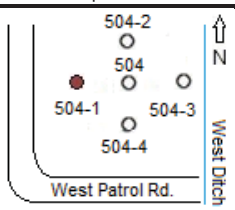
URS Corporation

TEST BORING LOG

		BORING NO:	504-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field near West Patrol Rd., northeastern corner of site, just west of West Ditch, ~10' west 504
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.71
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172776.688	**GEOLOGIST:**	[redacted]
EASTING:	1040319.937	**RAD TECH:**	[redacted]



Gamma (γ) Survey:							**44-10 grd. Surf. (cpm)**	10,286		
							44-10 Bkgd (cpm)	7,628		
DEPTH (ft)	**SAMPLE**			**MATERIAL**			**44-9**	**43-93**		
	RAD	**CHEM**	**REC %**	**DESCRIPTION**	**USCS**	**PID (ppm)**	**βγ (cpm)**	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
						Background:	30	0	132	132
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	0	174	174
1	0.5 - 2.0		100	Dark Brown sandy SILTY CLAY, some organics, some fine to coarse gravel, more dense at bottom, moist	CL	ND	56	0	180	180
2										
3	2.0 - 3.0		100	Dark Brown to Reddish Brown sandy SILTY CLAY, trace organics, some fine to coarse gravel, dense, dry	CL	ND	46	0	172	172
				Bottom of borehole 3 ft						

COMMENTS:

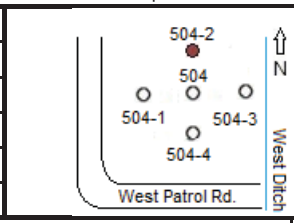
PROJECT NO. 11176991

BORING NO. 504-1

URS Corporation

TEST BORING LOG

		BORING NO:	504-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field near West Patrol Rd., northeastern corner of site, just west of West Ditch, ~10' north 504
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.99
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172791.140	**GEOLOGIST:**	[redacted]
EASTING:	1040344.656	**RAD TECH:**	[redacted]



Gamma (γ) Survey:							**44-10 grd. Surf. (cpm)**	10,486		
							44-10 Bkgd (cpm)	7,628		
DEPTH (ft)	**SAMPLE**			**MATERIAL**			**44-9**	**43-93**		
	RAD	**CHEM**	**REC %**	**DESCRIPTION**	**USCS**	**PID (ppm)**	**βγ (cpm)**	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
						Background:	30	0	132	132
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	48	0	204	204
1	0.5 - 2.0		100	Black sandy SILTY fine to med GRAVEL (fill), loose, moist	GM	ND	54	0	208	208
2										
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine to med gravel, trace black staining, dense, dry	CL	ND	42	0	180	180
				Bottom of borehole 3 ft						

COMMENTS:

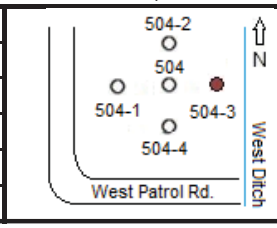
PROJECT NO. 11176991

BORING NO. 504-2

URS Corporation

TEST BORING LOG

		BORING NO:	504-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field near West Patrol Rd., northeastern corner of site, just west of West Ditch, ~10' east of 504
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.26
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172774.061	**GEOLOGIST:**	[redacted]
EASTING:	1040360.856	**RAD TECH:**	[redacted]



Gamma (γ) Survey:		
44-10 grd. Surf. (cpm)	9,492	
44-10 Bkgd (cpm)	7,628	

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	132	132
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	56	0	180	180
1	0.5 - 2.0		100	Top 0.5' FILL; Dark Brown SILTY CLAY, some fine to med gravel	CL	ND	48	0	174	174
				0.5-1.5' FILL; fine to med GRAVEL, loose, moist	GM					
2				1.5-3.0' Reddish Brown sandy SILTY CLAY, trace organics, some fine to med gravel, more dense at bottom, moist	CL					
3	2.0 - 3.0		100			ND	40	0	158	158
				Bottom of borehole 3 ft						

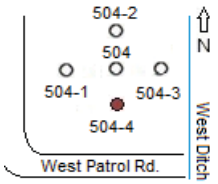
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**504-3**

URS Corporation

TEST BORING LOG

		BORING NO:	504-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field near West Patrol Rd., northeastern corner of site, just west of West Ditch, ~10' south 504
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.93
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172762.006	**GEOLOGIST:**	[redacted]
EASTING:	1040341.476	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,294; 44-10 Bkgd (cpm) 7,628

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	132	132
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	48	2	182	184
1	0.5 - 2.0		100	0.5-1.5' FILL; Dark Brown Black sandy Silty fine to med GRAVEL, loose, moist	GM	ND	62	2	232	234
2				1.5-3.0' Brown sandy SILTY CLAY, some organics, some-trace fine to med gravel, loose, dry	CL					
3	2.0 - 3.0		100			ND	52	0	188	188
				Bottom of borehole 3 ft						

COMMENTS:

PROJECT NO. 11176991

BORING NO. 504-4

URS Corporation

TEST BORING LOG

		BORING NO:	5A010-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Open field at northwest corner of site along West Patrol Rd., NW corner of EU1, ~10' W of 5A010
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.93
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/20/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/20/2013
AREA:	EU1	DRILLER:	[redacted]
NORTHING:	1173104.512	GEOLOGIST:	
EASTING:	1040067.355	RAD TECH:	

Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	14,018
44-10 Bkgd (cpm)	6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, slag at bottom, moist	OL	ND	54	0	326	326
1	0.5 - 2.0		100	Top 1.0' Silty slag, moist Bottom 0.5' Brown Gray SILTY CLAY, some organics, some fine to coarse gravel, more dense at bottom, moist	OL	ND	68	0	340	340
2										
3	2.0 - 3.0		100	Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, dry	CL	ND	52	0	316	316
				Bottom of borehole 3 ft						

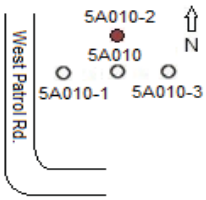
COMMENTS:

PROJECT NO.	11176991
BORING NO.	5A010-1

URS Corporation

TEST BORING LOG

		BORING NO:	5A010-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Open field at northwest corner of site along West Patrol Rd., NW corner of EU1, ~10' N of 5A010
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.85
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/20/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/20/2013
AREA:	EU1	DRILLER:	[redacted]
NORTHING:	1173121.181	GEOLOGIST:	[redacted]
EASTING:	1040083.006	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	17,106
44-10 Bkgd (cpm)	6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, slag at bottom, moist	OL	ND	56	2	306	308
1	0.5 - 2.0		100	Top 0.5' fine to coarse silty slag, moist Bottom 1.0' Dark Brown organic SILTY CLAY, some fine to med gravel, more dense at bottom, moist	OL	ND	68	0	342	342
2										
3	2.0 - 3.0		100	Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	56	0	322	322
				Bottom of borehole 3 ft						

COMMENTS:

PROJECT NO.	11176991
BORING NO.	5A010-2

URS Corporation

TEST BORING LOG

		BORING NO:	5A010-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site along West Patrol Rd., NW corner of EU1, ~10' E of 5A010
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	314.25
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/20/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/20/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1173104.745	**GEOLOGIST:**	[redacted]
EASTING:	1040099.704	**RAD TECH:**	[redacted]

Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,226; **44-10 Bkgd (cpm)** 6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	FILL; Dark Brown SILTY CLAY, trace organics, some coarse gravel, moist	CL	ND	58	0	338	338
1	0.5 - 2.0		100	Top 0.5' fine to coarse silty GRAVEL (slag), moist	GM	ND	58	0	340	340
				Bottom 1.0' Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, dry	CL					
2										
3	2.0 - 3.0		75	gray at 2'		ND	42	0	320	320
				Bottom of borehole 3 ft						

COMMENTS:

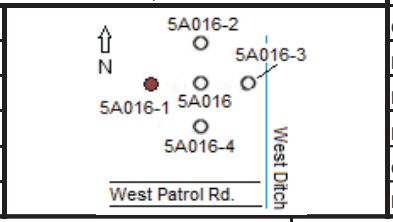
PROJECT NO. 11176991

BORING NO. 5A010-3

URS Corporation

TEST BORING LOG

		BORING NO:	5A016-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, just west of West Ditch, ~30' east of 5A016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.60
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172995.523	**GEOLOGIST:**	
EASTING:	1040349.276	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 6,404; 44-10 Bkgd (cpm) 7,628

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	132	132
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	52	0	190	190
1	0.5 - 2.0		100	Top 1.0' Dark Brown SILTY SAND, some organics, some fine to med gravel, loose, moist	SM	ND	50	0	202	202
2				Bottom 0.5' Yellowish Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL					
3	2.0 - 3.0		100	Yellowish Brown sandy SILTY CLAY, trace organics, trace fine to med gravel, dense, dry		ND	62	0	236	236
				Bottom of borehole 3 ft						

COMMENTS:

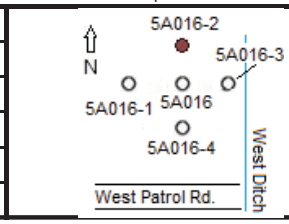
PROJECT NO. 11176991

BORING NO. 5A016-1

URS Corporation

TEST BORING LOG

		BORING NO:	5A016-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, just west of West Ditch, ~30' north of 5A016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.92
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1173024.651	**GEOLOGIST:**	[redacted]
EASTING:	1040380.547	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 12,546; 44-10 Bkgd (cpm) 7,628

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	132	132
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	40	2	202	204
1	0.5 - 2.0		100	Top 1.0' Dark Brown SILTY CLAY, some slag, mod dense, moist	CL	ND	48	0	218	218
2				Bottom 0.5' Brown SILTY CLAY, some slag, some organics, dense, moist						
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, tree roots throughout, some fine to med gravel, dense, moist	CL	ND	40	0	202	202
				Bottom of borehole 3 ft						

COMMENTS:

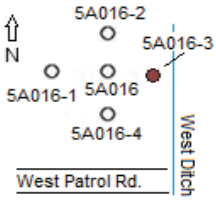
PROJECT NO. 11176991

BORING NO. 5A016-2

URS Corporation

TEST BORING LOG

		BORING NO:	5A016-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, just west of West Ditch, ~30' east of 5A016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.90
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172998.522	**GEOLOGIST:**	
EASTING:	1040413.078	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm): 8,010; 44-10 Bkgd (cpm): 7,628

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	132	132
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, some fine to med gravel, dense, moist	OL	ND	56	0	238	238
1	0.5 - 2.0		100			ND	54	0	236	236
2				Yellowish Brown to Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL					
3	2.0 - 3.0		100			ND	66	0	240	240
				Bottom of borehole 3 ft						

COMMENTS:

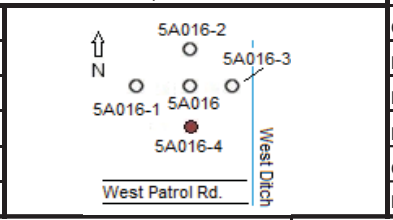
PROJECT NO. 11176991

BORING NO. 5A016-3

URS Corporation

TEST BORING LOG

		BORING NO:	5A016-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, just west of West Ditch, ~30' south of 5A016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.88
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172960.963	**GEOLOGIST:**	[redacted]
EASTING:	1040380.903	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,028; 44-10 Bkgd (cpm) 7,628

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	132	132
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	206	206
1	0.5 - 2.0		100	FILL; Top 1.0' Dark Brown organic SILTY CLAY, some fine to med gravel, loose, moist	OL	ND	52	0	204	204
2				FILL; silty clay, gravel throughout, loose, moist	CL					
3	2.0 - 3.0		100	Reddish Brown sandy SILTY CLAY, trace organics, some fine to med gravel, dense, dry	CL	ND	44	0	188	188
				Bottom of borehole 3 ft						

COMMENTS:

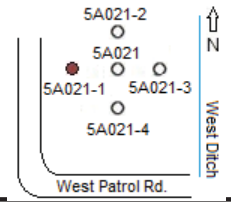
PROJECT NO. 11176991

BORING NO. 5A016-4

URS Corporation

TEST BORING LOG

		BORING NO:	5A021-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Open field at northwest corner of site, west of West Ditch, ~10' west of 5A021
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.08
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/20/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/20/2013
AREA:	EU1	DRILLER:	[redacted]
NORTHING:	1173005.479	GEOLOGIST:	
EASTING:	1040081.918	RAD TECH:	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,486
44-10 Bkgd (cpm)	6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, slag throughout, moist	OL	ND	64	2	354	356
	0.5 - 2.0		100	FILL; Slag, loose, Moist	CL	ND	52	2	280	282
1				Reddish Brown sandy SILTY CLAY, trace organics, some fine gravel, more dense at bottom, wet at 0.8' to moist at 2'	CL					
2										
	2.0 - 3.0		100	Trace sand, trace organics, trace fine gravel, dense, dry @ 2'		ND	68	0	372	372
3										
				Bottom of borehole 3 ft						

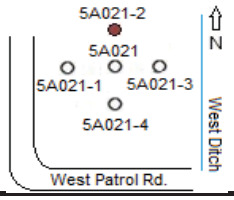
COMMENTS:

PROJECT NO.	11176991
BORING NO.	5A021-1

URS Corporation

TEST BORING LOG

		BORING NO:	5A021-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, west of West Ditch, ~10' north of 5A021
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.16
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/20/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/20/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1173022.750	**GEOLOGIST:**	
EASTING:	1040097.203	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,564
44-10 Bkgd (cpm)	6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	44	0	260	260
	0.5 - 2.0		100	FILL; loose, wet	CL	ND	50	0	320	320
1				Yellowish Brown sandy SILTY CLAY, some organics, some fine gravel, dense, moist	CL					
2										
	2.0 - 3.0		100	Gray, trace organics, trace fine gravel, dry @ 2'		ND	52	2	298	300
3										
				Bottom of borehole 3 ft						

COMMENTS: Relocated ~2' north of original location due to overhead tree branches

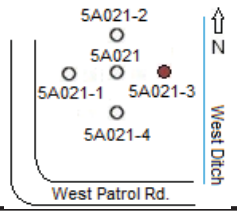
PROJECT NO. 11176991

BORING NO. 5A021-2

URS Corporation

TEST BORING LOG

		BORING NO:	5A021-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, west of West Ditch, ~10' east of 5A021
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.66
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/20/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/20/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1173004.676	**GEOLOGIST:**	
EASTING:	1040114.621	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 12,684; **44-10 Bkgd (cpm)** 6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	38	0	302	302
1 2	0.5 - 2.0		100	Brown sandy SILTY CLAY, some organics, trace fine to med gravel, moist	CL	ND	40	2	318	320
3	2.0 - 3.0		100	Brown Gray trace sand at top, dense, dry @ 2'		ND	68	0	400	400
				Bottom of borehole 3 ft						

COMMENTS:

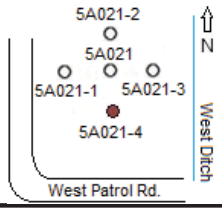
PROJECT NO. 11176991

BORING NO. 5A021-3

URS Corporation

TEST BORING LOG

		BORING NO:	5A021-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, west of West Ditch, ~10' south of 5A021
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.08
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/20/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/20/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172988.913	**GEOLOGIST:**	[redacted]
EASTING:	1040097.797	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,938; 44-10 Bkgd (cpm) 6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	42	2	246	248
1	0.5 - 2.0		100	FILL, moist	CL	ND	48	0	312	312
2				Yellowish Brown sandy SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
3	2.0 - 3.0		100	Gray, no sand, dry @ 2'		ND	56	2	344	346
				Bottom of borehole 3 ft						

COMMENTS:

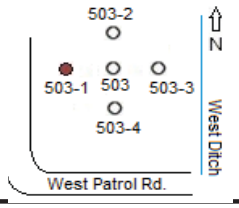
PROJECT NO. 11176991

BORING NO. 5A021-4

URS Corporation

TEST BORING LOG

		BORING NO:	503-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, west of West Ditch, ~10' west of 503
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.64
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/20/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/20/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172985.275	**GEOLOGIST:**	
EASTING:	1040165.870	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,858
44-10 Bkgd (cpm)	6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	84	2	380	382
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	100	2	508	510
3	2.0 - 3.0		75	Yellowish Brown SILTY CLAY, trace sand, trace organics, more dense at bottom, moist	CL	ND	52	2	286	288
				Bottom of borehole 3 ft						

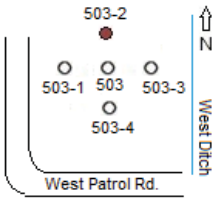
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**503-1**

URS Corporation

TEST BORING LOG

		BORING NO:	503-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, west of West Ditch, ~10' north of 503
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.00
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/20/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/20/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1173001.020	**GEOLOGIST:**	[redacted]
EASTING:	1040182.686	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm): 8,800; 44-10 Bkgd (cpm): 6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	54	0	282	282
1 2	0.5 - 2.0		100	0.5-1.5' Dark Brown grades to Yellowish Brown sandy SILTY CLAY, some organics, some fine to coarse gravel, more dense at bottom, moist Yellowish Brown @ 1.5'	CL	ND	52	2	314	316
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace sand at top, trace organics, some fine to med gravel, dense, moist	CL	ND	62	0	330	330
				Bottom of borehole 3 ft						

COMMENTS:

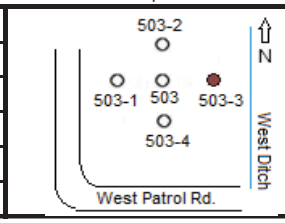
PROJECT NO. 11176991

BORING NO. 503-2

URS Corporation

TEST BORING LOG

		BORING NO:	503-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Open field at northwest corner of site, west of West Ditch, ~10' east of 503
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.85
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/20/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/20/2013
AREA:	EU1	DRILLER:	[redacted]
NORTHING:	1172984.569	GEOLOGIST:	[redacted]
EASTING:	1040199.233	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,858
44-10 Bkgd (cpm)	6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	70	0	310	310
1	0.5 - 2.0		100	Yellowish Brown sandy SILTY CLAY, trace organics, trace fine to med gravel, more dense at bottom, moist	CL	ND	62	2	302	304
2										
3	2.0 - 3.0		100	Gray @ 2.5' bgs		ND	58	0	330	330
				Bottom of borehole 3 ft						

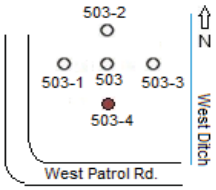
COMMENTS:

PROJECT NO.	11176991
BORING NO.	503-3

URS Corporation

TEST BORING LOG

		BORING NO:	503-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, west of West Ditch, ~10' south of 503
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.82
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/20/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/20/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1172968.360	**GEOLOGIST:**	[redacted]
EASTING:	1040182.918	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 7,484; 44-10 Bkgd (cpm) 6,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID (ppm)	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	176	178
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	CL	ND	48	0	316	316
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some med to coarse gravel, dense, moist	CL	ND	54	0	300	300
2										
3	2.0 - 3.0		100	Yellowish Brown sandy SILTY CLAY, trace organics, trace fine to med gravel, more dense at bottom, dry	CL	ND	70	0	268	268
				Bottom of borehole 3 ft						

COMMENTS:

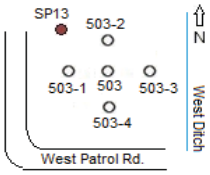
PROJECT NO. 11176991

BORING NO. 503-4

URS Corporation

TEST BORING LOG

		BORING NO:	SP13
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Open field at northwest corner of site, NW corner of 503 grid
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.54
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/20/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/20/2013
AREA:	EU1	**DRILLER:**	[redacted]
NORTHING:	1173000.122	**GEOLOGIST:**	[redacted]
EASTING:	1040168.954	**RAD TECH:**	[redacted]



Gamma (γ) Survey:							**44-10 grd. Surf. (cpm)**	11,292		
							44-10 Bkgd (cpm)	6,718		
DEPTH (ft)	**SAMPLE**			**MATERIAL**			**44-9**	**43-93**		
	RAD	**CHEM**	**REC %**	**DESCRIPTION**	**USCS**	**PID (ppm)**	**βγ (cpm)**	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
						Background:	36	2	176	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist		ND	138	0	540	540
1	0.5 - 2.0		100	Some fine to med gravel @ 1'	OL	ND	150	0	652	652
2				Yellowish Brown sandy SILTY CLAY, trace organics, mod dense, moist						
3	2.0 - 3.0		100	Trace fine to med gravel @ 2'. More dense and wet @ 3'	CL	ND	50	0	292	292
				Bottom of borehole 3 ft						

COMMENTS: Bias point located in northwest corner of 503 grid

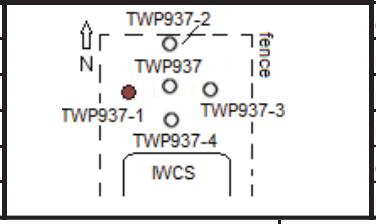
PROJECT NO. 11176991

BORING NO. SP13

URS Corporation

TEST BORING LOG

		BORING NO:	TWP937-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located inside fence to the north of the IWCS, ~ 10' west of TWP937
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.51
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU10	**DRILLER:**	[redacted]
NORTHING:	1172052.898	**GEOLOGIST:**	
EASTING:	1040731.367	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,028; **44-10 Bkgd (cpm)** 5,432

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	82	2	146	148
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine gravel, dense, moist	CL	ND	48	2	158	160
2	2.0 - 3.0		100	Dark Brown grades to Gray SILTY CLAY, some sand, trace organics, trace fine gravel, dense, dry	CL	ND	60	2	154	156
3				Bottom of borehole 3 ft						

COMMENTS: Located inside IWCS fence

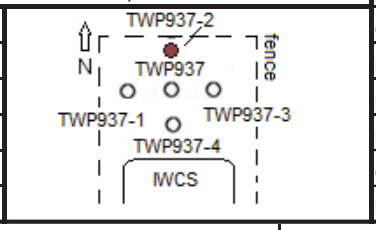
PROJECT NO. 11176991

BORING NO. TWP937-1

URS Corporation

TEST BORING LOG

		BORING NO:	TWP937-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located inside fence to the north of the IWCS, ~ 10' north of TWP937
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.00
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU10	**DRILLER:**	[redacted]
NORTHING:	1172069.231	**GEOLOGIST:**	
EASTING:	1040746.237	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,112; **44-10 Bkgd (cpm)** 5,432

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	54	0	170	170
1	0.5 - 2.0		100	Dark Brown to Yellowish Brown SILTY CLAY, some organics, some fine to med gravel, highly compacted at bottom, moist	CL	ND	46	0	204	204
2	2.0 - 3.0		100	Yellowish Brown grades to Gray SILTY CLAY, trace organics, trace med to coarse gravel, highly compacted, dry	CL	ND	56	0	208	208
3				Bottom of borehole 3 ft						

COMMENTS: Located inside IWCS fence

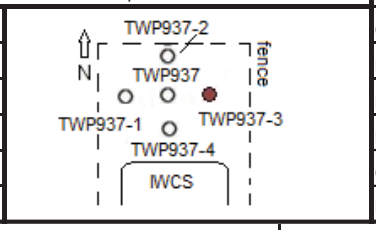
PROJECT NO. 11176991

BORING NO. TWP937-2

URS Corporation

TEST BORING LOG

		BORING NO:	TWP937-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located inside fence to the north of the IWCS, ~ 10' east of TWP937
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.72
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU10	**DRILLER:**	[redacted]
NORTHING:	1172053.001	**GEOLOGIST:**	[redacted]
EASTING:	1040761.282	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,188; **44-10 Bkgd (cpm)** 5,432

DEPTH (ft)	SAMPLE: RAD	SAMPLE: CHEM	SAMPLE: REC %	MATERIAL: DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	104	106
	0.0 - 0.5		100	Dark Brown SILTY SAND, some organics, moist	SM	ND	56	0	158	158
1	0.5 - 2.0		100	Reddish Brown SILTY CLAY, some organics, some fine to med gravel, mod dense, moist	CL	ND	62	2	182	184
2				Reddish Brown fine to coarse sandy SILTY GRAVEL, loose, moist	GM					
3	2.0 - 3.0		100	Reddish Brown sandy SILTY fine to coarse GRAVEL, loose, moist	GM	ND	32	2	216	218
				Bottom of borehole 3 ft						

COMMENTS: Located inside IWCS fence

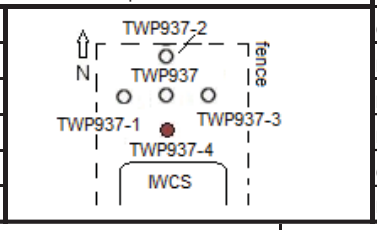
PROJECT NO. 11176991

BORING NO. TWP937-3

URS Corporation

TEST BORING LOG

		BORING NO:	TWP937-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located inside fence to the north of the IWCS, ~ 10' south of TWP937
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.13
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU10	**DRILLER:**	[redacted]
NORTHING:	1172037.921	**GEOLOGIST:**	[redacted]
EASTING:	1040744.926	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,924
44-10 Bkgd (cpm)	5,432

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	28	0	218	218
1	0.5 - 2.0		100	Yellowish Brown grades to Gray SILTY CLAY, some organics, some fine to med gravel, highly compacted at bottom, moist	CL	ND	54	2	190	192
2	2.0 - 3.0		100	Gray SILTY CLAY, some organics, some fine to med gravel, highly compacted, moist		ND	68	2	172	174
3				Bottom of borehole 3 ft						

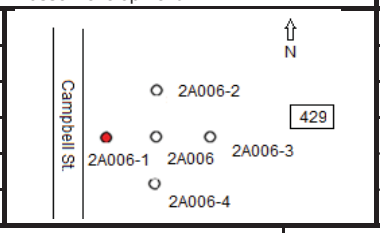
COMMENTS: Located inside IWCS fence

PROJECT NO.	**11176991**
BORING NO.	**TWP937-4**

URS Corporation

TEST BORING LOG

		BORING NO:	2A006-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	~10 ft West of 2A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.93
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171380.331	GEOLOGIST:	[redacted]
EASTING:	1041545.914	RAD TECH:	[redacted]



DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,116; 44-10 Bkgd (cpm) 4,794 — 44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	116	116
1	0.5 - 2.0		100	FILL; Brown SILTY CLAY, some organics, trace coarse gravel	CL	ND	40	0	162	162
2				FILL; fine-coarse gravel, loose, moist	GW					
3	2.0 - 3.0		100	Dark Brown to Black SILTY CLAY, loose, dry	CL	ND	36	0	162	162
				Bottom of borehole at 3 ft						

COMMENTS: First attempt poor recovery, refusal at 2.0'. Moved 4.0' east of the orginal location, full recovery obtained.

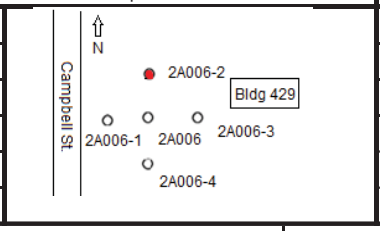
PROJECT NO. 11176991

BORING NO. 2A006-1

URS Corporation

TEST BORING LOG

		BORING NO:	2A006-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	~10 ft North of 2A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.55
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171395.969	GEOLOGIST:	[redacted]
EASTING:	1041551.555	RAD TECH:	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm): 12,668; 44-10 Bkgd. (cpm): 4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	56	0	150	150
1	0.5 - 2.0		100	Dark Brown SILTY SAND, trace organics, some fine-med gravel, dense, moist	SM	ND	40	2	142	144
2				Reddish Brown @ 1.5'						
3	2.0 - 3.0		100	Yellowish Brown, trace fine-med gravel, trace black staining, dry @ 2'		ND	52	0	132	132
				Bottom of borehole at 3 ft						

COMMENTS: Moved off of bank of ditch 5.0' west of original location.

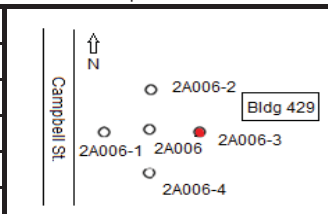
PROJECT NO. 11176991

BORING NO. 2A006-2

URS Corporation

TEST BORING LOG

		BORING NO:	2A006-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	~10 ft East of 2A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.98
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171374.722	GEOLOGIST:	
EASTING:	1041576.141	RAD TECH:	



DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	Gamma (γ) Survey: 44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
							44-10 grd. Surf. (cpm)	10,406		
							44-10 Bkgd (cpm)	4,794		
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	0	118	118
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine-coarse gravel, moist Brown Gray @ 1.5'	CL	ND	64	0	174	174
2	2.0 - 3.0		100	Trace organics, trace fine-med gravel, dense @ 2'		ND	68	0	172	172
3				Bottom of borehole at 3 ft						

COMMENTS: Location moved off of bank of ditch 4.0' south of original location

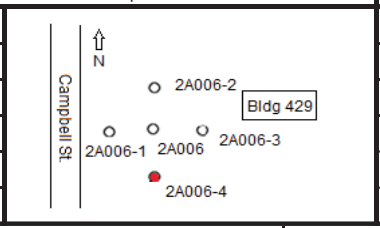
PROJECT NO. 11176991

BORING NO. 2A006-3

URS Corporation

TEST BORING LOG

		BORING NO:	2A006-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	~10 ft South of 2A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.35
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171364.085	GEOLOGIST:	[redacted]
EASTING:	1041552.584	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,406
44-10 Bkdg (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	42	0	172	172
1 2	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine-coarse gravel, med plasticity, moist	CL	ND	54	0	164	164
3	2.0 - 3.0		100	Trace organics, trace fine-med gravel @ 2', more dense at bottom		ND	48	0	172	172
				Bottom of borehole at 3 ft						

COMMENTS: Refusal at first attempt. Moved 5.0' west of original location, full recovery.

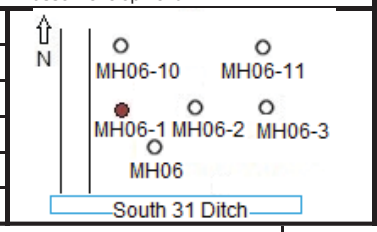
PROJECT NO. 11176991

BORING NO. 2A006-4

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	MH06 grid area, ~20' N of MH06
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	Not Measured
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/11/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/11/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171145.493	**GEOLOGIST:**	[redacted]
EASTING:	1041239.173	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,580; 44-10 Bkgd (cpm) 8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	0	132	132
	0.0 - 0.5		100	Dark Brown SILTY CLAY, some organics, wet	CL	ND	65	10	238	248
1	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, more dense at top, moist	CL	ND	82	14	224	238
2	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace fine gravel, dense, moist	CL	ND	74	2	238	240
3				Bottom of borehole at 3 ft						

COMMENTS:

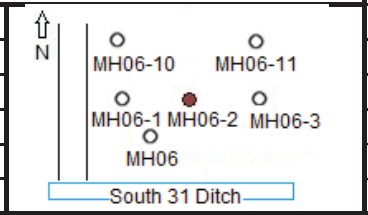
PROJECT NO. 11176991

BORING NO. MH06-1

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-02
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	MH06 grid area, ~20' NE of MH06
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	Not Measured
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/11/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/11/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171145.493	**GEOLOGIST:**	[redacted]
EASTING:	1041271.981	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,730; 44-10 Bkgd (cpm) 8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Brown organic SILTY CLAY, some fine to med gravel, moist	OL	ND	102	6	216	222
1	0.5 - 2.0		100	Yellowish Brown SILTY CLAY, some fine to med gravel, dense, moist	CL	ND	126	4	394	398
2										
3	2.0 - 3.0		100	Reddish Brown Gray @ 2'		ND	90	6	406	412
4	3.0-4.0		100	Gray, trace fine gravel, dry @ 3'		ND	110	10	398	408
5	4.0-5.0		100	Wet @ 4' Bottom of borehole at 5'		ND	74	2	288	290

COMMENTS: Sample 3.0-5.0' intervals due to higher rad readings at 0.5-2.0' interval.

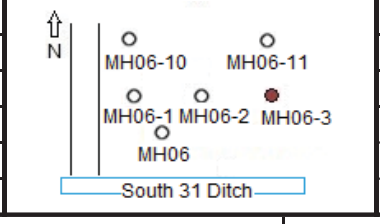
PROJECT NO. 11176991

BORING NO. MH06-02

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' E of MH06-2
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	Not Measured
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171145.493	GEOLOGIST:	[redacted]
EASTING:	1041304.789	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,810
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, some fine to med gravel, moist	CL	ND	46	0	130	130
1	0.5 - 2.0		100	Brown SILTY CLAY, trace fine to med gravel, moist	CL	ND	74	2	248	250
2				Reddish Brown, some fine to med gravel, dense @ 1'	CL					
3	2.0 - 3.0		100			ND	60	2	256	258
4	3.0-4.0		100	Brown Gray, trace fine to med gravel, dense @ 3'		ND	86	4	232	236
5	4.0-5.0		100	Bottom of borehole at 5'		ND	36	2	200	202

COMMENTS: Sample 3.0-5.0' intervals due to rad readings 2x bkgd at 0.5-2.0' interval.

PROJECT NO. 11176991

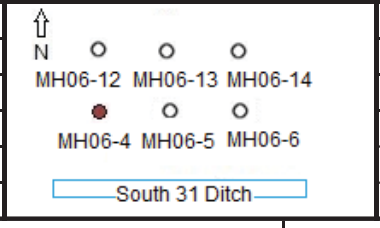
BORING NO. MH06-3

J:\Projects\11176781\11176991 - Delineation Investigation\Reports\Appendices\App F - Boring Logs\Appendix F_FINAL\EU11 Boring Logs_final.xlsx

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' E of MH06-3
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.98
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171144.173	GEOLOGIST:	[redacted]
EASTING:	1041337.349	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,638
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	78	2	210	212
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, some fine to coarse gravel, dense, moist	CL	ND	66	4	204	208
3	2.0 - 3.0		100			ND	68	0	214	214
				Bottom of borehole at 3 ft						

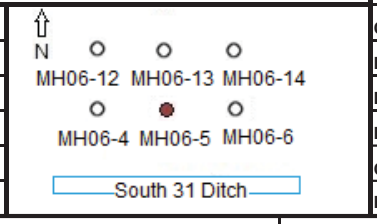
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-4

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-5
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' E of MH06-4
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.45
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171145.269	GEOLOGIST:	
EASTING:	1041373.352	RAD TECH:	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,948
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	76	2	176	178
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace fine gravel, dense, moist Reddish Brown @ 1.5'	CL	ND	44	0	202	202
3	2.0 - 3.0		100	Trace organics, dry, @ 2' Gray @ 2.6'		ND	64	2	204	206
				Bottom of borehole at 3 ft						

COMMENTS:

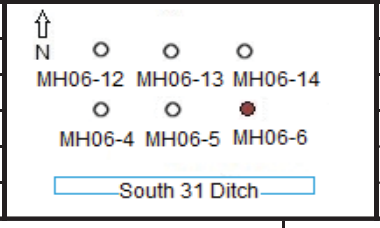
PROJECT NO. 11176991

BORING NO. MH06-5

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-6
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' E of MH06-5
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.08
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171144.881	GEOLOGIST:	
EASTING:	1041406.933	RAD TECH:	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,626
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	2	232	234
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, trace fine gravel, moist	CL	ND	56	0	170	170
2				Reddish Brown @ 1.5'						
3	2.0 - 3.0		100	Yellowish Brown @ 2'		ND	60	2	202	204
				Bottom of borehole at 3 ft						

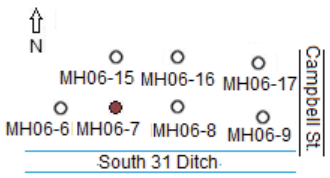
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-6

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-7
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' E of MH06-6
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.12
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171144.875	GEOLOGIST:	[redacted]
EASTING:	1041438.486	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,304
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	66	0	202	202
1 2	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, dense, wet	CL	ND	56	2	186	188
3	2.0 - 3.0		100	Yellowish Brown @ 2'		ND	52	2	166	168
				Bottom of borehole at 3 ft						

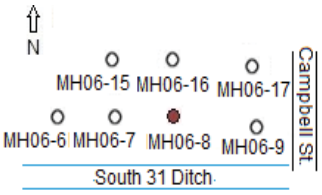
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-7

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-8
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, near Campbell St.
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.05
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171144.409	GEOLOGIST:	
EASTING:	1041472.439	RAD TECH:	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,792
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	0	192	192
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, moist Reddish Brown @ 1.5'	CL	ND	88	0	206	206
3	2.0 - 3.0		75			ND	52	0	188	188
				Bottom of borehole at 3 ft						

COMMENTS:

PROJECT NO. 11176991

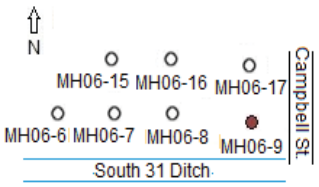
BORING NO. MH06-8

J:\Projects\11176781\11176991 - Delineation Investigation\Reports\Appendices\App F - Boring Logs\Appendix F_FINAL\EU11 Boring Logs_final.xlsx

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-9
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~15' W of Campbell St.
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.58
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171142.197	GEOLOGIST:	[redacted]
EASTING:	1041501.281	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,542
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	182	182
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, trace fine to med gravel, dense, moist	CL	ND	56	0	180	180
3	2.0 - 3.0		75			ND	38	0	208	208
				Bottom of borehole at 3 ft						

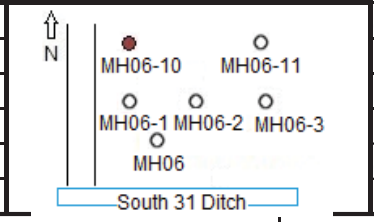
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-9

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-10
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-1
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.95
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171177.882	GEOLOGIST:	
EASTING:	1041242.343	RAD TECH:	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,394
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	68	0	278	278
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some fine to med gravel, dense, moist	CL	ND	74	2	322	324
3	2.0 - 3.0		100	Gray @ 1.5'		ND	98	2	440	442
4			100	Trace fine gravel, dense, moist		ND	78	2	332	334
5			100	2" sandy silt lens at bottom,dry Bottom of borehole at 5 ft		ND	80	4	268	272

COMMENTS: Sampled 3.0-5.0' due to higher rad readings at 0.5-2.0'.

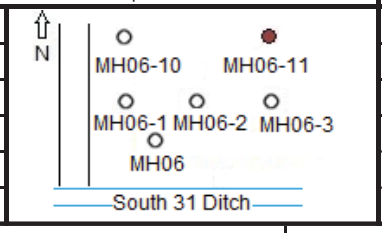
PROJECT NO. 11176991

BORING NO. MH06-10

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-11
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-3
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.05
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/11/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171177.366	GEOLOGIST:	[redacted]
EASTING:	1041305.471	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,254
44-10 Bkgd (cpm)	8,480

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	114	116
	0.0 - 0.5		100	Dark Brown TOPSOIL, some fine to med gravel, moist	OL	ND	32	0	126	126
1 2	0.5 - 2.0		100	Reddish Brown SILTY CLAY, trace sand, some fine to med gravel, dense, dry	CL	ND	42	2	122	124
3	2.0 - 3.0		100	No sand @ 2'		ND	62	0	200	200
4	3.0-4.0		100	Brown Gray, trace fine gravel @ 3'		ND	86	2	246	248
5			100	Moist @ 4' Bottom of borehole at 5 ft		ND	64	2	214	216

COMMENTS: Sampled 3.0-5.0' due to higher rad readings at 2.0-3.0'.

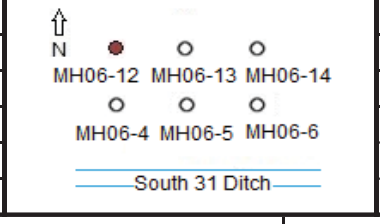
PROJECT NO. 11176991

BORING NO. MH06-11

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-12
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-4
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.98
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171177.363	GEOLOGIST:	[redacted]
EASTING:	1041337.869	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,176
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	42	0	180	180
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL	ND	76	2	210	212
3	2.0 - 3.0		100	Gray @ 2'		ND	66	0	206	206
				Bottom of borehole 3 ft						

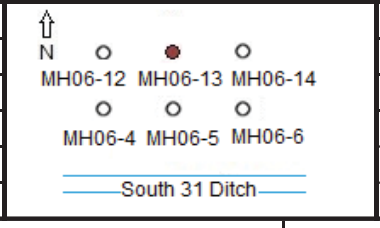
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-12

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-13
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-5
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.31
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171177.847	GEOLOGIST:	[redacted]
EASTING:	1041370.641	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,416
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	68	0	210	210
1	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist Gray @ 1.5'	CL	ND	52	0	234	234
2	2.0 - 3.0		100	No organics at 2'		ND	82	2	230	232
3				Bottom of borehole 3 ft						

COMMENTS:

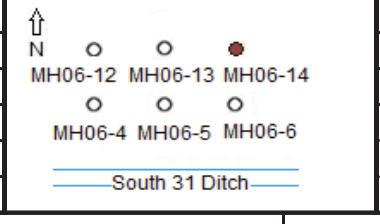
PROJECT NO. 11176991

BORING NO. MH06-13

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-14
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-6
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.21
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171177.443	GEOLOGIST:	[redacted]
EASTING:	1041404.007	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,646
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	48	4	142	146
1	0.5 - 2.0		100	Brown SILTY CLAY, some fine to med gravel, dense, moist	CL	ND	54	2	160	162
2										
3	2.0 - 3.0		100	Gray @ 2', ~ 2" sand lens at bottom, moist		ND	50	0	208	208
				Bottom of borehole 3 ft						

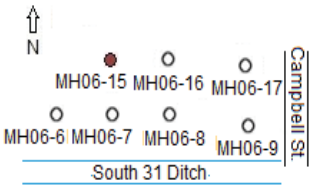
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-14

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-15
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-7
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.76
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171177.216	GEOLOGIST:	[redacted]
EASTING:	1041436.567	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,870
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	64	0	126	126
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, trace fine to med gravel, dense, moist	CL	ND	44	0	184	184
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace fine to med gravel, dense, ~ 3" reddish brown sand lens at bottom, moist	CL/SW	ND	50	0	180	180
				Bottom of borehole 3 ft						

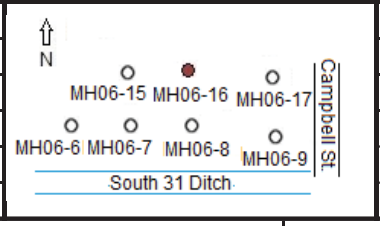
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-15

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-16
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-8, near Campbell St.
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.15
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171177.285	GEOLOGIST:	[redacted]
EASTING:	1041469.920	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,182
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	68	4	162	166
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, trace med to coarse gravel, more dense at bottom, moist	CL	ND	56	2	204	206
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, dry	CL	ND	66	0	172	172
				Bottom of borehole 3 ft						

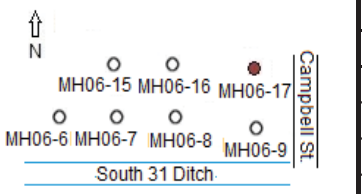
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-16

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-17
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, just west of Campbell St.
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.63
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171176.549	GEOLOGIST:	[redacted]
EASTING:	1041501.766	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,914
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	54	0	144	144
1 2	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, more dense at bottom, soft, moist	CL	ND	44	2	182	184
3	2.0 - 3.0		50	Trace fine to med gravel, dense @ 2'		ND	52	0	150	150
				Bottom of borehole 3 ft						

COMMENTS:

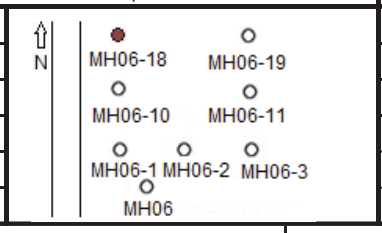
PROJECT NO. 11176991

BORING NO. MH06-17

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-18
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, just west of Campbell St.
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.18
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171210.726	GEOLOGIST:	[redacted]
EASTING:	1041240.119	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,698
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	0	178	178
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, trace organics, some-trace fine to med gravel, dense, moist	CL	ND	70	0	172	172
3	2.0 - 3.0		50	Gray @ 2'		ND	62	0	184	184
				Gray SANDY SILT, dense, dry	SM					
				Bottom of borehole 3 ft						

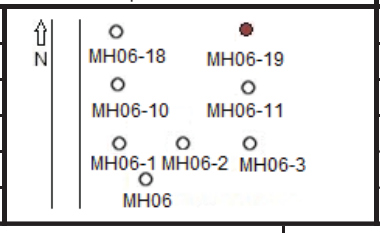
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-18

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-19
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, just west of Campbell St.
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.75
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171210.209	GEOLOGIST:	[redacted]
EASTING:	1041306.486	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	5,890
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	48	0	76	76
1	0.5 - 2.0		100	FILL; Gray fine to med gravel (gravel road)	GP	ND	36	0	136	136
2				Reddish Brown SILTY CLAY, trace-some fine to coarse gravel, mod dense, moist	CL					
3	2.0 - 3.0		100			ND	74	0	196	196
				Bottom of borehole 3 ft						

COMMENTS:

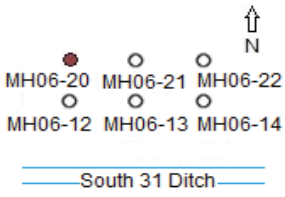
PROJECT NO. 11176991

BORING NO. MH06-19

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-20
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30 N of MH06-12
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.87
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171209.943	GEOLOGIST:	[redacted]
EASTING:	1041337.809	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,444
44-10 Bkgd (cpm)	9,062

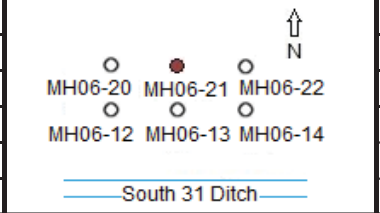
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Brown organic SILTY CLAY, wet	OL	ND	48	2	140	142
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, some-trace organics, trace fine to med gravel, dense, moist	CL	ND	46	0	162	162
	2.0 - 3.0		100	Yellowish Brown Gray @ 2'		ND	40	0	172	172
3				Yellowish brown SANDY SILT lense, dry	SM					
				Bottom of borehole 3 ft						

COMMENTS:		PROJECT NO.	11176991
		BORING NO.	MH06-20

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-21
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30 N of MH06-13
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.89
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171210.548	GEOLOGIST:	[redacted]
EASTING:	1041370.652	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,104
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	64	0	146	146
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist Brown @ 1.5'	CL	ND	68	0	186	186
3	2.0 - 3.0		100	Brown to Yellowish Brown, trace black staining @ 2', dense, moist Yellowish Brown @ 2.6'		ND	70	0	186	186
				Bottom of borehole 3 ft						

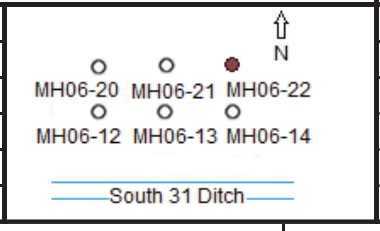
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-21

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-22
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30 N of MH06-14
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.60
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171209.739	GEOLOGIST:	[redacted]
EASTING:	1041403.542	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,990
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	64	0	150	150
1	0.5 - 2.0		100	Yellowish Brown SILTY CLAY, trace fine to med gravel, dense, moist	CL	ND	64	0	172	172
2				Yellowish Brown SANDY SILT lense, wet	SM					
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace fine to med gravel, dense, dry	CL	ND	48	0	168	168
				Bottom of borehole 3 ft						

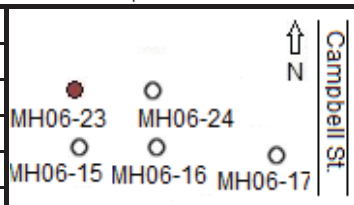
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-22

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-23
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30 N of MH06-15
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.77
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171210.204	GEOLOGIST:	[redacted]
EASTING:	1041468.440	RAD TECH:	[redacted]



DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	Gamma (γ) Survey: 44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	132	132
1	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist Yellowish Brown @ 1.5'	CL	ND	76	2	180	182
2	2.0 - 3.0		100	Brown Gray @ 2' Brown @ 2.6'		ND	58	0	170	170
3				Bottom of borehole 3 ft						

44-10 grd. Surf. (cpm [redacted]

44-10 Bkgd (cpm) 9,062

COMMENTS:

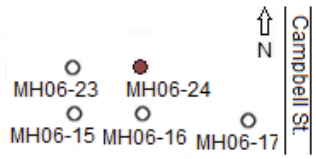
PROJECT NO. 11176991

BORING NO. MH06-23

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-24
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, just west of Campbell St.
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.23
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171210.023	GEOLOGIST:	[redacted]
EASTING:	1041436.601	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,254
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	38	2	142	144
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, some fine to coarse gravel, dense, moist	CL	ND	54	0	168	168
				Dark Brown SANDY SILT lense, dense moist	SM					
2				Dark Brown SILTY CLAY, trace organics, some-trace fine to coarse gravel, dense, moist	CL					
3	2.0 - 3.0		100	Yellowish Brown and dry @ 2'		ND	60	0	182	182
				Bottom of borehole 3 ft						

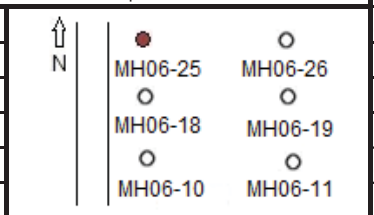
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-24

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-25
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-18
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.35
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171243.452	GEOLOGIST:	[redacted]
EASTING:	1041240.226	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,288
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Brown organic SILTY CLAY, wet	OL	ND	44	0	172	172
1 2	0.5 - 2.0		100	Yellowish Brown SILTY CLAY, trace organics, some-trace fine to coarse gravel, dense, moist	CL	ND	44	2	174	176
3	2.0 - 3.0		50	Yellowish Brown @ 2' Gray @ 2.5'		ND	60	0	156	156
				Bottom of borehole 3 ft						

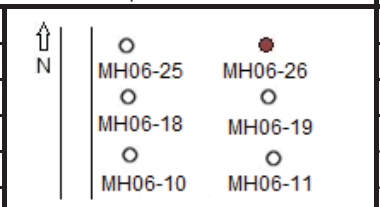
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-25

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-26
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	MH06 grid area, ~30' N of MH06-19
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.10
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/12/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/12/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171242.949	**GEOLOGIST:**	[redacted]
EASTING:	1041305.923	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,284
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Brown organic SILTY CLAY, some fine to med gravel, moist	OL	ND	50	0	112	112
1	0.5 - 2.0		100	Reddish Brown SILTY CLAY, some sand, some fine to coarse gravel, loose, moist to dry	CL	ND	70	4	206	210
2										
3	2.0 - 3.0		100			ND	60	2	258	260
4	3.0-4.0		100	No sand, no gravel, dense, dry @ 3'		ND	96	0	244	244
5			30	Brown @ 4' Bottom of borehole 5 ft		ND	48	0	142	142

COMMENTS: Attempted to push down to 5.0' due to increasing rad counts in 0.5-3.0'. Poor recovery at 4.0-5.0 interval, refusal ~4.5'. Did not sample 4.0-5.0' interval due to poor recovery and due to decreasing rad counts.

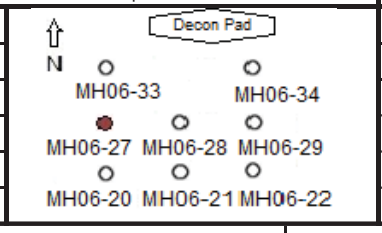
PROJECT NO. 11176991

BORING NO. MH06-26

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-27
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-20
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.49
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171243.334	GEOLOGIST:	[redacted]
EASTING:	1041338.224	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,850
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	58	0	158	158
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, trace organics, trace med to coarse gravel, dense, moist	CL	ND	62	0	176	176
3	2.0 - 3.0		100	Gray @ 2', no organics, dry		ND	60	2	184	186
				Bottom of borehole 3 ft						

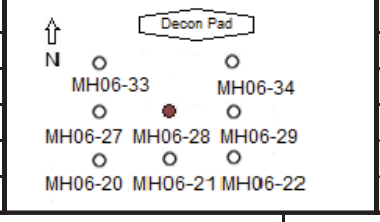
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-27

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-28
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-21
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.75
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171243.181	GEOLOGIST:	
EASTING:	1041374.475	RAD TECH:	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,088
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	46	0	114	114
1	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist Reddish brown @ 1.5'	CL	ND	42	2	196	198
2	2.0 - 3.0		100	Brown Gray @ 2', no organics, dry		ND	60	0	182	182
3				Bottom of borehole 3 ft						

COMMENTS: First attempt no recovery. Moved location ~2.0' to the east of original location, full recovery.

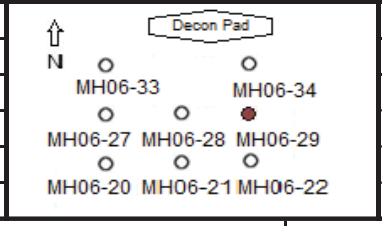
PROJECT NO. 11176991

BORING NO. MH06-28

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-29
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, ~30' N of MH06-22
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.06
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171243.068	GEOLOGIST:	[redacted]
EASTING:	1041403.918	RAD TECH:	[redacted]



Gamma (γ) Survey:				
44-10 grd. Surf. (cpm)	9,714			
44-10 Bkgd (cpm)	9,062			
	44-9	43-93		
	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
Background:	60	0	100	100

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	56	0	152	152
1	0.5 - 2.0		100	Brown SILTY CLAY, trace fine to med gravel, dense, moist Yellowish Brown @ 1.5'	CL	ND	72	0	236	236
2				SANDY SILT Loam	SM					
3	2.0 - 3.0		100	Brown SILTY CLAY, trace fine gravel, dense, dry Yellowish Brown @ 2.5'	CL	ND	78	0	198	198
				Bottom of borehole 3 ft						

COMMENTS:

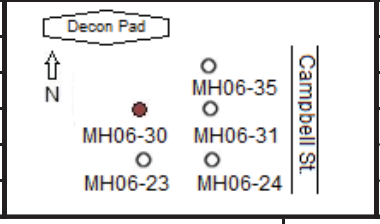
PROJECT NO. 11176991

BORING NO. MH06-29

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-30
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	MH06 grid area, west of Campbell St., ~30' N of MH06-23
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.75
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/12/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171243.209	GEOLOGIST:	[redacted]
EASTING:	1041436.867	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,000
44-10 Bkgd (cpm)	9,062

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	100	100
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	40	0	150	150
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, trace organics, trace fine to medium gravel, dense, moist	CL	ND	90	0	250	250
3	2.0 - 3.0		100	Brown Gray @ 2'		ND	66	2	228	230
4	3.0-4.0					ND	60	0	180	180
				Bottom of borehole 4 ft						

COMMENTS: Higher rad readings at 2.0-3.0' interval, readings dropped down at 4.0-5.0' interval, sampled 4.0-5.0' interval.

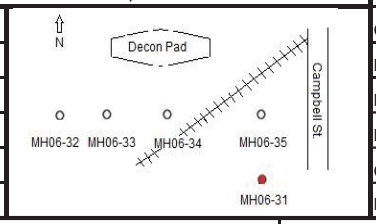
PROJECT NO. 11176991

BORING NO. MH06-30

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-31
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	~30 ft South of MH06-35
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.56
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/13/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/13/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171243.135	**GEOLOGIST:**	[redacted]
EASTING:	1041468.908	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 8,052; **44-10 Bkgd (cpm)** 4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	130	130
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, dense, moist	CL	ND	62	0	186	186
2	2.0 - 3.0		100	No organics, @ 2' trace fine-med gravel Yellowish Brown and dry @ 2.5'		ND	56	0	178	178
3				Bottom of borehole at 3 ft						

COMMENTS:

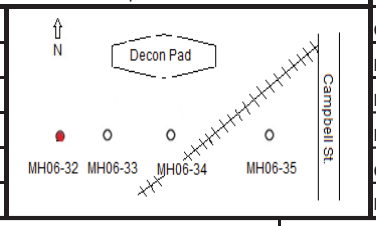
PROJECT NO. 11176991

BORING NO. MH06-31

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-32
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	N section of MH06 grid
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.86
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/13/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/13/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171275.938	**GEOLOGIST:**	[redacted]
EASTING:	1041305.632	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) **8,550**; 44-10 Bkgd (cpm) **4,794**

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (Gross cpm)	43-93 α (Gross cpm)	43-93 β (Gross cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	48	0	148	148
1 2	0.5 - 2.0		100	FILL; Reddish Brown SILTY CLAY, some fine-med sand, some organics, some fine-med gravel (fill material), loose, dry	CL	ND	60	0	194	194
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine-med gravel, dense, dry, Brown Gray @ 2.5'	CL	ND	50	0	182	182
				Bottom of borehole at 3 ft						

COMMENTS:

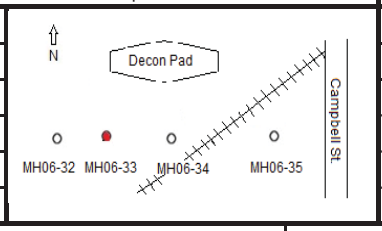
PROJECT NO. 11176991

BORING NO. MH06-32

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-33
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	N section of MH06 grid
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.29
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171275.008	GEOLOGIST:	[redacted]
EASTING:	1041338.816	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,292
44-10 Bkgd. (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	38	2	156	158
1	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some organics, some fine-med gravel (road material), more dense at bottom, moist	CL	ND	48	0	202	202
2				Dark Brown SILTY CLAY, some organics, some fine-med gravel, dense, moist	CL					
3	2.0 - 3.0		100	Yellowish Brown, trace organics, trace fine-med gravel, dense, dry @ 2' Gray @ 2.5'		ND	52	0	168	168
				Bottom of borehole at 3 ft						

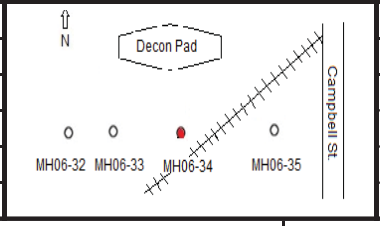
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-33

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-34
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	N section of MH06 grid
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.46
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171275.821	GEOLOGIST:	[redacted]
EASTING:	1041403.218	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,846
44-10 Bkgd. (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	44	2	146	148
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, some fine-coarse gravel, dense, moist Yellowish brown @ 1.5'	CL	ND	54	0	172	172
2	2.0 - 3.0		100	Gray, dry @ 2.6'		ND	64	2	180	182
3				Bottom of borehole at 3 ft						

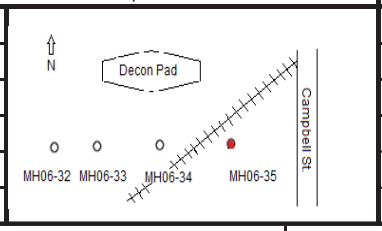
COMMENTS:

PROJECT NO.	11176991
BORING NO.	MH06-34

URS Corporation

TEST BORING LOG

		BORING NO:	MH06-35
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	N section of MH06 grid
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.45
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171275.700	GEOLOGIST:	[redacted]
EASTING:	1041469.275	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,460
44-10 Bkdg (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	40	0	122	122
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine-med gravel, dense, moist	CL	ND	44	0	140	140
2										
	2.0 - 3.0		75	Yellowish Brown, trace organics, some fine-med gravel, dry @ 2'		ND	62	0	164	164
3										
				Bottom of borehole at 3 ft						

COMMENTS:

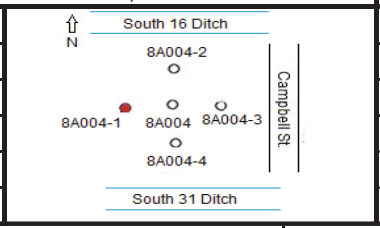
PROJECT NO. 11176991

BORING NO. MH06-35

URS Corporation

TEST BORING LOG

		BORING NO:	8A004-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Just W of Campbell St., between South 16 and South 31 Ditch
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.12
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171507.306	GEOLOGIST:	[redacted]
EASTING:	1041463.194	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,914
44-10 Bkgd (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	54	2	156	158
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	88	0	170	170
2	2.0 - 3.0		100	Brown and dry @ 2'		ND	40	0	186	186
3				Bottom of borehole at 3 ft						

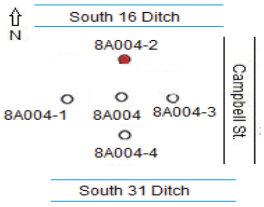
COMMENTS:

PROJECT NO.	11176991
BORING NO.	8A004-1

URS Corporation

TEST BORING LOG

		BORING NO:	8A004-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Just W of Campbell St., between South 16 and South 31 Ditch
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.88
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171521.249	GEOLOGIST:	[redacted]
EASTING:	1041478.382	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,342
44-10 Bkgd (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	44	0	166	166
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	52	0	192	192
3	2.0 - 3.0		100	Brown and dry @ 2'		ND	50	0	190	190
				Bottom of borehole at 3 ft						

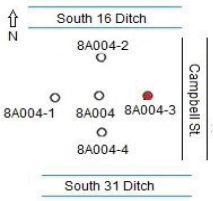
COMMENTS:

PROJECT NO.	11176991
BORING NO.	8A004-2

URS Corporation

TEST BORING LOG

		BORING NO:	8A004-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Just W of Campbell St., between South 16 and South 31 Ditch
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.96
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/13/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/13/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171505.793	**GEOLOGIST:**	[redacted]
EASTING:	1042496.681	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 13,788; 44-10 Bkgd (cpm) 4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	64	0	134	134
1 2	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, trace fine-med gravel, loose, dense at bottom, dry	CL	ND	66	0	184	184
3	2.0 - 3.0		100	Brown to Yellowish Brown @ 2'		ND	72	0	196	196
				Bottom of borehole at 3 ft						

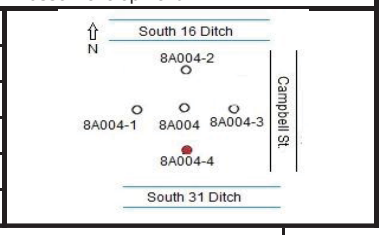
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8A004-3**

URS Corporation

TEST BORING LOG

		BORING NO:	8A004-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Just W of Campbell St., between South 16 and South 31 Ditch
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.58
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/13/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/13/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171491.051	**GEOLOGIST:**	[redacted]
EASTING:	1041479.081	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 13,526; 44-10 Bkgd (cpm) 4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	64	2	170	172
1 2	0.5 - 2.0		100	Brown Reddish Brown SILTY CLAY, trace organics, trace fine-med gravel, more dense at bottom, moist	CL	ND	50	2	184	186
3	2.0 - 3.0		100	Brown Reddish Brown, dry @ 2'		ND	60	2	176	178
				Bottom of borehole at 3 ft						

COMMENTS:

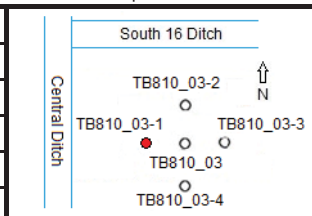
PROJECT NO. 11176991

BORING NO. 8A004-4

URS Corporation

TEST BORING LOG

		BORING NO:	TB810_03-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	E of the IWCS, Former N Pond area, ~30' W of TB810_03
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	316.85
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171650.569	GEOLOGIST:	[redacted]
EASTING:	1041273.446	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,558
44-10 Bkgd (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	36	2	158	160
1 2	0.5 - 2.0		100	Yellowish Brown SILTY CLAY, trace organics, some fine-med gravel, dense, moist	CL	ND	56	0	180	180
3	2.0 - 3.0		100	Gray and dry @ 2'		ND	48	0	182	182
				Bottom of borehole at 3 ft						

COMMENTS:

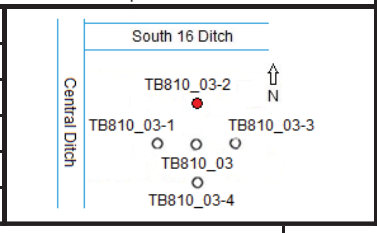
PROJECT NO. 11176991

BORING NO. TB810_03-1

URS Corporation

TEST BORING LOG

		BORING NO:	TB810_03-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	E of the IWCS, Former N Pond area, ~10' N of TB810_03
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.91
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/13/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/13/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171666.204	**GEOLOGIST:**	[redacted]
EASTING:	1041303.441	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,992; 44-10 Bkgd (cpm) 4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	FLL; Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	176	176
1 2	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some organics, some fine-med gravel, more dense at bottom, moist	CL	ND	40	0	186	186
3	2.0 - 3.0		75	FILL; fine-med Brown fine-med gravel, loose, moist	GW	ND	52	0	192	192
				Brown SILTY CLAY, dense, moist	CL					
				Bottom of borehole at 3 ft						

COMMENTS:

PROJECT NO. 11176991

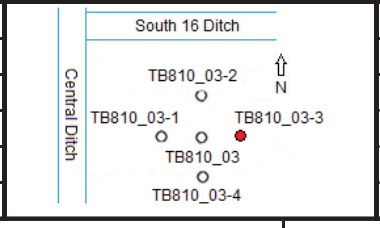
BORING NO. TB810_03-2

J:\Projects\11176781\11176991 - Delineation Investigation\Reports\Appendices\App F - Boring Logs\Appendix F_FINAL\EU11 Boring Logs_final.xlsx

URS Corporation

TEST BORING LOG

		BORING NO:	TB810_03-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	E of the IWCS, Former N Pond area, ~30' E of TB810_03
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.78
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171650.193	GEOLOGIST:	[redacted]
EASTING:	1041336.000	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,278
44-10 Bkgd (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	120	120
1 2	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, trace fine-med gravel, dense, moist Yellowish Brown @ 1.5'	CL	ND	60	0	170	170
3	2.0 - 3.0		100	Dry @ 2' Gray @ 2.5'		ND	48	0	180	180
				Bottom of borehole at 3 ft						

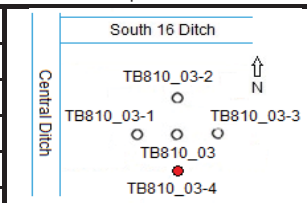
COMMENTS:

PROJECT NO.	11176991
BORING NO.	TB810_03-3

URS Corporation

TEST BORING LOG

		BORING NO:	TB810_03-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	E of the IWCS, Former N Pond area, ~30' S of TB810_03
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.07
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/14/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/14/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171617.809	GEOLOGIST:	[redacted]
EASTING:	1041304.035	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,648
44-10 Bkgd (cpm)	4,842

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	0	172	172
1	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, some fine-med gravel, moist	CL	ND	66	0	176	176
2				Yellowish Brown SILTY CLAY, trace organics, some fine-med gravel, dense, moist	CL					
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine-med gravel, dense, dry	CL	ND	62	0	180	180
				Gray SILTY CLAY, trace organics, trace fine-med gravel, dense, dry	CL					
				Bottom of borehole at 3 ft						

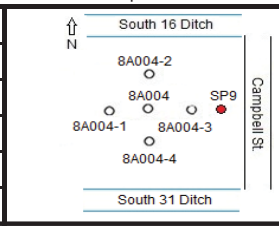
COMMENTS:

PROJECT NO.	11176991
BORING NO.	TB810_03-4

URS Corporation

TEST BORING LOG

		BORING NO:	SP9
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	~6' East of 8A004-3
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.90
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/13/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171504.588	GEOLOGIST:	[redacted]
EASTING:	1041513.684	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	21,280
44-10 Bkgd (cpm)	4,794

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	100	100
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, some fine-med gravel, moist	OL	ND	66	0	138	138
1	0.5 - 2.0		100	FILL; Fine-coarse Brown slag with Brown SILTY CLAY, some organics, loose, dry	CL	ND	82	4	290	294
							96	0	220	220
2							48	0	214	214
3				Bottom of borehole at 2 ft						

COMMENTS: Refusal at 2.0'. Highest rad readings at 1.0', readings drop down at 2.0'. Per A. Jones, obtained rad readings at 0.0-0.5', 0.5-1.0', 1.0-1.5', and 1.5-2.0'. Per N. Miller sampled 0.0-2.0'.

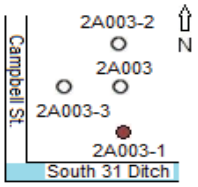
PROJECT NO. 11176991

BORING NO. SP9

URS Corporation

TEST BORING LOG

		BORING NO:	2A003-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., just north of South 31 Ditch, ~75' south of 2A003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.28
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171163.022	GEOLOGIST:	[redacted]
EASTING:	1041709.757	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,264
44-10 Bkgd (cpm)	4,282

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	18	0	128	128
		0.0 - 0.5	100	FILL; Brown fine to coarse gravel, loose, saturated	GW	ND	36	0	226	226
1		0.5 - 2.0	100	FILL; Brown Silty fine to coarse gravel, loose, saturated		ND	44	2	270	274
2				Yellowish Brown to Black at bottom SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL					
3		2.0 - 3.0	100	Yellowish Brown and no organics @ 2.5'		ND	58	4	354	358
4				Bottom of borehole 3.0 ft						

COMMENTS: Sampled for chem parameters only

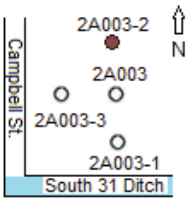
PROJECT NO. 11176991

BORING NO. 2A003-1

URS Corporation

TEST BORING LOG

		BORING NO:	2A003-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., just north of South 31 Ditch, ~75' north of 2A003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.63
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171241.158	GEOLOGIST:	[redacted]
EASTING:	1041709.833	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,434
44-10 Bkgd (cpm)	4,282

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	18	0	128	128
		0.0 - 0.5	100	Black organic SILTY CLAY, coal tar at bottom, wet	OL	ND	40	2	274	276
		0.5 - 2.0	100			ND	32	0	224	224
1				FILL; Yellowish Brown reworked SILTY CLAY, some fine to coarse gravel, more dense at bottom, dry	CL					
2										
		2.0 - 3.0	100			ND	48	2	296	298
3										
				Bottom of borehole 3.0 ft						
4										

COMMENTS: Sampled for chem parameters only

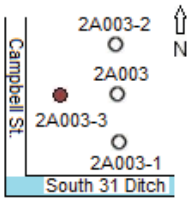
PROJECT NO. 11176991

BORING NO. 2A003-2

URS Corporation

TEST BORING LOG

		BORING NO:	2A003-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., just north of South 31 Ditch, ~75' west of 2A003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.78
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171195.791	GEOLOGIST:	[redacted]
EASTING:	1041697.987	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,634
44-10 Bkgd (cpm)	4,282

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	18	0	128	128
		0.0 - 0.5	100	FILL; Dark Brown Silty gravel (SLAG), some organics, wet	GM	ND	36	2	232	234
1		0.5 - 2.0	100			ND	56	2	326	328
2				FILL; Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, more dense at bottom, dry	CL					
3		2.0 - 3.0	100	FILL; Brown at top 2" grades to Dark Brown Silty gravel (SLAG), trace sand, trace organics, some fine to med gravel, dense, moist	SM	ND	48	2	308	310
4				Bottom of borehole 3.0 ft						

COMMENTS: Sampled for chem parameters only

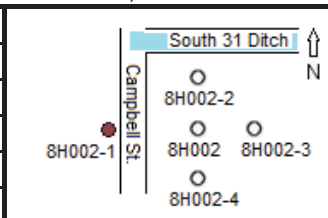
PROJECT NO. 11176991

BORING NO. 2A003-3

URS Corporation

TEST BORING LOG

		BORING NO:	8H002-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Campbell St., just south of South 31 Ditch, ~75' west of 8H002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.31
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170974.013	GEOLOGIST:	[redacted]
EASTING:	1041509.867	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,306
44-10 Bkgd (cpm)	12,250

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	54	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	0	312	312
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to coarse gravel, loose at top, dense at bottom, moist	CL	ND	68	2	334	336
3	2.0 - 3.0		100	Trace organics, trace fine gravel @ 2' Yellowish Brown @ 2.5'		ND	90	2	392	394
4				Bottom of borehole 3.0 ft						

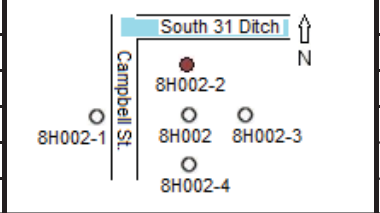
COMMENTS:

PROJECT NO.	11176991
BORING NO.	8H002-1

URS Corporation

TEST BORING LOG

		BORING NO:	8H002-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., just south of South 31 Ditch, ~75' north of 8H002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.45
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171005.028	GEOLOGIST:	[redacted]
EASTING:	1041549.798	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm	40
44-10 Bkgd (cpm)	12,250

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	54	2	210	212
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	58	0	272	272
1	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some med gray slag, more dense at bottom, moist	CL	ND	82	2	378	380
2										
3	2.0 - 3.0		100	Gray Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	60	0	354	354
4				Bottom of borehole 3.0 ft						

COMMENTS: First attempt refusal at 1.0' due to asphalt. Moved 8.0' east of original location, full recovery

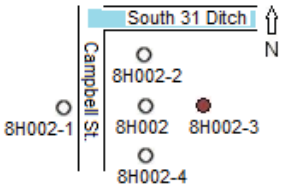
PROJECT NO. 11176991

BORING NO. 8H002-2

URS Corporation

TEST BORING LOG

		BORING NO:	8H002-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., just south of South 31 Ditch, ~75' east of 8H002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.58
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170974.346	GEOLOGIST:	[redacted]
EASTING:	1041574.269	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,568
44-10 Bkgd (cpm)	12,250

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	54	2	210	212
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	52	2	256	258
1	0.5 - 2.0		100	Some fine to med gravel @ 0.5'		ND	38	0	200	200
2										
3	2.0 - 3.0		100	Dark Brown to brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL	ND	58	0	284	284
4				Bottom of borehole 3.0 ft						

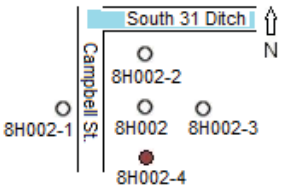
COMMENTS:

PROJECT NO.	11176991
BORING NO.	8H002-3

URS Corporation

TEST BORING LOG

		BORING NO:	8H002-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., just south of South 31 Ditch, ~75' south of 8H002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.92
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170942.744	GEOLOGIST:	[redacted]
EASTING:	1041545.949	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,024
44-10 Bkgd (cpm)	12,250

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	54	2	210	212
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	70	2	362	364
1	0.5 - 2.0		100	Trace fine to med gravel @ 0.5'		ND	82	0	406	406
2				FILL; Brown Silty Green Blue gravel (slag), loose, wet	GM					
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, dense, moist	CL	ND	46	2	232	234
4				Bottom of borehole 3.0 ft						

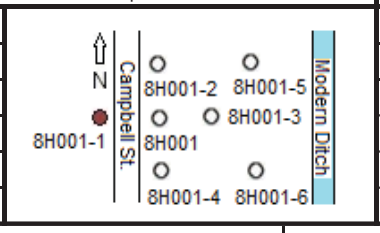
COMMENTS:

PROJECT NO.	11176991
BORING NO.	8H002-4

URS Corporation

TEST BORING LOG

		BORING NO:	8H001-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Campbell St., west of Modern Ditch, ~25' west of 8H001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.32
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170730.607	GEOLOGIST:	[redacted]
EASTING:	1041512.275	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,104
44-10 Bkgd (cpm)	6,752

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	26	0	176	176
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, fill at bottom, moist	OL	ND	48	0	258	258
1	0.5 - 2.0		100	Some fine to coarse gravel, mod loose @ 0.5'		ND	82	0	386	386
2				Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
3	2.0 - 3.0		100			ND	54	2	324	326
4				Bottom of borehole 3.0 ft						

COMMENTS: Original location in middle of asphalt road, per consult with USACE, moved location west off of road.

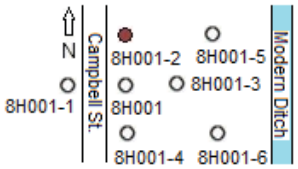
PROJECT NO. 11176991

BORING NO. 8H001-1

URS Corporation

TEST BORING LOG

		BORING NO:	8H001-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., west of Modern Ditch, ~20' north of 8H001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.46
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/4/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/5/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1170745.088	**GEOLOGIST:**	
EASTING:	1041538.804	**RAD TECH:**	



Gamma (γ) Survey:			
44-10 grd. Surf. (cpm)	11,640		
44-10 Bkgd (cpm)	6,364		
44-9	**43-93**		
βγ (cpm)	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
44	0	142	142

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
				Background:			44	0	142	142
	0.0 - 0.5		100	Dark Brown SILTY SAND, some organics, fine to med fill material at bottom, loose, moist	SM	ND	50	0	268	268
1				Bottom of borehole 0.5'						
2										
3										
4										

COMMENTS: 12/4 First attempt refusal at 1.5', moved ~8.0' east of original location, Second attempt refusal at 1.5'. Waiting for N. Miller for direction.
12/5 per N. Miller sample any recovery at original location, ~6" recovery.

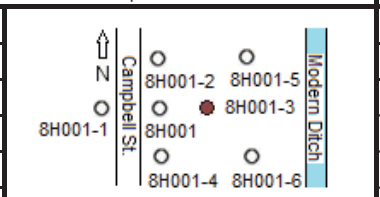
PROJECT NO. 11176991

BORING NO. 8H001-2

URS Corporation

TEST BORING LOG

		BORING NO:	8H001-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., west of Modern Ditch, ~30' east of 8H001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.65
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/4/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/4/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1170731.347	**GEOLOGIST:**	[redacted]
EASTING:	1041556.752	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 34; 44-10 Bkgd (cpm) 6,752

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	26	0	176	176
	0.0 - 0.5		100	Brown Gray organic SILTY CLAY, wet	OL	ND	40	0	318	318
1	0.5 - 2.0		100	Dark Brown to Gray, some fine to med gravel, mod dense, moist		ND	30	0	252	252
2										
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	60	0	294	294
4				Bottom of borehole 3.0 ft						

COMMENTS: Original location in middle of asphalt road, per consult with USACE, moved location west off of road.

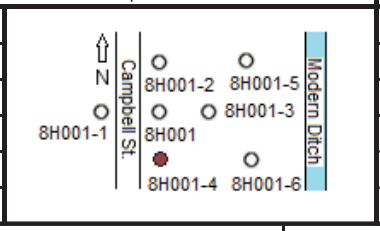
PROJECT NO. 11176991

BORING NO. 8H001-3

URS Corporation

TEST BORING LOG

		BORING NO:	8H001-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., west of Modern Ditch, ~20' south of 8H001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.67
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/5/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/5/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1170714.302	**GEOLOGIST:**	[redacted]
EASTING:	1041538.667	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm [redacted] 6
44-10 Bkgd (cpm) 6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	Dark Brown Black organic SILTY CLAY, fine to med fill material at bottom, more dense at bottom, moist	OL	ND	28	0	230	230
1				Bottom of borehole 0.8"						
2										
3										
4										

COMMENTS: Refusal at 8". Sampled recovery per direction from N. Miller

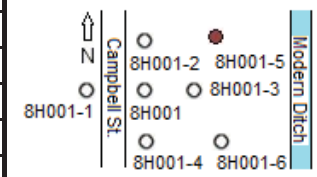
PROJECT NO. 11176991

BORING NO. 8H001-4

URS Corporation

TEST BORING LOG

		BORING NO:	8H001-5
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., west of Modern Ditch, ~15' east of 8H001-2
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.52
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170745.256	GEOLOGIST:	[redacted]
EASTING:	1041553.612	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,746
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	50	2	268	270
1	0.5-2.0		100	FILL; Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, trace sand at bottom, dense, moist	CL	ND	66	2	298	300
2	2.0-3.0		100	Dark Brown SILTY CLAY, trace organics, trace fine to med gravel Yellowish Brown sandy SILTY CLAY, trace organics, some fine to coarse gravel, mod dense, moist	CL	ND	56	0	286	286
3				Bottom of borehole 3.0'						
4										

COMMENTS: Per N. Miller added location to 8H001 cluster due to poor recovery at 8H001-2.

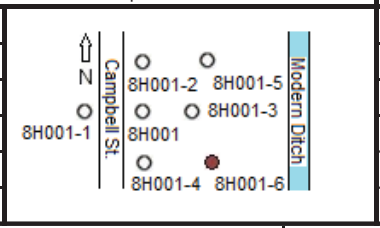
PROJECT NO. 11176991

BORING NO. 8H001-5

URS Corporation

TEST BORING LOG

		BORING NO:	8H001-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., west of Modern Ditch, ~13' east of 8H001-4
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.56
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/5/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/5/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1170713.426	**GEOLOGIST:**	[redacted]
EASTING:	1041552.474	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,538; 44-10 Bkgd (cpm) 6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown Black organic SILTY CLAY, wet	OL	ND	58	2	216	218
1	0.5-2.0		100			ND	62	0	282	282
2				FILL; Dark Brown Black reworked SILTY CLAY, trace organics, some fine to med gravel, more dense at bottom, moist	CL					
3	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	60	0	270	270
4				Bottom of borehole 3.0'						

COMMENTS: Per N. Miller added location to 8H001 cluster due to poor recovery at 8H001-4.

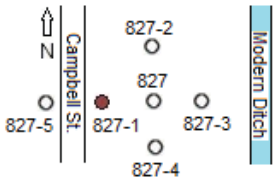
PROJECT NO. 11176991

BORING NO. 8H001-6

URS Corporation

TEST BORING LOG

		BORING NO:	827-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., west of Modern Ditch, just south of 8H001 cluster, ~20' west of 827
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.74
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170661.905	GEOLOGIST:	[redacted]
EASTING:	1041541.604	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,938
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, slag at bottom, moist	OL	ND	52	0	280	280
1	0.5-2.0		75	FILL; Gray Green Silty fine to coarse gravel (slag), loose, moist	SM	ND	60	0	302	302
2				Bottom of borehole 1.5'						
3										
4										

COMMENTS: Refusal at 1.5'

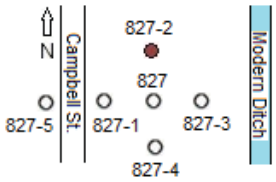
PROJECT NO. 11176991

BORING NO. 827-1

URS Corporation

TEST BORING LOG

		BORING NO:	827-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., west of Modern Ditch, just south of 8H001 cluster, ~20' north of 827
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.26
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/4/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/4/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170681.129	GEOLOGIST:	[redacted]
EASTING:	1041551.181	RAD TECH:	[redacted]



Gamma (γ) Survey:	44-10 grd. Surf. (cpm)	[redacted]
	44-10 Bkgd (cpm)	6,752

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	26	0	176	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	58	2	290	292
1	0.5 - 2.0		100	Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, mod dense, moist	CL	ND	52	0	336	336
2	2.0 - 3.0		100	Dark Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	58	2	314	316
3										
4				Bottom of borehole 3.0 ft						

COMMENTS:

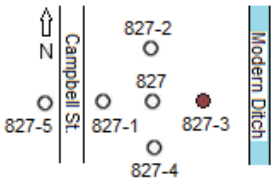
PROJECT NO. 11176991

BORING NO. 827-2

URS Corporation

TEST BORING LOG

		BORING NO:	827-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., west of Modern Ditch, just south of 8H001 cluster, ~20' east of 827
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.04
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170664.41	GEOLOGIST:	[redacted]
EASTING:	1041568.038	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,514
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	58	0	296	296
1 2	0.5-2.0		100	FILL; Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, mod dense, moist	CL	ND	64	2	260	262
3	2.0-3.0		100	Bottom 8" Yellowish Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	70	0	280	280
4				Bottom of borehole 3.0'						

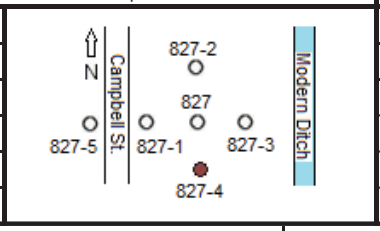
COMMENTS:

PROJECT NO.	11176991
BORING NO.	827-3

URS Corporation

TEST BORING LOG

		BORING NO:	827-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., west of Modern Ditch, just south of 8H001 cluster, ~20' south of 827
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.68
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170647.709	GEOLOGIST:	[redacted]
EASTING:	1041551.273	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,676
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	52	2	230	232
1 2	0.5-2.0		100	Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	58	2	290	292
3	2.0-3.0		100	Dark Brown Black reworked SILTY CLAY, trace sand, trace organics, trace fine to med gravel, mod dense, moist	CL	ND	42	0	238	238
4				Bottom of borehole 3.0'						

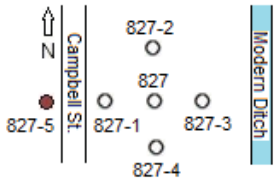
COMMENTS:

PROJECT NO.	11176991
BORING NO.	827-4

URS Corporation

TEST BORING LOG

		BORING NO:	827-5
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Campbell St., west of Modern Ditch, just south of 8H001 cluster, ~35' west of 827-1
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.36
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170664.89	GEOLOGIST:	[redacted]
EASTING:	1041509.208	RAD TECH:	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm 8,706; 44-10 Bkgd (cpm) 6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	62	0	240	240
1, 2	0.5-2.0		100	FILL; Dark Brown Silty Blue Gray fine to coarse gravel (slag), some odor, loose, moist	GM	ND	46	2	334	336
3	2.0-3.0		100	Black SILTY CLAY, trace fine gravel, highly plastic, dense, moist	CL	ND	54	0	248	248
4				Bottom of borehole 3.0'						

COMMENTS: Added location per USACE due to poor recovery at location 827-1. Located west of 827-1 on other side of road

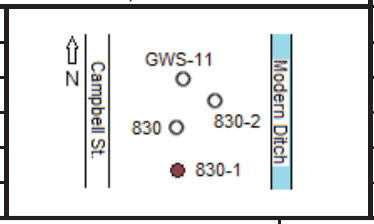
PROJECT NO. 11176991

BORING NO. 827-5

URS Corporation

TEST BORING LOG

		BORING NO:	830-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East side of Campbell St., west of Modern Ditch, ~35' south of 830
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.27
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170541.378	GEOLOGIST:	[redacted]
EASTING:	1041638.924	RAD TECH:	[redacted]



Gamma (γ) Survey:	44-10 grd. Surf. (cpm	24
	44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, fill at bottom, moist	OL	ND	38	2	236	238
1	0.5-2.0		100	FILL; Brown Silty fine to coarse gravel, loose, dry	GM	ND	42	2	222	224
2				Dark Brown SILTY CLAY, some fine to coarse gravel, dense, moist	CL					
3	2.0-3.0		100	Dark Brown, trace sand, trace fine to med gravel @ 2' Gray @ 2.5'		ND	50	0	314	314
4				Bottom of borehole 3.0'						

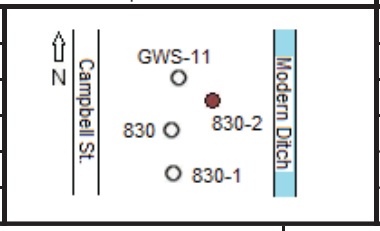
COMMENTS:

PROJECT NO.	11176991
BORING NO.	830-1

URS Corporation

TEST BORING LOG

		BORING NO:	830-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East side of Campbell St., west of Modern Ditch, ~35' northeast of 830
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.14
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170572.461	GEOLOGIST:	[redacted]
EASTING:	1041654.534	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,640
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown fine to coarse gravel, saturated	SM	ND	34	2	268	270
1	0.5-2.0		100			ND	38	0	318	318
2				Dark Brown Black SILTY CLAY, trace sand, trace organics, dense, moist	CL					
3	2.0-3.0		100	Brown Gray, trace fine gravel, dry @ 2'		ND	56	0	282	282
4				Bottom of borehole 3.0'						

COMMENTS:

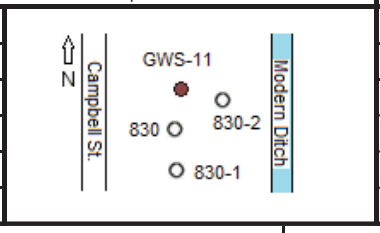
PROJECT NO.	11176991
BORING NO.	830-2

J:\Projects\11176781\11176991 - Delineation Investigation\Reports\Appendices\App F - Boring Logs\Appendix F_FINAL\EU11 Boring Logs_final.xlsx

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-11
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East side of Campbell St., west of Modern Ditch, ~35' north of 830
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.27
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170578.77	GEOLOGIST:	[redacted]
EASTING:	1041640.129	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	19,896
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	64	0	290	290
1	0.5-2.0		100	FILL; Dark Brown Silty fine to coarse gravel, loose, saturated	SM	ND	56	0	234	234
2				FILL; Dark Brown Black reworked SILTY CLAY, trace fine gravel, mod dense, moist	CL					
3	2.0-3.0		100	Grading to Dark Gray at bottom		ND	46	2	258	260
4				Bottom of borehole 3.0'						

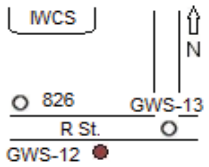
COMMENTS:

PROJECT NO.	11176991
BORING NO.	GWS-11

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-12
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along south side of R St., south of IWCS, ~150' east of 826 cluster
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.81
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170513.623	GEOLOGIST:	[redacted]
EASTING:	1041271.606	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,930
44-10 Bkgd (cpm)	12,260

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	4	238	242
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	64	4	334	348
1 2	0.5-2.0		100	Brown - Yellowish Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	80	4	352	352
3	2.0-3.0		100	Brown, trace organics, trace fine to med gravel @ 2' Brown Gray @ 2.6'		ND	68	2	358	360
4				Bottom of borehole 3.0'						

COMMENTS:

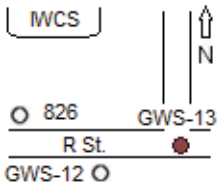
PROJECT NO. 11176991

BORING NO. GWS-12

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-13
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located in R St.,south of IWCS, ~30' east of GWS-12
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.12
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170526.622	GEOLOGIST:	[redacted]
EASTING:	1041313.803	RAD TECH:	[redacted]



DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	Gamma (γ) Survey: 44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
							44-10 grd. Surf. (cpm)			
							44-10 Bkgd (cpm)		12,260	
						Background:	52	4	238	242
	0.0 - 0.5		100	FILL; Black Silty fine to med gravel, loose, moist	SM	ND	90	4	408	412
1	0.5-2.0		100	FILL; Brown Silty fine to coarse Blue Gray gravel (SLAG), loose, moist		ND	76	2	296	298
2				Brown Gray SILTY CLAY, trace coarse gravel, dense, moist	CL					
3	2.0-3.0		100	Brown, trace organics, trace fine to med gravel @ 2'		ND	92	0	324	324
4				Bottom of borehole 3.0'						

COMMENTS:

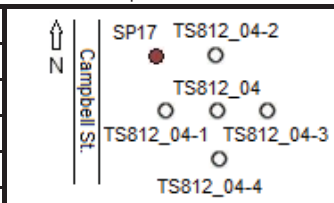
PROJECT NO. 11176991

BORING NO. GWS-13

URS Corporation

TEST BORING LOG

		BORING NO:	SP17
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located near entrance gate, east of Campbell St., ~30' west of TS812_04-2
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.24
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170597.832	GEOLOGIST:	[redacted]
EASTING:	1041640.907	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,430
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, coarse gravel at bottom, saturated	OL	ND	68	0	254	254
1	0.5-2.0		100	Top 0.5' Brown Silty fine to coarse GRAVEL, loose, saturated	GW	ND	56	2	306	308
2				Black grades to Dark Gray SILTY CLAY, trace fine gravel, mod plastic, moist	CL					
3	2.0-3.0		100	Gray Brown @ 2'		ND	56	0	286	286
4				Bottom of borehole 3.0'						

COMMENTS:

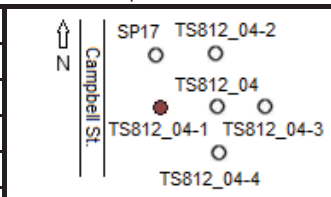
PROJECT NO. 11176991

BORING NO. SP17

URS Corporation

TEST BORING LOG

		BORING NO:	TS812_04-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located near entrance gate, east of Campbell St., ~30' west of TS812_04
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.4
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/5/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/5/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1170587.315	**GEOLOGIST:**	[redacted]
EASTING:	1041661.552	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm [redacted]

44-10 Bkgd (cpm) 6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	Brown organic SILTY CLAY, wet	OL	ND	56	0	302	302
1	0.5-2.0		100	Top 16" FILL; Dark Brown Silty fine to coarse gravel, some organics, loose, saturated	SM	ND	54	0	306	306
2				Dark Brown Black SILTY CLAY, trace organics, trace med gravel, dense, moist	CL					
3	2.0-3.0		100	Brown Gray sandy SILTY CLAY, trace fine gravel, dense, moist	CL	ND	54	0	304	304
4				Bottom of borehole 3.0'						

COMMENTS:

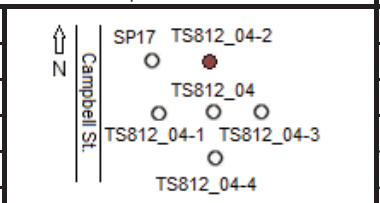
PROJECT NO. 11176991

BORING NO. TS812_04-1

URS Corporation

TEST BORING LOG

		BORING NO:	TS812_04-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located near entrance gate, east of Campbell St., ~30' north of TS812_04
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.31
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170604.789	GEOLOGIST:	[redacted]
EASTING:	1041677.952	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,532
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, fill at bottom, moist	OL	ND	54	0	314	314
1	0.5-2.0		100	FILL; Brown Silty fine to coarse gravel, loose, moist	SM	ND	54	0	228	228
2				Dark Brown to Blue Gray SILTY CLAY, trace sand, some fine to med gravel, dense, moist	CL					
3	2.0-3.0		100	Brown Gray, trace organics, trace fine gravel @ 2'		ND	76	2	282	284
4				Bottom of borehole 3.0'						

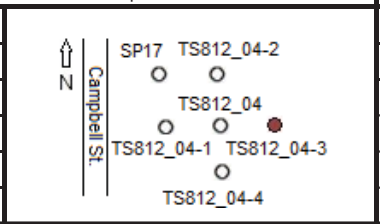
COMMENTS:

PROJECT NO.	11176991
BORING NO.	TS812_04-2

URS Corporation

TEST BORING LOG

		BORING NO:	TS812_04-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located near entrance gate, east of Campbell St., ~30' east of TS812_04
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.14
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/5/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/5/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1170588.372	**GEOLOGIST:**	[redacted]
EASTING:	1041693.774	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Black Silty fine to coarse gravel, saturated	SM	ND	48	4	254	258
	0.5-2.0		100	FILL; Gray Sandy fine to coarse gravel, loose, wet	GW	ND	46	4	272	276
1				Dark Brown grades to Black reworked SILTY CLAY, some fine to med gravel, coal tar at bottom, dense, moist	CL					
2										
	2.0-3.0		100	Green Gray, some fine gravel @ 2'		ND	78	6	330	336
3				Brown Gray trace fine gravel @ 2.8'						
4				Bottom of borehole 3.0'						

COMMENTS:

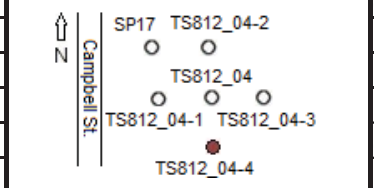
PROJECT NO. 11176991

BORING NO. TS812_04-3

URS Corporation

TEST BORING LOG

		BORING NO:	TS812_04-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located near entrance gate, east of Campbell St., ~30' south of TS812_04
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.22
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/5/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170570.647	GEOLOGIST:	[redacted]
EASTING:	1041677.649	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	[redacted]
44-10 Bkgd (cpm)	6,364

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	142	142
	0.0 - 0.5		100	FILL; Brown Silty fine to coarse gravel, saturated	SM	ND	40	0	240	240
1	0.5-2.0		100	FILL; Gray Sandy fine to coarse gravel, loose, wet	GW	ND	72	0	312	312
2				Black to Green Gray sandy SILTY CLAY, trace organics, trace fine gravel, trace rust color, dense, moist	CL					
3	2.0-3.0		100	Brown SILTY CLAY @ 2' Brown Gray @ 2.5'		ND	66	2	270	272
4				Bottom of borehole 3.0'						

COMMENTS:

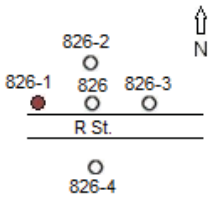
PROJECT NO. 11176991

BORING NO. TS812_04-4

URS Corporation

TEST BORING LOG

		BORING NO:	826-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located near entrance gate, along R St., ~50' west of 826
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.82
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/6/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/6/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170530.042	GEOLOGIST:	[redacted]
EASTING:	1041067.251	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,804
44-10 Bkgd (cpm)	7,492

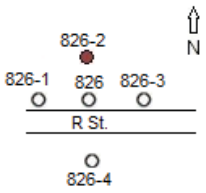
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, slag at bottom, moist	OL	ND	64	2	238	240
1	0.5-2.0		100	FILL; Dark Brown SILTY fine to coarse Blue Gray gravel (SLAG), loose, moist	GM	ND	46	0	202	202
2				Dark Brown SILTY CLAY, trace fine gravel, dense, moist	CL					
3	2.0-3.0		100	Dark Brown Gray @ 2'		ND	72	0	306	306
4				Bottom of borehole 3.0'						

COMMENTS:		PROJECT NO.	11176991
		BORING NO.	826-1

URS Corporation

TEST BORING LOG

		BORING NO:	826-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located near entrance gate, along R St., ~50' north of 826
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.05
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/6/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1170565.878	**GEOLOGIST:**	[redacted]
EASTING:	1041097.874	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,326
44-10 Bkgd (cpm)	7,492

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	0	170	170
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	46	0	240	240
1	0.5-2.0		100	Yellowish Brown SILTY CLAY, some organics, some fine gravel, more dense at bottom, moist	CL	ND	72	0	304	304
2										
3	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	50	0	316	316
4				Bottom of borehole 3.0'						

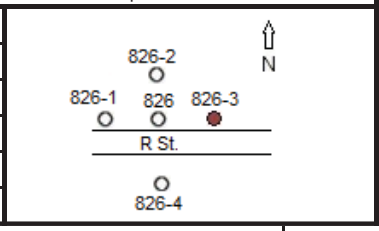
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**826-2**

URS Corporation

TEST BORING LOG

		BORING NO:	826-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located near entrance gate, along R St., ~50' east of 826
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.89
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/6/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/6/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170528.665	GEOLOGIST:	[redacted]
EASTING:	1041129.258	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,322
44-10 Bkgd (cpm)	7,492

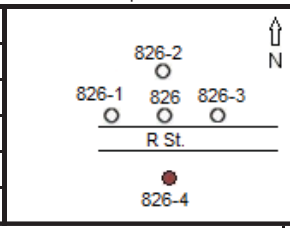
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown Silty fine gravel (SLAG), trace organics, wet	GM	ND	70	0	234	234
1	0.5-2.0		100	Gray Brown @ 1'		ND	52	0	242	242
2				Yellowish Brown SILTY CLAY, trace fine to med gravel, dense, moist	CL					
3	2.0-3.0		100	Brown Gray @ 2.5'		ND	64	0	336	336
4				Bottom of borehole 3.0'						

COMMENTS:		PROJECT NO.	11176991
		BORING NO.	826-3

URS Corporation

TEST BORING LOG

		BORING NO:	826-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located near entrance gate, along R St., ~50' south of 826
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.56
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/6/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/6/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170510.761	GEOLOGIST:	[redacted]
EASTING:	1041096.652	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,180
44-10 Bkgd (cpm)	7,492

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	0	170	170
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	62	0	278	278
1	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, moist	CL	ND	60	0	336	336
2				Yellowish Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL					
3	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	68	0	316	316
4				Bottom of borehole 3.0'						

COMMENTS: Moved location 1.5' north of original location due to fence

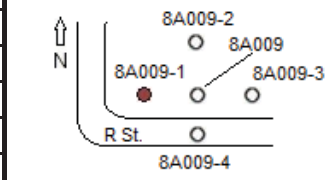
PROJECT NO. 11176991

BORING NO. 826-4

URS Corporation

TEST BORING LOG

		BORING NO:	8A009-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along at southern bend of R St., ~30' west of 8A009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.88
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/6/2013
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1170536.677	**GEOLOGIST:**	[redacted]
EASTING:	1040739.036	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,066; 44-10 Bkgd (cpm) 7,492

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	0	170	170
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	58	2	256	258
1	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	58	2	296	298
2										
3	2.0-3.0		100	Yellowish Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	58	0	300	300
4				Bottom of borehole 3.0'						

COMMENTS: Moved location 1.5' north of original location due to fence

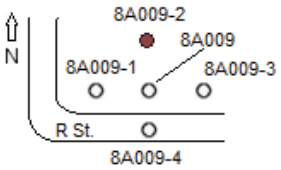
PROJECT NO. 11176991

BORING NO. 8A009-1

URS Corporation

TEST BORING LOG

		BORING NO:	8A009-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along at southern bend of R St., ~30' north of 8A009
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.41
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/6/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/6/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170552.982	GEOLOGIST:	
EASTING:	1040756.054	RAD TECH:	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,920
44-10 Bkgd (cpm)	7,492

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	0	170	170
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	60	0	296	296
1	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, moist	CL	ND	60	0	264	264
2				Brown Gray SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL					
3	2.0-3.0		100	Gray Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, dry	CL	ND	38	0	328	328
4				Bottom of borehole 3.0'						

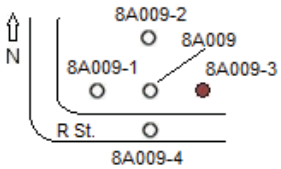
COMMENTS:

PROJECT NO.	11176991
BORING NO.	8A009-2

URS Corporation

TEST BORING LOG

		BORING NO:	8A009-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along at southern bend of R St., ~30' east of 8A009
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.95
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/6/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/6/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170535.711	GEOLOGIST:	[redacted]
EASTING:	1040771.608	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,558
44-10 Bkgd (cpm)	7,492

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	0	170	170
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	54	0	268	268
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	56	0	282	282
3	2.0-3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine gravel, dense, dry Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, dry	CL CL	ND	84	2	310	312
4				Bottom of borehole 3.0'						

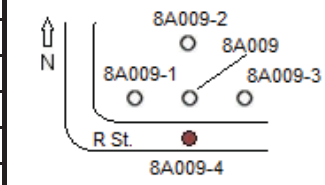
COMMENTS:

PROJECT NO.	11176991
BORING NO.	8A009-3

URS Corporation

TEST BORING LOG

		BORING NO:	8A009-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along at southern bend of R St., ~30' south of 8A009
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.26
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/6/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/6/2013
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170520.868	GEOLOGIST:	[redacted]
EASTING:	1040755.354	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,190
44-10 Bkgd (cpm)	7,492

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	32	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown Silty fine Blue Gray gravel (SLAG), moist	GM	ND	58	0	236	236
1	0.5-2.0		100	Top 14" FILL; Brown Silty Blue Gray fine to coarse gravel (SLAG), loose, moist	GM	ND	76	2	314	316
2				Bottom 4" Dark Brown SILTY CLAY, trace gravel, dense, moist	CL					
3	2.0-3.0		100	Dark Brown Black trace organics @ 2'		ND	40	0	342	342
4				Bottom of borehole 3.0'						

COMMENTS:

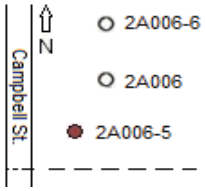
PROJECT NO. 11176991

BORING NO. 8A009-4

URS Corporation

TEST BORING LOG

		BORING NO:	2A006-5
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., ~30 ft southwest of 2A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.05
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/17/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/17/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171348.28	GEOLOGIST:	[redacted]
EASTING:	1041556.71	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,530
44-10 Bkgd (cpm)	7,624

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	174	174
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, dry	OL	ND	92	4	282	286
1	0.5 - 2.0		100	0.5-1' FILL; Dark brown silty fine to coarse gravel, some organics, moist	GM	ND	50	0	268	268
2				1-2' Orange brown to brown SILTY CLAY, some fine to medium gravel, dense, damp	CL					
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, some fine gravel, pocket of slag at 2.5', highly plastic, dense, damp	CL	ND	50	0	254	254
				Bottom of borehole at 3 ft						

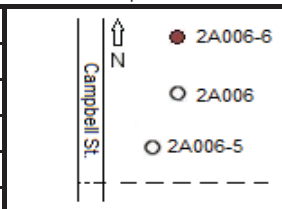
COMMENTS:

PROJECT NO.	11176991
BORING NO.	2A006-5

URS Corporation

TEST BORING LOG

		BORING NO:	2A006-6
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., ~30 ft north of 2A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.57
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/17/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/17/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171414.66	GEOLOGIST:	[redacted]
EASTING:	1041555.36	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	21,870
44-10 Bkgd (cpm)	7,624

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	174	174
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	92	4	432	436
1	0.5 - 2.0		100	Brown, some fine to medium gravel @ 1'		ND	80	0	322	322
2	2.0 - 3.0		100	Reddish brown gray SILTY CLAY, some fine gravel, trace organics, mod plastic, dense, dry	CL	ND	54	4	262	266
3				Bottom of borehole at 3 ft						

COMMENTS: Original location in ditch, relocated ~5 ft west out of ditch.

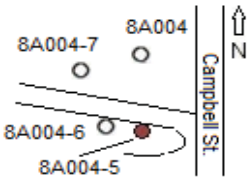
PROJECT NO. 11176991

BORING NO. 2A006-6

URS Corporation

TEST BORING LOG

		BORING NO:	8A004-5
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Just W of Campbell St., between South 16 and South 31 Ditch, ~45' south of 8A004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.58
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/18/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/18/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171464.44	GEOLOGIST:	[redacted]
EASTING:	1041482.56	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,832
44-10 Bkgd (cpm)	6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown SILTY CLAY, trace fine to medium gravel, trace organics, moist	CL	ND	60	0	262	262
1 2	0.5 - 2.0		100	Brown to reddish brown, some fine to coarse gravel, trace organics @0.5', more dense at 2'		ND	82	2	216	218
3	2.0 - 3.0		100	Reddish brown gray, trace fine gravel, damp @ 2'		ND	56	0	262	262
				Bottom of borehole at 3 ft						

COMMENTS: Located near sewer line, USACE relocated ~ 3 ft south of original location.

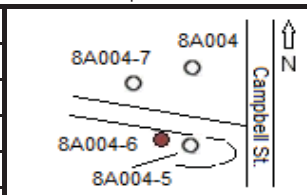
PROJECT NO. 11176991

BORING NO. 8A004-5

URS Corporation

TEST BORING LOG

		BORING NO:	8A004-6
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Just W of Campbell St., between South 16 and South 31 Ditch, ~50 southwest of 8A004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.04
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/18/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/18/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171462.07	GEOLOGIST:	[redacted]
EASTING:	1041460.73	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,686
44-10 Bkgd (cpm)	6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	52	0	276	276
1	0.5 - 2.0		100	0.5-1' Coarse fine to medium GRAVEL	GW	ND	66	2	216	218
2				1-2' Reddish brown gray SILTY CLAY, trace fine gravel, trace organics, mod dense, dry	CL					
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, trace fine gravel, trace organics, dry Dark Brown SILTY CLAY, trace fine gravel, trace organics, dense, dry	CL	ND	44	0	180	180
				Bottom of borehole at 3 ft						

COMMENTS: Located near sewer line, USACE relocated ~ 3 ft north of original location

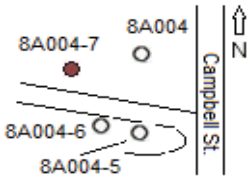
PROJECT NO. 11176991

BORING NO. 8A004-6

URS Corporation

TEST BORING LOG

		BORING NO:	8A004-7
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Just W of Campbell St., between South 16 and South 31 Ditch, ~35' southwest of 8A004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.97
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/18/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/18/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171494.53	GEOLOGIST:	[redacted]
EASTING:	1041448.06	RAD TECH:	[redacted]



Gamma (γ) Survey:	44-10 grd. Surf. (cpm [redacted] 6
	44-10 Bkgd (cpm) 6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	90	0	232	232
1	0.5 - 2.0		100	Reddish brown SILTY CLAY, some fine to medium gravel, some organics, mod dense, moist	CL	ND	76	2	210	212
2				Brown SILTY CLAY, some fine to med gravel, some organics, mod dense, moist	CL					
3	2.0 - 3.0		100	Reddish brown gray SILTY CLAY, trace fine gravel, trace organics, plastic, dense, dry	CL	ND	46	2	248	250
				Bottom of borehole at 3 ft						

COMMENTS:

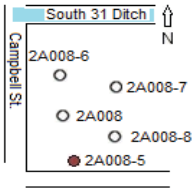
PROJECT NO. 11176991

BORING NO. 8A004-7

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~70' south of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.00
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/18/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/18/2014
AREA:	EU11	**DRILLER:**	[redacted]
NORTHING:	1171589.53	**GEOLOGIST:**	[redacted]
EASTING:	1041555.13	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm [redacted] 10; 44-10 Bkgd (cpm) 6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	68	0	342	342
1	0.5 - 2.0		50	Dark brown SILTY CLAY, some fine to medium gravel, some organics, mod dense, moist	CL	ND	40	4	222	226
2	2.0 - 3.0		50	Reddish brown SILTY CLAY, some fine to coarse gravel, trace sand at top, mod plastic, dense, moist	CL	ND	66	0	230	230
3				Bottom of borehole at 3 ft						

COMMENTS:

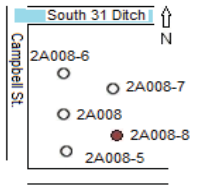
PROJECT NO. 11176991

BORING NO. 2A008-5

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-8
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St., south of South 16 Ditch, ~50' southeast of 2A008
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.21
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/18/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/18/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171616.99	GEOLOGIST:	[redacted]
EASTING:	1041594.94	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,750
44-10 Bkgd (cpm)	6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	1.7	58	2	234	236
1	0.5 - 2.0		50	Dark brown SILTY CLAY, some organics, moist	CL	ND	50	0	210	210
2	2.0 - 3.0		50	Reddish brown gray, trace fine gravel, trace organics, mod plastic, dense, damp @ 2'		ND	60	2	218	220
3				Bottom of borehole at 3 ft						

COMMENTS: Duplicate sample collected at 0-0.5' interval.

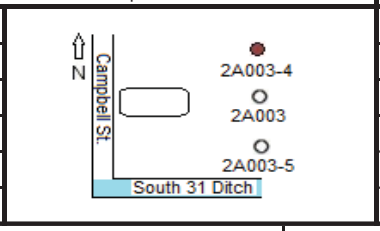
PROJECT NO. 11176991

BORING NO. 2A008-8

URS Corporation

TEST BORING LOG

		BORING NO:	2A003-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., just north of South 31 Ditch, behind the screw building, ~60' north of 2A003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	0.00
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/18/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/18/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171261.82	GEOLOGIST:	[redacted]
EASTING:	1041711.54	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,366
44-10 Bkgd (cpm)	6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
		0.0 - 0.5	100	FILL; Dark Brown organic SILTY CLAY, moist	OL	1.1	74	2	200	202
1		0.5 - 2.0	100	FILL; Black silty fine to medium gravel, some organics, loose, moist	GM	ND	52	2	176	178
2				Dark brown to reddish brown gray SILTY CLAY, trace fine gravel, trace organics, damp	CL					
3		2.0 - 3.0	100			ND	58	2	194	196
				Bottom of borehole at 3 ft						

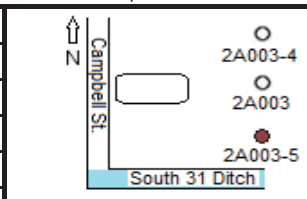
COMMENTS: Sampled for chemcial parameters
Box on instrument 2221 (attaached 4410) not working properly, switch out instruments

PROJECT NO. 11176991
BORING NO. 2A003-4

URS Corporation

TEST BORING LOG

		BORING NO:	2A003-5
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., just north of South 31 Ditch, behind the screw building, ~70' south of 2A003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	0.00
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/18/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/18/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1171125.09	GEOLOGIST:	[redacted]
EASTING:	1041711.54	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,574
44-10 Bkgd (cpm)	6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
		0.0 - 0.5	100	FILL; Dark Brown silty gravel, some organics, loose, moist	GM	1.9	48	4	164	168
1		0.5 - 2.0	100	0.5-1.5' FILL; Brown to gray silty fine to coarse gravel, loose, moist	GM	ND	62	2	226	228
2				1.5-2' Reddish brown SILTY CLAY, trace fine to medium gravel, more dense at bottom, dry	CL					
3		2.0 - 3.0	100	Reddish brown SILTY CLAY, dense, dry	CL	ND	66	2	228	230
				Brown Gray SILTY CLAY, dense, dry	CL					
				Bottom of borehole at 3 ft						

COMMENTS: Sampled for chemcial parameters

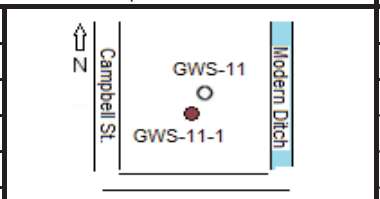
PROJECT NO. 11176991

BORING NO. 2A003-5

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-11-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East side of Campbell St., west of Modern Ditch, ~10' southwest of GWS-11
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.20
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/19/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/19/2014
AREA:	EU11	DRILLER:	[redacted]
NORTHING:	1170576.25	GEOLOGIST:	[redacted]
EASTING:	1041633.07	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,204
44-10 Bkgd (cpm)	9,198

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	224	224
	0.0 - 0.5		100	FILL; Dark Brown silty fine to coarse gravel, trace organics, wet	GM	3.3	100	2	270	272
1	0.5 - 2.0		100	0.5-1.5' FILL; Light brown silty fine to coarse gravel, loose, saturated	GM	ND	56	0	172	172
2				1.5-2' Reddish brown to black SILTY CLAY, trace fine gravel, highly plastic, mod dense at bottom, moist	CL					
3	2.0 - 3.0		100	Reddish brown black SILTY CLAY, trace fine gravel, trace organics, highly plastic, mod dense, moist	CL	ND	66	0	212	212
				Bottom of borehole at 3 ft						

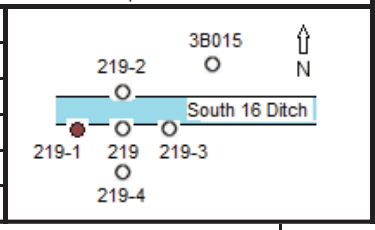
COMMENTS:

PROJECT NO.	11176991
BORING NO.	GWS-11-1

URS Corporation

TEST BORING LOG

		BORING NO:	219-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along South 16 Ditch, southwest of 3B015 cluster, ~20 west of 219
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.94
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/13/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/13/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171830.609	**GEOLOGIST:**	[redacted]
EASTING:	1041887.566	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,472; 44-10 Bkgd (cpm) 6,028

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	156	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	56	0	232	232
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, trace black staining, dense, moist	CL	ND	54	2	234	236
3	2.0-3.0		75	Dark Brown sandy SILTY CLAY, some organics, trace fine gravel, moist Same as above, grades to brown, dense	CL	ND	42	0	244	244
4				Bottom of borehole 3.0'						

COMMENTS:

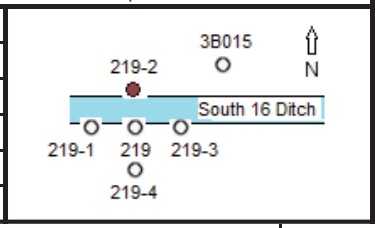
PROJECT NO. 11176991

BORING NO. 219-1

URS Corporation

TEST BORING LOG

		BORING NO:	219-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along South 16 Ditch, southwest of 3B015 cluster, ~20 north of 219
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.85
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/13/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/13/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171839.653	**GEOLOGIST:**	[redacted]
EASTING:	1041915.379	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,948; **44-10 Bkgd (cpm)** 6,028

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	156	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, ice		ND	52	0	228	228
1 2	0.5-2.0		100	Dark Brown organic reworked SILTY CLAY, some fine gravel, dense, moist	OL	ND	56	0	226	226
3	2.0-3.0		75	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	56	0	230	230
4				Bottom of borehole 3.0'						

COMMENTS: Relocated 6' to the south of original location due to ditch

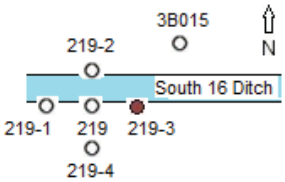
PROJECT NO. 11176991

BORING NO. 219-2

URS Corporation

TEST BORING LOG

		BORING NO:	219-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along South 16 Ditch, southwest of 3B015 cluster, ~20 east of 219
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.28
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/13/2013
AREA:	EU12	DRILLER:	[redacted]
NORTHING:	1171828.752	GEOLOGIST:	[redacted]
EASTING:	1041921.921	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,076
44-10 Bkgd (cpm)	6,028

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	156	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, ice	OL	ND	52	0	244	244
1 2	0.5-2.0		100	Brown Gray SILTY CLAY, trace organics, some fine gravel, dense, moist	CL	ND	50	0	276	276
3	2.0-3.0		100	Top 0.5' Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist Bottom 0.5' Dark Brown sandy SILTY CLAY, some organics, trace fine gravel, mod dense, moist		ND	56	0	248	248
4				Bottom of borehole 3.0'						

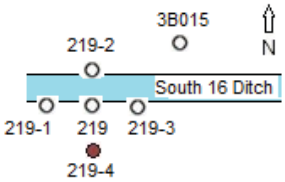
COMMENTS:

PROJECT NO.	11176991
BORING NO.	219-3

URS Corporation

TEST BORING LOG

		BORING NO:	219-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along South 16 Ditch, southwest of 3B015 cluster, ~20 south of 219
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.92
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/13/2013
AREA:	EU12	DRILLER:	[redacted]
NORTHING:	1171815.635	GEOLOGIST:	[redacted]
EASTING:	1041904.921	RAD TECH:	[redacted]



Gamma (γ) Survey:		
44-10 grd. Surf. (cpm)	11,276	
44-10 Bkgd (cpm)	6,028	

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	156	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, ice	OL	ND	64	0	206	206
1	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, trace fine gravel, dense, moist	CL	ND	76	0	258	258
2				Same as above, grades to brown gray						
3	2.0-3.0		100	Black sandy SILTY CLAY, trace organics, trace fine gravel, mod dense, moist	CL	ND	62	2	220	222
4				Bottom of borehole 3.0'						

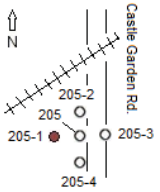
COMMENTS:

PROJECT NO.	11176991
BORING NO.	219-4

URS Corporation

TEST BORING LOG

		BORING NO:	205-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along Castle Garden Rd., southeast of former railroad, ~20' west of 205
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.88
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171284.284	**GEOLOGIST:**	[redacted]
EASTING:	1042501.757	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,582
44-10 Bkgd (cpm)	8,606

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	178	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	44	2	248	250
1	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	50	6	294	300
2	2.0-3.0		100	Brown Gray SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	54	0	280	280
3				Bottom of borehole 3.0'						
4										

COMMENTS:

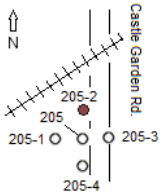
PROJECT NO. 11176991

BORING NO. 205-1

URS Corporation

TEST BORING LOG

		BORING NO:	205-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along Castle Garden Rd., southeast of former railroad, ~20' north of 205
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.93
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171300.493	**GEOLOGIST:**	[redacted]
EASTING:	1042514.622	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)**	13,792
	44-10 Bkgd (cpm)	8,606

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	178	178
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	296	296
1 2	0.5-2.0		100	FILL; Dark Brown sandy Silty fine to coarse GrayBlue SLAG, loose, moist at bottom	SM	ND	56	0	270	270
3	2.0-3.0		100	Brown sandy SILTY CLAY, some fine gravel, mod dense, moist	CL	ND	60	0	270	270
4				Bottom of borehole 3.0'						

COMMENTS:

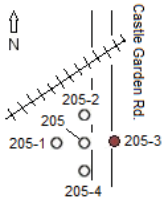
PROJECT NO. 11176991

BORING NO. 205-2

URS Corporation

TEST BORING LOG

		BORING NO:	205-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along Castle Garden Rd., southeast of former railroad, ~20' east of 205
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.86
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171284.500	**GEOLOGIST:**	[redacted]
EASTING:	1042532.708	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,112; 44-10 Bkgd (cpm) 8,606

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	178	178
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	52	0	260	260
1	0.5-2.0		100	FILL; Dark Brown organic SILTY CLAY, moist	CL	0.5	50	2	382	384
2				FILL; Brown Silty fine to coarse Green Gray Blue Gray SLAG, slight odor, loose, dry	GM					
3	2.0-3.0		100	Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	54	0	282	282
4				Bottom of borehole 3.0'						

COMMENTS: PID background 0.0 ppm

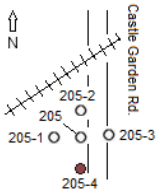
PROJECT NO. 11176991

BORING NO. 205-3

URS Corporation

TEST BORING LOG

		BORING NO:	205-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along Castle Garden Rd., southeast of former railroad, ~20' south of 205
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.72
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171269.876	**GEOLOGIST:**	[redacted]
EASTING:	1042515.436	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,188; 44-10 Bkgd (cpm) 8,606

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	178	178
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, fill at bottom, moist	OL	ND	56	0	224	224
1 2	0.5-2.0		100	FILL; Dark Brown sandy Silty fine to coarse Green Gray SLAG, loose, moist	GM	ND	58	2	302	304
3	2.0-3.0		100	FILL; Brown sandy Silty fine to coarse GRAVEL, some clay, loose, dry		ND	42	0	236	236
4				Bottom of borehole 3.0'						

COMMENTS:

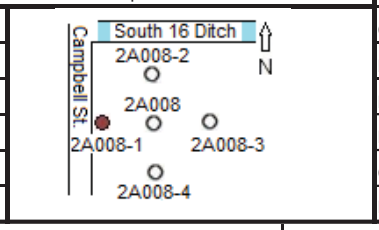
PROJECT NO. 11176991

BORING NO. 205-4

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~50' west of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.1
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171656.573	**GEOLOGIST:**	[redacted]
EASTING:	1041551.276	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,162; **44-10 Bkgd (cpm)** 10,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	0	198	198
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	66	0	340	340
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist Dark Brown Gray, trace organics, trace fine gravel @ 1'	CL	ND	74	2	390	392
2	2.0 - 3.0		100	Brown Gray, trace sand @ 2'		ND	72	0	380	380
3				Bottom of borehole 3.0 ft						

COMMENTS: First attempt refual at 1.5'. Consult with M. Legeza (USACE) and moved location 13' east of original point, full recovery.

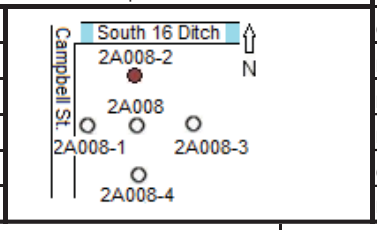
PROJECT NO. 11176991

BORING NO. 2A008-1

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~60' north of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.24
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171695.744	**GEOLOGIST:**	[redacted]
EASTING:	1041557.635	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 14,516; 44-10 Bkgd (cpm) 10,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	0	198	198
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	52	0	316	316
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	48	0	298	298
2				Brown SILTY SAND, trace organics, mod dense, wet	SM	ND	62	2	342	344
3	2.0 - 3.0		100	Brown sandy SILTY CLAY, trace organics, more dense at bottom, moist	CL					
				Bottom of borehole 3.0 ft						

COMMENTS:

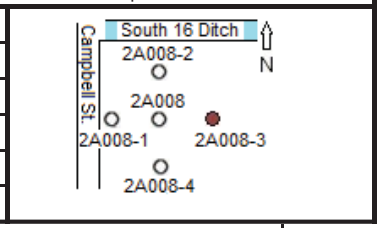
PROJECT NO. 11176991

BORING NO. 2A008-2

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~50' east of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.75
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171656.772	**GEOLOGIST:**	[redacted]
EASTING:	1041591.668	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 11,938; **44-10 Bkgd (cpm)** 10,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	0	198	198
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	68	0	342	342
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, moist Grades to gray @ 1.5'	CL	ND	62	2	334	336
3	2.0 - 3.0		100	Dry @ 2'		ND	84	0	398	398
4	3.0-4.0		100			ND	58	0	320	320
				Bottom of borehole 4.0 ft						

COMMENTS: Sampled 3.0-4.0' interval due to higher rad readings at 0.5-2.0' interval. Rad readings decreased at 3.0-4.0' interval.

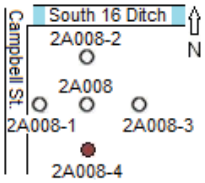
PROJECT NO. 11176991

BORING NO. 2A008-3

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~50' south of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.41
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171625.181	**GEOLOGIST:**	
EASTING:	1041556.258	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 02; **44-10 Bkgd (cpm)** 10,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	0	198	198
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	66	0	356	356
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, moist Grades to gray, dense @ 1.5'	CL	ND	66	0	364	364
2	2.0 - 3.0		100	Trace fine gravel, dense @ 2'		ND	70	2	350	352
3				Bottom of borehole 3.0 ft						
4										

COMMENTS: Moved 2.0' west of original location due to ditch

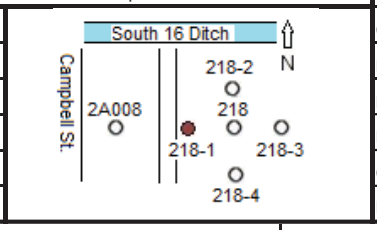
PROJECT NO. 11176991

BORING NO. 2A008-4

URS Corporation

TEST BORING LOG

		BORING NO:	218-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St. and west of 2A008 cluster, ~10' west of 218
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.12
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171651.7	**GEOLOGIST:**	[redacted]
EASTING:	1041732.248	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)**	9,918
	44-10 Bkgd (cpm)	5,638

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	150	152
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist		ND	50	0	312	312
1	0.5 - 2.0		100	Some fine to med gravel, mod dense @ 0.5'	OL	ND	60	2	334	336
2				Brown Gray SILTY CLAY, trace organics, trace fine to coarse gravel, dense, moist						
3	2.0 - 3.0		100		CL	ND	68	0	346	346
4				Bottom of borehole 3.0 ft						

COMMENTS:

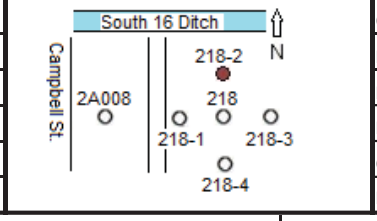
PROJECT NO. 11176991

BORING NO. 218-1

URS Corporation

TEST BORING LOG

		BORING NO:	218-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St. and west of 2A008 cluster, ~10' north of 218
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.93
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171668.405	**GEOLOGIST:**	[redacted]
EASTING:	1041748.945	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,640; 44-10 Bkgd (cpm) 5,638

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	150	152
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	56	0	324	324
1	0.5 - 2.0		100	Dark Brown Black reworked SILTY CLAY, some organics, some fine to med gravel, trace sand at bottom, more dense at bottom, moist	CL	ND	66	0	358	358
2	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, dry	CL	ND	48	0	310	310
3				Bottom of borehole 3.0 ft						
4										

COMMENTS:

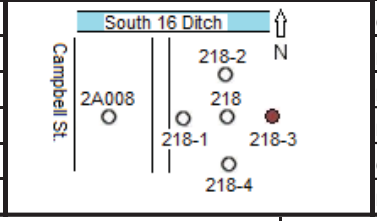
PROJECT NO. 11176991

BORING NO. 218-2

URS Corporation

TEST BORING LOG

		BORING NO:	218-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St. and west of 2A008 cluster, ~10' east of 218
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.07
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171653.904	**GEOLOGIST:**	[redacted]
EASTING:	1041765.165	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,292; 44-10 Bkgd (cpm) 5,638

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	150	152
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	38	0	280	280
1 2	0.5 - 2.0		100	FILL; Brown reworked SILTY CLAY, some organics, some fine to med gravel, more dense @ 2', moist	CL	ND	48	0	302	302
3	2.0 - 3.0		100	Dark Brown @ 2'		ND	54	0	362	362
4				Bottom of borehole 3.0 ft						

COMMENTS:

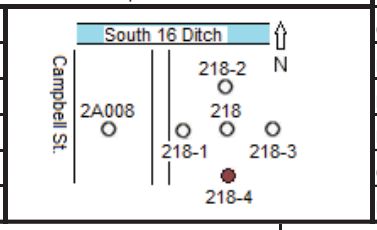
PROJECT NO. 11176991

BORING NO. 218-3

URS Corporation

TEST BORING LOG

		BORING NO:	218-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St. and west of 2A008 cluster, ~10' south of 218
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.19
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171636.671	**GEOLOGIST:**	
EASTING:	1041749.15	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,570
44-10 Bkgd (cpm)	5,638

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	150	152
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	42	0	272	272
1	0.5 - 2.0		100	FILL; Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	54	0	332	332
2	2.0 - 3.0		100	Dark Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist Grades to brown gray @ 2.5'	CL	ND	74	2	400	402
3				Bottom of borehole 3.0 ft						
4										

COMMENTS:

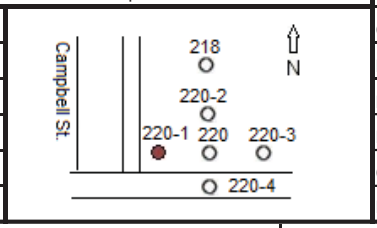
PROJECT NO. 11176991

BORING NO. 218-4

URS Corporation

TEST BORING LOG

		BORING NO:	220-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., south of 218 cluster, ~10' west of 220
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.09
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171571.291	**GEOLOGIST:**	[redacted]
EASTING:	1041726.1	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 11,080; **44-10 Bkgd (cpm)** 5,638

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	150	152
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	48	0	294	294
1 2	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some organics, some fine to coarse gravel (fill), loose at top, more dense at bottom, moist	CL	ND	36	2	274	276
3	2.0 - 3.0		100	FILL; Top 0.5' Brown SILTY CLAY, trace organics, dense, moist FILL; Bottom 0.5' Brown SILTY CLAY, some fine to coarse gravel (fill), dense, moist		ND	54	0	320	320
4				Bottom of borehole 3.0 ft						

COMMENTS:

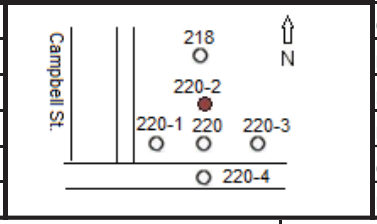
PROJECT NO. 11176991

BORING NO. 220-1

URS Corporation

TEST BORING LOG

		BORING NO:	220-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., south of 218 cluster, ~10' north of 220
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.82
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171587.257	**GEOLOGIST:**	[redacted]
EASTING:	1041741.199	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,550; **44-10 Bkgd (cpm)** 5,638

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	150	152
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	40	2	284	286
1 2	0.5 - 2.0		100	FILL; Dark Brown reworked SILTY CLAY, some grading to trace organics, some fine to med gravel, more dense at bottom, moist	CL	ND	48	2	306	308
3	2.0 - 3.0		100			ND	76	0	368	368
4				Bottom of borehole 3.0 ft						

COMMENTS:

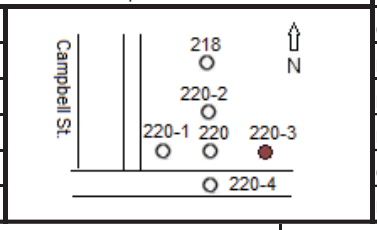
PROJECT NO. 11176991

BORING NO. 220-2

URS Corporation

TEST BORING LOG

		BORING NO:	220-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., south of 218 cluster, ~10' east of 220
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.19
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171570.874	**GEOLOGIST:**	[redacted]
EASTING:	1041756.259	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,750; 44-10 Bkgd (cpm) 5,638

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	150	152
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	48	2	344	346
1	0.5 - 2.0		100	FILL; Dark Brown Black SILTY Green Gray SLAG, loose, wet	SM	ND	70	0	418	418
2	2.0 - 3.0		100			ND	60	0	380	380
3				Dark Brown Black SILTY CLAY, trace organics, some fine to med gravel, more dense at bottom, moist	CL					
4				Bottom of borehole 3.0 ft						

COMMENTS:

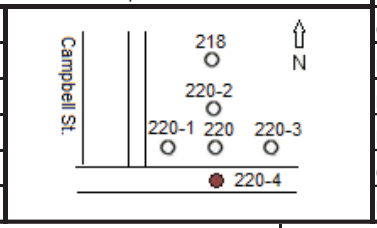
PROJECT NO. 11176991

BORING NO. 220-3

URS Corporation

TEST BORING LOG

		BORING NO:	220-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., south of 218 cluster, ~10' south of 220
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.1
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171549.101	**GEOLOGIST:**	
EASTING:	1041738.734	**RAD TECH:**	



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)**	5,842
	44-10 Bkgd (cpm)	5,638

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	150	152
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, slag at bottomm, moist	OL	ND	44	0	300	300
1	0.5 - 2.0		100	FILL; Dark Brown Gray SILTY SLAG, loose, moist	GM	ND	74	2	434	436
				FILL; Dark Brown SILTY CLAY, some fine to med gravel, dense, moist						
2				FILL; Green Gray coarse SLAG, loose, wet						
	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, some fine to med gravel, trace black staining, dense, moist	CL	ND	72	0	398	398
3										
				Bottom of borehole 3.0 ft						
4										

COMMENTS:

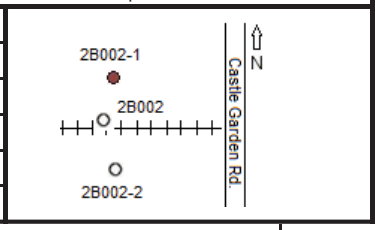
PROJECT NO. 11176991

BORING NO. 220-4

URS Corporation

TEST BORING LOG

		BORING NO:	2B002-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located west of Castle Garden Rd., along former railroad, ~50' north of 2B002
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.13
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171356.773	**GEOLOGIST:**	[redacted]
EASTING:	1042174.260	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,156
44-10 Bkgd (cpm)	8,606

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	178	178
		0.0 - 0.5	100	Black organic SILTY CLAY, moist	OL	ND	50	0	228	228
1		0.5-2.0	100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, moist	CL	ND	60	2	312	314
2				Same as above, grades to gray brown, dense						
3		2.0-3.0	100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, pocket coarse gravel at bottom, dense, moist		ND	72	0	244	244
4				Bottom of borehole 3.0'						

COMMENTS: Sampled for chem parameters only

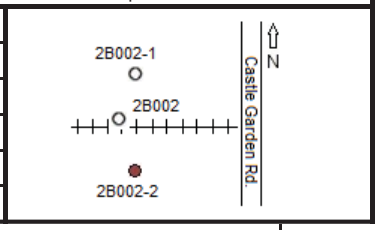
PROJECT NO. 11176991

BORING NO. 2B002-1

URS Corporation

TEST BORING LOG

		BORING NO:	2B002-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located west of Castle Garden Rd., along former railroad, ~50' south of 2B002
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.40
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171284.071	**GEOLOGIST:**	[redacted]
EASTING:	1042174.379	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,872; 44-10 Bkgd (cpm) 8,606

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	178	178
		0.0 - 0.5	100	Black organic SILTY CLAY, wet	OL	ND	52	0	236	236
1		0.5-2.0	100	Reddish Brown reworked SILTY CLAY, trace organics, some fine to med gravel, more dense at bottom, moist	CL	ND	60	0	298	298
2		2.0-3.0	100	Brown Gray SILTY CLAY, trace organics, some fine to med gravel, trace black staining, dense, moist	CL	ND	54	0	250	250
3										
4				Bottom of borehole 3.0'						

COMMENTS: Sampled for chem parameters only

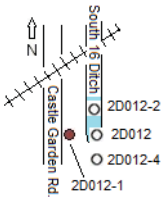
PROJECT NO. 11176991

BORING NO. 2B002-2

URS Corporation

TEST BORING LOG

		BORING NO:	2D012-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Castle Garden Rd., along South 16 Ditch, southeast of former railroad, ~20' west of 2D012
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.24
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/17/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/17/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171382.939	**GEOLOGIST:**	[redacted]
EASTING:	1042545.274	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,946; 44-10 Bkgd (cpm) 10,088

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	66	4	212	216
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, gravel (fill) at bottom	OL	ND	54	0	264	264
1 2	0.5-2.0		100	FILL; Black Silty fine to coarse gravel (fill), some Blue Gray slag, loose, moist Grades to dark brown @ 1.5'	GM	ND	48	2	334	336
3	2.0-3.0		100	FILL; Brown Gray SILTY CLAY, some fine to coarse Gray Blue slag, loose, moist	CL	ND	76	0	302	302
4				Bottom of borehole 3.0'						

COMMENTS:

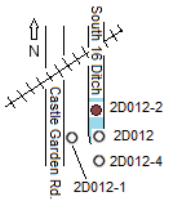
PROJECT NO. 11176991

BORING NO. 2D012-1

URS Corporation

TEST BORING LOG

		BORING NO:	2D012-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Castle Garden Rd., along South 16 Ditch, southeast of former railroad, ~20' north of 2D012
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.27
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/17/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/17/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171400.175	**GEOLOGIST:**	[redacted]
EASTING:	1042556.689	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,254
44-10 Bkgd (cpm)	10,088

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	66	4	212	216
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	296	296
1	0.5-2.0		100	FILL; Dark Brown SILTY CLAY, some fine to coarse Black Blue slag, pocket coarse sand at bottom, loose, moist	CL/SP	ND	62	6	378	384
2										
	2.0-3.0		75	Coarse SAND, wet	SP	ND	68	0	304	304
3				Bottom 10" Brown Gray SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL					
4				Bottom of borehole 3.0'						

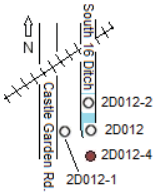
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**2D012-2**

URS Corporation

TEST BORING LOG

		BORING NO:	2D012-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Castle Garden Rd., near South 16 Ditch,southeast of former railroad, ~20' south of 2D012
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.12
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/17/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/17/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171368.412	**GEOLOGIST:**	[redacted]
EASTING:	1042558.232	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 15,722; 44-10 Bkgd (cpm) 10,088

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	66	4	212	216
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, gravel	OL	ND	68	0	336	336
1 2	0.5-2.0		100	FILL; Brown sandy Silty fine to coarse Blue Gray slag, loose, moist	GM	ND	66	0	338	338
3	2.0-3.0		100	Brown Gray reworked SILTY CLAY, some fine to coarse gravel, trace coal tar, dense, moist	CL	ND	76	0	398	398
4				Bottom of borehole 3.0'						

COMMENTS: Slightly elevated rad readings at 3.0'. Refusal at 4.0'. Unable to get representative sample at 4.0'. Consulted USACE.

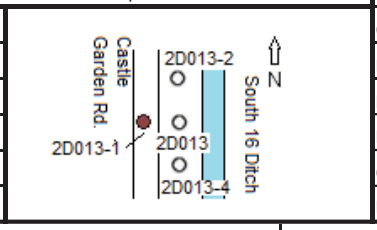
PROJECT NO. 11176991

BORING NO. 2D012-4

URS Corporation

TEST BORING LOG

		BORING NO:	2D013-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Castle Garden Rd., along South 16 Ditch, ~15' west of 2D013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.74
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/17/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/17/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171465.379	**GEOLOGIST:**	
EASTING:	1042528.407	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 16,710; **44-10 Bkgd (cpm)** 10,088

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	66	4	212	216
	0.0 - 0.5		100	FILL; Brown sandy Silty Blue Gray SLAG, loose, moist	GM	ND	116	4	380	384
1	0.5-2.0		100		GM	ND	70	0	410	410
2				FILL; Brown SILTY CLAY, some slag, dense, moist	CL					
3	2.0-3.0		0	Bottom of borehole 2.0'						
4										

COMMENTS: Refusal at first attempt (road material), move location 3.5' to the east of original location, inside fence, per consult with N. Miller. Refusal, move additional 2.0' east with 0.0-2.0' recovery.

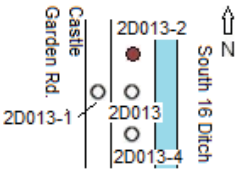
PROJECT NO. 11176991

BORING NO. 2D013-1

URS Corporation

TEST BORING LOG

		BORING NO:	2D013-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Castle Garden Rd., along South 16 Ditch, ~20' north of 2D013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.34
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/17/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/17/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171479.605	**GEOLOGIST:**	[redacted]
EASTING:	1042536.251	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,542; 44-10 Bkgd (cpm) 10,088

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	66	4	212	216
	0.0 - 0.5		100	FILL; Dark Brown oganic sandy SILT, moist	OL	ND	44	0	260	260
1	0.5-2.0		100	FILL; Dark Brown SILTY CLAY, some sand, some organics, some fine to med gravel, dense, moist	CL	ND	48	0	268	268
2	2.0-3.0		100	FILL; Brown sandy Silty fine to coarse gravel (fill), loose, wet	GM	ND	50	0	294	294
3				Bottom of borehole 3.0'						
4										

COMMENTS:

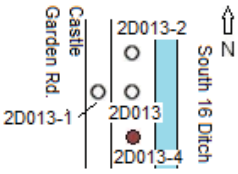
PROJECT NO. 11176991

BORING NO. 2D013-2

URS Corporation

TEST BORING LOG

		BORING NO:	2D013-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Castle Garden Rd., along South 16 Ditch, ~20' south of 2D013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.91
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/17/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/17/2013
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171448.285	**GEOLOGIST:**	[redacted]
EASTING:	1042535.796	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 12,126; 44-10 Bkgd (cpm) 10,088

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	66	4	212	216
	0.0 - 0.5		100	FILL; Dark Brown oganic SILTY CLAY, moist	OL	ND	76	0	280	280
1	0.5-2.0		100	FILL: Dark Brown SILTY CLAY, some organics, some fine to coarse SLAG, dense, moist	CL	ND	56	2	320	322
2	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL	ND	74	0	274	274
3				Bottom of borehole 3.0'						
4										

COMMENTS:

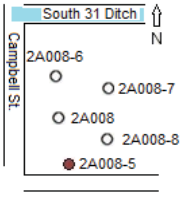
PROJECT NO. 11176991

BORING NO. 2D013-4

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~70' south of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.00
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/18/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/18/2014
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171589.53	**GEOLOGIST:**	[redacted]
EASTING:	1041555.13	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 12,310; 44-10 Bkgd (cpm) 6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	68	0	342	342
1	0.5 - 2.0		50	Dark brown SILTY CLAY, some fine to medium gravel, some organics, mod dense, moist	CL	ND	40	4	222	226
2	2.0 - 3.0		50	Reddish brown SILTY CLAY, some fine to coarse gravel, trace sand at top, mod plastic, dense, moist	CL	ND	66	0	230	230
3				Bottom of borehole at 3 ft						

COMMENTS:

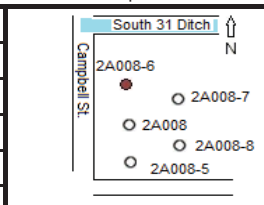
PROJECT NO. 11176991

BORING NO. 2A008-5

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~70' north of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.99
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/18/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/18/2014
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171730.21	**GEOLOGIST:**	[redacted]
EASTING:	1041553.54	**RAD TECH:**	[redacted]



Gamma (γ) Survey:

44-10 grd. Surf. (cpm)	14,142
44-10 Bkgd (cpm)	6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	62	2	248	250
1	0.5-2.0		100	0.5-1.5 Dark Brown SILTY CLAY, some coarse gravel, some organics, moist	CL	ND	54	0	226	226
2				1.5-2' Reddish brown SILTY CLAY, trace fine gravel, trace organics, dense, moist						
3	2.0-3.0		100	Brown gray SILTY CLAY, trace fine gravel, trace organics, dense, damp		ND	58	0	274	274
4				Bottom of borehole 3.0'						

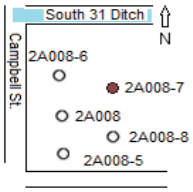
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**2A008-6**

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-7
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~50' northeast of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.00
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/18/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/18/2014
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171695.01	**GEOLOGIST:**	[redacted]
EASTING:	1041597.99	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 14,452; 44-10 Bkgd (cpm) 6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	1.3	52	0	244	244
1	0.5-2.0		100	Brown SILTY CLAY, some organics, mod plastic, dense, moist	CL	ND	42	0	220	220
2				Same as above, grades to reddish brown						
3	2.0-3.0		100	Reddish brown black SILTY CLAY, some organics, mod plastic, dense, moist to damp		ND	46	0	226	226
4				Bottom of borehole 3.0'						

COMMENTS:

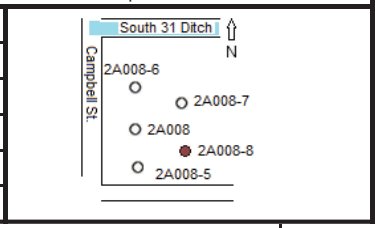
PROJECT NO. 11176991

BORING NO. 2A008-7

URS Corporation

TEST BORING LOG

		BORING NO:	2A008-8
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., south of South 16 Ditch, ~50' southeast of 2A008
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.21
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/18/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/18/2014
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171616.99	**GEOLOGIST:**	[redacted]
EASTING:	1041594.94	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 50; **44-10 Bkgd (cpm)** 6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	1.7	58	2	234	236
1	0.5 - 2.0		50	Dark brown SILTY CLAY, some organics, moist	CL	ND	50	0	210	210
2	2.0 - 3.0		50	Reddish brown gray, trace fine gravel, trace organics, mod plastic, dense, damp @ 2'		ND	60	2	218	220
3				Bottom of borehole at 3 ft						

COMMENTS: Duplicate sample collected at 0-0.5' interval.

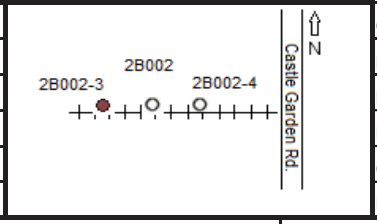
PROJECT NO. 11176991

BORING NO. 2A008-8

URS Corporation

TEST BORING LOG

		BORING NO:	2B002-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located west of Castle Garden Rd., along former railroad, ~20' west of 2B002
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.75
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/18/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/18/2014
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171323.12	**GEOLOGIST:**	[redacted]
EASTING:	1042143.99	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,282
44-10 Bkgd (cpm)	6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
		0.0 - 0.5	100	FILL: Dark Brown silty fine to coarse gravel, wet	GM	1.4	62	0	252	252
1		0.5-2.0	100	Gray SILTY CLAY, trace fine to coarse gravel, dense, dry	CL	ND	58	4	222	226
2		2.0-3.0	100	Brown to gray, some medium to coarse gravel, some organics @ 2'	CL	ND	50	0	246	246
3										
4				Bottom of borehole 3.0'						

COMMENTS: Sampled for chemcial parameters

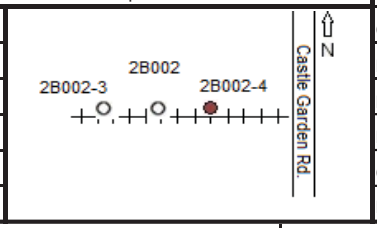
PROJECT NO. 11176991

BORING NO. 2B002-3

URS Corporation

TEST BORING LOG

		BORING NO:	2B002-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located west of Castle Garden Rd., along former railroad, ~20' east of 2B002
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.57
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/18/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/18/2014
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171321.89	**GEOLOGIST:**	[redacted]
EASTING:	1042186.79	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,588; **44-10 Bkgd (cpm)** 6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
		0.0-0.5	100	Dark Brown organic SILTY CLAY, moist	OL	3.7	48	0	228	228
1 2		0.5-2.0	100	Reddish brown SILTY CLAY, some fine to coarse gravel, trace organics, mod plastic, more dense at bottom, damp	CL	ND	62	0	242	242
3		2.0-3.0	100	Reddish brown grades to gray SILTY CLAY, lens of fine to coarse gravel at bottom, dense, dry	CL/GW	ND	170	2	256	258
4				Bottom of borehole 3.0'						

COMMENTS: Sampled for chemcial parameters

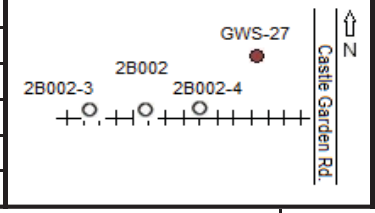
PROJECT NO. 11176991

BORING NO. 2B002-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-27
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located west of Castle Garden Rd., along former railroad, ~50' northeast of 2B002 cluster
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.10
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/18/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/18/2014
AREA:	EU12	**DRILLER:**	[redacted]
NORTHING:	1171342.70	**GEOLOGIST:**	[redacted]
EASTING:	1042234.61	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,286
44-10 Bkgd (cpm)	6,144

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	0	150	150
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	9.9	64	2	256	258
1 2	0.5-2.0		100	Dark brown SILTY CLAY, trace fine gravel, some organics, wet to moist	CL	1.6	40	2	198	200
3	2.0-3.0		100	Dark brown SILTY CLAY, trace fine gravel, trace organics, dense, dry Same as above, grades to brown gray	CL	ND	70	2	264	266
4				Bottom of borehole 3.0'						

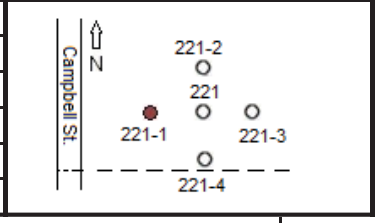
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-27**

URS Corporation

TEST BORING LOG

		BORING NO:	221-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just north of former railroad, ~10' west of 221
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.16
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171341.619	**GEOLOGIST:**	[redacted]
EASTING:	1041936.31	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,574
44-10 Bkgd (cpm)	4,736

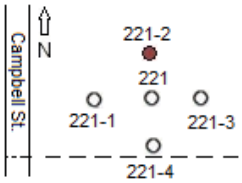
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	24	0	178	178
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	32	0	204	204
1 2	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some fill (coarse brick material), trace organics, dense, moist	CL	ND	40	0	324	324
3	2.0 - 3.0		100			ND	40	0	308	308
4				Bottom of borehole 3.0 ft						

COMMENTS:	**PROJECT NO.** 11176991
	BORING NO. 221-1

URS Corporation

TEST BORING LOG

		BORING NO:	221-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just north of former railroad, ~10' north of 221
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.23
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171360.113	**GEOLOGIST:**	[redacted]
EASTING:	1041974.123	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 4,614; **44-10 Bkgd (cpm)** 4,736

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	24	0	178	178
	0.0 - 0.5		100	FILL; Dark Brown Black organic SILTY CLAY, loose, moist	OL	ND	40	0	324	324
1	0.5 - 2.0		100	FILL; Brown SILTY CLAY, some fine to coarse gravel (fill), loose, wet	CL	ND	54	0	336	336
2				Dark Brown SILTY CLAY, trace organics, trace fine gravel, trace black staining, dense, dry	CL					
3	2.0 - 3.0		100	Grades to gray @ 2.5'		ND	54	2	322	324
4				Bottom of borehole 3.0 ft						

COMMENTS: Moved boring 3.5' east of original location due to concrete.

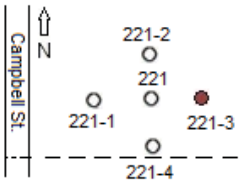
PROJECT NO. 11176991

BORING NO. 221-2

URS Corporation

TEST BORING LOG

		BORING NO:	221-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just north of former railroad, ~10' east of 221
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.47
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171342.176	**GEOLOGIST:**	[redacted]
EASTING:	1041975.477	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,234; **44-10 Bkgd (cpm)** 4,736

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	24	0	178	178
	0.0 - 0.5		100	FILL; Gray Brown SILTY CLAY, some gravel, saturated	CL	ND	26	0	292	292
1	0.5 - 2.0		100	FILL; Dark Brown organic SILTY CLAY, some fine to coarse slag, loose, moist	OL	ND	62	2	382	384
2				Brown SILTY CLAY, trace organics, some fine gravel,dense, moist	CL					
3	2.0 - 3.0		100	Gray Brown, trace organics, trace fine gravel, trace black staining @ 2'	CL	ND	36	2	302	304
4				Bottom of borehole 3.0 ft						

COMMENTS:

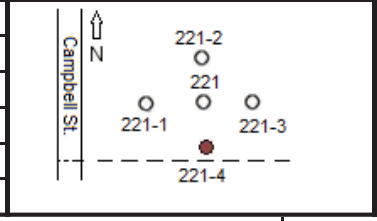
PROJECT NO. 11176991

BORING NO. 221-3

URS Corporation

TEST BORING LOG

		BORING NO:	221-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just north of former railroad, ~10' south of 221
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.45
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171327.23	**GEOLOGIST:**	
EASTING:	1041971.063	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,096; **44-10 Bkgd (cpm)** 4,736

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	24	0	178	178
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	56	0	328	328
1 2	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some fine to coarse slag, loose, wet	CL	ND	56	0	312	312
3	2.0 - 3.0		100	Brown SILTY CLAY, some fine to coarse gravel @ 2', more dense @ 3', moist		ND	64	4	344	348
4				Bottom of borehole 3.0 ft						

COMMENTS:

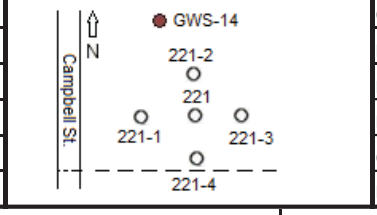
PROJECT NO. 11176991

BORING NO. 221-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-14
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just north of former railroad, north of 221 cluster
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.12
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/3/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/3/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171402.294	**GEOLOGIST:**	[redacted]
EASTING:	1041958.817	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	5,268
44-10 Bkgd (cpm)	4,736

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	24	0	178	178
	0.0 - 0.5		100	FILL; Dark Brown SILTY CLAY, gravel at bottom, loose, wet	CL	ND	40	2	292	294
1	0.5 - 2.0		100	FILL; Dark Brown SILTY gravel, loose, wet	GM	ND	26	0	228	228
2				Dark Brown Gray SILTY CLAY, some fine gravel, dense, moist	CL					
3	2.0 - 3.0		100	Black @ 2' Grades to gray @ 2.5'	CL	ND	54	0	326	326
4				Bottom of borehole 3.0 ft						

COMMENTS:

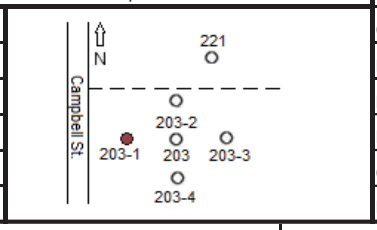
PROJECT NO. 11176991

BORING NO. GWS-14

URS Corporation

TEST BORING LOG

		BORING NO:	203-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just south of former railroad and south of 221 cluster, ~10' west of 203
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.52
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/4/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/4/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171261.422	**GEOLOGIST:**	[redacted]
EASTING:	1041890.051	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,694; **44-10 Bkgd (cpm)** 5,996

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	154	154
	0.0 - 0.5		100	FILL; Black organic SILTY CLAY, gravel at bottom, wet	OL	ND	36	0	232	232
1 2	0.5 - 2.0		100	FILL; Yellowish Brown reworked SILTY CLAY, some organics, some gravel, trace black staining, mod dense, moist	CL	ND	74	0	336	336
3	2.0 - 3.0		100	Yellowish Brown reworked SILTY CLAY, some organics, some fine to med gravel, some black staining, dense, moist	CL	ND	62	0	304	304
4				Bottom of borehole 3.0 ft						

COMMENTS:

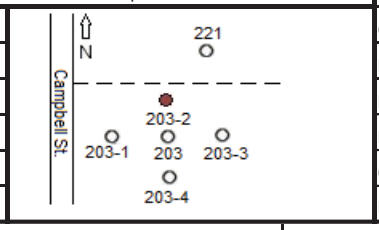
PROJECT NO. 11176991

BORING NO. 203-1

URS Corporation

TEST BORING LOG

		BORING NO:	203-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just south of former railroad and south of 221 cluster, ~10' north of 203
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.05
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/4/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/4/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171277.356	**GEOLOGIST:**	[redacted]
EASTING:	1041906.125	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,854; 44-10 Bkgd (cpm) 5,996

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	154	154
	0.0 - 0.5		100	FILL; Dark Brown Black organic SILTY CLAY, gravel (fill) at bottom, wet	OL	ND	36	2	236	238
1	0.5 - 2.0		100	FILL; Yellowish Brown reworked SILTY CLAY, some organics, some gravel, dense, moist	CL	ND	66	4	338	342
2	2.0 - 3.0		100	No gravel, trace coarse slag, dry @ 2' Grades to brown gray @ 2.5'	CL	ND	64	0	320	320
3				Bottom of borehole 3.0 ft						
4										

COMMENTS:

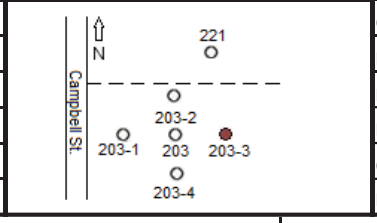
PROJECT NO. 11176991

BORING NO. 203-2

URS Corporation

TEST BORING LOG

		BORING NO:	203-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just south of former railroad and south of 221 cluster, ~10' east of 203
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.41
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/4/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/4/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171261.755	**GEOLOGIST:**	[redacted]
EASTING:	1041921.571	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,322; **44-10 Bkgd (cpm)** 5,996

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	154	154
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, saturated	OL	ND	46	2	250	252
1	0.5 - 2.0		100	FILL; Dark Brown Black reworked SILTY CLAY, black fill material at top, dry Yellowish Brown, dense @ 1.5'	CL	ND	44	0	250	250
2	2.0 - 3.0		100	Trace organics, trace fine to med gravel @ 2'		ND	54	2	256	258
3				Bottom of borehole 3.0 ft						
4										

COMMENTS:

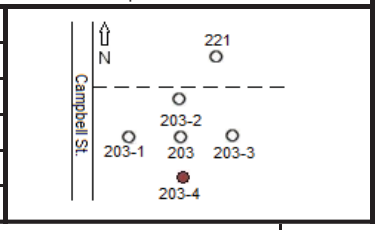
PROJECT NO. 11176991

BORING NO. 203-3

URS Corporation

TEST BORING LOG

		BORING NO:	203-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., just south of former railroad and south of 221 cluster, ~10' south of 203
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.83
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/4/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/4/2013
AREA:	EU13	**DRILLER:**	[redacted]
NORTHING:	1171245.215	**GEOLOGIST:**	[redacted]
EASTING:	1041906.189	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,816
44-10 Bkgd (cpm)	5,996

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	30	0	154	154
	0.0 - 0.5		100	FILL; Light Brown organic SILTY CLAY, saturated	OL	ND	50	0	264	264
1 2	0.5 - 2.0		100	FILL; Light Brown reworked SILTY CLAY, trace organics, some fine to med gravel, dense, moist Black Fill material, coal tar, wet @ 1.5'	CL	ND	64	2	332	334
3	2.0 - 3.0		100	Brown SILTY CLAY, trace organics, some fine gravel, trace black staining, dense, moist	CL	ND	60	0	306	306
4				Bottom of borehole 3.0 ft						

COMMENTS:

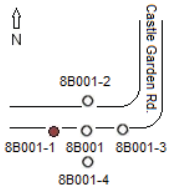
PROJECT NO. 11176991

BORING NO. 203-4

URS Corporation

TEST BORING LOG

		BORING NO:	8B001-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., ~20' west of 8B001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.08
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170513.447	**GEOLOGIST:**	[redacted]
EASTING:	1042470.358	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,802; 44-10 Bkgd (cpm) 6,060

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	4	204	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	0	256	256
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to coarse gravel, more dense at bottom, moist	CL	ND	58	0	264	264
3	2.0-3.0		100	Trace fine gravel, trace black staining @ 2'		ND	56	0	272	272
4				Bottom of borehole 3.0'						

COMMENTS:

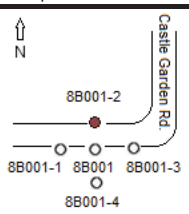
PROJECT NO. 11176991

BORING NO. 8B001-1

URS Corporation

TEST BORING LOG

		BORING NO:	8B001-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., ~20' north of 8B001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.93
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170532.081	**GEOLOGIST:**	[redacted]
EASTING:	1042486.540	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,846
44-10 Bkgd (cpm)	6,060

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	4	204	208
	0.0 - 0.5		100	FILL; Gray Silty fine to coarse Gray Blue SLAG		ND	56	0	238	238
1 2	0.5-2.0		100	Brown Gray, loose @ 0.5' wet @ 1.8'	GM	0.2	56	2	408	410
3	2.0-3.0		100	FILL; Brown Gray SILTY CLAY, trace organics, some fine to med gravel, trace slag at top, dense, moist	CL	ND	50	0	332	332
4				Bottom of borehole 3.0'						

COMMENTS: Background PID 0.1 ppm

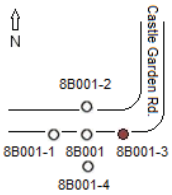
PROJECT NO. 11176991

BORING NO. 8B001-2

URS Corporation

TEST BORING LOG

		BORING NO:	8B001-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., ~20' east of 8B001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.03
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170513.472	**GEOLOGIST:**	[redacted]
EASTING:	1042503.176	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) [redacted]
44-10 Bkgd (cpm) 6,060

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	4	204	208
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, gravel at bottom	GM	ND	74	2	268	270
1	0.5-2.0		100	FILL; Brown Gray reworked SILTY CLAY, some organics, some fine to coarse gravel, dense, moist	CL	ND	84	0	292	292
2				FILL; Gray Silty fine to coarse SLAG, slight odor, loose, wet	GM					
3	2.0-3.0		100	Gray Silty fine to coarse gravel, some brick material @ 2'		ND	72	0	296	296
4				Bottom of borehole 3.0'						

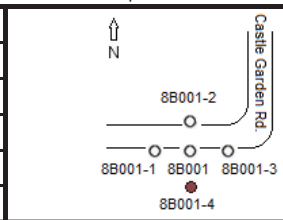
COMMENTS:

PROJECT NO. 11176991
BORING NO. 8B001-3

URS Corporation

TEST BORING LOG

		BORING NO:	8B001-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., ~20' south of 8B001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.83
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170497.156	**GEOLOGIST:**	[redacted]
EASTING:	1042485.901	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 8,056; **44-10 Bkgd (cpm)** 6,060

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	4	204	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY	OL	ND	38	0	292	292
1	0.5-2.0		100	Dark Brown Gray SILTY CLAY, some organics, some fine to med gravel, trace sand at bottom, dense, moist	CL	ND	68	2	292	294
2	2.0-3.0		100	Brown Gray, trace organics, trace fine gravel @ 2'		ND	86	2	346	348
3				Bottom of borehole 3.0'						
4										

COMMENTS:

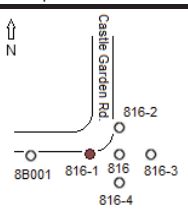
PROJECT NO. 11176991

BORING NO. 8B001-4

URS Corporation

TEST BORING LOG

		BORING NO:	816-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., just east of 8B001 cluser, ~20' west of 816
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.23
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170499.051	**GEOLOGIST:**	[redacted]
EASTING:	1042529.429	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,310
44-10 Bkgd (cpm)	6,060

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	4	204	208
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, gravel (fill) at bottom	OL	ND	62	0	256	256
1	0.5-2.0		100	FILL' Black Silty fine to coarse Gray SLAG, loose, moist	GM	ND	38	0	370	370
2				FILL; Same as above, grades to dark brown, pocket of coarse sand	GM/SP					
3	2.0-3.0		100	Black Gray SILTY CLAY, trace sand, trace fine gravel, dense, moist	CL	ND	60	0	308	308
4				Bottom of borehole 3.0'						

COMMENTS:

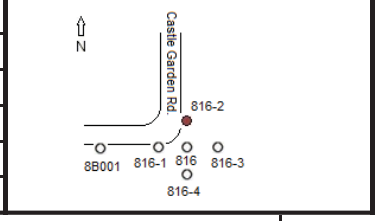
PROJECT NO. 11176991

BORING NO. 816-1

URS Corporation

TEST BORING LOG

		BORING NO:	816-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., just east of 8B001 cluser, ~20' north of 816
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.47
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170514.928	**GEOLOGIST:**	[redacted]
EASTING:	1042547.679	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,292; **44-10 Bkgd (cpm)** 6,060

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	4	204	208
	0.0 - 0.5		100	FILL; Black organic SILTY CLAY, ice	OL	ND	62	0	326	326
1	0.5-2.0		100	FILL; Brown Gray Silty fine to coarse Blue Gray SLAG, loose, moist	GM	ND	64	0	274	274
2				Reddish Brown to Gray SILTY CLAY, dense, moist	CL					
3	2.0-3.0		100	trace organics, some fine to med gravel, trace black staining @ 2' Grades to gray @ 2.5'		ND	46	2	254	256
4				Bottom of borehole 3.0'						

COMMENTS:

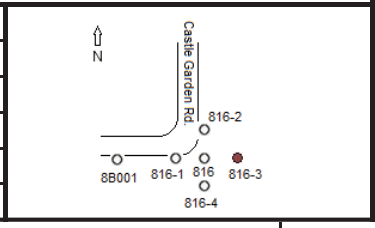
PROJECT NO. 11176991

BORING NO. 816-2

URS Corporation

TEST BORING LOG

		BORING NO:	816-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., just east of 8B001 cluser, ~20' east of 816
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.44
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170499.176	**GEOLOGIST:**	[redacted]
EASTING:	1042564.931	**RAD TECH:**	[redacted]



Gamma (γ) Survey:							**44-10 grd. Surf. (cpm)**	6,252		
							44-10 Bkgd (cpm)	6,060		
DEPTH (ft)	**SAMPLE**			**MATERIAL**			**44-9**	**43-93**		
	RAD	**CHEM**	**REC %**	**DESCRIPTION**	**USCS**	**PID**	**βγ (cpm)**	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
						Background:	48	4	204	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, ice	OL	ND	48	0	268	268
1	0.5-2.0		100	Dark Brown sandy SILTY CLAY, some organics, some fine to med gravel, highly plastic, more dense at bottom, moist	CL	ND	66	0	228	228
2	2.0-3.0		100	Brown Gray, trace organics, trace fine gravel @ 2'		ND	64	4	324	328
3				Bottom of borehole 3.0'						
4										

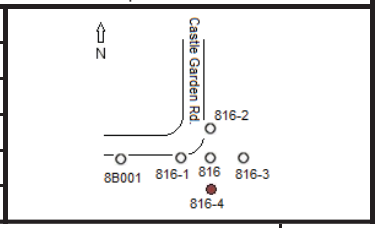
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**816-3**

URS Corporation

TEST BORING LOG

		BORING NO:	816-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., just east of 8B001 cluser, ~20' south of 816
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.54
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/16/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/16/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170490.105	**GEOLOGIST:**	[redacted]
EASTING:	1042547.840	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 7,442; 44-10 Bkgd (cpm) 6,060

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	4	204	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	46	2	284	286
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	46	0	290	290
3	2.0-3.0		100	Trace fine gravel @ 2' Grades to gray brown @ 2.5'	CL	ND	54	0	288	288
4				Bottom of borehole 3.0'						

COMMENTS:

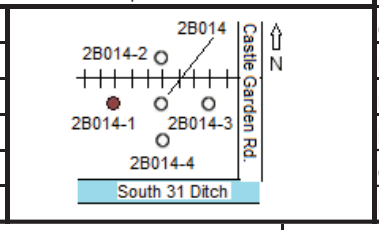
PROJECT NO. 11176991

BORING NO. 816-4

URS Corporation

TEST BORING LOG

		BORING NO:	2B014-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Castle Garden Rd, just north of South 31 Ditch along former railroad., ~20' west of 2B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	312.77
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/18/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1171129.647	**GEOLOGIST:**	[redacted]
EASTING:	1041927.492	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,490
44-10 Bkgd (cpm)	6,654

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	192	192
	0.0 - 0.5		100	Brown Silty fine to coarse GRAVEL, loose	GM	ND	38	0	286	286
1	0.5-2.0		50	Brown Sandy Silty fine to coarse GRAVEL, loose, moist		ND	52	4	236	240
2				Bottom of borehole 1.0'						
3	2.0-3.0		0							
4										

COMMENTS: Unable to get probe to location. Surface conists of gravel and frozen. Thawed ground to hand auger, soil somewhat soupy after thawing. Per USACE, sample any recovery obtained. Refusal at 1.0'. Recovered 0.0-1.0'.

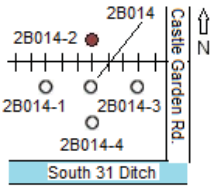
PROJECT NO. 11176991

BORING NO. 2B014-1

URS Corporation

TEST BORING LOG

		BORING NO:	2B014-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Castle Garden Rd, just north of South 31 Ditch along former railroad., ~20' north of 2B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.59
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/18/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1171150.358	**GEOLOGIST:**	[redacted]
EASTING:	1041942.706	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,730
44-10 Bkgd (cpm)	6,654

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	192	192
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	44	0	0	0
1	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, sand lens at bottom, more dense at bottom, moist	CL	ND	50	0	0	0
2	2.0-3.0		75	Brown Gray SILTY CLAY, trace sand at top, trace organics, some fine to coarse gravel, dense, moist		ND	86	0	0	0
3										
4				Bottom of borehole 3.0'						

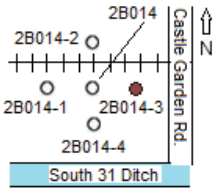
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**2B014-2**

URS Corporation

TEST BORING LOG

		BORING NO:	2B014-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Castle Garden Rd, just north of South 31 Ditch along former railroad., ~20' east of 2B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.28
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/18/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1171129.533	**GEOLOGIST:**	[redacted]
EASTING:	1041961.658	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 7,794; **44-10 Bkgd (cpm)** 6,654

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	192	192
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	220	220
1	0.5-2.0		100		OL	ND	64	0	284	284
2				Brown Gray SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL					
3	2.0-3.0		100	Some organics, @ 2'; sand lens @ 2.8'	CL	ND	58	2	284	286
4				Bottom of borehole 3.0'						

COMMENTS:

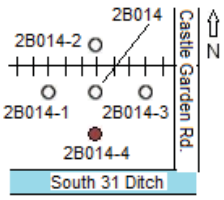
PROJECT NO. 11176991

BORING NO. 2B014-3

URS Corporation

TEST BORING LOG

		BORING NO:	2B014-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Castle Garden Rd, just north of South 31 Ditch along former railroad., ~20' south of 2B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.03
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/18/2013
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1171121.673	**GEOLOGIST:**	[redacted]
EASTING:	1041944.532	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,056
44-10 Bkgd (cpm)	6,654

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	192	192
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY	OL	ND	60	4	302	306
1	0.5-2.0		50	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	36	10	256	266
2				Bottom of borehole 1.0'						
3	2.0-3.0		0							
4										

COMMENTS: Unable to get probe to location. Ground frozen, thawed ground and hand augered. Per USACE, sample any recovery obtained. Refusal at 1.0'. Recovered 0.0-1.0'.

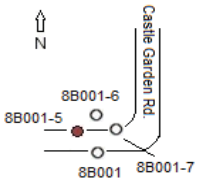
PROJECT NO. 11176991

BORING NO. 2B014-4

URS Corporation

TEST BORING LOG

		BORING NO:	8B001-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., ~10' northwest of 8B001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.75
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/19/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/19/2014
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170532.34	**GEOLOGIST:**	[redacted]
EASTING:	1042476.76	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	16,656
44-10 Bkgd (cpm)	9,198

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	224	224
	0.0 - 0.5		100	FILL; Dark Brown silty fine to coarse gravel, trace organics, moist		ND	46	0	288	288
1	0.5-2.0		100	Dark brown silty coarse slag, wet @ 0.5'	GM	ND	78	2	304	306
2				Reddish brown SILTY CLAY, trace fine to medium gravel, highly plastic, moist						
3	2.0-3.0		100	Trace organics, mod plastic, dense, damp @ 2'		ND	64	2	256	258
4	3.0-4.0		100	No organics, trace fine gravel, dry @ 3'	CL	ND	82	6	262	268
5	4.0-5.0		100			ND	44	2	232	234
				Bottom of borehole at 5 ft						

COMMENTS:

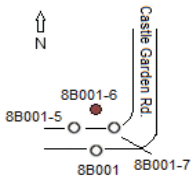
PROJECT NO. 11176991

BORING NO. 8B001-5

URS Corporation

TEST BORING LOG

		BORING NO:	8B001-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., ~20' north of 8B001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.92
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/19/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/19/2014
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170544.20	**GEOLOGIST:**	[redacted]
EASTING:	1042488.75	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,318; 44-10 Bkgd (cpm) 10,570

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	224	224
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist		ND	58	0	290	290
1 2	0.5-2.0		80	Dark brown organic SILT, some clay, soft, wet	OL	ND	44	0	284	284
3	2.0-3.0		80	Reddish brown SILTY CLAY, trace fine gravel, trace organics, dense, moist	CL	ND	56	0	302	302
4	3.0-4.0		100	Reddish brown SILTY CLAY, trace fine gravel, trace organics, dense, dry	CL	ND	64	0	254	254
5	4.0-5.0		100	Top 8" Reddish brown SILTY CLAY, trace fine gravel, dry	CL	ND	48	2	216	218
				Bottom 4" Reddish brown silty GRAVEL, dry	GM					
				Bottom of borehole at 5 ft						

COMMENTS:

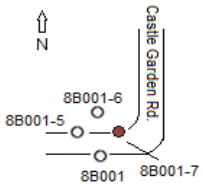
PROJECT NO. 11176991

BORING NO. 8B001-6

URS Corporation

TEST BORING LOG

		BORING NO:	8B001-7
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located southeast corner of site, south end of Castle Garden Rd., ~10' northeast of 8B001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.62
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/19/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/19/2014
AREA:	EU14	**DRILLER:**	[redacted]
NORTHING:	1170536.54	**GEOLOGIST:**	
EASTING:	1042500.92	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 8,584; **44-10 Bkgd (cpm)** 10,570

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	224	224
	0.0 - 0.5		100	FILL; Dark brown black silty gravel, trace organics, moist	GM	ND	52	2	272	274
1	0.5-2.0		100	FILL; Black silty fine to coarse gravel, loose	GM	ND	84	0	248	248
2				Reddish dark brown SILTY CLAY, some fine to coarse gravel, mod dense, damp	CL					
3	2.0-3.0		100	Gray fine to coarse gravelly SILTY CLAY, loose, moist	CL	ND	64	0	292	292
4	3.0-4.0		100		CL	ND	74	0	330	330
5	4.0-5.0		100	Mod dense, wet @ 4.5'	CL	ND	52	0	274	274
				Bottom of borehole at 5 ft						

COMMENTS:

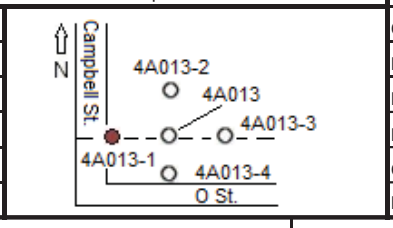
PROJECT NO. 11176991

BORING NO. 8B001-7

URS Corporation

TEST BORING LOG

		BORING NO:	4A013-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along old rail line, southwest corner of Campbell St. and O St., just east of 312 cluster, ~15' west of 4A013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.44
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172680.146	**GEOLOGIST:**	[redacted]
EASTING:	1041544.012	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 19,106; 44-10 Bkgd (cpm) 10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	230	232
	0.0 - 0.5		100	FILL: Dark Brown Silty SLAG organics at surface, wet	SM	ND	74	2	406	408
1	0.5 - 2.0		100	Gray blue, trace silty clay, loose, dry @ 0.5'		ND	86	2	260	262
2										
3	2.0 - 3.0		75			ND	40	0	300	300
				Bottom of borehole 3.0 ft						

COMMENTS:

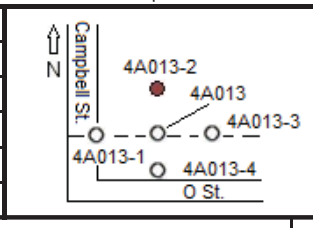
PROJECT NO. 11176991

BORING NO. 4A013-1

URS Corporation

TEST BORING LOG

		BORING NO:	4A013-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along old rail line, southwest corner of Campbell St. and O St., just east of 312 cluster, ~15' north of 4A013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.19
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172698.011	**GEOLOGIST:**	[redacted]
EASTING:	1041560.039	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,424; 44-10 Bkgd (cpm) 10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	230	232
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	58	0	370	370
1	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, trace sand, some organics, some gravel, loose, moist	CL	ND	54	0	348	348
2				Dark Brown SILTY CLAY, trace sand, some organics, some fine to med gravel, more dense at bottom, moist	CL					
3	2.0 - 3.0		100			ND	66	0	380	380
				Bottom of borehole 3.0 ft						

COMMENTS:

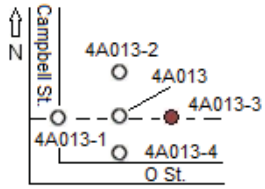
PROJECT NO. 11176991

BORING NO. 4A013-2

URS Corporation

TEST BORING LOG

		BORING NO:	4A013-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along old rail line, southwest corner of Campbell St. and O St., just east of 312 cluster, ~15' east of 4A013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.58
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172681.406	**GEOLOGIST:**	[redacted]
EASTING:	1041574.481	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,032
44-10 Bkgd (cpm)	10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	230	232
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, some slag, saturated	OL	ND	76	0	510	510
1	0.5 - 2.0		100			ND	54	0	304	304
				Yellowish Brown to Gray SITLY CLAY, trace organics, trace fine to med gravel, more dense at bottom, moist	CL					
2										
3	2.0 - 3.0		75	Brown gray @ 2'		ND	64	2	378	380
				Bottom of borehole 3.0 ft						

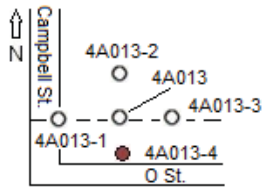
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**4A013-3**

URS Corporation

TEST BORING LOG

		BORING NO:	4A013-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along old rail line, southwest corner of Campbell St. and O St., just east of 312 cluster, ~15' south of 4A013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.12
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172662.603	**GEOLOGIST:**	[redacted]
EASTING:	1041558.654	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,870; 44-10 Bkgd (cpm) 10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	230	232
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, SLAG at bottom, moist	OL	ND	66	2	370	372
1 / 2	0.5 - 2.0		100	Brown SILTY CLAY, some fine to coarse slag, decay odor, loose, moist	CL	ND	50	0	338	338
3	2.0 - 3.0		75			ND	64	2	352	354
				Bottom of borehole 3.0 ft						

COMMENTS: Decay odor, PID readings all ND

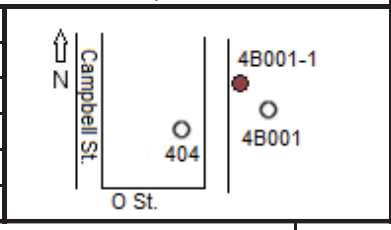
PROJECT NO. 11176991

BORING NO. 4A013-4

URS Corporation

TEST BORING LOG

		BORING NO:	4B001-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., just north of 404 cluster
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	321.02
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172880.455	**GEOLOGIST:**	[redacted]
EASTING:	1041736.933	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,216
44-10 Bkgd (cpm)	5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	26	0	130	130
		0.0 - 0.5	100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	40	2	200	202
1		0.5 - 2.0	100	FILL; Dark Brown to Reddish Brown SILTY GRAVEL (coarse Slag), pocket of silty clay, loose, moist	GM	ND	44	0	220	220
2		2.0 - 3.0	100			ND	30	2	228	230
3				Brown SILTY CLAY, some fine-med gravel, trace black staining, more dense at bottom, moist	CL					
				Bottom of borehole 3 ft						

COMMENTS: Collect samples for chem parameters only

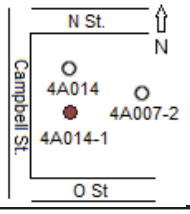
PROJECT NO. 11176991

BORING NO. 4B001-1

URS Corporation

TEST BORING LOG

		BORING NO:	4A014-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., just west of 4A007-2
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.61
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172835.514	**GEOLOGIST:**	[redacted]
EASTING:	1041644.517	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,420; **44-10 Bkgd (cpm)** 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	26	0	130	130
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	26	0	258	258
1	0.5 - 1.5		75	FILL; Black SILTY SLAG, loose, moist Refusal at 1.5'	GM	ND	68	4	240	244
				Refusal at 1.5 ft						

COMMENTS: First attempt poor recovery, moved south. Second attempt poor recovery, refual at 1.5' due to slag. Sample 1.5' per J. Staten, USACE

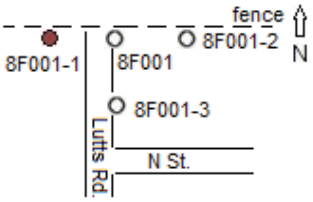
PROJECT NO. 11176991

BORING NO. 4A014-1

URS Corporation

TEST BORING LOG

		BORING NO:	8F001-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	North end of Lutts Road, along site fence, ~50 west of 8F001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.07
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/22/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/22/2013
AREA:	EU2	DRILLER:	[redacted]
NORTHING:	1173240.081	GEOLOGIST:	[redacted]
EASTING:	1040607.622	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,520
44-10 Bkgd (cpm)	7,118

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	0	134	134
	0.0 - 0.5		100	Brown organic SILTY CLAY, wet	OL	ND	58	2	256	258
1	0.5 - 2.0		100	Brown Gray SILTY CLAY, trace organics, some fine to coarse gravel, dense, moist	CL	ND	56	2	232	234
2	2.0 - 3.0		75	Gray SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL	ND	60	2	246	248
3				Bottom of borehole 3 ft						

COMMENTS: Offset location ~18" south of original location due to fence

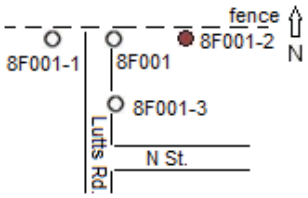
PROJECT NO. 11176991

BORING NO. 8F001-1

URS Corporation

TEST BORING LOG

		BORING NO:	8F001-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North end of Lutts Road, along site fence, ~50 east of 8F001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.76
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/22/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/22/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173240.074	**GEOLOGIST:**	[redacted]
EASTING:	1040662.553	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** [redacted]4; **44-10 Bkgd (cpm)** 7,118

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	0	134	134
	0.0 - 0.5		100	Dark Brown to Black organic SILTY CLAY, moist	OL	ND	42	0	278	278
1	0.5 - 2.0		100			ND	52	2	300	302
				Brown Gray SILTY CLAY, trace organics, some fine to med gravel, more dense at bottom, moist	CL					
2										
3	2.0 - 3.0		100			ND	44	2	240	242
				Bottom of borehole 3 ft						

COMMENTS: Relocated ~7' west of original location due to standing water

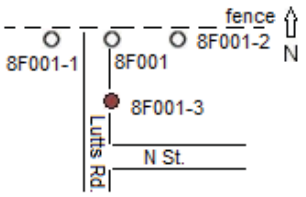
PROJECT NO. 11176991

BORING NO. 8F001-2

URS Corporation

TEST BORING LOG

		BORING NO:	8F001-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North end of Lutts Road, along site fence, ~50 south of 8F001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.12
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/22/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/22/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173212.311	**GEOLOGIST:**	[redacted]
EASTING:	1040639.754	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 2; **44-10 Bkgd (cpm)** 7,118

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	0	134	134
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	74	0	252	252
1	0.5 - 2.0		100			ND	60	0	270	270
				Brown Gray SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL					
2										
3	2.0 - 3.0		100			ND	50	0	260	260
				Bottom of borehole 3 ft						

COMMENTS:

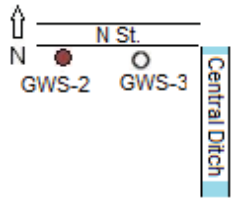
PROJECT NO. 11176991

BORING NO. 8F001-3

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-02
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along N St, to the west of the Central Ditch
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.99
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173134.402	**GEOLOGIST:**	[redacted]
EASTING:	1040947.802	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,854
44-10 Bkgd (cpm)	10,526

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	226	226
	0.0 - 0.5		100	FILL: Dark Brown organic SILTY CLAY, SLAG at bottom, moist	OL	ND	62	0	332	332
1	0.5 - 2.0		100	FILL; SLAG, trace Brown silty clay, loose, moist	GC	1.8	66	6	372	378
2				Brown Gray SILTY CLAY, trace organics, some fine to med gravel, dense, dry	CL					
3	2.0 - 3.0		100			ND	66	2	342	344
				Bottom of borehole 3 ft						

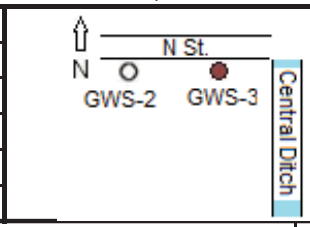
COMMENTS: Located in asphalt, relocated ~3 south of original location where highest rad surface reading was found
PID background 1.4 ppm

PROJECT NO. 11176991
BORING NO. GWS-02

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-03
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along N St, to the west of the Central Ditch, ~20' east of GWS-2
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.98
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173134.449	**GEOLOGIST:**	[redacted]
EASTING:	1040967.871	**RAD TECH:**	[redacted]



Gamma (γ) Survey:		
44-10 grd. Surf. (cpm)	13,222	
44-10 Bkgd (cpm)	10,526	

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	226	226
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, slag at bottom, moist	OL	ND	52	0	286	286
1	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some slag, moist	CL	ND	50	0	352	352
2				Bottom 0.5' Brown Gray SILTY CLAY, some organics, trace fine to med gravel, dense, moist	CL					
3	2.0 - 3.0		100			3.8	54	2	332	334
				Bottom of borehole 3 ft						

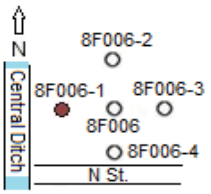
COMMENTS: Located in asphalt, relocated ~3.5' south of original location where highest rad surface reading was found
PID background 1.4 ppm

PROJECT NO. 11176991
BORING NO. GWS-03

URS Corporation

TEST BORING LOG

		BORING NO:	8F006-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along N St, to the east of the Central Ditch, ~10' west of 8F006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.53
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173172.190	**GEOLOGIST:**	[redacted]
EASTING:	1041334.414	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,418
44-10 Bkgd (cpm)	8,758

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	200	200
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	58	0	278	278
1	0.5 - 2.0		100			ND	44	2	330	332
				Reddish Brown grades to Brown Gray SILTY CLAY, some organics, some fine to coarse gravel, dense, moist	CL					
2										
3	2.0 - 3.0		100			3.6	60	2	314	316
				Bottom of borehole 3 ft						

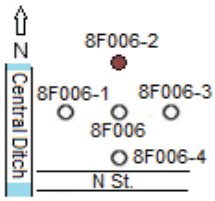
COMMENTS: PID background 1.2 ppm

PROJECT NO.	**11176991**
BORING NO.	**8F006-1**

URS Corporation

TEST BORING LOG

		BORING NO:	8F006-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along N St, to the east of the Central Ditch, ~10' north of 8F006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.13
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173188.381	**GEOLOGIST:**	[redacted]
EASTING:	1041351.566	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,816
44-10 Bkgd (cpm)	8,758

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	200	200
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	40	0	202	202
1	0.5 - 2.0		100	Dark Brown to Reddish Brown SILTY CLAY, some organics, some fine to coarse gravel, more dense at bottom, moist	CL	ND	48	0	330	330
2	2.0 - 3.0		100	Reddish Brown grades to Brown Gray SILTY CLAY, some organics, some fine to med gravel, dense, dry	CL	ND	66	0	344	344
3				Bottom of borehole 3 ft						

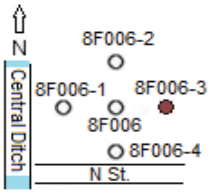
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8F006-2**

URS Corporation

TEST BORING LOG

		BORING NO:	8F006-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along N St, to the east of the Central Ditch, ~10' east of 8F006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.63
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173171.926	**GEOLOGIST:**	[redacted]
EASTING:	1041370.308	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,340
44-10 Bkgd (cpm)	8,758

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	200	200
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	58	2	292	294
1	0.5 - 2.0		100	Dark Brown to Reddish Brown SILTY CLAY, trace sand, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	48	0	302	302
2										
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, dry	CL	ND	62	0	300	300
				Bottom of borehole 3 ft						

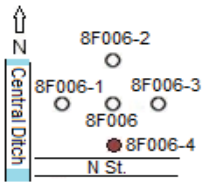
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8F006-3**

URS Corporation

TEST BORING LOG

		BORING NO:	8F006-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along N St, to the east of the Central Ditch, ~10' south of 8F006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.17
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173155.153	**GEOLOGIST:**	[redacted]
EASTING:	1041353.661	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,198
44-10 Bkgd (cpm)	8,758

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	200	200
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	48	2	340	342
1	0.5 - 2.0		100	Brown to Brown Gray SILTY CLAY, trace organics, some fine to coarse gravel, more dense at bottom, moist	CL	ND	62	2	306	308
2										
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace fine to med gravel, dense, moist	CL	3.4	58	0	302	302
				Bottom of borehole 3 ft						

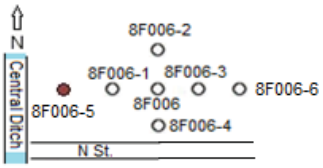
COMMENTS: PID background 1.4 ppm

PROJECT NO.	**11176991**
BORING NO.	**8F006-4**

URS Corporation

TEST BORING LOG

		BORING NO:	8F006-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along N St, to the east of the Central Ditch, located 8' north and 20.5' west of Location 8F006-1
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.91
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/9/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/9/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173179.801	**GEOLOGIST:**	[redacted]
EASTING:	1041313.693	**RAD TECH:**	[redacted]



Gamma (γ) Survey:			
44-10 grd. Surf. (cpm)	12,808		
44-10 Bkgd (cpm)	8,560		

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	64	2	292	294
1	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	72	2	332	334
2										
3	2.0-3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace gravel, dense, moist	CL	ND	56	0	242	242
4				Bottom of borehole 3.0'						

COMMENTS: Location added per consult with USACE due to elevated gamma surface readings in area

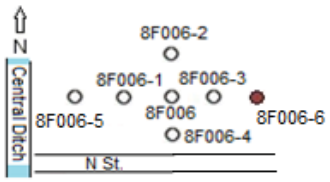
PROJECT NO. 11176991

BORING NO. 8F006-5

URS Corporation

TEST BORING LOG

		BORING NO:	8F006-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along N St, to the east of the Central Ditch, located 10.5' north and 10' east of Location 8F006-4
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.06
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/9/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/9/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1173181.973	**GEOLOGIST:**	[redacted]
EASTING:	1041381.266	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 13,072; 44-10 Bkgd (cpm) 8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	76	2	276	278
1	0.5-2.0		100	Brown reworked sandy SILTY CLAY, some fine to med gravel, more dense at bottom, moist	CL	ND	82	0	260	260
2										
	2.0-3.0		100	Brown Gray SAND lens	SP	ND	54	0	296	296
3				Gray Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
4				Bottom of borehole 3.0'						

COMMENTS: Location added per consult with USACE due to elevated gamma surface readings in area

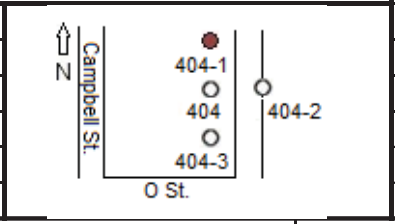
PROJECT NO. 11176991

BORING NO. 8F006-6

URS Corporation

TEST BORING LOG

		BORING NO:	404-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St. between N St. and O St., ~10 north of 404
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	320.87
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/25/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/25/2013
AREA:	EU2	DRILLER:	[redacted]
NORTHING:	1172863.928	GEOLOGIST:	[redacted]
EASTING:	1041709.748	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,844
44-10 Bkgd (cpm)	5,260

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	0	162	162
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	68	2	276	278
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, some med to coarse gravel, dense, moist	CL	ND	66	0	278	278
2										
3	2.0 - 3.0		75	Dark Brown SILTY slag, trace of fine to med gravel, mod loose, wet at bottom	GM	ND	76	2	306	308
				Bottom of borehole 3 ft						

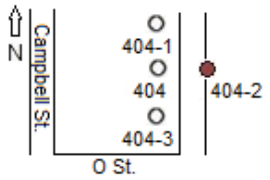
COMMENTS:

PROJECT NO.	11176991
BORING NO.	404-1

URS Corporation

TEST BORING LOG

		BORING NO:	404-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St. between N St. and O St., ~10 east of 404
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	321.04
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172848.362	**GEOLOGIST:**	[redacted]
EASTING:	1041726.836	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,678
44-10 Bkgd (cpm)	5,260

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	0	162	162
	0.0 - 0.5	0.0-0.5	100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	58	0	258	258
1 2	0.5 - 2.0	0.5-2.0	100	FILL; Dark Brown SILTY CLAY, some organics, some green gray coarse SLAG, more dense at bottom, moist	CL	ND	50	0	238	238
3	2.0 - 3.0	2.0-3.0	100	Brown Gray to Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	62	0	276	276
				Bottom of borehole 3 ft						

COMMENTS: Collect samples for chem and rad parameters. Hand augered adjacent to hole to obtain sufficient 0.0-0.5' volume for chem and rad parameters.

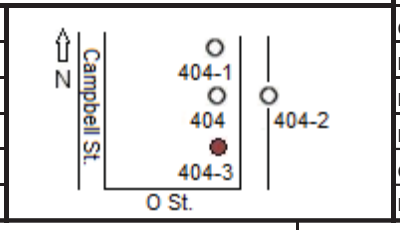
PROJECT NO. 11176991

BORING NO. 404-2

URS Corporation

TEST BORING LOG

		BORING NO:	404-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St. between N St. and O St., ~10 south of 404
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	321.39
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172830.322	**GEOLOGIST:**	[redacted]
EASTING:	1041710.062	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,740
44-10 Bkgd (cpm)	5,260

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	0	162	162
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, slag at bottom, moist	OL	ND	72	2	238	240
1	0.5 - 2.0		100	FILL; fine to coarse Green Gray Silty SLAG, moist	GM	1.6	70	4	294	298
2				FILL; Brown SILTY CLAY, some slag, dense, moist	CL					
3	2.0 - 3.0		100			ND	74	2	272	274
				Bottom of borehole 3 ft						

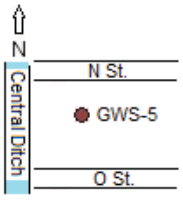
COMMENTS: PID background 0.1 ppm

PROJECT NO.	**11176991**
BORING NO.	**404-3**

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-05
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Central Ditch, between N St. and O St.
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.68
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172907.319	**GEOLOGIST:**	[redacted]
EASTING:	1041191.915	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,998
44-10 Bkgd (cpm)	8,758

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	200	200
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	282	282
1 2	0.5 - 2.0		100	Dark Brown grades to Brown Gray SILTY CLAY, some organics, some fine to med gravel, trace sand, more dense at bottom, moist	CL	ND	48	0	304	304
3	2.0 - 3.0		100	Dry @ 2'		ND	42	0	274	274
				Bottom of borehole 3 ft						

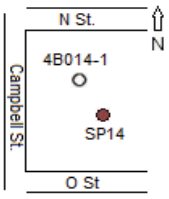
COMMENTS: Sampled area with highest rad survey surface reading.

PROJECT NO.	**11176991**
BORING NO.	**GWS-05**

URS Corporation

TEST BORING LOG

		BORING NO:	SP-14
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., near location 4B014-1
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.42
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172923.653	**GEOLOGIST:**	[redacted]
EASTING:	1041736.152	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 21,690; **44-10 Bkgd (cpm)** 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	26	0	130	130
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, coarse gravel lens at bottom, moist	OL/GW	ND	44	4	312	316
1	0.5 - 2.0		100	Dark Brown to Reddish Brown organic SILTY CLAY, some fine to coarse gravel, more dense at bottom, moist	OL	ND	62	4	298	302
2	2.0 - 3.0		100	Brown to Reddish Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	52	0	282	282
3				Bottom of borehole 3 ft						

COMMENTS: Bias point located near 4B014-1

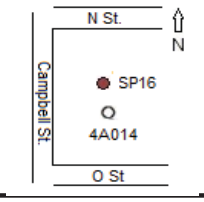
PROJECT NO. 11176991

BORING NO. SP-14

URS Corporation

TEST BORING LOG

		BORING NO:	SP-16
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., north of 4A014 cluster
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.58
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172850.922	**GEOLOGIST:**	[redacted]
EASTING:	1041624.593	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) [redacted]; 44-10 Bkgd (cpm) 8,758

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	200	200
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	ND	52	0	240	240
1	0.5 - 2.0		100	FILL; Brown Silty SLAG, moist	GM	ND	132	2	432	434
2				Brown Gray SILTY CLAY, some fine gravel, dense, moist	CL					
3	2.0 - 3.0		100	Gray, some med to coarse gravel, trace black staining @ 2'		2.5	36	2	294	296
				Bottom of borehole 3 ft						

COMMENTS: First attempt refusal at 2.0', moved adjacent to next higest rad reading. PID background 0.4 ppm

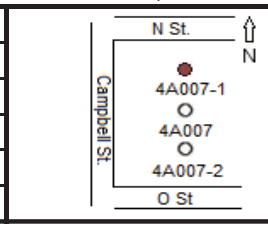
PROJECT NO. 11176991

BORING NO. SP-16

URS Corporation

TEST BORING LOG

		BORING NO:	4A007-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' north of 4A007
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.08
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172872.970	**GEOLOGIST:**	[redacted]
EASTING:	1041669.367	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,102
44-10 Bkgd (cpm)	8,758

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	200	200
	0.0 - 0.5	0.0-0.5	100	Dark Brown organic SILTY CLAY, moist	OL	ND	40	0	224	224
1 2	0.5 - 2.0	0.5-2.0	100	Dark Brown to Brown SILTY CLAY, some organics, some fine gravel, mod plastic, more dense at bottom, moist	CL	ND	54	2	314	316
3	2.0 - 3.0	2.0-3.0	100	Brown gray @ 2'		ND	50	0	254	254
				Bottom of borehole 3 ft						

COMMENTS: Collect samples for chem and rad parameters.

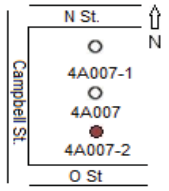
PROJECT NO. 11176991

BORING NO. 4A007-1

URS Corporation

TEST BORING LOG

		BORING NO:	4A007-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' south of 4A007
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	321.58
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/25/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/25/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172838.218	**GEOLOGIST:**	[redacted]
EASTING:	1041671.778	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,508; **44-10 Bkgd (cpm)** 8,758

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	200	200
	0.0 - 0.5	0.0-0.5	100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	48	0	284	284
1	0.5 - 2.0	0.5-2.0	100	FILL; Gray Green Silty SLAG; mod dense, moist	GM	ND	62	4	396	400
2	2.0 - 3.0	2.0-3.0	100			ND	36	2	282	284
3				Brown Black SILTY CLAY, dense, moist	CL					
				Bottom of borehole 3 ft						

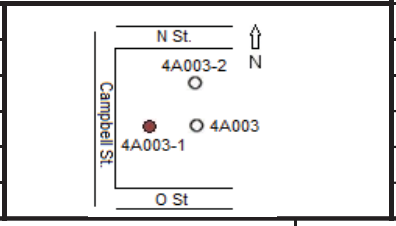
COMMENTS: Collect samples for chem and rad parameters.
PID background 0.2 ppm

PROJECT NO. 11176991
BORING NO. 4A007-2

URS Corporation

TEST BORING LOG

		BORING NO:	4A003-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' west of 4A003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.01
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172894.163	**GEOLOGIST:**	[redacted]
EASTING:	1041615.113	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,824
44-10 Bkgd (cpm)	5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	26	0	130	130
	0.0 - 0.5	0.0-0.5	100	Brown organic SILTY CLAY, moist	OL	ND	44	0	240	240
1 2	0.5 - 2.0	0.5-2.0	100	Brown to Dark Brown organic SILTY CLAY, some fine to med gravel, more dense at bottom, moist	OL	ND	48	0	340	340
3	2.0 - 3.0	2.0-3.0	100	Dark Brown to Black SILTY CLAY, some sand, some organics, trace fine gravel, dense, moist	CL	ND	50	4	310	314
				Bottom of borehole 3 ft						

COMMENTS: Collect samples for chem and rad parameters.

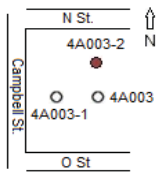
PROJECT NO. 11176991

BORING NO. 4A003-1

URS Corporation

TEST BORING LOG

		BORING NO:	4A003-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' north of 4A003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.19
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172908.517	**GEOLOGIST:**	[redacted]
EASTING:	1041636.479	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** [redacted]

44-10 Bkgd (cpm) 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	26	0	130	130
	0.0 - 0.5	0.0-0.5	100	Brown organic SILTY CLAY, wet	OL	ND	52	4	314	318
1 2	0.5 - 2.0	0.5-2.0	100	Dark Brown organic SILTY CLAY, some fine to med gravel, trace black staining, more dense at bottom, moist	OL	ND	64	2	312	314
3	2.0 - 3.0	2.0-3.0	100	Brown Black SILTY CLAY, trace sand, trace organics, some fine to med gravel, trace black staining, dense, moist	CL	ND	68	0	304	304
				Bottom of borehole 3 ft						

COMMENTS: Collect samples for chem and rad parameters.

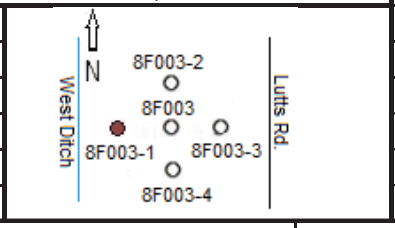
PROJECT NO. 11176991

BORING NO. 4A003-2

URS Corporation

TEST BORING LOG

		BORING NO:	8F003-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between West Ditch and Lutts Rd., ~30' east of 8F003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.46
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172827.603	**GEOLOGIST:**	
EASTING:	1040520.612	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 5,482

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	2	92	94
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	2	186	188
1 2	0.5 - 2.0		100	Dark Brown grades to Yellowish Brown at ~1.5' sandy SILTY CLAY, some organics, some fine to med gravel, loose, dry	CL	ND	46	0	174	174
3	2.0 - 3.0		100	trace organics and fine to med gravel @ 2'		ND	48	0	202	202
				Bottom of borehole 3 ft						

COMMENTS:

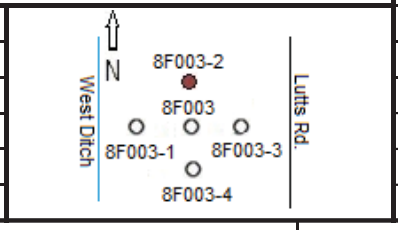
PROJECT NO. 11176991

BORING NO. 8F003-1

URS Corporation

TEST BORING LOG

		BORING NO:	8F003-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between West Dditch and Lutts Rd., ~30' north of 8F003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.45
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU2	**DRILLER:**	[redacted]
NORTHING:	1172865.871	**GEOLOGIST:**	[redacted]
EASTING:	1040548.737	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,150
44-10 Bkgd (cpm)	5,484

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	2	92	94
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	42	0	140	140
1	0.5 - 2.0		100			ND	44	0	156	156
				Brown Gray sandy SILTY CLAY, some organics, some fine to med gravel, dense, dry	CL					
2										
3	2.0 - 3.0		100			ND	66	0	236	236
				Bottom of borehole 3 ft						

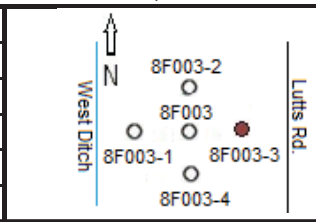
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8F003-2**

URS Corporation

TEST BORING LOG

		BORING NO:	8F003-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Between West Ditch and Lutts Rd., ~30' east of 8F003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.86
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/19/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/19/2013
AREA:	EU2	DRILLER:	[redacted]
NORTHING:	1172829.196	GEOLOGIST:	[redacted]
EASTING:	1040580.709	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,554
44-10 Bkgd (cpm)	5,484

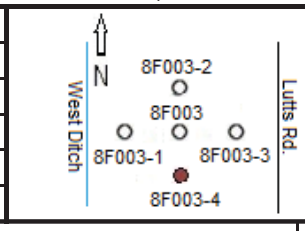
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	2	92	94
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	178	178
1	0.5 - 2.0		100	some fine to med gravel @ 1'	OL	ND	46	0	180	180
2				Reddish Brown SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL					
3	2.0 - 3.0		100	Brown Gray and dry @ 2'	CL	ND	56	2	198	200
				Bottom of borehole 3 ft						

COMMENTS:		PROJECT NO.	11176991
		BORING NO.	8F003-3

URS Corporation

TEST BORING LOG

		BORING NO:	8F003-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Between West Ditch and Lutts Rd., ~30' south of 8F003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.15
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/19/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/19/2013
AREA:	EU2	DRILLER:	[redacted]
NORTHING:	1172797.150	GEOLOGIST:	[redacted]
EASTING:	1040546.166	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,966
44-10 Bkgd (cpm)	5,484

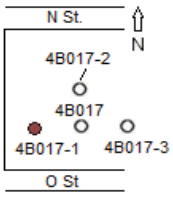
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	48	2	92	94
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	32	0	132	132
1	0.5 - 2.0		100			ND	52	0	248	248
2				Reddish Brown to Gray SILTY CLAY, some sand, some organics, some fine to med gravel, more dense at bottom, dry	CL					
3	2.0 - 3.0		100	Brown Gray and trace sand @ 2'		ND	54	0	212	212
				Bottom of borehole 3 ft						

COMMENTS:		PROJECT NO.	11176991
		BORING NO.	8F003-4

URS Corporation

TEST BORING LOG

		BORING NO:	4B017-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' west of 4B017
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.17
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172976.764	**GEOLOGIST:**	[redacted]
EASTING:	1041782.618	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,516; 44-10 Bkgd (cpm) 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	26	0	130	130
	0.0 - 0.5		100	Organics, wood particles, at top Brown organic SILTY CLAY at bottom, wet	OL	ND	60	4	272	276
1 2	0.5 - 2.0		100	Reddish Brown Gray SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	42	0	276	276
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, some fine gravel, trace black staining, dense, moist	CL	ND	46	4	268	272
				Bottom of borehole 3 ft						

COMMENTS:

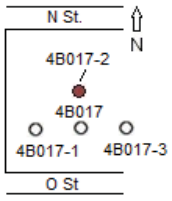
PROJECT NO. 11176991

BORING NO. 4B017-1

URS Corporation

TEST BORING LOG

		BORING NO:	4B017-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' north of 4B017
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.45
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172992.080	**GEOLOGIST:**	[redacted]
EASTING:	1041798.303	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,646; **44-10 Bkgd (cpm)** 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	26	0	130	130
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	40	0	288	288
1	0.5 - 2.0		100	Dark Brown grades to Brown Gray SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	50	0	308	308
2	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	32	0	242	242
3				Bottom of borehole 3 ft						

COMMENTS:

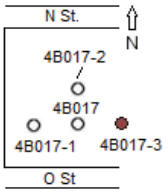
PROJECT NO. 11176991

BORING NO. 4B017-2

URS Corporation

TEST BORING LOG

		BORING NO:	4B017-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' east of 4B017
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.18
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172976.291	**GEOLOGIST:**	[redacted]
EASTING:	1041815.147	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 6,382; 44-10 Bkgd (cpm) 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	26	0	130	130
	0.0 - 0.5		100	FILL; Black organic SILTY CLAY, slag at bottom, moist	OL	ND	58	2	230	232
1 2	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some slag, moist at top to dry at bottom	CL	ND	26	0	182	182
3	2.0 - 3.0		50	FILL; Gray to Blue Gray Silty Slag, trace silty clay at bottom, loose, dry	GM	ND	36	0	194	194
				Bottom of borehole 3 ft						

COMMENTS:

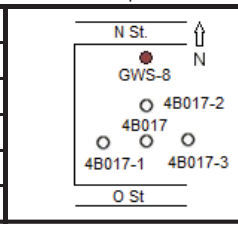
PROJECT NO. 11176991

BORING NO. 4B017-3

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-8
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~50' north of 4B017 cluster
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.34
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1173043.200	**GEOLOGIST:**	
EASTING:	1041786.921	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 13,114; **44-10 Bkgd (cpm)** 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	26	0	130	130
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	34	4	250	254
1 2	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	72	0	264	264
3	2.0 - 3.0		75	Brown Gray SILTY CLAY, trace sand, trace organics, trace fine gravel, dense, moist	CL	ND	50	2	228	230
				Bottom of borehole 3 ft						

COMMENTS:

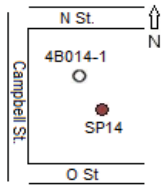
PROJECT NO. 11176991

BORING NO. GWS-8

URS Corporation

TEST BORING LOG

		BORING NO:	SP14
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., near location 4B014-1
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.42
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172923.653	**GEOLOGIST:**	[redacted]
EASTING:	1041736.152	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	21,690
44-10 Bkgd (cpm)	5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	26	0	130	130
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, coarse gravel at bottom, moist	OL	ND	44	4	312	316
1 2	0.5 - 2.0		100	Dark Brown to Reddish Brown organic SILTY CLAY, some fine to coarse gravel, more dense at bottom, moist	OL	ND	62	4	298	302
3	2.0 - 3.0		100	Brown to Reddish Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	52	0	282	282
				Bottom of borehole 3 ft						

COMMENTS: Bias point located near 4B014-1

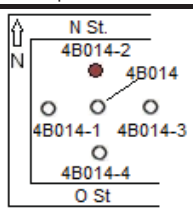
PROJECT NO. 11176991

BORING NO. SP14

URS Corporation

TEST BORING LOG

		BORING NO:	4B014-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~30' north of 4B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.92
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172961.345	**GEOLOGIST:**	[redacted]
EASTING:	1041791.041	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	26	0	130	130
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	46	4	192	196
1	0.5 - 2.0		100	Top 1.0' FILL (slag); Dark Brown SILTY CLAY, moist	CL	ND	34	0	178	178
2				Dark Brown Sandy SILT, trace organics, loose, dry	SM					
3	2.0 - 3.0		100	brown gray @ 2'		ND	32	0	180	180
				Bottom of borehole 3.0 ft						

COMMENTS:

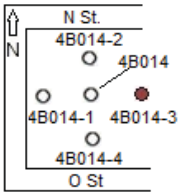
PROJECT NO. 11176991

BORING NO. 4B014-2

URS Corporation

TEST BORING LOG

		BORING NO:	4B014-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~30' east of 4B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.47
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172928.832	**GEOLOGIST:**	[redacted]
EASTING:	1041803.385	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	FILL; Dark Brown Black organic SILTY CLAY, slag at bottom, moist	OL	ND	34	2	274	276
1	0.5 - 2.0		100	FILL (slag); Dark Brown SILTY CLAY, moist	CL	ND	48	0	300	300
2				Brown SILTY CLAY, some organics, some grading to trace fine to med gravel, dense, moist	CL					
3	2.0 - 3.0		100	Brown gray @ 2'		ND	74	0	336	336
				Bottom of borehole 3.0 ft						

COMMENTS:

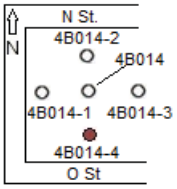
PROJECT NO. 11176991

BORING NO. 4B014-3

URS Corporation

TEST BORING LOG

		BORING NO:	4B014-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~30' south of 4B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	321.15
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/26/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/26/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172897.146	**GEOLOGIST:**	[redacted]
EASTING:	1041770.386	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)** 11,022
	44-10 Bkgd (cpm) 5,998

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	26	0	130	130
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	64	0	254	254
1	0.5 - 2.0		100	Black @ 0.5'		ND	74	0	290	290
2				Dark Brown Sandy SILTY CLAY, trace organics, some fine to med gravel, mod dense, dry	CL					
3	2.0 - 3.0		100	SILTY CLAY, trace sand, @ 2'		ND	54	2	252	254
				Bottom of borehole 3.0 ft						

COMMENTS: Collect samples for chem and rad analysis

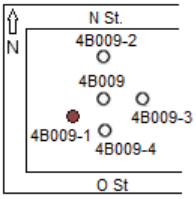
PROJECT NO. 11176991

BORING NO. 4B014-4

URS Corporation

TEST BORING LOG

		BORING NO:	4B009-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' southwest of 4B009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.27
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172815.889	**GEOLOGIST:**	[redacted]
EASTING:	1041854.982	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, large tree root at bottom, wet	OL	ND	66	0	346	346
1	0.5 - 2.0		100	Yellowish Brown SILTY CLAY, trace sand, some organics, some fine to med gravel, dense, moist	CL	ND	62	0	336	336
2	2.0 - 3.0		100	black staining and no sand @ 2'		ND	56	0	312	312
3				Bottom of borehole 3.0 ft						

COMMENTS:

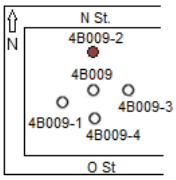
PROJECT NO. 11176991

BORING NO. 4B009-1

URS Corporation

TEST BORING LOG

		BORING NO:	4B009-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' north of 4B009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.55
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172830.069	**GEOLOGIST:**	[redacted]
EASTING:	1041869.480	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	0	326	326
1 2	0.5 - 2.0		100	Dark Brown to Yellowish Brown SILTY CLAY, some organics, some fine to med gravel, more dense at top, moist	CL	ND	68	0	308	308
3	2.0 - 3.0		100	Dark Brown SILTY CLAY, trace sand, some organics, some fine to coarse gravel, dense, moist	CL	ND	68	0	300	300
				Bottom of borehole 3.0 ft						

COMMENTS:

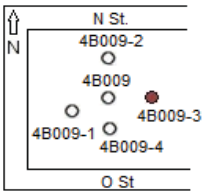
PROJECT NO. 11176991

BORING NO. 4B009-2

URS Corporation

TEST BORING LOG

		BORING NO:	4B009-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' east of 4B009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.88
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172814.569	**GEOLOGIST:**	[redacted]
EASTING:	1041885.451	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,838; **44-10 Bkgd (cpm)** 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	60	0	300	300
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some sand, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	66	4	318	322
3	2.0 - 3.0		100	Dark Brown SILTY CLAY, some sand, trace organics, dense, dry	CL	ND	56	2	338	340
				Bottom of borehole 3.0 ft						

COMMENTS:

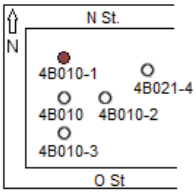
PROJECT NO. 11176991

BORING NO. 4B009-3

URS Corporation

TEST BORING LOG

		BORING NO:	4B010-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., southwest of 4B009 cluster, ~15' north of 4B010
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.36
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172843.349	**GEOLOGIST:**	[redacted]
EASTING:	1041770.745	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	FILL; Dark Brown Black organic SILTY CLAY, wet	OL	ND	64	4	414	418
1	0.5 - 2.0		100	FILL; Dark Brown Black SILTY CLAY, some organics, some fine to coarse gravel, moist Brown @ 1'	CL	ND	62	0	336	336
2	2.0 - 3.0		100	Brown Gray with trace black staining @ 2'		ND	62	0	326	326
3				Bottom of borehole 3.0 ft						

COMMENTS:

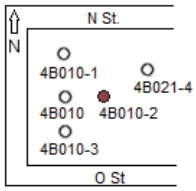
PROJECT NO. 11176991

BORING NO. 4B010-1

URS Corporation

TEST BORING LOG

		BORING NO:	4B010-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., southwest of 4B009 cluster, ~15' east of 4B010
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.74
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172821.745	**GEOLOGIST:**	[redacted]
EASTING:	1041786.867	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,056; 44-10 Bkgd (cpm) 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown Black organic SILTY CLAY, wet	OL	ND	64	2	370	372
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist, grades to Yellowish Brown at ~1.5'	CL	ND	56	0	276	276
2	2.0 - 3.0		100	Trace fine gravel @ 2'		ND	70	0	306	306
3				Bottom of borehole 3.0 ft						

COMMENTS:

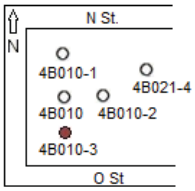
PROJECT NO. 11176991

BORING NO. 4B010-2

URS Corporation

TEST BORING LOG

		BORING NO:	4B010-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., southwest of 4B009 cluster, ~15' south of 4B010
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.09
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172805.746	**GEOLOGIST:**	
EASTING:	1041771.069	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,696; **44-10 Bkgd (cpm)** 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown Black organic SILTY CLAY, moist	OL	ND	36	0	276	276
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	62	0	334	334
3	2.0 - 3.0		100	Brown to Yellowish Brown SILTY CLAY, some organics, trace fine gravel, dense, moist	CL	ND	64	2	354	356
				Bottom of borehole 3.0 ft						

COMMENTS:

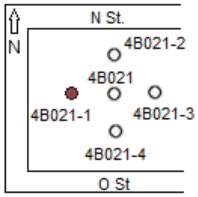
PROJECT NO. 11176991

BORING NO. 4B010-3

URS Corporation

TEST BORING LOG

		BORING NO:	4B021-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' west of 4B021
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.51
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172853.105	**GEOLOGIST:**	[redacted]
EASTING:	1041793.741	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,804; **44-10 Bkgd (cpm)** 8,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	62	0	320	320
1	0.5 - 2.0		100		OL	ND	66	0	344	344
2				Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL					
3	2.0 - 3.0		100	Yellowish Brown sandy SILTY CLAY, some organics, some fine to coarse gravel, mod dense, moist	CL	ND	60	0	314	314
				Bottom of borehole 3.0 ft						

COMMENTS:

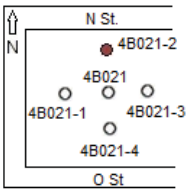
PROJECT NO. 11176991

BORING NO. 4B021-1

URS Corporation

TEST BORING LOG

		BORING NO:	4B021-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' north of 4B021
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.51
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172870.719	**GEOLOGIST:**	[redacted]
EASTING:	1041810.109	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,714
44-10 Bkgd (cpm)	8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	58	4	304	308
1 2	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some large tree roots, some slag, dense, moist	CL	ND	62	0	336	336
3	2.0 - 3.0		100	Brown, trace organics, trace black staining, no tree roots @ 2'	CL	ND	54	0	336	336
				Bottom of borehole 3.0 ft						

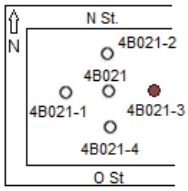
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**4B021-2**

URS Corporation

TEST BORING LOG

		BORING NO:	4B021-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' east of 4B021
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.46
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172853.558	**GEOLOGIST:**	[redacted]
EASTING:	1041826.561	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,352; **44-10 Bkgd (cpm)** 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	0	328	328
1	0.5 - 2.0		100	Large tree root @ 1'	OL	ND	52	0	316	316
2				Brown to Reddish Brown SILTY CLAY, some organics, some fine to med gravel, moist	CL					
3	2.0 - 3.0		100	Reddish Brown grades to Brown Gray, trace organics, trace fine to med gravel, dense @ 2'	CL	ND	52	0	332	332
				Bottom of borehole 3.0 ft						

COMMENTS:

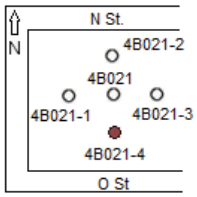
PROJECT NO. 11176991

BORING NO. 4B021-3

URS Corporation

TEST BORING LOG

		BORING NO:	4B021-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' south of 4B021
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.11
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172838.489	**GEOLOGIST:**	[redacted]
EASTING:	1041810.105	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,570; **44-10 Bkgd (cpm)** 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	0	326	326
1 2	0.5 - 2.0		100	Dark Brown to Yellowish Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	72	0	362	362
3	2.0 - 3.0		100	Yellowish Brown to Dark Brown sandy SILTY CLAY, trace organics, trace fine gravel, dense, moist		ND	66	2	340	342
				Bottom of borehole 3.0 ft						

COMMENTS:

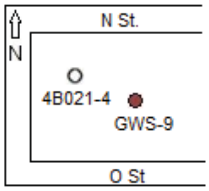
PROJECT NO. 11176991

BORING NO. 4B021-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-09
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., southeast of 4B021-4
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	321.07
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172823.651	**GEOLOGIST:**	[redacted]
EASTING:	1041820.007	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	30,358
44-10 Bkgd (cpm)	8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	62	2	340	342
1	0.5 - 2.0		100	Top 0.5' FILL; Brown Silty GRAVEL (slag), moist	GM	ND	162	0	874	874
2				Bottom 1.0' Brown SILTY CLAY, some organics, more dense at bottom, moist	CL					
3	2.0 - 3.0		100	Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	62	0	338	338
				Bottom of borehole 3.0 ft						

COMMENTS:

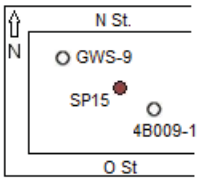
PROJECT NO. 11176991

BORING NO. GWS-09

URS Corporation

TEST BORING LOG

		BORING NO:	SP-15
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., between GWS-9 and 4B009-1
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.24
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/27/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/27/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172813.320	**GEOLOGIST:**	[redacted]
EASTING:	1041851.803	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 43,420; **44-10 Bkgd (cpm)** 8,874

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	44	0	208	208
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	70	0	340	340
1 2	0.5 - 2.0		100	Dark Brown Silty CLAY, some organics, some fine to med gravel, more dense at bottom, moist, grades to Yellowish Brown at ~1.5'	CL	ND	62	0	340	340
3	2.0 - 3.0		100	Trace fine gravel @ 2'		ND	66	2	350	352
				Bottom of borehole 3.0 ft						

COMMENTS: Duplicate sample obtained 2-3' interval.

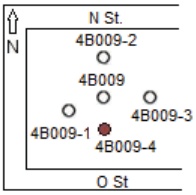
PROJECT NO. 11176991

BORING NO. SP-15

URS Corporation

TEST BORING LOG

		BORING NO:	4B009-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' south of 4B009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.84
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172800.596	**GEOLOGIST:**	[redacted]
EASTING:	1041868.267	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,410; **44-10 Bkgd (cpm)** 10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	40	2	230	232
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	52	2	292	294
1 2	0.5 - 2.0		100	Dark Brown to Brown SILTY CLAY, some organics, some fine to coarse gravel, more dense at bottom, moist	CL	ND	64	2	354	356
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine to med gravel, trace black staining, dense, moist	CL	ND	58	0	352	352
				Bottom of borehole 3.0 ft						

COMMENTS:

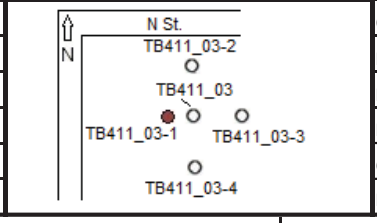
PROJECT NO. 11176991

BORING NO. 4B009-4

URS Corporation

TEST BORING LOG

		BORING NO:	TB411_03-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., south of N St., ~10' west of TB411_03
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.63
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1173034.272	**GEOLOGIST:**	[redacted]
EASTING:	1041995.995	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,802; **44-10 Bkgd (cpm)** 10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	40	2	230	232
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	64	2	358	360
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, some organics, some fine to med gravel, highly plastic, more dense at bottom, moist	CL	ND	42	2	294	296
3	2.0 - 3.0		100	Trace organics, trace fine to med gravel, highly plastic, dense @ 2'		ND	54	2	316	318
				Bottom of borehole 3.0 ft						

COMMENTS:

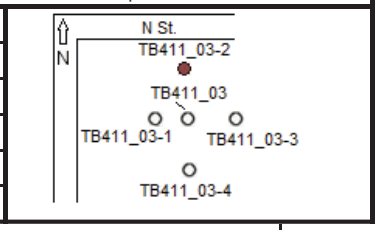
PROJECT NO. 11176991

BORING NO. TB411_03-1

URS Corporation

TEST BORING LOG

		BORING NO:	TB411_03-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., south of N St., ~20' north of TB411_03
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.15
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1173050.671	**GEOLOGIST:**	[redacted]
EASTING:	1042004.44	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 11,052; **44-10 Bkgd (cpm)** 10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	40	2	230	232
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	42	0	280	280
1	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some organics, some fine to coarse gravel, mod dense, moist	CL	ND	50	0	312	312
2				FILL; Gray SILTY SLAG, loose, wet						
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL	ND	62	2	342	344
				Bottom of borehole 3.0 ft						

COMMENTS:

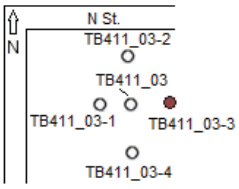
PROJECT NO. 11176991

BORING NO. TB411_03-2

URS Corporation

TEST BORING LOG

		BORING NO:	TB411_03-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., south of N St., ~20' east of TB411_03
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.2
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1173034.406	**GEOLOGIST:**	[redacted]
EASTING:	1042020.662	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,052; 44-10 Bkgd (cpm) 10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	40	2	230	232
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, wet	OL	ND	58	0	342	342
1	0.5 - 2.0		100	FILL; Brown SILTY CLAY, some organics, some fine to coarse gravel, dense, moist	CL	ND	48	0	326	326
2				FILL; (slag, coal tar), loose, wet						
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL	ND	48	0	324	324
				Bottom of borehole 3.0 ft						

COMMENTS:

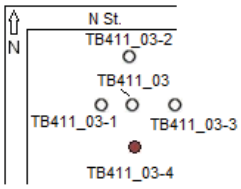
PROJECT NO. 11176991

BORING NO. TB411_03-3

URS Corporation

TEST BORING LOG

		BORING NO:	TB411_03-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., south of N St., ~20' south of TB411_03
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.9
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/2/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/2/2013
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1173018.166	**GEOLOGIST:**	[redacted]
EASTING:	1042004.858	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,236; **44-10 Bkgd (cpm)** 10,464

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background :	40	2	230	232
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	42	0	276	276
1	0.5 - 2.0		100	Top 1.0' Brown Gray sandy SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, wet Bottom 0.5' Brown Gray SILTY CLAY, some organics, dense, moist	CL	ND	68	0	374	374
2	2.0 - 3.0		100	Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, dry	CL	ND	72	0	418	418
3				Bottom of borehole 3.0 ft						

COMMENTS:

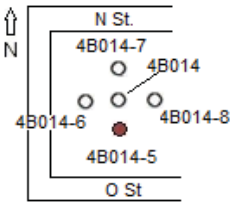
PROJECT NO. 11176991

BORING NO. TB411_03-4

URS Corporation

TEST BORING LOG

		BORING NO:	4B014-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' south of 4B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	321.15
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/27/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/27/2014
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172916.95	**GEOLOGIST:**	[redacted]
EASTING:	1041770.41	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm); 44-10 Bkgd (cpm): 10,692

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	8	168	176
	0.0 - 0.5		100	FILL: Dark brown organic SILTY CLAY, moist	CL	4.1	68	0	218	218
1	0.5 - 2.0		100	Grades to reddish brown, some fine to coarse gravel, some organics (roots)	CL	ND	36	2	166	168
2				FILL; Reddish brown silty fine to coarse GRAVEL some slag, more dense at bottom, damp	GM					
3	2.0 - 3.0		100	Reddish brown sandy SILTY CLAY, some slag, trace organics, dense, damp	CL	ND	52	0	138	138
				Bottom of borehole at 3 ft						

COMMENTS:

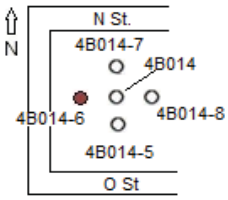
PROJECT NO. 11176991

BORING NO. 4B014-5

URS Corporation

TEST BORING LOG

		BORING NO:	4B014-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' west of 4B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.17
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/27/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/27/2014
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172930.29	**GEOLOGIST:**	[redacted]
EASTING:	1041756.71	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 10,692

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	8	168	176
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	3.5	66	0	222	222
1	0.5 - 2.0		100	0.5-1' Same as above	OL	ND	54	0	216	216
2				1-2' Reddish brown SILTY CLAY, some fine to coarse gravel, trace organics, dense, dry	CL					
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, some fine to coarse gravel, trace organics, dense, dry	CL	ND	64	0	158	158
				Bottom of borehole at 3 ft						

COMMENTS:

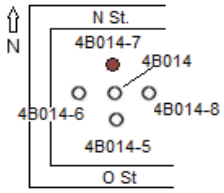
PROJECT NO. 11176991

BORING NO. 4B014-6

URS Corporation

TEST BORING LOG

		BORING NO:	4B014-7
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' north of 4B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.13
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/27/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/27/2014
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172943.21	**GEOLOGIST:**	[redacted]
EASTING:	1041770.53	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,460; 44-10 Bkgd (cpm) 10,692

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	8	168	176
	0.0 - 0.5		100	Brown organic SILTY CLAY, some fine to medum gravel, moist	OL	ND	62	0	202	202
1	0.5 - 2.0		100	Dark brown grades to reddish brown SILTY CLAY, some fine gravel, trace coarse gravel at top, dense, dry	CL	ND	70	0	202	202
2	2.0 - 3.0		100	Dark brown sandy SILTY CLAY, some fine gravel, more dense at bottom, dry	CL	ND	44	0	186	186
3				Bottom of borehole at 3 ft						

COMMENTS:

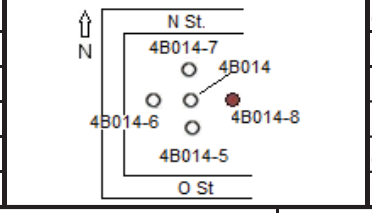
PROJECT NO. 11176991

BORING NO. 4B014-7

URS Corporation

TEST BORING LOG

		BORING NO:	4B014-8
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' east of 4B014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.171
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/27/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/27/2014
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172932.3	**GEOLOGIST:**	
EASTING:	1041784.82	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 7,252; 44-10 Bkgd (cpm) 8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	Brown organic silty fine GRAVEL, some organics, dry	GM	ND	48	0	158	158
1	0.5 - 2.0		100	Same as above	GM	ND	64	2	202	204
2				1-2' Reddish brown grades to dark brown SILTY CLAY, trace fine to medium gravel, trace organics, mod dense, dry	CL					
3	2.0 - 3.0		100	Top 8" Reddish brown SILTY CLAY, trace organics, mod dense, dry	CL	ND	54	0	208	208
				Bottom 4" Reddish brown sandy SILT, trace organics, mod dense, moist	SM					
				Bottom of borehole at 3 ft						

COMMENTS:

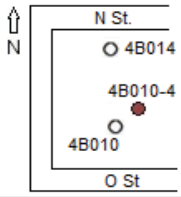
PROJECT NO. 11176991

BORING NO. 4B014-8

URS Corporation

TEST BORING LOG

		BORING NO:	4B010-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., between N St. and O St., south of 4B014 cluster, ~10' northeast of 4B010
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	320.52
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/30/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/30/2014
AREA:	EU3	DRILLER:	[redacted]
NORTHING:	1172832.21	GEOLOGIST:	[redacted]
EASTING:	1041787.43	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,160
44-10 Bkgd (cpm)	8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	Brown organic SILTY CLAY, damp	OL	4.8	50	0	216	216
1	0.5 - 2.0		100	Same as above	OL	ND	62	0	218	218
2				1-2' Reddish brown SILTY CLAY, some fine gravel, trace organics, dense (very compacted), dry	CL					
3	2.0 - 3.0		100	2-2.5' Reddish brown SILTY CLAY, trace organics, dense, dry	CL	ND	48	0	194	194
				2.5-3' Dark brown sandy SILT, trace organics, mod dense, moist	SM					
				Bottom of borehole at 3 ft						

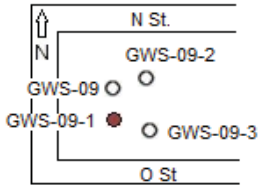
COMMENTS:

PROJECT NO.	11176991
BORING NO.	4B010-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-09-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~15' southeast of GWS-09
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.01
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172803.97	**GEOLOGIST:**	[redacted]
EASTING:	1041824.19	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,492; 44-10 Bkgd (cpm) 8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	ND	74	4	188	192
1	0.5 - 2.0		100	Dark brown grades to reddish brown SILTY CLAY, some fine to medium gravel, some organics, more dense at bottom, moist	CL	ND	74	0	212	212
2	2.0 - 3.0		100			ND	66	0	196	196
3				2.5-3' Dark brown sandy SILT, trace organics, mod dense, moist	SM					
				Bottom of borehole at 3 ft						

COMMENTS: Duplicate sampled obtained 2-3' interval.

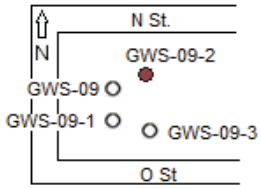
PROJECT NO. 11176991

BORING NO. GWS-09-1

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-09-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' northeast of GWS-09
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	$320.59
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172821.39	**GEOLOGIST:**	[redacted]
EASTING:	1041841.05	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 19,686; 44-10 Bkgd (cpm) 8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	FILL; Dark brown silty gravel, some organics, damp	GM	1.0	50	0	210	210
1	0.5 - 2.0		100	Large roots @ 0.5'		ND	72	4	304	308
2				1-2' Reddish brown SILTY CLAY, trace sand, coarse gravel at top, more dense at bottom, moist	CL					
3	2.0 - 3.0		100	Trace organics @ 2'		ND	66	0	208	208
				2.5-3' Dark brown sandy SILT, trace organics, mod dense, moist	SM					
				Bottom of borehole at 3 ft						

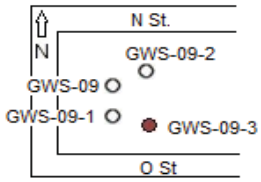
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-09-2**

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-09-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., between N St. and O St., ~10' southeast of GWS-09
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.52
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU3	**DRILLER:**	[redacted]
NORTHING:	1172794.13	**GEOLOGIST:**	[redacted]
EASTING:	1041840.52	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,232
44-10 Bkgd (cpm)	8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	0.8	60	0	204	204
1	0.5 - 2.0		100	0.5-1.5' Reddish brown SILTY CLAY, some fine to medium gravel, some organics (roots), dense, damp	CL	ND	48	2	188	190
2				1.5-2' Dark brown sandy SILT, trace organics, mod dense, moist	SM					
3	2.0 - 3.0		100	Reddish brown gray SILTY CLAY, trace coarse gravel, trace organics, dense, moist	CL	ND	80	0	186	186
				Bottom of borehole at 3 ft						

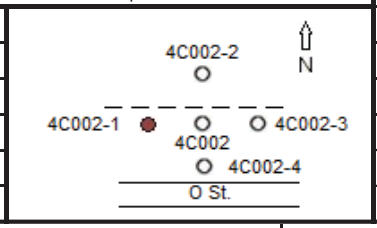
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-09-3**

URS Corporation

TEST BORING LOG

		BORING NO:	4C002-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North of O St., along former railroad, ~30' west of 4C002
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.74
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/9/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/9/2013
AREA:	EU4	**DRILLER:**	[redacted]
NORTHING:	1172674.034	**GEOLOGIST:**	[redacted]
EASTING:	1042317.627	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)
44-10 Bkgd (cpm) 8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	56	2	282	284
1	0.5-2.0		100	FILL; Dark Brown Silty GRAVEL, some slag, loose, moist	GM	ND	48	0	264	264
2				Bottom 1.0' Yellowish Brown SILTY CLAY grading to SILTY CLAY, trace organics and fine gravel, dense, dry	CL					
3	2.0-3.0		100	Moist @ 2'		ND	56	2	288	290
4				Bottom of borehole 3.0'						

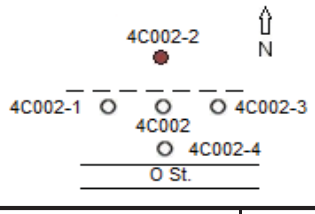
COMMENTS:

PROJECT NO. 11176991
BORING NO. 4C002-1

URS Corporation

TEST BORING LOG

		BORING NO:	4C002-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	North of O St., along former railroad, ~30' north of 4C002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	320.04
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/9/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/9/2013
AREA:	EU4	DRILLER:	[redacted]
NORTHING:	1172694.455	GEOLOGIST:	[redacted]
EASTING:	1042334.981	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,914
44-10 Bkgd (cpm)	8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	FILL; black organic SILTY CLAY, asphaltic material at bottom, wet	OL	ND	66	2	250	252
1	0.5-2.0		100	FILL; Black GRAVEL (asphaltic material), moist	GP	ND	70	2	296	298
2				Brown Gray SILTY CLAY, some sand, some organics, some fine to med gravel, more dense at bottom, moist	CL					
3	2.0-3.0		100	Trace organics, trace black staining @ 2'		ND	48	2	286	288
4				Bottom of borehole 3.0'						

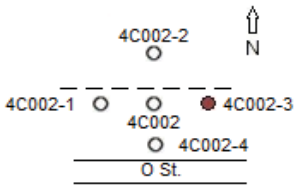
COMMENTS:

PROJECT NO.	11176991
BORING NO.	4C002-2

URS Corporation

TEST BORING LOG

		BORING NO:	4C002-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North of O St., along former railroad, ~30' east of 4C002
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.05
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/9/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/9/2013
AREA:	EU4	**DRILLER:**	[redacted]
NORTHING:	1172676.081	**GEOLOGIST:**	[redacted]
EASTING:	1042348.929	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	15,116
44-10 Bkgd (cpm)	8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	FILL: Dark Brown organic Silty, some slag, moist	SM	ND	56	0	272	272
1	0.5-2.0		100	FILL; White GRAVEL, some slag, odor, moist	GW	ND	72	0	306	306
2				Brown SILTY CLAY grading to Brown Gray SILTY CLAY, some to trace organics, some fine to med gravel, more dense at bottom, moist	CL					
3	2.0-3.0		100			ND	48	2	304	306
4				Bottom of borehole 3.0'						

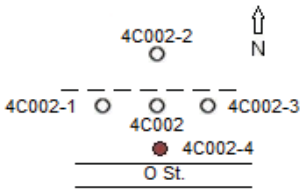
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**4C002-3**

URS Corporation

TEST BORING LOG

		BORING NO:	4C002-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	North of O St., along former railroad, ~30' south of 4C002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.76
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/9/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/9/2013
AREA:	EU4	DRILLER:	[redacted]
NORTHING:	1172659.089	GEOLOGIST:	[redacted]
EASTING:	1042334.603	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	
44-10 Bkgd (cpm)	8,560

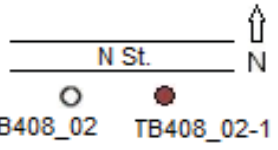
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	Black organic SILTY CLAY, wet	OL	ND	54	4	272	276
1 2	0.5-2.0		100	Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	78	0	338	338
3	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, dry	CL	ND	56	0	274	274
4				Bottom of borehole 3.0'						

COMMENTS:	PROJECT NO. 11176991
	BORING NO. 4C002-4

URS Corporation

TEST BORING LOG

		BORING NO:	TB408_02-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along south side of N St., ~20' east of TB408_02
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.86
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/9/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/9/2013
AREA:	EU4	DRILLER:	[redacted]
NORTHING:	1173120.501	GEOLOGIST:	[redacted]
EASTING:	1042566.132	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	4,462
44-10 Bkgd (cpm)	8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
		0.0 - 0.5	100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	54	0	218	218
1		0.5-2.0	100	FILL; Brown Silty gravel, some organics, moist	GM	ND	66	4	272	276
2				Bottom 0.5' Dark Brown SILTY CLAY, some organics, some fine to coarse gravel, more dense at bottom, moist	CL					
3		2.0-3.0	100	Brown gray with trace organics, trace fine to med gravel @ 2'		ND	58	2	228	230
4				Bottom of borehole 3.0'						

COMMENTS: Sampled for chem parameters only

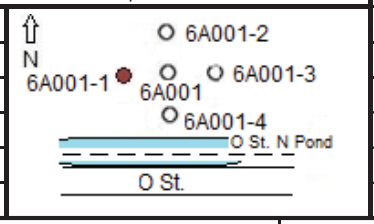
PROJECT NO. 11176991

BORING NO. TB408_02-1

URS Corporation

TEST BORING LOG

		BORING NO:	6A001-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along NE end of O Street North Pond, ~10' W of 6A001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	320.84
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/7/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/7/2013
AREA:	EU5	DRILLER:	[redacted]
NORTHING:	1172760.286	GEOLOGIST:	[redacted]
EASTING:	1043816.228	RAD TECH:	[redacted]



Gamma (γ) Survey:	44-10 grd. Surf. (cpm)	52,406	
	44-10 Bkgd (cpm)	7,288	

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	Dark Brown to yellowish brown SILTY CLAY, some organics, moist	CL	ND	136	10	912	922
1	0.5 - 2.0		100	Trace organics, trace med gravel, dense @ 0.5'		ND	60	8	646	654
2	2.0 - 3.0		100			ND	68	2	238	240
3				Bottom of borehole at 3 ft						

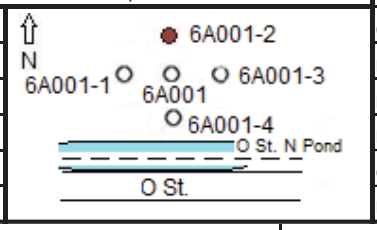
COMMENTS:

PROJECT NO.	11176991
BORING NO.	6A001-1

URS Corporation

TEST BORING LOG

		BORING NO:	6A001-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along NE end of O Street North Pond, ~10' N of 6A001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.43
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/7/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/7/2013
AREA:	EU5	**DRILLER:**	[redacted]
NORTHING:	1172777.759	**GEOLOGIST:**	[redacted]
EASTING:	1043829.647	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,646
44-10 Bkgd (cpm)	7,288

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	Dark Brown SILTY CLAY, some organics, moist	CL	ND	54	2	266	268
1	0.5 - 2.0		100	Yellowish Brown, some fine to med gravel, dense @ 0.5'		ND	68	4	288	292
2	2.0 - 3.0		100			ND	66	0	308	308
3				Bottom of borehole at 3 ft						

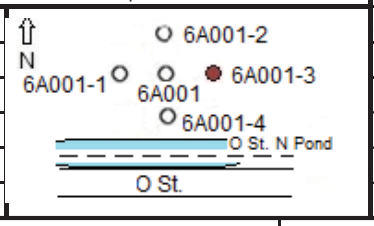
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**6A001-2**

URS Corporation

TEST BORING LOG

		BORING NO:	6A001-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along NE end of O Street North Pond, ~10' E of 6A001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	320.53
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/7/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/7/2013
AREA:	EU5	DRILLER:	[redacted]
NORTHING:	1172762.343	GEOLOGIST:	[redacted]
EASTING:	1043850.983	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,166
44-10 Bkgd (cpm)	7,288

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	Dark Brown SILTY CLAY, some organics, moist	CL	ND	60	8	238	246
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some fine to med gravel, dense, moist	CL	ND	62	2	280	282
2				Brown, same as above	CL					
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, dense, moist	CL	ND	68	2	330	332
				Bottom of borehole at 3 ft						

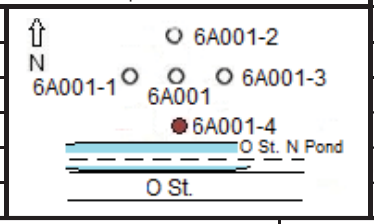
COMMENTS:

PROJECT NO.	11176991
BORING NO.	6A001-3

URS Corporation

TEST BORING LOG

		BORING NO:	6A001-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along NE end of O Street North Pond, ~10' S of 6A001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	320.66
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/7/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/7/2013
AREA:	EU5	DRILLER:	[redacted]
NORTHING:	1172743.450	GEOLOGIST:	[redacted]
EASTING:	1043831.627	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,800
44-10 Bkgd (cpm)	7,288

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	Dark Brown SILTY CLAY, some organics, moist	CL	ND	60	2	268	270
1	0.5 - 2.0		100	Brown, trace organics, dense @ 0.5'		ND	48	2	290	292
2				Reddish Brown @ 1.5'						
3	2.0 - 3.0		100			ND	28	0	324	324
				Bottom of borehole at 3 ft						

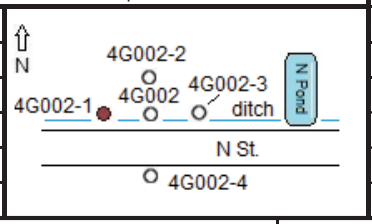
COMMENTS:

PROJECT NO.	11176991
BORING NO.	6A001-4

URS Corporation

TEST BORING LOG

		BORING NO:	4G002-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along N St, W of N St. North Pond, ~10' W of 4G002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.06
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/8/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/8/2013
AREA:	EU5	DRILLER:	[redacted]
NORTHING:	1173164.391	GEOLOGIST:	[redacted]
EASTING:	1043610.129	RAD TECH:	[redacted]



Gamma (γ) Survey:	44-10 grd. Surf. (cpm)	8,450
	44-10 Bkgd (cpm)	8,624

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	4	156	160
	0.0 - 0.5		100	Dark Brown SILTY CLAY, some organics, moist	CL	ND	56	0	146	146
1	0.5 - 2.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	56	2	180	182
2	2.0 - 3.0		75	Yellowish Brown SILTY CLAY, trace organics, trace fine to med gravel, moist	CL	ND	72	0	140	140
3				Reddish Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL					
				Bottom of borehole at 3 ft						

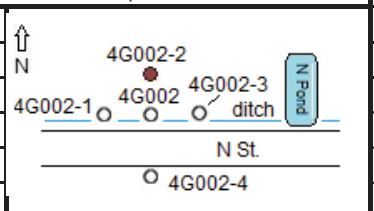
COMMENTS:

PROJECT NO.	11176991
BORING NO.	4G002-1

URS Corporation

TEST BORING LOG

		BORING NO:	4G002-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along N St, W of N St. North Pond, ~10' N of 4G002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.20
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/8/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/8/2013
AREA:	EU5	DRILLER:	[redacted]
NORTHING:	1173179.237	GEOLOGIST:	[redacted]
EASTING:	1043640.236	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,060
44-10 Bkgd (cpm)	8,624

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	182	182
	0.0 - 0.5		100	Dark Brown SILTY CLAY, some organics, moist	CL	ND	52	2	162	164
1	0.5 - 2.0		100	Yellowish Brown, trace organics, trace fine to med gravel, dense @ 0.5'		ND	38	2	268	270
2										
3	2.0 - 3.0		100			ND	60	0	284	284
				Bottom of borehole at 3 ft						

COMMENTS:

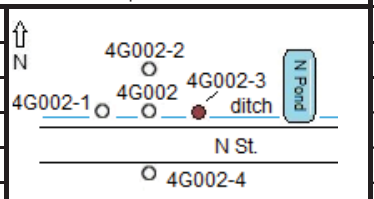
PROJECT NO. 11176991

BORING NO. 4G002-2

URS Corporation

TEST BORING LOG

		BORING NO:	4G002-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along N St, W of N St. North Pond, ~10' E of 4G002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.45
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/8/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/8/2013
AREA:	EU5	DRILLER:	[redacted]
NORTHING:	1173163.398	GEOLOGIST:	[redacted]
EASTING:	1043675.726	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,144
44-10 Bkgd (cpm)	8,624

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	182	182
	0.0 - 0.5		100	Dark Brown SILTY CLAY, some organics, moist	CL	ND	20	0	160	160
1 2	0.5 - 2.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL	ND	58	2	180	182
3	2.0 - 3.0		100	Brown Gray CLAY, some silt, trace fine to coarse gravel, dense, moist	CL	ND	30	0	210	210
				Bottom of borehole at 3 ft						

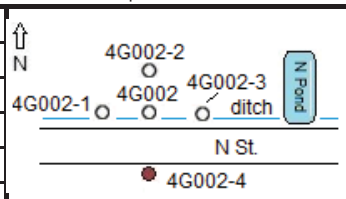
COMMENTS:

PROJECT NO.	11176991
BORING NO.	4G002-3

URS Corporation

TEST BORING LOG

		BORING NO:	4G002-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Just south of N St, W of N St. North Pond, ~20' S of 4G002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	320.65
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/8/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/8/2013
AREA:	EU5	DRILLER:	[redacted]
NORTHING:	1173132.355	GEOLOGIST:	[redacted]
EASTING:	1043641.777	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,766
44-10 Bkgd (cpm)	8,624

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	4	156	160
	0.0 - 0.5		100	FILL; Dark Brown organic fine to coarse gravel (slag), moist	GM	ND	58	2	204	206
1 2	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, some fine to coarse green/gray slag, moist	CL	ND	58	2	174	176
3	2.0 - 3.0		100	Reddish Brown Gray CLAY, trace fine to med gravel, dense, moist	CL	ND	46	2	148	150
				Bottom of borehole at 3 ft						

COMMENTS:

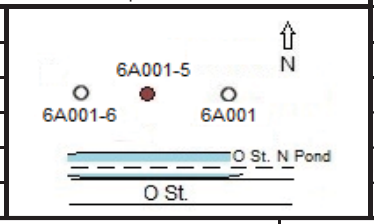
PROJECT NO. 11176991

BORING NO. 4G002-4

URS Corporation

TEST BORING LOG

		BORING NO:	6A001-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along NE end of O Street North Pond, ~50' west of 6A001
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.71
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU5	**DRILLER:**	[redacted]
NORTHING:	1172757.18	**GEOLOGIST:**	[redacted]
EASTING:	1043792.00	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,136
44-10 Bkgd (cpm)	8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	Brown SILTY CLAY, some organics, moist	CL	ND	54	2	190	192
1	0.5 - 2.0		100	Brown SILTY CLAY, some fine to coarse gravel, some organics, more dense at bottom, moist	CL	ND	50	0	170	170
2	2.0 - 3.0		100	Brown SILTY CLAY, some organics, mod plastic, mod dense, moist	CL	ND	70	2	184	186
3				Reddish Brown SILTY CLAY, some organics, mod plastic, mod dense, moist	CL					
				Bottom of borehole at 3 ft						

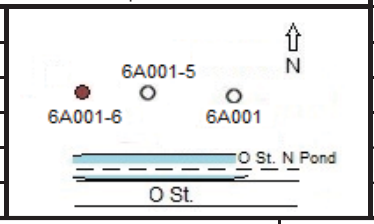
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**6A001-5**

URS Corporation

TEST BORING LOG

		BORING NO:	6A001-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along NE end of O Street North Pond, ~30' west of 6A001-5
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	321.21
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU5	**DRILLER:**	[redacted]
NORTHING:	1172757.15	**GEOLOGIST:**	[redacted]
EASTING:	1043758.04	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,104
44-10 Bkgd (cpm)	8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	4.3	70	4	234	238
1	0.5 - 2.0		100	Dark brown SILTY CLAY, some fine to coarse gravel, some organics (large roots), dense, moist	CL	ND	72	6	174	180
2				Brown SILTY CLAY, some fine to coarse gravel, some organics, very dense, moist	CL					
	2.0 - 3.0		100	Top 8" Reddish brown SILTY CLAY, some fine to med gravel, dense, moist	CL	ND	44	0	186	186
3				Bottom 4" Reddish yellowish brown SILTY SAND, mod dense, wet	SM					
				Bottom of borehole at 3 ft						

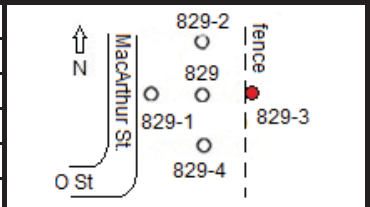
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**6A001-6**

URS Corporation

TEST BORING LOG

		BORING NO:	829-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of MaCarthur St., ~ 10' E of 829
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.16
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/5/2013
DEPTH TO GW:	NA	DATE FINISHED:	[redacted]
AREA:	EU6	DRILLER:	[redacted]
NORTHING:	1172689.385	GEOLOGIST:	[redacted]
EASTING:	1044718.107	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,942
44-10 Bkgd (cpm)	7,688

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	68	4	120	124
	0.0 - 0.5		100	Dark Brown organic SILY CLAY, moist	OL	ND	46	2	198	200
1	0.5 - 2.0		100	Dark Brown grading to brown SILTY CLAY, some organics, trace glass, some slag, dense, moist	CL	ND	60	4	158	162
2	2.0 - 3.0		100			ND	40	8	158	166
				SAND lens at ~2.5-2.8, dense, moist	SP					
3				Gray SILTY CLAY,	CL					
				Bottom of borehole at 3 ft						

COMMENTS: Located on east side of fence

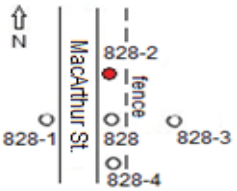
PROJECT NO. 11176991

BORING NO. 829-3

URS Corporation

TEST BORING LOG

		BORING NO:	828-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of MaCarthur St., ~ 10' N of 828
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.36
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/5/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/5/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172871.414	**GEOLOGIST:**	[redacted]
EASTING:	1044709.380	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,064; 44-10 Bkgd (cpm) 7,688

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	68	4	120	124
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	2	144	146
1	0.5 - 2.0		100	Brown SILTY CLAY, trace to some coarse gravel, dense, moist	CL	ND	48	2	162	164
2	2.0 - 3.0		100			ND	38	0	198	198
3				Brown Reddish Brown SILTY SAND, med dense, moist	SM					
				Bottom of borehole at 3 ft						

COMMENTS: Duplicate sample collected 2-3' interval.

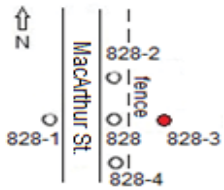
PROJECT NO. 11176991

BORING NO. 828-2

URS Corporation

TEST BORING LOG

		BORING NO:	828-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of MaCarthur St., ~ 10' E of 828
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.23
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/5/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/5/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172838.424	**GEOLOGIST:**	[redacted]
EASTING:	1044720.225	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,928
44-10 Bkgd (cpm)	7,688

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	68	4	120	124
	0.0 - 0.5		100	Dark Brown organic SILY CLAY, moist	OL	ND	32	2	194	196
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, moist	CL	ND	54	2	162	164
2				Brown SILTY CLAY, dense, moist	CL					
	2.0 - 3.0		100	Brown SILTY CLAY, dense, moist	CL	ND	48	0	164	164
3				Gray SILTY CLAY, dense, moist	CL					
				Bottom of borehole at 3 ft						

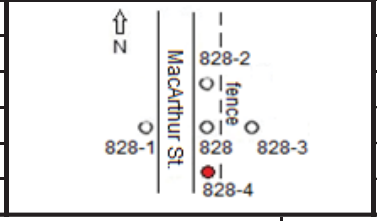
COMMENTS: Located to the east of fence

PROJECT NO.	**11176991**
BORING NO.	**828-3**

URS Corporation

TEST BORING LOG

		BORING NO:	828-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of MaCarthur St., ~ 10' S of 828
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.17
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/5/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/5/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172806.661	**GEOLOGIST:**	[redacted]
EASTING:	1044708.861	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,610
44-10 Bkgd (cpm)	7,688

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	68	4	120	124
	0.0 - 0.5		100	Dark Brown organic SILY CLAY, moist	OL	ND	52	6	166	172
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace coarse gravel, dense, moist	CL	ND	76	4	186	190
3	2.0 - 3.0		100	Brown SILTY CLAY, trace fine to coarse sand, some organics, dense, moist	CL	ND	58	2	162	164
				Bottom of borehole at 3 ft						

COMMENTS:

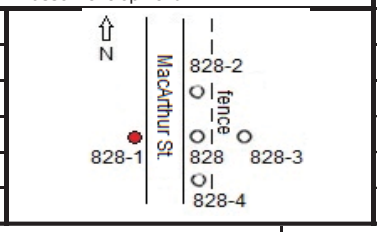
PROJECT NO. 11176991

BORING NO. 828-4

URS Corporation

TEST BORING LOG

		BORING NO:	828-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	West of MaCarthur St., ~ 10' W of 828
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.93
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172838.363	**GEOLOGIST:**	[redacted]
EASTING:	1044676.640	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,114
44-10 Bkgd (cpm)	9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	126	128
	0.0 - 0.5		100	Dark Brown organic SILY CLAY, moist	OL	ND	50	2	206	208
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, fine-coarse slag, med dense, moist	CL	ND	58	4	220	224
2	2.0 - 3.0		100	Brown SILTY CLAY, trace coarse gravel, dense, moist	CL	ND	62	0	224	224
3				Gray SILTY CLAY, trace coarse gravel, dense, moist	CL					
				Bottom of borehole at 3 ft						

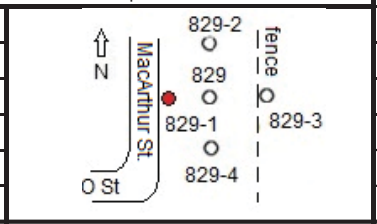
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**828-1**

URS Corporation

TEST BORING LOG

		BORING NO:	829-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of MaCarthur St., ~ 5' E of 829
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.86
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172690.650	**GEOLOGIST:**	[redacted]
EASTING:	1044694.434	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,734
44-10 Bkgd (cpm)	9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	176	176
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, some fine to coarse gravel, moist	OL	ND	60	2	250	252
1	0.5 - 2.0		100	Some fine-coarse slag @ 0.5', more dense at bottom		ND	48	2	232	234
2	2.0 - 3.0		100	Brown SILTY CLAY, some organics, trace fine-med gravel, dense, moist Yellowish Brown @ 2.5'	CL	ND	50	6	234	240
3				Bottom of borehole at 3 ft						

COMMENTS: Per consultation with USACE, relocated 7.5' to the east of original location due to asphalt.

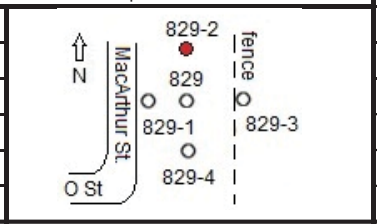
PROJECT NO. 11176991

BORING NO. 829-1

URS Corporation

TEST BORING LOG

		BORING NO:	829-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of MaCarthur St., ~ 10' N of 829
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.75
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172706.054	**GEOLOGIST:**	[redacted]
EASTING:	1044700.905	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,748
44-10 Bkgd (cpm)	9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	176	176
	0.0 - 0.5		100	Dark Brown to Brown organic SILTY CLAY, trace sand, dense, moist	OL	ND	58	2	238	240
1	0.5 - 2.0		100			ND	78	6	224	230
2	2.0 - 3.0		75	Brown SILTY CLAY, some fine-med gravel, dense, moist Gray @ 2.5'	CL	ND	56	0	264	264
3				Bottom of borehole at 3 ft						

COMMENTS: Mylar broke on 2360 meter after screening 0.0-0.5' interval. Uable to screen 0.5-3.0' on 11/6. Bagged sample and screened on 11/7 when new meter arrived.

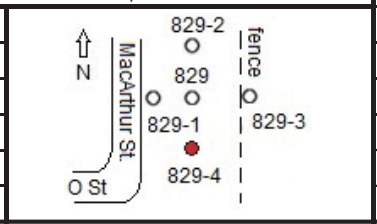
PROJECT NO. 11176991

BORING NO. 829-2

URS Corporation

TEST BORING LOG

		BORING NO:	829-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of MaCarthur St., ~ 10' S of 829
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.90
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172673.384	**GEOLOGIST:**	
EASTING:	1044700.715	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,840
44-10 Bkgd (cpm)	9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	176	176
	0.0 - 0.5		100	FILL;Dark Brown organic SILTY CLAY, moist	OL	ND	72	0	248	248
1	0.5 - 2.0		100	FILL; Brown SILTY CLAY, trace organics, dense, moist Yellowish Brown @ 1.4'	CL	ND	84	2	272	274
2	2.0 - 3.0		100	Gray, some fine to coarse gravel, some fine glass, dense @ 2' wet at bottom		ND	90	2	350	352
3				Bottom of borehole at 3 ft						

COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged sample and screened and jarred on 11/7 when new meter arrived.

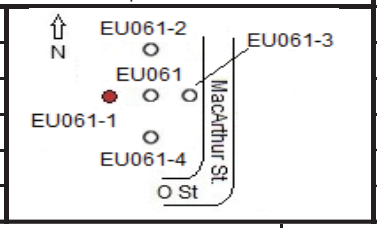
PROJECT NO. 11176991

BORING NO. 829-4

URS Corporation

TEST BORING LOG

		BORING NO:	EU061-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	West of MaCarthur St., ~ 10' W of EU061
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.25
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172748.459	**GEOLOGIST:**	[redacted]
EASTING:	1044651.838	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)** 6,194
	44-10 Bkgd (cpm) 9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	176	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	68	0	354	354
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, mod loose, moist Brown @ 1.5'	CL	ND	66	4	282	286
2	2.0 - 3.0		75	Yellowish Brown, trace organics, dense, @ 2' dry at bottom		ND	70	8	330	338
3				Bottom of borehole at 3 ft						

COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.

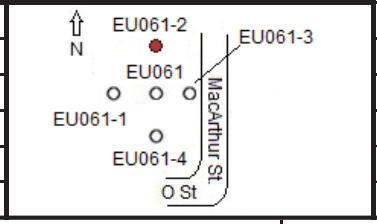
PROJECT NO. 11176991

BORING NO. EU061-1

URS Corporation

TEST BORING LOG

		BORING NO:	EU061-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	West of MaCarthur St., ~ 10' N of EU061
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.88
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172766.686	**GEOLOGIST:**	[redacted]
EASTING:	1044666.183	**RAD TECH:**	[redacted]



Gamma (γ) Survey:			
44-10 grd. Surf. (cpm)	8,152		
44-10 Bkgd (cpm)	9,522		

DEPTH (ft)	**SAMPLE**			**MATERIAL**			**44-9**	**43-93**		
	RAD	**CHEM**	**REC %**	**DESCRIPTION**	**USCS**	**PID**	**βγ (cpm)**	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
						Background:	50	6	176	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	54	6	306	312
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	48	4	314	318
2	2.0 - 3.0		100	Yellowish Brown, trace sand, trace med to coarse gravel @ 2'		ND	54	0	340	340
3				Bottom of borehole at 3 ft						

COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.

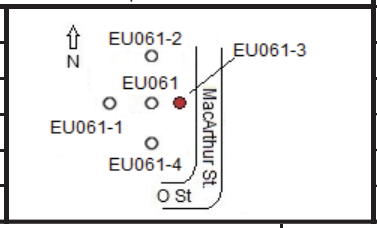
PROJECT NO. 11176991

BORING NO. EU061-2

URS Corporation

TEST BORING LOG

		BORING NO:	EU061-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	West of MaCarthur St., ~ 8' E of EU061
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.73
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172747.883	**GEOLOGIST:**	[redacted]
EASTING:	1044675.428	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,690; 44-10 Bkgd (cpm) 9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	176	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	284	284
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, dense, moist Brown @ 1.5'	CL	ND	58	4	294	298
2	2.0 - 3.0		100	Yellowish Brown, trace organics, trace med gravel @ 2' Gray @ 2.5'		ND	70	2	306	308
3				Bottom of borehole at 3 ft						

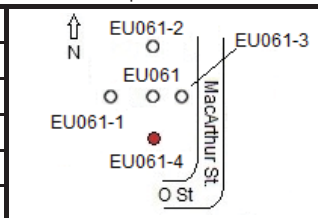
COMMENTS: Attempted to hand auger 0.0-0.5', hit asphalt, moved location off of asphalt ~2.0' to the west of original location for full recovery. Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.
Duplicate sample collected 0-0.5' interval.

PROJECT NO. 11176991
BORING NO. EU061-3

URS Corporation

TEST BORING LOG

		BORING NO:	EU061-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	West of MaCarthur St., ~ 10' S of EU061
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.07
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172734.367	**GEOLOGIST:**	[redacted]
EASTING:	1044667.091	**RAD TECH:**	[redacted]



Gamma (γ) Survey:		
44-10 grd. Surf. (cpm)	8,514	
44-10 Bkgd (cpm)	9,522	

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	170	176
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	90	0	296	296
1 2	0.5 - 2.0		100	FILL; Dark Brown SILTY CLAY, some organics, dense, moist	CL	ND	68	4	322	326
3	2.0 - 3.0		100	Dark Brown to Yellowish Brown, trace sand, some fine to coarse slag @ 2'		ND	50	2	310	312
				Bottom of borehole at 3 ft						

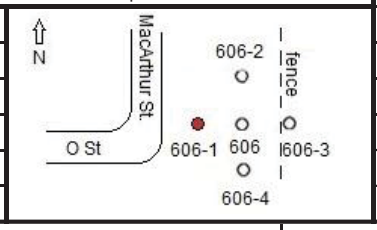
COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.
Duplicate sample collected 2-3' interval.

PROJECT NO. 11176991
BORING NO. EU061-4

URS Corporation

TEST BORING LOG

		BORING NO:	606-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Southeast corner just off MacArthur St., ~ 10' W of 606
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.37
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172635.553	**GEOLOGIST:**	[redacted]
EASTING:	1044684.438	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,668
44-10 Bkgd (cpm)	9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	170	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	2	276	278
1	0.5 - 2.0		75	Dark Brown SILTY CLAY, some organics, trace black staining, more dense at bottom, moist	CL	ND	58	6	272	278
2	2.0 - 3.0		100	Yellowish Brown, trace organics, trace fine gravel @ 2'	CL	ND	60	6	274	280
3				Bottom of borehole at 3 ft						

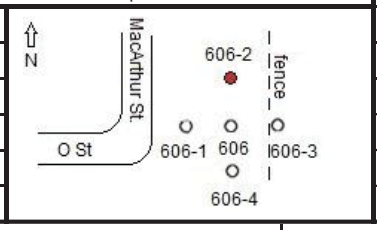
COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.
Duplicate sampled collected 0-0.5' interval.

PROJECT NO. 11176991
BORING NO. 606-1

URS Corporation

TEST BORING LOG

		BORING NO:	606-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Southeast corner just off MacArthur St., ~ 10' N of 606
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.52
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172649.789	**GEOLOGIST:**	[redacted]
EASTING:	1044700.436	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,570
44-10 Bkgd (cpm)	9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	170	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	76	2	236	238
1	0.5 - 2.0		75	Brown SILTY CLAY, some organics, trace fine-med gravel, more dense at bottom, moist	CL	ND	56	10	290	300
2	2.0 - 3.0		100	Yellowish Brown, no gravel @ 2' Gray @ 2.5'		ND	66	2	262	264
3				Bottom of borehole at 3 ft						

COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.

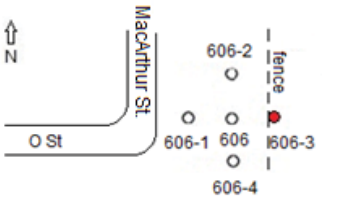
PROJECT NO. 11176991

BORING NO. 606-2

URS Corporation

TEST BORING LOG

		BORING NO:	606-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Southeast corner just off MacArthur St., ~ 10' E of 606
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.03
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/5/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/5/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172633.534	**GEOLOGIST:**	[redacted]
EASTING:	1044717.375	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,942; 44-10 Bkgd (cpm) 7,688

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	68	4	120	124
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	66	2	186	188
1	0.5 - 2.0		100	Brown SILTY CLAY, dense, moist	CL	ND	82	0	200	200
2										
3	2.0 - 3.0		100	Brown Gray, med plasticity @ 2', more dense at bottom, moist		ND	78	4	146	150
				Bottom of borehole at 3 ft						

COMMENTS: Located on E side of fence.

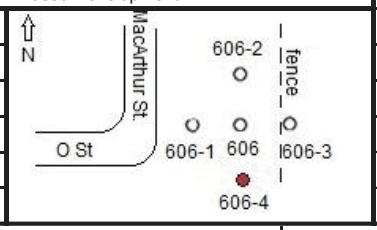
PROJECT NO. 11176991

BORING NO. 606-3

URS Corporation

TEST BORING LOG

		BORING NO:	606-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Southeast corner just off MacArthur St., ~ 10' S of 606
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.15
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172621.774	**GEOLOGIST:**	
EASTING:	1044698.770	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,130
44-10 Bkgd (cpm)	9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	170	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	80	6	310	316
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, trace med gravel, dense, moist	CL	ND	80	0	276	276
2	2.0 - 3.0		100	Yellowish Brown Gray SILTY CLAY, lens of dark brown organic silty clay, more dense at bottom, moist	CL/OL	ND	66	2	256	258
3				Bottom of borehole at 3 ft						

COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.

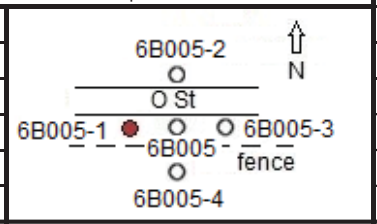
PROJECT NO. 11176991

BORING NO. 606-4

URS Corporation

TEST BORING LOG

		BORING NO:	6B005-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Eastern end of O St., ~ 10 W of 6B005
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.55
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172624.614	**GEOLOGIST:**	
EASTING:	1044366.181	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 14,270; 44-10 Bkgd (cpm) 9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	170	176
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	80	12	434	446
1	0.5 - 2.0		100	FILL; Brown SILTY CLAY, some fine to coarse slag, mod dense, moist	CL	ND	132	12	1,434	1,446
2	2.0 - 3.0		100	Dark Brown SILTY CLAY, dense, moist	CL	ND	68	12	358	370
				Yellowish Brown @ 2.5'	CL					
3				Bottom of borehole at 3 ft						

COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.

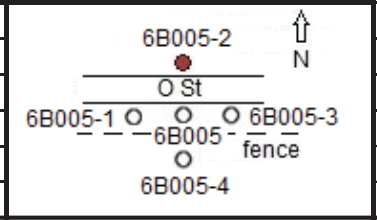
PROJECT NO. 11176991

BORING NO. 6B005-1

URS Corporation

TEST BORING LOG

		BORING NO:	6B005-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Eastern end and N of O St., ~ 10 N of 6B005
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.69
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172644.217	**GEOLOGIST:**	[redacted]
EASTING:	1044383.056	**RAD TECH:**	[redacted]



Gamma (γ) Survey:			
44-10 grd. Surf. (cpm)	15,870		
44-10 Bkgd (cpm)	9,522		
	44-9	**43-93**	
	βγ (cpm)	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
Background:	50	6	170	176

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	Both (Gross cpm)
	0.0 - 0.5		100	Dark Brown TOPSOIL, moist	OL	ND	50	18	372	390
1	0.5 - 2.0		100	Brown to Light Brown at bottom SILTY CLAY, some organics, some coarse slag, mod dense, moist	CL	ND	58	2	372	374
2	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, dense, moist	CL	ND	52	4	300	304
3				Reddish Brown SILTY CLAY, trace coarse slag, dense, moist	CL					
				Bottom of borehole at 3 ft						

COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.

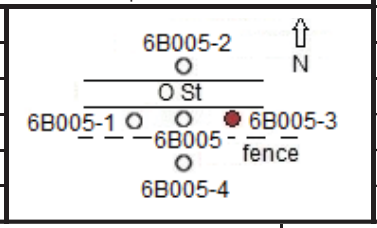
PROJECT NO. 11176991

BORING NO. 6B005-2

URS Corporation

TEST BORING LOG

		BORING NO:	6B005-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Eastern end of O St., ~ 10 E of 6B005
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.60
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172624.542	**GEOLOGIST:**	[redacted]
EASTING:	1044398.044	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 15,794; 44-10 Bkgd (cpm) 9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	170	176
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	66	4	396	400
1 2	0.5 - 2.0		100	FILL; Dark Brown to Brown at bottom SILTY CLAY, some fine to coarse slag, mod dense, moist	CL	ND	62	4	390	394
3	2.0 - 3.0		100	Dark Brown SILTY CLAY, trace organics, trace med gravel, dense, moist Reddish Brown @ 2.5'	CL	ND	50	4	328	332
				Bottom of borehole at 3 ft						

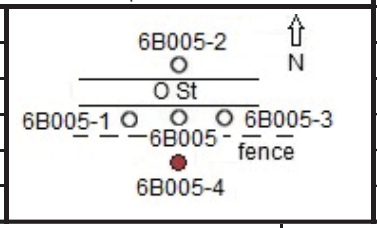
COMMENTS: Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.
Duplicate sampled collected 2-3' interval.

PROJECT NO. 11176991
BORING NO. 6B005-3

URS Corporation

TEST BORING LOG

		BORING NO:	6B005-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	South side of O St., S side of fence, ~ 10 S of 6B005
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.08
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172611.817	**GEOLOGIST:**	[redacted]
EASTING:	1044381.721	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)**	
	44-10 Bkgd (cpm)	9,522

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	170	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	10	290	300
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, dense, moist	CL	ND	54	0	334	334
2				Reddish Brown SILTY CLAY, dense, moist	CL					
3	2.0 - 3.0		50	Reddish Brown SILTY CLAY, some fine-coarse sand, dense, moist	CL	ND	66	10	312	322
				Bottom of borehole at 3 ft						

COMMENTS: Located on south side of fence. Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.

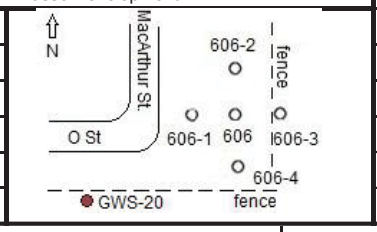
PROJECT NO. 11176991

BORING NO. 6B005-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-20
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Eastern end and South side of O St., other side of fence, ~ 100 W of 606
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.86
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/6/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/6/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172616.318	**GEOLOGIST:**	
EASTING:	1044585.243	**RAD TECH:**	



Gamma (γ) Survey:		
44-10 grd. Surf. (cpm)	9,358	
44-10 Bkgd (cpm)	9,522	

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	6	170	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	2	336	338
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, dense, moist Yellowish Brown @ 1.5'	CL	ND	64	6	316	322
2	2.0 - 3.0		75	Dark Brown @ 2' to Yellowish Brown at bottom		ND	48	2	234	236
3				Bottom of borehole at 3 ft						

COMMENTS: Located on S side of fence. Due to broken mylar on 2360 meter, all intervals bagged. Screened and jarred on 11/7 when new meter arrived.

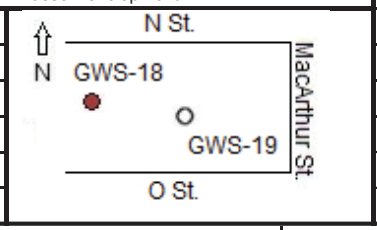
PROJECT NO. 11176991

BORING NO. GWS-20

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-18
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St.
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.45
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/7/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/7/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172893.697	**GEOLOGIST:**	[redacted]
EASTING:	1044160.859	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,056
44-10 Bkgd (cpm)	7,288

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	58	0	296	296
1	0.5 - 2.0		100	Brown SILTY CLAY, trace black staining, some fine to coarse slag, mod dense, wet to 1.0', moist 1.0-2.0'	CL	ND	52	2	382	384
2	2.0 - 3.0		75	Brown SILTY CLAY, trace coarse gravel, dense, moist	CL	ND	50	0	372	372
3				Bottom of borehole at 3 ft						

COMMENTS:

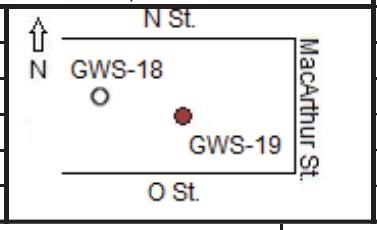
PROJECT NO. 11176991

BORING NO. GWS-18

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-19
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St.
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.68
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/7/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/7/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172867.524	**GEOLOGIST:**	[redacted]
EASTING:	1044364.646	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	31,468
44-10 Bkgd (cpm)	7,288

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	84	14	404	418
1 2	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine to med gravel, mod dense, moist	CL	ND	176	66	698	764
3	2.0 - 3.0		75	Brown SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL	ND	128	46	814	860
4	3.0-4.0		100	Brown to Reddish Brown at bottom SILTY CLAY, some fine to coarse gravel, dense, moist	CL	ND	80	22	466	488
	4.0-5.0		100	Reddish Brown SILTY CLAY, some fine to medium gravel, dense, dry Bottom of borehole at 5.0'	CL	ND	70	8	372	380

COMMENTS: 2.0-3.0' interval model 12 rad readings 3x bkgd. Push down same hole to 4.0'. Hand auger 4.0-5.0', readings 2x bkgd.

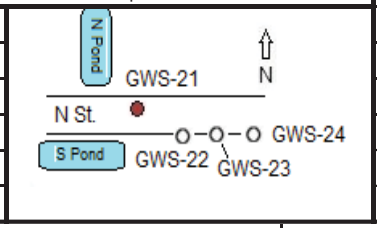
PROJECT NO. 11176991

BORING NO. GWS-19

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-21
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along E end of N St., E of N St. North Pond
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.98
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/7/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/7/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1173141.485	**GEOLOGIST:**	
EASTING:	1044047.494	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 7,288

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	FILL; Fine-coarse silty gravel (slag), moist	GM	ND	56	0	340	340
1	0.5 - 2.0		100	Reddish Brown SILTY CLAY, dense, moist	CL	ND	38	0	340	340
2				Dark Brown, same as above	CL					
3	2.0 - 3.0		75	Dark Brown SILTY CLAY, some med-coarse slag, dense, moist	CL	ND	54	0	298	298
				Bottom of borehole at 3 ft						

COMMENTS:

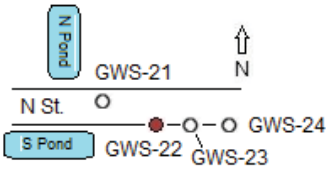
PROJECT NO. 11176991

BORING NO. GWS-21

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-22
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along E end of N St., E of N St. North Pond, ~50' E of GWS-21
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.91
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/7/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/7/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1173135.166	**GEOLOGIST:**	
EASTING:	1044093.858	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	14,512
44-10 Bkgd (cpm)	7,288

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	FILL; Fine-coarse silty gravel (slag), moist	GM	ND	56	0	288	288
1	0.5 - 2.0		100	Reddish Brown SILTY CLAY, some fine to coarse gravel, dense, moist	CL	ND	66	2	248	250
2	2.0 - 3.0		75			ND	56	2	278	280
3				Bottom of borehole at 3 ft						

COMMENTS: Duplicate sample collected 2-3' interval.

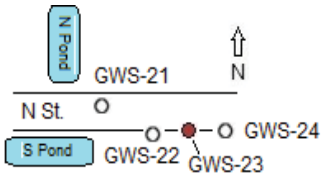
PROJECT NO. 11176991

BORING NO. GWS-22

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-23
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along E end of N St., E of N St. North Pond, ~10' E of GWS-22
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.03
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/7/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/7/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1173135.323	**GEOLOGIST:**	
EASTING:	1044122.589	**RAD TECH:**	



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)** [redacted]
	44-10 Bkgd (cpm) 7,288

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	172	172
	0.0 - 0.5		100	FILL; Fine-coarse silty green/gray slag, moist	GM	ND	64	0	366	366
1 2	0.5 - 2.0		100	Reddish Brown SILTY CLAY, trace fine to med gravel, dense, moist	CL	ND	52	0	344	344
3	2.0 - 3.0		100			ND	58	0	324	324
				Bottom of borehole at 3 ft						

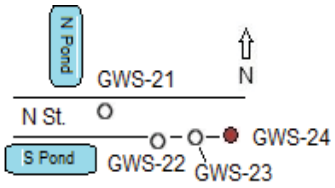
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-23**

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-24
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along E end of N St., E of N St. North Pond, ~50' E of GWS-23
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.04
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/7/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/7/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1173136.174	**GEOLOGIST:**	
EASTING:	1044184.772	**RAD TECH:**	



Gamma (γ) Survey:			
44-10 grd. Surf. (cpm)	13,580		
44-10 Bkgd (cpm)	7,288		
	44-9	**43-93**	
	βγ (cpm)	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
Background:	34	0	172	172

DEPTH (ft)	**SAMPLE RAD**	**SAMPLE CHEM**	**SAMPLE REC %**	**MATERIAL DESCRIPTION**	**USCS**	**PID**	**44-9 βγ (cpm)**	**43-93 α (cpm)**	**43-93 β (cpm)**	**Both (Gross cpm)**
	0.0 - 0.5		100	FILL; Brown SILTY CLAY, some fine-coarse slag, moist	CL	ND	82	0	294	294
1	0.5 - 2.0		100	Reddish Brown SILTY CLAY, trace fine to med gravel, dense, wet at 0.5-1.0', moist at 1.0-3.0'	CL	ND	76	4	252	256
2										
3	2.0 - 3.0		100			ND	60	0	242	242
				Bottom of borehole at 3 ft						

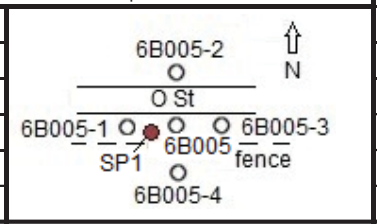
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-24**

URS Corporation

TEST BORING LOG

		BORING NO:	SP-01
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Just off asphalt along O street, near 6B005
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.42
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/8/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/8/2013
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	[redacted]	**GEOLOGIST:**	
EASTING:	1044374.746	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 60,322; 44-10 Bkgd (cpm) 8,624

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	182	182
	0.0 - 0.5		100	FILL; Dark Brown SILTY CLAY, some organics, some fine to coarse slag, moist	CL	ND	126	4	1,226	1,230
1 2	0.5 - 2.0		100	Reddish brown @ 0.5'		ND	226	6	1,092	1,098
3	2.0 - 3.0		100	Reddish Brown SILTY CLAY, dense, moist	CL	ND	94	6	404	410
4	3.0-4.0					ND	62	2	282	284
				Bottom of borehole at 4 ft.						

COMMENTS: Bias sampling point. Relocated ~1.0' South off of asphalt. Higher rad readings at 0.0-2.0' interval, trending down 2.0-4.0' interval.

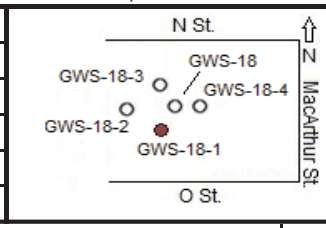
PROJECT NO. 11176991

BORING NO. SP-01

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-18-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St., ~20' southwest of GWS-18
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.39
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172874.37	**GEOLOGIST:**	[redacted]
EASTING:	1044162.55	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,392
44-10 Bkgd (cpm)	8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	ND	70	2	224	226
1	0.5 - 2.0		100	FILL; Brown silty fine to coarse gravel, some organics, loose, dry	GM	ND	42	0	202	202
				Reddish brown sandy SILTY CLAY, trace organics, dense, dry No sand and some organics @ 2'	CL					
2	2.0 - 3.0		100	Some fine gravel, trace organics, very dense @ 2'		ND	62	0	208	208
3				Bottom of borehole at 3 ft						

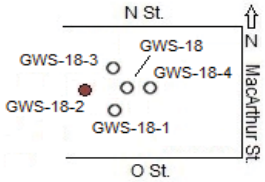
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-18-1**

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-18-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St., ~ 25' west of GWS-18
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.68
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172887.07	**GEOLOGIST:**	[redacted]
EASTING:	1044147.15	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,700
44-10 Bkgd (cpm)	8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	ND	64	2	192	194
1	0.5 - 2.0		100	0.5-1.5 Reddish Brown SILTY CLAY, some fine to medium gravel, some organics (fine roots), more dense at bottom, dry	CL	ND	64	2	224	226
2				1.5-2' Reddish Brown Gray SILTY CLAY, trace fine gravel, trace organics, dense, dry	CL					
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, trace fine gravel, trace organics, very dense, dry	CL	ND	70	0	174	174
				Bottom of borehole at 3 ft						

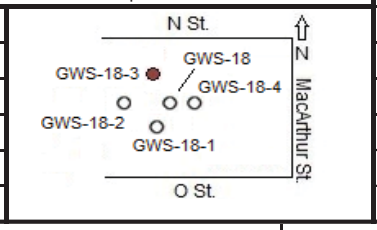
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-18-2**

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-18-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St., ~ 20' northwest of GWS-18
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.09
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172902.78	**GEOLOGIST:**	
EASTING:	1044161.76	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,288
44-10 Bkgd (cpm)	8,808

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	56	0	146	146
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	ND	42	0	202	202
1	0.5 - 2.0		100	0.5-1.5 Brown to reddish brown SILTY CLAY, some fine to medium gravel, some organics, more dense at bottom, moist	CL	ND	52	0	206	206
2				1.5-2' Reddish brown SILTY SAND, mod dense, moist to wet	SM					
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, some fine to medium gravel, trace organics, very dense at bottom, moist	CL	ND	62	0	192	192
				Bottom of borehole at 3 ft						

COMMENTS:

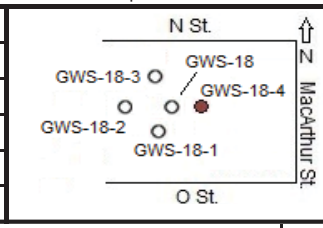
PROJECT NO. 11176991

BORING NO. GWS-18-3

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-18-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St., ~ 5' east of GWS-18
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.409
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/30/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/30/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172890.37	**GEOLOGIST:**	[redacted]
EASTING:	1044174.92	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,838
44-10 Bkgd (cpm)	10,698

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
						Background:	38	0	164	164
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	42	0	228	228
1	0.5 - 2.0		100			ND	50	0	204	204
				Yellowish brown SILTY FINE SAND grading to SILTY SAND, trace clay, trace organics, moist to wet	SM					
2	2.0 - 3.0		100			ND	68	2	212	214
3				Reddish brown SILTY CLAY, some fine to medium gravel, trace organics, very dense at bottom, moist to dry	CL					
				Bottom of borehole at 3 ft						

COMMENTS:

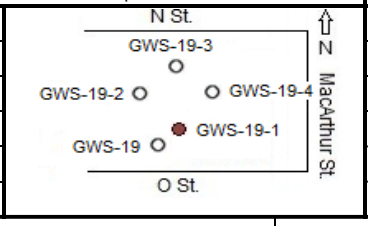
PROJECT NO. 11176991

BORING NO. GWS-18-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-19-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St., east of GWS-18 cluster, ~ 10' northeast of GWS-19
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.62
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/1/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/1/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172854.51	**GEOLOGIST:**	[redacted]
EASTING:	1044367.48	**RAD TECH:**	[redacted]



Gamma (γ) Survey:			
44-10 grd. Surf. (cpm)	9,760		
44-10 Bkgd (cpm)	7,248		
	44-9	**43-93**	
	βγ (cpm)	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
Background:	52	2	188	190

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
	0.0 - 0.5		100	FILL; Dark brown organic SILTY CLAY, moist	OL	ND	64	6	240	246
1	0.5 - 2.0		100	FILL; Dark brown to reddish brown sandy silty fine to coarse gravel, trace organics, loose, moist	GM	ND	88	0	212	212
2				Reddish brown sandy SILT, mod dense, wet	SM					
3	2.0 - 3.0		100	Light Brown @ 2 '		ND	62	0	188	188
				Light brown SILTY CLAY, moist to dry	CL					
				Bottom of borehole at 3 ft						

COMMENTS: Duplicate sample collected at 2-3' interval.

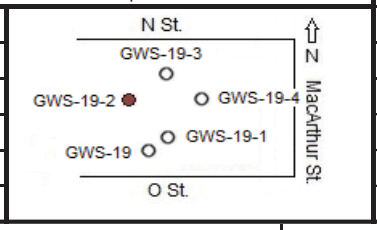
PROJECT NO. 11176991

BORING NO. GWS-19-1

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-19-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St., east of GWS-18 cluster, ~ 20' northwest of GWS-19
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.55
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/1/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/1/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172867.64	**GEOLOGIST:**	[redacted]
EASTING:	1044355.97	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,994
44-10 Bkgd (cpm)	7,248

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	188	190
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, trace fine to medium gravel, moist	OL	1.6	74	4	246	250
1	0.5 - 2.0		100	FILL; Dark brown sandy silty fine to coarse gravel, loose, moist	GM	ND	68	0	234	234
2				Reddish brown SILTY CLAY, trace gravel, dense, moist to dry	CL					
3	2.0 - 3.0		100			ND	70	2	246	248
				Bottom of borehole at 3 ft						

COMMENTS: Duplicate sample collected 2-3' interval.

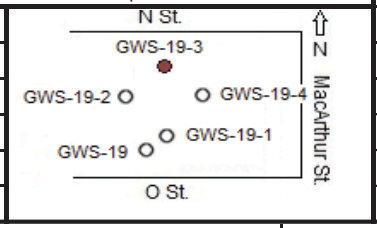
PROJECT NO. 11176991

BORING NO. GWS-19-2

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-19-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St., east of GWS-18 cluster, ~50' north of GWS-19-1
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.92
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/1/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/1/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172881.55	**GEOLOGIST:**	
EASTING:	1044365.42	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,070
44-10 Bkgd (cpm)	7,248

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	188	190
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, some fine to medium gravel, moist	OL	1.6	80	0	226	226
1	0.5 - 2.0		100	FILL; Brown to reddish brown sandy silty fine to coarse gravel, loose, moist	GM	ND	58	2	234	236
2				Reddish brown SILTY CLAY, some - trace fine to medium gravel, trace organics, mod dense, moist	CL					
3	2.0 - 3.0		100	Very dense, moist to dry @ 2'		ND	68	2	222	224
				Bottom of borehole at 3 ft						

COMMENTS: Duplicate sample collected 2-3' interval.

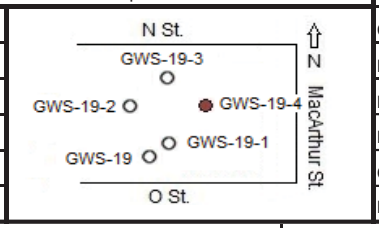
PROJECT NO. 11176991

BORING NO. GWS-19-3

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-19-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located NE area of site in treed area between N St. and O St., east of GWS-18 cluster, ~50' east of GWS-19-2
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.92
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/1/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/1/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172868.06	**GEOLOGIST:**	[redacted]
EASTING:	1044380.75	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,430
44-10 Bkgd (cpm)	7,248

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
						Background:	50	2	188	190
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, some fine gravel, moist	OL	ND	68	2	258	260
1	0.5 - 2.0		100	FILL; Brown grades to reddish brown sandy silty fine to coarse gravel, trace organics, loose, moist	GM	ND	70	2	224	226
2	2.0 - 3.0		100			ND	54	2	204	206
3				Bottom 8" Brown SILTY CLAY, some fine to medium gravel, very dense, damp	CL					
				Bottom of borehole at 3 ft						

COMMENTS: Duplicate samples collected 0-0.5' interval and 2-3' interval.

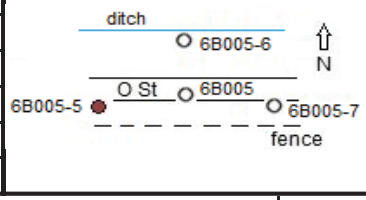
PROJECT NO. 11176991

BORING NO. GWS-19-4

URS Corporation

TEST BORING LOG

		BORING NO:	6B005-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Eastern end of O St., ~100 west of 6B005
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.34
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/1/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/1/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172623.30	**GEOLOGIST:**	[redacted]
EASTING:	1044340.60	**RAD TECH:**	[redacted]



Gamma (γ) Survey:		
44-10 grd. Surf. (cpm)	9,298	
44-10 Bkgd (cpm)	7,248	

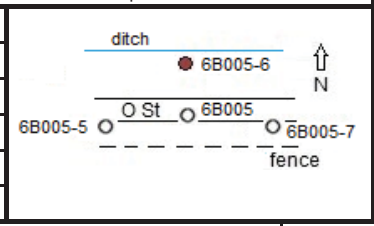
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	188	190
	0.0 - 0.5		100	FILL; Dark brown organic SILTY CLAY	OL	ND	48	8	218	226
1	0.5 - 2.0		100	FILL; Dark brown silty fine to coarse SLAG, trace organics, loose, moist	GM	ND	74	2	180	182
2				FILL; Brown SILTY CLAY, trace fine slag at top, mod dense, moist	CL					
3	2.0 - 3.0		100	FILL; Brown silty coarse gray SLAG, slight sulfur odor	SM	10.7	80	2	162	164
				Reddish brown SILTY CLAY, trace fine to medium gravel, dense, moist	CL	ND				
				Bottom of borehole at 3 ft						

COMMENTS:		**PROJECT NO.**	**11176991**
		BORING NO.	**6B005-5**

URS Corporation

TEST BORING LOG

		BORING NO:	6B005-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Eastern end of O St., ~25 north of 6B005
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.88
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/1/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/1/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172653.28	**GEOLOGIST:**	[redacted]
EASTING:	1044387.11	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,448
44-10 Bkgd (cpm)	7,248

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	188	190
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	ND	40	2	184	186
1	0.5 - 2.0		100	FILL; Brown SILTY CLAY, trace slag, some organics (tree roots), moist	CL	ND	68	0	200	200
2				Reddish brown SILTY CLAY, trace medium gravel, some organics (large tree roots), mod dense, moist	CL					
3	2.0 - 3.0		100			ND	74	0	196	196
				Bottom of borehole at 3 ft						

COMMENTS: Original location in ditch, relocated to south side of ditch to tree line

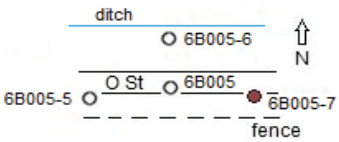
PROJECT NO. 11176991

BORING NO. 6B005-6

URS Corporation

TEST BORING LOG

		BORING NO:	6B005-7
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Eastern end of O St., ~75 east of 6B005-5
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.41
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/1/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/1/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172623.69	**GEOLOGIST:**	[redacted]
EASTING:	1044416.96	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,134
44-10 Bkgd (cpm)	7,248

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	2	188	190
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	ND	64	4	212	216
1	0.5 - 2.0		100			ND	66	0	204	204
				FILL; Pocket of brown silty fine to coarse gravel (slag), loose, dry	GM					
2				Mottled brown black SILTY CLAY, trace fine to medium gravel, trace organics, mod dense, moist	CL					
3	2.0 - 3.0		100	Brown to black sandy SILT, trace organics, mod dense, moist	SM	ND	62	0	174	174
				Bottom of borehole at 3 ft						

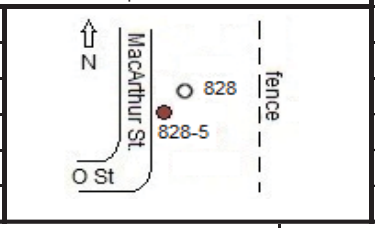
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**6B005-7**

URS Corporation

TEST BORING LOG

		BORING NO:	828-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of MaCarthur St., ~10' southwest of 828
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.50
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/2/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/2/2014
AREA:	EU6	**DRILLER:**	[redacted]
NORTHING:	1172827.67	**GEOLOGIST:**	[redacted]
EASTING:	1044702.23	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,810
44-10 Bkgd (cpm)	6,582

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	160	160
	0.0 - 0.5		100	Brown organic SILTY CLAY, some fine to coarse gravel, dry	OL	ND	82	6	224	230
1	0.5 - 2.0		100			ND	46	0	170	170
				1-1.5' Pocket of light brown coarse SAND, loose, dry	SP					
2				Reddish brown sandy SILTY CLAY, trace organics, more dense at bottom, moist	CL					
3	2.0 - 3.0		100	Yellowish brown, dense, dry @ 2.5'		ND	68	0	158	158
				Bottom of borehole at 3 ft						

COMMENTS:

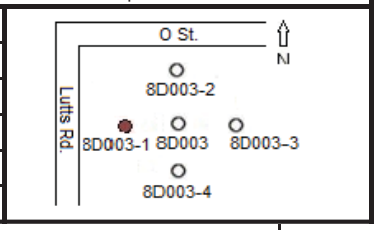
PROJECT NO. 11176991

BORING NO. 828-5

URS Corporation

TEST BORING LOG

		BORING NO:	8D003-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North west corner of Lutts Rd and O St., vicinity of organic burial area, ~ 30' W of 8D003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.62
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172529.824	**GEOLOGIST:**	[redacted]
EASTING:	1040662.427	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,788
44-10 Bkgd (cpm)	7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	34	2	224	226
1 2	0.5 - 2.0		100	Brown SILTY CLAY, trace sand at top, some organics, some fine to coarse gravel, more dense at bottom, dry	CL	ND	60	2	262	264
3	2.0 - 3.0		100	Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, dry	CL	ND	56	0	300	300
				Bottom of borehole 3 ft						

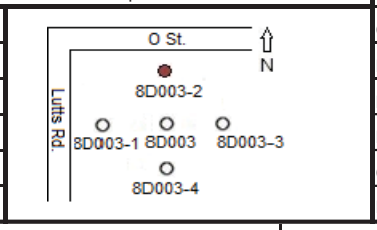
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8D003-1**

URS Corporation

TEST BORING LOG

		BORING NO:	8D003-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North west corner of Lutts Rd and O St., vicinity of organic burial area, ~ 30' N of 8D003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.71
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172562.880	**GEOLOGIST:**	
EASTING:	1040693.503	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 11,330; **44-10 Bkgd (cpm)** 7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	40	0	266	266
1	0.5 - 2.0		100	Dark Brown to Reddish Brown SILTY CLAY, sandy silt lens, some organics, some fine gravel, more dense at bottom, moist Grades to gray @ 1.5'	CL/SM	ND	52	4	264	268
2	2.0 - 3.0		100	Reddish Brown SILTY CLAY, some organics, trace fine gravel, dense, dry Grades to gray @ 2.5'	CL	ND	46	0	290	290
3				Bottom of borehole 3 ft						

COMMENTS:

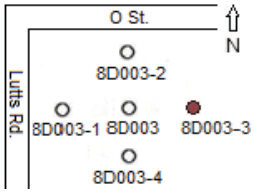
PROJECT NO. 11176991

BORING NO. 8D003-2

URS Corporation

TEST BORING LOG

		BORING NO:	8D003-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North west corner of Lutts Rd and O St., vicinity of organic burial area, ~ 30' E of 8D003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.59
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172531.180	**GEOLOGIST:**	[redacted]
EASTING:	1040726.390	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	0	270	270
1	0.5 - 2.0		100	Dark Brown sandy SILTY CLAY, some organics, trace fine to med gravel, moist	CL	ND	38	0	286	286
2				Reddish Brown sandy SILTY CLAY, some organics, trace fine to med gravel, moist						
3	2.0 - 3.0		100	Reddish Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, dry		ND	36	2	276	278
				Bottom of borehole 3 ft						

COMMENTS:

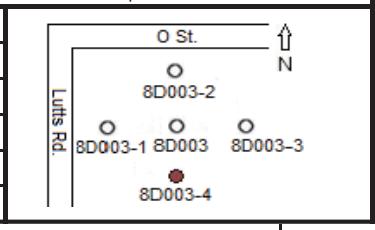
PROJECT NO. 11176991

BORING NO. 8D003-3

URS Corporation

TEST BORING LOG

		BORING NO:	8D003-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North west corner of Lutts Rd and O St., vicinity of organic burial area, ~ 30' S of 8D003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.42
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172499.669	**GEOLOGIST:**	[redacted]
EASTING:	1040694.745	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,210; 44-10 Bkgd (cpm) 7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	4	258	262
1	0.5 - 2.0		100	Reddish Brown sandy SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	74	0	314	314
2	2.0 - 3.0		100	Reddish Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL	ND	74	4	304	308
3				Bottom of borehole 3 ft						

COMMENTS:

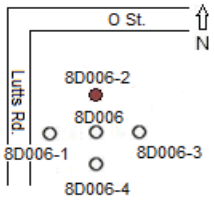
PROJECT NO. 11176991

BORING NO. 8D003-4

URS Corporation

TEST BORING LOG

		BORING NO:	8D006-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, S of O St., vicinity of organic burial area, ~ 10' N of 8D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.19
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172488.557	**GEOLOGIST:**	[redacted]
EASTING:	1040654.268	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,692
44-10 Bkgd (cpm)	7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	30	0	262	262
1	0.5 - 2.0		100	Brown Gray SILTY CLAY, some organics, dense, dry	CL	ND	72	0	300	300
2	2.0 - 3.0		100	Gray SILTY CLAY, trace organics, highly compacted, dense, dry	CL	ND	52	2	338	340
3				Bottom of borehole 3 ft						

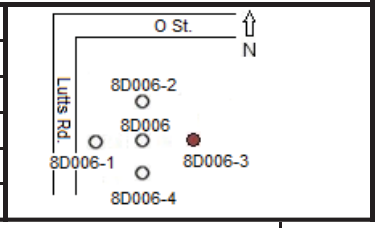
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8D006-2**

URS Corporation

TEST BORING LOG

		BORING NO:	8D006-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, S of O St., vicinity of organic burial area, ~ 10' E of 8D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.63
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172472.430	**GEOLOGIST:**	[redacted]
EASTING:	1040670.558	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,008; 44-10 Bkgd (cpm) 7,876

DEPTH (ft)	SAMPLE: RAD	SAMPLE: CHEM	SAMPLE: REC %	MATERIAL: DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	50	2	222	224
1 2	0.5 - 2.0		100	Brown Reddish Brown sandy SILTY CLAY, some organics, some fine to med gravel, loose, moist	CL	ND	74	0	294	294
3	2.0 - 3.0		100	Reddish Brown SILTY CLAY, trace organics, dense, dry Same as above, grades to gray	CL	ND	56	2	336	338
				Bottom of borehole 3 ft						

COMMENTS:

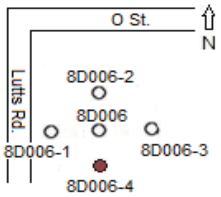
PROJECT NO. 11176991

BORING NO. 8D006-3

URS Corporation

TEST BORING LOG

		BORING NO:	8D006-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, S of O St., vicinity of organic burial area, ~ 10' S of 8D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.68
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172455.149	**GEOLOGIST:**	[redacted]
EASTING:	1040652.521	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,396; 44-10 Bkgd (cpm) 7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	52	2	272	274
1 2	0.5 - 2.0		100	Brown Gray SILTY CLAY, some organics, some fine to coarse gravel, dense, dry	CL	ND	34	2	298	300
3	2.0 - 3.0		100			ND	76	2	310	312
				Bottom of borehole 3 ft						

COMMENTS:

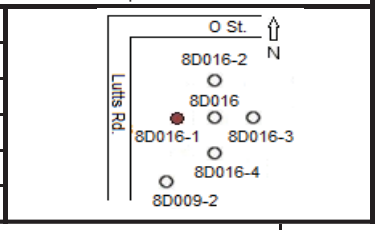
PROJECT NO. 11176991

BORING NO. 8D006-4

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, ~ 10' W of 8D016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.52
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172366.692	**GEOLOGIST:**	
EASTING:	1040677.947	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,458
44-10 Bkgd (cpm)	7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	70	0	308	308
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine to med gravel, loose to dense at bottom, moist	CL	ND	64	0	316	316
2	2.0 - 3.0		100	Dark Brown Black sandy SILTY CLAY, some organics, some fine to med gravel, loose, moist		ND	58	0	286	286
3				Bottom of borehole 3 ft						

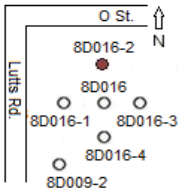
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8D016-1**

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, ~ 10' N of 8D016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.60
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	[redacted]	**DRILLER:**	[redacted]
NORTHING:	1172382.317	**GEOLOGIST:**	[redacted]
EASTING:	1040694.246	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 11,980; **44-10 Bkgd (cpm)** 7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	34	0	308	308
1 2	0.5 - 2.0		100	Brown SILTY CLAY, some organics, dense, moist Dark Brown some sand, loose, moist @ 1.5'	CL	ND	50	0	304	304
3	2.0 - 3.0		100	Dark Brown sandy SILTY CLAY, some organics, some fine to med gravel, loose, moist	CL	ND	86	4	452	456
4	3.0-4.0		100	Dark Brown SILTY CLAY, some sand, some organics, dense, dry	CL	ND	60	2	270	272
				Bottom of borehole 4 ft						

COMMENTS:

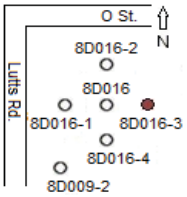
PROJECT NO. 11176991

BORING NO. 8D016-2

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, ~ 10' E of 8D016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.82
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172367.699	**GEOLOGIST:**	[redacted]
EASTING:	1040710.368	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,350; **44-10 Bkgd (cpm)** 7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	ND	60	0	270	270
1	0.5 - 2.0		100	FILL; Brown SILTY CLAY, some organics, wood particles throughout, trace fine gravel, loose, moist Grades to dark brown @ 1.5'	CL	ND	54	0	326	326
2										
3	2.0 - 3.0		100	FILL; Dark Brown organic SILTY CLAY, wood particles throughout, loose, moist	OL	ND	100	2	584	586
4	3.0-4.0		100	Dark Brown SILTY CLAY, some sand, some organics, loose, moist Brown, trace organics, dense 3.5'	CL	ND	138	8	862	870
5	4.0-5.0			Dark Brown, some organics @ 4' Bottom of borehole 5 ft		ND	90	0	288	288

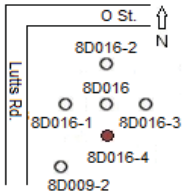
COMMENTS: Higher rad readings at 2.0-3.0 interval, pushed down to 5.0', readings drop at 4.0-5.0' interval.

PROJECT NO. 11176991
BORING NO. 8D016-3

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, ~ 10' S of 8D016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.63
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/15/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/15/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172350.424	**GEOLOGIST:**	[redacted]
EASTING:	1040693.700	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 14,846; 44-10 Bkgd (cpm) 7,876

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	176	176
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist, loose		ND	46	0	310	310
1	0.5 - 2.0		100	Wood particles throughout @ 0.5'		ND	86	0	374	374
2				Grades to dark brown @ 1.5'	OL					
3	2.0 - 3.0		100			ND	112	2	514	516
4	3.0-4.0		100	Wood particle lens @ 3.5'		ND	82	4	460	464
5	4.0-5.0		100	Brown SILTY CLAY, some fine gravel, saturated	ML	ND	64	2	404	406
				Dark Brown SILTY CLAY, dense, saturated	CL					
				Bottom of borehole 5 ft						

COMMENTS: Higher rad readings at 2.0-3.0 interval, pushed down to 5.0', readings drop at 4.0-5.0' interval.

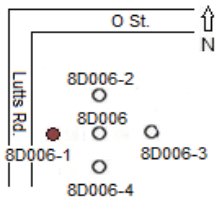
PROJECT NO. 11176991

BORING NO. 8D016-4

URS Corporation

TEST BORING LOG

		BORING NO:	8D006-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, S of O St., vicinity of organic burial area, ~ 10' W of 8D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.48
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172472.324	**GEOLOGIST:**	
EASTING:	1040636.876	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 0; 44-10 Bkgd (cpm) 6,540

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	2	122	124
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	2	162	164
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to coarse gravel, mod loose at top to dense at bottom, moist	CL	ND	50	2	206	208
3	2.0 - 3.0		100	Dark Reddish Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist		ND	30	0	216	216
				Bottom of borehole 3 ft						

COMMENTS:

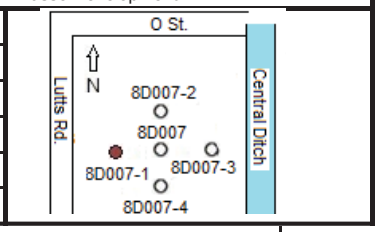
PROJECT NO. 11176991

BORING NO. 8D006-1

URS Corporation

TEST BORING LOG

		BORING NO:	8D007-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located between Lutts Rd. and Central Ditch, south of O st., vicinity of organic burial ground, ~ 10' west of 8D007
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.87
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172485.379	**GEOLOGIST:**	[redacted]
EASTING:	1040752.971	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,510
44-10 Bkgd (cpm)	7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	204	204
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics , some fine to med gravel, dense, moist Same as above, grades to reddish brown	CL	ND	48	2	216	218
2	2.0 - 3.0		100	Gray Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist		ND	48	4	184	188
3				Bottom of borehole 3 ft						

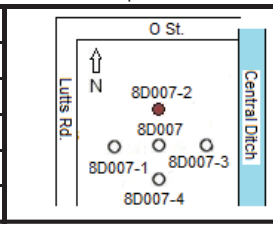
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8D007-1**

URS Corporation

TEST BORING LOG

		BORING NO:	8D007-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located between Lutts Rd. and Central Ditch, south of O st., vicinity of organic burial ground, ~ 10' north of 8D007
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.36
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172503.435	**GEOLOGIST:**	[redacted]
EASTING:	1040769.019	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) [redacted]

44-10 Bkgd (cpm) 7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, saturated	OL	ND	68	2	176	178
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, trace wood particles, some fine to coarse gravel, trace red brick, more dense at bottom, moist	CL	ND	60	6	190	196
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, some fine to coarse gravel, dense, moist	CL	ND	72	0	178	178
				Bottom of borehole 3 ft						

COMMENTS:

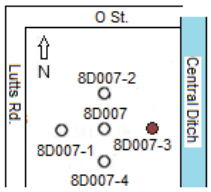
PROJECT NO. 11176991

BORING NO. 8D007-2

URS Corporation

TEST BORING LOG

		BORING NO:	8D007-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located between Lutts Rd. and Central Ditch, south of O st., vicinity of organic burial ground, ~ 10' east of 8D007
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.71
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172500.489	**GEOLOGIST:**	[redacted]
EASTING:	1040802.924	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 17,052; **44-10 Bkgd (cpm)** 7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	60	4	192	196
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace organics, trace fine to med gravel, moist	CL	ND	56	0	200	200
2				Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist						
3	2.0 - 3.0		100	Gray SILTY CLAY, some sand, trace organics, trace fine to med gravel, dense, dry		ND	60	4	188	192
				Bottom of borehole 3 ft						

COMMENTS: Relocated ~23.5' east of original location per USACE due to higher readings during A. Jones gamma survey.

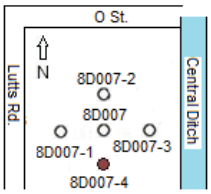
PROJECT NO. 11176991

BORING NO. 8D007-3

URS Corporation

TEST BORING LOG

		BORING NO:	8D007-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located between Lutts Rd. and Central Ditch, south of O st., vicinity of organic burial ground, ~ 10' south of 8D007
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.66
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172469.607	**GEOLOGIST:**	
EASTING:	1040769.144	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,848
44-10 Bkgd (cpm)	7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	48	0	212	212
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	82	0	220	220
2				Same as above, grades to reddish brown						
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist		ND	50	4	172	176
				Bottom of borehole 3 ft						

COMMENTS:

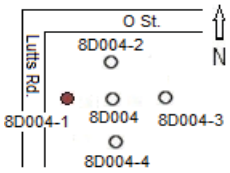
PROJECT NO. 11176991

BORING NO. 8D007-4

URS Corporation

TEST BORING LOG

		BORING NO:	8D004-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located northwest corner of Lutts Rd. and O st., vicinity of organic burial ground, ~ 30' south of 8D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.57
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172570.402	**GEOLOGIST:**	[redacted]
EASTING:	1040716.880	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,514; 44-10 Bkgd (cpm) 7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY SAND, saturated		ND	56	0	172	172
1	0.5 - 2.0		100	Dark Brown SILTY SAND, some organics, some fine to coarse gravel, more dense at bottom, saturated at top to moist at bottom	SM	ND	66	0	170	170
2	2.0 - 3.0		75	Yellowish Brown SILTY CLAY, trace organics, some fine to coarse gravel, dense, moist	CL	ND	52	0	202	202
3				Bottom of borehole 3 ft						

COMMENTS:

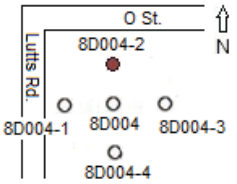
PROJECT NO. 11176991

BORING NO. 8D004-1

URS Corporation

TEST BORING LOG

		BORING NO:	8D004-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located northwest corner of Lutts Rd. and O st., vicinity of organic burial ground, ~ 30' north of 8D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.18
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172601.997	**GEOLOGIST:**	[redacted]
EASTING:	1040748.511	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)** 8,560
	44-10 Bkgd (cpm) 7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	66	2	198	200
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, moist	CL	ND	58	0	226	226
2				Yellowish Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist						
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace med to coarse gravel, dense, moist		ND	42	0	158	158
				Same as above, grades to gray						
				Bottom of borehole 3 ft						

COMMENTS:

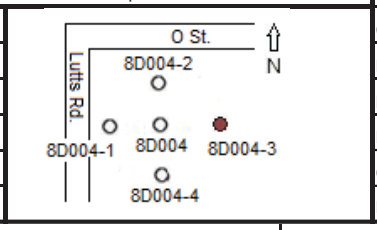
PROJECT NO. 11176991

BORING NO. 8D004-2

URS Corporation

TEST BORING LOG

		BORING NO:	8D004-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located northwest corner of Lutts Rd. and O st., vicinity of organic burial ground, ~ 30' east of 8D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.66
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172570.387	**GEOLOGIST:**	[redacted]
EASTING:	1040780.770	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,548; **44-10 Bkgd (cpm)** 7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	68	2	196	198
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	72	0	216	216
2				Same as above, grades to yellowish brown						
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, some fine to med gravel, dense, dry		ND	56	0	244	244
				Same as above, grades to gray						
				Bottom of borehole 3 ft						

COMMENTS:

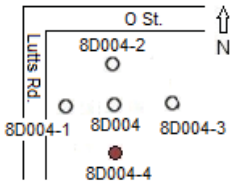
PROJECT NO. 11176991

BORING NO. 8D004-3

URS Corporation

TEST BORING LOG

		BORING NO:	8D004-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located northwest corner of Lutts Rd. and O st., vicinity of organic burial ground, ~ 30' south of 8D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.12
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172538.227	**GEOLOGIST:**	[redacted]
EASTING:	1040749.227	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)** 9,870
	44-10 Bkgd (cpm) 7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	0	174	174
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, trace fine to med gravel, more dense at bottom, moist	CL	ND	56	0	170	170
3	2.0 - 3.0		75	Dark Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, moist Same as above, grades to yellowish brown	CL	ND	56	0	176	176
				Bottom of borehole 3 ft						

COMMENTS:

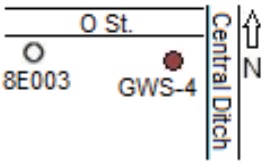
PROJECT NO. 11176991

BORING NO. 8D004-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-04
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along O street, just west of Central Ditch, ~150' east of 8E003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.16
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172618.956	**GEOLOGIST:**	[redacted]
EASTING:	1041063.360	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,394
44-10 Bkgd (cpm)	8,632

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	110	110
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	62	0	202	202
1	0.5 - 2.0		100		OL	ND	50	2	204	206
2				Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL					
	2.0 - 3.0		100	Dry @ 2'	CL	ND	64	0	218	218
3				Reddish Brown, dense @ 2.5'	CL					
				Bottom of borehole 3 ft						

COMMENTS:

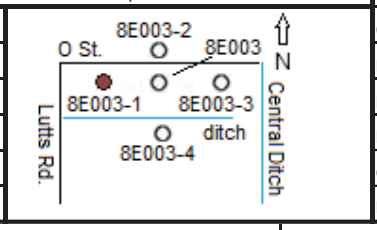
PROJECT NO. 11176991

BORING NO. GWS-04

URS Corporation

TEST BORING LOG

		BORING NO:	8E003-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd. and Central Ditch, along south side of O st., vicinity of organic burial ground, ~ 10' west of 8E003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.31
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172620.001	**GEOLOGIST:**	
EASTING:	1040915.678	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,530
44-10 Bkgd (cpm)	8,632

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	110	110
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	38	0	178	178
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace sand, some organics, some fine to med gravel, dense, moist	CL	ND	54	2	190	192
2	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, dense, moist		ND	54	2	234	236
3				Bottom of borehole 3 ft						

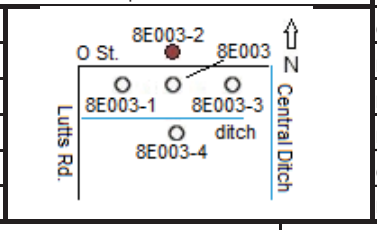
COMMENTS: Located on south side of small ditch along O St.

PROJECT NO.	**11176991**
BORING NO.	**8E003-1**

URS Corporation

TEST BORING LOG

		BORING NO:	8E003-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd. and Central Ditch, along south side of O st., vicinity of organic burial ground, ~ 10' north of 8E003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.95
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172644.818	**GEOLOGIST:**	
EASTING:	1040931.131	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,640
44-10 Bkgd (cpm)	8,632

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	110	110
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	48	0	220	220
1 2	0.5 - 2.0		100	FILL; gravel (slag), some Brown silty clay, trace sand, loose, moist	GC	ND	60	2	192	194
3	2.0 - 3.0		100	Dark Brown SILTY CLAY, some fine to coarse slag, dense, moist	CL	ND	66	2	156	158
				Bottom of borehole 3 ft						

COMMENTS: Located on south side of small ditch along O St.

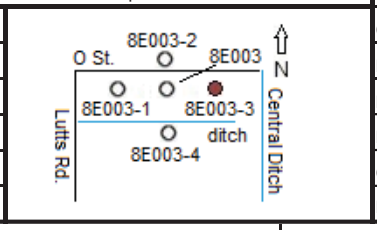
PROJECT NO. 11176991

BORING NO. 8E003-2

URS Corporation

TEST BORING LOG

		BORING NO:	8E003-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd. and Central Ditch, along south side of O st., vicinity of organic burial ground, ~ 10' east of 8E003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.76
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/19/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/19/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172620.074	**GEOLOGIST:**	[redacted]
EASTING:	1040947.709	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)** 8,466
	44-10 Bkgd (cpm) 8,632

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	110	110
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	58	0	196	196
1	0.5 - 2.0		100	FILL; Dark Brown to Reddish Brown SILTY CLAY, dense, moist	CL	ND	72	0	184	184
2				FILL; GRAVEL, loose, moist	GW					
3	2.0 - 3.0		100	FILL; GRAVEL at top, Brown SILTY CLAY, more dense at bottom, moist	GW/CL	ND	58	0	196	196
				Bottom of borehole 3 ft						

COMMENTS:

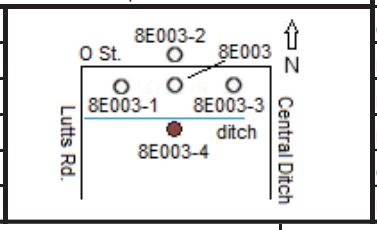
PROJECT NO. 11176991

BORING NO. 8E003-3

URS Corporation

TEST BORING LOG

		BORING NO:	8E003-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd. and Central Ditch, along south side of O st., vicinity of organic burial ground, ~ 10' south of 8E003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	371.71
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172601.474	**GEOLOGIST:**	[redacted]
EASTING:	1040932.238	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,206; 44-10 Bkgd (cpm) 7,620

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	0	120	120
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	2	216	218
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some sand, some organics, some fine to med gravel, moist	CL	ND	66	0	192	192
2				Yellowish Brown SILTY CLAY, some sand, some organics, some fine to med gravel, dense, dry						
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, dry		ND	40	2	202	204
				Same as above, grades to gray						
				Bottom of borehole 3 ft						

COMMENTS: Located on south side of small ditch along O St.

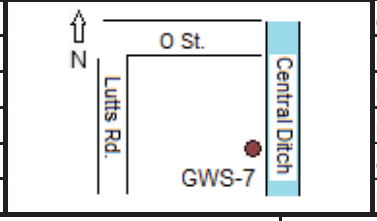
PROJECT NO. 11176991

BORING NO. 8E003-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-07
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Central Ditch, south of O St., east of Lutts Rd.
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.85
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172302.849	**GEOLOGIST:**	
EASTING:	1041089.328	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,110
44-10 Bkgd (cpm)	4,152

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	18	0	96	96
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	52	2	174	176
1	0.5 - 2.0		100	Yellowish Brown SILTY CLAY, some fine to coarse gravel, dense, moist	CL	ND	30	0	164	164
2				Pocket of sand at ~2'	SW					
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine to med gravel, dense, dry Grades to reddish brown @ 2.5'	CL	ND	58	0	170	170
				Bottom of borehole 3 ft						

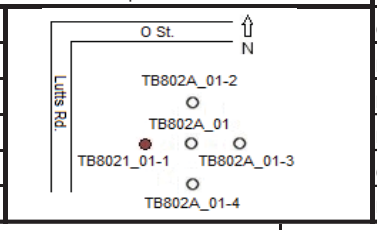
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-07**

URS Corporation

TEST BORING LOG

		BORING NO:	TB802A_01-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 25'W of TB02A_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.32
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172267.705	**GEOLOGIST:**	
EASTING:	1040777.419	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,246
44-10 Bkgd (cpm)	5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	60	2	244	246
1 2	0.5 - 2.0		100	Brown SILTY CLAY, some organics, trace fine to med gravel, more dense at bottom, moist	CL	ND	64	0	246	246
3	2.0 - 3.0		100	No Organics, dry @ 2' Grades to yellowish brown @ 2.5'		ND	48	2	258	260
				Bottom of borehole 3 ft						

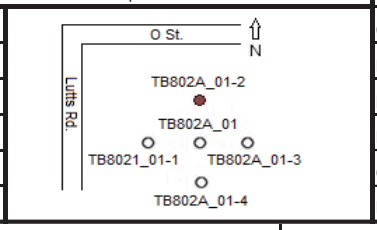
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**TB802A_01-1**

URS Corporation

TEST BORING LOG

		BORING NO:	TB802A_01-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 25' N of TB02A_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.73
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172299.082	**GEOLOGIST:**	[redacted]
EASTING:	1040809.423	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,388
44-10 Bkgd (cpm)	5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	40	2	198	200
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace fine to med gravel, dry Yellowish Brown @ 1.5'	CL	ND	42	0	176	176
2	2.0 - 3.0		100	Grades to gray @ 2.5'		ND	58	2	184	186
3				Bottom of borehole 3 ft						

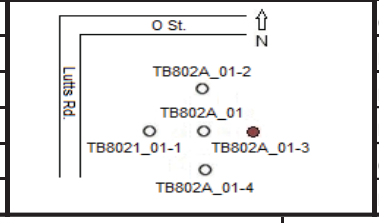
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**TB802A_01-2**

URS Corporation

TEST BORING LOG

		BORING NO:	TB802A_01-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 25' E of TB02A_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.73
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172266.436	**GEOLOGIST:**	
EASTING:	1040842.246	**RAD TECH:**	



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8; 44-10 Bkgd (cpm) 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	52	4	224	228
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	48	0	212	212
3	2.0 - 3.0		100	Trace organics, trace fine to med gravel, dense, dry @ 2' Grades to yellowish brown @ 2.5'		ND	92	6	276	282
4	3.0-4.0		100	No organics ro gravel @ 3' Grades to gray @ 3.5'		ND	44	2	212	214
				Bottom of borehole 4 ft						

COMMENTS: Higher rad readings at 2.0-3.0' interval, readings decreased at 3.0-4.0' interval, sampled 3.0-4.0' interval.

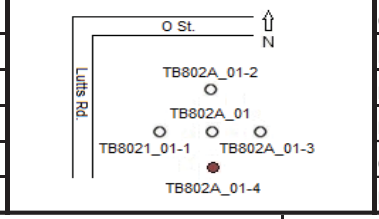
PROJECT NO. 11176991

BORING NO. TB802A_01-3

URS Corporation

TEST BORING LOG

		BORING NO:	TB802A_01-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 25' S of TB02A_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.82
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172235.124	**GEOLOGIST:**	[redacted]
EASTING:	1040809.521	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,346
44-10 Bkgd (cpm)	5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	42	2	168	170
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, moist Yellowish Brown, dry @ 1.5'	CL	ND	66	4	202	206
2	2.0 - 3.0		100	Trace organics, trace med gravel, dense, dry @ 2' Grades to gray @ 2.5'		ND	66	0	200	200
3				Bottom of borehole 3 ft						

COMMENTS: Higher rad readings at 2.0-3.0' interval, readings decreased at 3.0-4.0' interval, sampled 3.0-4.0' interval.

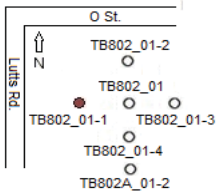
PROJECT NO. 11176991

BORING NO. TB802A_01-4

URS Corporation

TEST BORING LOG

		BORING NO:	TB802_01-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 25' W of TB02_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.51
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172354.249	**GEOLOGIST:**	[redacted]
EASTING:	1040778.331	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,686; 44-10 Bkgd (cpm) 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	42	0	224	224
1 2	0.5 - 2.0		100	FILL; Yellowish Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	62	2	226	228
3	2.0 - 3.0		100	Some organics, pocket of wood particles @ 2'		ND	78	6	322	328
4	3.0-4.0		100	FILL; Dark Brown organic SILTY CLAY, some wood particles, dense, moist	OL	ND	72	4	348	352
5	4.0-50		50	Dark Brown SILTY CLAY, mod dense, saturated, recovered ~16 oz groundwater in sleeve Bottom of borehole 5 ft	CL	ND	82	2	196	198

COMMENTS: Higher rad readings at 2.0-3.0' interval, readings decreased at 4.0-5.0' interval, sampled 3.0-5.0' intervals.

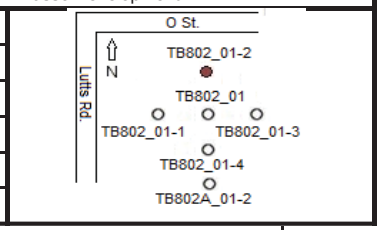
PROJECT NO. 11176991

BORING NO. TB802_01-1

URS Corporation

TEST BORING LOG

		BORING NO:	TB802_01-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 25' N of TB02_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.56
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172367.741	**GEOLOGIST:**	
EASTING:	1040810.818	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,056; **44-10 Bkgd (cpm)** 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	72	4	182	186
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine to coarse gravel, moist	CL	ND	58	4	260	264
2				Same as above, grades to reddish brown, dense						
3	2.0 - 3.0		75	Reddish Brown SILTY CLAY, some organics, some fine to med gravel, dense, dry		ND	50	2	186	188
				Bottom of borehole 3 ft						

COMMENTS: Higher rad readings at 2.0-3.0' interval, readings decreased at 4.0-5.0' interval, sampled 3.0-5.0' intervals.

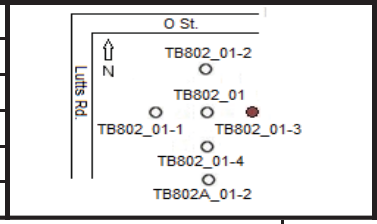
PROJECT NO. 11176991

BORING NO. TB802_01-2

URS Corporation

TEST BORING LOG

		BORING NO:	TB802_01-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 25' E of TB02_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.38
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172354.436	**GEOLOGIST:**	[redacted]
EASTING:	1040844.284	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,342; **44-10 Bkgd (cpm)** 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	2	170	172
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine to coarse gravel, dry	CL	ND	52	0	188	188
2				Same as above, grades to reddish brown, dense						
3	2.0 - 3.0		100	Reddish Brown SILTY CLAY, some organics, some fine to coarse gravel, dense, dry		ND	58	0	194	194
				Bottom of borehole 3 ft						

COMMENTS: Higher rad readings at 2.0-3.0' interval, readings decreased at 4.0-5.0' interval, sampled 3.0-5.0' intervals.

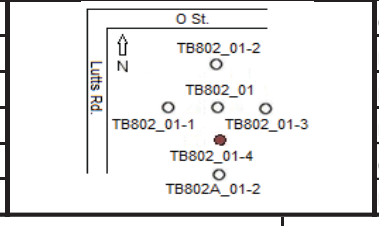
PROJECT NO. 11176991

BORING NO. TB802_01-3

URS Corporation

TEST BORING LOG

		BORING NO:	TB802_01-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 25' S of TB02_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	320.05
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172321.497	**GEOLOGIST:**	[redacted]
EASTING:	1040809.868	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 8,360; **44-10 Bkgd (cpm)** 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	66	0	166	166
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	64	0	180	180
2	2.0 - 3.0		100	Brown SILTY CLAY, some organics, trace fine to coarse gravel, dense, dry		ND	56	0	182	182
3				Bottom of borehole 3 ft						

COMMENTS: Refual at 2.0' at first attempt, hit rock. Moved ~2 west of original location, full recovery

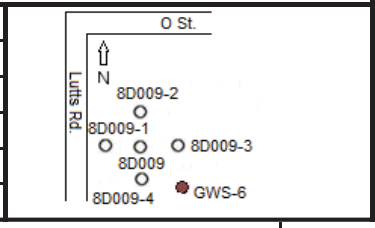
PROJECT NO. 11176991

BORING NO. TB802_01-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-06
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 50' SE of 8D009-4
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.70
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172270.564	**GEOLOGIST:**	[redacted]
EASTING:	1040673.596	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	**44-10 grd. Surf. (cpm)** 17,970
	44-10 Bkgd (cpm) 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	96	6	376	382
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, trace fine to med gravel, moist	CL	ND	64	0	210	210
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, some fine to med gravel, dense, moist Same as above, grades to gray		ND	46	0	174	174
				Bottom of borehole 3 ft						

COMMENTS:

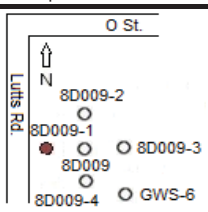
PROJECT NO. 11176991

BORING NO. GWS-06

URS Corporation

TEST BORING LOG

		BORING NO:	8D009-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd, south of O St., ~ 10' W of 8D009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.05
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172311.790	**GEOLOGIST:**	[redacted]
EASTING:	1040644.367	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,000
44-10 Bkgd (cpm)	5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	54	2	150	152
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, trace fine to med gravel, moist	CL	ND	62	0	170	170
2				Same as above, grades to reddish brown, dense						
3	2.0 - 3.0		100	Reddish Brown SILTY CLAY, trace fine to med gravel, dense, moist		ND	66	4	202	206
				Bottom of borehole 3 ft						

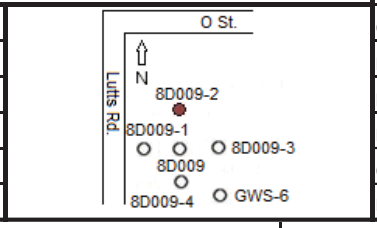
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**8D009-1**

URS Corporation

TEST BORING LOG

		BORING NO:	8D009-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd , south of O St., ~ 10' N of 8D009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.51
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172330.824	**GEOLOGIST:**	
EASTING:	1040660.325	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 16,296; **44-10 Bkgd (cpm)** 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	44	0	180	180
1	0.5 - 2.0		100	0.5-1.5' Dark Brown SILTY CLAY, some organics, loose, moist	CL	ND	80	2	240	242
2				1.5-2.0' Brown SILTY CLAY, some organics, trace coarse gravel, dense, moist						
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace fine to med gravel, dense, moist		ND	70	2	208	210
				Same as above, grades to gray						
				Bottom of borehole 3 ft						

COMMENTS:

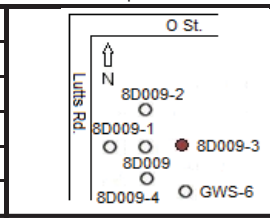
PROJECT NO. 11176991

BORING NO. 8D009-2

URS Corporation

TEST BORING LOG

		BORING NO:	8D009-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd , south of O St., ~ 10' E of 8D009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.52
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172313.896	**GEOLOGIST:**	[redacted]
EASTING:	1040677.014	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,778; 44-10 Bkgd (cpm) 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	46	4	204	208
1 2	0.5 - 2.0		100	Brown SILTY CLAY, some sand, some organics, some fine to med gravel, loose at top to dense at bottom, moist	CL	ND	72	0	260	260
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist Same as above, grades to gray		ND	84	0	264	264
4	3.0-4.0		100	Dark Brown organics, wood particles, trace silty clay, loose, wet	OL	ND	106	0	436	436
5	4.0-5.0		100	Dark Brown SILTY CLAY, some sand, some organics, mod dense, wet Bottom of borehole 5 ft	CL	ND	56	0	238	238

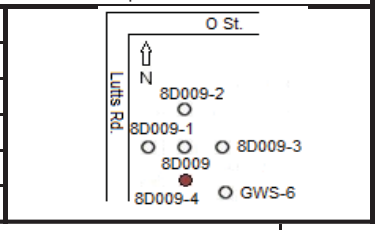
COMMENTS: Higher rad readings at 2-3' interal. First attempt refual at 4'. Moved ~2' south of location, poor recovery. Move 2' north of original location, full recovery.

PROJECT NO. 11176991
BORING NO. 8D009-3

URS Corporation

TEST BORING LOG

		BORING NO:	8D009-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd , south of O St., ~ 10' S of 8D009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.36
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/14/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/14/2013
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172296.572	**GEOLOGIST:**	[redacted]
EASTING:	1040659.937	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,576; **44-10 Bkgd (cpm)** 5,944

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	104	106
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	72	2	168	170
1 2	0.5 - 2.0		100	0.5-1.0' Dark Brown SILTY SAND, some organics, trace med to coarse gravel, loose, moist 1.0-2.0' Yellowish Brown SILTY SAND, trace organics, loose, wet	SM	ND	28	0	146	146
3	2.0 - 3.0		100	Yellowish Brown SILTY CLAY, trace organics, trace fine gravel, dense, dry Same as above, grades to gray	CL	ND	54	2	204	206
				Bottom of borehole 3 ft						

COMMENTS:

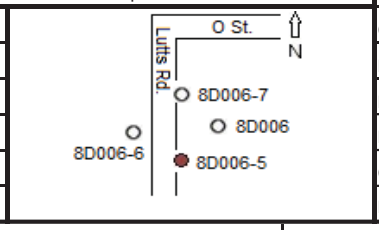
PROJECT NO. 11176991

BORING NO. 8D009-4

URS Corporation

TEST BORING LOG

		BORING NO:	8D006-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, ~20' south of 8D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.54
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/24/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/24/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172457.22	**GEOLOGIST:**	[redacted]
EASTING:	1040637.47	**RAD TECH:**	[redacted]



Gamma (γ) Survey:		
44-10 grd. Surf. (cpm)	11,598	
44-10 Bkgd (cpm)	7,170	

DEPTH (ft)	**SAMPLE** RAD	**SAMPLE** CHEM	**SAMPLE** REC %	**MATERIAL** DESCRIPTION	**USCS**	**PID**	**44-9** βγ (cpm)	**43-93** α (cpm)	**43-93** β (cpm)	**43-93** Both (Gross cpm)
						Background:	50	0	130	130
	0.0 - 0.5		100	Brown organic SILTY CLAY, dry	OL	11.1	76	2	230	232
1	0.5 - 2.0		100	0.5-1' Same as above	OL	ND	54	2	208	210
				1-1.5' Reddish brown SILTY CLAY, trace organics, dense, dry	CL					
2				1.5-2' Reddish dark brown sandy SILTY CLAY, trace organics, mod dense, dry	CL					
3	2.0 - 3.0		100	2-2.5' Same as above	CL	ND	52	4	248	252
				2.5-3' Reddish brown gray SILTY CLAY, trace organics, dense, dry	CL					
4				Bottom of borehole 3 ft						
5										

COMMENTS:

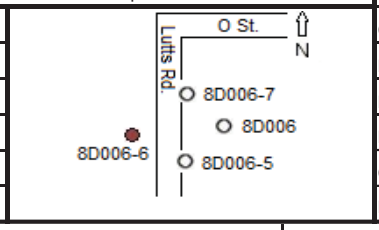
PROJECT NO. 11176991

BORING NO. 8D006-5

URS Corporation

TEST BORING LOG

		BORING NO:	8D006-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, ~40' west of 8D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.16
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/24/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/24/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172466.33	**GEOLOGIST:**	
EASTING:	1040617.76	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 8,622; **44-10 Bkgd (cpm)** 7,170

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	0	130	130
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	ND	52	0	174	174
1	0.5 - 2.0		100	0.5-1' Same as above	OL	ND	56	0	172	172
2				1-1.5' Reddish brown SILTY CLAY, trace organics, dense, dry	CL					
3	2.0 - 3.0		100	Dark brown SILTY CLAY, trace organics, mod plastic, more dense at bottom, dry	CL	ND	56	0	174	174
4				Bottom of borehole 3 ft						
5										

COMMENTS:

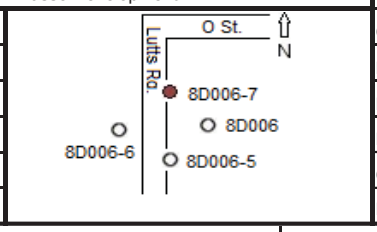
PROJECT NO. 11176991

BORING NO. 8D006-6

URS Corporation

TEST BORING LOG

		BORING NO:	8D006-7
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, ~20' northwest of 8D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.31
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/24/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/24/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172479.94	**GEOLOGIST:**	[redacted]
EASTING:	1040637.94	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,670; **44-10 Bkgd (cpm)** 7,170

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	50	0	130	130
	0.0 - 0.5		100	Brown organic SILTY CLAY, dry	OL	ND	64	0	178	178
1	0.5 - 2.0		100	0.5-1' Same as above	OL	ND	54	0	170	170
2				1-1.5' Reddish brown SILTY CLAY, trace organics, dense, dry 1.5-2' Reddish brown sandy SILTY CLAY, mod dense, dry	CL					
3	2.0 - 3.0		100	Top 10" Same as above Bottom 2" Reddish brown SILTY CLAY, dense, dry	CL	ND	72	0	184	184
4 5				Bottom of borehole 3 ft						

COMMENTS:

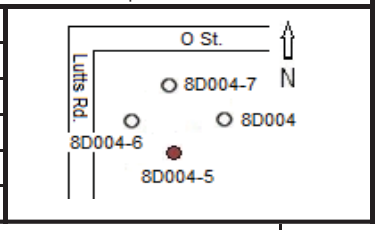
PROJECT NO. 11176991

BORING NO. 8D006-7

URS Corporation

TEST BORING LOG

		BORING NO:	8D004-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located northwest corner of Lutts Rd. and O St., vicinity of organic burial area, ~35' southwest of 8D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.86
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172553.29	**GEOLOGIST:**	[redacted]
EASTING:	1040717.42	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,682
44-10 Bkgd (cpm)	6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	ND	60	12	188	200
1 2	0.5 - 2.0		100	Reddish brown SILTY CLAY, some fine to medium gravel, some organics, more dense at bottom, dry	CL	ND	66	0	208	208
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, trace coarse gravel at top, very dense, dry Reddish brown gray SILTY CLAY, very dense, dry		ND	58	0	230	230
4 5				Bottom of borehole 3 ft						

COMMENTS:

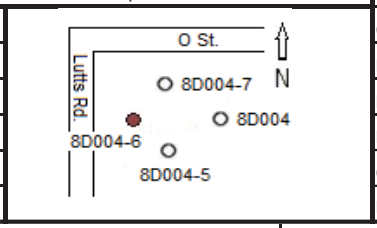
PROJECT NO. 11176991

BORING NO. 8D004-5

URS Corporation

TEST BORING LOG

		BORING NO:	8D004-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located northwest corner of Lutts Rd. and O St., vicinity of organic burial area, ~50' west of 8D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.54
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172570.05	**GEOLOGIST:**	[redacted]
EASTING:	1040704.60	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,802; **44-10 Bkgd (cpm)** 6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, mod dense, wet	OL	3.9	62	2	182	184
1	0.5 - 2.0		100	Reddish brown SILTY CLAY, some fine gravel, some organics, more dense at bottom, moist	CL	ND	52	0	178	178
2	2.0 - 3.0		100	Reddish brown SILTY CLAY, some fine gravel, coarse gravel at bottom, dense, moist	CL	ND	54	2	222	224
3										
4				Bottom of borehole 3 ft						
5										

COMMENTS:

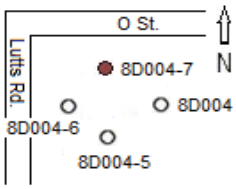
PROJECT NO. 11176991

BORING NO. 8D004-6

URS Corporation

TEST BORING LOG

		BORING NO:	8D004-7
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located northwest corner of Lutts Rd. and O St., vicinity of organic burial area, ~30' northwest of 8D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	315.44
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172582.43	**GEOLOGIST:**	[redacted]
EASTING:	1040718.30	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,848; **44-10 Bkgd (cpm)** 6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	Brown organic SILTY CLAY, dense, moist	OL	3.9	72	0	192	192
1	0.5 - 2.0		100	Reddish brown gray mottled SILTY CLAY, some fine to medium gravel, some organics, dense, moist	CL	ND	56	4	186	190
2	2.0 - 3.0		100	Reddish brown mottled SILTY CLAY, pocket coarse gravel at top, very dense at bottom, dry	CL	ND	74	0	214	214
3										
				Bottom of borehole 3 ft						
4										
5										

COMMENTS:

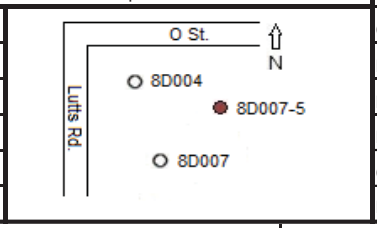
PROJECT NO. 11176991

BORING NO. 8D004-7

URS Corporation

TEST BORING LOG

		BORING NO:	8D007-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located northwest corner of Lutts Rd. and O St., vicinity of organic burial area, east of cluster 8D004, ~50' northeast of 8D007
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.55
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172511.97	**GEOLOGIST:**	[redacted]
EASTING:	1040802.98	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 12,042; **44-10 Bkgd (cpm)** 6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	ND	66	0	252	252
1 2	0.5 - 2.0		100	Reddish brown gray mottled SILTY CLAY, trace medium gravel, some organics, very dense at bottom, dry	CL	ND	74	2	174	176
3	2.0 - 3.0		100	Same as above, very dense, dry		ND	56	0	196	196
4 5				Bottom of borehole 3 ft						

COMMENTS:

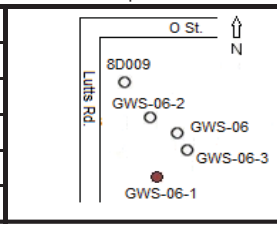
PROJECT NO. 11176991

BORING NO. 8D007-5

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-06-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd. and Cenral Ditch, south of O St., south of 8D009 cluster, ~30' southeast of GWS-06
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.13
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172240.94	**GEOLOGIST:**	
EASTING:	1040668.81	**RAD TECH:**	



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,024
44-10 Bkgd (cpm)	6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	1.7	50	4	184	188
1	0.5 - 2.0		100	0.5-1.5 Reddish brown SILTY CLAY, trace fine gravel, trace organics, mod dense, damp	CL	ND	62	0	200	200
2				1.5-2' Reddish brown SILTY CLAY, root mass at top, trace coarse gravel at top, mod dense, moist						
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, trace organics, mod plastic, dry		ND	66	4	206	210
				Same as above, grades to reddish brown gray, dense						
4				Bottom of borehole 3 ft						
5										

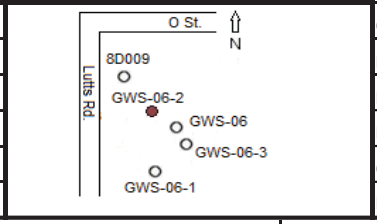
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**GWS-06-1**

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-06-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd. and Cenral Ditch, south of O St., south of 8D009 cluster, ~15' northwest of GWS-06
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.67
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172280.59	**GEOLOGIST:**	[redacted]
EASTING:	1040673.94	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 11,476; **44-10 Bkgd (cpm)** 6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	Brown SILTY SAND, some fine to medium gravel, some organics, mod dense, moist	SM	2.5	56	2	168	170
1	0.5 - 2.0		100	Reddish brown SILTY CLAY, trace fine to medium gravel, some organics (roots), mod dense, moist	CL	ND	48	0	168	168
2	2.0 - 3.0		100	Reddish brown SILTY CLAY, pocket of wood pieces at top, mod plastic, moist Reddish brown gray SILTY CLAY, mod plastic, dense, moist	CL	ND	54	0	192	192
3										
4				Bottom of borehole 3 ft						
5										

COMMENTS:

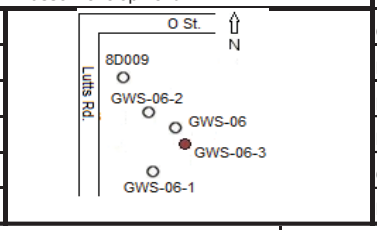
PROJECT NO. 11176991

BORING NO. GWS-06-2

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-06-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd. and Cenral Ditch, south of O St., south of 8D009 cluster, ~30' southeast of GWS-06
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.70
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172267.59	**GEOLOGIST:**	[redacted]
EASTING:	1040688.41	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,340
44-10 Bkgd (cpm)	6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist		6.2	66	2	226	228
1	0.5 - 2.0		100	trace medium gravel @ 0.5'	OL	ND	68	0	206	206
2				Reddish brown SILTY CLAY, trace organics, dense, damp	CL					
3	2.0 - 3.0		100	Reddish brown organic SILTY CLAY, trace black staining at top, mod plastic, mod dense, damp	OL	ND	58	2	190	192
				Reddish brown sandy SILTY CLAY, some fine to medium gravel, trace organics, mod dense, damp	CL					
4				Bottom of borehole 3 ft						
5										

COMMENTS:

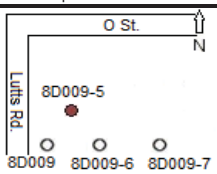
PROJECT NO. 11176991

BORING NO. GWS-06-3

URS Corporation

TEST BORING LOG

		BORING NO:	8D009-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd,south of O St., ~ 20' northeast of 8D009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.29
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172327.61	**GEOLOGIST:**	[redacted]
EASTING:	1040674.34	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,302; 44-10 Bkgd (cpm) 6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	1.4	52	0	212	212
1, 2	0.5 - 2.0		100	Reddish brown SILTY CLAY, some fine to medium gravel, some organics (roots), trace slag, more dense at bottom, moist	CL	ND	66	0	192	192
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, trace organics, dense, moist	CL	ND	90	4	324	328
4, 5	3.0-5.0		100	Dark brown black SILT, trace clay, wood pieces throughout, mod dense, wet	ML	ND	114	2	384	386
6, 7	5.0-7.0		100	Same as above, saturated at 5'	ML	ND	50	2	200	202
				Reddish brown SILTY CLAY, trace fine gravel, highly plastic, mod dense, wet to moist at bottom	CL					
				Bottom of borehole 7 ft						

COMMENTS:

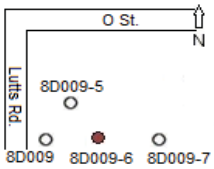
PROJECT NO. 11176991

BORING NO. 8D009-5

URS Corporation

TEST BORING LOG

		BORING NO:	8D009-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd,south of O St., ~ 30' east of 8D009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.36
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172305.81	**GEOLOGIST:**	[redacted]
EASTING:	1040693.30	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,702; 44-10 Bkgd (cpm) 6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	6.1	46	0	204	204
1	0.5 - 2.0		100	FILL; Brown to reddish brown SILTY CLAY, some fine to coarse gravel, dense, dry	CL	ND	54	0	250	250
2										
3	2.0 - 3.0		100			ND	64	4	200	204
4	3.0-5.0		100	Grades to brown gray at bottom, damp @ 3'		ND	114	8	304	312
5				FILL; Gray SILT, some organics (roots) at top, highly plastic, wet	ML					
6	5.0-7.0		100	Gray black, black wood particles throughout, saturated at 5' to wet at bottom		ND	54	2	276	278
7										
				Bottom of borehole 7 ft						

COMMENTS: First attempt refual at 3', moved location 18' east, hit refusal at 2', moved location 3' south and recovered 0-4 ,no recovery 4-7', moved location 0.5' east, poor 0-4' represenation but collected 4-7.' Combined 4-7' with previous suface and 0-4' to represent location.

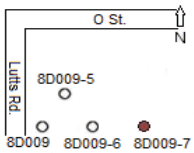
PROJECT NO. 11176991

BORING NO. 8D009-6

URS Corporation

TEST BORING LOG

		BORING NO:	8D009-7
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd,south of O St., ~ 90' east of 8D009
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.25
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/25/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/25/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172308.11	**GEOLOGIST:**	[redacted]
EASTING:	1040729.84	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,310; 44-10 Bkgd (cpm) 6,748

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	Both (Gross cpm)
						Background:	20	0	130	130
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	2.9	52	0	216	216
1	0.5 - 2.0		100	FILL; Reddish brown SILTY CLAY, some fine to medium gravel, some organics, more dense at bottom (compressed), dry	CL	ND	62	0	246	246
2										
3	2.0 - 3.0		100			ND	92	0	222	222
4	3.0-5.0		100			ND	46	2	180	182
				FILL; Yellowish brown SILTY SAND, moist	SM					
5				FILL; Reddish brown sandy silty fine to coarse gravel, wet	GM					
6	5.0-7.0		100	5-6' Reddish brown coarse SANDY SILT, moist	SM	ND	46	0	162	162
7				Reddish brown SILTY CLAY, dense, dry	CL					
				Bottom of borehole 7 ft						

COMMENTS:

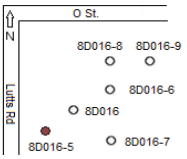
PROJECT NO. 11176991

BORING NO. 8D009-7

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd,south of O St., ~ 35' southwest of 8D016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.40
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/26/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/26/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172349.66	**GEOLOGIST:**	[redacted]
EASTING:	1040676.09	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,402; 44-10 Bkgd (cpm) 6,406

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	116	118
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	3.0	64	2	192	194
1	0.5 - 2.0		100		OL	ND	88	0	224	224
2				FILL; Dark brown to black at bottom SILTY CLAY, wood pieces and roots throughout, mod dense, moist	CL					
3	2.0 - 3.0		100	Reddish brown gray SILTY CLAY, trace organics, dense, dry	CL	ND	72	0	202	202
4	3.0-5.0		100	Yellowish brown gray and damp @ 3'	CL	ND	54	0	162	162
5										
6	5.0-7.0		100	Reddish brown gray and highly plastic at 5'	CL	ND	56	4	212	216
7										
				Bottom of borehole 7 ft						

COMMENTS:

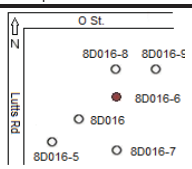
PROJECT NO. 11176991

BORING NO. 8D016-5

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-6
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Lutts Rd,south of O St., ~ 40' northeast of 8D016
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.52
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/26/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/26/2014
AREA:	EU7	DRILLER:	[redacted]
NORTHING:	1172371.26	GEOLOGIST:	[redacted]
EASTING:	1040731.62	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,150
44-10 Bkgd (cpm)	6,406

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	116	118
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, moist	OL	ND	52	0	202	202
1	0.5 - 2.0		100	FILL; Brown SILTY CLAY, some fine to coarse gravel, some organics, more dense at bottom, damp	CL	ND	58	0	220	220
2										
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, trace fine gravel @ 2'		ND	90	0	216	216
4	3.0-5.0		100	Some fine to medium gravel, trace slag @ 3'		ND	58	0	160	160
5										
6	5.0-7.0		100	Reddish brown SILTY CLAY, trace fine gravel, trace organics, dense, dry	CL	ND	84	4	204	208
7				Reddish brown gray SILTY CLAY, coarse sand lens at bottom, wet	CL/SW					
				Bottom of borehole 7 ft						

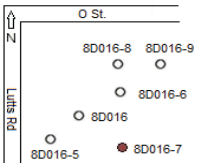
COMMENTS:

PROJECT NO.	11176991
BORING NO.	8D016-6

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-7
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Lutts Rd,south of O St., ~ 40' southeast of 8D016
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.97
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/26/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/26/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172340.26	**GEOLOGIST:**	
EASTING:	1040731	**RAD TECH:**	



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 11,190; **44-10 Bkgd (cpm)** 6,406

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	116	118
	0.0 - 0.5		100	Brown organic SILTY CLAY, some gravel, dry	OL	ND	58	0	216	216
1	0.5 - 2.0		100	0.5-1.5 Reddish brown SILTY CLAY, some fine to coarse gravel, some organics, moist		ND	68	2	248	250
2				1.5-2' Reddish brown to dark brown SILTY CLAY, large wood pieces throughout, moist						
3	2.0 - 3.0		100	Dark brown SILTY CLAY, large wood pieces throughout, mod dense, moist		ND	154	4	560	564
4	3.0-5.0		100	Dark brown to gray SILTY CLAY, wood pieces at top, mod plastic, mod dense, wet at 5'	CL	ND	122	4	440	444
5										
6	5.0-7.0		100	Gray SILTY CLAY, wood pieces throughout, mod dense at bottom, wet		ND	74	2	230	232
7										
				Bottom of borehole 7 ft						

COMMENTS: Refusal at 3' at first attempt, moved 5' east of original location for full recovery

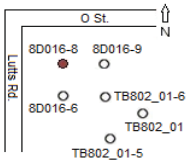
PROJECT NO. 11176991

BORING NO. 8D016-7

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-8
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, north of 8D016-6
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.16
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/2/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/2/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172396.10	**GEOLOGIST:**	[redacted]
EASTING:	1040732.48	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,012; **44-10 Bkgd (cpm)** 8,658

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	160	160
	0.0 - 0.5		100	Brown organic SILTY CLAY, some fine to medium gravel, moist	OL	ND	82	2	232	234
1	0.5 - 2.0		100	Reddish brown SILTY CLAY, some fine to coarse gravel, trace organics, dense, dry	CL	ND	48	2	242	244
2										
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, trace fine to medium gravel, mod plastic, dense, moist		ND	68	4	152	156
4	3.0-5.0		100	Reddish brown SILTY CLAY, some fine to medium gravel, very dense, moist Same as above, grades to brown gray		ND	50	0	204	204
5										
6	5.0-7.0		100	Reddish brown SILTY CLAY, trace fine gravel, highly plastic, mod dense, moist		ND	70	2	168	170
7										
				Bottom of borehole 7 ft						

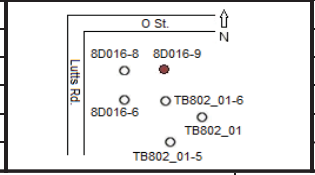
COMMENTS: Location (0-7 ft bgs) was added by USACE in organic burial area, north of 8D016-6.

PROJECT NO. 11176991
BORING NO. 8D016-8

URS Corporation

TEST BORING LOG

		BORING NO:	8D016-9
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along Lutts Rd, vicinity of organic burial area, north of TB802_01-6
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.03
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	7/2/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	7/2/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172396.98	**GEOLOGIST:**	[redacted]
EASTING:	1040763.20	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 10,082; **44-10 Bkgd (cpm)** 8,658

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	160	160
	0.0 - 0.5		100	Brown organic SILTY CLAY, some fine to medium gravel, dry	OL	ND	78	0	236	236
1 2	0.5 - 2.0		100	Brown reddish brown SILTY CLAY, some fine to coarse gravel, some organics, very dense, dry		ND	40	2	200	202
3	2.0 - 3.0		100	Trace medium gravel, some organics, dense, dry to moist @ 2' Grades to brown gray @ 2.5'		ND	106	4	182	186
4 5	3.0-5.0		100	Reddish brown sandy SILTY CLAY, some fine to coarse gravel, dense, moist	CL	ND	48	0	192	192
6 7	5.0-7.0		100			ND	54	2	228	230
				Bottom of borehole at 7 ft						

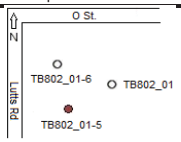
COMMENTS: Location (0-7 ft bgs) was added by USACE in organic burial area, north of TB802_01-6
Duplicate sample collected 5-7' interval.

PROJECT NO. 11176991
BORING NO. 8D016-9

URS Corporation

TEST BORING LOG

		BORING NO:	TB802_01-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 50' southwest of TB02_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.00
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/26/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/26/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172341.94	**GEOLOGIST:**	[redacted]
EASTING:	1040765.54	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 12,760; **44-10 Bkgd (cpm)** 6,406

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	116	118
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	52	0	208	208
1 2	0.5 - 2.0		100	Reddish brown SILTY CLAY, some fine to medium gravel, dense (compacted), dry	CL	ND	82	2	322	324
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, some large wood pieces, mod dense, moist Same as above, grades to dark brown	CL	ND	104	2	524	526
4 5	3.0-5.0		100	Dark brown black SILTY CLAY, large wood pieces throughout, mod dense, moist to wet at bottom	CL	ND	102	4	452	456
6 7	5.0-7.0		100	Black gray SILT, some clay, wood pieces throughout, plastic, wet at top to moist at bottom	ML	ND	68	2	292	294
				Bottom of borehole 7 ft						

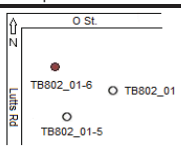
COMMENTS:

PROJECT NO. 11176991
BORING NO. TB802_01-5

URS Corporation

TEST BORING LOG

		BORING NO:	TB802_01-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between Lutts Rd and Central Ditch, south of O St., ~ 50' northwest of TB02_01
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.29
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/26/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/26/2014
AREA:	EU7	**DRILLER:**	[redacted]
NORTHING:	1172367.33	**GEOLOGIST:**	[redacted]
EASTING:	1040760.44	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,764; 44-10 Bkgd (cpm) 6,406

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	116	118
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	5.6	68	2	222	224
1	0.5 - 2.0		100	0.5-1' Reddish brown organic SILTY CLAY, very compacted, dry 1-2' Dark brown SILTY CLAY, some fine to coarse gravel, wood pieces throughout, some roots, plastic, moist		ND	122	8	870	878
2										
3	2.0 - 3.0		100	Dark brown black SILTY CLAY, trace coarse gravel, wood pieces throughout, mod dense, moist		ND	140	4	600	604
4	3.0-5.0		100	Dark brown black SILTY CLAY, some fine to coarse gravel, some wood pieces, mod plastic, mod dense, moist to wet at 4'	CL	ND	136	2	400	402
5										
6	5.0-7.0		100	5-5.5' Same as above, wet 5.5-7' Reddish brown gray SILTY CLAY, trace fine gravel, highly plastic, mod dense, wet to moist at 7'		ND	76	2	208	210
7										
				Bottom of borehole 7 ft						

COMMENTS:

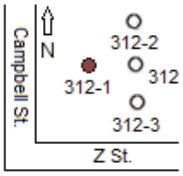
PROJECT NO. 11176991

BORING NO. TB802_01-6

URS Corporation

TEST BORING LOG

		BORING NO:	312-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., north of Z St., ~10' west of 312
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.35
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/2/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/2/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172223.899	GEOLOGIST:	[redacted]
EASTING:	1041604.247	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,260
44-10 Bkgd (cpm)	6,114

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	182	182
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	40	0	296	296
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	76	0	330	330
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, some organics, some fine to med gravel, dense, moist		ND	64	0	276	276
				Bottom of borehole 3.0 ft						

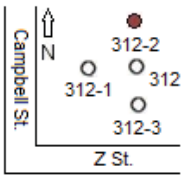
COMMENTS:

PROJECT NO.	11176991
BORING NO.	312-1

URS Corporation

TEST BORING LOG

		BORING NO:	312-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., north of Z St., ~10' north of 312
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.46
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/2/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/2/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172237.196	GEOLOGIST:	[redacted]
EASTING:	1041619.79	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,596
44-10 Bkgd (cpm)	6,114

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	182	182
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	70	2	262	264
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace sand, some organics, some fine to med gravel, moist	CL	ND	44	0	256	256
2				Same as above, grades to yellowish brown, dense						
3	2.0 - 3.0		100	Dark Brown Gray SILTY CLAY, trace sand, trace organics, trace fine gravel, dense, moist		ND	54	0	290	290
				Bottom of borehole 3.0 ft						

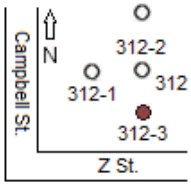
COMMENTS:

PROJECT NO.	11176991
BORING NO.	312-2

URS Corporation

TEST BORING LOG

		BORING NO:	312-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., north of Z St., ~10' south of 312
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.23
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/2/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/2/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172206.69	GEOLOGIST:	[redacted]
EASTING:	1041620.061	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,778
44-10 Bkgd (cpm)	6,114

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	182	182
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet		ND	46	0	226	226
1	0.5 - 2.0		100	Dark Brown organic SILTY CLAY, some fine to med gravel, mod dense, moist	OL	ND	56	0	262	262
2				Gray Brown Sandy SILT, some organics, loose, moist	SM					
	2.0 - 3.0		100			ND	42	2	238	240
3				Yellowish Brown sandy SILTY CLAY, trace black staining, more dense at bottom, moist	CL					
				Bottom of borehole 3.0 ft						

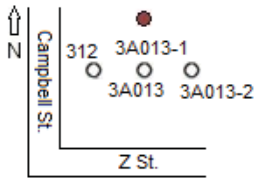
COMMENTS:

PROJECT NO.	11176991
BORING NO.	312-3

URS Corporation

TEST BORING LOG

		BORING NO:	3A013-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., north of Z St., just east of 312 cluster, ~10' north of 3A013
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.56
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/2/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/2/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172239.106	GEOLOGIST:	[redacted]
EASTING:	1041661.138	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,556
44-10 Bkgd (cpm)	6,114

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	182	182
	0.0 - 0.5		100	FILL; Dark Brown Black organic SILTY CLAY, moist	OL	ND	44	0	240	240
1	0.5 - 2.0		100	Some fine to med gravel @ 0.5'	OL	ND	64	2	258	260
2	0.5 - 2.0			Dark Brown Black Sandy SILTY CLAY, trace organics, trace fine to med gravel, mod dense, moist	CL					
3	2.0 - 3.0		100	Trace sand, dense @ 2' Grades to yellowish brown @ 2.5'	CL	ND	54	0	262	262
				Bottom of borehole 3.0 ft						

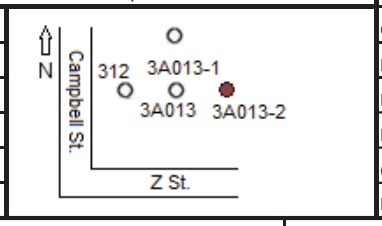
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A013-1

URS Corporation

TEST BORING LOG

		BORING NO:	3A013-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., north of Z St., just east of 312 cluster, ~10' north of 3A013
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.52
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/2/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/2/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172224.468	GEOLOGIST:	[redacted]
EASTING:	1041676.764	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,468
44-10 Bkgd (cpm)	6,114

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	182	182
	0.0 - 0.5		100	FILL; Black SILTY CLAY, slag at bottom, wet	CL	ND	44	0	216	216
1	0.5 - 2.0		100	Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, moist Same as above, grades to reddish brown, dense	CL	ND	46	0	260	260
2	2.0 - 3.0		100	Dark Brownish Gray Black SILTY CLAY, trace organics, trace fine gravel, mod dense, dry	CL	ND	58	2	314	316
3				Bottom of borehole 3.0 ft						

COMMENTS:

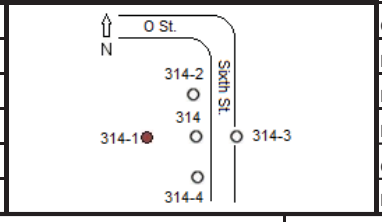
PROJECT NO. 11176991

BORING NO. 3A013-2

URS Corporation

TEST BORING LOG

		BORING NO:	314-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Sixth St., near corner of O St., ~20' west of 314
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.93
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/9/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/9/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172567.604	GEOLOGIST:	[redacted]
EASTING:	1042345.748	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,668
44-10 Bkgd (cpm)	8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	FILL; Brown organic SILTY CLAY, coarse gravel at bottom, moist	CL	ND	66	2	274	276
1	0.5-2.0		100	FILL; Brown Silty fine to coarse gravel, moist	GM	ND	44	2	324	326
2				Brown Gray SILTY CLAY, trace sand, some organics, trace fine gravel, dense, moist	CL					
3	2.0-3.0		100	No sand, trace organics @ 2'		ND	78	6	274	280
4				Bottom of borehole 3.0'						

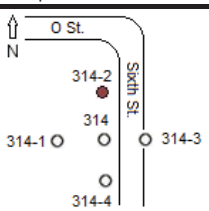
COMMENTS:

PROJECT NO.	11176991
BORING NO.	314-1

URS Corporation

TEST BORING LOG

		BORING NO:	314-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Sixth St., near corner of O St., ~20' north of 314
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.68
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/9/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/9/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172583.061	GEOLOGIST:	[redacted]
EASTING:	1042361.396	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,724
44-10 Bkgd (cpm)	8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	FILL; Black Silty fine to med gravel, moist	GM	ND	56	4	258	262
1	0.5-2.0		100	FILL; Brown Silty fine to coarse gravel, loose, moist	GM	ND	42	2	234	236
2	2.0-3.0		100	Top 2" Black sandy SILTY CLAY, mod dense, moist Bottom 10" Brown Gray SILTY CLAY, trace organics, some fine to med gravel, dense, dry	CL	ND	72	6	250	256
3				Bottom of borehole 3.0'						
4										

COMMENTS:

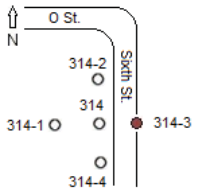
PROJECT NO. 11176991

BORING NO. 314-2

URS Corporation

TEST BORING LOG

		BORING NO:	314-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Sixth St., near corner of O St., ~20' east of 314
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.3
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/9/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/9/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172566.144	GEOLOGIST:	[redacted]
EASTING:	1042377.937	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,472
44-10 Bkgd (cpm)	8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	FILL; Black Silty gravel, loose, moist	GM	ND	56	2	310	312
1	0.5-2.0		100		GM	ND	54	0	300	300
2				Dark Brown SILTY CLAY, trace organics, trace coarse gravel, dense, moist	CL					
3	2.0-3.0		100	Brown Gray, some organics, some fine to coarse gravel @ 2'	CL	ND	68	2	244	246
4				Bottom of borehole 3.0'						

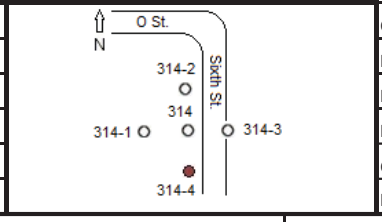
COMMENTS:

PROJECT NO.	11176991
BORING NO.	314-3

URS Corporation

TEST BORING LOG

		BORING NO:	314-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Sixth St., near corner of O St., ~20' south of 314
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.52
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/9/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/9/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172551.257	GEOLOGIST:	[redacted]
EASTING:	1042361.603	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,410
44-10 Bkgd (cpm)	8,560

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	2	204	206
	0.0 - 0.5		100	FILL; Black Silty fine to coarse gravel, loose, moist		ND	52	4	268	272
1	0.5-2.0		100	Brown @ 0.5'	GM	ND	74	0	274	274
2				Brown SILTY CLAY, trace organics, some fine to med gravel, dense, moist						
3	2.0-3.0		100	Gray Brown and some organics @ 2'	CL	ND	74	0	328	328
4				Bottom of borehole 3.0'						

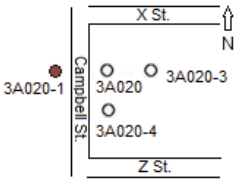
COMMENTS:

PROJECT NO.	11176991
BORING NO.	314-4

URS Corporation

TEST BORING LOG

		BORING NO:	3A020-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Campbell St. between X St. and Z St., ~30 west of 3A020
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.98
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/20/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/20/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172337.500	GEOLOGIST:	[redacted]
EASTING:	1041508.038	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,218
44-10 Bkgd (cpm)	10,150

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	62	2	178	180
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist		ND	62	2	280	282
1	0.5 - 2.0		100	Dark Brown organic SILTY CLAY, some med to coarse gravel, more dense at bottom, moist	OL	ND	62	2	310	312
2	2.0 - 3.0		100	Dark Brown Black sandy SILTY CLAY, some organics, dense, moist	CL	ND	72	0	344	344
3				Bottom of borehole 3 ft						

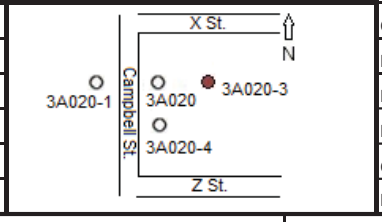
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A020-1

URS Corporation

TEST BORING LOG

		BORING NO:	3A020-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St. between X St. and Z St., ~30 east of 3A020
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.16
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172338.049	GEOLOGIST:	[redacted]
EASTING:	1041557.522	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,456
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	2	278	280
1 2	0.5 - 2.0		100	Dark Brown sandy SILTY CLAY, some organics, trace fine to med gravel, more dense at bottom, moist	CL	ND	58	0	336	336
3	2.0 - 3.0		100	Dark Brown sandy SILTY CLAY, some organics, dense, moist Same as above, grades to yellowish brown	CL	ND	60	0	380	380
				Bottom of borehole 3 ft						

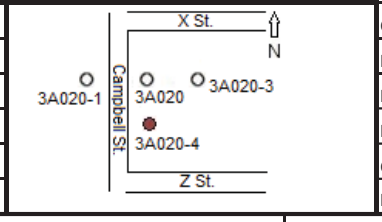
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A020-3

URS Corporation

TEST BORING LOG

		BORING NO:	3A020-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St. between X St. and Z St., ~30 south of 3A020
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.06
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172304.840	GEOLOGIST:	[redacted]
EASTING:	1041540.537	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,296
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	46	4	324	328
1	0.5 - 2.0		100	FILL; Dark Brown organic SILTY CLAY, moist	CL	ND	68	0	352	352
2				FILL; Green Gray silty slag, moist at bottom	GM					
3	2.0 - 3.0		100	Brown SILTY CLAY, dense, moist	CL	ND	52	0	316	316
				Bottom of borehole 3 ft						

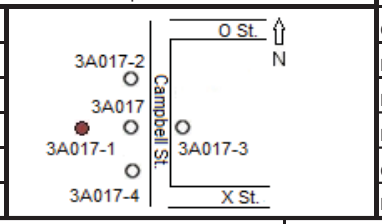
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A020-4

URS Corporation

TEST BORING LOG

		BORING NO:	3A017-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Campbell St. between O St. and X St., ~30 west of 3A017
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.59
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172423.521	GEOLOGIST:	[redacted]
EASTING:	1041478.153	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,848
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	42	0	250	250
1	0.5 - 2.0		100	Top 1.0' Dark Brown organic SILTY CLAY, some fine to med gravel, moist	OL	ND	56	2	260	262
2				Bottom 0.5' Brown Yellowish Brown SILTY CLAY, some organics, some med to coarse gravel, wood particles at bottom, dense, moist	CL					
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, some med to coarse gravel, dense, dry	CL	ND	66	0	280	280
				Bottom of borehole 3 ft						

COMMENTS:

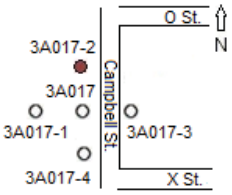
PROJECT NO.	11176991
BORING NO.	3A017-1

URS Corporation

TEST BORING LOG

BORING NO:	3A017-2
SHEET:	1 of 1
JOB NO.:	11176991
BORING LOCATION:	Along west side of Campbell St. between O St. and X St., ~30 north of 3A017
GROUND ELEVATION:	318.96
DATE STARTED:	11/21/2013
DATE FINISHED:	11/21/2013
DRILLER:	[redacted]
GEOLOGIST:	[redacted]
RAD TECH:	[redacted]

PROJECT:	NFSS BOP Delineation Investigation
CLIENT:	USACE
BORING CONTRACTOR:	Russo Development
RIG TYPE:	AMS-9500 VTR
SAMPLER:	3 in dia Macro core
DEPTH TO GW:	NA
AREA:	EU8
NORTHING:	1172455.057
EASTING:	1041511.223



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,492
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	42	0	284	284
1	0.5 - 2.0		100		OL	ND	56	0	334	334
2				FILL; fine to coarse Green Gray slag, moist	GM					
	2.0 - 3.0		100	Silty slag @ 2'	GM	ND	60	0	326	326
3				Dark Brown SILTY CLAY, trace organics, dense, moist	CL					
				Bottom of borehole 3 ft						

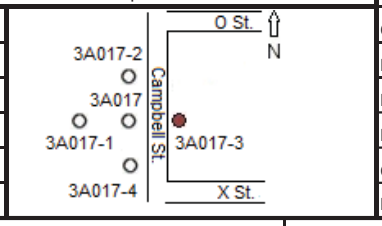
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A017-2

URS Corporation

TEST BORING LOG

		BORING NO:	3A017-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St. between O St. and X St., ~30 east of 3A017
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.42
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172423.192	GEOLOGIST:	[redacted]
EASTING:	1041546.539	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	18,182
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	62	0	340	340
1	0.5 - 2.0		100	FILL; fine to coarse silty slag, moist	GM	ND	62	2	334	336
2				FILL; Dark Brown Black SILTY CLAY, some slag, moist	CL					
3	2.0 - 3.0		100	FILL; coarse silty slag, moist	GM	ND	60	0	342	342
				Yellowish Brown SILTY CLAY, trace organics, dense, moist	CL					
				Bottom of borehole 3 ft						

COMMENTS: Refual at first attempt, hit asphalt. Moved ~ 3' east of original location, full recovery

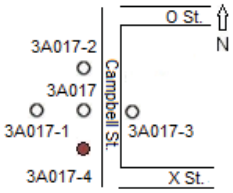
PROJECT NO. 11176991

BORING NO. 3A017-3

URS Corporation

TEST BORING LOG

		BORING NO:	3A017-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Campbell St. between O St. and X St., ~30 south of 3A017
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.61
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172391.663	GEOLOGIST:	[redacted]
EASTING:	1041508.193	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,558
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist		ND	70	0	368	368
1	0.5 - 2.0		100	Some fine to med gravel @ 0.5'	OL	ND	62	2	340	342
2				Dark Brown sandy SILTY CLAY, some-trace organics, some-trace fine to med gravel, dense, moist	CL					
3	2.0 - 3.0		100			ND	68	0	336	336
				Bottom of borehole 3 ft						

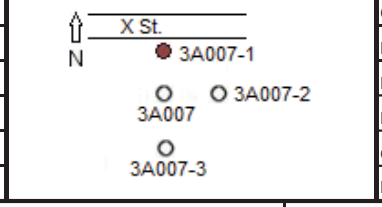
COMMENTS: Refual at 2.0' at first attempt, hit slag. Moved ~ 3' west of original location, full recovery

PROJECT NO.	11176991
BORING NO.	3A017-4

URS Corporation

TEST BORING LOG

		BORING NO:	3A007-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along south side of X St., ~10 north of 3A007
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.78
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172371.133	GEOLOGIST:	[redacted]
EASTING:	1041634.109	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,656
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	54	2	332	334
1	0.5 - 2.0		100	FILL; Dark Brown Black silty gravel, loose, moist	GM	ND	46	2	300	302
				FILL; Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
2				FILL; Brown silty gravel, loose, moist	GM					
3	2.0 - 3.0		100			ND	54	2	310	312
				Bottom of borehole 3 ft						

COMMENTS: Refual at 2.0' at first attempt, hit slag. Moved ~ 3' west of original location, full recovery

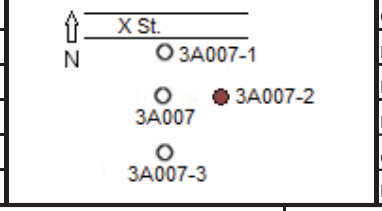
PROJECT NO. 11176991

BORING NO. 3A007-1

URS Corporation

TEST BORING LOG

		BORING NO:	3A007-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along south side of X St., ~10 east of 3A007
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.69
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172355.151	GEOLOGIST:	[redacted]
EASTING:	1041650.659	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,736
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	284	284
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, trace sand, some organics, more dense at bottom, moist	CL	ND	52	2	298	300
3	2.0 - 3.0		100	Sandy SILTY CLAY @ 2', some organics, dense, moist,grades to gray at ~2.5'	CL	ND	60	0	320	320
				Bottom of borehole 3 ft						

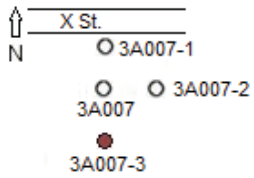
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A007-2

URS Corporation

TEST BORING LOG

		BORING NO:	3A007-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along south side of X St., ~10 south of 3A007
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.17
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172337.532	GEOLOGIST:	[redacted]
EASTING:	1041631.508	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,490
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	70	2	306	308
1 2	0.5 - 2.0		100	Dark Brown Black SILTY CLAY, some organics, more dense at bottom, moist	CL	ND	66	2	318	320
3	2.0 - 3.0		100	Sandy SILTY CLAY, trace organics, trace fine gravel, dense, moist, grades to Gray at ~2.5'	CL	ND	48	0	306	306
				Bottom of borehole 3 ft						

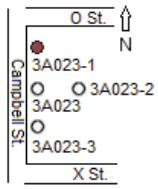
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A007-3

URS Corporation

TEST BORING LOG

		BORING NO:	3A023-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., bewteen O St. and X St., ~30 north of 3A023
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.03
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/21/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/21/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172487.958	**GEOLOGIST:**	[redacted]
EASTING:	1041549.943	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 11,572; 44-10 Bkgd (cpm) 11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, loose, moist	OL	ND	48	0	260	260
1	0.5 - 2.0		100			ND	62	0	374	374
				Dark Brown Yellowish Brown SILTY CLAY, some organics, more dense at bottom, moist	CL					
2										
	2.0 - 3.0		100	Yellowish Brown @ 2'		ND	60	0	356	356
				Light Brown sandy SILT, trace organics, mod dense, wet	SM					
3										
				Bottom of borehole 3 ft						

COMMENTS: Moved ~8 ft east of original location to avoid hitting asphalt, refusal here at 2 ft. Moved additional ~5 ft to the east for full recovery (relocated total of ~13 ft east of original location).

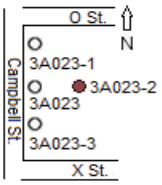
PROJECT NO. 11176991

BORING NO. 3A023-1

URS Corporation

TEST BORING LOG

		BORING NO:	3A023-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., bewteen O St. and X St., ~30 east of 3A023
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.49
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/21/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/21/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172455.291	**GEOLOGIST:**	[redacted]
EASTING:	1041560.867	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,382; 44-10 Bkgd (cpm) 11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	66	2	368	370
	0.5 - 2.0		100	Black SANDY SILT, some organics, moist	SM	ND	50	0	312	312
1				Dark Brown sandy SILTY CLAY, some organics, trace fine gravel, more dense at bottom, moist	CL					
2										
	2.0 - 3.0		100	Brown, trace organics @ 2'		ND	60	0	360	360
3				Grades to gray @ 2.5'						
				Bottom of borehole 3 ft						

COMMENTS: Offset ~5 ft west of original location due to foundation

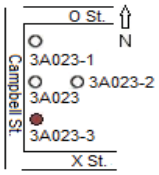
PROJECT NO. 11176991

BORING NO. 3A023-2

URS Corporation

TEST BORING LOG

		BORING NO:	3A023-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St., bewteen O St. and X St., ~30 south of 3A023
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.18
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/21/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/21/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172423.561	**GEOLOGIST:**	[redacted]
EASTING:	1041561.101	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 9,826; **44-10 Bkgd (cpm)** 11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	68	0	348	348
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine gravel, more dense at bottom, moist	CL	ND	62	0	352	352
3	2.0 - 3.0		100	Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	68	0	356	356
				Bottom of borehole 3 ft						

COMMENTS: Offset ~8 ft west of original location due to original location in foundation.

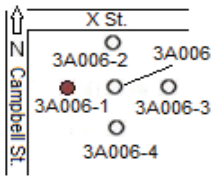
PROJECT NO. 11176991

BORING NO. 3A023-3

URS Corporation

TEST BORING LOG

		BORING NO:	3A006-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along corner of Campbell St. and X St. , ~10 west of 3A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.98
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172354.300	GEOLOGIST:	[redacted]
EASTING:	1041579.710	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,770
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	40	0	308	308
1	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist. Grades to Yellowish brown @ 1.5'	CL	ND	54	0	340	340
2	2.0 - 3.0		100	Trace organics, no gravel @ 2' Grades to dark brown @ 2.5'		ND	46	2	280	282
3				Bottom of borehole 3 ft						

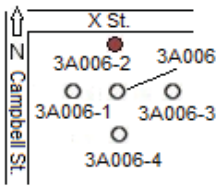
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A006-1

URS Corporation

TEST BORING LOG

		BORING NO:	3A006-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along corner of Campbell St. and X St. , ~10 north of 3A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.95
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172370.581	GEOLOGIST:	[redacted]
EASTING:	1041594.530	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,244
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	50	2	322	324
	0.5 - 2.0		100	FILL; Dark Brown silty gravel, moist	GM	ND	74	0	410	410
1				FILL; Yellowish Brown SILTY CLAY, trace organics, some fine-coarse gravel, dense, moist	CL					
2				FILL; Brown silty gravel, wet	GM					
	2.0 - 3.0		100	Loose, moist @ 2'		ND	64	0	354	354
3										
				Bottom of borehole 3 ft						

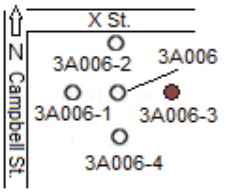
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A006-2

URS Corporation

TEST BORING LOG

		BORING NO:	3A006-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along corner of Campbell St. and X St., ~10 east of 3A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.72
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172354.052	GEOLOGIST:	[redacted]
EASTING:	1041612.084	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,302
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	72	0	392	392
	0.5 - 2.0		100			ND	64	0	360	360
1				Brown sandy SILTY CLAY, some organics, some fine-coarse gravel, dense, moist	CL					
				Dark Brown Black, no gravel @ 1.5'						
2										
	2.0 - 3.0		100	Gray, no sand, trace organics, trace fine gravel, dry @ 2'		ND	48	0	330	330
3										
				Bottom of borehole 3 ft						

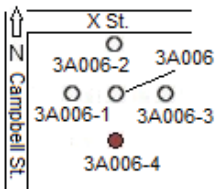
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A006-3

URS Corporation

TEST BORING LOG

		BORING NO:	3A006-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along corner of Campbell St. and X St.,~10 south of 3A006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.51
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172338.226	GEOLOGIST:	[redacted]
EASTING:	1041595.554	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,118
44-10 Bkgd (cpm)	11,548

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, loos, moist	OL	ND	52	0	334	334
1	0.5 - 2.0		100	Brown SILTY CLAY, some organics, some coarse gravel, dense, moist	CL	ND	58	0	350	350
2	2.0 - 3.0		100	Grading to Dark Brown, trace organics, trace fine gravel @ 2' Grades to gray @ 2.5'	CL	ND	50	0	330	330
3				Bottom of borehole 3 ft						

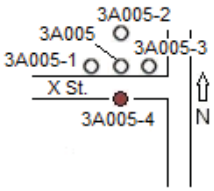
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A006-4

URS Corporation

TEST BORING LOG

		BORING NO:	3A005-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along X St.,~10 south of 3A005
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.98
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/21/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/21/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172375.231	GEOLOGIST:	[redacted]
EASTING:	1041671.808	RAD TECH:	[redacted]



						Gamma (γ) Survey:	44-10 grd. Surf. (cpm)			
							44-10 Bkgd (cpm)		11,548	
DEPTH (ft)	SAMPLE			MATERIAL			44-9	43-93		
	RAD	CHEM	REC %	DESCRIPTION	USCS	PID	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
						Background:	42	2	210	212
	0.0 - 0.5		100	FILL; Black organic SILTY CLAY, moist	OL	ND	66	0	266	266
1	0.5 - 2.0		100	FILL; Black organic SILTY CLAY, moist	OL	ND	60	0	302	302
				FILL; Gray slag, loose, moist	GM					
2				FILL; Gray Brown silty gravel, loose, moist	GM					
3	2.0 - 3.0		100	Dark brown @ 2'	GM	ND	68	0	300	300
				Bottom of borehole 3 ft						

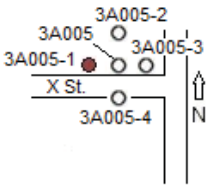
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A005-4

URS Corporation

TEST BORING LOG

		BORING NO:	3A005-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along X St.,~10 west of 3A005
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.72
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/22/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/22/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172395.065	GEOLOGIST:	[redacted]
EASTING:	1041656.429	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,996
44-10 Bkgd (cpm)	5,580

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	156	156
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	266	266
1	0.5 - 2.0		100	FILL; Black gravel, loose, moist	GW	ND	66	0	290	290
				FILL; Dark Brown SILTY CLAY, pocket of fill material, more dense at top, moist	CL					
2				Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist						
3	2.0 - 3.0		100	Brown to Yellowish Brown sandy SILTY CLAY, wet @ 2'		ND	38	0	260	260
				Bottom of borehole 3 ft						

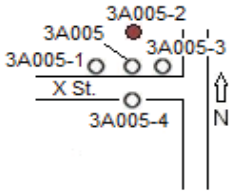
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A005-1

URS Corporation

TEST BORING LOG

		BORING NO:	3A005-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along X St.,~10 north of 3A005
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.91
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/22/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/22/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172411.680	GEOLOGIST:	[redacted]
EASTING:	1041673.281	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,892
44-10 Bkgd (cpm)	5,580

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	156	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist		ND	56	0	294	294
1 2	0.5 - 2.0		100	Dark Brown organic SILTY CLAY, some fine to med gravel, mod dense, moist	OL	ND	80	2	252	254
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace sand at bottom, some organics, some fine to coarse gravel, dense, dry	CL	ND	66	0	266	266
				Bottom of borehole 3 ft						

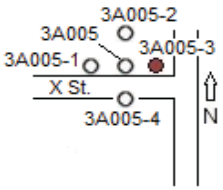
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A005-2

URS Corporation

TEST BORING LOG

		BORING NO:	3A005-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along X St.,~10 east of 3A005
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.84
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/22/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/22/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172394.537	GEOLOGIST:	[redacted]
EASTING:	1041688.987	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	14,314
44-10 Bkgd (cpm)	5,580

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	156	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	66	0	300	300
1 2	0.5 - 2.0		100	Reddish Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	48	0	252	252
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL	ND	66	0	274	274
				Bottom of borehole 3 ft						

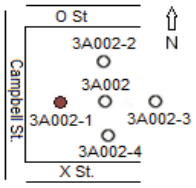
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A005-3

URS Corporation

TEST BORING LOG

		BORING NO:	3A002-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between O St. and X St., east of Campbell St., ~10 west of 3A002
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.95
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/22/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/22/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172432.348	**GEOLOGIST:**	[redacted]
EASTING:	1041609.712	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 4,818; 44-10 Bkgd (cpm) 5,580

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	156	156
	0.0 - 0.5		100	FILL; Black organic SILTY CLAY, slag at bottom, moist	OL	ND	30	0	244	244
1	0.5 - 2.0		100	FILL; Fine to coarse slag, loose, moist	GW	ND	38	0	194	194
2				FILL; Brown SILTY CLAY, some slag, dense, wet	CL					
3	2.0 - 3.0		100	FILL; Black sandy SILTY CLAY, trace organics, trace slag, mod dense, moist	CL	ND	42	2	268	270
				Bottom of borehole 3 ft						

COMMENTS:

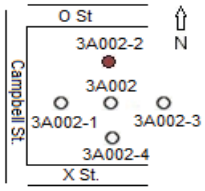
PROJECT NO. 11176991

BORING NO. 3A002-1

URS Corporation

TEST BORING LOG

		BORING NO:	3A002-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Between O St. and X St., east of Campbell St., ~10 north of 3A002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.76
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/22/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/22/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172448.385	GEOLOGIST:	[redacted]
EASTING:	1041625.429	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,002
44-10 Bkgd (cpm)	5,580

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	156	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	32	0	286	286
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, moist Same as above, grades to reddish brown, dense	CL	ND	50	0	248	248
3	2.0 - 3.0		100	Yellowish Brown Gray SILTY CLAY, trace sand, trace organics, some fine to coarse gravel, dense, moist		ND	38	2	240	242
				Bottom of borehole 3 ft						

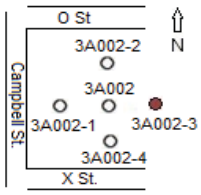
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A002-2

URS Corporation

TEST BORING LOG

		BORING NO:	3A002-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Between O St. and X St., east of Campbell St., ~10 east of 3A002
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.74
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/22/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/22/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172432.051	**GEOLOGIST:**	[redacted]
EASTING:	1041641.829	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,778; 44-10 Bkgd (cpm) 5,580

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	156	156
	0.0 - 0.5		100	Black organic SILTY CLAY, loose, wet to moist	OL	ND	34	2	278	280
1	0.5 - 2.0		100		OL	ND	42	0	252	252
2				Reddish Brown SILTY CLAY, trace organics, more dense at bottom, moist	CL					
3	2.0 - 3.0		100	Dark brown @ 2'	CL	ND	52	2	288	290
				Bottom of borehole 3 ft						

COMMENTS:

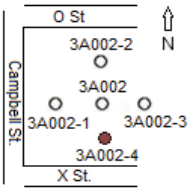
PROJECT NO. 11176991

BORING NO. 3A002-3

URS Corporation

TEST BORING LOG

		BORING NO:	3A002-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Between O St. and X St., east of Campbell St., ~10 south of 3A002
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.05
SAMPLER:	3 in dia Macro core	DATE STARTED:	11/22/2013
DEPTH TO GW:	NA	DATE FINISHED:	11/22/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172416.820	GEOLOGIST:	[redacted]
EASTING:	1041624.527	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,076
44-10 Bkgd (cpm)	5,580

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	156	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	46	2	312	314
1 2	0.5 - 2.0		100	Dark Brown SILTY CLAY, some organics, some fine to coarse gravel, moist Grades to yellowish brown and dense @ 1.5'	CL	ND	38	4	236	240
3	2.0 - 3.0		100	Trace sand, trace organics @ 2'		ND	38	0	240	240
				Bottom of borehole 3 ft						

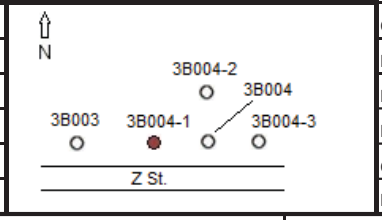
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A002-4

URS Corporation

TEST BORING LOG

		BORING NO:	3B004-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north along Z St., east of the 3B003 cluster, ~20 west of 3B004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.39
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172170.882	GEOLOGIST:	[redacted]
EASTING:	1041877.784	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,382
44-10 Bkgd (cpm)	6,556

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	186	186
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	54	2	252	254
1 2	0.5-2.0		100	Brown Gray SILTY CLAY, some organics, some fine gravel, more dense at bottom, moist	CL	ND	56	0	276	276
3	2.0-3.0		100	Brown SAND lens	SW	ND	58	0	254	254
				Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
4				Bottom of borehole 3.0'						

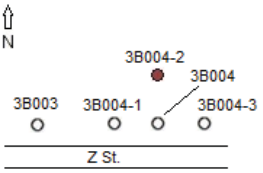
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B004-1

URS Corporation

TEST BORING LOG

		BORING NO:	3B004-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north of Z St., east of the 3B003 cluster, ~20 north of 3B004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.81
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172189.017	GEOLOGIST:	[redacted]
EASTING:	1041892.135	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,144
44-10 Bkgd (cpm)	6,556

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	186	186
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	42	6	290	296
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	58	0	306	306
3	2.0-3.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	46	0	314	314
4				Bottom of borehole 3.0'						

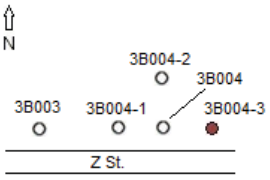
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B004-2

URS Corporation

TEST BORING LOG

		BORING NO:	3B004-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north of Z St., east of the 3B003 cluster, ~20 east of 3B004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.31
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172171.770	GEOLOGIST:	[redacted]
EASTING:	1041911.474	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,448
44-10 Bkgd (cpm)	6,556

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	40	0	186	186
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	52	2	276	278
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	52	0	284	284
3	2.0-3.0		100	Trace organics, trace fine gravel @ 2'		ND	52	2	296	298
4				Bottom of borehole 3.0'						

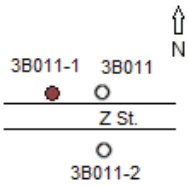
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B004-3

URS Corporation

TEST BORING LOG

		BORING NO:	3B011-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north side of western end of Z St., ~30 west of 3B011
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.68
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/12/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172163.774	GEOLOGIST:	[redacted]
EASTING:	1041778.787	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,982
44-10 Bkgd (cpm)	5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown Silty fine to med gravel, loose, moist	GM	ND	54	0	272	272
1	0.5-2.0		100			ND	52	2	234	236
2				FILL; Brown SILTY CLAY, some fine to coarse gravel, loose, moist	CL					
3	2.0-3.0		100	FILL; Gravel lens	GW	ND	64	0	232	232
				FILL; Gray Brown SILTY CLAY, trace organics, dense, dry	CL					
4				Bottom of borehole 3.0'						

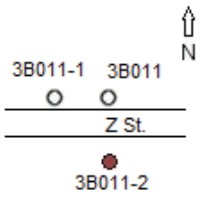
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B011-1

URS Corporation

TEST BORING LOG

		BORING NO:	3B011-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north of Z St., ~30 south of 3B011
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.89
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/12/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172144.025	GEOLOGIST:	[redacted]
EASTING:	1041810.696	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,006
44-10 Bkgd (cpm)	5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	34	0	190	190
1 2	0.5-2.0		100	FILL; Brown Gray reworked SILTY CLAY, trace organics, some fine to coarse gravel, dense, moist	CL	ND	50	2	264	266
3	2.0-3.0		100	Brown Gray SILTY CLAY, some fine to coarse gravel, dense, moist	CL	ND	46	0	218	218
4				Bottom of borehole 3.0'						

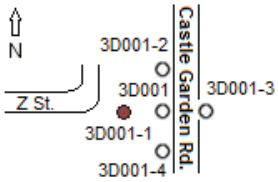
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B011-2

URS Corporation

TEST BORING LOG

		BORING NO:	3D001-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along Castle Garden Rd., east of Z St., ~20' west of 3D001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.75
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/17/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/17/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172113.886	GEOLOGIST:	[redacted]
EASTING:	1042482.873	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,456
44-10 Bkgd (cpm)	6,076

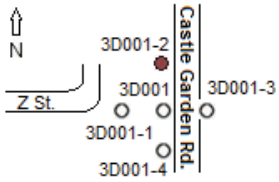
DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	152	152
	0.0 - 0.5		100	FILL; Dark Brown oganic SILTY CLAY, moist	OL	ND	70	0	260	260
1	0.5-2.0		100	FILL; Dark Brown organic SILTY CLAY, some fine to med gravel, mod dense, moist	CL	ND	70	2	280	282
2				FILL; Brown Gray sandy Silty fine to med gravel, loose, moist	GM					
3	2.0-3.0		100	Reddish Brown silty Sandy fine to med GRAVEL, trace organics, loose, dry	GW	ND	60	0	218	218
4				Bottom of borehole 3.0'						

COMMENTS:		PROJECT NO.	11176991
		BORING NO.	3D001-1

URS Corporation

TEST BORING LOG

		BORING NO:	3D001-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along Castle Garden Rd., east of Z St., ~20' north of 3D001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.70
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/17/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/17/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172129.744	GEOLOGIST:	[redacted]
EASTING:	1042494.934	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,496
44-10 Bkgd (cpm)	6,076

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	152	152
	0.0 - 0.5		100	FILL; Dark Brown oganic SILTY CLAY, moist	OL	ND	48	0	222	222
1	0.5-2.0		100	FILL; Dark Brown sandy Silty fine to med gravel, loose, moist	GM	ND	54	2	216	218
2				Dark Brown SILTY CLAY, trace sand, some organics, some fine to coarse gravel, dense, moist	CL					
3	2.0-3.0		100	Brown Gray, no sand, trace organics, some coarse gravel, dry @ 2'		ND	60	0	254	254
4				Bottom of borehole 3.0'						

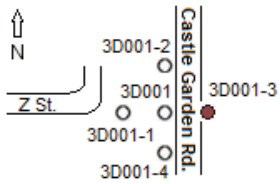
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D001-2

URS Corporation

TEST BORING LOG

		BORING NO:	3D001-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along Castle Garden Rd., east of Z St., ~20' east of 3D001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.56
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/17/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/17/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172112.866	GEOLOGIST:	[redacted]
EASTING:	1042513.720	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,334
44-10 Bkgd (cpm)	6,076

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	152	152
	0.0 - 0.5		100	FILL; Dark Brown oganic SILTY CLAY, fill at bottom, moist	OL	ND	50	0	246	246
1	0.5-2.0		100	FILL; Brown Silty fine to coarse gravel, loose, moist	GM	ND	30	2	184	186
2				Gray to Dark Brown SILTY CLAY, some fine gravel, dense, moist	CL					
3	2.0-3.0		100			ND	46	0	278	278
4				Bottom of borehole 3.0'						

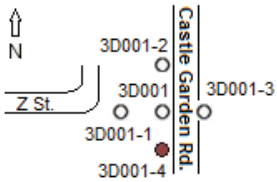
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D001-3

URS Corporation

TEST BORING LOG

		BORING NO:	3D001-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along Castle Garden Rd., east of Z St., ~20' south of 3D001
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.75
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/17/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/17/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172098.370	GEOLOGIST:	[redacted]
EASTING:	1042495.455	RAD TECH:	[redacted]



Gamma (γ) Survey:	44-10 grd. Surf. (cpm)	
	44-10 Bkgd (cpm)	6,076

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	152	152
	0.0 - 0.5		100	FILL; Dark Brown oganic SILTY CLAY, fill at bottom, ice	OL	ND	50	2	218	220
1	0.5-2.0		100	FILL; Dark Brown sandy Silty fine to coarse gravel, loose, moist	GM	ND	38	0	214	214
2				Dark Brown SILTY CLAY, trace organics, some fine to med gravel, dense, moist	CL					
3	2.0-3.0		100	Gray, trace fine to med gravel @ 2'. Trace sand at 2.9'	CL	ND	54	2	260	262
4				Bottom of borehole 3.0'						

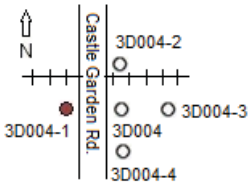
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D001-4

URS Corporation

TEST BORING LOG

		BORING NO:	3D004-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	North end of Castle Garden Rd., near former railroad, ~20' west of 3D004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.97
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/17/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/17/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172398.268	GEOLOGIST:	[redacted]
EASTING:	1042486.174	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,862
44-10 Bkgd (cpm)	6,076

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	152	152
	0.0 - 0.5		100	FILL; Black sandy SILTY CLAY, some organics, wet	OL	ND	42	0	222	222
1	0.5-2.0		100	FILL; Dark Brown Sandy Silty fine to coarse gravel, loose, moist	GM	ND	38	0	204	204
2				Brown Gray SILTY CLAY, trace sand, some fine to coarse gravel, dense, dry	CL					
3	2.0-3.0		100	Some organics and no sand @ 2'		ND	64	0	264	264
4				Bottom of borehole 3.0'						

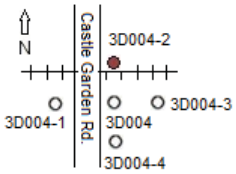
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D004-1

URS Corporation

TEST BORING LOG

		BORING NO:	3D004-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	North end of Castle Garden Rd., near former railroad, ~20' north of 3D004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.24
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/17/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/17/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172429.681	GEOLOGIST:	[redacted]
EASTING:	1042519.651	RAD TECH:	[redacted]



Gamma (γ) Survey:	44-10 grd. Surf. (cpm)	17,250
	44-10 Bkgd (cpm)	6,076

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	152	152
	0.0 - 0.5		100	FILL; Brown Sandy Silty fine to coarse SLAG, loose, moist		ND	72	0	222	222
1	0.5-2.0		100	FILL; Dark Brown sandy Silty fine to coarse SLAG, loose, wet	GM	ND	46	0	268	268
2	2.0-3.0		100	SAND lense	SW	ND	48	0	266	266
				Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
3										
4				Bottom of borehole 3.0'						

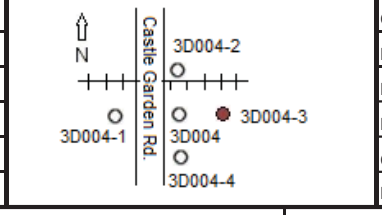
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D004-2

URS Corporation

TEST BORING LOG

		BORING NO:	3D004-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	North end of Castle Garden Rd., near former railroad, ~20' east of 3D004
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.62
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/17/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/17/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172395.177	GEOLOGIST:	[redacted]
EASTING:	1042537.118	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,460
44-10 Bkgd (cpm)	6,076

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	152	152
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	48	4	224	228
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, trace organics, some fine gravel, trace black staining, more dense at bottom, moist	CL	ND	52	0	234	234
3	2.0-3.0		100	SAND lense	SW	ND	62	0	258	258
				Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
4				Bottom of borehole 3.0'						

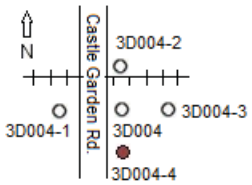
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D004-3

URS Corporation

TEST BORING LOG

		BORING NO:	3D004-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North end of Castle Garden Rd., near former railroad, ~20' south of 3D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.38
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/17/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/17/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172365.974	**GEOLOGIST:**	[redacted]
EASTING:	1042518.890	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 148; **44-10 Bkgd (cpm)** 6,076

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	44	0	152	152
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	176	176
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to coarse gravel, large wood piece at bottom, dense, moist	CL	ND	70	2	184	186
3				Bottom of borehole 2.0'						
4										

COMMENTS: Refusal at 2.0', sample 0.0-2.0' per consult with N. Miller (USACE)

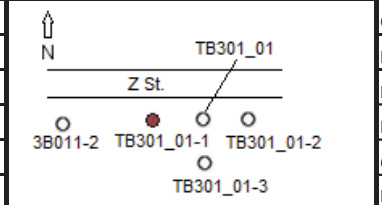
PROJECT NO. 11176991

BORING NO. 3D004-4

URS Corporation

TEST BORING LOG

		BORING NO:	TB301_01-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located south side of Z St., east of 3B011-2, ~20 west of TB301_01-1
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.99
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/12/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172125.558	GEOLOGIST:	[redacted]
EASTING:	1041873.994	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,454
44-10 Bkgd (cpm)	5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	42	2	248	250
1	0.5-2.0		100	FILL; Brown SILTY CLAY, some organics, trace fine gravel, dense, moist	CL	ND	48	0	266	266
2				FILL; Brown Silty fine to coarse gravel, loose, dry	GM					
3	2.0-3.0		100	Black Sandy SILTY CLAY, trace fine gravel, more dense at bottom, dry	CL	ND	50	2	206	208
4				Bottom of borehole 3.0'						

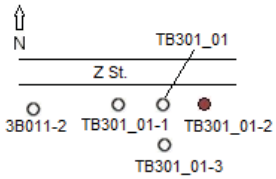
COMMENTS:

PROJECT NO.	11176991
BORING NO.	TB301_01-1

URS Corporation

TEST BORING LOG

		BORING NO:	TB301_01-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located south side of Z St., east of 3B011-2, ~20 east of TB301_01-1
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.08
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/12/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/12/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172124.710	**GEOLOGIST:**	[redacted]
EASTING:	1041904.014	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,558; 44-10 Bkgd (cpm) 5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	74	0	246	246
1 2	0.5-2.0		100	Brown Dark Brown reworked SILTY CLAY, some organics, some fine gravel, more dense at bottom, moist	CL	ND	50	0	240	240
3	2.0-3.0		100	Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist Same as above, grades to brown gray		ND	78	0	238	238
4				Bottom of borehole 3.0'						

COMMENTS:

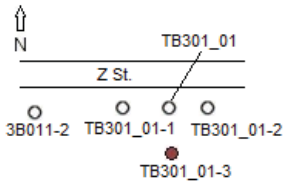
PROJECT NO. 11176991

BORING NO. TB301_01-2

URS Corporation

TEST BORING LOG

		BORING NO:	TB301_01-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located south side of Z St., east of 3B011-2, ~20 south of TB301_01-1
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.31
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/12/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172109.799	GEOLOGIST:	[redacted]
EASTING:	1041890.013	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,782
44-10 Bkgd (cpm)	5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	Brown organic SILTY CLAY, moist	OL	ND	56	0	228	228
1 2	0.5-2.0		100	Brown SILTY CLAY, some organics, some fine to coarse gravel, more dense at bottom, moist	CL	ND	58	2	252	254
3	2.0-3.0		100	Trace organics @ 2'		ND	62	0	230	230
4				Bottom of borehole 3.0'						

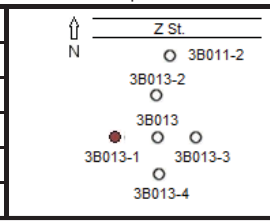
COMMENTS:

PROJECT NO.	11176991
BORING NO.	TB301_01-3

URS Corporation

TEST BORING LOG

		BORING NO:	3B013-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located south side of Z St., south of 3B011-2, ~20 west of 3B013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.16
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/12/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/12/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172081.318	**GEOLOGIST:**	[redacted]
EASTING:	1041785.194	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,228; 44-10 Bkgd (cpm) 5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	48	6	216	222
1, 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	48	0	272	272
3	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, some fine gravel, sand lens at bottom, dense, moist	CL	ND	58	2	240	242
4				Bottom of borehole 3.0'						

COMMENTS:

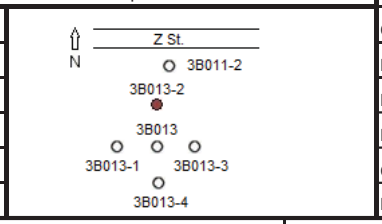
PROJECT NO. 11176991

BORING NO. 3B013-1

URS Corporation

TEST BORING LOG

		BORING NO:	3B013-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located south side of Z St., south of 3B011-2, ~20 north of 3B013
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.48
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/12/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/12/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172091.081	**GEOLOGIST:**	[redacted]
EASTING:	1041803.692	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,454; 44-10 Bkgd (cpm) 5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	42	0	214	214
1 2	0.5-2.0		100	FILL; Brown reworked SILTY CLAY, some organics, some fine to coarse gravel, moist Grades to yellowish brown, dense @ 1.5'	CL	ND	58	0	268	268
3	2.0-3.0		75	Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist		ND	36	0	310	310
				SAND Lense @ 3'	SW					
4				Bottom of borehole 3.0'						

COMMENTS: Per consult with USACE, relocated ~2' south of original location due to tree branches

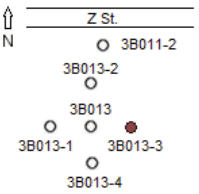
PROJECT NO. 11176991

BORING NO. 3B013-2

URS Corporation

TEST BORING LOG

		BORING NO:	3B013-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located south side of Z St., south of 3B011-2, ~20 east of 3B013
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.53
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/12/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172080.070	GEOLOGIST:	[redacted]
EASTING:	1041818.726	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,892
44-10 Bkgd (cpm)	5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	FILL; Black organic SILTY CLAY, moist	OL	ND	42	0	206	206
1	0.5-2.0		100	FILL; Brown Silty fine to coarse gravel, loose, moist	GM	ND	54	2	234	236
2				Dark Brown SILTY CLAY, trace organics, dense, moist	CL					
3	2.0-3.0		100	Brown Gray, some fine gravel @ 2'		ND	54	2	264	266
4				Bottom of borehole 3.0'						

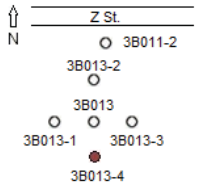
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B013-3

URS Corporation

TEST BORING LOG

		BORING NO:	3B013-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located south side of Z St., south of 3B011-2, ~20 south of 3B013
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.68
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/12/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172064.736	GEOLOGIST:	[redacted]
EASTING:	1041802.153	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,610
44-10 Bkgd (cpm)	5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	46	0	264	264
1	0.5-2.0		100	FILL; Brown Silty fine to coarse SLAG, dense, dry	GM	ND	46	0	248	248
2	2.0-3.0		100	Yellowish Brown SILTY CLAY, trace sand, some fine gravel, dense, moist Same as above, grades to brown gray	CL	ND	36	0	208	208
3										
4				Bottom of borehole 3.0'						

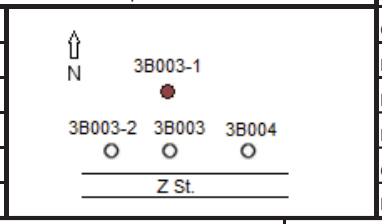
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B013-4

URS Corporation

TEST BORING LOG

		BORING NO:	3B003-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north side of Z St., west of 3B004, ~20 north of 3B003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.67
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/12/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172187.175	GEOLOGIST:	[redacted]
EASTING:	1041853.583	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,576
44-10 Bkgd (cpm)	5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	FILL; Dark Brown Black organic SILTY CLAY, moist	OL	ND	50	0	176	176
1	0.5-2.0		100	FILL; Dark Brown SILTY CLAY, some organics, some fine to coarse gravel (fill), loose, moist	CL	ND	52	0	236	236
2				Brown SILTY CLAY, some organics, some fine to med gravel, mod dense, moist	CL					
3	2.0-3.0		100	Brown Gray, trace organics, trace fine gravel @ 2'		ND	50	0	256	256
4				Bottom of borehole 3.0'						

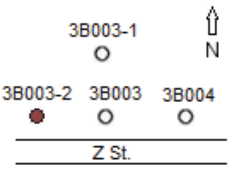
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B003-1

URS Corporation

TEST BORING LOG

		BORING NO:	3B003-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north side of Z St., west of 3B004, ~20 west of 3B003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.46
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/12/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/12/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172172.617	GEOLOGIST:	[redacted]
EASTING:	1041839.288	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,066
44-10 Bkgd (cpm)	5,278

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	0	170	170
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist, loose	OL	ND	34	2	218	220
1	0.5-2.0		100		OL	ND	62	0	262	262
				Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
2				Dark Brown organic SILTY CLAY, loose, moist	OL					
3	2.0-3.0		100	Brown Gray sandy SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	64	4	210	214
4				Bottom of borehole 3.0'						

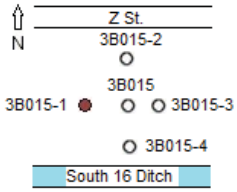
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B003-2

URS Corporation

TEST BORING LOG

BORING NO:	3B015-1
SHEET:	1 of 1
JOB NO.:	11176991
PROJECT:	NFSS BOP Delineation Investigation
CLIENT:	USACE
BORING CONTRACTOR:	Russo Development
BORING LOCATION:	Located south of Z St., just north of South 16 Ditch, ~20 west of 3B015
RIG TYPE:	AMS-9500 VTR
SAMPLER:	3 in dia Macro core
DEPTH TO GW:	NA
AREA:	EU8
NORTHING:	1171889.634
EASTING:	1041957.013
GROUND ELEVATION:	317.47
DATE STARTED:	12/13/2013
DATE FINISHED:	12/13/2013
DRILLER:	[redacted]
GEOLOGIST:	[redacted]
RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,750
44-10 Bkgd (cpm)	7,366

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	152	154
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	2	296	298
1	0.5-2.0		100	Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, moist Same as above, grades to brown gray, dense	CL	ND	68	0	254	254
2	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	58	0	314	314
3										
4				Bottom of borehole 3.0'						

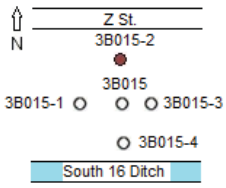
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B015-1

URS Corporation

TEST BORING LOG

		BORING NO:	3B015-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located south of Z St., just north of South 16 Ditch, ~20 north of 3B015
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.05
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/13/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1171901.764	GEOLOGIST:	[redacted]
EASTING:	1041971.666	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,658
44-10 Bkgd (cpm)	7,366

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	152	154
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	38	6	254	260
1 2	0.5-2.0		100	FILL; Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	70	4	312	316
3	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine to med gravel, dense, moist	CL	ND	42	2	322	324
				SAND Lense @ 3'	SW					
4				Bottom of borehole 3.0'						

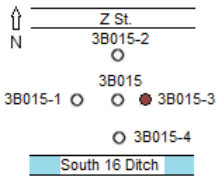
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B015-2

URS Corporation

TEST BORING LOG

		BORING NO:	3B015-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located south of Z St., just north of South 16 Ditch, ~10 east of 3B015
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	315.54
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/13/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1171888.267	GEOLOGIST:	[redacted]
EASTING:	1041982.210	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,992
44-10 Bkgd (cpm)	7,366

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	152	154
	0.0 - 0.5		100	FILL; Black organic SILTY CLAY, moist	OL	ND	54	0	220	220
1	0.5-2.0		100	FILL; Brown Silty fine to coarse gravel, loose, moist	GM	ND	62	2	304	306
2				Brown Gray SILTY CLAY, trace organics, some fine to medium gravel, dense, moist	CL					
3	2.0-3.0		100	SAND Lense @ 3'	SW	ND	60	2	290	292
4				Bottom of borehole 3.0'						

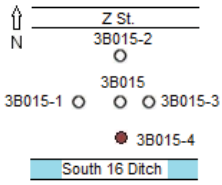
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B015-3

URS Corporation

TEST BORING LOG

		BORING NO:	3B015-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located south of Z St., just north of South 16 Ditch, ~20 south of 3B015
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.11
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/13/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1171873.437	GEOLOGIST:	[redacted]
EASTING:	1041970.791	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,206
44-10 Bkgd (cpm)	7,366

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	152	154
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	48	2	236	238
1 2	0.5-2.0		100	Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	62	2	274	276
3	2.0-3.0		100	Yellowish Brown reworked SILTY CLAY, trace organics, some fine to coarse gravel, dense, moist	CL	ND	50	2	206	208
4				Bottom of borehole 3.0'						

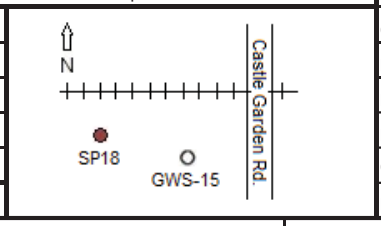
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B015-4

URS Corporation

TEST BORING LOG

		BORING NO:	SP18
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located west of Castle Garden Rd. and south of former railroad, ~120 west of GWS-15
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/13/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1171962.359	GEOLOGIST:	[redacted]
EASTING:	1042193.724	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	23,990
44-10 Bkgd (cpm)	8,310

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	170	172
	0.0 - 0.5		100	FILL; Dark Brown organic SILTY CLAY, fill at bottom, moist	OL	ND	68	4	346	350
1	0.5-2.0		100	FILL; Dark Brown Silty fine to coarse gravel, some organics, trace fine gravel, dense, moist	GM	ND	66	0	282	282
2				FILL; Dark Brown reworked SILTY CLAY, trace organics, some fine to med gravel, more dense at bottom, moist	CL					
3	2.0-3.0		100	Brown Gray SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	56	2	296	298
4				Bottom of borehole 3.0'						

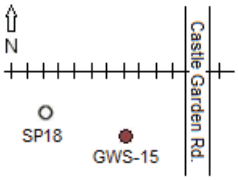
COMMENTS:

PROJECT NO.	11176991
BORING NO.	SP18

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-15
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located west of Castle Garden Rd. and south of former railroad
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.34
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/13/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/13/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1171982.183	GEOLOGIST:	[redacted]
EASTING:	1042355.816	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	16,664
44-10 Bkgd (cpm)	8,310

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	28	2	170	172
	0.0 - 0.5		100	FILL; Black organic SILT, some fine to coarse fill at bottom, moist	OL	ND	32	0	264	264
1	0.5-2.0		100	FILL; Black grades to Brown Silty fine to coarse gravel, trace organics, loose, moist	SM	ND	26	0	230	230
2				FILL; Black Silty organics, wood debris, dense, moist	OL					
3	2.0-3.0		100	FILL; Brown Gray reworked SILTY CLAY, some organics, some black staining, dense, moist	CL	ND	64	0	298	298
4				Bottom of borehole 3.0'						

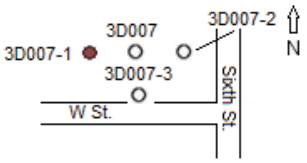
COMMENTS:

PROJECT NO.	11176991
BORING NO.	GWS-15

URS Corporation

TEST BORING LOG

		BORING NO:	3D007-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located just north of W St. and west of Sixth St., 20' west of 3D007
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.26
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172531.255	GEOLOGIST:	[redacted]
EASTING:	1042314.834	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,480
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, some fine to med gravel, more dense at bottom, moist		ND	78	0	252	252
1	0.5-2.0		100		OL	ND	58	2	246	248
2										
3	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	52	2	304	306
4				Bottom of borehole 3.0'						

COMMENTS: First attempt poor recovery, moved 1.0' norht of original location for full recovery

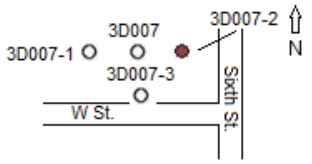
PROJECT NO. 11176991

BORING NO. 3D007-1

URS Corporation

TEST BORING LOG

		BORING NO:	3D007-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located just north of W St. and west of Sixth St., 20' east of 3D007
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.29
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172530.615	GEOLOGIST:	[redacted]
EASTING:	1042346.015	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,334
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	34	0	216	216
1 2	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist Brown Gray SILTY CLAY, some organics, some fine to med gravel, sand lens at bottom, dense, moist	CL	ND	68	0	256	256
3	2.0-3.0		100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist		ND	48	0	266	266
4				Bottom of borehole 3.0'						

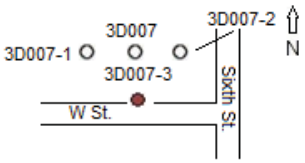
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D007-2

URS Corporation

TEST BORING LOG

		BORING NO:	3D007-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located just north of W St. and west of Sixth St., 20' south of 3D007
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.48
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172520.762	GEOLOGIST:	[redacted]
EASTING:	1042331.054	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,530
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	216	216
1	0.5-2.0	0.5-2.0	100	FILL; Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	48	0	174	174
2				FILL; Brown fine to coarse gravel, loose, saturated	GW					
3	2.0-3.0	2.0-3.0	100	Brown Gray SILTY CLAY, trace organics, some fine gravel, dense, moist	CL	ND	60	2	286	288
4				Bottom of borehole 3.0'						

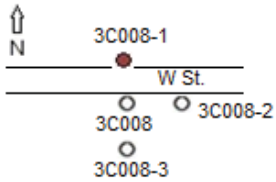
COMMENTS: Sampled for both chem and rad parameters

PROJECT NO.	11176991
BORING NO.	3D007-3

URS Corporation

TEST BORING LOG

		BORING NO:	3C008-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along Sixth St., 20' north of 3C008
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.07
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172508.706	GEOLOGIST:	[redacted]
EASTING:	1042239.515	RAD TECH:	[redacted]



						Gamma (γ) Survey:	44-10 grd. Surf. (cpm)	5,404		
							44-10 Bkgd (cpm)	5,086		
DEPTH (ft)	SAMPLE			MATERIAL			44-9	43-93		
	RAD	CHEM	REC %	DESCRIPTION	USCS	PID	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	FILL; Black sandy Silty coarse gravel (fill), dry	SM	ND	46	0	184	184
1	0.5-2.0	0.5-2.0	100	Top 1.0' FILL; Brown SILTY CLAY, some fine to coarse fill, loose, moist	CL	ND	58	0	232	232
2				Bottom 0.5' Brown reworked SILTY CLAY, some fine to med gravel, loose, moist	CL					
3	2.0-3.0	2.0-3.0	100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist		ND	44	2	256	258
4				Bottom of borehole 3.0'						

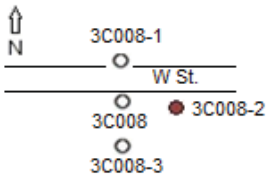
COMMENTS: Sampled for both chem and rad parameters

PROJECT NO.	11176991
BORING NO.	3C008-1

URS Corporation

TEST BORING LOG

		BORING NO:	3C008-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along Sixth St., 20' east of 3C008
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.22
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172493.347	GEOLOGIST:	[redacted]
EASTING:	1042255.498	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,906
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	50	0	206	206
1 2	0.5-2.0		100	Brown SILTY CLAY, some organics, trace fine to med gravel, moist Dark Brown @ 1', trace organics, trace fine gravel, more dense	CL	ND	66	2	232	234
3	2.0-3.0		100	Brown Gray, dense @ 2'		ND	34	2	294	296
4				Bottom of borehole 3.0'						

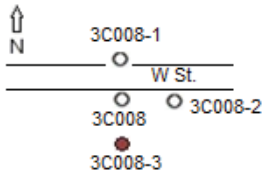
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3C008-2

URS Corporation

TEST BORING LOG

		BORING NO:	3C008-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along Sixth St., 20' south of 3C008
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.17
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172485.784	GEOLOGIST:	[redacted]
EASTING:	1042236.845	RAD TECH:	[redacted]



						Gamma (γ) Survey:	44-10 grd. Surf. (cpm)	8,784			
							44-10 Bkgd (cpm)	5,086			
DEPTH (ft)	SAMPLE			MATERIAL			44-9	43-93			
	RAD	CHEM	REC %	DESCRIPTION	USCS	PID	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5		100	FILL; Black sandy Silty gravel, some organics, loose, moist	GM	ND	72	4	270	274
1	0.5-2.0		100	FILL; Gray fine to coarse gravel, loose, moist	GP	ND	54	0	248	248
2				Gray SILTY CLAY, trace organics, dense, wet	CL					
3	2.0-3.0		100	Gray Brown, some fine gravel, moist @ 2'	CL	ND	68	2	250	252
4				Bottom of borehole 3.0'						

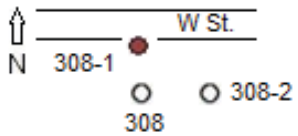
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3C008-3

URS Corporation

TEST BORING LOG

		BORING NO:	308-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along W St., 20' north of 308
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.07
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172496.18	GEOLOGIST:	[redacted]
EASTING:	1042196.159	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,706
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	Dark Brown organic SILTY CLAY, moist	OL	ND	56	0	222	222
1	0.5-2.0	0.5-2.0	100	Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, more dense at bottom, moist	CL	ND	56	0	246	246
2	2.0-3.0	2.0-3.0	100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist		ND	60	0	248	248
3										
4				Bottom of borehole 3.0'						

COMMENTS: Sampled for both chemical and rad parameters

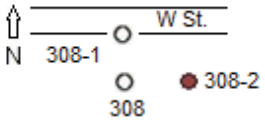
PROJECT NO. 11176991

BORING NO. 308-1

URS Corporation

TEST BORING LOG

		BORING NO:	308-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along W St., 20' east of 308
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.01
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172486.428	GEOLOGIST:	[redacted]
EASTING:	1042211.74	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,272
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	FILL; Dark Brown organic SILTY CLAY, moist	OL	ND	62	0	218	218
1	0.5-2.0	0.5-2.0	100	FILL; Brown SILTY CLAY, some organics, black wood material, loose, moist	CL	ND	32	0	262	262
2				Brown Gray SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL					
3	2.0-3.0	2.0-3.0	100	Trace organics, trace fine gravel @ 2'		ND	42	0	274	274
4				Bottom of borehole 3.0'						

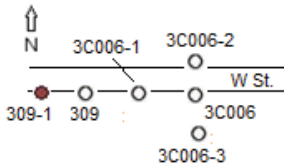
COMMENTS: Sampled for both chemical and rad parameters

PROJECT NO.	11176991
BORING NO.	308-2

URS Corporation

TEST BORING LOG

		BORING NO:	309-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along W St., just west of 3C006 cluster, 20' west of 309
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.26
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/10/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/10/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172495.644	**GEOLOGIST:**	[redacted]
EASTING:	1042053.157	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,330; 44-10 Bkgd (cpm) 5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
		0.0 - 0.5	100	Brown organic SILTY CLAY, fine gravel at top, wet	OL	ND	46	0	220	220
1		0.5-2.0	100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	62	0	204	204
2		2.0-3.0	75	Yellowish Brown SILTY CLAY, trace organics, trace fine gravel, trace black staining, dense, moist	CL	ND	52	2	242	244
3										
				Bottom of borehole 3.0'						
4										

COMMENTS: Sampled for chemical parameters

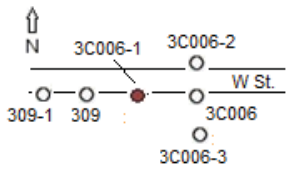
PROJECT NO. 11176991

BORING NO. 309-1

URS Corporation

TEST BORING LOG

		BORING NO:	3C006-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along W St., ~20' west of 3C006-1
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.44
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172495.413	GEOLOGIST:	[redacted]
EASTING:	1042087.527	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,860
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	Dark Brown organic SILTY CLAY, wet	OL	ND	44	0	166	166
1	0.5-2.0	0.5-2.0	100	Dark Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist Grades to brown gray @ 1.5'	CL	ND	56	2	268	270
2	2.0-3.0	2.0-3.0	100	Trace organics, trace fine gravel @ 2'		ND	46	0	228	228
3				Bottom of borehole 3.0'						
4										

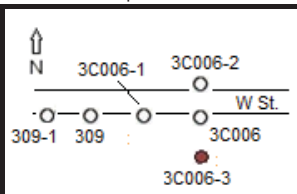
COMMENTS: Sampled for rad and chemical parameters

PROJECT NO.	11176991
BORING NO.	3C006-1

URS Corporation

TEST BORING LOG

		BORING NO:	3C006-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along W St., ~20' south of 3C006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.16
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172496.034	GEOLOGIST:	[redacted]
EASTING:	1042102.712	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,758
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	Dark Brown organic SILTY CLAY, wet	OL	ND	44	2	204	206
1 2	0.5-2.0	0.5-2.0	100	Dark Brown reworked SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	48	0	228	228
3	2.0-3.0	2.0-3.0	100	Gray Brown SILTY CLAY, trace organics, some fine to med gravel, dense, dry		ND	42	0	292	292
4				Bottom of borehole 3.0'						

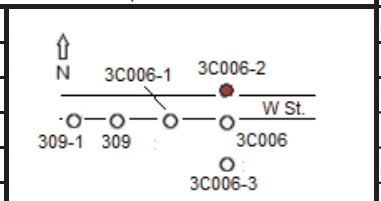
COMMENTS: Sampled for rad and chemical parameters

PROJECT NO.	11176991
BORING NO.	3C006-3

URS Corporation

TEST BORING LOG

		BORING NO:	3C006-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along W St., ~20' north of 3C006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.23
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172511.471	GEOLOGIST:	[redacted]
EASTING:	1042103.876	RAD TECH:	[redacted]



DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	Gamma (γ) Survey: 44-10 grd. Surf. (cpm) / 44-10 Bkgd (cpm) 5,086 — 44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	FILL; Black sandy Silty gravel (fill), loose, wet	GM	ND	58	0	214	214
1	0.5-2.0	0.5-2.0	100	FILL; Gray Brown Silty fine to coarse gravel (fill), loose, wet	GM	ND	52	2	236	238
2	2.0-3.0	2.0-3.0	100	FILL; Brown Silty fine to coarse gravel (fill), loose, saturated	GM	ND	46	0	208	208
3				Bottom of borehole 3.0'						
4										

COMMENTS: Sampled for rad and chemical parameters

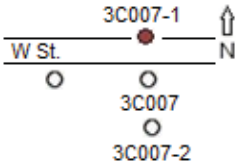
PROJECT NO. 11176991

BORING NO. 3C006-2

URS Corporation

TEST BORING LOG

		BORING NO:	3C007-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along W St., just east of 3C006 cluster, ~20' north of 3C007
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.18
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172513.376	GEOLOGIST:	[redacted]
EASTING:	1042159.759	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	5,768
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	FILL; Dark Brown Black sandy SILTY gravel (fill), loose, wet	GM	ND	48	0	194	194
1 2	0.5-2.0	0.5-2.0	100	FILL; Light Brown Gray SILT, some fine to coarse gravel, loose, moist	ML	ND	28	0	200	200
3	2.0-3.0	2.0-3.0	100	Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	36	2	290	292
4				Bottom of borehole 3.0'						

COMMENTS: Sampled for rad and chemical parameters

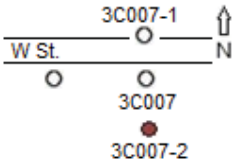
PROJECT NO. 11176991

BORING NO. 3C007-1

URS Corporation

TEST BORING LOG

		BORING NO:	3C007-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along W St., just east of 3C006 cluster, ~20 south of 3C007
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.1
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/10/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/10/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172486.774	GEOLOGIST:	[redacted]
EASTING:	1042161.015	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,704
44-10 Bkgd (cpm)	5,086

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	36	2	154	156
	0.0 - 0.5	0.0 - 0.5	100	Dark Brown organic SILTY CLAY, moist	OL	ND	58	0	212	212
1 2	0.5-2.0	0.5-2.0	100	Brown SILTY CLAY, some organics, some fine to med gravel, dense, moist	CL	ND	66	2	264	266
3	2.0-3.0	2.0-3.0	100	Grades to Brown Gray, trace organics, trace fine gravel @ 2'		ND	52	2	276	278
4				Bottom of borehole 3.0'						

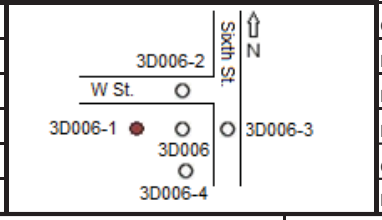
COMMENTS: Sampled for rad and chemical parameters

PROJECT NO.	11176991
BORING NO.	3C007-2

URS Corporation

TEST BORING LOG

		BORING NO:	3D006-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along north corner of Sixth St. and W St., ~20 west of 3D006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.44
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172485.991	GEOLOGIST:	[redacted]
EASTING:	1042335.827	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	5,204
44-10 Bkgd (cpm)	5,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	112	112
	0.0 - 0.5	0.0 - 0.5	100	FILL: Black sandy Silty fine to coarse gravel (fill), loose, dry		ND	38	4	204	208
1 2	0.5-2.0	0.5-2.0	100	FILL; Gray sandy Silty fine to coarse gravel (fill), trace organics, saturated	GM	ND	56	0	200	200
3	2.0-3.0	2.0-3.0	75	Gray Brown SILTY CLAY, trace organics, trace fine gravel, highly plastic, dense, moist	CL	ND	40	2	230	232
4				Bottom of borehole 3.0'						

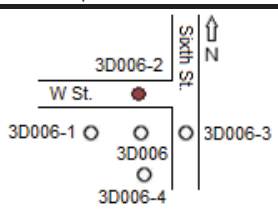
COMMENTS: Sampled for rad and chemical parameters

PROJECT NO.	11176991
BORING NO.	3D006-1

URS Corporation

TEST BORING LOG

		BORING NO:	3D006-2
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along north corner of Sixth St. and W St., ~20 north of 3D006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.53
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172497.162	GEOLOGIST:	[redacted]
EASTING:	1042352.492	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,296
44-10 Bkgd (cpm)	5,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	112	112
	0.0 - 0.5	0.0 - 0.5	100	FILL; Dark Brown organic Silty fine to coarse gravel, loose, dry		ND	48	0	196	196
1	0.5-2.0	0.5-2.0	100	FILL; Brown sandy Silty fine to coarse gravel, loose, saturated	GM	ND	42	0	166	166
2	2.0-3.0	2.0-3.0	75	FILL; Brown Silty gravel, moist	GM	ND	54	2	272	274
3				Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
4				Bottom of borehole 3.0'						

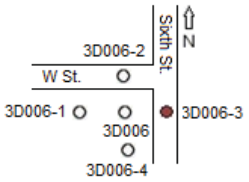
COMMENTS: Sampled for rad and chemical parameters

PROJECT NO.	11176991
BORING NO.	3D006-2

URS Corporation

TEST BORING LOG

		BORING NO:	3D006-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along north corner of Sixth St. and W St., ~20 east of 3D006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.66
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172483.92	GEOLOGIST:	[redacted]
EASTING:	1042378.069	RAD TECH:	[redacted]



Gamma (γ) Survey:				
44-10 grd. Surf. (cpm)				
44-10 Bkgd (cpm)	5,718			
44-9	43-93			
βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)	
Background: 60	0	112	112	

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
	0.0 - 0.5		100	FILL; Black organic SILTY CLAY, fill at bottom, loose, dry	OL	ND	38	0	202	202
1	0.5-2.0		100	FILL; Dark Brown Silty fine to coarse gravel, loose, saturated	GM	ND	46	0	232	232
2				Brown Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
3	2.0-3.0		100	Brown gray @ 2'		ND	64	2	252	254
4				Bottom of borehole 3.0'						

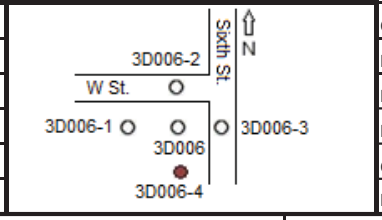
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D006-3

URS Corporation

TEST BORING LOG

		BORING NO:	3D006-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along north corner of Sixth St. and W St., ~20 south of 3D006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.87
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172467.203	GEOLOGIST:	[redacted]
EASTING:	1042350.975	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,252
44-10 Bkgd (cpm)	5,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	112	112
	0.0 - 0.5		100	FILL; Black Silty fine to med gravel (fill) loose, moist		ND	40	0	242	242
1	0.5-2.0		100	FILL; Black sandy Silty fine to coarse gravel (fill), loose, moist	GM	ND	54	0	264	264
2	2.0-3.0		100	Black Brown reworked SILTY CLAY, trace black wood particles, highly plastic, dense, moist	CL	ND	46	0	214	214
3				Bottom of borehole 3.0'						
4										

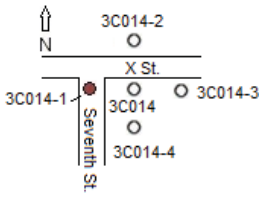
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3D006-4

URS Corporation

TEST BORING LOG

		BORING NO:	3C014-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located at intersection of Seventh St. and X St., ~50 west of 3C014
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172353.867	GEOLOGIST:	[redacted]
EASTING:	1042166.582	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	
44-10 Bkgd (cpm)	5,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	112	112
	0.0 - 0.5		100	FILL; Dark Brown organic Silty fine to med gravel, loose, moist	GM	ND	36	2	186	188
1	0.5-2.0		100			ND	44	2	238	240
2				FILL; Brown Gray SILTY CLAY, some fine to coarse gravel, dense, moist	CL					
3	2.0-3.0		100	Black Gray, some black wood particles, some fine to med gravel @ 2'		ND	40	0	230	230
4				Bottom of borehole 3.0'						

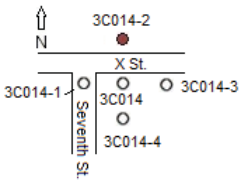
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3C014-1

URS Corporation

TEST BORING LOG

		BORING NO:	3C014-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located at intersection of Seventh St. and X St., ~50 north of 3C014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.21
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/11/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/11/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172388.753	**GEOLOGIST:**	[redacted]
EASTING:	1042191.071	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm)

44-10 Bkgd (cpm) 5,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	112	112
	0.0 - 0.5		100	Dark Brown Black Silty fine to med FILL, moist	SM	ND	52	0	240	240
1	0.5-2.0		100	Top 1.0' Yellowish Brown SILTY CLAY, some fine to coarse fill, pocket of wood particles, moist	CL	ND	54	0	264	264
2				Bottom 0.5' Gray Brown SILTY CLAY, trace organics, some fine gravel, dense, moist						
3	2.0-3.0		100	Black grades to Brown Gray at 3' SILTY CLAY, trace organics, some fine gravel, dense, moist		ND	42	0	204	204
4				Bottom of borehole 3.0'						

COMMENTS:

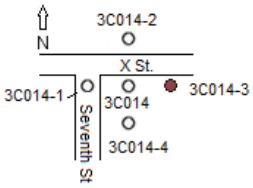
PROJECT NO. 11176991

BORING NO. 3C014-2

URS Corporation

TEST BORING LOG

		BORING NO:	3C014-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located at intersection of Seventh St. and X St., ~50 east of 3C014
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.11
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172355.446	GEOLOGIST:	[redacted]
EASTING:	1042221.915	RAD TECH:	[redacted]



Gamma (γ) Survey:	44-10 grd. Surf. (cpm)			
	44-10 Bkgd (cpm)	5,718		
	44-9	43-93		
	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
Background:	60	0	112	112

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	βγ (cpm)	α (cpm)	β (cpm)	Both (Gross cpm)
	0.0 - 0.5		100	Black organic sandy SILT, moist		ND	46	4	220	224
1	0.5-2.0		100	Black organic sandy SILTY CLAY, mod dense, moist	OL	ND	40	2	244	246
2				Gray SILTY CLAY, SAND lens at bottom, dense, moist	CL/SW					
3	2.0-3.0		100	Gray SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL	ND	44	0	250	250
4				Bottom of borehole 3.0'						

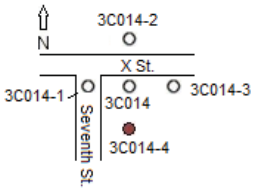
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3C014-3

URS Corporation

TEST BORING LOG

		BORING NO:	3C014-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located at intersection of Seventh St. and X St., ~50 south of 3C014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.82
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	12/11/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	12/11/2013
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172326.12	**GEOLOGIST:**	[redacted]
EASTING:	1042190.479	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 8,288; 44-10 Bkgd (cpm) 5,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	112	112
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, moist	OL	ND	30	2	178	180
1	0.5-2.0		100	Dark Brown SILTY CLAY, some organics, some fine gravel, moist Grades to gray brown, dense @ 1.5'	CL	ND	68	0	260	260
2	2.0-3.0		100	Trace organics @ 2'		ND	66	0	274	274
3				Bottom of borehole 3.0'						
4										

COMMENTS:

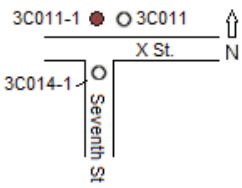
PROJECT NO. 11176991

BORING NO. 3C014-4

URS Corporation

TEST BORING LOG

		BORING NO:	3C011-1
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along north side of X St., ~50 north of 3C014-1, ~ 10' west of 3C011
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.44
SAMPLER:	3 in dia Macro core	DATE STARTED:	12/11/2013
DEPTH TO GW:	NA	DATE FINISHED:	12/11/2013
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172393.726	GEOLOGIST:	[redacted]
EASTING:	1042145.757	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6,716
44-10 Bkgd (cpm)	5,718

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	60	0	112	112
		0.0 - 0.5	100	FILL; Brown Black fine to coarse gravel, loose, moist	GW	ND	48	0	202	202
1		0.5-2.0	100	FILL; Dark Brown Silty fine to coarse gravel (fill), loose, moist	GM	ND	40	0	220	220
2				Black sandy SILTY CLAY, trace organics, mod dense, moist	CL					
3		2.0-3.0	100	Black, no sand, some organics @ 2' Gray, no organics, trace fine gravel @ 2.3'	CL	ND	30	2	194	196
4				Bottom of borehole 3.0'						

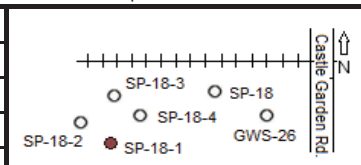
COMMENTS: Sampled for chem parameters only

PROJECT NO.	11176991
BORING NO.	3C011-1

URS Corporation

TEST BORING LOG

		BORING NO:	SP-18-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located west of Castle Garden Rd. and south of former railroad, ~160 southwest of SP-18
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.00
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/19/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/19/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1171945.68	**GEOLOGIST:**	[redacted]
EASTING:	1042193.94	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 12,524; 44-10 Bkgd (cpm) 9,198

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	224	224
	0.0 - 0.5		100	Brown organic SILT, soft, moist		2.6	78	6	292	298
1 2	0.5 - 2.0		50	Dark brown organic SILT, some clay, somewhat loose, moist	OL	ND	86	4	260	264
3	2.0 - 3.0		100	Reddish brown SILTY CLAY, coarse gravel at bottom, some organics, mod dense, moist		ND	46	0	250	250
4	3.0-4.0		100	3-4' Reddish brown SILTY CLAY, trace sand, dense, dry	CL	ND	74	2	264	266
5	4.0-5.0		100	4-4.5' Reddish brown gray SILTY CLAY, trace sand		ND	66	4	276	280
				4.5-5' Reddish brown sandy SILT, trace clay, moist	SM	ND				
				Bottom of borehole at 5 ft						

COMMENTS: Full instrument change-out (Ludlum 2221 with 44-10). Sampled 0-5' bgs. Insufficient volume for 4-5' interval, push down adjacent to hole and obtained additional volume for 4-5' interval

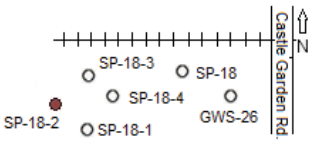
PROJECT NO. 11176991

BORING NO. SP-18-1

URS Corporation

TEST BORING LOG

		BORING NO:	SP-18-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located west of Castle Garden Rd. and south of former railroad, ~170 southwest of SP-18
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.60
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/19/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/19/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1171961.03	**GEOLOGIST:**	[redacted]
EASTING:	1042183.81	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 6,940; **44-10 Bkgd (cpm)** 9,198

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	224	224
	0.0 - 0.5		100	FILL; Black silty fine to coarse gravel, moist	GW	1.6	62	0	268	268
1	0.5 - 2.0		50	Black silty coarse GRAVEL, dry	GP	ND	46	0	226	226
2				Dark brown gray organic SILTY CLAY, some fine to medium gravel, mod dense, dry	OL					
3	2.0 - 3.0		100	Dark black SILTY CLAY, some organics, mod dense, dry	CL	ND	74	0	242	242
4	3.0-4.0		100	Brown gray, trace organics, dense @ 3'		ND	62	0	250	250
5	4.0-5.0		100			ND	66	2	286	288
				4.5-5' Reddish brown gray sandy SILT, wet	SM					
				Bottom of borehole at 5 ft						

COMMENTS: Sampled 0-5' bgs. Insufficient volume for 4-5' interval, push down adjacent to hole and obtained additional volume for 4-5' interval

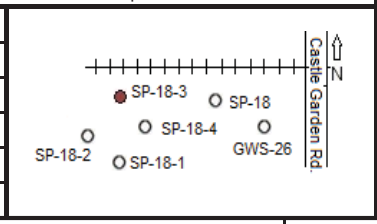
PROJECT NO. 11176991

BORING NO. SP-18-2

URS Corporation

TEST BORING LOG

		BORING NO:	SP-18-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located west of Castle Garden Rd. and south of former railroad, ~150 west of SP-18
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.65
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/19/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/19/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1171972.39	GEOLOGIST:	[redacted]
EASTING:	1042186.23	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,054
44-10 Bkgd (cpm)	9,198

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	46	0	224	224
	0.0 - 0.5		100	FILL; Dark brown black silty gravel, some organics, moist	GM	1.6	76	2	276	278
1	0.5 - 2.0		50			ND	58	0	240	240
2				Reddish brown gray SILTY CLAY, trace fine gravel, some organics, trace black staining at bottom, dense, dry	CL					
3	2.0 - 3.0		100	Reddish brown, trace organics @ 2'		ND	60	0	250	250
4	3.0-4.0		100	Yellowish Brown sandy SILTY CLAY, some organics @ 3'		ND	38	0	210	210
5	4.0-5.0		100	Brown Gray, no sand, some fine gravel @ 4'		ND	46	0	250	250
				Bottom of borehole at 5 ft						

COMMENTS: Sampled 0-5' bgs.

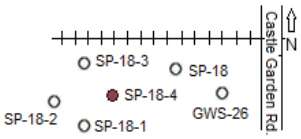
PROJECT NO. 11176991

BORING NO. SP-18-3

URS Corporation

TEST BORING LOG

		BORING NO:	SP-18-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located west of Castle Garden Rd. and south of former railroad, ~130 southwest of SP-18
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.83
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/20/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/20/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1171959.86	**GEOLOGIST:**	[redacted]
EASTING:	1042200.86	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm [redacted]
44-10 Bkgd (cpm) 7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	FILL; Dark brown silty fine to coarse gravel, moist	GM	ND	58	4	292	296
1	0.5 - 2.0		50		GM	ND	62	2	244	246
2				Dark brown SILTY CLAY, some fine to coarse gravel, some organics, dense, moist	CL					
3	2.0 - 3.0		100	Reddish brown, trace fine gravel, trace organics, damp @ 2'	CL	ND	46	0	286	286
4	3.0-4.0		100	Dark brown, some organics, plastic, mod dense, moist @ 3'	CL	ND	56	0	246	246
5	4.0-5.0		100	Yellowish brown, trace fine gravel, trace organics, dense, dry @ 4'	CL	ND	58	2	198	200
				Bottom of borehole at 5 ft						

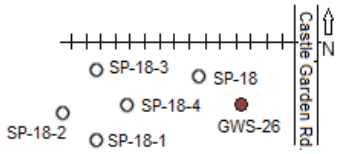
COMMENTS: Sampled 0-5' bgs.

PROJECT NO. 11176991
BORING NO. SP-18-4

URS Corporation

TEST BORING LOG

		BORING NO:	GWS-26
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located west of Castle Garden Rd. and south of former railroad, ~50 southeast of SP-18
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.25
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/20/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/20/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1171945.50	GEOLOGIST:	[redacted]
EASTING:	1042386.61	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	0
44-10 Bkgd (cpm)	7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist		21.4	582	0	2900	2900
1	0.5 - 2.0		100	0.5-1.0 Same as above	OL	ND	346	2	868	870
2				1-2' Brown SILTY CLAY, some organics, damp						
3	2.0 - 3.0		100	Brown Gray SILTY CLAY, trace organics, dense, moist	CL	ND	50	0	258	258
				Bottom of borehole at 3 ft						

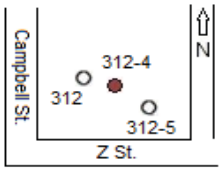
COMMENTS:

PROJECT NO.	11176991
BORING NO.	GWS-26

URS Corporation

TEST BORING LOG

		BORING NO:	312-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	East of Campbell St., north of Z St., ~20 east of 312
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.73
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/20/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/20/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172230.17	**GEOLOGIST:**	[redacted]
EASTING:	1041646.96	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	11,264
44-10 Bkgd (cpm)	7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	FILL; Dark brown organic SILTY CLAY, moist	CL	ND	64	0	328	328
1	0.5 - 2.0		100	FILL; Dark brown black organic silty fine gravel	GM	ND	48	2	306	308
2				Reddish brown gray SILTY CLAY, some organics, mod dense at bottom, moist						
3	2.0 - 3.0		100		CL	ND	50	0	252	252
				Bottom of borehole at 3 ft						

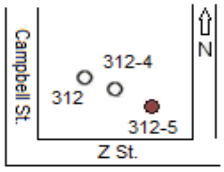
COMMENTS:

PROJECT NO.	**11176991**
BORING NO.	**312-4**

URS Corporation

TEST BORING LOG

		BORING NO:	312-5
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	East of Campbell St., north of Z St., ~40 southeast of 312
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	317.82
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/20/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/20/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172202.24	GEOLOGIST:	[redacted]
EASTING:	1041660.27	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	13,166
44-10 Bkgd (cpm)	7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	1.0	84	0	268	268
1	0.5 - 2.0		100	0.5-1.5' Same as above	OL	ND	62	4	242	246
2				1.5-2' Reddish brown SILTY CLAY, some organics, mod dense at bottom, moist	CL					
3	2.0 - 3.0		100	Reddish brown sandy SILTY CLAY, trace organics, mod dense, moist	CL	ND	66	0	274	274
				Bottom of borehole at 3 ft						

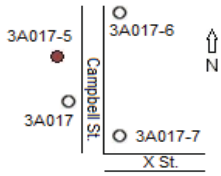
COMMENTS:

PROJECT NO.	11176991
BORING NO.	312-5

URS Corporation

TEST BORING LOG

		BORING NO:	3A017-5
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along west side of Campbell St.between O St. and X St., ~50 north of 3A017
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.03
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/20/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/20/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172471.48	GEOLOGIST:	[redacted]
EASTING:	1041511.25	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,620
44-10 Bkgd (cpm)	7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	FILL; Dark brown organic SILTY CLAY, moist	OL	ND	82	2	290	292
1 2	0.5 - 2.0		100	FILL; Light brown silty gravel, some clay, some organics, dry	GM	ND	82	2	298	300
3	2.0 - 3.0		100	Light brown silty GRAVEL, some clay	GM	ND	68	0	254	254
				Reddish brown SILTY CLAY, some coarse gravel, some organics, mod dense, dry	CL					
				Bottom of borehole at 3 ft						

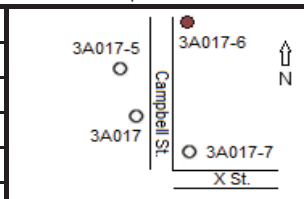
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3A017-5

URS Corporation

TEST BORING LOG

		BORING NO:	3A017-6
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St.between O St. and X St., ~90 northeast of 3A017
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.73
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/20/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/20/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172506.56	GEOLOGIST:	[redacted]
EASTING:	1041545.53	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	6
44-10 Bkgd (cpm)	7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	FILL; Dark brown organic SILTY CLAY, moist	OL	16.1	86	2	300	302
1	0.5 - 2.0		100	FILL; Light brown silty fine to coarse light green gray SLAG, dry	GM	ND	66	0	236	236
2	2.0 - 3.0		100	Yellowish brown SILTY CLAY, some organics, dense, moist	CL	ND	62	0	264	264
3				Bottom of borehole at 3 ft						

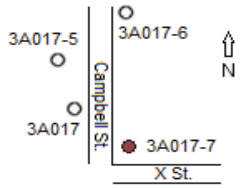
COMMENTS: Poor recovery at first attempt (hit gravel), moved 1' east for full recovery

PROJECT NO.	11176991
BORING NO.	3A017-6

URS Corporation

TEST BORING LOG

		BORING NO:	3A017-7
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Along east side of Campbell St.between O St. and X St., ~40 southeast of 3A017
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.77
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/20/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/20/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172405.80	GEOLOGIST:	[redacted]
EASTING:	1041550.26	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	12,552
44-10 Bkgd (cpm)	7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist		1.5	66	4	302	306
1 2	0.5 - 2.0		100	Dark brown organic SILTY CLAY, some fine to coarse gravel, more dense at bottom, dry	OL	ND	60	6	280	286
3	2.0 - 3.0		100	Yellowish brown SILTY CLAY, trace sand, trace fine gravel, trace organics, dry	CL	ND	50	0	294	294
				Bottom of borehole at 3 ft						

COMMENTS:

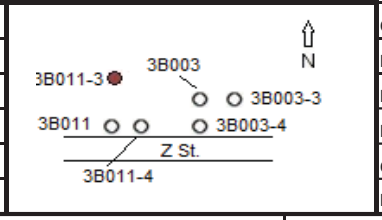
PROJECT NO. 11176991

BORING NO. 3A017-7

URS Corporation

TEST BORING LOG

		BORING NO:	3B011-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located north side of western end of Z St., ~25 north of 3B011
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.51
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/20/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/20/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172183.70	**GEOLOGIST:**	[redacted]
EASTING:	1041811.51	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,664; 44-10 Bkgd (cpm) 7,972

DEPTH (ft)	SAMPLE: RAD	SAMPLE: CHEM	SAMPLE: REC %	MATERIAL: DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	Dark brown black organic SILTY CLAY, moist		ND	54	4	220	224
1	0.5 - 2.0		100	Same as above, trace gravel, large tree roots at bottom	OL	ND	46	2	172	174
2										
3	2.0 - 3.0		100	Yellowish Brown Gray SILTY CLAY, sand lens at bottom, highly plastic, dense, moist	CL	ND	42	2	208	210
				Bottom of borehole at 3 ft						

COMMENTS: Mylar broke on instrument 2360. Samples were bagged and scanned and sampled on 6/21/14.

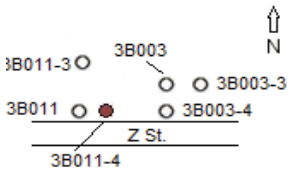
PROJECT NO. 11176991

BORING NO. 3B011-3

URS Corporation

TEST BORING LOG

		BORING NO:	3B011-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north side of western end of Z St., ~10 east of 3B011
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.77
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/20/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/20/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172162.60	GEOLOGIST:	[redacted]
EASTING:	1041852.47	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	7,236
44-10 Bkgd (cpm)	7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	FILL; Dark brown silty gravel, moist		2.5	82	2	322	324
1 2	0.5 - 2.0		100	Reddish brown grades to yellowish brown silty fine to coarse gravel, loose @ 0.5'	GM	ND	60	0	226	226
3	2.0 - 3.0		100	Yellowish brown SILTY CLAY, coarse gravel at top, dense, dry	CL	ND	40	2	310	312
				Bottom of borehole at 3 ft						

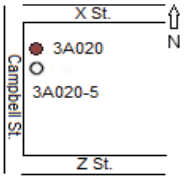
COMMENTS:

PROJECT NO.	11176991
BORING NO.	3B011-4

URS Corporation

TEST BORING LOG

		BORING NO:	3A020-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Along east side of Campbell St. between X St. and Z St., ~10 south of 3A020
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.68
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/20/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/20/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172325.37	**GEOLOGIST:**	[redacted]
EASTING:	1041542.23	**RAD TECH:**	[redacted]



Gamma (γ) Survey: **44-10 grd. Surf. (cpm)** 13,138; **44-10 Bkgd (cpm)** 7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	FILL; Dark brown SILTY CLAY, coarse gravel at bottom, moist	CL	ND	82	4	314	318
1	0.5 - 2.0		100			ND	56	0	282	282
2				FILL; Brown gray fine to medium green gray silty SLAG, dry	GM					
3	2.0 - 3.0		100	Reddish brown gray SILTY CLAY, reddish brown sand lens at bottom, moist	CL/SP	ND	56	2	270	272
				Bottom of borehole at 3 ft						

COMMENTS:

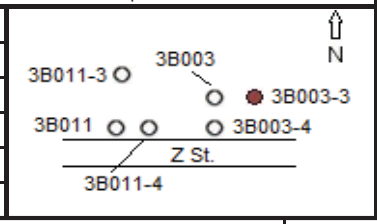
PROJECT NO. 11176991

BORING NO. 3A020-5

URS Corporation

TEST BORING LOG

		BORING NO:	3B003-3
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located north side of Z St., east of 3B011, ~10 east of 3B003
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	318.77
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/23/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/23/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172170.51	GEOLOGIST:	[redacted]
EASTING:	1041863.24	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	10,370
44-10 Bkgd (cpm)	7,972

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	34	0	204	204
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, moist	OL	ND	70	12	212	224
1	0.5 - 2.0		100	0.5-1' Same as above	OL	ND	72	4	172	176
2				1-2' Reddish Brown to Brown Gray at bottom SILTY CLAY, trace sand, some organics, more dense at bottom, moist	CL					
3	2.0 - 3.0		100	Reddish Brown Gray SILTY CLAY, trace organics, dense, dry	CL	ND	68	0	150	150
				Bottom of borehole at 3 ft						

COMMENTS: Instrument 2360 not working properly, samples were bagged and scanned and sampled on 6/24/14 with replacement meter.

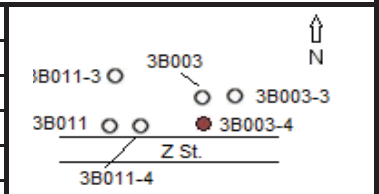
PROJECT NO. 11176991

BORING NO. 3B003-3

URS Corporation

TEST BORING LOG

		BORING NO:	3B003-4
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located north side of Z St., east of 3B011, ~10 south of 3B003
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	0.00
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/23/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/23/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172164.96	**GEOLOGIST:**	[redacted]
EASTING:	1041852.20	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 7,346; 44-10 Bkgd (cpm) 7,816

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	106	106
	0.0 - 0.5		100	FILL; Dark brown organic SILTY CLAY, moist	OL	ND	66	4	176	180
1	0.5 - 2.0		100	FILL; Dark brown SILTY CLAY, fine gravel at bottom, moist	CL	ND	52	2	198	200
2				FILL; Brown silty fine to coarse gravel, loose, wet	GM					
3	2.0 - 3.0		100	Reddish brown clay at bottom		ND	52	0	148	148
				Bottom of borehole at 3 ft						

COMMENTS: Instrument 2360 not working properly, bagged all intervals, scanned samples with new meter on 6/24/14

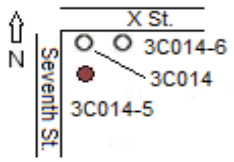
PROJECT NO. 11176991

BORING NO. 3B003-4

URS Corporation

TEST BORING LOG

		BORING NO:	3C014-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located at intersection of Seventh St. and X St., ~15 south of 3C014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.20
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/23/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/23/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172348.72	**GEOLOGIST:**	[redacted]
EASTING:	1042190.53	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 7,904; 44-10 Bkgd (cpm) 7,816

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	106	106
	0.0 - 0.5		100	Dark brown organic SILTY CLAY, wood pieces throughout, moist	OL	3.1	70	4	162	166
1 2	0.5 - 2.0		100	Same as above, more dense at bottom, moist	OL	ND	40	0	148	148
3	2.0 - 3.0		100	Yellowish brown SILTY CLAY, trace organics, some sand at bottom, mod dense, moist	CL	ND	46	0	144	144
				Bottom of borehole at 3 ft						

COMMENTS: Instrument 2360 not working properly, bagged all intervals, scanned samples with new meter on 6/24/14

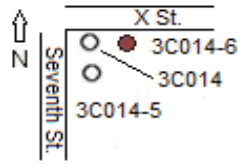
PROJECT NO. 11176991

BORING NO. 3C014-5

URS Corporation

TEST BORING LOG

		BORING NO:	3C014-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located at intersection of Seventh St. and X St., ~15 east of 3C014
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	318.62
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/23/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/23/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172357.02	**GEOLOGIST:**	[redacted]
EASTING:	1042202.82	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,396; 44-10 Bkgd (cpm) 7,816

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	106	106
	0.0 - 0.5		100	FILL; Dark brown organic SILTY CLAY, moist	OL	ND	46	4	216	220
1	0.5 - 2.0		100			ND	62	0	228	228
2				FILL; Yellowish brown SILTY CLAY, some organics, trace wood pieces, mod dense at bottom, moist, grades to dark brown at ~1.5'	CL					
3	2.0 - 3.0		100	Yellowish brown SILTY CLAY, trace organics, some coarse sand at bottom, mod dense, moist		ND	46	2	210	212
				Bottom of borehole at 3 ft						

COMMENTS: Instrument 2360 not working properly, bagged all intervals, scanned samples with new meter on 6/24/14

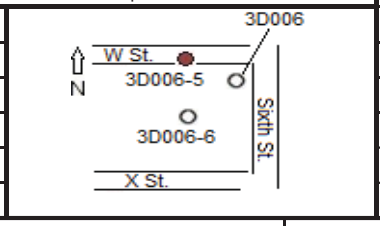
PROJECT NO. 11176991

BORING NO. 3C014-6

URS Corporation

TEST BORING LOG

		BORING NO:	3D006-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along north corner of Sixth St. and W St., ~40 northwest of 3D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.36
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/23/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/23/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172498.75	**GEOLOGIST:**	[redacted]
EASTING:	1042317.90	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 6,850; 44-10 Bkgd (cpm) 7,816

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	106	106
		0.0 - 0.5	100	FILL; Dark brown silty medium to coarse gravel, damp	GM	3.9	66	2	174	176
1		0.5 - 2.0	100	Reddish brown sandy silty gravel, wet @ 1'	GM	ND	58	0	154	154
2				Dark brown SILTY CLAY, trace organics, mod dense, damp	CL					
3		2.0 - 3.0	100	Reddish brown to brownish gray and trace organics @ 2' Fine sand leanse and wet @ 3'	CL	ND	48	2	164	166
				Bottom of borehole at 3 ft						

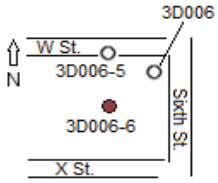
COMMENTS: Instrument 2360 not working properly, bagged all intervals, scanned samples with new meter on 6/24/14
Sampled for chemical parameters

PROJECT NO. 11176991
BORING NO. 3D006-5

URS Corporation

TEST BORING LOG

		BORING NO:	3D006-6
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Located along north corner of Sixth St. and W St., ~40 southwest of 3D006
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.09
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/23/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/23/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172500.68	**GEOLOGIST:**	[redacted]
EASTING:	1042297.96	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	8,746
44-10 Bkgd (cpm)	7,816

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	106	106
		0.0 - 0.5	100	FILL; Dark brown silty medium to coarse gravel, damp	GM	3.7	56	0	192	192
1		0.5 - 2.0	100	FILL; Dark brown grades to medium brown silty medium to coarse gravel, loose, dry FILL; Black fine sandy gravel, loose, dry	GM	ND	54	0	146	146
2				Dark brown to yellowish brown at bottom SILTY CLAY, trace organics, more dense at bottom, dry	CL					
3		2.0 - 3.0	100	Trace medium gravel, no organics @ 2'	CL	ND	50	2	196	198
				Bottom of borehole at 3 ft						

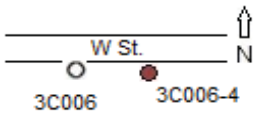
COMMENTS: Instrument 2360 not working properly, bagged all intervals, scanned samples with new meter on 6/24/14
Sampled for chemical parameters

PROJECT NO. 11176991
BORING NO. 3D006-6

URS Corporation

TEST BORING LOG

		BORING NO:	3C006-4
PROJECT:	NFSS BOP Delineation Investigation	SHEET:	1 of 1
CLIENT:	USACE	JOB NO.:	11176991
BORING CONTRACTOR:	Russo Development	BORING LOCATION:	Located along W St., ~30' east of 3C006
RIG TYPE:	AMS-9500 VTR	GROUND ELEVATION:	319.03
SAMPLER:	3 in dia Macro core	DATE STARTED:	6/23/2014
DEPTH TO GW:	NA	DATE FINISHED:	6/23/2014
AREA:	EU8	DRILLER:	[redacted]
NORTHING:	1172491.89	GEOLOGIST:	[redacted]
EASTING:	1042121.93	RAD TECH:	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,800
44-10 Bkgd (cpm)	7,816

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	0	106	106
		0.0 - 0.5	100	FILL; Reddish brown SILTY CLAY, mod plastic, moist	CL	ND	78	2	190	192
1		0.5 - 2.0	100	Asphalt like material @ 0.9'-1'	CL	ND	56	0	230	230
2				Dark brown SILTY CLAY, trace organics, mod plastic, mod dense, dry	CL/SP					
3		2.0 - 3.0	100	Reddish brown coarse SAND, loose, wet	SP	ND	36	0	182	182
				Reddish brown SILTY CLAY, dense, dry	CL					
				Bottom of borehole at 3 ft						

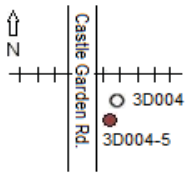
COMMENTS: Instrument 2360 not working properly, bagged all intervals, scanned samples with new meter on 6/24/14
Sampled for chemical parameters

PROJECT NO. 11176991
BORING NO. 3C006-4

URS Corporation

TEST BORING LOG

		BORING NO:	3D004-5
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	North end of Castle Garden Rd., near former railroad, ~10' southwest of 3D004
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	319.88
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	6/23/2014
DEPTH TO GW:	NA	**DATE FINISHED:**	6/23/2014
AREA:	EU8	**DRILLER:**	[redacted]
NORTHING:	1172398.01	**GEOLOGIST:**	[redacted]
EASTING:	1042513.62	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 10,426; 44-10 Bkgd (cpm) 7,746

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	38	2	116	118
	0.0 - 0.5		100	FILL; Dark brown organic SILTY CLAY, moist	CL	ND	56	12	220	232
1	0.5 - 2.0		100	FILL; Dark brown silty gravel (fill), some organics, loose	GM	ND	62	4	232	236
2				Yellowish brown SILTY CLAY, trace organics, mod plastic, more dense at bottom, moist	CL					
3	2.0 - 3.0		100	Reddish brown gray @ 2'		ND	54	0	180	180
				Bottom of borehole at 3 ft						

COMMENTS: Instrument 2360 not working properly, bagged all intervals, scanned samples with new meter on 6/24/14

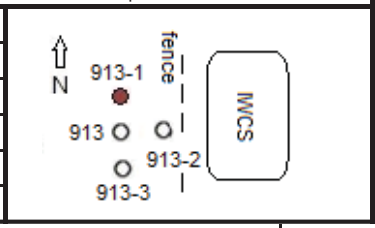
PROJECT NO. 11176991

BORING NO. 3D004-5

URS Corporation

TEST BORING LOG

		BORING NO:	913-1
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Outside the fence line west of IWCS, bordering on Niagara Mohawk property, ~10' N of 913
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.06
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU9	**DRILLER:**	[redacted]
NORTHING:	1171048.112	**GEOLOGIST:**	[redacted]
EASTING:	1040427.670	**RAD TECH:**	[redacted]



Gamma (γ) Survey: 44-10 grd. Surf. (cpm) 9,886; 44-10 Bkgd (cpm) 6,540

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	2	122	124
	0.0 - 0.5		100	Brown organic SILTY CLAY, wet	OL	ND	62	0	204	204
1	0.5 - 2.0		100	Brown SILTY CLAY, trace organics, some fine gravel, moist Grades to gray, dense @ 1.5'	CL	ND	64	0	186	186
2	2.0 - 3.0		100	Brown Gray @ 2'		ND	44	4	224	228
3				Bottom of borehole 3 ft						

COMMENTS: Located outside fence line, west of IWCS

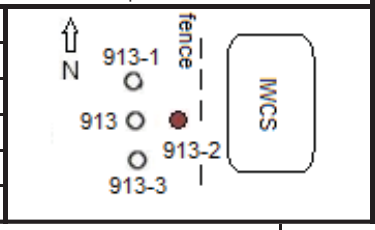
PROJECT NO. 11176991

BORING NO. 913-1

URS Corporation

TEST BORING LOG

		BORING NO:	913-2
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Outside the fence line west of IWCS, bordering on Niagara Mohawk property, ~10' E of 913
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	317.69
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU9	**DRILLER:**	[redacted]
NORTHING:	1171028.672	**GEOLOGIST:**	[redacted]
EASTING:	1040443.437	**RAD TECH:**	[redacted]



Gamma (γ) Survey:	
44-10 grd. Surf. (cpm)	9,692
44-10 Bkgd (cpm)	6,540

DEPTH (ft)	SAMPLE RAD	SAMPLE CHEM	SAMPLE REC %	MATERIAL DESCRIPTION	USCS	PID	44-9 βγ (cpm)	43-93 α (cpm)	43-93 β (cpm)	43-93 Both (Gross cpm)
						Background:	52	2	122	124
	0.0 - 0.5		100	Dark Brown organic SILTY CLAY, wet	OL	ND	62	0	158	158
1	0.5 - 2.0		100	Brown SILTY CLAY, some-trace organics, some fine gravel, dense, moist Grades to gray @ 1.5'	CL	ND	52	0	214	214
2	2.0 - 3.0		100			ND	46	2	202	204
3				Bottom of borehole 3 ft						

COMMENTS: Located outside fence line, west of IWCS

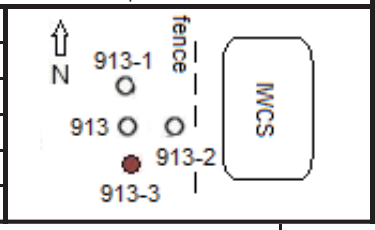
PROJECT NO. 11176991

BORING NO. 913-2

URS Corporation

TEST BORING LOG

		BORING NO:	913-3
PROJECT:	NFSS BOP Delineation Investigation	**SHEET:**	1 of 1
CLIENT:	USACE	**JOB NO.:**	11176991
BORING CONTRACTOR:	Russo Development	**BORING LOCATION:**	Outside the fence line west of IWCS, bordering on Niagara Mohawk property, ~10' S of 913
RIG TYPE:	AMS-9500 VTR	**GROUND ELEVATION:**	316.51
SAMPLER:	3 in dia Macro core	**DATE STARTED:**	11/18/2013
DEPTH TO GW:	NA	**DATE FINISHED:**	11/18/2013
AREA:	EU9	**DRILLER:**	[redacted]
NORTHING:	1171017.058	**GEOLOGIST:**	[redacted]
EASTING:	1040429.221	**RAD TECH:**	[redacted]



Gamma (γ) Survey:							**44-10 grd. Surf. (cpm)**	8,614		
							44-10 Bkgd (cpm)	6,540		
DEPTH (ft)	**SAMPLE**			**MATERIAL**			**44-9**	**43-93**		
	RAD	**CHEM**	**REC %**	**DESCRIPTION**	**USCS**	**PID**	**βγ (cpm)**	**α (cpm)**	**β (cpm)**	**Both (Gross cpm)**
						Background:	52	2	122	124
	0.0 - 0.5		100	Brown SILTY SAND, some organics, trace fine gravel, wet		ND	56	2	162	164
1	0.5 - 2.0		100	Brown Gray SILTY SAND, some organics, some fine gravel, dense, moist	SM	ND	56	0	182	182
2										
	2.0 - 3.0		100	2-2.5': SAND lens	SW	ND	54	2	144	146
3				2.5-3': Gray Brown SILTY CLAY, trace organics, trace fine gravel, dense, moist	CL					
				Bottom of borehole 3 ft						

COMMENTS: Located outside fence line, west of IWCS. Moved location ~4.5' south of orignal location due to culvert

PROJECT NO. 11176991

BORING NO. 913-3