite (FORMS II Lite) software to prepare chain-of-custody/traffic reports (COCs/TRs)

and other field documentation. The SOP was be used by TtNUS Wilmington office for all sample collection activities performed on behalf of EPA Region I.

Environmental Engineer/FOL; AFRC; Former Building 1601 (SS-20); Westover Air Reserve Base; Chicopee, MA; June 2003 to September 2004.
Supervised and conducted all field activities associated with the quarterly groundwater monitoring of the bioremediation pilot test at Former Building 1601 (SS-20) at Westover ARB in Chicopee, MA.

Environmental Engineer/FOL; AFRC; Basewide; Westover Air Reserve Base; Chicopee, MA; May 2003 to September 2004.
Supervised and conducted all field activities associated with monitoring well modifications at various areas of the Base.

Field Engineer; U.S. Navy/CLEAN; Site 34 – Former Oil Gasification Plant - Remedial Investigation and Site Characterization; Portsmouth Naval Shipyard; Kittery, Maine; May 2003.
Performed groundwater sampling of monitoring wells at the Portsmouth Naval Shipyard as part of the remedial investigation at Site 34. The Site 34 investigation was performed to collect data to support a non-time-critical removal action for the ash pile at Site 34 and to support the site screening evaluation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for Site 34.

Field Engineer; U.S. Navy/CLEAN; Site 32 – Topeka Pier Site - Remedial Investigation and Site Characterization; Portsmouth Naval Shipyard; Kittery, Maine; May 2003.
Performed groundwater sampling of monitoring wells at the Portsmouth Naval Shipyard as part of the remedial investigation at Site 32.

Field Engineer; US EPA; Eastern Surplus Company Superfund Site; Meddebemps, ME; April 2003 and April 2005.
Collected groundwater samples using EPA Region 1 Low-Stress Sampling method as part of a semi-annual groundwater monitoring at Eastern Surplus Company Superfund Site in Meddybemps, ME.

Environmental Engineer/FOL; US EPA; Diamond Match Mill; Peru, ME; Brownfields Targeted Site Assessment; March 2003 to October 2003.
Supervised and conducted all field activities at this former mill property. Advanced soil borings and installed monitoring wells using a Geoprobe drill rig and collected surficial soil samples. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method. Oversaw asbestos and hazardous materials survey. Wrote Final Site Assessment Report summarizing analytical data and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property.

Field Engineer/SSO; U.S. Navy/CLEAN; Building 44 Remedial Investigation; Naval Station Newport; Building 44; Newport, Rhode Island; March 2003.

Collected groundwater samples as part of the semi-annual groundwater monitoring at Building 44 on Gould Island in Narragansett Bay, RI.

Environmental Engineer; U.S. Navy/CLEAN; Melville North Landfill Groundwater Investigation; Naval Station Newport; Newport, Rhode Island; March 2003.
Prepared Work Plan for groundwater investigation at the Former Melville North Landfill at Naval Station Newport.

Field Engineer; US EPA; Raymark Superfund Site; Stratford, CT; January 2003.
Collected groundwater samples using U.S. EPA Region I Low-Stress Sampling method as part of EPA's investigation of the OU2 and OU6 areas of the Raymark Superfund Site in Stratford, CT.

Environmental Engineer; U.S. Navy/CLEAN; Former Building 70 Site Investigation; Naval Station Newport; Middletown, RI; December 2002.
Wrote the Site Investigation report for the Former Building 70 Site at Naval Station Newport per Rhode Island Department of Environmental Management (RIDEM) specifications.

Environmental Engineer/FOL; AFRC; Aqua Systems Site (SS-19); Westover Air Reserve Base; Chicopee, MA; November 2002.
Supervised and conducted all field activities associated with the SVE pilot study at the Aqua Systems Site (SS-19) at Westover ARB in Chicopee, MA to support the design of an SVE/bioventing system.

Environmental Engineer/FOL; AFRC; Installation Wide Groundwater Monitoring Program; Westover Air Reserve Base; Chicopee, MA; November 2002 to September 2004.
Supervised and conducted all field activities associated with the semi-annual Installation Wide Groundwater Monitoring Program at Westover ARB in Chicopee, MA.

Environmental Engineer/SSO; US EPA; Essex Shipbuilding Museum; Essex, MA; Brownfields Targeted Site Assessment; October 2002 to September 2004.
Wrote Background Summary report and Sampling and Analysis Plan. Conducted all field activities at this Site. Advanced soil borings using a Geoprobe drill rig. Wrote Final Site Assessment Report summarizing analytical data and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property.

Environmental Engineer/FOL; US EPA; Ambargis Mill Site; Newport, NH; Brownfields Targeted Site Assessment; April 2002 to August 2002, April 2003 to July 2003.
Supervised and conducted all field activities at this former mill property. Advanced soil borings and installed monitoring wells using a hollow-stem auger drill rig and collected surficial soil samples. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method. Wrote Final Site Assessment Report summarizing analytical data and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property.

Environmental Engineer/FOL; US EPA; Greene Tannery Site; Milton Mills, NH; Brownfields Targeted Site Assessment; August 2003
Supervised and conducted all field activities at this tannery property. Advanced soil borings and installed monitoring wells using a jackhammer Geoprobe drill rig. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method.

Environmental Engineer/FOL; US EPA; W.S. Libbey Mill Site; Lewiston, ME; Brownfields Targeted Site Assessment; March 2002 to June 2002
Supervised and conducted all field activities at this former mill property. Advanced soil borings and installed monitoring wells using a Geoprobe drill rig and collecting building material samples. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method. Wrote Final Site Assessment Report summarizing analytical data and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property.

Environmental Engineer/FOL; US EPA; Coes Knife Company Site; Worcester, MA; Brownfields Targeted Site Assessment; March 2002.
Supervised and conducted all field activities at this former manufacturing property on the Coes Reservoir. Advanced soil borings and installed monitoring wells using a Geoprobe drill rig. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method.

Field Engineer; US EPA; Raymark Superfund Site; Stratford, CT; February and May 2002.
Collected groundwater profiling samples using a Geoprobe drill rig and U.S. EPA Region I Low-Stress Sampling method as part of EPA's investigation of the OU2 area of the Raymark Superfund Site in Stratford, CT.

Environmental Engineer/FOL; US EPA; Franklin Sewer Beds Site; Franklin, MA; Brownfields Targeted Site Assessment; November 2001 to May 2002, June 2003 to September 2004.
Wrote Background Summary report and Sampling and Analysis Plan for this Brownfield Targeted Site. Supervised and conducted all field activities at this Site. Advanced soil borings and installed monitoring wells using a HSA drill rig. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method.

Environmental Engineer/FOL; US EPA; 10 Reserve Road Site; Hartford, CT; Brownfields Targeted Site Assessment; November 2001 to August 2002
Wrote Background Summary report and Sampling and Analysis Plan for this Brownfield Targeted Site. Supervised and conducted all field activities at this Site. Advanced soil borings and installed monitoring wells using a HSA drill rig. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method. Wrote Final Site Assessment Report summarizing analytical data and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property.

Environmental Engineer/FOL; US EPA; Former Portland Chemical Works Site; Middletown, CT; Brownfields Targeted Site Assessment; October 2001 to November 2002
Wrote Background Summary report and Sampling and Analysis Plan for this Brownfield Targeted Site. Supervised and conducted all field activities at this former chemical shipping facility. Advanced soil borings and installed monitoring wells using a hollow-stem auger drill rig and collected surface water, sediment and surficial soil samples. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method. Wrote Final Site Assessment Report summarizing analytical data and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property.

Environmental Engineer/FOL; US EPA; Rau Fasteners Site; Providence, RI; Brownfields Targeted Site Assessment; October 2001 to May 2003
Wrote Background Summary report and Sampling and Analysis Plan for this former manufacturing facility. Supervised and conducted all field activities at this former industrial facility and adjacent lots. Advanced soil borings and installed monitoring wells using a hollow-stem auger drill rig. Developed and sampled monitoring wells using U.S. EPA Region I Low-Stress Sampling method. Wrote Final Site Assessment Report summarizing analytical data and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property.

Environmental Engineer; US EPA; Ayers Island Site; Orono, ME; Brownfields Targeted Site Assessment; September 2001 to October 2001.
Wrote Final Site Assessment Report summarizing analytical data at this former mill property and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property.

Environmental Engineer/SSO; US EPA; Sunshine Island/Fields Point Dump Site; Providence, RI; Brownfields Targeted Site Assessment; August 2001 to December 2001.
Conducted soil gas survey at this former municipal landfill property on the banks of the Providence River. Wrote Final Site Assessment Report summarizing analytical data and providing remedial alternatives and order-of-magnitude cost estimates for redevelopment of the property. Wrote Draft Remedial Action Work Plan for redevelopment of the property.

Environmental Engineer; AFRC; Current Fire Training Area (FT-08); Westover Air Reserve Base; Chicopee, MA; July 2001 to November 2001. Wrote Remedy Implementation Plan (RIP) for Current Fire Fighting Training Area (FT-08) at Westover ARB in Chicopee, MA, summarizing analytical data collected during TtNUS investigations and providing remedial alternatives and order-of-magnitude cost estimates for remediation of the property.

Environmental Engineer; AFRC; Hangar Apron Area (SS-16); Westover Air Reserve Base; Chicopee, MA; July 2001 to November 2001. Wrote Remedial Action Plan (RAP) for the Hangar Apron Area (SS-16) at Westover ARB in Chicopee, MA providing remedial alternatives and order-of-magnitude cost estimates for remediation of the property.

Environmental Engineer; AFRC; Landfill A (LF-02); Westover Air Reserve Base; Chicopee, MA; July 2001 to November 2001. Wrote Remedial Investigation (RI) report for Landfill A (LF-02) at Westover ARB in Chicopee, MA, summarizing analytical data collected during TtNUS investigation of the closed sanitary landfill.

CHRONOLOGICAL WORK HISTORY:

Environmental Engineer/Project Manager; Tetra Tech NUS, Inc.; Wilmington, Massachusetts; February 2002 to Present.

Environmental Engineer; Onsite Environmental Staffing; Braintree, Massachusetts; July 2001 to February 2002. Performed a variety of roles in support of environmental projects under the RAC1 and AFRC contracts as a contractor to Tetra Tech NUS.

Engineer II; GZA GeoEnvironmental, Inc.; Norwood, Massachusetts; May 2000 to May 2001. Performed a variety of tasks including soil management and removal, construction supervision, soil sampling, surveying, installation of soil vapor extraction/air sparge system, laboratory data analysis, and project bid estimations as part of the Remedial Construction group.

PROFESSIONAL AFFILIATIONS:

Associate Member, American Society of Civil Engineers
Associate Member, Boston Society of Civil Engineers
Associate Member, International Society of Soil Mechanics and Geotechnical Engineering
Associate Member, Engineers for a Sustainable Society
Member, Society of American Military Engineers

PUBLICATIONS/PRESENTATIONS:

Smith, B.E. *"Overcoming Obstacles During Construction of a Hazardous Waste Site Remedy",* presented at 2008 US EPA/USACE Conference on Design and Construction Issues at Hazardous Waste Sites, Philadelphia, PA, April, 2008.