APPENDIX C.4

GROUNDWATER CHEMISTRY TESTS

NORTH ANNA COL

DATA REPORT REV. 0
JANUARY 23, 2007

MACTEC PROJECT NO. 6468-06-1472

MACTEC

DOCUMENTATION OF TECHNICAL REVIEW
SUBCONTRACTOR WORK PRODUCT

Project Name: North Anna COL

Project Number: 6468-06-1472

Project Manager: Steve Criscenzo

Project Principal: Al Tice

The report described below has been prepared by the named subcontractor retained in accordance with the MACTEC QAPD. The work and report have been reviewed by a MACTEC technically qualified person. Comments on the work or report, if any, have been satisfactorily addressed by the subcontractor. The attached report is approved in accordance with section QS-7 of MACTEC's QAPD

The information and date contained in the attached report are hereby released by MACTEC for project use.

REPORT : Analytical Report Project No. 6468-06-1472, North Anna, Lot #: F6K290160

January 4, 2007

SUBCONTRACTOR: Severn Trent Laboratories, Inc. (STL St. Louis)

DATE OF ACCEPTANCE : January 4, 2007

TECHNICAL REVIEWER: William A. Lee

PROJECT PRINCIPAL : J. Allan Tice

Note: Samples from OW 946 and 949/AZ 1-19-07

DCN NA COL- 192

MACTEC

Client Dominion Power Laboratory STL - St. Louis

MACTEC Project 6468-06-1472 Data Report Number/Date Lot # F6K290160 / ~~1-3-07~~ 1-4-07 Logged 1-19-07

LABORATORY DATA REVIEW CHECKLIST

		YES	NO	NOT APPLICABLE
1.	Laboratory analytical data report appears complete (all data results present for all samples submitted for analysis) and there are no apparent transcription errors:	✓		
2.	Samples analyzed within applicable holding times (based on date of sample collection):*	✓		
3.	Trip blanks, field blanks or laboratory method blanks are free of blank contamination:		✓ (1)	
4.	If field duplicate samples collected, calculated results meet Relative Percent Difference guidelines: **			✓
5.	Surrogate recoveries (organic analyses only) within laboratory reported recovery acceptance ranges:			✓
6.	If Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples required to meet project objectives, Percent Recoveries (%R) and Relative Percent Difference (RPD) within laboratory reported acceptance ranges:		✓ (2)	
7.	Reported detection limits meet project objectives (e.g., are capable of achieving applicable site standards):	✓		
8.	Completed Chain-Of-Custody received noting sample/custody seal condition (with airbill, if appropriate):	✓		
9.	Analytical costs within authorized budget for these services:	✓		

COMMENTS: (1) Fluoride detected in samples and method blank @ estimated concentrations below reporting Limit but above MDL;
(2) MS & MSD samples showed QC recoveries b/c of matrix interference. QC passed on LC & LCS samples.

Notes: 1. This checklist is intended for use with the laboratory reporting formats typical of most projects. If "no" is answered to one or more of the above checklist questions 1 through 7, a more detailed Data Validation may be required, and a person knowledgeable in Data Validation protocols should be consulted. This checklist should not be used if the project scope requires Data Validation from the onset.

2. * = Based upon EPA Guidance and the applicable analytical method references. See reverse side of checklist for details.

3. ** = Based upon EPA Guidance. Use these criteria on duplicate and sample results which exceed five times the reported detection limit. See reverse side of checklist for details.

Checked by: [signature] Date: 1-19-07

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ANALYTICAL REPORT

NORTH ANNA

Lot #: F6K290160

J. Allan Tyce

MACTEC Engineering & Consultin
3301 Atlantic Ave
Raleigh, NC 27604

SEVERN TRENT LABORATORIES, INC.

Terry Romanko
Project Manager

January 4, 2007

DCN NA COL 190

Case Narrative
LOT NUMBER: F6K290160

This report contains the analytical results for the two samples received under chain of custody by STL St. Louis on November 29, 2006. These samples are associated with your NORTH ANNA project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Anions (Bromide, Chloride, Fluoride, Sulfate) (MCAWW 300.0A)

The anion matrix spike solution contains all routine anions. Poor matrix spike recovery for Bromide in batch 6361318 and Fluoride in batch 6361320 is attributed to matrix interference. Spiking technique, sample preparation and method compliance is demonstrated by the remaining acceptable MS recoveries.
Affected Samples:
F6K290160 (1): 0W-949 F6K290160 (2): 0W-946

Nitrate-Nitrite (MCAWW 353.1)

When performing a sample dilution due to matrix interference, the surrogates and/or matrix spike compounds were diluted below reliable detection, making QC recoveries unreliable. A LCS and LCSD were performed to display precision and accuracy.
Affected Samples:
F6K290160 (1): 0W-949

There were no nonconformances or observations noted with any other analysis on this lot.

METHODS SUMMARY

F6K290160

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Alkalinity	MCAWW 310.1	MCAWW 310.1
Bromide	MCAWW 300.0A	MCAWW 300.0A
Chloride	MCAWW 300.0A	MCAWW 300.0A
Filterable Residue (TDS)	MCAWW 160.1	MCAWW 160.1
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.1	
Nitrogen, Ammonia	MCAWW 350.1	MCAWW 350.1
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SAMPLE SUMMARY

F6K290160

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
JKGJT	001	0W-949	11/28/06	15:30
JKGWD	002	0W-946	11/28/06	17:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: OW-949

General Chemistry

Lot-Sample #...: F6K290160-001 **Work Order #...:** JKGJT **Matrix.....:** WATER
Date Sampled...: 11/28/06 15:30 **Date Received..:** 11/29/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.25	mg/L	MCAWW 300.0A	12/26/06	6361318
		Dilution Factor: 1		Analysis Time..: 02:34		
Chloride	**2.3**	**0.20**	**mg/L**	**MCAWW 300.0A**	**12/26/06**	**6361319**
		Dilution Factor: 1		Analysis Time..: 02:34		
Fluoride	**0.094 B,J**	**0.10**	**mg/L**	**MCAWW 300.0A**	**12/26/06**	**6361320**
		Dilution Factor: 1		Analysis Time..: 02:34		
Nitrate/Nitrite as N	**0.52**	**0.050**	**mg/L**	**MCAWW 353.1**	**12/04/06**	**6339055**
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrogen, as Ammonia	ND	0.050	mg/L	MCAWW 350.1	12/07/06	6341275
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	**2.9**	**0.50**	**mg/L**	**MCAWW 300.0A**	**12/26/06**	**6361321**
		Dilution Factor: 1		Analysis Time..: 02:34		
Total Alkalinity	**38.0**	**5.0**	**mg/L**	**MCAWW 310.1**	**12/11-12/13/06**	**6345302**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Dissolved Solids	**93.0**	**5.0**	**mg/L**	**MCAWW 160.1**	**12/02/06**	**6336108**
		Dilution Factor: 1		Analysis Time..: 00:00		

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MACTEC Engineering and Consulting Inc

Client Sample ID: 0W-946

General Chemistry

Lot-Sample #...: F6K290160-002 Work Order #...: JKGWD Matrix.....: WATER
Date Sampled...: 11/28/06 17:15 Date Received..: 11/29/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.25	mg/L	MCAWW 300.0A	12/26/06	6361318
		Dilution Factor: 1		Analysis Time..: 04:25		
Chloride	1.5	0.20	mg/L	MCAWW 300.0A	12/26/06	6361319
		Dilution Factor: 1		Analysis Time..: 04:25		
Fluoride	0.027 B,J	0.10	mg/L	MCAWW 300.0A	12/26/06	6361320
		Dilution Factor: 1		Analysis Time..: 04:25		
Nitrate/Nitrite as N	0.065	0.050	mg/L	MCAWW 353.1	12/06/06	6345250
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrogen, as Ammonia	ND	0.050	mg/L	MCAWW 350.1	12/07/06	6341275
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	0.69	0.50	mg/L	MCAWW 300.0A	12/26/06	6361321
		Dilution Factor: 1		Analysis Time..: 04:25		
Total Alkalinity	22.0	5.0	mg/L	MCAWW 310.1	12/11-12/13/06	6345302
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Dissolved Solids	64.0	5.0	mg/L	MCAWW 160.1	12/02/06	6336108
		Dilution Factor: 1		Analysis Time..: 00:00		

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F6K290160 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		Work Order #: JL74T1AA		MB Lot-Sample #:	F6L270000-318	
	ND	0.25	mg/L	MCAWW 300.0A	12/26/06	6361318
		Dilution Factor: 1				
		Analysis Time..: 01:31				
Chloride		Work Order #: JL7401AA		MB Lot-Sample #:	F6L270000-319	
	ND	0.20	mg/L	MCAWW 300.0A	12/26/06	6361319
		Dilution Factor: 1				
		Analysis Time..: 01:31				
Fluoride		Work Order #: JL75A1AA		MB Lot-Sample #:	F6L270000-320	
	0.027 B	**0.10**	**mg/L**	**MCAWW 300.0A**	**12/26/06**	**6361320**
		Dilution Factor: 1				
		Analysis Time..: 01:31				
Nitrate/Nitrite as N		Work Order #: JKREL1AA		MB Lot-Sample #:	F6L050000-055	
	ND	0.050	mg/L	MCAWW 353.1	12/04/06	6339055
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Nitrate/Nitrite as N		Work Order #: JK7VE1AA		MB Lot-Sample #:	F6L110000-250	
	ND	0.050	mg/L	MCAWW 353.1	12/06/06	6345250
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Nitrogen, as Ammonia		Work Order #: JK04Q1AA		MB Lot-Sample #:	F6L070000-275	
	ND	0.050	mg/L	MCAWW 350.1	12/07/06	6341275
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Sulfate		Work Order #: JL75H1AA		MB Lot-Sample #:	F6L270000-321	
	ND	0.50	mg/L	MCAWW 300.0A	12/26/06	6361321
		Dilution Factor: 1				
		Analysis Time..: 01:31				
Total Alkalinity		Work Order #: JLCRH1AA		MB Lot-Sample #:	F6L110000-302	
	ND	5.0	mg/L	MCAWW 310.1	12/11-12/13/06	6345302
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Total Dissolved Solids		Work Order #: JLMRX1AA		MB Lot-Sample #:	F6L020000-108	
	ND	5.0	mg/L	MCAWW 160.1	12/02/06	6336108
		Dilution Factor: 1				
		Analysis Time..: 00:00				

(Continued on next page)

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F6K290160 **Matrix.....:** WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F6K290160 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		WO#:JL74T1AC-LCS/JL74T1AD-LCSD LCS Lot-Sample#: F6L270000-318					
	100	(90 - 110)			MCAWW 300.0A	12/26/06	6361318
	94	(90 - 110)	5.9	(0-20)	MCAWW 300.0A	12/26/06	6361318
		Dilution Factor: 1			Analysis Time..: 01:12		
Chloride		WO#:JL7401AC-LCS/JL7401AD-LCSD LCS Lot-Sample#: F6L270000-319					
	96	(90 - 110)			MCAWW 300.0A	12/26/06	6361319
	90	(90 - 110)	6.1	(0-20)	MCAWW 300.0A	12/26/06	6361319
		Dilution Factor: 1			Analysis Time..: 01:12		
Fluoride		WO#:JL75A1AC-LCS/JL75A1AD-LCSD LCS Lot-Sample#: F6L270000-320					
	96	(90 - 110)			MCAWW 300.0A	12/26/06	6361320
	96	(90 - 110)	0.07	(0-20)	MCAWW 300.0A	12/26/06	6361320
		Dilution Factor: 1			Analysis Time..: 01:12		
Nitrate/Nitrite as N		WO#:JKREL1AC-LCS/JKREL1AD-LCSD LCS Lot-Sample#: F6L050000-055					
	108	(90 - 110)			MCAWW 353.1	12/04/06	6339055
	107	(90 - 110)	0.82	(0-20)	MCAWW 353.1	12/04/06	6339055
		Dilution Factor: 1			Analysis Time..: 00:00		
Nitrate/Nitrite as N		WO#:JK7VE1AC-LCS/JK7VE1AD-LCSD LCS Lot-Sample#: F6L110000-250					
	99	(90 - 110)			MCAWW 353.1	12/06/06	6345250
	101	(90 - 110)	1.8	(0-20)	MCAWW 353.1	12/06/06	6345250
		Dilution Factor: 1			Analysis Time..: 00:00		
Sulfate		WO#:JL75H1AC-LCS/JL75H1AD-LCSD LCS Lot-Sample#: F6L270000-321					
	97	(90 - 110)			MCAWW 300.0A	12/26/06	6361321
	90	(90 - 110)	7.3	(0-20)	MCAWW 300.0A	12/26/06	6361321
		Dilution Factor: 1			Analysis Time..: 01:12		
Total Alkalinity		WO#:JLCRH1AC-LCS/JLCRH1AD-LCSD LCS Lot-Sample#: F6L110000-302					
	99	(90 - 110)			MCAWW 310.1	12/11-12/13/06	6345302
	99	(90 - 110)	0.0	(0-15)	MCAWW 310.1	12/11-12/13/06	6345302
		Dilution Factor: 1			Analysis Time..: 00:00		
Total Dissolved Solids		WO#:JLMRX1AC-LCS/JLMRX1AD-LCSD LCS Lot-Sample#: F6L020000-108					
	102	(90 - 110)			MCAWW 160.1	12/02/06	6336108
	102	(90 - 110)	0.39	(0-15)	MCAWW 160.1	12/02/06	6336108
		Dilution Factor: 1			Analysis Time..: 00:00		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F6K290160 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K290160 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia		Work Order #: JK04Q1AC	LCS Lot-Sample#: F6L070000-275		
	98	(90 - 110)	MCAWW 350.1	12/07/06	6341275
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K290160 **Matrix.....:** WATER
Date Sampled...: 11/17/06 09:40 **Date Received..:** 11/18/06

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia	WO#: JJ28E1E9-MS/JJ28E1FA-MSD					MS Lot-Sample #: F6K180200-001	
	102	(90 - 110)			MCAWW 350.1	12/07/06	6341275
	100	(90 - 110)	1.5	(0-20)	MCAWW 350.1	12/07/06	6341275
		Dilution Factor: 1					
		Analysis Time..: 00:00					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K290160 **Matrix.....:** WATER
Date Sampled...: 11/28/06 15:30 **Date Received..:** 11/29/06

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		Work Order #...: JKGJT1AM		MS Lot-Sample #: F6K290160-001	
	199 N	(90 - 110)	MCAWW 300.0A	12/26/06	6361318
		Dilution Factor: 1	Analysis Time..: 02:34		
Chloride		Work Order #...: JKGJT1AP		MS Lot-Sample #: F6K290160-001	
	99	(90 - 110)	MCAWW 300.0A	12/26/06	6361319
		Dilution Factor: 1	Analysis Time..: 02:34		
Fluoride		Work Order #...: JKGJT1AR		MS Lot-Sample #: F6K290160-001	
	0 N	(90 - 110)	MCAWW 300.0A	12/26/06	6361320
		Dilution Factor: 1	Analysis Time..: 02:34		
Nitrate/Nitrite as N		Work Order #...: JKGRQ1CU		MS Lot-Sample #: F6K290183-003	
	1130 N	(90 - 110)	MCAWW 353.1	12/04/06	6339055
		Dilution Factor: 10	Analysis Time..: 00:00		
Sulfate		Work Order #...: JKGJT1AU		MS Lot-Sample #: F6K290160-001	
	91	(90 - 110)	MCAWW 300.0A	12/26/06	6361321
		Dilution Factor: 1	Analysis Time..: 02:34		
Total Alkalinity		Work Order #...: JKGJT1AK		MS Lot-Sample #: F6K290160-001	
	96	(50 - 121)	MCAWW 310.1	12/11-12/13/06	6345302
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K290160 **Work Order #...:** JKGRQ-SMP JKGRQ-DUP **Matrix.....:** WATER

Date Sampled...: 11/28/06 10:40 **Date Received..:** 11/29/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids						SD Lot-Sample #: F6K290183-003		
	307	302	mg/L	1.6	(0-15)	MCAWW 160.1	12/02/06	6336108
			Dilution Factor: 1			Analysis Time..: 00:00		
Nitrate/Nitrite as N						SD Lot-Sample #: F6K290183-003		
	4.4	4.4	mg/L	1.8	(0-20)	MCAWW 353.1	12/04/06	6339055
			Dilution Factor: 10			Analysis Time..: 00:00		

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K290160 **Work Order #...:** JKGJT-SMP JKGJT-DUP **Matrix.....:** WATER

Date Sampled...: 11/28/06 15:30 **Date Received..:** 11/29/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide						SD Lot-Sample #: F6K290160-001		
	ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	12/26/06	6361318
		Dilution Factor: 1				Analysis Time..: 02:34		
Chloride						SD Lot-Sample #: F6K290160-001		
	2.3	2.3	mg/L	0.18	(0-20)	MCAWW 300.0A	12/26/06	6361319
		Dilution Factor: 1				Analysis Time..: 02:34		
Fluoride						SD Lot-Sample #: F6K290160-001		
	0.094 B,J	0.11	mg/L	14	(0-20)	MCAWW 300.0A	12/26/06	6361320
		Dilution Factor: 1				Analysis Time..: 02:34		
Sulfate						SD Lot-Sample #: F6K290160-001		
	2.9	2.9	mg/L	0.91	(0-20)	MCAWW 300.0A	12/26/06	6361321
		Dilution Factor: 1				Analysis Time..: 02:34		
Total Alkalinity						SD Lot-Sample #: F6K290160-001		
	38.0	39.0	mg/L	2.6	(0-20)	MCAWW 310.1	12/11-12/13/06	6345302
		Dilution Factor: 1				Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

LOT# F6K290160

STL ST. LOUIS

Serial Number 033003

SEVERN TRENT SERVICES

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

MACTEC COFC

STL Savannah NA COL NA-14

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5102 LaRoche Avenue
Savannah, GA 31404

Website: www.stl-inc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

(X) Alternate Laboratory Name/Location: STL - ST. LOUIS, 13715 RIDER TRAIL NORTH, EARTH CITY, MO 63045
Phone: 314-298-8566
Fax: 314-298-8757

PROJECT REFERENCE	NA COL
PROJECT NO.	6468-06-1472
PROJECT LOCATION (STATE)	VA
STL (LAB) PROJECT MANAGER	TERRY ROMANKO
P.O. NUMBER	TASK 04
CONTRACT NO.	
CLIENT (SITE) PM	~~MACTEC~~ STEVE CRISCENZO
CLIENT PHONE	919-876-0416
CLIENT FAX	
CLIENT NAME	MACTEC
CLIENT E-MAIL	mlear@mactec.com
CLIENT ADDRESS	3301 ATLANTIC AVE, RALEIGH, NC 27604
COMPANY CONTRACTING THIS WORK (if applicable)	
PAGE	1 OF 1
STANDARD REPORT DELIVERY	(X)
DATE DUE	
EXPEDITED REPORT DELIVERY (SURCHARGE)	( )
DATE DUE	
NUMBER OF COOLERS SUBMITTED PER SHIPMENT	1

REQUIRED ANALYSIS: 500 ml, Poly, No Pres. 310.1, 300.0, 160.1 (Preservative: UN PRES.); 500 ml poly, H2SO4 353.1, 350.1 (Preservative: H2SO4)

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	No Pres. 310.1, 300.0, 160.1	H2SO4 353.1, 350.1			NUMBER OF CONTAINERS SUBMITTED	REMARKS
11/28/06	1530	OW-949	X	1	1			2X500	TOTAL DISSOLVED SOLIDS METHOD 160.1
11/28/06	1715	OW-946	X	1	1			1	INORGANIC IONS (BROMIDE, CHLORIDE, FLUORIDE, SULFATE) METHOD 300.0
									ALKALINITY (BICARBONATE & CARBONATE) METHOD 310.1
									AMMONIA METHOD 350.1
		SAMPLE DISPOSAL = BY LAB							NITRATE/NITRITE METHOD 353.1

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS	11/28/06	18:00	J. Joseph Wall					
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
EMPTY CONTAINERS			[signature]	11/29/06	0900			

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES ( ) NO ( )	CUSTODY SEAL NO.	STL SAVANNAH LOG NO.	LABORATORY REMARKS

ORIGINAL -- RETURN TO LABORATORY WITH SAMPLE(S)

STL ST. LOUIS
STL St. Louis

Lot#(s): F6K290160

- 5176 -

Condition Upon Receipt Form

Client: Mactec
Quote No: 71966
COC/RFA No:
Initiated By: BA
Date 11/29/06
Time: 0900

Shipping Information

Shipper Name: FE
Shipping # (s):*
1. 8582 4347 6023
2.
3.
4.
5.
6.
7.
8.
9.
10.

Multiple Packages Y (N) N/A
Sample Temperature (s):**
1. 3
2.
3.
4.
5.
6.
7.
8.
9.
10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Was sample received broken?	8.	(Y) N	Sample received with Chain of Custody?
2.	(Y) N N/A	Was sample received with proper pH[1] ? (If not, make note below)	9.	(Y) N	Chain of Custody matches sample ID's on container(s)?
3.	Y N	If N/A-Was pH taken by original STL Lab? 11/2	10.	(Y) N	Are there custody seals present on cooler?
4.	(Y) N	Sample received in proper containers?	11.	Y N (N/A)	Do custody seals on cooler appear to be tampered with?
5.	(Y) N	Sample volume sufficient for analysis?	12.	Y (N)	Are there custody seals present on bottles?
6.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)	13.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
7.	(Y) N	Were contents of the cooler frisked after opening	14.	Y N (N/A)	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes:

Corrective Action:
- ☐ Client Contact Name: _____ Informed by: _____
- ☐ Sample(s) processed "as is"
- ☐ Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: K Craig Date: 12-01-06

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

F6K290160

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-100

Project Manager: TJR Quote #: 71966 SDG:

Project: NORTH ANNA

O#: 66813 Report to: Mike Depalma

Client: 373886 MACTEC Engineering and Consulting Inc

#SMPS in LOT: 2

Date Received: 2006-11-29

Analytical Due Date: 2006-12-11

Report Due Date: 2006-12-13

Report Type: B Standard Report

EDD Code: 00

SAMPLE #	CLIENT SAMPLE ID	DATE/TIME SAMPLED	WORKORDER	I
1	0W-949	2006-11-28 / 1530	JKGJT	WATER

SAMPLE COMMENTS:

XX	AK	MCAW W	160.1	Solids, Filterable "TDS" (160.1)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	C8	MCAW W	300.0A	Fluoride (300.0A, Ion Chromatography)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	CX	MCAW W	300.0A	Chloride (300.0A, Ion Chromatography)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	CY	MCAW W	300.0A	Sulfate (300.0A, Ion Chromatography)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	GM	MCAW W	300.0A	Bromide (300.0A, Ion Chromatography)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	HN	MCAW W	353.1	Nitrate-Nitrite (353.1)	23	REDUCTION	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	VC	MCAW W	310.1	Alkalinity, Total (310.1)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	VM	MCAW W	350.1	Nitrogen, Ammonia (350.1, Automated)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	DATE/TIME SAMPLED	WORKORDER	I
2	0W-946	2006-11-28 / 1715	JKGWD	WATER

SAMPLE COMMENTS:

XX	AK	MCAW W	160.1	Solids, Filterable "TDS" (160.1)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	C8	MCAW W	300.0A	Fluoride (300.0A, Ion Chromatography)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	CX	MCAW W	300.0A	Chloride (300.0A, Ion Chromatography)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	CY	MCAW W	300.0A	Sulfate (300.0A, Ion Chromatography)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	GM	MCAW W	300.0A	Bromide (300.0A, Ion Chromatography)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	HN	MCAW W	353.1	Nitrate-Nitrite (353.1)	23	REDUCTION	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	VC	MCAW W	310.1	Alkalinity, Total (310.1)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06
XX	VM	MCAW W	350.1	Nitrogen, Ammonia (350.1, Automated)	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06

F6K290160

CLIENT COMMENTS SUMMARY

Storage Loc: 2-100

Project Manager: TJR
Quote #: 71966
SDG:
Date Received: 2006-11-29

Project: NORTH ANNA
Analytical Due Date: 2006-12-11

PO#: 66813
Report to: Mike Depalma
Report Due Date: 2006-12-13

Client: 373886 MACTEC Engineering and Consulting Inc
#SMPS in LOT: 2
Report Type: B Standard Report
EDD Code: 00

MACTEC

DOCUMENTATION OF TECHNICAL REVIEW
SUBCONTRACTOR WORK PRODUCT

Project Name: Dominion North Anna COL

Project Number: 6468-06-1472

Project Manager: Steve Criscenzo

Project Principal: Al Tice

The report described below has been prepared by the named subcontractor retained in accordance with the MACTEC QAPD. The work and report have been reviewed by a MACTEC technically qualified person. Comments on the work or report, if any, have been satisfactorily addressed by the subcontractor. The attached report is approved in accordance with section QS-7 of MACTEC's QAPD

The information and date contained in the attached report are hereby released by MACTEC for project use.

REPORT : Analytical Report, North Anna COL, Lot # FBK170278 dated December 18, 2006

SUBCONTRACTOR: STL - St. Louis

DATE OF ACCEPTANCE : 12-19-06

TECHNICAL REVIEWER: Wilkie A. Lin

PROJECT PRINCIPAL

NOTE - Samples from OW 901 and OW 950

DCN NA COL-179

MACTEC

Client Dominion Power Laboratory STL - St. Louis

MACTEC Project 6468-06-1472 Data Report Number/Date Lot # F6K170278 / 12-18

LABORATORY DATA REVIEW CHECKLIST

		YES	NO	NOT APPLICABLE
1.	Laboratory analytical data report appears complete (all data results present for all samples submitted for analysis) and there are no apparent transcription errors:	✓		
2.	Samples analyzed within applicable holding times (based on date of sample collection):*		✓ (1)	
3.	Trip blanks, field blanks or laboratory method blanks are free of blank contamination:	✓		
4.	If field duplicate samples collected, calculated results meet Relative Percent Difference guidelines: **			✓
5.	Surrogate recoveries (organic analyses only) within laboratory reported recovery acceptance ranges:			✓
6.	If Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples required to meet project objectives, Percent Recoveries (%R) and Relative Percent Difference (RPD) within laboratory reported acceptance ranges:		✓ (2)	
7.	Reported detection limits meet project objectives (e.g., are capable of achieving applicable site standards):	✓		
8.	Completed Chain-Of-Custody received noting sample/custody seal condition (with airbill, if appropriate):	✓		
9.	Analytical costs within authorized budget for these services:	✓ 12-18-06		✓

COMMENTS: (1) Nitrate and nitrite were tested outside of the 48-hour hold time for both samples (OW-901 and OW-950).

(2) LCS results within limits; Matrix Spike for Nitrate, Bromide, Fluoride, nitrate, nitrate/nitrite, and nitrite outside QC limits. Lab duplicate results for TDS and nitrate/nitrite, nitrate, and nitrite outside QC limits.

Notes:
1. This checklist is intended for use with the laboratory reporting formats typical of most projects. If "no" is answered to one or more of the above checklist questions 1 through 7, a more detailed Data Validation may be required, and a person knowledgeable in Data Validation protocols should be consulted. This checklist should not be used if the project scope requires Data Validation from the onset.
2. * = Based upon EPA Guidance and the applicable analytical method references. See reverse side of checklist for details.
3. ** = Based upon EPA Guidance. Use these criteria on duplicate and sample results which exceed five times the reported detection limit. See reverse side of checklist for details.

Checked by: William R. Grimes Date: 12-18-06

GENERAL DATA REVIEW CRITERIA

Typical Holding Times for Water Samples:*

Volatile Organic Compounds (EPA Method 8260/624)	14 days to analysis when preserved with HCl (7 days if not preserved)
Semi-volatile Organic Compounds (EPA Method 8270)	7 days to extraction, 40 days to analysis
Pesticides/PCBs (EPA Method 8081/8082)	7 days to extraction, 40 days to analysis
Metals (except Mercury)	180 days to analysis when preserved with HNO_3
Mercury	28 days to analysis
Cyanide	14 days to analysis

Typical Relative Percent Difference (RPD) Guidelines:**

	Aqueous	Soil
Volatile Organic Compounds (EPA Method 8260/624)	<30	<50
Semi-volatile Organic Compounds (EPA Method 8270)	<30	<50
Pesticides/PCBs (EPA Method 8081/8082)	<30	<50
Metals and Cyanide	<30	<50

Notes:

RPD calculated as:

$$RPD = [\,|A-B|\,] / [\,(A+B)/2\,] \times 100$$

where:

RPD = Relative Percent Difference
A = Sample Result
B = Duplicate Sample Result

* = Based upon EPA Guidance and the applicable analytical method references.

** = Based upon EPA Guidance. Use these criteria on duplicate and sample results that exceed five times the reported detection limit.

MACTEC

TELECON RECORD

Date: 12-19-06 Time: 1335

Grimes of MACTEC Placed (✓) call.

Received ( ) call.

Talked To: Terry Romanko Of: STL - St. Louis

Concerning: North Anna

Phone No.:

Message:

SG 12-19-06

(1) matrix spike sample failed QC for several analytes. were the samples passed/validated based on LCS recoveries? Yes

(2) Case narrative - nitrate/nitrite 1c34d as non-homogeneous sample - how? OK, can have floaters or residues

(3) Nitrogen as Ammonia - MS sample failed QC, LCS used to validate? Yes

(4) According to Attached listed of test methods -

Nitrite } 48 Hr. hold - tests conducted outside of
Nitrate } hold time & not qualified.

→ out of hold, but not used, not requested on COC

SEVERN TRENT STL

STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel: 314 298 8566 Fax: 314 298 8757
www.stl-inc.com

ANALYTICAL REPORT

NORTH ANNA COL

Lot #: F6K170278

J. Allan Tyce

MACTEC Engineering & Consultin
3301 Atlantic Ave
Raleigh, NC 27604

SEVERN TRENT LABORATORIES, INC.

Terry Romanko
Project Manager

DCN NA COL 178

December 18, 2006

Case Narrative
LOT NUMBER: F6K170278

This report contains the analytical results for the two samples received under chain of custody by STL St. Louis on November 17, 2006. These samples are associated with your NORTH ANNA COL project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Anions (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Sulfate) (MCAWW 300.0A)
The anion matrix spike solution contains all routine anions. Spiking technique, sample preparation and method compliance is demonstrated by the remaining acceptable MS recoveries. Poor matrix spike recovery Bromide in batch 6341065, Fluoride in batch 6341067, Nitrate in batch 6341068, and Nitrite in batch 6341069 is attributed to matrix interference.
The sample duplicate %RPD for Nitrate in batch 6341068 and Nitrite in batch 6341069 is outside the established QC limits. A matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS recovery.
Affected Samples:
F6K170278 (1): OW-950 F6K170278 (2): OW-901

Nitrate/Nitrite as N (MCAWW 353.1)
The MS recovery for Nitrate is outside the established QC limits. A matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS/LCSD recoveries. The RPD is not within method acceptance criteria. The sample is non-homogeneous. Method performance is demonstrated by acceptable LCS/LCSD recovery and RPD.
Affected Samples:
F6K170278 (1): OW-950 F6K170278 (2): OW-901

Nitrogen, as Ammonia (MCAWW 350.1)
When performing a sample dilution due to high concentrations of target analytes, the matrix spike was diluted below reliable detection, making QC recoveries unreliable.
Affected Samples:
F6K170278 (1): OW-950 F6K170278 (2): OW-901

There were no nonconformances or observations noted with any other analysis on this lot.

METHODS SUMMARY

F6K170278

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Alkalinity	MCAWW 310.1	MCAWW 310.1
Bromide	MCAWW 300.0A	MCAWW 300.0A
Chloride	MCAWW 300.0A	MCAWW 300.0A
Filterable Residue (TDS)	MCAWW 160.1	MCAWW 160.1
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.1	
Nitrite as N	MCAWW 300.0A	MCAWW 300.0A
Nitrogen, Ammonia	MCAWW 350.1	MCAWW 350.1
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SAMPLE SUMMARY

F6K170278

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
JJ02X	001	OW-950	11/16/06	12:10
JJ029	002	OW-901	11/16/06	14:55

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: OW-950

General Chemistry

Lot-Sample #...: F6K170278-001 Work Order #...: JJ02X Matrix.....: WATER
Date Sampled...: 11/16/06 12:10 Date Received..: 11/17/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.25	mg/L	MCAWW 300.0A	12/01/06	6341065
		Dilution Factor: 1		Analysis Time..: 08:27		
Chloride	25.3	2.0	mg/L	MCAWW 300.0A	12/01/06	6341066
		Dilution Factor: 10		Analysis Time..: 09:19		
Fluoride	0.14	0.10	mg/L	MCAWW 300.0A	12/01/06	6341067
		Dilution Factor: 1		Analysis Time..: 08:27		
Nitrate	0.32	0.020	mg/L	MCAWW 300.0A	12/01/06	6341068
		Dilution Factor: 1		Analysis Time..: 08:27		
Nitrate/Nitrite as N	0.65	0.050	mg/L	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	0.13	0.020	mg/L	MCAWW 300.0A	12/01/06	6341069
		Dilution Factor: 1		Analysis Time..: 08:27		
Nitrogen, as Ammonia	0.14	0.050	mg/L	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	17.2	5.0	mg/L	MCAWW 300.0A	12/01/06	6341070
		Dilution Factor: 10		Analysis Time..: 09:19		
Total Alkalinity	71.0	5.0	mg/L	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Dissolved Solids	162	5.0	mg/L	MCAWW 160.1	11/20/06	6334178
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering and Consulting Inc

Client Sample ID: OW-901

General Chemistry

Lot-Sample #...: F6K170278-002 Work Order #...: JJ029 Matrix.....: WATER
Date Sampled...: 11/16/06 14:55 Date Received..: 11/17/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.25	mg/L	MCAWW 300.0A	12/01/06	6341065
		Dilution Factor: 1		Analysis Time..: 10:47		
Chloride	8.8	2.0	mg/L	MCAWW 300.0A	12/01/06	6341066
		Dilution Factor: 10		Analysis Time..: 11:04		
Fluoride	0.12	0.10	mg/L	MCAWW 300.0A	12/01/06	6341067
		Dilution Factor: 1		Analysis Time..: 10:47		
Nitrate	0.13	0.020	mg/L	MCAWW 300.0A	12/01/06	6341068
		Dilution Factor: 1		Analysis Time..: 10:47		
Nitrate/Nitrite as N	0.19	0.050	mg/L	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	0.30	0.020	mg/L	MCAWW 300.0A	12/01/06	6341069
		Dilution Factor: 1		Analysis Time..: 10:47		
Nitrogen, as Ammonia	0.14	0.050	mg/L	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	2.1	0.50	mg/L	MCAWW 300.0A	12/01/06	6341070
		Dilution Factor: 1		Analysis Time..: 10:47		
Total Alkalinity	74.0	5.0	mg/L	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Dissolved Solids	133	5.0	mg/L	MCAWW 160.1	11/20/06	6334178
		Dilution Factor: 1		Analysis Time..: 00:00		

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F6K170278 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		Work Order #: JK0JX1AA		MB Lot-Sample #:	F6L070000-065	
	ND	0.25	mg/L	MCAWW 300.0A	12/01/06	6341065
		Dilution Factor: 1				
		Analysis Time..: 06:25				
Chloride		Work Order #: JK0J01AA		MB Lot-Sample #:	F6L070000-066	
	ND	0.20	mg/L	MCAWW 300.0A	12/01/06	6341066
		Dilution Factor: 1				
		Analysis Time..: 06:25				
Fluoride		Work Order #: JK0J11AA		MB Lot-Sample #:	F6L070000-067	
	ND	0.10	mg/L	MCAWW 300.0A	12/01/06	6341067
		Dilution Factor: 1				
		Analysis Time..: 06:25				
Nitrate		Work Order #: JK0J21AA		MB Lot-Sample #:	F6L070000-068	
	ND	0.020	mg/L	MCAWW 300.0A	12/01/06	6341068
		Dilution Factor: 1				
		Analysis Time..: 06:25				
Nitrate/Nitrite as N		Work Order #: JKREF1AA		MB Lot-Sample #:	F6L050000-052	
	ND	0.050	mg/L	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Nitrite		Work Order #: JK0J31AA		MB Lot-Sample #:	F6L070000-069	
	ND	0.020	mg/L	MCAWW 300.0A	12/01/06	6341069
		Dilution Factor: 1				
		Analysis Time..: 06:25				
Nitrogen, as Ammonia		Work Order #: JLKM11AA		MB Lot-Sample #:	F6L150000-319	
	ND	0.050	mg/L	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Sulfate		Work Order #: JK0J51AA		MB Lot-Sample #:	F6L070000-070	
	ND	0.50	mg/L	MCAWW 300.0A	12/01/06	6341070
		Dilution Factor: 1				
		Analysis Time..: 06:25				
Total Alkalinity		Work Order #: JKN151AA		MB Lot-Sample #:	F6K300000-286	
	ND	5.0	mg/L	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1				
		Analysis Time..: 00:00				

(Continued on next page)

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F6K170278 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids		Work Order #: JKH971AA		MB Lot-Sample #: F6K300000-178		
	ND	5.0	mg/L	MCAWW 160.1	11/20/06	6334178
		Dilution Factor: 1				
		Analysis Time..: 00:00				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F6K170278 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		WO#:JK0JX1AC-LCS/JK0JX1AD-LCSD LCS Lot-Sample#: F6L070000-065					
	100	(90 - 110)			MCAWW 300.0A	12/01/06	6341065
	94	(90 - 110)	5.6	(0-20)	MCAWW 300.0A	12/01/06	6341065
		Dilution Factor: 1			Analysis Time..: 06:08		
Chloride		WO#:JK0J01AC-LCS/JK0J01AD-LCSD LCS Lot-Sample#: F6L070000-066					
	99	(90 - 110)			MCAWW 300.0A	12/01/06	6341066
	101	(90 - 110)	2.2	(0-20)	MCAWW 300.0A	12/01/06	6341066
		Dilution Factor: 1			Analysis Time..: 06:08		
Fluoride		WO#:JK0J11AC-LCS/JK0J11AD-LCSD LCS Lot-Sample#: F6L070000-067					
	99	(90 - 110)			MCAWW 300.0A	12/01/06	6341067
	100	(90 - 110)	0.67	(0-20)	MCAWW 300.0A	12/01/06	6341067
		Dilution Factor: 1			Analysis Time..: 06:08		
Nitrate		WO#:JK0J21AC-LCS/JK0J21AD-LCSD LCS Lot-Sample#: F6L070000-068					
	102	(90 - 110)			MCAWW 300.0A	12/01/06	6341068
	98	(90 - 110)	4.6	(0-20)	MCAWW 300.0A	12/01/06	6341068
		Dilution Factor: 1			Analysis Time..: 06:08		
Nitrate/Nitrite as N		WO#:JKREF1AC-LCS/JKREF1AD-LCSD LCS Lot-Sample#: F6L050000-052					
	100	(90 - 110)			MCAWW 353.1	12/04/06	6339052
	109	(90 - 110)	8.2	(0-20)	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1			Analysis Time..: 00:00		
Nitrite		WO#:JK0J31AC-LCS/JK0J31AD-LCSD LCS Lot-Sample#: F6L070000-069					
	104	(90 - 110)			MCAWW 300.0A	12/01/06	6341069
	101	(90 - 110)	3.2	(0-20)	MCAWW 300.0A	12/01/06	6341069
		Dilution Factor: 1			Analysis Time..: 06:08		
Sulfate		WO#:JK0J51AC-LCS/JK0J51AD-LCSD LCS Lot-Sample#: F6L070000-070					
	97	(90 - 110)			MCAWW 300.0A	12/01/06	6341070
	98	(90 - 110)	0.84	(0-20)	MCAWW 300.0A	12/01/06	6341070
		Dilution Factor: 1			Analysis Time..: 06:08		
Total Alkalinity		WO#:JKN151AC-LCS/JKN151AD-LCSD LCS Lot-Sample#: F6K300000-286					
	100	(90 - 110)			MCAWW 310.1	11/30-12/02/06	6334286
	100	(90 - 110)	0.0	(0-15)	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1			Analysis Time..: 00:00		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F6K170278 **Matrix.........:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids		WO#:JKH971AC-LCS/JKH971AD-LCSD			LCS Lot-Sample#: F6K300000-178		
	92	(90 - 110)			MCAWW 160.1	11/20/06	6334178
	97	(90 - 110)	4.7	(0-15)	MCAWW 160.1	11/20/06	6334178
		Dilution Factor: 1			Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K170278 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia		Work Order #: JLKM11AC	LCS Lot-Sample#: F6L150000-319		
	103	(90 - 110)	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K170278 **Matrix.....:** WATER
Date Sampled...: 12/01/06 14:30 **Date Received..:** 12/02/06

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia	WO#: JKPN51HC-MS/JKPN51HD-MSD					MS Lot-Sample #: F6L020205-006	
	0.0 N	(90 - 110)			MCAWW 350.1	12/08/06	6349319
	2880 N	(90 - 110)	0.0	(0-20)	MCAWW 350.1	12/08/06	6349319

Dilution Factor: 1
Analysis Time..: 00:00

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K170278 **Matrix.....:** WATER
Date Sampled...: 11/16/06 12:10 **Date Received..:** 11/17/06

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		Work Order #...: JJ02X1AM		MS Lot-Sample #: F6K170278-001	
	236 N	(90 - 110)	MCAWW 300.0A	12/01/06	6341065
		Dilution Factor: 1	Analysis Time..: 08:27		
Chloride		Work Order #...: JJ02X1AP		MS Lot-Sample #: F6K170278-001	
	97	(90 - 110)	MCAWW 300.0A	12/01/06	6341066
		Dilution Factor: 10	Analysis Time..: 09:19		
Fluoride		Work Order #...: JJ02X1AR		MS Lot-Sample #: F6K170278-001	
	134 N	(90 - 110)	MCAWW 300.0A	12/01/06	6341067
		Dilution Factor: 1	Analysis Time..: 08:27		
Nitrate		Work Order #...: JJ02X1AU		MS Lot-Sample #: F6K170278-001	
	214 N	(90 - 110)	MCAWW 300.0A	12/01/06	6341068
		Dilution Factor: 1	Analysis Time..: 08:27		
Nitrate/Nitrite as N		Work Order #...: JJCRL1AJ		MS Lot-Sample #: F6K090297-001	
	42 N	(90 - 110)	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1	Analysis Time..: 00:00		
Nitrite		Work Order #...: JJ02X1AW		MS Lot-Sample #: F6K170278-001	
	437 N	(90 - 110)	MCAWW 300.0A	12/01/06	6341069
		Dilution Factor: 1	Analysis Time..: 08:27		
Sulfate		Work Order #...: JJ02X1A0		MS Lot-Sample #: F6K170278-001	
	95	(90 - 110)	MCAWW 300.0A	12/01/06	6341070
		Dilution Factor: 10	Analysis Time..: 09:19		
Total Alkalinity		Work Order #...: JJ27W1AN		MS Lot-Sample #: F6K180195-002	
	101	(50 - 121)	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K170278 **Work Order #...:** JJ27W-SMP JJ27W-DUP **Matrix.....:** WATER

Date Sampled...: 11/17/06 15:08 **Date Received..:** 11/18/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids						SD Lot-Sample #: F6K180195-002		
	72.0	80.0	mg/L	11	(0-0.0)	MCAWW 160.1	11/20/06	6334178
			Dilution Factor: 1			Analysis Time..: 00:00		
Total Alkalinity						SD Lot-Sample #: F6K180195-002		
	25.0	24.0	mg/L	4.1	(0-20)	MCAWW 310.1	11/30-12/02/06	6334286
			Dilution Factor: 1			Analysis Time..: 00:00		

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K170278 **Work Order #...:** JJCRL-SMP **Matrix.....:** WATER
JJCRL-DUP

Date Sampled...: 11/07/06 08:32 **Date Received..:** 11/09/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N						SD Lot-Sample #: F6K090297-001		
	0.094	ND	mg/L	200	(0-20)	MCAWW 353.1	12/04/06	6339052

Dilution Factor: 1 Analysis Time..: 00:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K170278 **Work Order #...:** JJ02X-SMP JJ02X-DUP **Matrix.....:** WATER

Date Sampled...: 11/16/06 12:10 **Date Received..:** 11/17/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide						SD Lot-Sample #: F6K170278-001		
	ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	12/01/06	6341065
		Dilution Factor: 1				Analysis Time..: 08:27		
Chloride						SD Lot-Sample #: F6K170278-001		
	25.3	24.7	mg/L	2.4	(0-20)	MCAWW 300.0A	12/01/06	6341066
		Dilution Factor: 10				Analysis Time..: 09:19		
Fluoride						SD Lot-Sample #: F6K170278-001		
	0.14	0.13	mg/L	5.0	(0-20)	MCAWW 300.0A	12/01/06	6341067
		Dilution Factor: 1				Analysis Time..: 08:27		
Nitrate						SD Lot-Sample #: F6K170278-001		
	0.32	0.66	mg/L	69	(0-20)	MCAWW 300.0A	12/01/06	6341068
		Dilution Factor: 1				Analysis Time..: 08:27		
Nitrite						SD Lot-Sample #: F6K170278-001		
	0.13	0.45	mg/L	113	(0-20)	MCAWW 300.0A	12/01/06	6341069
		Dilution Factor: 1				Analysis Time..: 08:27		
Sulfate						SD Lot-Sample #: F6K170278-001		
	17.2	16.9	mg/L	2.0	(0-20)	MCAWW 300.0A	12/01/06	6341070
		Dilution Factor: 10				Analysis Time..: 09:19		

[redacted]

Chain of Custody Record

SEVERN TRENT STL
Severn Trent Laboratories, Inc.

STL-4124 (0901)

MACTEC North ANNA CoL COC = NA-11

Client	Project Manager	Date	Chain of Custody Number
MACTEC	Steve Criscenzo	11-16-06	321998

Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page
3301 Atlantic Avenue	919-876-0416		Page 1 of 1

City	State	Zip Code	Site Contact	Lab Contact
Raleigh	NC	27604	Kim Charles-Smith	Terry Romanko

Project Name and Location (State)	Carrier/Waybill Number
North ANNA CoL	Fed Ex. 8682 9218 4021

Contract/Purchase Order/Quote No.: Job # 6468-06-1472 Task 04

Analysis (Attach list if more space is needed)

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	500 ml poly no pres 160.1, 300.0, 310.1	250 ml poly H2SO4 350.1, 353.1	Special Instructions/ Conditions of Receipt
OW-950	11/16/06	1210		X			X	X					1	1	Total Dissolved Solids method 160.1
OW-901	11/16/06	1455		X			X	X					1	1	Inorganic ions (Bromide, Chloride, Flouride, Sulfide) method 300.0

Special Instructions/Conditions of Receipt (continued): Alkalinity (bicarbonate-carbonate) method 310.1; Ammonia Method 350.1; Nitrate/Nitrite Method 353.1

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other Stand

QC Requirements (Specify)

Relinquished By	Date	Time	Received By	Date	Time
1. Kimberly Charles-Smith	11/16/06	1620	1. [signature]	11/17/06	0900
2.			2.		
3.			3.		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

STL St. Louis

Lot #(s): F6K170278

- 5018 -

Condition Upon Receipt Form

Client: Mactec   COC/RFA No: ____   Date: 11/17/06
Quote No: 71961   Initiated By: DD   Time: 0905

Shipping Information

Shipper Name: FE   Multiple Packages Y (N) N/A
Shipping # (s):*   Sample Temperature (s):**

1. 87582 9218 4021	6.	1. 2	6.
2.	7.	2.	7.
3.	8.	3.	8.
4.	9.	4.	9.
5.	10.	5.	10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y (N)	Was sample received broken?	8.	(Y) N	Sample received with Chain of Custody?
2.	(Y) N N/A	Was sample received with proper pH[1] ? (If not, make note below)	9.	(Y) N	Chain of Custody matches sample ID's on container(s)?
3.	Y N	If N/A-Was pH taken by original STL Lab?	10.	(Y) N	Are there custody seals present on cooler?
4.	(Y) N	Sample received in proper containers?	11.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?
5.	(Y) N	Sample volume sufficient for analysis?	12.	(Y) N	Are there custody seals present on bottles?
6.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)	13.	Y (N) N/A	Do custody seals on bottles appear to be tampered with?
7.	(Y) N	Were contents of the cooler frisked after opening	14.	Y N	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes:

Corrective Action:

☐ Client Contact Name: ____   Informed by: ____
☐ Sample(s) processed "as is"
☐ Sample(s) on hold until: ____   If released, notify: ____

Project Management Review: [signature]   Date: 11/21/06

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004, REVISED 03/01/06\\Slsvr01\QA\FORMS\ST-LOUIS\ADMIN\Admin004030106.doc

MACTEC

DOCUMENTATION OF TECHNICAL REVIEW
SUBCONTRACTOR WORK PRODUCT

Project Name: North Anna COL

Project Number: 6468-06-1472

Project Manager: Steve Criscenzo

Project Principal: Al Tice

The report described below has been prepared by the named subcontractor retained in accordance with the MACTEC QAPD. The work and report have been reviewed by a MACTEC technically qualified person. Comments on the work or report, if any, have been satisfactorily addressed by the subcontractor. The attached report is approved in accordance with section QS-7 of MACTEC's QAPD

The information and date contained in the attached report are hereby released by MACTEC for project use.

REPORT : Analytical Report Project No. 6468-06-1472, North Anna, Lot #: F6K180195

December 22, 2006

SUBCONTRACTOR: Severn Trent Laboratories, Inc. (STL St. Louis)

DATE OF ACCEPTANCE : January 19, 2007

TECHNICAL REVIEWER: William L. Shi

PROJECT PRINCIPAL : J. Allan Tice

Note - Samples from OW945, OW947 and OW 951
JAT 1-19-07

DCN NA COL- 193

MACTEC

Client Dominion Power Laboratory STL - St. Louis

MACTEC Project 6468-06-1472 Data Report Number/Date Lot # F6K180195 / 12-22-2006

Amended Review Based on Final Report

LABORATORY DATA REVIEW CHECKLIST

		YES	NO	NOT APPLICABLE
1.	Laboratory analytical data report appears complete (all data results present for all samples submitted for analysis) and there are no apparent transcription errors:	✓		
2.	Samples analyzed within applicable holding times (based on date of sample collection):*		✓(1)	
3.	Trip blanks, field blanks or laboratory method blanks are free of blank contamination:	✓		
4.	If field duplicate samples collected, calculated results meet Relative Percent Difference guidelines: **			✓
5.	Surrogate recoveries (organic analyses only) within laboratory reported recovery acceptance ranges:			✓
6.	If Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples required to meet project objectives, Percent Recoveries (%R) and Relative Percent Difference (RPD) within laboratory reported acceptance ranges:		✓(2)	
7.	Reported detection limits meet project objectives (e.g., are capable of achieving applicable site standards):	✓		
8.	Completed Chain-Of-Custody received noting sample/custody seal condition (with airbill, if appropriate):	✓		
9.	Analytical costs within authorized budget for these services:	✓		

COMMENTS: (1) Tests originally run with Hold Time, but equipment malfunction, resulted in invalid results. Tests rerun out of hold. Nonconformance and Corrective Action Report (CWA-NCA-18) determined results usable as is. NA-NCA-18 also approved the use of 1 sample for ammonia reanalyzed outside of Hold Time due to use of an expired reagent. (2) MS + MSD samples for several analytes failed QC criteria. Sample results validated based on Laboratory Control Sample Matrix QC criteria.

Notes:
1. This checklist is intended for use with the laboratory reporting formats typical of most projects. If "no" is answered to one or more of the above checklist questions 1 through 7, a more detailed Data Validation may be required, and a person knowledgeable in Data Validation protocols should be consulted. This checklist should not be used if the project scope requires Data Validation from the onset.
2. * = Based upon EPA Guidance and the applicable analytical method references. See reverse side of checklist for details.
3. ** = Based upon EPA Guidance. Use these criteria on duplicate and sample results which exceed five times the reported detection limit. See reverse side of checklist for details.

Checked by: [signature] Date: 1/19/07

MACTEC

Client Dominion Power Laboratory STL - St. Louis

MACTEC Project 6468-06-1172 Data Report Number/Date Lot # F6K180195 / 1248-2

Partial - Draft Rpt.

LABORATORY DATA REVIEW CHECKLIST

		YES	NO	NOT APPLICABLE
1.	Laboratory analytical data report appears complete (all data results present for all samples submitted for analysis) and there are no apparent transcription errors:	—	✓ (1)	—
2.	Samples analyzed within applicable holding times (based on date of sample collection):*	✓	—	—
3.	Trip blanks, field blanks or laboratory method blanks are free of blank contamination:	✓	—	—
4.	If field duplicate samples collected, calculated results meet Relative Percent Difference guidelines: **	—	—	✓
5.	Surrogate recoveries (organic analyses only) within laboratory reported recovery acceptance ranges:	—	—	✓
6.	If Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples required to meet project objectives, Percent Recoveries (%R) and Relative Percent Difference (RPD) within laboratory reported acceptance ranges:	—	✓ (2)	—
7.	Reported detection limits meet project objectives (e.g., are capable of achieving applicable site standards):	✓	—	—
8.	Completed Chain-Of-Custody received noting sample/custody seal condition (with airbill, if appropriate):	—	✓ (3)	—
9.	Analytical costs within authorized budget for these services:	—	—	✓

Answers Based on Data provided, subject to change w/ Final lab Reports

COMMENTS: (1) missing results - QC, draft report. (2) matrix spike sample for nitrogen as ammonia, nitrate/nitrite and lab duplicates for TDS and nitrate/nitrite outside QC limits (3) Draft report, missing COC - should be in final

Notes: 1. This checklist is intended for use with the laboratory reporting formats typical of most projects. If "no" is answered to one or more of the above checklist questions 1 through 7, a more detailed Data Validation may be required, and a person knowledgeable in Data Validation protocols should be consulted. This checklist should not be used if the project scope requires Data Validation from the onset.

2. * = Based upon EPA Guidance and the applicable analytical method references. See reverse side of checklist for details.

3. ** = Based upon EPA Guidance. Use these criteria on duplicate and sample results which exceed five times the reported detection limit. See reverse side of checklist for details.

Checked by: William S. Grimes Date: 11-13-06

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ANALYTICAL REPORT

This PASE NA 12/22/06

North Anna COL

Lot #: F6K180195

Mike Sufnarski

MACTEC Engineering & Consultin
2801 Yorkmont Rd
Suite 100
Charlotte, NC 28208

SEVERN TRENT LABORATORIES, INC.

for Terry Romanko
Project Manager

December 22, 2006

DCN NA 191

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ANALYTICAL REPORT

North Anna COL

Lot #: F6K180195

J. Allan Tyce

MACTEC Engineering & Consultin
3301 Atlantic Ave
Raleigh, NC 27604

SEVERN TRENT LABORATORIES, INC.

for

Terry Romanko
Project Manager

December 22, 2006

Case Narrative
LOT NUMBER: **F6K180195**

This report contains the analytical results for the three samples received under chain of custody by STL St. Louis on November 18, 2006. These samples are associated with your North Anna COL project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances
Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Anions by MCAWW 300.0A
Poor matrix spike recovery for Chloride, Nitrate, Nitrite, Bromide, and Sulfate is attributed to matrix interference. These samples were originally analyzed within hold time, but the re-analysis, due to CCV failure, was after the hold time had expired.
Affected Samples:
F6K180195 (1): OW-945 F6K180195 (2): OW-947
F6K180195 (3): OW-951

Nitrite by MCAWW 300.0A
The sample was analyzed at a dilution due to high concentrations of target analytes.
Affected Samples:
F6K180195 (1): OW-945 F6K180195 (2): OW-947
F6K180195 (3): OW-951

Nitrogen, Ammonia by MCAWW 350.1
When performing a sample dilution due to high concentrations of target analytes, the matrix spike was diluted below reliable detection, making QC recoveries uninformative. Due to analyst error the sodium hypochlorite reagent was used past its expiration date.
Affected Samples:
F6K180195 (1): OW-945 F6K180195 (2): OW-947

Nitrate-Nitrite by MCAWW 353.1
The MS recovery and RPD are outside the established QC limits. Matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS/LCSD recoveries.
Affected Samples:
F6K180195 (1): OW-945 F6K180195 (2): OW-947
F6K180195 (3): OW-951

There are no anomalies to report for the following analyses:
Alkalinity by MCAWW 310.1
TDS by MCAWW 160.1

METHODS SUMMARY

F6K180195

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Alkalinity	MCAWW 310.1	MCAWW 310.1
Bromide	MCAWW 300.0A	MCAWW 300.0A
Chloride	MCAWW 300.0A	MCAWW 300.0A
Filterable Residue (TDS)	MCAWW 160.1	MCAWW 160.1
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.1	
Nitrite as N	MCAWW 300.0A	MCAWW 300.0A
Nitrogen, Ammonia	MCAWW 350.1	MCAWW 350.1
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SAMPLE SUMMARY

F6K180195

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
JJ27V	001	OW-945	11/17/06	12:20
JJ27W	002	OW-947	11/17/06	15:08
JJ27X	003	OW-951	11/17/06	15:48

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MACTEC Engineering and Consulting Inc

Client Sample ID: OW-945

General Chemistry

Lot-Sample #...: F6K180195-001 **Work Order #...:** JJ27V **Matrix.....:** WATER
Date Sampled...: 11/17/06 12:20 **Date Received..:** 11/18/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.25	mg/L	MCAWW 300.0A	12/18/06	6328268
		Dilution Factor: 1		Analysis Time..: 11:33		
Chloride	**0.93**	**0.20**	**mg/L**	**MCAWW 300.0A**	**12/18/06**	**6328269**
		Dilution Factor: 1		Analysis Time..: 11:33		
Fluoride	ND	0.10	mg/L	MCAWW 300.0A	12/18/06	6328270
		Dilution Factor: 1		Analysis Time..: 11:33		
Nitrate	ND	0.020	mg/L	MCAWW 300.0A	12/18/06	6328271
		Dilution Factor: 1		Analysis Time..: 11:33		
Nitrate/Nitrite as N	ND	0.050	mg/L	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	ND	0.020	mg/L	MCAWW 300.0A	12/18/06	6328272
		Dilution Factor: 1		Analysis Time..: 11:33		
Nitrogen, as Ammonia	ND	0.050	mg/L	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	**0.52**	**0.50**	**mg/L**	**MCAWW 300.0A**	**12/18/06**	**6328273**
		Dilution Factor: 1		Analysis Time..: 11:33		
Total Alkalinity	ND	5.0	mg/L	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Dissolved Solids	**11.0**	**5.0**	**mg/L**	**MCAWW 160.1**	**11/20/06**	**6334178**
		Dilution Factor: 1		Analysis Time..: 00:00		

MACTEC Engineering and Consulting Inc

Client Sample ID: OW-947

General Chemistry

Lot-Sample #...: F6K180195-002 **Work Order #...:** JJ27W **Matrix.....:** WATER
Date Sampled...: 11/17/06 15:08 **Date Received..:** 11/18/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide	ND	0.25	mg/L	MCAWW 300.0A	12/18-12/19/06	6328268
		Dilution Factor: 1		Analysis Time..: 01:06		
Chloride	**1.9**	**0.20**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328269**
		Dilution Factor: 1		Analysis Time..: 01:06		
Fluoride	**0.049 B**	**0.10**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328270**
		Dilution Factor: 1		Analysis Time..: 01:06		
Nitrate	**0.92**	**0.020**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328271**
		Dilution Factor: 1		Analysis Time..: 01:06		
Nitrate/Nitrite as N	**0.97**	**0.050**	**mg/L**	**MCAWW 353.1**	**12/04/06**	**6339052**
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	ND	0.020	mg/L	MCAWW 300.0A	12/18-12/19/06	6328272
		Dilution Factor: 1		Analysis Time..: 01:06		
Nitrogen, as Ammonia	ND	0.050	mg/L	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	**2.1**	**0.50**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328273**
		Dilution Factor: 1		Analysis Time..: 01:06		
Total Alkalinity	**25.0**	**5.0**	**mg/L**	**MCAWW 310.1**	**11/30-12/02/06**	**6334286**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Dissolved Solids	**72.0**	**5.0**	**mg/L**	**MCAWW 160.1**	**11/20/06**	**6334178**
		Dilution Factor: 1		Analysis Time..: 00:00		

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

MACTEC Engineering and Consulting Inc

Client Sample ID: OW-951

General Chemistry

Lot-Sample #...: F6K180195-003 **Work Order #...:** JJ27X **Matrix.....:** WATER
Date Sampled...: 11/17/06 15:48 **Date Received..:** 11/18/06

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide	ND	2.5	mg/L	MCAWW 300.0A	12/18-12/19/06	6328268
		Dilution Factor: 10		Analysis Time..: 01:44		
Chloride	**9.3**	**2.0**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328269**
		Dilution Factor: 10		Analysis Time..: 01:44		
Fluoride	**0.63**	**0.10**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328270**
		Dilution Factor: 1		Analysis Time..: 01:25		
Nitrate	**0.25**	**0.020**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328271**
		Dilution Factor: 1		Analysis Time..: 01:25		
Nitrate/Nitrite as N	**0.39**	**0.050**	**mg/L**	**MCAWW 353.1**	**12/04/06**	**6339052**
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	**0.17 B**	**0.20**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328272**
		Dilution Factor: 10		Analysis Time..: 01:44		
Nitrogen, as Ammonia	**0.078**	**0.050**	**mg/L**	**MCAWW 350.1**	**12/07/06**	**6341275**
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	**592**	**25.0**	**mg/L**	**MCAWW 300.0A**	**12/18-12/19/06**	**6328273**
		Dilution Factor: 50		Analysis Time..: 02:02		
Total Alkalinity	**184**	**5.0**	**mg/L**	**MCAWW 310.1**	**11/30-12/02/06**	**6334286**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Dissolved Solids	**1090**	**5.0**	**mg/L**	**MCAWW 160.1**	**11/20/06**	**6334178**
		Dilution Factor: 1		Analysis Time..: 00:00		

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F6K180195 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		Work Order #: JLTL31AA		MB Lot-Sample #:	F6K240000-268	
	ND	0.25	mg/L	MCAWW 300.0A	12/18/06	6328268
		Dilution Factor: 1				
		Analysis Time..: 08:43				
Chloride		Work Order #: JLTL41AA		MB Lot-Sample #:	F6K240000-269	
	ND	0.20	mg/L	MCAWW 300.0A	12/18/06	6328269
		Dilution Factor: 1				
		Analysis Time..: 08:43				
Fluoride		Work Order #: JLTL51AA		MB Lot-Sample #:	F6K240000-270	
	ND	0.10	mg/L	MCAWW 300.0A	12/18/06	6328270
		Dilution Factor: 1				
		Analysis Time..: 08:43				
Nitrate		Work Order #: JLTML1AA		MB Lot-Sample #:	F6K240000-271	
	ND	0.020	mg/L	MCAWW 300.0A	12/18/06	6328271
		Dilution Factor: 1				
		Analysis Time..: 08:43				
Nitrate/Nitrite as N		Work Order #: JKREF1AA		MB Lot-Sample #:	F6L050000-052	
	ND	0.050	mg/L	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Nitrite		Work Order #: JLTL61AA		MB Lot-Sample #:	F6K240000-272	
	ND	0.020	mg/L	MCAWW 300.0A	12/18/06	6328272
		Dilution Factor: 1				
		Analysis Time..: 08:43				
Nitrogen, as Ammonia		Work Order #: JK04Q1AA		MB Lot-Sample #:	F6L070000-275	
	ND	0.050	mg/L	MCAWW 350.1	12/07/06	6341275
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Nitrogen, as Ammonia		Work Order #: JLKM11AA		MB Lot-Sample #:	F6L150000-319	
	ND	0.050	mg/L	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Sulfate		Work Order #: JLTL71AA		MB Lot-Sample #:	F6K240000-273	
	ND	0.50	mg/L	MCAWW 300.0A	12/18/06	6328273
		Dilution Factor: 1				
		Analysis Time..: 08:43				

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METHOD BLANK REPORT

General Chemistry

Client Lot #...: F6K180195 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity		Work Order #: JKN151AA		MB Lot-Sample #:	F6K300000-286	
	ND	5.0	mg/L	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Total Dissolved Solids		Work Order #: JKH971AA		MB Lot-Sample #:	F6K300000-178	
	ND	5.0	mg/L	MCAWW 160.1	11/20/06	6334178
		Dilution Factor: 1				
		Analysis Time..: 00:00				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F6K180195 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		WO#:JLTL31AC-LCS/JLTL31AD-LCSD LCS Lot-Sample#: F6K240000-268					
	95	(90 - 110)			MCAWW 300.0A	12/18/06	6328268
	91	(90 - 110)	4.3	(0-20)	MCAWW 300.0A	12/18/06	6328268
		Dilution Factor: 1			Analysis Time..: 08:08		
Chloride		WO#:JLTL41AC-LCS/JLTL41AD-LCSD LCS Lot-Sample#: F6K240000-269					
	95	(90 - 110)			MCAWW 300.0A	12/18/06	6328269
	97	(90 - 110)	2.7	(0-20)	MCAWW 300.0A	12/18/06	6328269
		Dilution Factor: 1			Analysis Time..: 08:08		
Fluoride		WO#:JLTL51AC-LCS/JLTL51AD-LCSD LCS Lot-Sample#: F6K240000-270					
	96	(90 - 110)			MCAWW 300.0A	12/18/06	6328270
	94	(90 - 110)	1.6	(0-20)	MCAWW 300.0A	12/18/06	6328270
		Dilution Factor: 1			Analysis Time..: 08:08		
Nitrate		WO#:JLTML1AC-LCS/JLTML1AD-LCSD LCS Lot-Sample#: F6K240000-271					
	98	(90 - 110)			MCAWW 300.0A	12/18/06	6328271
	102	(90 - 110)	3.4	(0-20)	MCAWW 300.0A	12/18/06	6328271
		Dilution Factor: 1			Analysis Time..: 08:08		
Nitrate/Nitrite as N		WO#:JKREF1AC-LCS/JKREF1AD-LCSD LCS Lot-Sample#: F6L050000-052					
	100	(90 - 110)			MCAWW 353.1	12/04/06	6339052
	109	(90 - 110)	8.2	(0-20)	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1			Analysis Time..: 00:00		
Nitrite		WO#:JLTL61AC-LCS/JLTL61AD-LCSD LCS Lot-Sample#: F6K240000-272					
	96	(90 - 110)			MCAWW 300.0A	12/18/06	6328272
	101	(90 - 110)	4.5	(0-20)	MCAWW 300.0A	12/18/06	6328272
		Dilution Factor: 1			Analysis Time..: 08:08		
Sulfate		WO#:JLTL71AC-LCS/JLTL71AD-LCSD LCS Lot-Sample#: F6K240000-273					
	95	(90 - 110)			MCAWW 300.0A	12/18/06	6328273
	94	(90 - 110)	0.92	(0-20)	MCAWW 300.0A	12/18/06	6328273
		Dilution Factor: 1			Analysis Time..: 08:08		
Total Alkalinity		WO#:JKN151AC-LCS/JKN151AD-LCSD LCS Lot-Sample#: F6K300000-286					
	100	(90 - 110)			MCAWW 310.1	11/30-12/02/06	6334286
	100	(90 - 110)	0.0	(0-15)	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1			Analysis Time..: 00:00		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F6K180195 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids		WO#:JKH971AC-LCS/JKH971AD-LCSD				LCS Lot-Sample#: F6K300000-178	
	92	(90 - 110)			MCAWW 160.1	11/20/06	6334178
	97	(90 - 110)	4.7	(0-15)	MCAWW 160.1	11/20/06	6334178

Dilution Factor: 1 Analysis Time..: 00:00

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K180195 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia		Work Order #: JK04Q1AC	LCS Lot-Sample#: F6L070000-275		
	98	(90 - 110)	MCAWW 350.1	12/07/06	6341275
		Dilution Factor: 1	Analysis Time..: 00:00		
Nitrogen, as Ammonia		Work Order #: JLKM11AC	LCS Lot-Sample#: F6L150000-319		
	103	(90 - 110)	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K180195 **Matrix.....:** WATER
Date Sampled...: 12/01/06 14:30 **Date Received..:** 12/02/06

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrogen, as Ammonia		WO#: JJ28E1E9-MS/JJ28E1FA-MSD				MS Lot-Sample #: F6K180200-001	
	102	(90 - 110)			MCAWW 350.1	12/07/06	6341275
	100	(90 - 110)	1.5	(0-20)	MCAWW 350.1	12/07/06	6341275
		Dilution Factor: 1					
		Analysis Time..: 00:00					
Nitrogen, as Ammonia		WO#: JKPN51HC-MS/JKPN51HD-MSD				MS Lot-Sample #: F6L020205-006	
	0.0 N	(90 - 110)			MCAWW 350.1	12/08/06	6349319
	2880 N	(90 - 110)	0.0	(0-20)	MCAWW 350.1	12/08/06	6349319
		Dilution Factor: 1					
		Analysis Time..: 00:00					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K180195 **Matrix.....:** WATER
Date Sampled...: 11/17/06 12:20 **Date Received..:** 11/18/06

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide		Work Order #...: JJ27V1AM		MS Lot-Sample #: F6K180195-001	
	188 N	(90 - 110)	MCAWW 300.0A	12/18-12/19/06	6328268
		Dilution Factor: 1	Analysis Time..: 11:33		
Chloride		Work Order #...: JJ27V1AP		MS Lot-Sample #: F6K180195-001	
	115 N	(90 - 110)	MCAWW 300.0A	12/18-12/19/06	6328269
		Dilution Factor: 1	Analysis Time..: 11:33		
Fluoride		Work Order #...: JJ27V1AR		MS Lot-Sample #: F6K180195-001	
	106	(90 - 110)	MCAWW 300.0A	12/18-12/19/06	6328270
		Dilution Factor: 1	Analysis Time..: 11:33		
Nitrate		Work Order #...: JJ27V1A0		MS Lot-Sample #: F6K180195-001	
	114 N	(90 - 110)	MCAWW 300.0A	12/18-12/19/06	6328271
		Dilution Factor: 1	Analysis Time..: 11:33		
Nitrate/Nitrite as N		Work Order #...: JJCRL1AJ		MS Lot-Sample #: F6K090297-001	
	42 N	(90 - 110)	MCAWW 353.1	12/04/06	6339052
		Dilution Factor: 1	Analysis Time..: 00:00		
Nitrite		Work Order #...: JJ27V1AU		MS Lot-Sample #: F6K180195-001	
	31 N	(90 - 110)	MCAWW 300.0A	12/18-12/19/06	6328272
		Dilution Factor: 1	Analysis Time..: 11:33		
Sulfate		Work Order #...: JJ27V1AW		MS Lot-Sample #: F6K180195-001	
	100	(90 - 110)	MCAWW 300.0A	12/18-12/19/06	6328273
		Dilution Factor: 1	Analysis Time..: 11:33		
Total Alkalinity		Work Order #...: JJ27W1AN		MS Lot-Sample #: F6K180195-002	
	101	(50 - 121)	MCAWW 310.1	11/30-12/02/06	6334286
		Dilution Factor: 1	Analysis Time..: 00:00		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K180195 **Work Order #...:** JJ27V-SMP JJ27V-DUP **Matrix.....:** WATER

Date Sampled...: 11/17/06 12:20 **Date Received..:** 11/18/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Bromide						SD Lot-Sample #:	F6K180195-001	
	ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	12/18/06	6328268
		Dilution Factor: 1				Analysis Time..: 11:33		
Chloride						SD Lot-Sample #:	F6K180195-001	
	0.93	0.94	mg/L	0.35	(0-20)	MCAWW 300.0A	12/18/06	6328269
		Dilution Factor: 1				Analysis Time..: 11:33		
Fluoride						SD Lot-Sample #:	F6K180195-001	
	ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	12/18/06	6328270
		Dilution Factor: 1				Analysis Time..: 11:33		
Nitrate						SD Lot-Sample #:	F6K180195-001	
	ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	12/18/06	6328271
		Dilution Factor: 1				Analysis Time..: 11:33		
Nitrite						SD Lot-Sample #:	F6K180195-001	
	ND	ND	mg/L	0	(0-20)	MCAWW 300.0A	12/18/06	6328272
		Dilution Factor: 1				Analysis Time..: 11:33		
Sulfate						SD Lot-Sample #:	F6K180195-001	
	0.52	0.52	mg/L	1.1	(0-20)	MCAWW 300.0A	12/18/06	6328273
		Dilution Factor: 1				Analysis Time..: 11:33		

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K180195 **Work Order #...:** JJ27W-SMP JJ27W-DUP **Matrix.....:** WATER

Date Sampled...: 11/17/06 15:08 **Date Received..:** 11/18/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids						SD Lot-Sample #: F6K180195-002		
	72.0	80.0	mg/L	11	(0-0.0)	MCAWW 160.1	11/20/06	6334178
			Dilution Factor: 1			Analysis Time..: 00:00		
Total Alkalinity						SD Lot-Sample #: F6K180195-002		
	25.0	24.0	mg/L	4.1	(0-20)	MCAWW 310.1	11/30-12/02/06	6334286
			Dilution Factor: 1			Analysis Time..: 00:00		

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F6K180195 **Work Order #...:** JJCRL-SMP JJCRL-DUP **Matrix.....:** WATER

Date Sampled...: 11/07/06 08:32 **Date Received..:** 11/09/06

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N						SD Lot-Sample #: F6K090297-001		
	0.094	ND	mg/L	200	(0-20)	MCAWW 353.1	12/04/06	6339052
			Dilution Factor: 1			Analysis Time..: 00:00		

Chain of Custody Record

SEVERN TRENT **STL**
Severn Trent Laboratories, Inc.

COR 5040

STL-4124 (0901)

Kg 11-17-06
MACTEC North Anna CoL 660COC-NA12

Client: MACTEC	Project Manager: Steve Criscenzo	Date: 11-17-06	Chain of Custody Number: 321999
Address: 3301 Atlantic Avenue	Telephone Number (Area Code)/Fax Number: 919-876-0416	Lab Number:	Page 1 of 1
City: Raleigh / State: NC / Zip Code: 27604	Site Contact: Kim Charles-Smith / Lab Contact: Terry Romanko		
Project Name and Location (State): North Anna CoL	Carrier/Waybill Number: 8582 9218 4010		
Contract/Purchase Order/Quote No.: Job# 6468-06-14			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	500ml poly no pres 160.1, 300.0, 310.1	250ml poly H2SO4 350.1, 353.1	Analysis (Attach list if more space is needed)	Special Instructions/Conditions of Receipt
OW-945	11/17/06	1220		X					X	X				1	1	11.18.06 500p, 250p	Total Dissolved Solids Method 160.1
OW-947	11/17/06	1508		X					X	X				1	1	↓	Inorganic Ions (bromide, chloride, fluoride, sulfide) method 300.0
OW-951	11/17/06	1548		X					X	X				1	1	↓	Alkalinity (bicarbonate/carbonate) method 310.1
																	Ammonia method 350.1
																	nitrate/nitrite method 353.1

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other Standard

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Kimberly Charles-Smith	11/17/06	1620	1. Received By: Jill Clark	11.18.06	0900
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

STL St. Louis

Lot #(s): F6K180195

- 5040 -

Condition Upon Receipt Form

Client: MacTech COC/RFA No: 321999 Date 11.18.06

Quote No: 71966 Initiated By: Time: 0900

Shipping Information

Shipper Name: FedEx Multiple Packages Y (N) N/A

Shipping # (s):*

1.	TRK# 8582 9218 4010	6.		1.	2	6.	
2.		7.		2.		7.	
3.		8.		3.		8.	
4.		9.		4.		9.	
5.		10.		5.		10.	

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid or Rad tests- Liquid or Solids

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y (N)	Was sample received broken?	8.	(Y) N	Sample received with Chain of Custody?
2.	(Y) N N/A	Was sample received with proper pH[1] ? (If not, make note below)	9.	(Y) N	Chain of Custody matches sample ID's on container(s)?
3.	Y N	If N/A-Was pH taken by original STL Lab?	10.	(Y) N	Are there custody seals present on cooler?
4.	(Y) N	Sample received in proper containers?	11.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?
5.	(Y) N	Sample volume sufficient for analysis?	12.	Y (N)	Are there custody seals present on bottles?
6.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)	13.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
7.	(Y) N	Were contents of the cooler frisked after opening	14.	Y N	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX and soils.

Notes:

Corrective Action:

☐ Client Contact Name: Informed by:

☐ Sample(s) processed "as is"

☐ Sample(s) on hold until: If released, notify:

Project Management Review: Date: 11/21/06

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

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