

Plantation Pipeline Gasoline Pipe Line Release
Double Oak Mountain, AL
Preliminary Summary of Air Monitoring Results
September 1, 2014

Prepared by
Center for Toxicology and Environmental Health, L.L.C. (CTEH®)

Introduction

On August 23, 2014, Center for Toxicology and Environmental Health, LLC (CTEH®) was contacted by Plantation Pipe Line to initiate air monitoring in support of response activities following a gasoline pipeline release in Double Oak Mountain, AL. Site monitoring consisted of manually-logged real-time monitoring as well as remote-telemetry monitoring.

This submittal summarizes air monitoring data for August 31, 2014 15:00 to September 1, 2014 15:00.

Real-time Air Monitoring

All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Manually-logged monitoring was conducted for benzene, percent of the Lower Explosive Limit (LEL), oxygen (O₂), and Volatile Organic Compounds (VOCs), with instruments such as RAESystems® MultiRAEs (MRs), and RAESystems® UltraRAEs. Table 1 summarizes data for manually-logged real-time readings in the Work Area.

Table 1: Work Area - Manually-Logged Real-Time Air Monitoring Summary¹
August 31, 2014 15:00 – September 1, 2014 15:00

Analyte	Instrument	Number of Readings	Number of Detections	Average of Detections	Concentration Range
Benzene	UltraRAE	31	24	0.25 ppm	0.05 - 0.95 ppm
LEL	MultiRAE Plus	25	0	NA	<1 %
O ₂	MultiRAE Plus	22	21	20.9 %	20.9 - 20.9 %
VOC	MultiRAE Plus	48	38	22.3 ppm	0.4 - 125.4 ppm

¹Please note: The data set displayed here has not undergone complete QA/QC analysis and is presented in a preliminary format.

²Maximum detections preceded by the "<" symbol are considered non-detects at or above reporting limit value to the right.

Remote-telemetry Air Monitoring

All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Remote-telemetry monitoring was conducted for percent of the Lower Explosive Limit (LEL), oxygen (O₂), and Volatile Organic Compounds (VOCs) with RAESystems® AreaRAEs. Table 2 summarizes data for remote-telemetry data in the work area and Appendix B includes the remote-telemetry data graphs.

Table 2: Remote-telemetry Air Monitoring Summary¹
August 31, 2014 15:00 – September 1, 2014 15:00

Unit	Analyte	Number of Readings	Number of Detections	Average of Detections	Concentration Range
AR06	LEL	5679	2	3.75	2.6 - 4.9 %
	O ₂	5679	5679	20.9 %	20.9 - 20.9 %
	VOC	5679	3488	3.5 ppm	0.1 - 166.3 ppm
AR08	LEL	5506	0	NA	<1 %
	O ₂	5506	5506	20.9 %	20.9 - 20.9 %
	VOC	5506	5167	4.1 ppm	0.1 - 55.9 ppm
AR09	LEL	5311	0	NA	<1 %
	O ₂	5311	5311	20.9 %	20.9 - 20.9 %
	VOC	5311	3730	4.5 ppm	0.1 - 51.7 ppm
AR10	LEL	5586	0	NA	<1 %
	O ₂	5586	5586	20.9 %	20.9 - 20.9 %
	VOC	5586	4610	19.4 ppm	0.1 - 249.2 ppm

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Data Logging Air Monitoring

All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Data logging monitoring was conducted for percent of the Lower Explosive Limit (LEL), oxygen (O₂), and Volatile Organic Compounds (VOCs), with RAESystems® MultiRAEs (MRs). Table 3 summarizes data for data-logged readings in the Work Area and Appendix C includes the data logging data graphs.

Table 3: Work Area – Data Logged Air Monitoring Summary¹
August 31, 2014 08:35 – August 31, 2014 18:53

Unit	Analyte	Number of Readings	Number of Detections	Average of Detections	Concentration Range
Excavation Operations					
095-527887 8/31 08:35 - 8/31 18:53	LEL	1591	0	NA	<1 %
	O ₂	1591	1591	20.9 %	20.9 - 20.9 %
	VOC	1591	1591	11.7 ppm	0.1 - 96.4 ppm
Vac Operations					
095-527231 8/31 08:46 - 8/31 17:50	LEL	2097	0	NA	<1 %
	O ₂	2097	2097	21.2 %	20.9 - 21.5 %
	VOC	2097	1834	7.3 ppm	0.1 - 210.2 ppm
095-527944 8/31 09:24 - 8/31 12:39	LEL	744	0	NA	<1 %
	O ₂	744	744	20.9 %	20.9 - 21.2 %
	VOC	744	160	5.4 ppm	0.1 - 28.5 ppm

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Personal Sampling

In accordance with the Occupational Safety and Health Administration (OSHA) benzene standard 29 CFR 1910.1028, analytical air samples (3M 3520 organic vapor badges) were collected in the breathing space of representative workers to monitor personal exposures to selected petroleum mixture constituents during work activities. In accordance with the OSHA access to employee exposure and medical records standard 29 CFR 1910.1020, notification letters will be produced for delivery to employees sampled. All analytical samples were shipped to an off-site accredited laboratory for chemical analysis. A detailed list of personal sampling results from the work area is provided in Table 4.

Table 4: Personal Air Sampling Results¹
August 24, 2014 – August 27, 2014

Sample Date	Sample ID	Sample Duration	Benzene (ppm)	Ethyl Benzene (ppm)	Naphthalene (ppm)	N-Hexane (ppm)	Toluene (ppm)	Xylene (ppm)
8/24/2014	NT5436^	555	<0.03	<0.07	<0.32	0.1	0.1	<0.24
	NW7912^	379	<0.05	<0.1	<0.47	<0.1	<0.1	<0.34
	WA5387^	483	0.09	<0.08	<0.36	0.31	0.38	<0.27
	WA5458^	1440	0.05	<0.03	<0.12	0.14	0.18	0.14
	WB2699^	181	0.2	<0.2	<0.97	0.77	0.62	<0.72
	WB3172^	631	1.4*	5.1*	1.6*	4.9*	19*	27*
	WB3397^	628	0.16	0.09	<0.28	0.58	0.76	0.44
8/25/2014	NT5611	517	<0.03	<0.08	<0.34	<0.08	0.1	<0.25
	NT5675^	311	<0.06	<0.1	<0.57	<0.1	<0.1	<0.42
	NV5817	558	<0.03	<0.07	<0.32	<0.08	<0.07	<0.23
8/26/2014	WA5298	429	0.07	<0.1	<0.41	0.24	0.33	<0.3
	WB3173	452	0.05	<0.09	<0.39	0.22	0.27	<0.29
	WB3243	468	0.04	<0.09	<0.38	0.2	0.24	<0.28
	WP8037	609	<0.03	<0.07	<0.29	0.1	0.17	<0.21
	WP8117	616	0.04	<0.07	<0.29	0.19	0.31	<0.21
8/27/2014	WB3166	490	0.04	<0.08	<0.36	0.2	0.25	<0.27
	WP8181	435	<0.04	<0.09	<0.41	<0.1	0.2	<0.3
	WP8209	485	0.1	<0.08	<0.36	0.28	0.41	<0.27
	WP8240	537	0.05	<0.08	<0.33	0.1	0.23	<0.24

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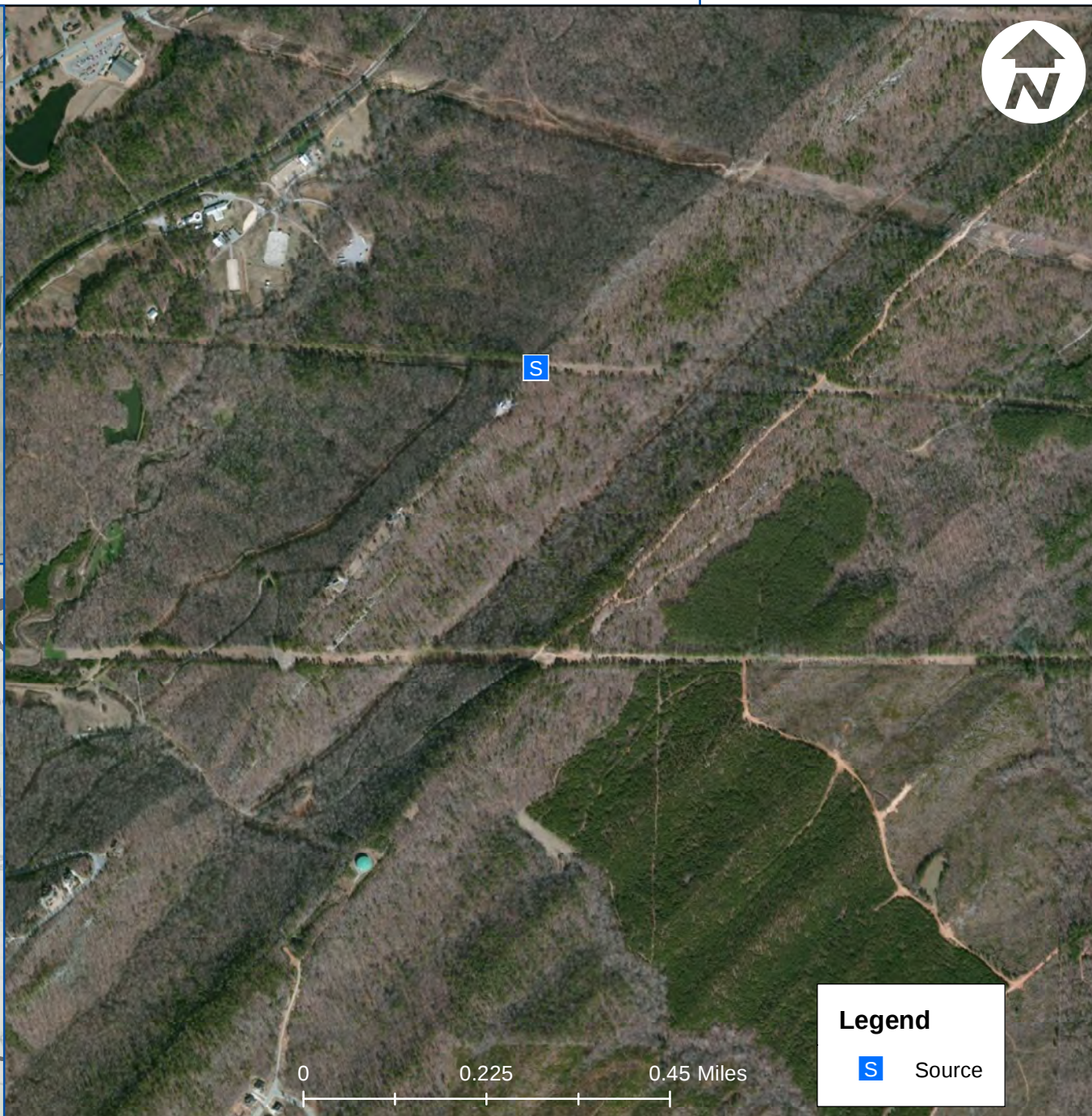
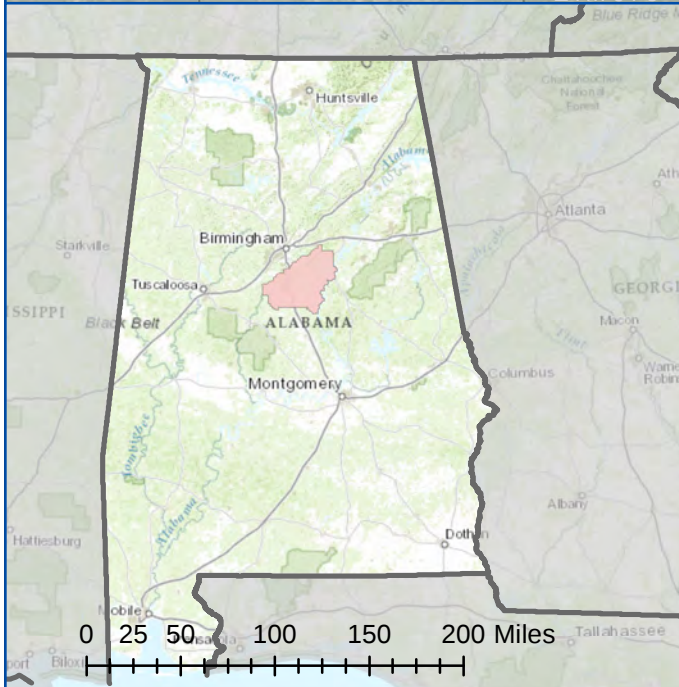
²Maximum detections preceded by the "<" symbol are considered non-detects at or above reporting limit value to the right.

* - Individual wearing this exposure badge tripped, resulting in the badge falling to the ground and breaking open near the released product.

For this reason, the result of this sample may be anomalous and not representative of the individual's exposure to these volatile organic compounds

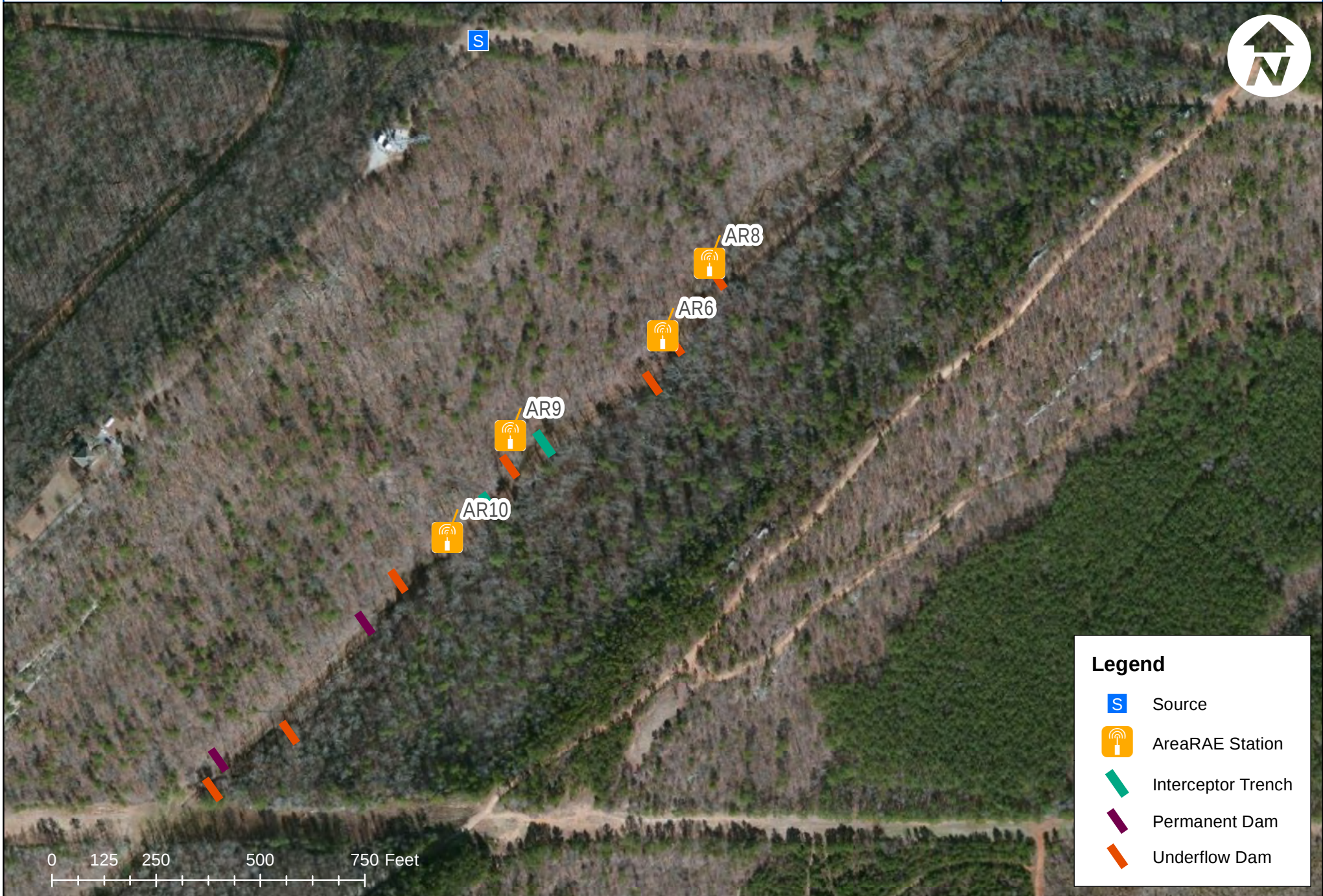
^ - Lab Results have level 2 validation through a third party validator.

Appendix A: Incident Maps



Legend

S Source

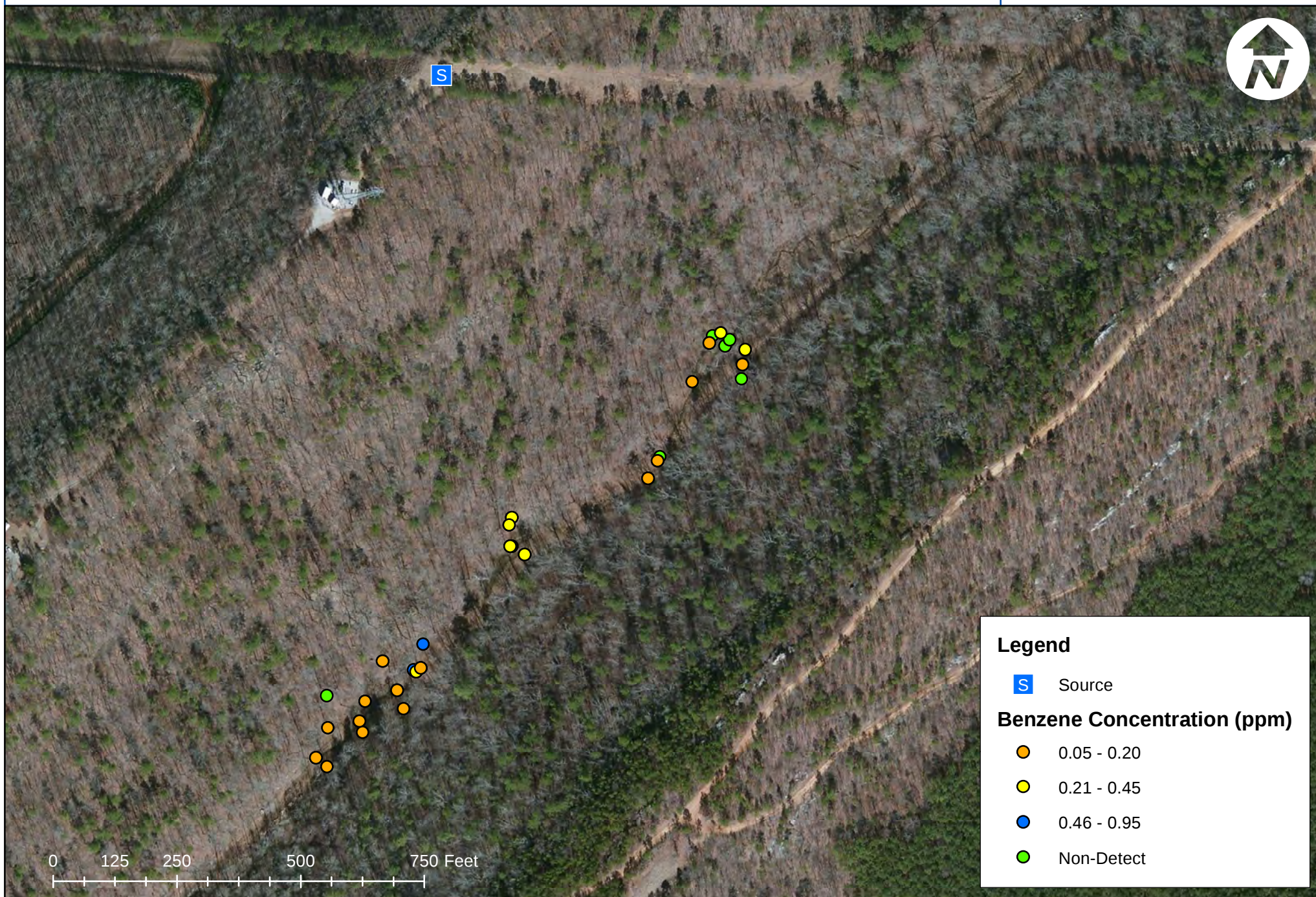


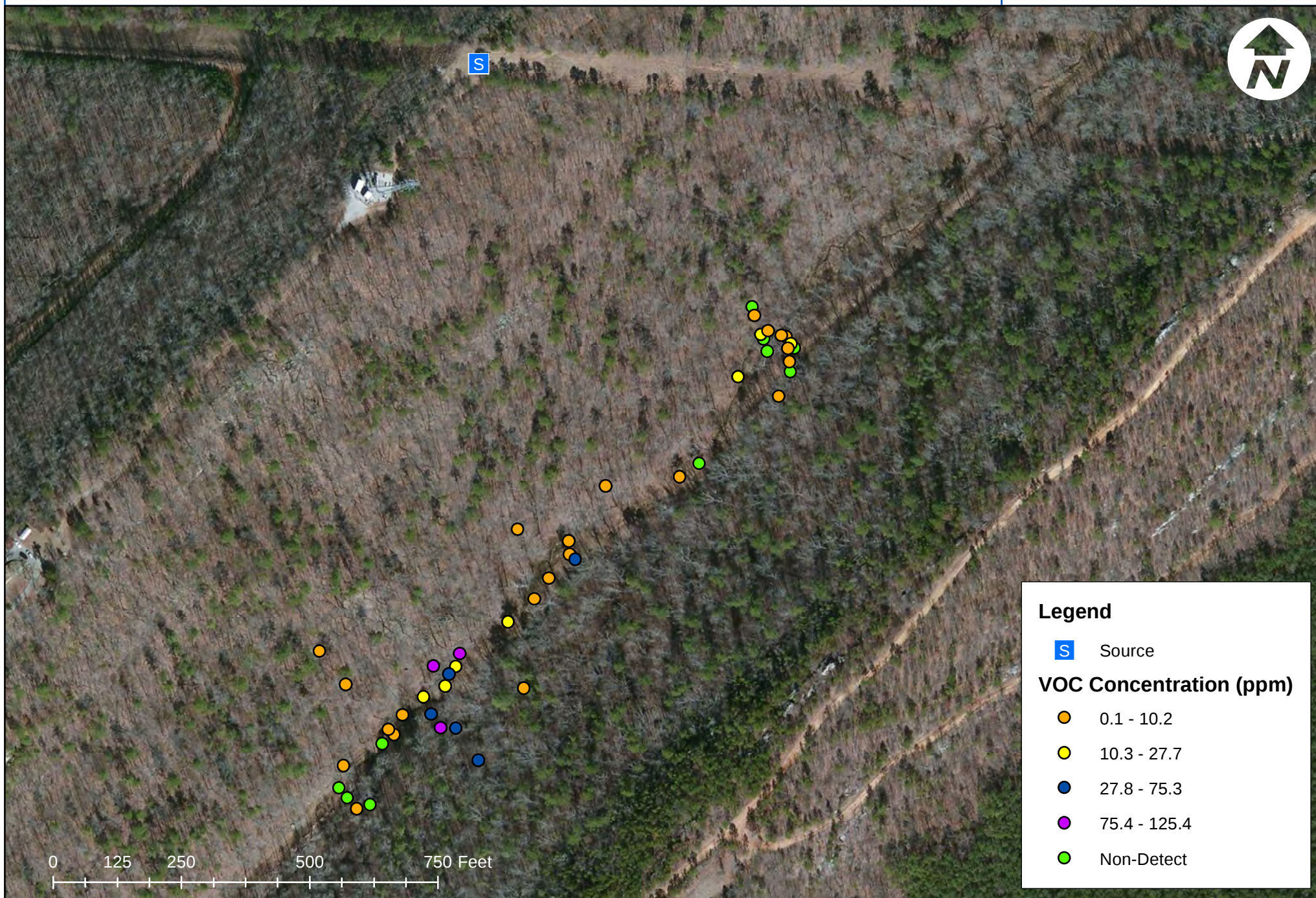


0 125 250 500 750 Feet

Legend

- S Source
- Real-Time Reading Location

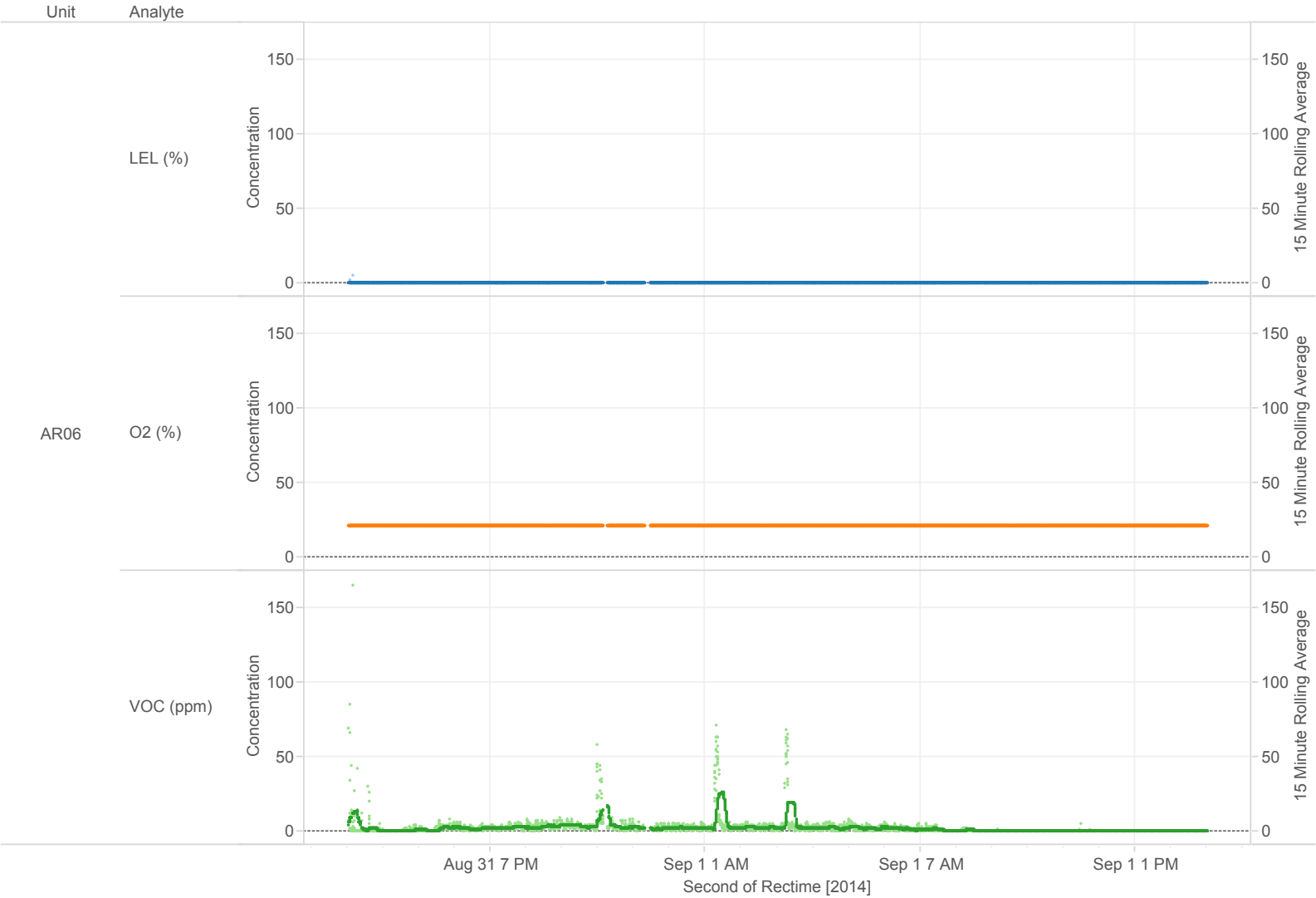




Appendix B:

Remote-telemetry Air Monitoring Graphs

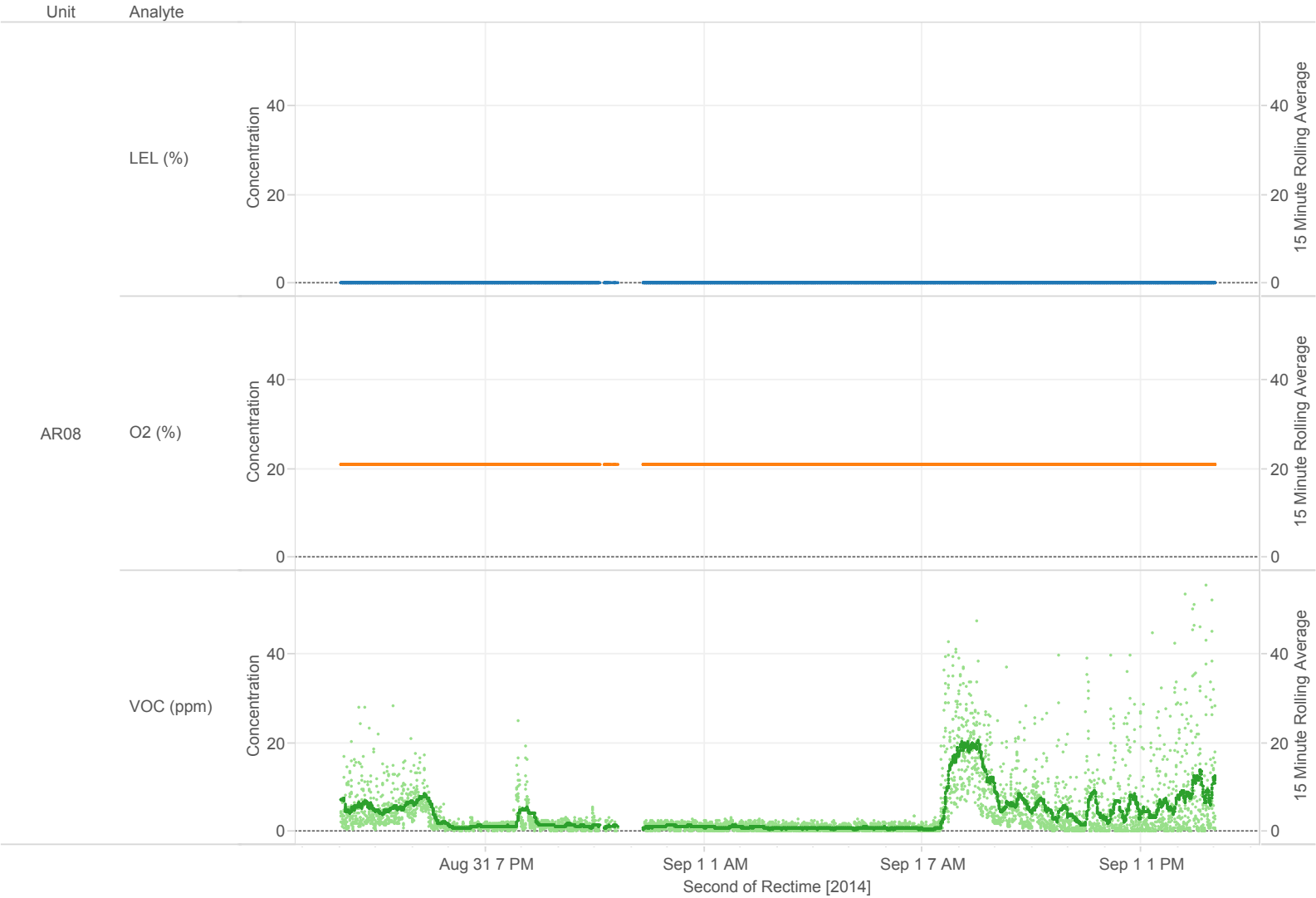
Remote-telemetry Air Monitoring - Double Oak Mountain, AL - 8/31/2014 15:00 - 9/1/2014 15:00



Please note: The data set displayed here has not undergone complete QA/QC analysis and is presented in a preliminary format

- Analyte**
- LEL (%), 15 Minute Rolling Average
 - LEL (%), Concentration
 - O2 (%), 15 Minute Rolling Average
 - O2 (%), Concentration
 - VOC (ppm), 15 Minute Rolling Average
 - VOC (ppm), Concentration

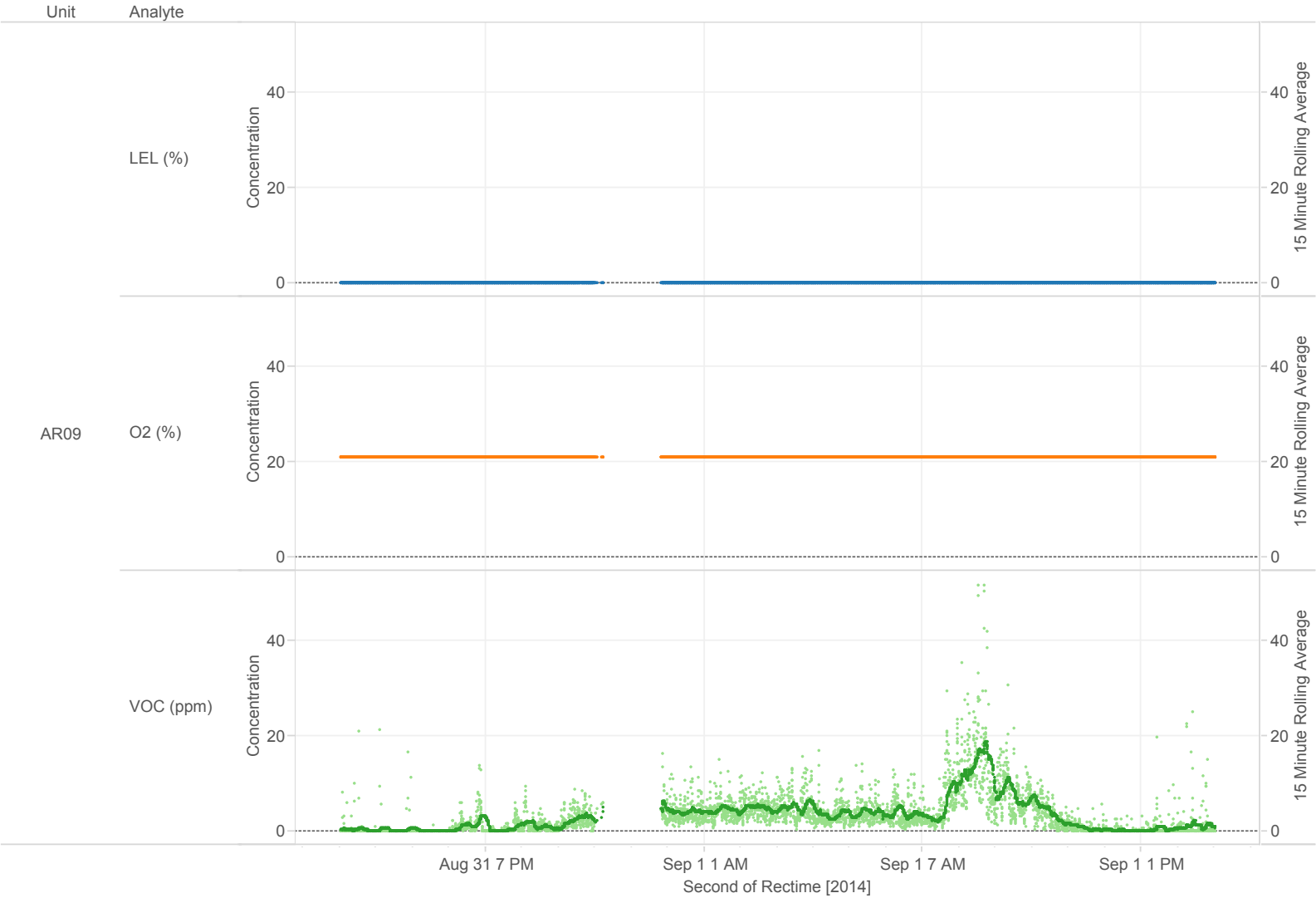
Remote-telemetry Air Monitoring - Double Oak Mountain, AL - 8/31/2014 15:00 - 9/1/2014 15:00



Please note: The data set displayed here has not undergone complete QA/QC analysis and is presented in a preliminary format

- Analyte**
- LEL (%), 15 Minute Rolling Average
 - LEL (%), Concentration
 - O2 (%), 15 Minute Rolling Average
 - O2 (%), Concentration
 - VOC (ppm), 15 Minute Rolling Average
 - VOC (ppm), Concentration

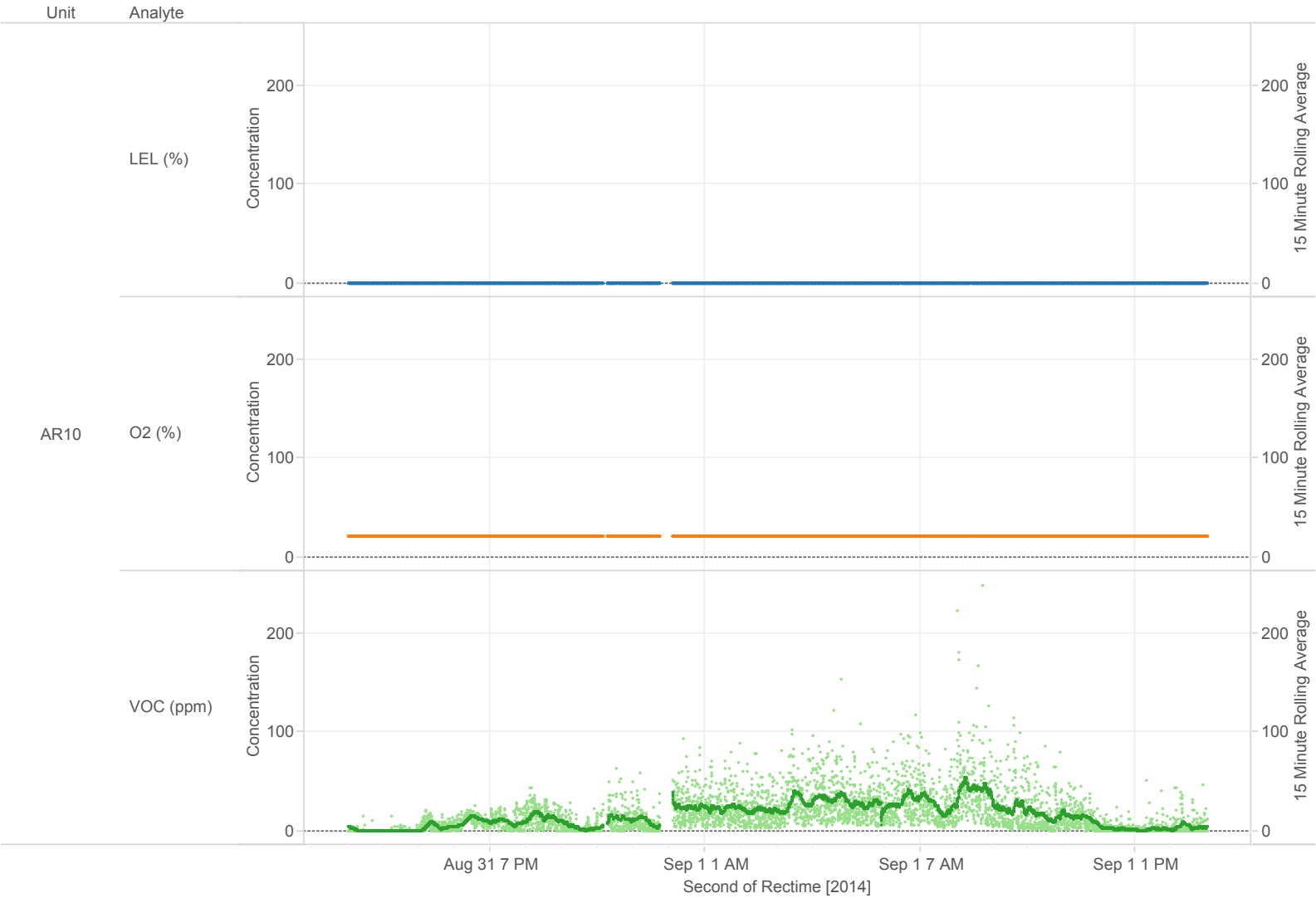
Remote-telemetry Air Monitoring - Double Oak Mountain, AL - 8/31/2014 15:00 - 9/1/2014 15:00



Please note: The data set displayed here has not undergone complete QA/QC analysis and is presented in a preliminary format

- Analyte**
- LEL (%), 15 Minute Rolling Average
 - LEL (%), Concentration
 - O2 (%), 15 Minute Rolling Average
 - O2 (%), Concentration
 - VOC (ppm), 15 Minute Rolling Average
 - VOC (ppm), Concentration

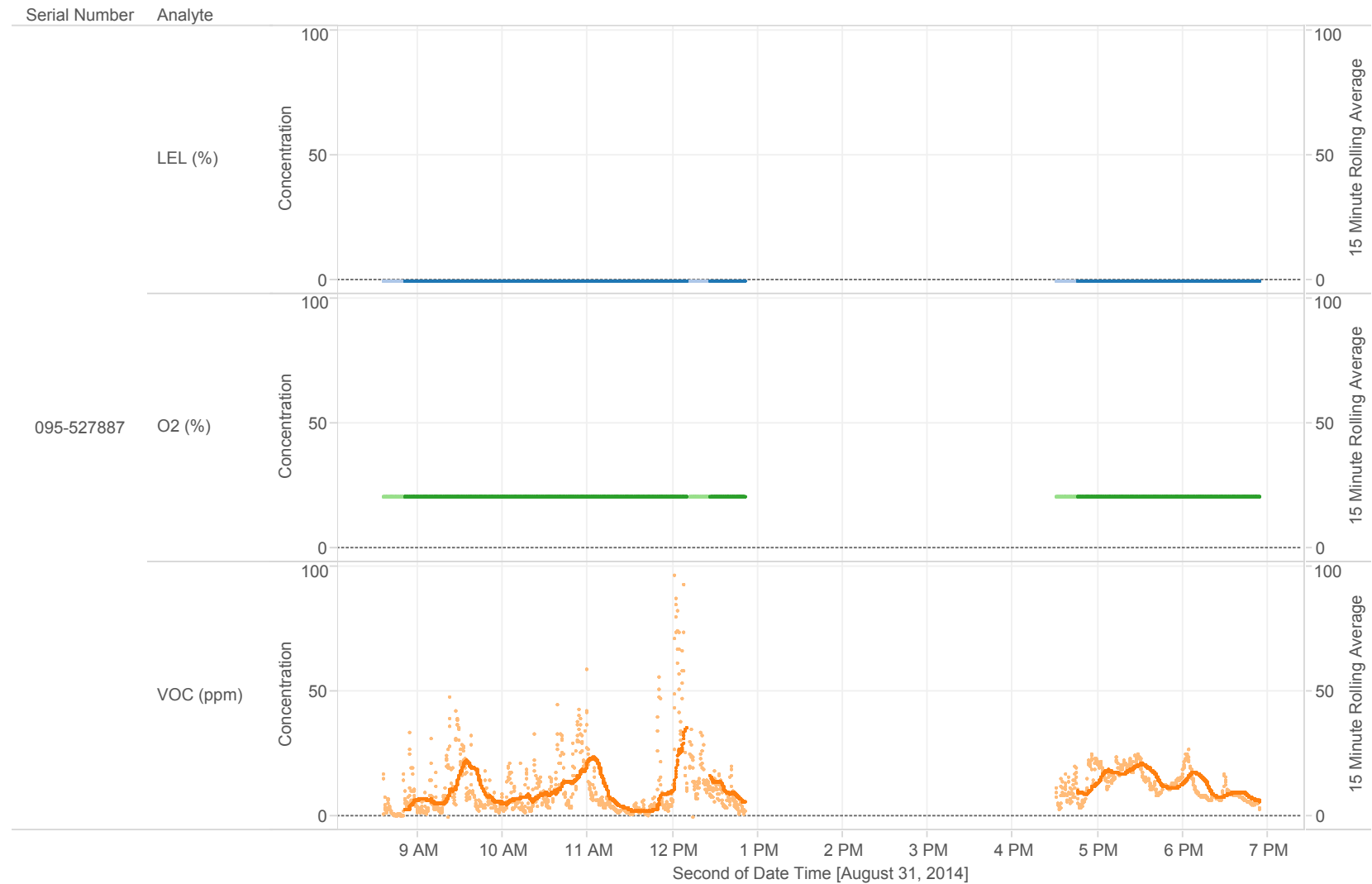
Remote-telemetry Air Monitoring - Double Oak Mountain, AL - 8/31/2014 15:00 - 9/1/2014 15:00



Please note: The data set displayed here has not undergone complete QA/QC analysis and is presented in a preliminary format

- Analyte**
- LEL (%), 15 Minute Rolling Average
 - LEL (%), Concentration
 - O2 (%), 15 Minute Rolling Average
 - O2 (%), Concentration
 - VOC (ppm), 15 Minute Rolling Average
 - VOC (ppm), Concentration

MultiRAE Data Logging Air Monitoring - Double Oak Mountain, AL - 8/31/2014 08:35 - 8/31/2014 18:53



Please note: The data set displayed here has not undergone complete QA/QC analysis and is presented in a preliminary format

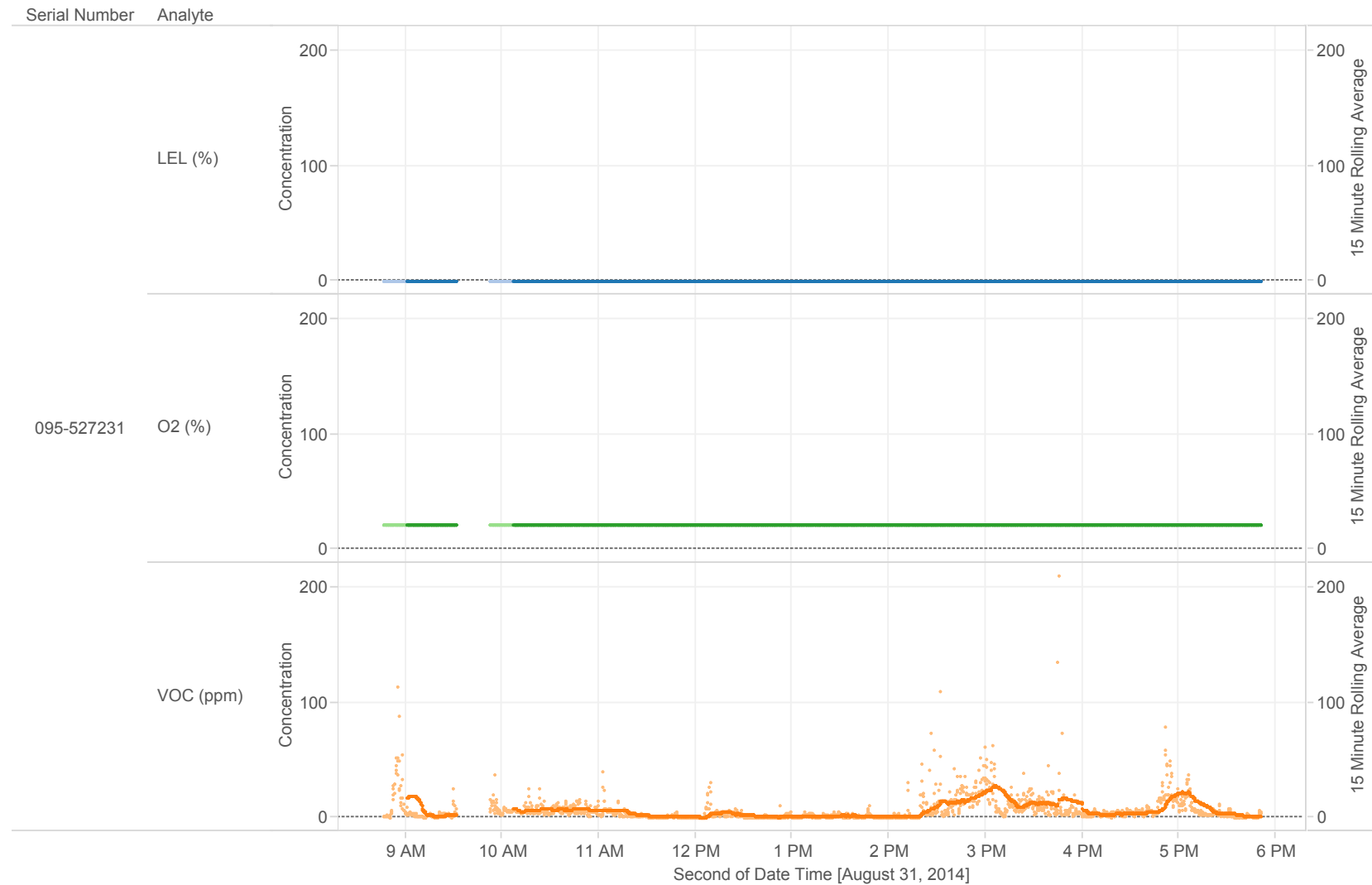
Analyte

- LEL (%), 15 Minute Rolling Average
- LEL (%), Concentration
- O2 (%), 15 Minute Rolling Average
- O2 (%), Concentration
- VOC (ppm), 15 Minute Rolling Average
- VOC (ppm), Concentration

Appendix C:

Data Logging Air Monitoring Graphs

MultiRAE Data Logging Air Monitoring - Double Oak Mountain, AL - 8/31/2014 08:35 - 8/31/2014 18:53

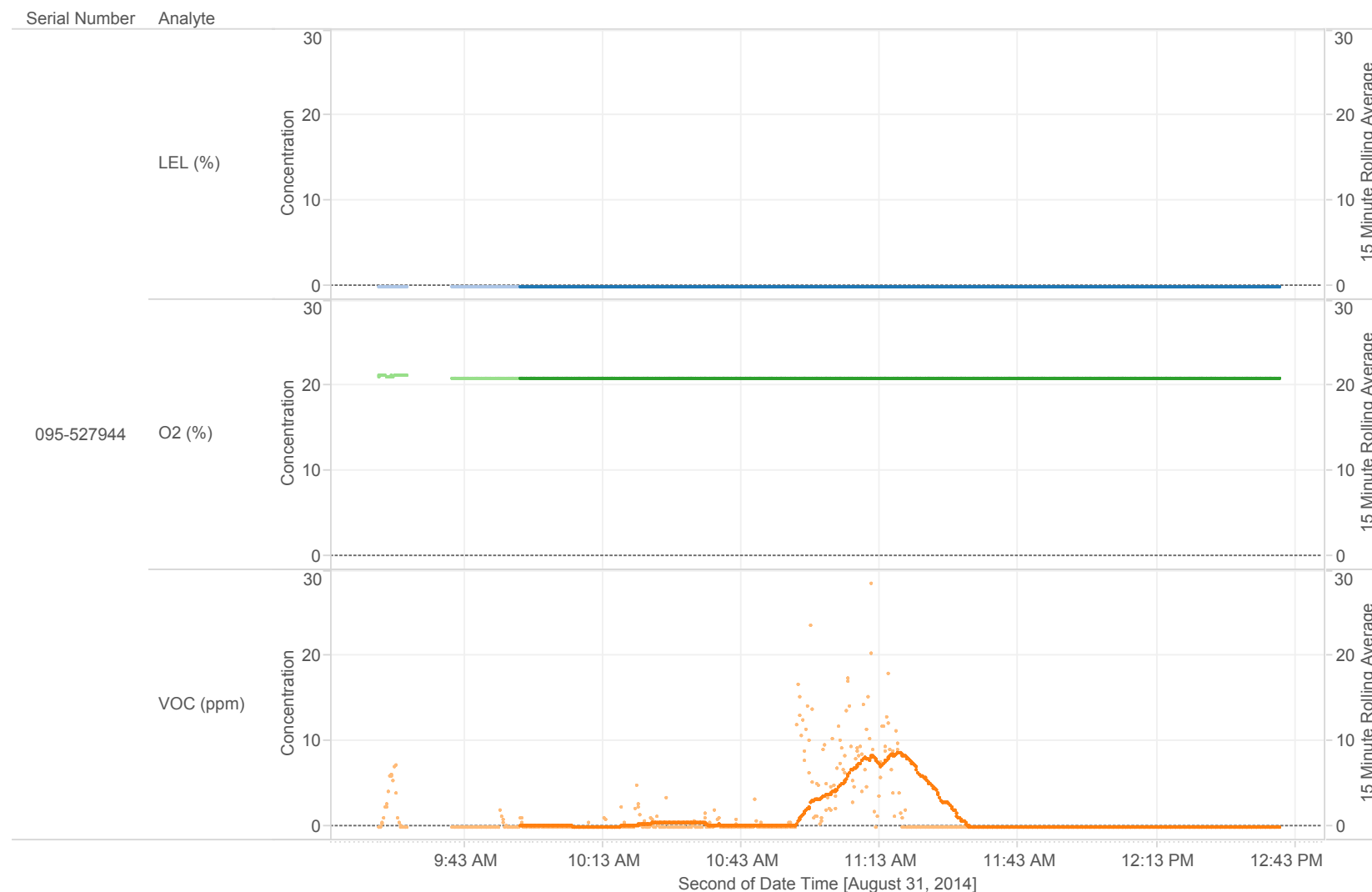


Please note: The data set displayed here has not undergone complete QA/QC analysis and is presented in a preliminary format

Analyte

- LEL (%), 15 Minute Rolling Average
- LEL (%), Concentration
- O2 (%), 15 Minute Rolling Average
- O2 (%), Concentration
- VOC (ppm), 15 Minute Rolling Average
- VOC (ppm), Concentration

MultiRAE Data Logging Air Monitoring - Double Oak Mountain, AL - 8/31/2014 08:35 - 8/31/2014 18:53



Please note: The data set displayed here has not undergone complete QA/QC analysis and is presented in a preliminary format

Analyte

- LEL (%), 15 Minute Rolling Average
- LEL (%), Concentration
- O2 (%), 15 Minute Rolling Average
- O2 (%), Concentration
- VOC (ppm), 15 Minute Rolling Average
- VOC (ppm), Concentration

Appendix D: Calibration Logs

Calibration Log

Date	Time	Instrument	Serial Number	Cal Gas	Concentration	Lot Number	Expiration/ Mfg. Date	Calibrated By
8/31	23:02	AZ08	292-504133	ISO Quad N	100ppm 50%LEL 99.9%	971552 970235 96738	7/16 8/17 6/17	ATZ
	23:17	AZ06	292-500716					ATZ
	23:29	AZ09	292-504109					ATZ
	23:45	AZ10	292-504111					ATZ
9/1	02:22	MRT+	045-527231	ISO Quad N	100ppm 50%LEL 99.9%	971552 970235 96738	7/16 8/17 6/17	ATZ
	+		045-528024					
	0232	UltraPac	596-901284	Benzene	5ppm	956964	4/16	AR
	+		596-905842					
9/1	0530	RB Pac	594-901451	ISO	10ppm	962691	12/15	ATZ
	+		594-901471					
9/1	0607	MRT+	045-527881	ISO Quad N	100ppm 50%LEL 99.9%	971552 970235 970543	7/16 8/17 7/17	ATZ
			045-528039					
			045-527944					
			045-527929					
			045-528061					
			045-527915		100ppm 50%LEL			

Project# 106608

Client Plantation

Location Pelham, AL