October 1, 2013

Damann Anderson, PE
Hazen and Sawyer, P.C.
10002 Princess Palm Avenue
Registry One Building, Suite 200
Tampa, Florida 33619

Dear Mr. Anderson:

This letter is to provide you with permission to proceed with work in accordance with the current executed contract CORCL, including all amendments and renewals, for the "Florida Onsite Sewage Nitrogen Reduction Strategies Study: Technology Evaluation, Characterization of Environmental Fate and Transport, and an Assessment of Costs".

Specific authorization is provided to utilize up to an additional $20,000 of Task C.30 Change-order allowance funds as cost reimbursement for the installation and sampling of additional monitoring wells for the Soil and Groundwater Test Area 3 (TA-3) in preparation for the final tracer test under Task C.15. The estimated cost associated with the installation, sampling, and preparation of the additional monitoring wells is summarized in the table below.

Task	Title	Description	Estimated Cost
1	Additional Well Installation	Mobilization, drilling, materials and labor for up to 20 additional monitor wells at TA-3	$10,000
2	Sample all TA-3 wells	Labor and Analyses	$ 4,000
3	Supplies and monitoring supplies	Three bromide sensors, chemicals, field testing supplies	$ 6,000
	Total		**$20,000**

- **Tasks 1 and 3:** The cost for these tasks shall not exceed the estimated costs listed in the table above without prior written approval, and will be documented by contractor invoices, material and equipment bills, and other provider incurred costs.
- **Task 2:** The deliverable will be a sample event memo for TA-3 wells, similar to the memo's submitted previously in Task C.16 (but only for TA-3 wells), describing the test results, as well as copies of lab and field evaluation results.

Billing for these three tasks can be done in two parts, with the total reimbursed amount not to exceed $20,000 without prior written approval. Cost shifts can occur between task line items in the table above as long as the costs are documented and the overall total does not exceed $20,000.

- **Part 1:** 50% of the total estimated cost once the well installation and sampling is complete. Submit a progress report stating what has been done and showing locations of new wells.
- **Part 2:** Upon submission of the sample event memo, the amount paid for the remaining work will be the total documented costs for Tasks 1 and 3, plus the full amount of Task 2, less the amount paid to provider in Part 1 above.

If you have questions, please contact me at (850) 245-4070 or by email at Elke_Ursin@doh.state.fl.us.

Sincerely,

Elke Ursin
Environmental Health Program Consultant

EU/contract file

Florida Onsite Sewage Nitrogen Reduction Strategies Study

Task C.30

Part 1: Additional Monitoring Wells for S&GW Test Area 3 Tracer Test

Progress Report

December 2013

HAZEN AND SAWYER
Environmental Engineers & Scientists

In association with:

AET

Otis Environmental Consultants, LLC

Florida Onsite Sewage Nitrogen Reduction Strategies Study

TASK C.30
PROGRESS REPORT

Part 1: Additional Monitoring Wells for S&GW Test Area 3 Tracer Test

Prepared for:

Florida Department of Health
Division of Disease Control and Health Protection
Bureau of Environmental Health
Onsite Sewage Programs
4042 Bald Cypress Way Bin #A-08
Tallahassee, FL 32399-1713

FDOH Contract CORCL

December 2013

Prepared by:

HAZEN AND SAWYER
Environmental Engineers & Scientists

In Association With:

SCHOOL OF MINES 1874 COLORADO

S&GW Test Area 3
Additional Monitoring Wells

1.0 Background

Task C of the Florida Onsite Sewage Nitrogen Reduction Strategies Study includes monitoring at field sites in Florida to evaluate nitrogen reduction in soil and groundwater, to assess groundwater impacts from various onsite wastewater systems, and to provide data for parameter estimation, verification, and validation of models developed in Task D. Controlled pilot-scale testing is being conducted at the GCREC soil and groundwater (S&GW) test facility in southeast Hillsborough County, Florida to characterize nitrogen fate and transport under a variety of typical operating conditions. The specially designed pilot-scale test areas are representative of typical mounded onsite sewage treatment and disposal systems and enables controlled testing and evaluation of nitrogen reduction in soil and groundwater. Each test area consists of an above ground mound system to which effluent is dosed. Four test areas were established, to which either septic tank effluent (STE) or aerobic treatment unit (ATU) effluent is delivered to the mound/soil system via a pressure dosed mound with a gravel trench or a mound with drip dispersal system. The Task C objectives, monitoring framework, sample frequency and duration, and analytical methods used at the GCREC S&GW test facility site have been documented in previous reports. A bromide tracer test will be conducted at one experimental mound, Test Area 3 (TA-3), and the groundwater plume will be monitored over the course of several months. This test is planned to commence at the end of January 2014. TA-3 is a mound with drip dispersal being supplied STE.

2.0 Purpose

This progress report documents the installation and sampling of additional monitoring wells for the GCREC S&GW test facility TA-3 in preparation for the final tracer test under Task C.15. The additional wells were installed in October 2013, and the sampling of all TA-3 monitoring equipment was conducted December 17 through December 19, 2013.

o:\44237-001R004\Wpdocs\Report\Final

3.0 Materials and Methods

A sampling network for groundwater screening was developed for TA-3 as depicted in Figure 1. Transect lines A through T are parallel to the northern edge of the mound and increase (higher letter identification) moving southward from the mound. Transect lines 4' through 16 (numbered from east to west) are perpendicular to the northern edge of the mound. Groundwater monitoring points were previously installed in November 2011, March 2012, May 2012, and October 2012. Standpipe piezometers were installed using either hand or drilling methods. Standpipe piezometers consist of either ¾-in., 1-in., or 2-in. diameter PVC with 1-ft, 2.5-ft, 5-ft, or 10-ft long 0.010 slot PVC screens and PVC riser extending to the ground surface (refer to the Task C QAPP and Task C.10/C.11/C.12 Progress Report for additional detail). Environmental Drilling Service, Inc. installed twenty-four additional wells on October 28th and 29th, 2013 using a Geoprobe™ rig. The new standpipe piezometers consist of 1-in. diameter PVC with 5-ft long 0.010 slot PVC screens and PVC riser extending to the ground surface. The target bottom of casing for all new wells was 121.5 ft above mean sea level based on NGVD 1929. A complete list of all TA-3 installed monitoring devices is included in Appendix A.

Additionally at two locations (north observation port grid location C2 and southwest of the mound at grid location P5), continuous soil cores were collected from the natural ground surface to 15 ft bgs to determine general soil properties (lithology, soil features, organic matter content, grain size, etc).

3.1 Water Quality Sample Collection and Analyses

Septic tank effluent, groundwater, and soil moisture samples were collected December 17 through December 19, 2013 for water quality analysis. A peristaltic pump was used to collect STE effluent by placing the suction inlet tubing in the mid-section of the clear liquid phase in the STE pump tank. The effluent was directed into the analysis-specific containers supplied by the analytical laboratory. Field parameters (temperature (Temp), pH, specific conductance (SC), oxidation-reduction potential (ORP) and dissolved oxygen (DO)) were measured using portable electronic probes with probe tips placed directly into the tanks.

Groundwater samples were obtained using a peristaltic pump and dedicated standpipe piezometer tubing. Prior to groundwater sample collection, the piezometer was micropurged using low-flow purging and sampling methods. Micropurging continued until water quality indicators (temp, pH, SC, DO and turbidity) were stabilized (three consecutive

o:\44237-001R004\Wpdocs\Report\Final

measurements within the limits). Groundwater sample was then collected into the analysis-specific containers.

Soil moisture samples from the suction lysimeters were also collected using a peristaltic pump and dedicated tubing. The tubing routed the samples directly into analysis-specific containers after sufficient flushing of the tubing had occurred. Field parameters (Temp, pH, SC, ORP, DO) were then recorded in an external reservoir.

The analysis-specific containers were supplied by the analytical laboratory and contained appropriate preservatives. The analysis-specific containers were labeled, placed in coolers and transported on ice to the analytical laboratory. Each sample container was secured in packing material as appropriate to prevent damage and spills, and was recorded on chain-of-custody forms, provided in Appendix B, supplied by the laboratory.

o:\44237-001R004\Wpdocs\Report\Final

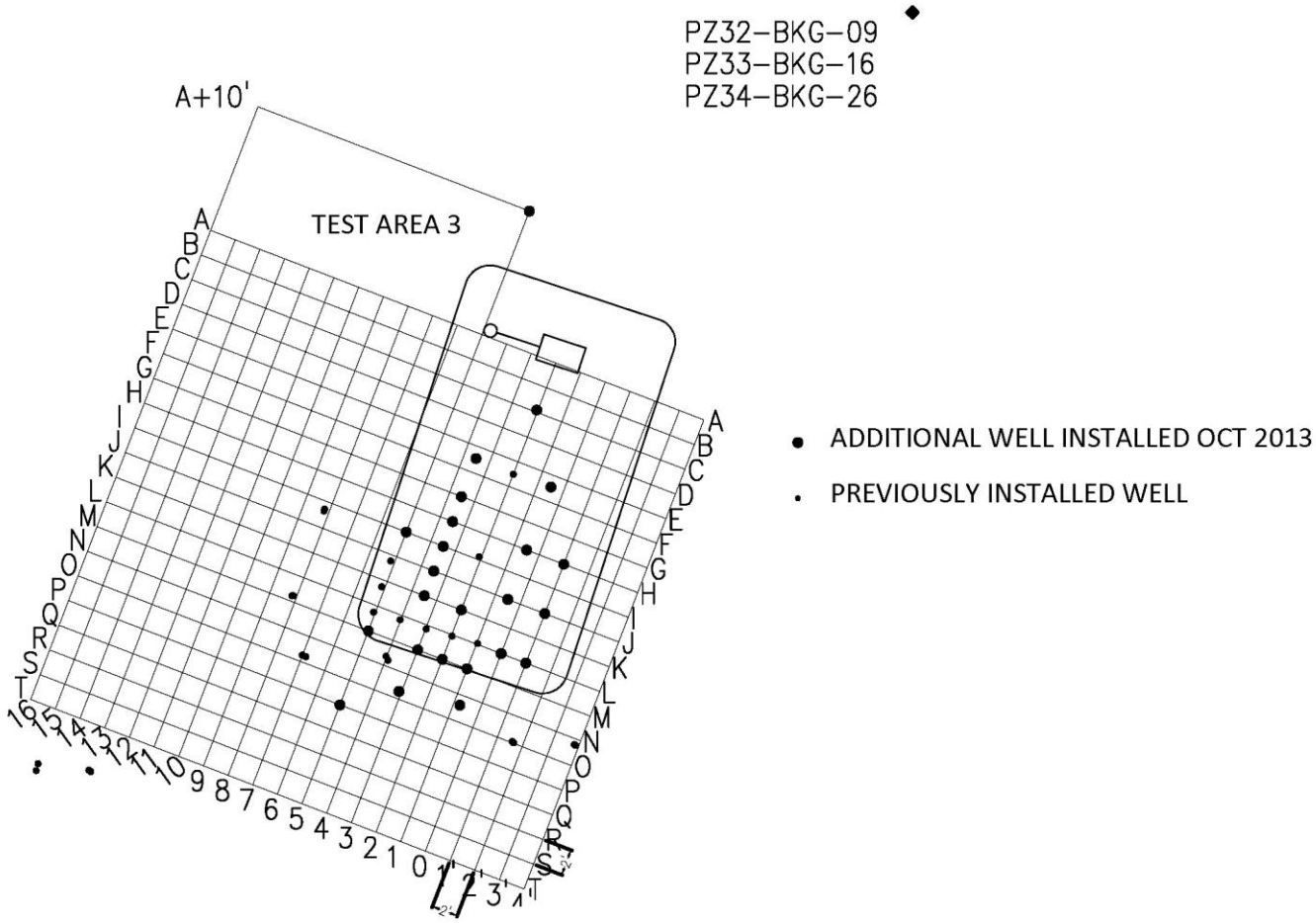

Figure 1
Test Area 3 Groundwater Monitoring Network

In addition, equipment blank and field sample duplicates were taken. The equipment blank was collected by pumping deionized water through the cleaned pump tubing. These samples were then analyzed for the same parameters as the GW samples. The field sample duplicates were collected immediately subsequent to the regular samples.

All samples were analyzed by the laboratory for chloride, total Kjeldahl nitrogen (TKN-N), ammonia nitrogen (NH_3-N), and nitrate/nitrite nitrogen (NO_X-N). Additionally, for the effluent samples and some of the water samples total alkalinity, chemical oxygen demand (COD), dissolved organic carbon (DOC), and boron (B) were included at some of the water sample locations. All analyses were performed by an independent and fully NELAC certified analytical laboratory (Southern Analytical Laboratory). Table 1 lists the analytical parameters, analytical methods, and detection limits for these analyses.

Table 1
Analytical Parameters, Method of Analysis, and Detection Limits

Analytical Parameter	Method of Analysis	Laboratory Detection Limit (mg/L)
Total Alkalinity as $CaCO_3$	SM 2320B	2 mg/L
Chemical Oxygen Demand (COD)	EPA 410.4	10 mg/L
Total Kjeldahl Nitrogen (TKN-N)	EPA 351.2	0.05 mg/L
Ammonia Nitrogen (NH_3-N)	EPA 350.1	0.005 mg/L
Nitrate/Nitrite Nitrogen (NO_X-N)	EPA 300.0	0.02 mg/L
Dissolved Organic Carbon (DOC)	SM 5310B	0.5 mg/L
Chloride (Cl)	EPA 300.0	0.05 mg/L
Nitrate-N (NO3)	EPA 300.0	0.01 mg/L
Nitrite-N (NO2)	EPA 300.0	0.01 mg/L
Boron (B)	EPA 200.7	0.05 mg/L

o:\44237-001R004\Wpdocs\Report\Final

Appendix A: S&GW Test Facility Sample Identification

Table A.1
S&GW Test Facility TA-3 Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Elev NGVD 29	Revised Elev NGVD 29	Notes
38	TA1-PZ-09-RS16	TA1	RS16	129.65	128.04	
39	TA1-PZ-16-RS16	TA1	RS16	129.72	128.00	
40	TA1-PZ-09-RS18	TA1	RS18	130.25	128.22	
41	TA1-PZ-16-RS18	TA1	RS18	130.25	128.25	
71	TA3-PAN-12-N	TA3	North			
72	TA3-OBS-N	TA3	North	131.20		
73	TA3-OBS-S	TA3	South	131.11		
74	TA3-SM-39-N	TA3	North	130.59		
75	TA3-SM-39-C	TA3	Center	130.60		
76	TA3-SM-39-S	TA3	South	130.57		
77	TA3-SM-BKG-S	TA3	South	129.32		
78	TA3-SM-BKG-E	TA3	East			
79	TA3-LY-24-C	TA3	Center	133.45		
80	TA3-LY-12-S	TA3	South	132.24		
81	TA3-LY-24-S	TA3	South	132.90		
82	TA3-LY-42-S	TA3	South	132.98		
83	TA3-T-6-C	TA3	Center	132.19		
84	TA3-T-12-C	TA3	Center	132.70		
85	TA3-T-24-C	TA3	Center	132.23		
86	TA3-T-36-C	TA3	Center	131.70		
87	TA3-T-42-C	TA3	Center	132.20		
88	TA3-T-6-S	TA3	South	132.19		
89	TA3-T-12-S	TA3	South	132.69		
90	TA3-T-24-S	TA3	South	132.22		
91	TA3-T-36-S	TA3	South	131.71		
92	TA3-T-42-S	TA3	South	132.21		
93	TA3-PZ-11-EF2	TA3	EF2	133.82		

o:\44237-001\Wpdocs\Report\Draft

Table A.1
S&GW Test Facility TA-3 Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Elev NGVD 29	Revised Elev NGVD 29	Notes
94	TA3-PZ-11-I2	TA3	I2	133.54		
95	TA3-PZ-10-J5	TA3	J5	133.49	128.31	
96	TA3-PZ-10-K5	TA3	K5	133.49	128.46	
97	TA3-PZ-11-L2	TA3	L2	133.51	129.16	
98	TA3-PZ-11-L3	TA3	L3	133.51	129.02	
99	TA3-PZ-11-L4	TA3	L4	133.50	128.83	
100	TA3-PZ-10-L5	TA3	L5	133.49	128.53	
101	TA3-PZ-09-N3	TA3	N3	129.88	129.19	
102	TA3-PZ-16-N3	TA3	N3	129.89	129.26	
103	TA3-PZ-09-O7	TA3	O7	130.06	128.20	
104	TA3-PZ-16-O7	TA3	O7	130.26	128.19	
105	TA3-PZ-09-I7	TA3	I7	130.06	129.48	
106	TA3-PZ-16-I7	TA3	I7	130.06	129.48	
107	TA3-PZ-09-M9	TA3	M9	130.18	129.60	
108	TA3-PZ-16-M9	TA3	M9	130.12	129.54	
109	TA3-PZ-09-ST14	TA3	ST14	129.88		
110	TA3-PZ-16-ST14	TA3	ST14	129.81		
111	TA3-PZ-09-ST16	TA3	ST16	129.54		
112	TA3-PZ-16-ST16	TA3	ST16	130.00		
167	PZ32-BKG-09	BKG		133.51		
168	PZ33-BKG-16	BKG		132.84		
169	PZ34-BKG-26	BKG		130.45		
184	PZ-44	TA3		131.82		
185	PZ-45	TA3		132.48		
198	TA3-PZ-BKG5	TA3	BKG5	131.36		New well installed Oct 2013
199	TA3-PZ-C2	TA3	C2	132.08		New well installed Oct 2013
200	TA3-PZ-EF0.5	TA3	EF0.5	131.24		New well installed Oct 2013
201	TA3-PZ-EF3.5	TA3	EF3.5	131.52		New well installed Oct 2013
202	TA3-PZ-G3.5	TA3	G3.5	131.05		New well installed Oct 2013
203	TA3-PZ-H1'	TA3	H1'	131.41		New well installed Oct 2013
204	TA3-PZ-H0.5	TA3	H0.5	131.25		New well installed Oct 2013

o:\44237-001\Wpdocs\Report\Draft

Table A.1
S&GW Test Facility TA-3 Sample Identification

ID #	Sample Identification	Test Area	Grid Location	Elev NGVD 29	Revised Elev NGVD 29	Notes
205	TA3-PZ-H3.5	TA3	H3.5	131.04		New well installed Oct 2013
206	TA3-PZ-I3.5	TA3	I3.5	131.49		New well installed Oct 2013
207	TA3-PZ-I5	TA3	I5	130.90		New well installed Oct 2013
208	TA3-PZ-J1'	TA3	J1'	131.24		New well installed Oct 2013
209	TA3-PZ-J0.5	TA3	J0.5	131.34		New well installed Oct 2013
210	TA3-PZ-J3.5	TA3	J3.5	130.91		New well installed Oct 2013
211	TA3-PZ-K2	TA3	K2	131.46		New well installed Oct 2013
212	TA3-PZ-K3.5	TA3	K3.5	131.28		New well installed Oct 2013
213	TA3-PZ-L1'	TA3	L1'	131.52		New well installed Oct 2013
214	TA3-PZ-L0	TA3	L0	131.18		New well installed Oct 2013
215	TA3-PZ-M1	TA3	M1	131.54		New well installed Oct 2013
216	TA3-PZ-M2	TA3	M2	131.40		New well installed Oct 2013
217	TA3-PZ-M3	TA3	M3	131.34		New well installed Oct 2013
218	TA3-PZ-M5	TA3	M5	131.45		New well installed Oct 2013
219	TA3-PZ-O1.5	TA3	O1.5	131.16		New well installed Oct 2013
220	TA3-PZ-O3	TA3	O3	130.88		New well installed Oct 2013
221	TA3-PZ-P5	TA3	P5	129.28		New well installed Oct 2013

o:\44237-001\Wpdocs\Report\Draft

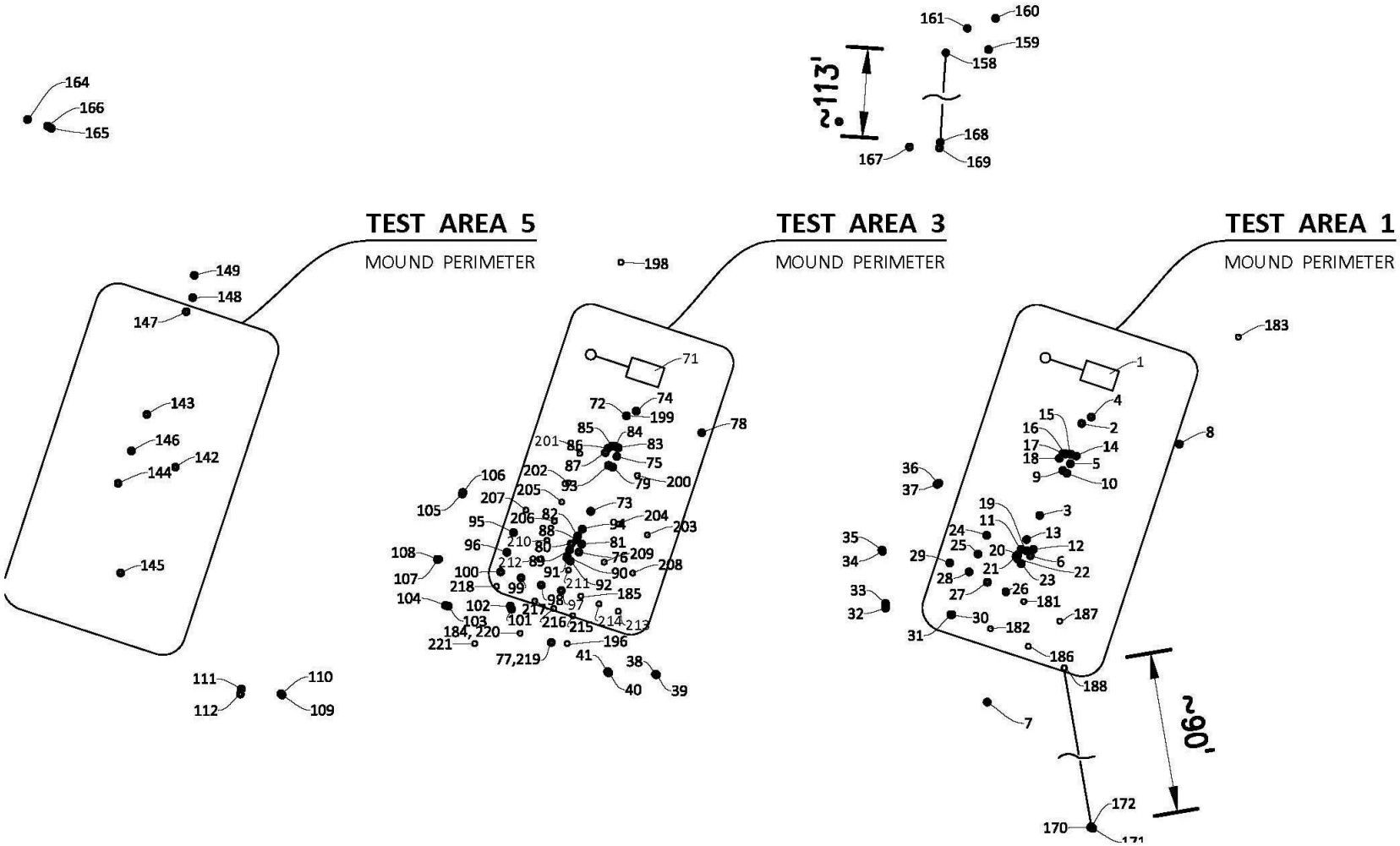

Figure A.1
S&GW Test Facility System Schematic of TA1, TA3, and TA5 (STE System)
[1]Location identification corresponds to Table A.1 ID #

/pdocs\Report\Draft

Appendix B: Chain of Custody Forms

o:\44237-001\Wpdocs\Report\Draft

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes:
DW-Drinking Water WW-Wastewater
SW-SurfaceWater SL-Sludge SO-Soil
GW-Groundwater SA-Saline Water O-Other
R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool Total Alkalinity, NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	250mLaG, Cool DOC	250mLP, HNO_3 B	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Cl, NOx			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
01	STE Pump Tank			WW		X	1	1	1	1											
02	TA3-LY-24-C			WW		X					1	1									
03	TA3-LY-12-S			WW		X	1	1	1	1											
04	TA3-LY-24-S			WW		X	1	1	1	1											
05	TA3-LY-42-S			WW		X	1	1	1	1											
06	TA3-PAN-12N			WW		X					1	1									
07	PZ32-BKG-09			WW		X	1	1	1	1											
08	PZ33-BKG-16			WW		X	1	1	1	1											
09	PZ34-BKG-26			WW		X	1	1	1	1											
10	TA3-PZ-A'5	12/17/13	0940	WW		X					1	1			4.35	23.6	114.4	0.43			
11	TA3-PZ-C2			WW		X					1	1									
12	TA3-PZ-EF0.5			WW		X					1	1									

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
S Lynn	10:55AM 12/12		1100 12/13/13
Relinquished:	Date/Time:	Received:	Date/Time:
	1430 12/17/13		1430 12-17-13
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y	N	(N/A)
Samples intact upon arrival?	(Y)	N	N/A
Received on ice? Temp_____	(Y)	N	N/A
Proper preservatives indicated?	(Y)	N	N/A
Rec'd within holding time?	(Y)	N	N/A
Volatiles rec'd w/out headspace?	Y	N	(N/A)
Proper containers used?	(Y)	N	N/A

Instructions / Remarks:

Chain of Custody.xls
Rev. Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	250mLaG, Cool DOC	250mLP, HNO_3 B		Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
13	TA3-PZ-EF2	12/17/13	0953	WW		X	1	1							4.42	23.9	275	1.11			
14	TA3-PZ-EF3.5		1004	WW		X	1		1						3.94	23.7	281	1.12			
15	TA3-PZ-G3.5		1032	WW		X	1		1						4.39	23.6	838	2.40			
16	TA3-PZ-H0.5		1039	WW		X	1		1						4.15	24.0	1479	2.06			
17	TA3-PZ-H1'		1035	WW		X	1		1						3.94	24.3	1041	2.60			
18	TA3-PZ-H3.5		1034	WW		X	1		1						4.14	23.7	562	2.19			
19	TA3-PZ-I2		1111	WW		X				1	1	1	1		4.25	24.2	392	1.30			
20	TA3-PZ-I3.5		1058	WW		X	1		1						4.08	23.6	502	1.04			
21	TA3-PZ-I5		1055	WW		X	1		1						4.15	23.6	322	1.27			
22	TA3-PZ-I7-09			WW		X	1		1												
23	TA3-PZ-I7-16			WW		X	1		1												
24	TA3-PZ-J0.5			WW		X	1		1												

Containers Prepared/ Relinquished:	Date/Time: 1800 12/12/13	Received:	Date/Time: 1100 12/13/13
Relinquished:	Date/Time: 1430 12/17/13	Received:	Date/Time: 12-17-13 1430
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

Rec'd within holding time? Y N N/A

Volatiles rec'd w/out headspace? Y N N/A

Proper containers used? Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
25	TA3-PZ-J1'			WW		X	1		1												
26	TA3-PZ-J3.5	12/17/13	1108	WW		X	1		1						4.28	24.0	515	1.79			
27	TA3-PZ-J5		1122	WW		X	1		1						4.02	24.3	217.1	0.32			
28	TA3-PZ-K2		1235	WW		X	1		1						4.13	25.4	499	1.62			
29	TA3-PZ-K3.5		1230	WW		X	1		1						4.46	24.7	749	1.95			
30	TA3-PZ-K5		1127	WW		X	1		1						3.61	24.7	253	0.49			
31	TA3-PZ-L0			WW		X		1		1	1	1									
32	TA3-PZ-L1			WW		X		1		1	1	1									
33	TA3-PZ-L1'			WW		X		1		1	1	1									
34	TA3-PZ-L2	12/17/13	1248	WW		X		1		1	1	1			4.11	25.1	409	1.42			
35	TA3-PZ-L3		1243	WW		X		1		1	1	1			3.85	25.1	241	0.60			
36	TA3-PZ-L4		1141	WW		X		1		1	1	1			4.03	25.7	308	0.44			

Containers Prepared/ Relinquished:	Date/Time: 12/12/13 0900	Received:	Date/Time: 12/13/13 1100
Relinquished:	Date/Time: 12/17/13 1430	Received:	Date/Time: 12-17-13 1430
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N (N/A)
Samples intact upon arrival?	(Y) N N/A
Received on ice? Temp_____	(Y) N N/A
Proper preservatives indicated?	(Y) N N/A
Rec'd within holding time?	(Y) N N/A
Volatiles rec'd w/out headspace?	Y N (N/A)
Proper containers used?	(Y) N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
37	TA3-PZ-L5	12/17/13	1136	WW		X		1		1	1	1			4.10	24.6	224	0.21			
38	TA3-PZ-M1			WW		X	1		1												
39	TA3-PZ-M2	12/17/13	1258	WW		X	1		1						4.33	24.8	461	1.41			
40	TA3-PZ-M3		1214	WW		X	1		1						4.16	24.9	456	0.33			
41	TA3-PZ-M5		1201	WW		X	1		1						3.99	24.2	217.6	0.44			
42	TA3-PZ-M9-09			WW		X	1		1												
43	TA3-PZ-M9-16			WW		X	1		1												
44	TA3-PZ-N4-09			WW		X		1		1	1	1									
45	TA3-PZ-N4-16			WW		X		1		1	1	1									
46	TA3-PZ-01			WW		X		1		1	1	1									
47	TA3-PZ-03	12/17/13	1211	WW		X		1		1	1	1			4.13	24.9	594	1.44			
48	TA3-PZ-07-09			WW		X	1		1												

Containers Prepared/ Relinquished:	Date/Time: 1000 12/12/13	Received:	Date/Time: 1100 12/13/13
Relinquished:	Date/Time: 1430 12/17/13	Received:	Date/Time: 12-17-13 1430
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N N/A
Samples intact upon arrival?	Y N N/A
Received on ice? Temp_____	Y N N/A
Proper preservatives indicated?	Y N N/A
Rec'd within holding time?	Y N N/A
Volatiles rec'd w/out headspace?	Y N N/A
Proper containers used?	Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: TA3 Pre-Tracer	
Samplers: (Signature)	

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
49	TA3-PZ-07-16			WW		X	1		1												
50	TA3-PZ-P5	12/17/13	1158	WW		X	1		1						3.91	24.0	261	1.18			
51	TA3-PZ-ST14-09			WW		X	1		1												
52	TA3-PZ-ST14-16			WW		X	1		1												
53	TA3-PZ-ST16-09			WW		X	1		1												
54	TA3-PZ-ST16-16			WW		X	1		1												
55	TA1-PZ-RS16-09			WW		X	1		1												
56	TA1-PZ-RS16-16			WW		X	1		1												
57	TA1-PZ-RS18-09			WW		X	1		1												
58	TA1-PZ-RS18-16			WW		X	1		1												
	1 TAS-DENITE																				

Containers Prepared/ Relinquished:	Date/Time: 1600 12/13/13	Received:	Date/Time: 1100 12/13/13
Relinquished:	Date/Time: 1430 12/17/13	Received:	Date/Time: 1430 12-17-13
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N N/A
Samples intact upon arrival?	Y N N/A
Received on ice? Temp_____	Y N N/A
Proper preservatives indicated?	Y N N/A
Rec'd within holding time?	Y N N/A
Volatiles rec'd w/out headspace?	Y N N/A
Proper containers used?	Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool Total Alkalinity, NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	250mLaG, Cool DOC	250mLP, HNO_3 B	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Cl, NOx			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
01	STE Pump Tank			WW		X	1	1	1	1											
02	TA3-LY-24-C			WW		X					1	1									
03	TA3-LY-12-S			WW		X	1	1	1	1											
04	TA3-LY-24-S			WW		X	1	1	1	1											
05	TA3-LY-42-S			WW		X	1	1	1	1											
06	TA3-PAN-12N			WW		X					1	1									
07	PZ32-BKG-09			WW		X	1	1	1	1											
08	PZ33-BKG-16			WW		X	1	1	1	1											
09	PZ34-BKG-26			WW		X	1	1	1	1											
10	TA3-PZ-A'5			WW		X					1	1									
11	TA3-PZ-C2			WW		X					1	1									
12	TA3-PZ-EF0.5	12/18/13	1210	WW		X					1	1			4.50	24.5	137.3	1.02			

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
S Lynn	10:55AM 12/12		1100 12/13/13
Relinquished:	Date/Time:	Received:	Date/Time:
	1340 12/18/13	K Mudnock	1340 12/18/13
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

Rec'd within holding time? Y N N/A

Volatiles rec'd w/out headspace? Y N N/A

Proper containers used? Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	250mLaG, Cool DOC	250mLP, HNO_3 B		Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
13	TA3-PZ-EF2			WW		X	1	1													
14	TA3-PZ-EF3.5			WW		X	1		1												
15	TA3-PZ-G3.5			WW		X	1		1												
16	TA3-PZ-H0.5			WW		X	1		1												
17	TA3-PZ-H1'			WW		X	1		1												
18	TA3-PZ-H3.5			WW		X	1		1												
19	TA3-PZ-I2			WW		X				1	1	1	1								
20	TA3-PZ-I3.5			WW		X	1		1												
21	TA3-PZ-I5			WW		X	1		1												
22	TA3-PZ-I7-09	12/18/13	0943	WW		X	1		1						5.89	23.7	451	1.64			
23	TA3-PZ-I7-16		0955	WW		X	1		1						4.63	24.7	374	0.38			
24	TA3-PZ-J0.5		1155	WW		X	1		1						3.90	24.3	156.5	1.22			

Containers Prepared/ Relinquished:	Date/Time: 1800 12/12/13	Received:	Date/Time: 1100 12/13/13
Relinquished:	Date/Time: 1340 12/18/13	Received: K Nudsmach	Date/Time: 1340 12/18/13
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

Rec'd within holding time? Y N N/A

Volatiles rec'd w/out headspace? Y N N/A

Proper containers used? Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: TA3 Pre-Tracer	
Samplers: (Signature)	

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
25	TA3-PZ-J1'	12/18/13	1157	WW		X	1		1						4.02	24.0	117.5	1.21			
26	TA3-PZ-J3.5			WW		X	1		1												
27	TA3-PZ-J5			WW		X	1		1												
28	TA3-PZ-K2			WW		X	1		1												
29	TA3-PZ-K3.5			WW		X	1		1												
30	TA3-PZ-K5			WW		X	1		1												
31	TA3-PZ-L0	12/18/13	1124	WW		X		1		1	1	1			3.85	24.6	88.4	2.18			
32	TA3-PZ-L1		1122	WW		X		1		1	1	1			4.19	24.8	104.7	4.92			
33	TA3-PZ-L1'		1137	WW		X		1		1	1	1			4.03	24.9	115.7	2.03			
34	TA3-PZ-L2			WW		X		1		1	1	1									
35	TA3-PZ-L3			WW		X		1		1	1	1									
36	TA3-PZ-L4			WW		X		1		1	1	1									

Containers Prepared/ Relinquished:	Date/Time: 12/12/13 0900	Received:	Date/Time: 12/13/13 1100
Relinquished:	Date/Time: 12/18/13 1340	Received: K Mudmark	Date/Time: 12/18/13 1340
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N N/A
Samples intact upon arrival?	Y N N/A
Received on ice? Temp_____	Y N N/A
Proper preservatives indicated?	Y N N/A
Rec'd within holding time?	Y N N/A
Volatiles rec'd w/out headspace?	Y N N/A
Proper containers used?	Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer
Contact / Phone:
Project Name / Location: TA3 Pre-Tracer
Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
37	TA3-PZ-L5			WW		X		1		1	1	1									
38	TA3-PZ-M1	12/18/13	1108	WW		X	1		1						4.00	23.8	182.8	0.73			
39	TA3-PZ-M2			WW		X	1		1												
40	TA3-PZ-M3			WW		X	1		1												
41	TA3-PZ-M5			WW		X	1		1												
42	TA3-PZ-M9-09	12/18/13	0945	WW		X	1		1						5.07	24.0	204.2	0.86			
43	TA3-PZ-M9-16		0957	WW		X	1		1						4.76	24.4	372	0.84			
44	TA3-PZ-N4-09		1013	WW		X		1		1	1	1			5.71	23.8	325	0.41			
45	TA3-PZ-N4-16		1026	WW		X		1		1	1	1			4.76	24.8	341	0.43			
46	TA3-PZ-~~01~~10-1.5		1106	WW		X		1		1	1	1			4.03	23.5	115.1	0.56			
47	TA3-PZ-03			WW		X		1		1	1	1									
48	TA3-PZ-07-09	12/18/13	1011	WW		X	1		1						4.66	23.6	203.1	0.39			

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
	1000 12/12/13		1100 12/13/13
Relinquished:	Date/Time: 1340 12/18/13	Received:	Date/Time: 1340 12/18/13
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A
Samples intact upon arrival? Y N N/A
Received on ice? Temp_____ Y N N/A
Proper preservatives indicated? Y N N/A
Rec'd within holding time? Y N N/A
Volatiles rec'd w/out headspace? Y N N/A
Proper containers used? Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
49	TA3-PZ-07-16	12/18/13	1024	WW		X	1		1						4.81	24.3	357	0.41			
50	TA3-PZ-P5			WW		X	1		1												
51	TA3-PZ-ST14-09	12/18/13	0917	WW		X	1		1						3.78	23.6	175.4	0.48			
52	TA3-PZ-ST14-16		0927	WW		X	1		1						4.70	24.3	360	0.72			
53	TA3-PZ-ST16-09		0919	WW		X	1		1						4.47	23.5	219.4	0.40			
54	TA3-PZ-ST16-16		0931	WW		X	1		1						4.71	24.5	336	0.32			
55	TA1-PZ-RS16-09		1042	WW		X	1		1						4.73	24.3	204	0.38			
56	TA1-PZ-RS16-16		1054	WW		X	1		1						4.69	25.0	391	0.44			
57	TA1-PZ-RS18-09		1040	WW		X	1		1						4.88	23.9	143.2	0.48			
58	TA1-PZ-RS18-16		1052	WW		X	1		1						4.68	24.9	383	0.65			
	TA5-DENITE																				

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
J Hartley	12/12/13 1800		12/13/13 1100
Relinquished:	Date/Time: 12/18/13 1340	Received: K Nudmark	Date/Time: 12/18/13 1340
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

Rec'd within holding time? Y N N/A

Volatiles rec'd w/out headspace? Y N N/A

Proper containers used? Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool Total Alkalinity, NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	250mLaG, Cool DOC	250mLP, HNO_3 B	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Cl, NOx			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
01	STE Pump Tank + DUP	12/19/13	1000+1205	WW		X	1	1	1	1					6.95	24.1	1320	0.02			
02	TA3-LY-24-C		1007	WW		X					1	1			5.83	22.1	858	5.73			
03	TA3-LY-12-S		1013	WW		X	1	1	1	1					6.11	21.0	685	6.65			
04	TA3-LY-24-S		1020	WW		X	1	1	1	1					6.04	20.8	792	7.23			
05	TA3-LY-42-S		1029	WW		X	1	1	1	1					6.08	21.4	813	7.69			
06	TA3-PAN-12N			WW		X					1	1									
07	PZ32-BKG-09	12/19/13	1115	WW		X	1	1	1	1					4.80	26.2	305	0.98			
08	PZ33-BKG-16		1130	WW		X	1	1	1	1					3.81	24.8	155.4	0.35			
09	PZ34-BKG-26		1145	WW		X	1	1	1	1					4.99	25.4	300	1.28			
10	TA3-PZ-A'5			WW		X					1	1									
11	TA3-PZ-C2			WW		X					1	1									
12	TA3-PZ-EF0.5			WW		X					1	1									

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: S Lynn	10:55AM 12/12		1100 12/13/13
Relinquished:	1400 12/19/13	Received:	12-19-13 1400
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y N N/A
Samples intact upon arrival?	Y N N/A
Received on ice? Temp_____	Y N N/A
Proper preservatives indicated?	Y N N/A
Rec'd within holding time?	Y N N/A
Volatiles rec'd w/out headspace?	Y N N/A
Proper containers used?	Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only: Sample No	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
49	TA3-PZ-07-16			WW		X	1		1												
50	TA3-PZ-P5			WW		X	1		1												
51	TA3-PZ-ST14-09			WW		X	1		1												
52	TA3-PZ-ST14-16			WW		X	1		1												
53	TA3-PZ-ST16-09			WW		X	1		1												
54	TA3-PZ-ST16-16			WW		X	1		1												
55	TA1-PZ-RS16-09			WW		X	1		1												
56	TA1-PZ-RS16-16			WW		X	1		1												
57	TA1-PZ-RS18-09			WW		X	1		1												
58	TA1-PZ-RS18-16			WW		X	1		1												
59	TAS-DENITE + DUP	12/19/13	1157												6.31	19.5	868	5.81			
60	Equipment Blank		1230												7.64	22.2	1.35	7.59			

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished: S Hartley	12/13/13 1600		12/13/13 1100
Relinquished:	12/19/13 1400		12-19-13 1400
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N N/A

Samples intact upon arrival? Y N N/A

Received on ice? Temp_____ Y N N/A

Proper preservatives indicated? Y N N/A

Rec'd within holding time? Y N N/A

Volatiles rec'd w/out headspace? Y N N/A

Proper containers used? Y N N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

61 STE-Pump Tank-Dup 121913 1205

62 TAS-Denite-Dup 121913 1157

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name: Hazen and Sawyer

Contact / Phone:

Project Name / Location: TA3 Pre-Tracer

Samplers: (Signature)

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
37	TA3-PZ-L5			WW		X		1		1	1	1									
38	TA3-PZ-M1			WW		X	1		1												
39	TA3-PZ-M2			WW		X	1		1												
63 40	TA3-PZ-M3 - Dup	12/19/13	1055	WW		X	1		1												
41	TA3-PZ-M5			WW		X	1		1												
42	TA3-PZ-M9-09			WW		X	1		1												
43	TA3-PZ-M9-16			WW		X	1		1												
44	TA3-PZ-N4-09			WW		X		1		1	1	1									
45	TA3-PZ-N4-16			WW		X		1		1	1	1									
46	TA3-PZ-01			WW		X		1		1	1	1									
47	TA3-PZ-03			WW		X		1		1	1	1									
48	TA3-PZ-07-09			WW		X	1		1												

Relinquished:	Date/Time:	Received:	Date/Time:
Containers Prepared/ Relinquished:	1000 12/12/13		1100 12/13/13
Relinquished:	1400 12/19/13	Received:	12-19-13 1400
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y	N	N/A
Samples intact upon arrival?	Y	N	N/A
Received on ice? Temp_____	Y	N	N/A
Proper preservatives indicated?	Y	N	N/A
Rec'd within holding time?	Y	N	N/A
Volatiles rec'd w/out headspace?	Y	N	N/A
Proper containers used?	Y	N	N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: TA3 Pre-Tracer	
Samplers: (Signature)	

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	250mLaG, Cool DOC	250mLP, HNO_3 B		Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
64 13	TA3-PZ-EF2 -DUP	12/19/13	0957	WW		X	1	1													
14	TA3-PZ-EF3.5			WW		X	1		1												
15	TA3-PZ-G3.5			WW		X	1		1												
16	TA3-PZ-H0.5			WW		X	1		1												
17	TA3-PZ-H1'			WW		X	1		1												
18	TA3-PZ-H3.5			WW		X	1		1												
65 19	TA3-PZ-I2 -DUP	12/19/13	1037	WW		X				1	1	1	1								
20	TA3-PZ-I3.5			WW		X	1		1												
21	TA3-PZ-I5			WW		X	1		1												
22	TA3-PZ-I7-09			WW		X	1		1												
23	TA3-PZ-I7-16			WW		X	1		1												
24	TA3-PZ-J0.5			WW		X	1		1												

Containers Prepared/ Relinquished:	Date/Time: 1800 12/12/13	Received:	Date/Time: 1100 12/13/13
Relinquished:	Date/Time: 1400 12/19/13	Received:	Date/Time: 1400 12/19/13
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y	N	N/A
Samples intact upon arrival?	Y	N	N/A
Received on ice? Temp_____	Y	N	N/A
Proper preservatives indicated?	Y	N	N/A
Rec'd within holding time?	Y	N	N/A
Volatiles rec'd w/out headspace?	Y	N	N/A
Proper containers used?	Y	N	N/A

Instructions / Remarks:

Chain of Custody.xls
Rev Date 11/19/01

Chain of Custody

October 1, 2013

Damann Anderson, PE
Hazen and Sawyer, P.C.
10002 Princess Palm Avenue
Registry One Building, Suite 200
Tampa, Florida 33619

Dear Mr. Anderson:

This letter is to provide you with permission to proceed with work in accordance with the current executed contract CORCL, including all amendments and renewals, for the "Florida Onsite Sewage Nitrogen Reduction Strategies Study: Technology Evaluation, Characterization of Environmental Fate and Transport, and an Assessment of Costs".

Specific authorization is provided to utilize up to an additional $20,000 of Task C.30 Change-order allowance funds as cost reimbursement for the installation and sampling of additional monitoring wells for the Soil and Groundwater Test Area 3 (TA-3) in preparation for the final tracer test under Task C.15. The estimated cost associated with the installation, sampling, and preparation of the additional monitoring wells is summarized in the table below.

Task	Title	Description	Estimated Cost
1	Additional Well Installation	Mobilization, drilling, materials and labor for up to 20 additional monitor wells at TA-3	$10,000
2	Sample all TA-3 wells	Labor and Analyses	$ 4,000
3	Supplies and monitoring supplies	Three bromide sensors, chemicals, field testing supplies	$ 6,000
	Total		**$20,000**

- **Tasks 1 and 3:** The cost for these tasks shall not exceed the estimated costs listed in the table above without prior written approval, and will be documented by contractor invoices, material and equipment bills, and other provider incurred costs.
- **Task 2:** The deliverable will be a sample event memo for TA-3 wells, similar to the memo's submitted previously in Task C.16 (but only for TA-3 wells), describing the test results, as well as copies of lab and field evaluation results.

Billing for these three tasks can be done in two parts, with the total reimbursed amount not to exceed $20,000 without prior written approval. Cost shifts can occur between task line items in the table above as long as the costs are documented and the overall total does not exceed $20,000.

- **Part 1:** 50% of the total estimated cost once the well installation and sampling is complete. Submit a progress report stating what has been done and showing locations of new wells.
- **Part 2:** Upon submission of the sample event memo, the amount paid for the remaining work will be the total documented costs for Tasks 1 and 3, plus the full amount of Task 2, less the amount paid to provider in Part 1 above.

If you have questions, please contact me at (850) 245-4070 or by email at Elke_Ursin@doh.state.fl.us.

Sincerely,

Elke Ursin
Environmental Health Program Consultant

EU/contract file

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 1313088

Client Name	Contact / Phone:
Hazen and Sawyer	
Project Name / Location: TA3 Pre-Tracer	
Samplers: (Signature)	

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

PARAMETER / CONTAINER DESCRIPTION

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	500mLP, Cool NOx, Cl	125mLP, H_2SO_4 COD, TKN, NH_3	125mLP, H_2SO_4 TKN, NH_3	500mLP, Cool Total Alkalinity, NOx, Cl	250mLP, HNO_3 B	250mLaG, Cool DOC			Field pH	Field Temp	Field Conductivity	Field DO			No. of Containers (Total per each location)
25	TA3-PZ-J1'			WW		X	1		1												
26	TA3-PZ-J3.5			WW		X	1		1												
27	TA3-PZ-J5			WW		X	1		1												
28	TA3-PZ-K2			WW		X	1		1												
29	TA3-PZ-K3.5			WW		X	1		1												
30	TA3-PZ-K5			WW		X	1		1												
31	TA3-PZ-L0			WW		X		1		1	1	1									
32	TA3-PZ-L1			WW		X		1		1	1	1									
33	TA3-PZ-L1'			WW		X		1		1	1	1									
34	TA3-PZ-L2			WW		X		1		1	1	1									
35	TA3-PZ-L3			WW		X		1		1	1	1									
66 36	TA3-PZ-L4 - Dup	12/19/13	1047	WW		X		1		1	1	1									

Containers Prepared/ Relinquished:	Date/Time: 12/12/13 0900	Received:	Date/Time: 12/13/13 1100
Relinquished:	Date/Time: 12/19/13 1400	Received:	Date/Time: 12-19-13 1400
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact?	Y	N	N/A
Samples intact upon arrival?	Y	N	N/A
Received on ice? Temp_____	Y	N	N/A
Proper preservatives indicated?	Y	N	N/A
Rec'd within holding time?	Y	N	N/A
Volatiles rec'd w/out headspace?	Y	N	N/A
Proper containers used?	Y	N	N/A

Instructions / Remarks:

Chain of Custody.xls
Rev.Date 11/19/01

Chain of Custody