ATLANTIC COAST PIPELINE, LLC ATLANTIC COAST PIPELINE

and

DOMINION TRANSMISSION, INC. SUPPLY HEADER PROJECT

Supplemental Filing January 27, 2017

APPENDIX A

Cochran's Cave Conservation Area Investigation Update

Dominion Resources Services, Inc. 5000 Dominion Boulevard, Glen Allen, VA 23060



January 24, 2017

BY ELECTRONIC MAIL

Mr. Jason Bulluck Natural Heritage Director Department of Conservation and Recreation Division of Natural Heritage 600 East Main Street, 24th Floor Richmond, VA 23219

Ms. S. Rene' Hypes Project Review Coordinator Department of Conservation and Recreation Division of Natural Heritage 600 East Main Street, 24th Floor Richmond, VA 23219

Re: Atlantic Coast Pipeline - Cochran's Cave Conservation Area Report

Dear Mr. Bulluck and Ms. Hypes:

On behalf of Atlantic Coast Pipeline, LLC (Atlantic) and Dominion Transmission, Inc. (DTI), attached for your review please see the *Cochran's Cave Conservation Area (CCCA) and Moffett Lake Investigation Update* prepared by GeoConcepts Engineering, Inc. for the proposed Atlantic Coast Pipeline (ACP) project.

The report provides a discussion and the results of the subsurface investigation conducted by GeoConcepts to assess the potential for impacts resulting from construction of the ACP. The investigation was conducted in consultation with DCR and included Electrical Resistivity Imaging, Air Track Drilling, and hydrological and dye trace investigations.

Atlantic requests your review and comment on the attached report, including DCR's comments on the viability of the proposed route alignment. Please note that Atlantic is also submitting to DCR under separate cover letter a revised *Karst Terrain Assessment, Construction, Monitoring and Mitigation Plan* (Plan) prepared for the proposed Atlantic Coast Pipeline (ACP) project. This Plan thoroughly addresses the assessment, monitoring and mitigation activities being implemented through areas of karst terrain, including Cochran's Cave Conservation Area.

Virginia Department of Conservation and Recreation Atlantic Coast Pipeline – Review of Karst Terrain Assessment, Construction, Monitoring and Mitigation Plan June 24, 2016 Page 2 of 2

Thank you for your careful review and evaluation of this report. Atlantic and DTI would appreciate a response within 30 days of receipt of this letter. We are also available to meet with you concerning this matter at your convenience.

Please feel free to contact me at (804) 273-3010 or robert.m.bisha@dom.com, if you have questions or to arrange a meeting. Please direct written responses to richard.b.gangle@dom.com or:

Richard B. Gangle Dominion Resources Services, Inc. 5000 Dominion Boulevard Glen Allen, Virginia 23060

Sincerely,

Roberton Biston

Robert M. Bisha Technical Advisor, Atlantic Coast Pipeline

Attachment: Cochran's Cave Conservation Area (CCCA) and Moffett Lake Investigation Update

cc: Wil Orndorff – DCR Richard Gangle



19955 Highland Vista Dr., Suite 170 Ashburn, Virginia 20147 (703) 726-8030 www.geoconcepts-eng.com

Memorandum

Date:	January 20, 2017

To: Mr. Colin Olness, PE Atlantic Coast Pipeline - Construction

From: Mr. Robert K. Denton Jr., CPG, LPSS

Subject: CCCA and Moffett Lake Investigation Update (Our 11002.04)



GeoConcepts Engineering, Inc. (GeoConcepts) has prepared this memorandum to summarize ongoing investigations to assess possible impacts of the construction of the Dominion Atlantic Coast Pipeline (ACP) to the Cochran's Cave Conservation Area (CCCA) and the karst groundwater recharge to Moffett Lake. The memorandum briefly summarizes the preliminary results of the subsurface investigation (Electrical Resistivity Imaging and Air Track Drilling), hydrological investigation, and dye trace results.

Project Description

The CCCA is a conservation area which has been delineated by the Virginia Department of Conservation and Recreation – Natural Heritage Program (DCR-NHP) in an effort to protect Cochran's Cave No. 2, considered a "Significant Cave" due to its hydrology (a perennial stream), and geological and aesthetic features (well-developed speleothems). Cochran's Cave No. 2 (CC2) is also a potential habitat locality for the Madison Cave Isopod (MCI), designated as a rare, threatened and endangered species (RTES) by the US Fish and Wildlife Service (USFWS). The CCCA encompasses a broad, shallow swale, approximately 1.4 miles in length and 0.75 mile in width at its widest point. The extent of the CCCA and current proposed route of the ACP are shown on Figure 1, Attachment A.

The Dominion ACP alignment was previously planned to cross over the underground course of CC2, but was subsequently rerouted to the south to avoid the cave. However, the currently proposed alignment passes across a broad, shallow "closed depression"¹ containing four sinkholes, one of which contains the vertical entrance to Cochran's Cave No. 3 (CC3). The depression is internally drained by these sinkholes. A map of this area is included as Figure 2, Attachment A. A LIDAR hillshade raster image showing the locations of the various sinkholes is included as Figure 3, Attachment A.

Subsurface Investigation

Electrical Resistivity Imaging (ERI)

An ERI survey was conducted at the site on October 4 - 5, 2016. The survey consisted of five arrays or "lines", consisting of 84 electrodes at a 5 foot spacing with each array being 415 feet long. The five arrays were positioned parallel to one another, spaced 10 feet apart, and extended from the fence at the Route 11 (western) end of the closed depression and extending towards the southeast (see Figure 4, Attachment A). The arrays were numbered 1 through 5, with the central array (ERI 3) running directly over the centerline for 185 feet, at which point the proposed centerline turned towards the east-northeast. The ERI survey soundings were performed using the "dipole-dipole" method, the practice standard for ERI surveys in karst.

¹This so-called "closed depression" is actually a spur to the principal swale encompassed by the CCCA, and was only "closed" by the construction of modern Route 11, based on the examination of historic topographic maps. Nevertheless, the closed depression as it is currently configured is internally drained, and must be accounted for in the overall assessment of the CCCA hydrogeology.



The parallel arrangement of the arrays allowed GeoConcepts to analyze both 2D ERI scans for the individual arrays, and also to combine them to create a 3D Pseudo-section image of any subsurface "anomalies" (i.e. air, water, or soil-filled voids in the bedrock). Figure 5, Attachment A shows the location of the most significant anomaly detected during this survey as seen from above. Based on the analyses of the 2D and 3D scans (Figures 1 - 7, Attachment B) the anomaly was located at a depth (>20 feet below existing grade) which would not be expected to impact the pipeline excavation.

Air Track Borings

In order to calibrate the data from the ERI scans, and investigate the possible anomaly, a series of air track borings were advanced along the proposed centerline (concurrent with ERI 3). The boring locations are included as Figure 6, Attachment A. No significant air-filled voids between the surface and 25 feet below grade were intercepted by the borings. The area of the closed depression along Route 11 crossed by the proposed centerline was underlain entirely by soil to a depth greater than 25 feet below grade. The only significant air-filled voids were intercepted by boring B-21, at 20 to 23 feet, and 28 to 36 feet below grade. Both voids were overlain by 13 feet of solid carbonate bedrock to within 7 feet of the surface. Boring B-21 is located north of the proposed centerline, and the depth of the voids would not be expected to impact the pipeline or be intercepted by the trench excavation. Boring logs are included as Attachment C. The air track boreholes were backfilled with cuttings, but any boring that intercepted an open void was grouted shut above the void.

Hydrological Investigation

Moffett Lake is supplied with water from a perennial spring emerging from a small cavern (Figure 1). It has been inferred that the Cave Spring is hydrologically connected to a subterranean stream in Cochran's Cave No. 2 (located 168 feet west of the spring); however, an actual connection has not been established by dye trace (the practice standard for groundwater monitoring in karst). The cave entrance is 38 vertical feet above the spring; however, the elevation of the cave stream has not been determined at this time.



Figure 1. Photograph of the spring cavern

In order to characterize the hydrology of the lake's water supply and its source, measurements were performed of the flow rate of the spring and the lake. The measurements were obtained on October 18, 2016.



Figure 7, Attachment A shows the selected monitoring points, one downstream from the Cave Spring ("Spring Run"), and a second downstream from the outfall of the lake ("Lake Outfall").

The flow rate was calculated by determining the cross-sectional area of the channels at the monitoring points, and then measuring the flow velocity in feet/second using a Global Water[™] FP-101 automated flow probe.

Flow rate was then calculated using the following equation:

FLOW RATE (cubic ft/sec) = cross section area (sq. feet) x velocity (ft/sec)

The rate in cubic ft/sec was then converted to gallons per minute (gpm). The data collected during the monitoring event is shown on Table 1.

Monitoring Point ID	Channel x-section (sq. feet)	Avg. Current Velocity (ft/sec.)	Flow Rate (cu ft./sec)	Flow Rate (gpm)
Spring Run	0.256	0.5	0.128	57
Lake Outfall	0.506	0.4	0.202	91

Table 1. Stream Flow Monitoring Results – October 18, 2016 Monitoring Event

Based on these data, it would appear that Moffett Lake is being supplied with water from both the Cave Spring and an additional source as well (most likely subsurface springs). During the site reconnaissance a swale cutting into the hillside was observed extending perpendicular to the west end of Moffett Lake. LIDAR bare earth imagery indicated the presence of at least three sinkholes along this swale, suggesting that it may have developed along a solution-enlarged fracture lineament (Figure 8, Attachment A). These types of structures frequently channel groundwater to springs, and this could be one possible source for the extra recharge being supplied to Moffett Lake.

It should also be noted that during the construction of I-81 in the 1960s, a quarry was excavated southeast of Moffett Lake, and 600 feet due east from the Cave Spring. A second spring (now dry) formerly supplied water to Moffett Lake as well, and its outfall channel can clearly be observed on Figure 8. This spring reportedly ceased to flow during the quarrying operations, and has been dry ever since. The Old Spring rise is located 80 feet east of the Cave Spring, and is located in what now appears to be a sinkhole. The water reportedly rose up from the center of the depression. The fact that the Cave Spring was not affected by the quarrying activities, and the "Old Spring" was, suggests that the karst aquifer in this area is compartmentalized into discreet sub-aquifers, a common occurrence in karst terrains.

GeoConcepts returned on January 5, 2017 to measure the flow rate of the cave stream compared to the spring run. Results are shown on Table 2.

Monitoring Point ID	Channel x-section (sq. feet)	Avg. Current Velocity (ft/sec.)	Flow Rate (cu ft./sec)	Flow Rate (gpm)
Cave Stream	0.146	1.02	0.148	66
Spring Run	0.256	0.70	0.180	81

Table 2. Flow Monitoring Results – January 5, 2017 Monitoring Event

Based on these data the cave stream is gaining 15 gpm of flow between the terminal sump in the cave and where the spring run emerges from the cave shown in Figure 1.



Dye Trace Investigation

A dye trace was conducted at the Moffett Property in an effort to verify the inferred hydrological connection of the stream in Cochran's Cave No. 2 and the stream emerging from the spring cavern. Background sampling of the water was conducted on November 12 - 13, 2016 to check for any possible dye contamination in the water. Charcoal packets were placed in the stream just outside the cave and allowed to sit in the water flow overnight. Twenty-four hours later the charcoal packets were collected along with grab samples of water, placed into a chilled cooler and shipped to Ozark Underground Laboratory for testing. No Eosine dye was detected in the background samples.

On December 1, 2016 one pound of Eosine dye was place in the cave stream just upstream from the terminal sump. Dye packets and grab samples were collected from just inside the opening of the cave spring. Dye was detected in the spring run approximately two hours after placement, with the highest concentration detected approximately 4 hours after the dye was introduced into the cave stream. Based on the straight line distance from the introduction point to the sampling point (214 feet), the first arrival of dye traveled at a velocity of 2,568 ft/day, and the principle "slug" of dye traveled at a velocity of 1,284 ft/day, suggesting direct conduit flow and a relatively steep hydraulic gradient. The dye trace verified there is a hydrologic connection between the cave stream and the spring.

Hydrological Recording Instrument Placement

Hydrological data loggers were installed in the cave stream in Cochran's Cave No. 2 in a pool approximately 20 feet upstream from the terminal sump on December 20, 2016. The loggers are monitoring water depth, conductivity, and turbidity. The water level and conductivity loggers were placed in slotted PVC pipes mounted to the cavern wall, and the turbidity logger was suspended from a cable mounted on the passage roof (see Figure 2). Instruments were installed and mounted based on guidance received from Wil Orndorff of the Virginia Division of Conservation and Recreation – Natural Heritage Program. Data will be collected on a monthly basis until the completion of construction.



Figure 2. Installed Data Loggers



General Limitations

The investigations summarized in this memorandum were performed in accordance with generally accepted geologic and geotechnical engineering practices. No warranties, expressed or implied, are made as to the professional services summarized in this memorandum.

Attachment A, Figures 1 – 8 (8 pages) Attachment B, Figures 1 – 7 (7 pages) Attachment C, Boring Logs (23 pages) Attachment D, Laboratory Certificate of Analysis and Chain of Custody Documentation (8 pages)

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Attachment A

Figures 1 – 8 (8 pages)



















Attachment B

Figures 1 – 7 (7 pages)



Inverted Resistivity Section Line 1

Inverted Resistivity Section Line 2



FIGURE 1. ERI Lines 1 and 2



Inverted Resistivity Section Line 3





FIGURE 2. ERI Lines 3 and 4

West



Inverted Resistivity Section Line 5

FIGURE 3. ERI Line 5

3D Resistivity Contour Plot



FIGURE 4. 3D Pseudosection, Oblique View

West

3D Resistivity Contour Plot



FIGURE 5. 3D Pseudosection, x-section view looking north

3D Resistivity Contour Plot



FIGURE 6. 3D Pseudosection, plan view

Inverted Resistivity Image



FIGURE 7. 3D Pseudosection, inverted resistivity image – oblique view



Attachment C

Boring Logs (23 pages)



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PROJECT	t nume	BER:	Dominion	GROUND SURFACE ELEVATION (ft):	: DRILLING METHOD:	0FFSET NO	/ 12/16 TES:	5 - 10/12/16
	1100	2 04	task 6					
							S	OIL
DEPTH (ft)	STRATUN	GRAPHIC		MATERIAL DESCRIPT	ΓΙΟΝ	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANC (BPF) 20 40 60 80
5-			SOIL					
- - 10								
- 15 -								
20			DOOL					
-			ROCK					
25			- - - -					
30			Bottom of E	3oring at 28.0 ft				
35								
40								
45-								
REMARK	<u>S:</u>						0.	
REMARK	.5:							

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 f

	igineer	ing, inc.	Ashburn, Virginia 201	147	703	3-726-8032 fax
PROJECT:			LOGGED BY:		BORI	NG NUMBER:
	Moffett Lake an	nd Cochran's Cave	B. Weinmann			D 40
LOCATION:			DRILLING CONTRACTOR:	B-10		
			GeoConcepts Engine	ering		SHEET 1 OF 1
OWNER/CLIENT:			DRILLER:	DATES DRILI	ED:	
	Dominion	Transmission		10/	12/16	6 - 10/12/16
PROJECT NUMBER	R:	GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NOT	ES:	
11002.	04, task 6	NOT SURVEYED				
≥	<u>ں</u>				S	
STRATU STRATU STRATU	GRAPHI	MATERIAL DESCRIPTIO	Ν	SPT BLOW COUNTS	REC (in)	PENETRATION TEST RESISTANC (BPF)
_	SOIL					20 40 60 80
	ROCK	Boring at 35.0 ft				
40-		J				
GROUND WATER	LEVELS:			SAMPLE TYF	ÈS:	
REMARKS:						



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 f

	Engine	eennų	y, mc.	Ashburn, Virg	inia 20147	703	3-726-8032 faz
PROJECT:				LOGGED BY:		BORI	NG NUMBER:
	Moffett I	_ake and Co	ochran's Cave	B. Wein	nmann		D 44
LOCATION:				DRILLING CONTRACTOR:			B-11
				GeoConcepts	Engineering		SHEET 1 OF 1
OWNER/CLIE	NT:			DRILLER:	DATES DRIL	LED:	0.1221 1 0.1 1
	Dor	ninion Tran	smission		10	/12/16	5 - 10/12/16
PROJECT NU	IMBER:	GR	OUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NO	TES:	10,12,10
11	002 04 tack 6						
	002.04, lask 0		NOTSORVETED			S	OIL
DEPTH (ft) SAMPLE	GRAPHIC		MATERIAL DESCRIPTION	N	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTAN (BPF)
5- - - - - - - - - - - - - - - - - - -	TER LEVELS:	CK	g at 30.0 ft		SAMPLE TY	PES:	
REMARKS:							



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 fax

PROJECT:			LOGGED BY:	BO	RING NUMBER:
Ν	/loffett Lake and	d Cochran's Cave	B. Wein	mann	
LOCATION:			DRILLING CONTRACTOR:		B-12
			GeoConcepts	Engineering	SHEET 1 OF 1
OWNER/CLIENT:			DRILLER:	DATES DRILLED:	:
	Dominion T	ransmission		10/12/	16 - 10/12/16
PROJECT NUMBER:		GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NOTES:	
11002.04	. task 6	NOT SURVEYED			
					SOIL
SAMPLE SAMPLE STRATUN	5	MATERIAL DESCRIPTION	N	SPT BLOW COUNTS	E STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80
5 - 10 - 10 - - - - - - - - - - - - -	SOIL ROCK Bottom of Bo	oring at 34.0 ft			
GROUND WATER LE	VELS:			SAMPLE TYPES:	
REMARKS.					
THE STRATIFICATIO	N LINES REPRESEN	IT APPROXIMATE BOUNDARIES. THE TF	RANSITION MAY BE GRADUAL.		



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 fax

PROJE	CT:					LOGGED BY:		BORIN	IG NUME	BER:
			Mo	ffett I ake and (Cochran's Cave	B Wein	mann			
LOCAT	ION:		1010			DRILLING CONTRACTOR:			B -'	13
						CooConcento Engineering				
OWNE	R/CLI	FNT [.]						FD [.]	SHEET	1 OF 1
onne							B, TEO BITTE			
			D .	Dominion Tra				12/16	- 10/12	2/16
PROJE		UNBE	к.		GROUND SURFACE ELEVATION (II).	DRILLING METHOD.	OFFSET NOT	E9.		
	11	1002.	04, t	ask 6	NOT SURVEYED					
	щ	Σ	<u>ں</u>					SC	DIL ST	
DEPTH (ft)	SAMPL TYPE	STRATL	GRAPH		MATERIAL DESCRIPTIC	DN	SPT BLOW COUNTS	REC (in)	PEN TEST F	ETRATION RESISTANCE (BPF)
				SOIL					20 4	<u>40 60 80</u>
-				0012						
5-										
-										
10 -										
-	1									
15]									
-										
20-										
25 —										
-										
30 —										
-										
35										
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40 -										
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45 -										
-										
50 —	1									
-										
55 -										
-										
60 -										
-										
65 —										
-										
-		****		Bottom of Bor	ring at 68.0 ft					
GRUUI		AIER	LEVE	_0.			SAMPLE TYP	⊏5:		
REMAR	RKS:									



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032

		, , ,		
ROJECT:		LOGGED BY:		BORING NUMBER:
Moffett Lake an OCATION:	d Cochran's Cave	B. Weinm DRILLING CONTRACTOR:	nann	B-14
		GeoConcepts E	ngineering	SHEET 1 OF 1
VNER/CLIENT:		DRILLER:	DATES DRIL	LED:
Dominion ⁻	Transmission		10	/12/16 - 10/12/16
ROJECT NUMBER:	GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NO	TES:
11002.04, task 6	NOT SURVEYED			
ш 🛓 🖸				SOIL
(#) STRATU GRAPH	MATERIAL DESCRIPTIC	N	SPT BLOW COUNTS	PENETRATION TEST RESISTANC (BPF)
SOIL				
5-				
0-				
5-				
0-				
5				
Bottom of E	Boring at 30.0 ft			
5—				
5-				
OUND WATER LEVELS:			SAMPLE TY	PES:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 1

		Ashburn, Virgin	la 2014/	705-720-0052 lax
PROJECT:		LOGGED BY:		BORING NUMBER:
Moffett Lake and	l Cochran's Cave	B. Weinm	nann	R_15
LOCATION:		DRILLING CONTRACTOR: GeoConcepts Engineering		0-10
				SHEET 1 OF 1
OWNER/CLIENT:		DRILLER:	DATES DRIL	LED:
Dominion T	ransmission		10	/12/16 - 10/12/16
PROJECT NUMBER:	GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NO	TES:
11002.04, task 6	NOT SURVEYED			
щ Щ Щ				SOIL
CEAPH (#)	MATERIAL DESCRIPTION		SPT BLOW COUNTS	BPENETRATION EE (BPF) 20 40 60 80
5	oring at 30.0 ft		SAMPLE TY	→====================================



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032

		9		Ashburn, Virgin	na 2014/	/05-720-8052 Tax
ROJECT:				LOGGED BY:		BORING NUMBER:
		Moffett Lake a	and Cochran's Cave		nann	B-16
JOANON.						
WNER/CL	IENT:			DRILLER:	DATES DRILL	SHEET 1 OF 1 ED:
		Dominior	n Transmission		10/	12/16 - 10/12/16
ROJECT N	IUMBER:	Dominio	GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NOT	ES:
1	1002.04	4, task 6	NOT SURVEYED			
	Σ					SOIL
EPTH (ft) (ft)	STRATU	GKAPHIC	MATERIAL DESCRIPTION	Ν	SPT BLOW COUNTS	STANDARD PENETRATION TEST RESISTANC (BPF)
-		SOIL				
- - - 5						
-						
10 -						
-						
15 - -						
-						
25						
30		Bottom of	Boring at 30.0 ft			
- - 35						
-						
15						
_						
ROUND W	ATER LE	EVELS:			SAMPLE TYP	ES:
MARKS:						



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 fa

		Ashburn, Virgi	nia 20147	703-726-8032 fax			
PROJECT:		LOGGED BY:	E	BORING NUMBER:			
Moffett La	ake and Cochran's Cave	B. Wein	mann	D 47			
LOCATION:		DRILLING CONTRACTOR:		B-17			
		GeoConcepts	Engineering	SHEET 1 OF 1			
OWNER/CLIENT:		DRILLER:	DATES DRILLE	ED:			
Domi	inion Transmission		10/1	2/16 - 10/12/16			
PROJECT NUMBER:	GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NOTE	ES:			
11002.04. task 6	NOT SURVEYED						
				SOIL			
(t) STRATUR GRAPHIC	MATERIAL DESCRIPTION	N	SPT BLOW COUNTS	U E STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80			
SOIL 5	m of Boring at 30.0 ft		SAMPLE TYPE				
REMARKS:							



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 fax

PROJE	ECT:		_			LOGGED BY:	11 u 2011,	BORI	NG NUMBER:	
			Мо	ffett Lake ar	nd Cochran's Cave	B. Weinr	nann		D 40	
LOCAT	FION:					DRILLING CONTRACTOR:			B-18	
						GeoConcepts E	Engineering		SHEET 1 OF	1
OWNE	R/CL	IENT:				DRILLER:	DATES DRII	LED:		
				Dominion	Transmission		10	/12/16	- 10/12/16	
PROJE	ECT N	UMBE	R:	Dominion	GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NC	TES:	10/12/10	
	1	1002	04 1	ask 6						
	•	1002.		ask u				S	OIL	
DEPTH		TUM	HC				SPT		STANDA	RD
(ft)	SAM	TRA	BRAF		MATERIAL DESCRIPTION	JN	BLOW	(in)	TEST RESIS	TANCE
		S	0				COUNTS		(BPF) 20 40 60	08 0
	-			SOIL						
5-										· · · ·
	-									
10-	1									· · · ·
	-									
15-										
	-									
20-										
	-			ROCK						
25-										
				VOID/MUD	D SEAM, very wet					
30-	-									
35-	-									
	-									
	_									
40-				ROCK						
	-									
45-				Bottom of I	Boring at 45.0 ft					
	-				-					
	-									
GROU	ND W	ATER	LEVE	LS:			SAMPLE TY	PES:		<u>:::</u>
REMA	RKS:									



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 f

Engineering, Inc.				Ashburn, Virginia 20147			703-726-8032 fax			
PROJECT:				D BY:		BORI	NG NUMBER:			
Moffett Lake and Cochran's Cave				B. Weinmann			D 40			
LOCATION:				DRILLING CONTRACTOR:			D-19			
				GeoConcepts Er	ngineering		SHEET 1 OF 1			
OWNER/CLIENT:			DRILLE	R:	DATES DRIL	LED:				
	Dominion T	ransmission			10/	12/16	6 - 10/12/16			
PROJECT NUMBER:		GROUND SURFACE ELEVATION (ft)	: DRILLIN	IG METHOD:	OFFSET NO	TES:				
11002.04, ta	ask 6	NOT SURVEYED								
ᆈ 독 인						S				
STRATL (tt) (tt) (tt) (tt) (tt) (tt) (tt) (tt		MATERIAL DESCRIP	TION		SPT BLOW COUNTS	(in) (in)	PENETRATION TEST RESISTAN (BPF)			
-	SOIL									
	ROCK Bottom of B	oring at 33.0 ft								
GROUND WATER LEVEL	_S:				SAMPLE TYP	ÞÉS:	· · · · · · · · · · · · · · · · · · ·			
REMARKS:										

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19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032

		Ashburn, Virgini	a 20147	/03-/20-8032 lax			
				BOKING NUMBER:			
Moffett Lake and	I Cochran's Cave	B. Weinma DRILLING CONTRACTOR:	ann	B-20			
		GooConconts En	aincorina				
WNER/CLIENT:		DRILLER:	DATES DRIL	LED:			
Dominion T	ransmission		10/	12/16 - 10/12/16			
ROJECT NUMBER:	GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NO	TES:			
11002.04, task 6	NOT SURVEYED						
Щ				SOIL			
(ji) TYPE STRATI GRAPH	MATERIAL DESCRIPTION	١	SPT BLOW COUNTS	U E PENETRATION TEST RESISTANC (BPF) 20 40 60 80			
SOIL							
5-							
	SEAM wot						
ROCK							
	SEAM		_				
$\begin{bmatrix} 1 \\ 0 \end{bmatrix}$ Bottom of Bo	pring at 37.0 ft		/				
5-							
OUND WATER LEVELS:			SAMPLE TYP	PES:			
MARKS:			I				



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 fax

PROJE	ECT:					LOGGED BY:	,	BORIN	IG NUI	MBER:	
			Мо	ffett Lake and	d Cochran's Cave	B. Weir	nmann		D	24	
LOCAT	FION:					DRILLING CONTRACTOR:]	D	-21	
						GeoConcepts	Engineering		SHEE	Г 1 О	F 1
OWNE	R/CLI	ENT:				DRILLER:	DATES DRIL	LED:			
				Dominion T			10	/12/16	- 10/	12/16	;
PROJE	ECT N	UMBE	R:		GROUND SURFACE ELEVATION (ff):	DRILLING METHOD:	OFFSET NO	TES:			
	1	1002	.04, 1	ask 6	NOT SURVEYED				011		
DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC		MATERIAL DESCRIPT	ION	SPT BLOW COUNTS	(in)	PE TES	STAND ENETRA T RESI (BPI	ARD ATION STANCE
5- 10- 15- 20- 25- 30- 35- 40- 45-				SOIL ROCK AIR VOID ROCK AIR VOID ROCK Bottom of B	oring at 41.0 ft						
GROU	ND W	ATER	LEVE	LS:			SAMPLE TY	PES:			
REMA	RKS:										



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 fax

PROJE	CT:					LOGGED BY:	В	ORINO	g num	BER:	
	Moffett Lake and Cochran's Cave		B. Weinr	mann	D 00						
LOCAT	ION:					DRILLING CONTRACTOR:			B-	-22	
						GeoConcepts I	Engineering	S	HEET	1 OF	: 1
OWNE	R/CLI	ENT:				DRILLER:	DATES DRILLE	D:			
				Dominion T	ransmission		10/12	2/16 -	- 10/1	2/16	
PROJE	CT N	UMBE	R:		GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NOTE	S:			
	11	1002	.04,	task 6	NOT SURVEYED						
	ш	Σ	U					SO			
DEPTH (ft)	SAMPLI TYPE	STRATU	GRAPHI		MATERIAL DESCRIPTIO	Ν	SPT BLOW COUNTS	(in)	PEN TEST	NETRA RESIS (BPF	ARD ATION STANCE
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-											
-											
-			ĮΨ.	POCK							
10-			Ħ	RUUN				Ļ		<u> </u>	
-			H								
15								-			
-											
-											
20-								F			
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-											
25-											
-				Bottom of B	oring at 27.0 ft						
30	-										
-											
-											
35 —								-			
-											
-										· · ·	
40-											
-											
45-											
-											
GROUM			 F\/F	1.5				<u> </u>			
			1								
REMAR	RKS:						1				
				LINES REPRESEN	NT APPROXIMATE BOUINDARIES. THE T	RANSITION MAY BE GRADUAL					



19955 Highland Vista Dr., #170	703-726-8030
Ashburn, Virginia 20147	703-726-8032 fax

PROJE	CT:					LOGGED BY:	E	BORIN	IG NUN	IBER:			
			Мо	offett Lake and	d Cochran's Cave	B. Wein	mann		П				
LOCAT	'ION:					DRILLING CONTRACTOR:			B	-23			
						GeoConcepts	Engineering	ring SHEET 1 OF 1					
OWNE	R/CLI	IENT:				DRILLER:	DATES DRILLE	ED:					
				Dominion T	ransmission		10/1	10/12/16 - 10/12/16					
PROJE	CT N	UMBE	R:		GROUND SURFACE ELEVATION (ft):	DRILLING METHOD:	OFFSET NOTE	S:					
	1	1002	.04, 1	task 6	NOT SURVEYED								
		Μ	U					S	JIL				
DEPTH (ft)	SAMPLE	STRATU	GRAPHI		MATERIAL DESCRIPTIO	Ν	SPT BLOW COUNTS	REC (in)	PEI TEST	I AND/ NETRA RESIS (BPF	ARD ATION STANCE		
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-	1												
10-													
-													
-	-												
15-													
-			ÉÉ	ROCK									
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20-	-									: :			
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25-				Bottom of B	oring at 25.0 ft								
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30-													
	-									· · ·			
35-										· · ·			
	-												
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40-													
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15-													
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REMAR	RKS:						1						
	толт					PANSITION MAY BE GRADUAL							



Attachment D

Chain of Custody & Certificate of Analysis Documentation (8 pages)



Certificate of Analysis

Date of certificate: November 18, 2016
Client: GeoConcepts Engineering, Inc. 19955 Highland Vista Drive, Suite 170 Ashburn, VA 20147
Project name / location: Moffett Lake Recharge Study
Project number: 11002.04, billing group 6
Contact person: Bob Denton (Rdenton@GeoConcepts-Eng.com) Samples collected by: Joshua Valentino
Date samples shipped: November 15, 2016
Date samples rec'd at OUL: November 16, 2016
Date analyzed by OUL: November 17, 2016
Included with certificate of analysis: Table of results and copy of sample collection data sheet

Results for charcoal samplers analyzed for the presence of eosine dye.

Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL	Station	Station	Date/Time	Date/Time	Ео	sine
Number	Number	Name	Placed	Collected	Peak (nm)	Conc (ppb)
B8784	1	Spring Run	11/14/16 1430	11/15/16 0944	ND	
B8785	2	Lake Outfall	11/14/16 1440	11/15/16 0957	ND	

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnote: ND = No dye detected

Thomas J. Aley, PHG and RG

Thomas Aley

OZARK UNDERGROUND LABORATORY, INC.

		15/2 A	ley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4	290 email: contact@oza	rkundergr	oundlab.com	n							
n : /	Natio	H 1.100	SAMPLE COLLECTION DATA SHEET for F	LUORESCENCE	ANALY	SIS	2	NI AS						
Project	Motte	II LANE	Area Studies Week No: N/A Samples	Collected By: Joshu	a Valens	ino (how	Varda	·					
Sample	s Shipped B	y: Joshua 1	Valentino Chilar Vice Samples Received H	sy: N. Keitz Jour	~	/								
Bill to: 11007 04 Billing Grand C Keeled: <u>W-16-16</u> Time Samples Received: <u>1220</u> Return Cooler? Yes No														
Analyze for: Flagressein Straine Photomer WT Dout														
Allaryze for: I Fillorescein & Eosine I Rhodamine WT Other Ship cooler to: 19955 Highland Uista Drive Suite 170														
	OUL Please indicate stations where due was visible in the Full													
u	se only		<u>Please indicate stations where dy</u>	ve was visible in the	field				OUL					
# CHAR	LAB	STATION	Jor field technician use - i	ise black ink only	r				ase oney					
REC'D	Charcoal	NUMBER	STATION NAME		PLA	CED	COLLI	ECTED	# WATER					
1	Bengu	1	Spring Pup		DATE	TIME	DATE	TIME	REC'D					
	20000		Spring Rain		11/14/16	2330 PA	11/15/16	9:44 AM	1					
	00175	- 4	Lake Outfall		11/14/16	2:40 PM	11/15/16	9:57 AM	1					
								-						
							8							
COMM	TENTE (
COMM	EN15	sackarow	nd Dampling											
This she	et filled out	by OIII. staff?	Ves No		17									
OUL Pr	oject No. 15	24 Date Ana	alvzed. 11-17-16 Analvzed By 1150 Colors	ge proofed by OUL:	ju									
		and the	Analyzeu by: Liou Stuffu	in jour										
			Page / of /	our										

AND DURING IN ALL AND TT THURSDAY ROUND ATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: December 9, 2016	Samples collected by: Joshua Valentino					
Client: GeoConcepts Engineering, Inc.	Date samples shipped: December 2, 2016					
19955 Highland Vista Drive, Suite 170	Date samples rec'd at OUL: December 5, 2016					
Ashburn, VA 20147	Date analyzed by OUL: December 8, 2016					
Project name / location: Moffett Lake Recharge Study	Included with certificate of analysis: Table of					
Project number: 11002.04, billing group 6	results, copy of sample collection data sheets					
Contact person: Bob Denton (Rdenton@GeoConcepts-Eng.com)	and discrepancy sheet					

Results for charcoal and water samples analyzed for the presence of eosine dye.

Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb). All results are for charcoal unless otherwise indicated

OUL	Station	Station	Date/Time	Date/Time	E	osine
Number	Number	Name	Placed	Collected	Peak (nm)	Conc (ppb)
B9042	1	Spring Run	12/1/16 1030	12/1/16 1045	ND	
B9043	1	Spring Run	12/1/16 1045	12/1/16 1115	ND	
B9044	1	Spring Run	12/1/16 1115	12/1/16 1130	ND	
B9045	1	Spring Run	12/1/16 1130	12/1/16 1230	541.4	17.5
B9046	1	Spring Run	12/1/16 1230	12/1/16 1430	541.9	23,600
B9047	1	Spring Run	12/1/16 1430	12/1/16 1830	542.1	25,000
B9048	1	Spring Run	12/1/16 1830	12/1/16 2200	541.6	4,180
B9049	1	Spring Run	12/1/16 2200	12/2/16 1030	541.9	2,020
B9050	2	Lake Outfall	12/1/16 1030	12/1/16 1045	ND	
B9051	2	Lake Outfall	12/1/16 1045	12/1/16 1115	ND	
B9052	2	Lake Outfall	12/1/16 1115	12/1/16 1230	ND	
B9053	2	Lake Outfall	12/1/16 1230	12/1/16 1430	ND	
B9054	2	Lake Outfall	12/1/16 1430	12/1/16 1830	541.6	117
B9055	2	Lake Outfall	12/1/16 1830	12/1/16 2200	541.4	262
B9056	2	Lake Outfall	12/1/16 2200	12/2/16 1030	541.7	655
B9066	1	Spring Run	Water	12/1/16 1230	534.4	859
B9067	1	Spring Run	Water	12/1/16 1430	534.5	11,600
B9068	1	Spring Run	Water	12/1/16 1830	534.3	2,030
B9069	1	Spring Run	Water	12/1/16 2200	534.4	254
B9070	1	Spring Run	Water	12/2/16 1030	534.3	34.7
B9071	2	Lake Outfall	Water	12/1/16 1830	534.3	53.0
B9072	2	Lake Outfall	Water	12/1/16 2200	534.4	43.7
B9073	2	Lake Outfall	Water	12/2/16 1030	534.3	79.5

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon

the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnote: ND = No dye detected

Thomas J. Aley, PHG and RG

Thomas Aley

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project <u>Moste H Lake Aren Studies</u> Week No: <u>N/A</u> Samples Collected By: <u>Johna Valentino</u> <u>Minn Valentino</u> Samples Shipped By: <u>Johna Valentino</u> <u>Minn Valentino</u> Samples Received By: <u>K-Cochran /out</u> Date Samples Shipped: <u>12/2/2016</u> Date Samples Received: <u>12/5/2016</u> Time Samples Received: <u>Boo</u> Return Cooler? Yes <u>No</u> Bill to: <u>11002.04</u> Billing Group 6 <u>Send Results to: <u>RDenton</u> @ geoconcepts-eng.com Analyze for: Fluorescein Essine Rhodamine WT Other Ship cooler to: <u>19955 Highland Vista Drive</u>, <u>Saite</u></u>

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	OUL		NN 4 44	Ashburn	n, V.A	201	47	
u.	se only		Please indicate stations where dye was visible in t	<u>the field</u>				OUL
#CHAR	TAP	STATION	for field technician use - use black ink only	Ŷ				use only
REC'D	NUMBER	NUMBER	STATION NAME	PL	ACED	COLL	ECTED	# WATER
1	20010	4		DATE	TIME	DATE	TIME	RECD
	07042	1	Spring Kun	12/1/16	10:30	12/1/16	10:4584	1
<u> </u>	139043	1	Spring Run	12/1/16	10:45	12/1/16	11:15:24	1
	B9044	1	Spring Run	12/1/16	11= 15 44	12/1/16	11:30RH	
	39045	1	Spring Run	12/1/16	11:30.	12/1/16	12:30	1
	B9046	1	Spring Run	12/1/16	12:30	12/1/16	2:3000	1
	B9047	1	Spring Run	12/1/16	2:30 04	12/1/16	6:30 04	1.
	B9048	1	Spring Run	12/1/16	6:3000	12/1/14	10:000	i.
	139049	1	Spring Run	12/11/16	10:00	12/2/16	10:20 14	1.
	B9050	2	Lake Outfall	12/11/2	15-20 44	12/11/	10.4644	1.
	B9051	2	Lake outfall	12/1/16	10.30 4	12/1/10	10-45AP	
1	B9052	2	Lake Outfall	12/11/	IL IT AN	12/1/16	11-15 AP	
	89053	2	Lake Outfall	12/1/16	III ISAN	12/116	12:30 9	·
]	B9054	2	Lake Dotfall	12/1/16	2-20 84	12/1/16	2-30 P/	
1	B9055	2	Lake Outfall	12/1/10	6-20 PH	11/16	6.30 PP1	
COMME	INTS	0		1-1.1.10	6. 20 rm	12/1/16	10:00 192	1

This sheet filled out by OUL staff? Yes	(No)	Charts for samples on this page proofed by OIII.	MA	
OUL Project No. 1524 Date Analyzed:	12/8/16	Analyzed By:Isa_ Gilcrease /ou ~	0	

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Page | of 2/OUL

		OZARK UNDERGROUND LABORATORY, INC.						
	157	2 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozr	arkunderør	oundlab.co	m			
		SAMPLE COLLECTION DATA SHEET for FLUORESCENCE	ANALY	SIS		<i>n</i> . <i>i</i>	25	
Project Antet 1	alle Ari	er Studies, Week No: N/A Samples Collected By: Tak	VI la	Line (11.	1/ 1/2		
Samples Shipped By:	Josinice 1	Jeclentino /// /// Samples Bergived By: / (Ochica is	las	1110	1 m	V ALC V		
Date Samples Shippe	d: 12/2/	2016 Date Samples Received: 17/5 /2011	1000					
Bill to: 11002.0	OH BI	Hing (Trank G	002	Return	Cooler?	les 🔁	No 🗌	
Analyze for: Th	lorescein	Send Results to: KVentah (a) ge	oconci	epts - c	ing. co	m		
	IOI COCCIII	Ship cooler to: 19	9551	tighlar	d Vist	a Prire	Suite	176
OUL		te	it pran	, VA	2014	7		
use only		Please indicate stations where dye was visible in the	field				OUL	
# CHAR LAB	STATION	for field technician use - use black ink only					use only	
REC'D NUMBER	NUMBER	STATION NAME	PLA	CED	COLL	ECTED	#	
Charlos			DATE	TIME	DATE	TIME	WATER REC'D	
1 137056	2	Lake Outful	12/11/16	1000put	12/2/16	10:30 AM	1	
			-					
COMMENTER								
COMMENTS								

This sheet filled out by OUL staff? Yes (No	Charts for samples on this name manufally OTT	
OUL Project No. 1524 Date Analyzed:	12/8/16	Analyzed By: Lisa Glicrease /ouc	

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OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project Moffett Lake Aren Studies John Valle Week No: N/A Samples Collected By: Joshua Valentina Samples Shipped By: Jashua Valenting (Alem Valla Samples Received By: K. Cochran lan Date Samples Shipped: 12/2/2016 Date Samples Received: 12/5/2016 Time Samples Received: 1800 Return Cooler? Yes No 🗌 Bill to: 11002.04 Billing Group 6 Send Results to: R Denton @ geoconcepts - eng. com Analyze for: I Fluorescein K Eosine Rhodamine WT Other Ship cooler to: 19955 Highland Vista Drive, Swite

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1/3	OUL se only		Please indicate stations where dye was vis	ible in the field	T, VA	201	47	OUL use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME	INK ONLY PLA	CED	COLL	ECTED	a water
1		-	<u> </u>	DATE	TIME	DATE	TIME	RECTO
		1	Opring Kun	12/1/16	10:301-	12/1/16	10:4585	1
1		1	Spring Run	12/1/16	10:4 5m	12/1/16	11-1504	1
1	00	1	Spring Run	12/1/16	11= 15 44	12/1/16	11:3084	
	B4066	1	Spring Run	12/1/16	11:30.	12/1/16	12:30	
	B9067	1	Spring Run	12/1/16	12:30	12/11/14	2:3000	Í
1	<u>39068</u>	1	Spring Run	12/1/16	2:3004	12/1/16	6:36 M	1.
	B4064	1	Spring Run	12/1/16	6:3000	12/1/10	10:000	1.
	B9070	1	Spring Run	12/11/16	10:00	12/2/16	10.20 14	1.
		2	Lake Outfall	12 h lic	10-20 434	12/2112	10-20 AM	1.
		2	Lake outfall	12/1/18	10.116 11	12/11/18	10:45AM	
1		2	Lake Outfall	12/11/12	10:45 40.	12/1/16	11:15 AF	
		2	Lake Outfall	12/1/16	II. ISAN	14/116	12:307	<u>.</u>
j	B9071	2	Lake Dotfall	12/11/10	12:30 174	12/1/16	2:30 PM	
1	39072	2	Lake Outfall	12/1/16	2-30 1	11116	6:30 PM	-
COMME	INTS			14116	6.20 M	12/1/16	10:00 PM	1

 This sheet filled out by OUL staff? Yes
 No
 Charts for samples on this page proofed by OUL:

 OUL Project No. 1524
 Date Analyzed:
 12/8/16
 Analyzed By:
 LSa
 Galareac /out

Page] of 2/OUL

				OZ	ARK UN	DERGROU	ND LAB	ORATOR	Y. INC.						
		15	72 Aley Lane Pro	tem, MO 6	5733 (417)	785-4289 fax	(417) 785-4	290 email:	contact@oz	arkunderen	oundish co	m			
			SAMPL	E COLL	ECTION	DATA SHE	EET for I	LUORES	CENCE	ANALY	STS		A	25	
Project.	Aftert	Lake Ar	rea Studie	25	Week M	No: NIA	Sample	Collected B	W. Tal	U.L.	line (11.	(1) 12	1	
Samples	Shipped By	r: Joshuer	Vielentino /	Ula 1	Tan	Samples	Dooning 1	V L	A home	Valen	TIND -	112	0 40 0		
Date Sa	mples Shipp	ed: 12/2	12016 Det	e Samples	Dessived	17 15 1201	ACCEIVEU I	by: <u><u> </u></u>	unran	1000					
Bill to:	11002.	OH B	Illing (Trai		Mecciven:	45/2014	Time	Samples Re	ceived: _/	900	Return (Cooler? 3	les 🔁	No 🗌	
Analyze	for:	Torocoin	STRates D	<u></u>		Send R	esults to:	Svente	sh w ge	oconce	epts - c	ing. co	m		
1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		ant coccili		Knodamu	ne WT 🗌 🤇	Other		Ship cool	er to: 19	955 ¥	tighlan	divish	2 Prime	, Suite	176
	OUL								<u>}</u>	it pray	VA	2014	7		
22	se only			<u>r</u>	'lease indi	icate stations	where d	ve was visi	ble in the	field				OUL	
# CHAR	LAB	STATION	1		for	field technic	ian use - I	use black in	nk only					use only	
REC'D	NUMBER	NUMBER			ST	ATION NAM	E			PLA	CED	COLLI	ECTED	#	
	20072									DATE	TIME	DATE	TIME	RECT	
<u> </u>	DIDID	2	Lake	0.	itted					1211115	10:00 PA	12/2/16	10:30 AM		
L															
			1												
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			1												
			<u> </u>												
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					_										
COWWE	INTS														

This sheet filled out by OUL staff? Yes (N	(harts for samples on this page proofed by OVI	00	
OTT Project No 1524 Date to 1	Charts for samples on this page propied by OUL:	14	
Date Analyzed: 10	Analyzed By: LISA GILCICOSE /OUL	C	

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Ozark Underground Laboratory, Inc.

DISCRI	EPANCIE	S BETWEEN CHAIN-OF-CUSTO	IN CHUEFY	ground Laboratory, Inc.			
Compan	y & Proje	TED Page / of /					
Date Rec'd by OUL: 12					5/2016 Wk#		
Lab # Sta # Station News							
		Station Mame	Date Pulled	Problem	Solution		
		Lake Outfall 3		time 1252 p.M. on Vial	Will use Im on Coc		
				time on COC 12:30	AND THE FIM ON COC		
	· · ·						
· · · ·							
Comments: The inside of the cooler had dross of water that have diverter that							
analyzed water from cooler and a positive peak in the range of another they contained dye. Oul							
water vials with a bleach rage. No date Collected written on Viale Dul DI 11 added withen							
Vials. Under and share share share and are collected to							

*