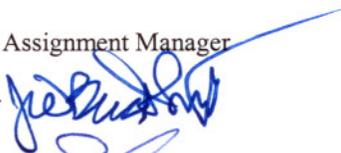


DATE: 3 November 2008

TO: Rajeshmal Singhvi, U.S. EPA/ERT Work Assignment Manager

THROUGH: Jeff Bradstreet, REAC Air Section Leader 

FROM: Philip Solinski, REAC Task Leader 

SUBJECT: CORAL BAY AIR SAMPLING, ST. JOHN, USVI
WORK ASSIGNMENT 0-367 - AIR MONITORING AND SAMPLING FINAL REPORT

BACKGROUND

The United States Environmental Protection Agency/Environmental Response Team (U.S. EPA/ERT) was requested by EPA Region II to perform air monitoring and sampling on Saint (St) John in the U.S. Virgin Islands (VI). The Response Engineering and Analytical Contract (REAC) was tasked by EPA/ERT to perform air monitoring and sampling around the Coral Bay area of St. John during the week of 15 September 2008. The sampling effort was performed in response to complaints by Coral Bay residents of periodic exposure to a smoke plume emanating from a burning trash dump located on the neighboring island of Tortola in the British Virgin Islands.

OBSERVATIONS AND ACTIVITIES

Air monitoring was performed for particulates. Air sampling was performed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), inorganic acids, mercury (Hg), carbon monoxide (CO), carbon dioxide (CO₂), methane (CH₄), total non-methane organic compounds (TNMOC) and metals. Up to five sampling locations were utilized, during the four sampling events. The first sampling event began in the evening of 16 September 2008 and ended in the morning of 17 September 2008. The second sampling event occurred during the daytime of 17 September 2008. The third sampling event occurred during the daytime of 18 September 2008. The fourth sampling event began in the evening of 18 September 2008 and ended in the early morning of 19 September 2008.

The monitoring/sampling locations were mainly located in the Coral Bay Area. Final sampling locations were selected in consultation with EPA/ERT. Table 1 presents a description of each of the monitoring/sampling locations. Appendix A contains a Google™ Earth map depicting the monitoring locations.

Air Monitoring Methodology

Particulates were monitored by the Thermo Scientific DataRam (DataRam). The DataRam is a high sensitivity nephelometric monitor whose light scattering sensing configuration is optimized for the measurement of airborne dust, smoke, fumes, and mists concentration in ambient environments. The instrument samples the air at a constant flow rate by means of a diaphragm pump. The sampled air stream passes through the optical sensing stage after which the particles are retained by a high-efficiency filter cartridge. The DataRam covers a range of measurement from 0.1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 400 milligrams per cubic meter (mg/m^3) with monitoring information being logged internally.

Air Sampling Methodologies

Ambient sampling and analysis for VOCs was conducted following modified U.S. EPA Toxic Organic Compendium Method TO15: *Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*. SUMMA[®] canisters were utilized to collect grab samples. Each sample was collected by taking a pre-cleaned, pre-evacuated canister, opening the valve and collecting 6 liters (L) of air within the breathing zone. In addition, the SUMMA[®] canisters were analyzed for CH₄, CO and CO₂ following the protocol outlined in EPA Method 25C, *Determination of Non-Methane Organic Compounds in Landfill Gases*.

Ambient sampling, and analysis for VOCs was conducted following modified (gas chromatography/mass spectrometry (GC/MS)) National Institute for Occupational Safety and Health (NIOSH) methods: Method 1500, *Hydrocarbons, BP 36-216 °C*; Method 1501, *Hydrocarbons, Aromatic*; and Method 1003, *Hydrocarbons, Halogenated*. The sampling train consisted of a 600- mg charcoal solid sorbent tube connected to a low/high flow personal sampling pump (SKC). The sampling pump was calibrated to collect approximately 1 L/minute (min) of air through the sorbent tube. Sampling was conducted for 8-hours with air volumes targeted to be 480 L. Samples were collected within the breathing zone.

Ambient sampling and analysis for PAHs were conducted following modified (GC/MS-Selected Ion Monitoring) NIOSH Method 5515, *Polynuclear Aromatic Hydrocarbons*. The sampling train consisted of a 600-mg washed XAD-2 solid sorbent tube with 2-micron (μm), 37-millimeter (mm) Teflon (PTFE) filter connected to a low/high flow personal sampling pump (SKC). The sampling pump was calibrated to collect approximately 1.5 L/min of air through the sorbent tube. Sampling was conducted for 8-hours with air volume targeted to be 720 L. Samples were collected within the breathing zone.

Ambient sampling and analysis for inorganic acids were conducted following NIOSH Method 7903, *Acids, Inorganic*. The sampling train consisted of a 600-mg specially cleaned silica gel solid sorbent tube connected to a low/high flow personal sampling pump (SKC). The sampling pump was calibrated to collect approximately 0.3 L/min of air through the sorbent tube. Sampling was conducted for 8-hours with air volume targeted to be 144 L. Samples were collected within the breathing zone.

Ambient sampling and analysis for metals were conducted following a modified NIOSH Method 7300, *Elements (ICP)*. The sampling train consisted of a 0.8- μm pore size 37-mm mixed cellulose ester filter (MCEF) connected to a low/high flow personal sampling pump (SKC). The sampling pump was calibrated to collect approximately 1 L/min of air through the filter. Sampling was conducted for 8-hours with air volume targeted to be 480 L. Samples were collected within the breathing zone.

Ambient sampling and analysis for Hg were conducted following a modified NIOSH Method 6009, *Mercury*. The sampling train consists of a 200-milligram carulite/hydrar tube connected to a low/high flow personal sampling pump (SKC). The sampling pump was calibrated to collect approximately 0.5 L/min of air through the tube. Sampling was conducted for 8-hours with air volume targeted to be 240 L. Samples were collected within the breathing zone.

Air Monitoring Events

Air monitoring was performed once per sampling event at each sampling location. Table 2 presents the particulate air monitoring summary. Appendix A contains a GoogleTM Earth map depicting the air monitoring/sampling locations.

Air Sampling Events

A total of five SUMMA[®] canister grab samples were collected. On 17 September 2008, two samples were collected at locations 1 and 2. Three SUMMA[®] canister grab samples were collected on 18 September 2008 at locations 1, 2 and 5.

Air sampling for VOCs, PAHs, inorganic acids, mercury, and metals were collected at all five locations during the of 16

September 2008 evening sampling event, daytime sampling event of 18 September 2008, and the evening sampling event of 18 September 2008. A co-located sample was collected at Location 2 during sampling event evening of 16 September 2008. Only Locations 1 through 4 were sampled during the daytime event of 17 September 2008. Appendix B contains all of air sampling data sheets. Appendix C contains a photo log of the sampling locations.

After sample collection, all samples were packaged and chains of custody were processed using Scribe. The SUMMA[®] canister VOCs, charcoal tube VOCs, metals, Hg, and PAH samples were shipped back to the REAC laboratory in Edison, NJ for analysis. After the REAC analysis, the SUMMA[®] canister (VOCs) samples were sent to Columbia Analytical Services in Simi Valley, CA for analysis of CH₄, CO and CO₂. The inorganic acid samples were sent to Data Chem in Salt Lake City, UT for analysis.

Air Sampling Results

No target compounds for VOCs (in charcoal tubes), PAH or mercury were detected above their respective reporting limits.

The only metal observed was iron ($17.6 \mu\text{g}/\text{m}^3$) at the co-located sample from Location 2 collected during the first sampling event on 17 September 2008. Note that iron was not detected above the reporting limit in the sample that was collected at the same location during the same time period.

Table 3 presents the SUMMA[®] canister grab air sampling summary for VOCs along with CH₄ and CO₂. Samples were collected on 17 and 18 September 2008. The majority of the results were below 1 part per billion by volume (ppbv). The only exception was acetone being present in all samples ranging from 4.49 to 11.6 ppbv, and isopropyl alcohol estimated at 1.22 ppbv at the sample collected on 18 September 2008 at Location 1.

Table 4 presents the inorganic acid air sampling summary in mg/m^3 . Inorganic acids were not detected above their respective reporting limits for both sampling events that ended on 17 September 2008. Only hydrochloric acid was detected, just above the reporting limit, with highest concentration of $0.013 \text{ mg}/\text{m}^3$ at Location 5, the upwind location during the last sampling event.

Appendix D contains the wind roses for the four sampling events from 16 to 18 September 2008 from the Cyril E. King International Airport on St. Thomas, USVI.

FUTURE ACTIVITIES

No future activities are anticipated at this time.

cc: Central File WA 0-367

TABLE 1
Air Monitoring/Sampling Location Summary
Coral Bay
St. John, USVI
November 2008

Location	Description
1	10-25 C Carolina
2	6-3-62 Upper Carolina
3	Majestic Mile
4	Chateau Bordeaux
5	East End - Privateer Bay Estates

TABLE 2
 Total Particulate Air Monitoring Summary in $\mu\text{g}/\text{m}^3$
 Coral Bay
 St. John, USVI
 November 2008

Location	Location Description	September 17, 2008				September 18, 2008			
		Time	Concentration	Time	Concentration	Time	Concentration	Time	Concentration
1	10-25 C Carolina	12:36	20.2	20:46	32.7	9:01	6.7	17:23	15.5
2	6-3-62 Upper Carolina	10:59	20.7	19:37	23.2	9:39	6.8	18:40	6.1
3	Majestic Mile	11:36	20.5	20:00	22.7	9:20	5.6	18:04	7.7
4	Chateau Bordeaux	13:15	19.7	21:22	29.5	10:08	9.3	19:13	8.6
5	East End - Privateer Bay Estates	9:58	18.7	Not Monitored	Not Monitored	8:18	6.4	16:39	4.7

$\mu\text{g}/\text{m}^3$ - micrograms per cubic meter.

TABLE 3
SUMMA[®] Canister Grab Air Sampling Summary in ppbv (*)
Coral Bay
St. John, USVI
November 2008

	September 17, 2008				September 18, 2008						September 18, 2008	
Sample Number	50428		50429		50424		50425		50426		50302	
Sample Location	Location 2		Location 1		Location 5		Location 1		Location 2		Trip Blank	
Sub Location	6-3-62 Upper Carolina		10-25 C Carolina		East End		10-25 C Carolina		6-3-62 Upper Carolina		Trip Blank	
Compounds	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Propylene	ND	0.0667	0.279	0.0667	0.0990	0.0667	0.214	0.0667	ND	0.0667	0.157	0.0667
Dichlorodifluoromethane	0.427	0.0667	0.586	0.0667	0.507	0.0667	0.417	0.0667	0.487	0.0667	ND	0.0667
Chloromethane	0.695	0.0667	0.714	0.0667	0.599	0.0667	0.392	0.0667	0.437	0.0667	ND	0.0667
Acetone	7.84 J	0.167	4.49 J	0.167	5.97 J	0.167	11.6 J	0.345	4.70 J	0.167	0.340 J	0.167
Trichlorofluoromethane	0.164	0.0667	0.213	0.0667	0.186	0.0667	0.153	0.0667	0.180	0.0667	ND	0.0667
Isopropyl Alcohol	ND	0.167	ND	0.167	ND	0.167	1.22 J	0.214	ND	0.167	ND	0.167
Vinyl Acetate	0.231	0.0667	0.167	0.0667	0.297	0.0667	0.454 J	0.0667	0.105	0.0667	ND	0.0667
2-Butanone	0.159	0.0667	0.192	0.0667	0.138	0.0667	0.401	0.0667	0.142	0.0667	ND	0.0667
Chloroform	0.0763	0.0667	ND	0.0667	ND	0.0667	ND	0.0667	ND	0.0667	ND	0.0667
Benzene	ND	0.0667	ND	0.0667	ND	0.0667	ND	0.0667	ND	0.0667	0.122	0.0667
Trichloroethene	ND	0.0667	ND	0.0667	ND	0.667	ND	0.0667	ND	0.0667	0.0728	0.0667
m&p-Xylene	0.0969	0.0667	0.0850	0.0667	ND	0.0667	ND	0.0667	ND	0.0667	ND	0.0667
Methane (*)	1.7	0.70	0.85	0.50	1.6	0.70	1.5	0.69	1.6	0.70	ND	0.66
Carbon Dioxide(*)	600	7.0	190	5.0	350	7.0	350	6.9	380	7.0	ND	6.6

ppbv - - parts per billion by volume

* - Results for methane and carbon dioxide are reported in parts per million

RL - Reporting limit

ND - Not detected above reporting limit listed

J - Value is estimated

TABLE 4
 Inorganic Acid Air Sampling Summary in mg/m³
 Coral Bay
 St. John, USVI
 November 2008

September 18, 2008	Location 1		Location 2		Location 3		Location 4		Location 5	
Event ended at approximately 6pm	10-25 C Carolina		6-3-62 Upper Carolina		Majestic Mile		Chateau Bordeaux		East End - Privateer Bay Estates	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Hydrochloric Acid	ND	0.0036	0.0043	0.0036	0.0059	0.0036	ND	0.0050	ND	0.0036

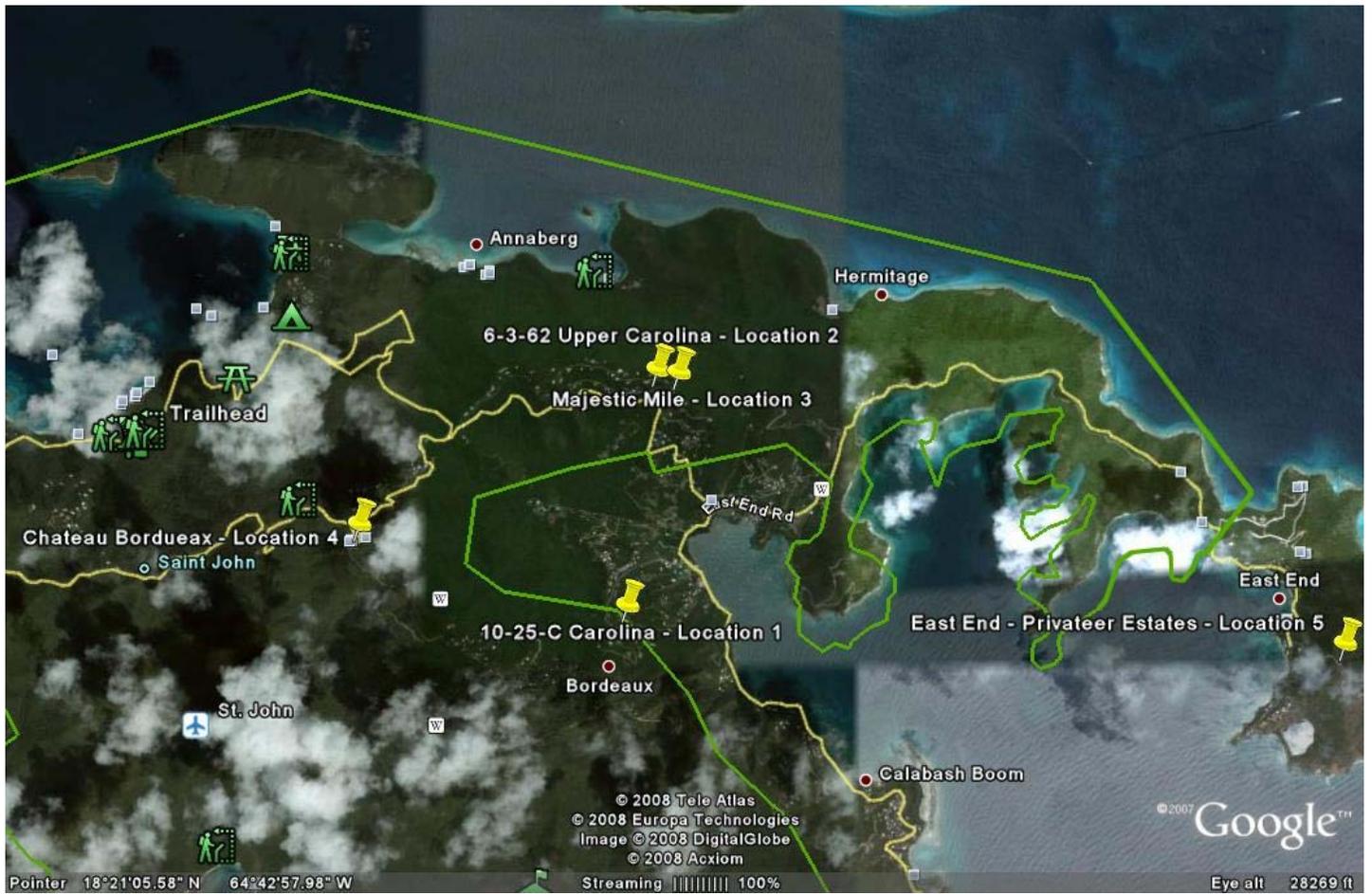
September 19, 2008	Location 1		Location 2		Location 3		Location 4		Location 5	
Event ended by approximately 3am	10-25 C Carolina		6-3-62 Upper Carolina		Majestic Mile		Chateau Bordeaux		East End - Privateer Bay Estates	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Hydrochloric Acid	ND	0.0054	0.0039	0.0036	0.0046	0.0036	ND	0.0036	0.013	0.0089

mg/m³ - milligrams per cubic meter.

RL – Reporting limit in micrograms per sample.

ND – Not detected above reporting limit listed

APPENDIX A
Google™ Earth Maps Depicting Monitoring/Sampling Locations
Coral Bay
St. John, USVI
November 2008



APPENDIX B
Air Sampling Data Sheets
Coral Bay
St. John, USVI
November 2008



EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet
 Lockheed Martin Corp., Edison, NJ
 U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 50001

Sampler: CATTOLICHI/SOLINSKI

U.S. EPA/ERTC WAM: SINGHVI

Date: 9/16/08

REAC Task Leader: SOLINSKI

Sample #	50350	50351	50352	50353	—
Location	PRIVATEER BAY ESTATES BY EAST END	4218		ELECTRICAL TRANSFORMER 450 FT ACROSS FROM LOT	
Pump #	44	121	521	450	344
Media	COONING CARBON	600 mg CARBON + 2.0um PTFE	SILICA GEL TUBE	OX ON MCEP	CALIBRE
Analysis/Method	VOL	PAL	IMPACTORS	METALS	Hg
Rotameter	MLG	MLG	7962	MLG	7962
Time/Counter (Start)	0 2000	0 2000	0 2000	0 2000	—
Time/Counter (Stop)	480 0400	0 700	480 0400	480 0400	—
Total Time	480	660	480	480	0
Pump Fault	Y(N)	Y(N)	Y(N)	Y(N)	(Y)N
Flow Rate (Start)	1	1.5	0.3	1	0.500
Flow Rate (End)	0.85	1.4	0.3	1	—
Flow Rate Average	0.925	1.45	0.3	1	—
Sample Volume	444	957	144	480	—

MET Station on Site?: Y / N **50355** **50356** **50357** **50358**

FILLED BLANKS **50354**

DATARAM 948-958 = 18.7ug/m³ 75 umin DELAY START @ 10:45

10 min TOTAL PARTICULATE ADG



EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet
 Lockheed Martin Corp., Edison, NJ
 U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 90 001

Sampler: SOLINSKI/CARROLL

U.S. EPA/ERTC WAM: SINGHVI

Date: 9/16/08

REAC Task Leader: SOLINSKI

Sample #	—	50361	50362	50363	50364
Location		604110N 2 6-3-62 UPPER CAROLINA			
Pump #	497	138	413	302	529
Media	600mg CARBON	600 mg XAD2 2µm PTFE	SILICA GEL	0.8 µm MCE	200mg CARBON
Analysis/Method	VOC	PAH	INORG ACIDS	METALS	UG
Rotameter	MG	MG	7962	MG	7962
Time/Counter 9/16/08 (Start)	0	0	0	0	0
Time/Counter 9/17/08 (Stop)	X	660 0700	480 0700	480 0400	480 0400
Total Time	—	660	480	480	480 * 57 min
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start) Lpm	1	1.5	300 ml/min	1	500 ml/min
Flow Rate (End) Lpm		1.5	300 ml/min	1	0.20 ml/min
Flow Rate Average Lpm		1.5	300 ml/min	1	350 ml/min
Sample Volume L	—	990	144	480	48/68

MET Station on Site?: Y/N

DELAY FAILED
 18 min @ 1059
 DATA @ 20.7 µg/m³
 DELAYED START 30 min @ 1750



EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet
 Lockheed Martin Corp., Edison, NJ
 U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: SB001

Sampler: SOLINSKI/CARTMILLER

U.S. EPA/ERTC WAM: SINGHVI

Date: 9/14/08

REAC Task Leader: SOLINSKI

Sample #	50365	50366	50367	50368	50369
Location	LOCATION	2 DUGS ^{COLOCATED}	6-3-62	UPPER	CAROLINA
Pump #	472	311	133	173	437
Media	600mg CARBON	600mg XAD2 2.0 PPF	SILICA GEL	0.8 um MCF	200mg CARBON
Analysis/Method	VOI	PAH	INORGANIC ACIDS	METALS	#3
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 2000	0 2000	0 2000	0 2000	0 2000
Time/Counter (Stop)	480 0400	000 0700	480 0400	480 0400	480 0400
Total Time	480	660	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start) _{Lpm}	1	1.5	300 mL/min	1	500 mL/min
Flow Rate (End) _{Lpm}	0.95	1.5	300 mL/min	0.9	500 mL/min
Flow Rate Average _{Lpm}	0.975	1.5	300 mL/min	0.95	500 mL/min
Sample Volume _L	468	990	144	456	240

MET Station on Site?: Y/N

130min DELAYED START @ 1730



EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet
 Lockheed Martin Corp., Edison, NJ
 U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 50001

Sampler: CANTUWIGHT/SOLINSKI

U.S. EPA/ERTC WAM: SINAHVI

Date: 9/16/08

REAC Task Leader: SOLINSKI

Sample #	50370	50371	50372	50373	50374
Location	MAJESTIC ROAD		LOCATION 3		
Pump #	317	325	352	150	381
Media	VOC	PAH	IA	METALS	H ₂ S
Analysis/Method	CARBON	VAD2 PTFE	SILICA	WCEP	CARBIDE
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 2000	0 2000	0 2000	0 2000	0 2000
Time/Counter (Stop)	00:45 45	01:00 660	01:00 660	01:00 660	01:00 660
Total Time	45	660	660	660	660
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	0.3	1	0.5
Flow Rate (End)	1	1.5	0.3	1	0.5
Flow Rate Average	1	1.5	0.3	1	0.5
Sample Volume	45	990	144	480	480

MET Station on Site?: Y N

ESTIMATED

20.5 ug/m³
 DATA taken @ 12 min AVG ending @ 11:36
 3 min DLV @ 7:30



**EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet**
Lockheed Martin Corp., Edison, NJ
U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 50001

Sampler: CARTWRIGHT/SOLINGER

U.S. EPA/ERTC WAM: Station 1

Date: 9/14/08

REAC Task Leader: SOLINGER

Sample #	50375	50376	50377	50378	50379
Location	25C CARDINA		LOC 1	(CARDINA)	
Pump #	47	416	495	426	476
Media	CARBON	XAD 2 PTFE	SILICA	MCEP	CARBONITE
Analysis/Method	VOL	PAH	IN ACID	METALS	Hg
Rotameter	MLG	MLG	7962	MLG	7962
Time/Counter (Start)	0 2000	0 2000	0 2000	0 2000	0 2000
Time/Counter (Stop)	480 0400	660 2700	480 0400	480 0400	480 0400
Total Time	480	660	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	500
Flow Rate Average	1	1.5	300	1	500
Sample Volume	460	920	144	480	220

MET Station on Site?: Y/N

*2008/9/14/08
DATA FROM 15 MIN AVG @ 12:36*

50 MIN VELUM START @ 1910



**EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet**
Lockheed Martin Corp., Edison, NJ
U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 50001

Sampler: CAROLANNT/SOLINSKI

U.S. EPA/ERTC WAM: SOLINSKI

Date: 9/16/08

REAC Task Leader: SOLINSKI

Sample #	50380	50381	50382	50383	50384
Location	BORDEAUX		COZATSKY		
Pump #	509	336	312	306	523
Media	CARBON	402 PTFE	SILICA	MCEP	CARBOLITE
Analysis/Method	VOLs	PAH	FA	METALS	HS
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 1959				
Time/Counter (Stop)	480 0359	660 0659	480 0359	480 0359	480 0359
Total Time	480	660	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	250	1	400
Flow Rate Average	1	1.5	275	1	450
Sample Volume	480	990	132	480	216

MET Station on Site?: Y/N

19.7 ug/m³
DATA/AM
20 MIN AVG @ 13:15

01 @ 754 1959



EPA/Environmental Response Team
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 Air Sampling Work Sheet
 Lockheed Martin Corp., Edison, NJ
 U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 50001

Sampler: CANTONMENT/Boyer

U.S. EPA/ERTC WAM: SINLHVI

Date: 9/17/08 ^{Datetime} PM 19

REAC Task Leader: SOLINSKI

Sample #	50385	50386	50387	50388	50389
Location	LOCATION 2 UPPER CAROLINA (63-62)				
Pump #	65	361	107	187	17
Media	600ms CARBON	600mg RAD-2.0um PTFE	SILICA GEL	0.8um MCEP	200mg CARBOLITE
Analysis/Method	VOC	PAH	IA	METALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0	0	0	0	0
Time/Counter (Stop)	480 1911	495 1926	480 1911	480 1911	480 1911
Total Time	480	495	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500 cc
Flow Rate (End)	1	1.5	300	1.1	500 cc
Flow Rate Average	1	1.5	300	1.05	500 cc
Sample Volume	480	697.5	144	504	240

MET Station on Site?: Y/N

DATA ROOM 5min AVE
 at 252ug/m³ at 1937

SUMMA CRAB 50428
 SUMMA #68
 -IP = -29
 TIME 1925
 date 9/17/08



**EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet**
Lockheed Martin Corp., Edison, NJ
U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 50 001

Sampler: CAPTRIGHT/SOLINSKI

U.S. EPA/ERTC WAM: SINGHVI

Date: 9/17/88 DAYTIME

REAC Task Leader: SOLINSKI

Sample #	50390	50391	50392	50393	50394
Location	<u>MARJESTIC ROAD</u>	<u>MILE ROAD</u>	<u>UPPER CROWN</u>		
Pump #	<u>398</u>	<u>318</u>	<u>373</u>	<u>382</u>	<u>428</u>
Media	<u>600 mg CARBON</u>	<u>600 mg CARBON</u>	<u>300 mg CARBON</u>	<u>0.8 um NICEF</u>	<u>200 mg CARBON</u>
Analysis/Method	<u>VOL</u>	<u>PAH</u>	<u>TA</u>	<u>METALS</u>	<u>Hg</u>
Rotameter	<u>MG</u>	<u>MG</u>	<u>7962</u>	<u>MG</u>	<u>7962</u>
Time/Counter (Start)	<u>1149</u>	<u>1149</u>	<u>1149</u>	<u>1149</u>	<u>1149</u>
Time/Counter (Stop)	<u>1949</u>	<u>1823</u>	<u>1949</u>	<u>1949</u>	<u>1949</u>
Total Time	<u>480</u>	<u>394</u>	<u>480</u>	<u>480</u>	<u>480</u>
Pump Fault	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>
Flow Rate (Start)	<u>1</u>	<u>1.5</u>	<u>300</u>	<u>1</u>	<u>500</u>
Flow Rate (End)	<u>1</u>	<u>1.5</u>	<u>300</u>	<u>1</u>	<u>320</u>
Flow Rate Average	<u>1</u>	<u>1.5</u>	<u>300</u>	<u>1</u>	<u>410</u>
Sample Volume	<u>480</u>	<u>591</u>	<u>144</u>	<u>480</u>	<u>196.8</u>

MET Station on Site?: Y/N

DATA FROM 7 min. Average
@ 22.7 mg/m³ at 2000

11
1749
34
1823



EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet
 Lockheed Martin Corp., Edison, NJ
 U.S. EPA Contract No. EP-C-04-032



Site: STTDW

WA#: 50 out

Sampler: CARTWRIGHT/SUMSKI

U.S. EPA/ERTC WAM: SINGHVI

Date: 9/17/08

REAC Task Leader: BOUNSKU

Sample #	50395	50396	50397	50398	50399
Location	10-25C CAROLINA LOCATION 1				
Pump #	375	442	388	194	369
Media	600mg CARLO	600mg PTFE	SILICA CELL	0.8um WCEP	200 mg CARLOTT
Analysis/Method	VOC	PAM	IA	METALS	Hg
Rotameter	MG	MG	2962	MG	2962
Time/Counter (Start)	0 / 1230	0 / 1230	0 / 1230	0 / 1230	0 / 1230
Time/Counter (Stop)	480 / 2030	480 / 2030	350 / 1920	480 / 2030	480 / 2030
Total Time	480	480	350	2030	2030
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	0.75	1.4	300	1	500
Flow Rate Average	0.875	1.45	300	1	500
Sample Volume	420	696	105	480	240
MET Station on Site?: Y/N					
FIELD BLANKS	50405	50406	50407	50408	50409
LOT BLANKS	50410	50411	50412	50413	50414
LOT #	# 2000	# 3722	HSCN 68558-051104		2611
SUMMA GRAB	SUMMA #	50420	TIME & #	DATA RAM 5 MIN AVERAGE	



**EPA/Environmental Response Team
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Air Sampling Work Sheet**
Lockheed Martin Corp., Edison, NJ
U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 50 001

Sampler: CANTWRIGHT/SOLINSKI

U.S. EPA/ERTC WAM: SOLINSKI

Date: 9/17/08

REAC Task Leader: SOLINSKI

Sample #	50400	50401	50402	50403	50404
Location	<u>BORDEAUX</u>	<u>LOCATION</u>	<u>4</u>		
Pump #	<u>335</u>	<u>215</u>	<u>323</u>	<u>181</u>	<u>314</u>
Media	<u>600mg CARBON</u>	<u>600mg AD2 2.0um PTFE</u>	<u>SILICA GEL</u>	<u>0.8um MCF</u>	<u>200mg CARBON</u>
Analysis/Method	<u>VOL</u>	<u>PAN</u>	<u>IA</u>	<u>METALS</u>	<u>Hg</u>
Rotameter	<u>MG</u>	<u>MG</u>	<u>7962</u>	<u>MG</u>	<u>7962</u>
Time/Counter (Start)	<u>0</u> <u>1300</u>	<u>0</u> <u>1300</u>	<u>0</u> <u>1300</u>	<u>0</u> <u>1300</u>	<u>0</u> <u>1300</u>
Time/Counter (Stop)	<u>338</u> <u>1722</u>	<u>480</u> <u>2100</u>	<u>480</u> <u>2100</u>	<u>480</u> <u>2100</u>	<u>480</u> <u>2100</u>
Total Time	<u>338</u>	<u>480</u>	<u>480</u>	<u>480</u>	<u>480</u>
Pump Fault	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>	<u>Y/N</u>
Flow Rate (Start)	<u>1</u>	<u>1.5</u>	<u>300</u>	<u>1</u>	<u>500</u>
Flow Rate (End)	<u>0.9</u>	<u>1.5</u>	<u>300</u>	<u>1</u>	<u>500</u>
Flow Rate Average	<u>0.95</u>	<u>1.5</u>	<u>300</u>	<u>1</u>	<u>500</u>
Sample Volume	<u>321.1</u>	<u>720</u>	<u>144</u>	<u>480</u>	<u>240</u>
MET Station on Site?: <u>Y/N</u>		<u>10 min DATARAM AVG 295 ug/m3 at</u> <u>920</u> <u>2122</u>			



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Response Engineering Analytical Contract
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Lockheed Martin Corp., Edison, NJ
U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN
 Sampler: CARRINGTON/SOLINSKI
 Date: 9/18/08

WA#: 52001
 U.S. EPA/ERTC WAM: SIW6HVI
 REAC Task Leader: SOLINSKI

Sample #	50430	50431	50432	50433	50434
Location	EAST END LOCATION			S UPWIND	
Pump #	47	311	413	450	529
Media	600mg CARBON TUBE	600mg XAD2 2.0um PTFE	SILICA GEL	0.8um MUEF	200mg CARBITE
Analysis/Method	VOC	PAH	IA	METALS	MG
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 820	0 820	0 820	0 820	0 820
Time/Counter (Stop)	480 1620	480 1620	480 1620	480 1620	480 1620
Total Time	480	480	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	200
Flow Rate Average	1	1.5	300	1	350
Sample Volume	480	720	144	480	168

MET Station on Site?: Y/N

50424 SUMMA GRAB #1134 @ 1620 IP-29.5

TOTAL PARTICULATES
 5 MIN DATUM AVG @ 8:18am at 6.4 ug/m³



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 U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 57001

Sampler: CARTWRIGHT/Singer

U.S. EPA/ERTC WAM: SINGHVI

Date: 9/18/08

REAC Task Leader: SOLINSKI

Sample #	50435	50436	50437	50438	50439
Location	10-25C CAROLINA			LOCATION 1	
Pump #	478	336	107	426	369
Media	600mg CARBON	600mg AD2 2.0um PTFE	SILICA GREN	0.8um MCEP	200mg CARBON
Analysis/Method	VOC	PAH	IA	METALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0/858	0/858	0/858	0/858	0/858
Time/Counter (Stop)	480/1658	500/1718	480/1658	480/1658	480/1658
Total Time	480	500	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.4	300	1	500
Flow Rate (End)	1	1.4	300	1	530
Flow Rate Average	1	1.4	300	1	525
Sample Volume	480	700	144	480	252

MET Station on Site?: Y N

50425 SUMMA GRAB SAMPLE COLLECTED
 P-295 AT 1713 CAN # 217

TOTAL PARTICULATE DATA 11 min avg 6.7 ug/m³ @ 901



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Site: ST JOHN

WA#: 50001

Sampler: CARTWRIGHT/SOLINK

U.S. EPA/ERTC WAM: SINBHANI

Date: 9/18/00

REAC Task Leader: SOLINK

Sample #	50440	50441	50442	50443	50444
Location	MARJESTIC MILE		LOCATION 3		→
Pump #	44	215	521	189	476
Media	600mg CARBON	600mg 402 2.00UMPTFE	SILICA GEL	0.8um MEF	200mg CARBON
Analysis/Method	VOL	PAH	IA	METALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 918	0 918	0 918	0 918	0 918
Time/Counter (Stop)	480 1718	513 1757	480 1718	480 1718	480 1718
Total Time	480	513	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	500
Flow Rate Average	1	1.5	300	1	500
Sample Volume	480	769.5	144	480	240

MET Station on Site?: Y/N

5.6 ug/m³
DATA FROM TOTAL PARTICULATE 4 MIN AVERAGE @ 920



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 U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN
 Sampler: CAROLINE POLINSKI
 Date: 9/18/88

WA#: 50001
 U.S. EPA/ERTC WAM: SINRML
 REAC Task Leader: SOLOVSKI

Sample #	50445	50446	50447	50448	50449
Location	LOCATION 2		6-3-62	UPPER GARONA	
Pump #	605	416	495	306	314
Media	600mg CARBON	600mg XAD2 2.0um PIPE	SILICA GEL	0.8um WCEF	200mg CARBON
Analysis/Method	VOC	PAH	AA	MEALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0/935	0/935	0/935	0/935	0/935
Time/Counter (Stop)	480/1735	530/1825	480/1735	480/1735	480/1735
Total Time	480	530	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	540
Flow Rate Average	1	1.5	300	1	520
Sample Volume	480	795	144	480	249.6

MET Station on Site?: Y/N

GRAND SUMMIT @ 1831 IP=29

Sum A # 81

Sum A TRIP # 106 IP=29 @ 1836

50426

50427

DATA 11 min avg 6.8 at 939

24 - together



**EPA/Environmental Response Team
Response Engineering Analytical Contract
Air Sampling Work Sheet**
Lockheed Martin Corp., Edison, NJ
U.S. EPA Contract No. EP-C-04-032



Site: ST GDHN

WA#: 50001

Sampler: QARTWRIGHT/SOLINSKI

U.S. EPA/ERTC WAM: SINGHVI

Date: 9/18/08

REAC Task Leader: SOLINSKI

Sample #	50450	50451	50452	50453	50454
Location	BORDEAUX	CHATEAU	LOCATION 4		
Pump #	315	442	312	187	523
Media	600mg CARBON	600mg KADZ 2.0um PTFE	SILICA GEL	0.8um MCEP	200mg CALIBRATED
Analysis/Method	VOC	PAH	IA	MEALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0	0	0	0	0
Time/Counter (Stop)	1:59 4:59	1:59 3:50	1:59 3:50	1:59 4:50	1:59 4:47
Total Time	480	550	350	480	447
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	580
Flow Rate Average	1	1.5	300	1	540
Sample Volume	480	825	105	480	241.4
MET Station on Site?: Y/N		50416	50417	50418	50419
	FIEBLANK 50415				
DATA from 15 minute ATB to 8:45 am @ 9:29 9.3 1006					



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Lockheed Martin Corp., Edison, NJ
U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN

WA#: 50001

Sampler: CARTWRIGHT/SOLINSKI

U.S. EPA/ERTC WAM: SINHAVI

Date: 9/19/08

REAC Task Leader: SOLINSKI

Sample #	51605	51606	51607	51608	
Location	3	3	3	3	3
Pump #	65	121	133	194	344
Media	600mg CARBON	600mg ADZ 2.0um PTFE	SILICA GEL	0.8um MCEP	200mg CARBONATE
Analysis/Method	VOC	PAH	IA	METALS	Ag
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 1800	0 1800	0 1800	0 1800	0 1800
Time/Counter (Stop)	480 200	114 1946	480 200	480 200	
Total Time	480	114	480	480	
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	
Flow Rate Average	1	1.5	300	1	
Sample Volume	480	171	144	480	

MET Station on Site?: Y N

MAJESTIC MILE

RAIN
DAMAGED
PUMP
DID NOT RUN

TOOL PART
DATARAM 17 min AVG @ 18:04 @ 7.7 ug/m³



EPA/Environmental Response Team
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Site: ST JOHN

WA#: 50001

Sampler: CANTWRIGHT/SOINSEK

U.S. EPA/ERTC WAM: SINGHVI

Date: 9/19/08

REAC Task Leader: SOINSEK

Sample #	51610	51611	51612	51613	51614
Location	2	2	2	2	2
Pump #	472	328	352	150	17
Media	600mg CARBON	600mg/102 2.0um PTFE	SILICA GEL	0.8um MEF	200mg CARBONITE
Analysis/Method	WL	PAH	IA	METALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 1823	0 1823	0 1823	0 1823	0 1823
Time/Counter (Stop)	480 223	700 603	480 223	480 223	480 223
Total Time	480	700	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.4	310	1	540
Flow Rate Average	1	1.45	305	1	520
Sample Volume	480	1015	146.4	480	249.6

MET Station on Site?: Y/N UPPER CAROLINA

TOTAL PART DATA FROM 8 MON AVG AT 1840 G./C.Y./M³



**EPA/Environmental Response Team
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Lockheed Martin Corp., Edison, NJ
U.S. EPA Contract No. EP-C-04-032



Site: ST JOHN
 Sampler: CARTWRIGHT/SOLINSKI
 Date: 9/19/08

WA#: 50001
 U.S. EPA/ERTC WAM: SINBHUI
 REAC Task Leader: SOLINSKI

Sample #	51615	51616	51617	51618	51619
Location	4	4	4	4	4
Pump #	395	314	323	382	4128
Media	600mg CARBON	600mg AD2 2.0um PTFE	SILICA GEL	0.8um MCEP	200mg CARBON
Analysis/Method	VOL	RAH	IA	METALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 / 1904	0 / 1904	0 / 1904	0 / 1904	0 / 1904
Time/Counter (Stop)	480 / 304	700 / 644	480 / 304	480 / 304	480 / 304
Total Time	480	700	480	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	320
Flow Rate Average	1	1.5	300	1	410
Sample Volume	480	1050	144	480	196.8

MET Station on Site?: Y/N NO

TOTAL PART DATA FROM 14 MIN AVG @ 8.6 ug/m³ 1913

50420 VOL TRIP BLANK @ 1013 ON 9/19/08



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Site: ST504N

WA#: 50001

Sampler: CAPTURE UNIT SAMPLER

U.S. EPA/ERTC WAM: SI W/HHVI

Date: 9/19/08

REAC Task Leader: SOLINSK

Sample #	51600	51601	51602	51603	51604
Location	EMERSON	5	EMERSON	5	5
Pump #	47	138	373	302	529
Media	600mg CARBON	600mg KAD2 2.0um MCEF	SILICA GEL	0.8um MCEF	200um CARULITE
Analysis/Method	VOC	PAH	IA	MEPALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start) 18	0 / 1637				
Time/Counter (Stop) 19	480 / 0037	700 / 417	480 / 1952	480 / 0037	480 / 0037
Total Time	480	700	195	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	200
Flow Rate Average	1	1.5	300	1	350
Sample Volume	480	1050	58.5	480	168

MET Station on Site?: Y/N

DATA FROM 26 MIN AVG of 1639 4.7ug/m3 TOTAL PARTICULATE



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Site: ST JOHN

WA#: 50001

Sampler: ENVIRONMENTAL SCANNER

U.S. EPA/ERTC WAM: SINGHU

Date: 9/19/04

REAC Task Leader: SOLINSKI

Sample #	50455	50456	50457	50458	50459
Location	1	1	1	1	1
Pump #	497	361	388	173	437
Media	600mg CARBON	600mg XAD2 2.0um PTFE	SILICA GEL	0.8um MCEP	200mg CARBONITE
Analysis/Method	VOL	PAH	IA	METALS	Hg
Rotameter	MG	MG	7962	MG	7962
Time/Counter (Start)	0 / 1721	0 / 1721	0 / 1721	0 / 1721	0 / 1721
Time/Counter (Stop)	480 / 121	700 / 501	320 / 2141	480 / 121	480 / 121
Total Time	480	700	320	480	480
Pump Fault	Y/N	Y/N	Y/N	Y/N	Y/N
Flow Rate (Start)	1	1.5	300	1	500
Flow Rate (End)	1	1.5	300	1	500
Flow Rate Average	1	1.5	300	1	500
Sample Volume	480	1050	96	480	240

MET Station on Site?: Y/N

10-25 C CARBONINA

TOTAL PARTICULATE
 DATA-RAM 11 MIN AVG 15.5 ug/m3 at 1723

APPENDIX C
Photo Log
Coral Bay
St. John, USVI
November 2008



Location 1 – 10-25 C Carolina



Location 2 – 6-3-62 Upper Carolina



Location 3 – Majestic Mile



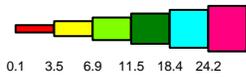
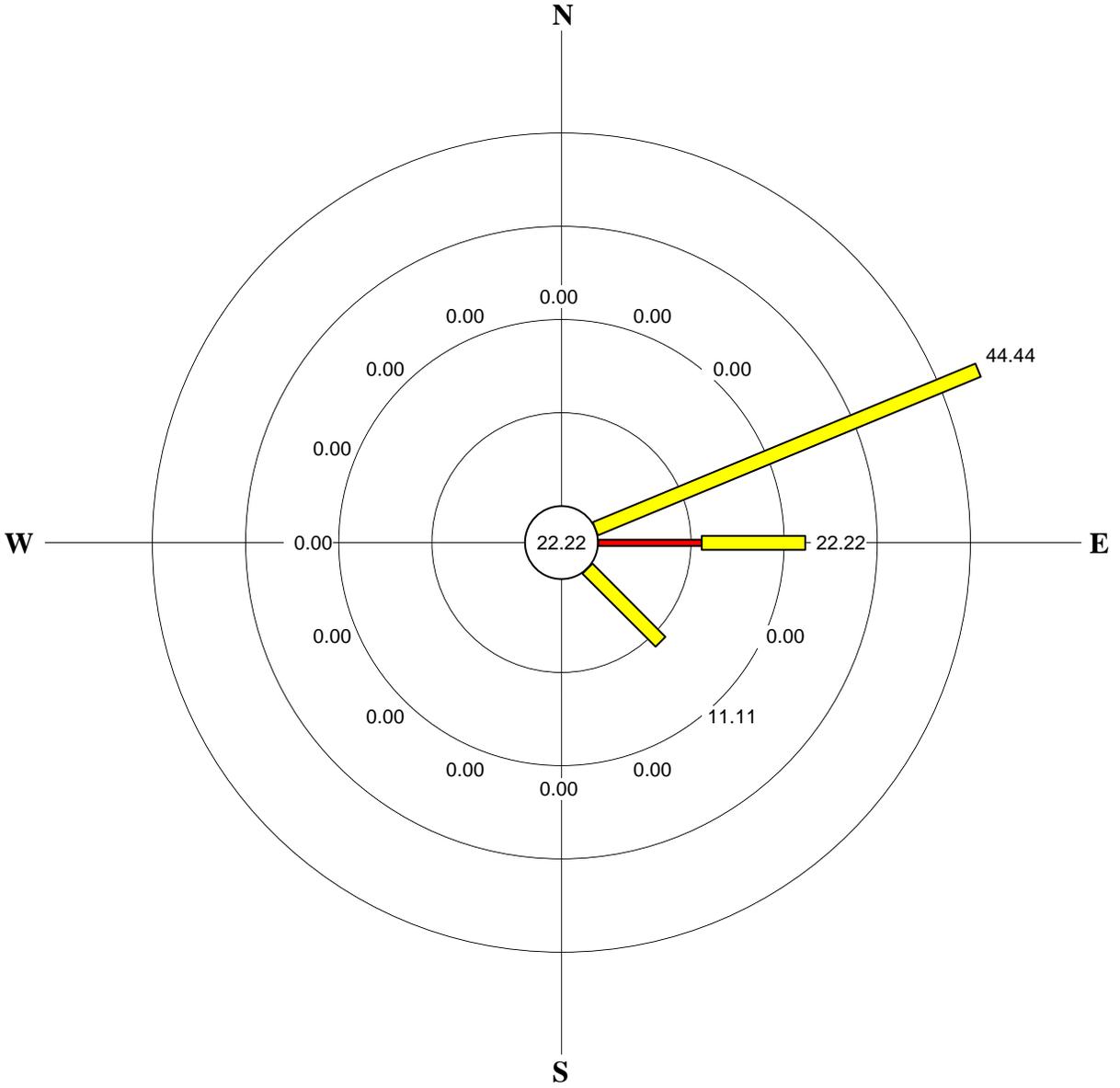
Location 4 – Chateau Bordeaux



Location 5 – East End –Privateer Estates

APPENDIX D
Event Wind Roses from September 16 to 19, 2008 from the Cyril E. King International Airport
Coral Bay
St. John, USVI
November 2008

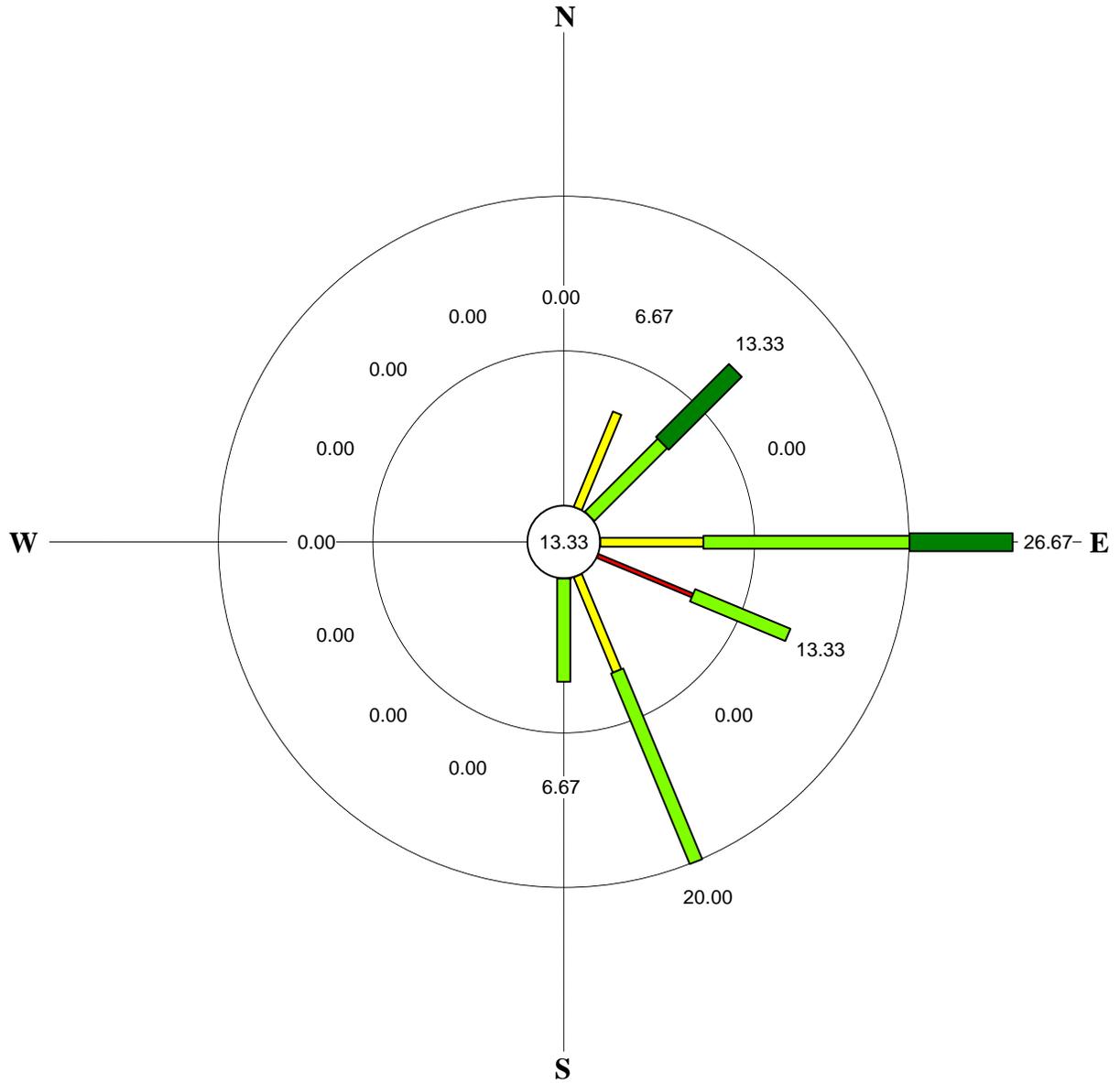
**CORAL BAY AIR SAMPLING SITE
 CYRIL E KING AIRPORT (STT)
 CHARLOTTE AMALIE, ST. THOMAS, USVI
 SEPTEMBER 16 (2000) - SEPTEMBER 17, 2008 (0400)**



Wind Speed (Miles Per Hour)

Calms included at center.
 Rings drawn at 10% intervals.
 Wind flow is FROM the directions shown.
 No observations were missing.

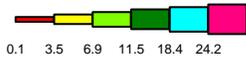
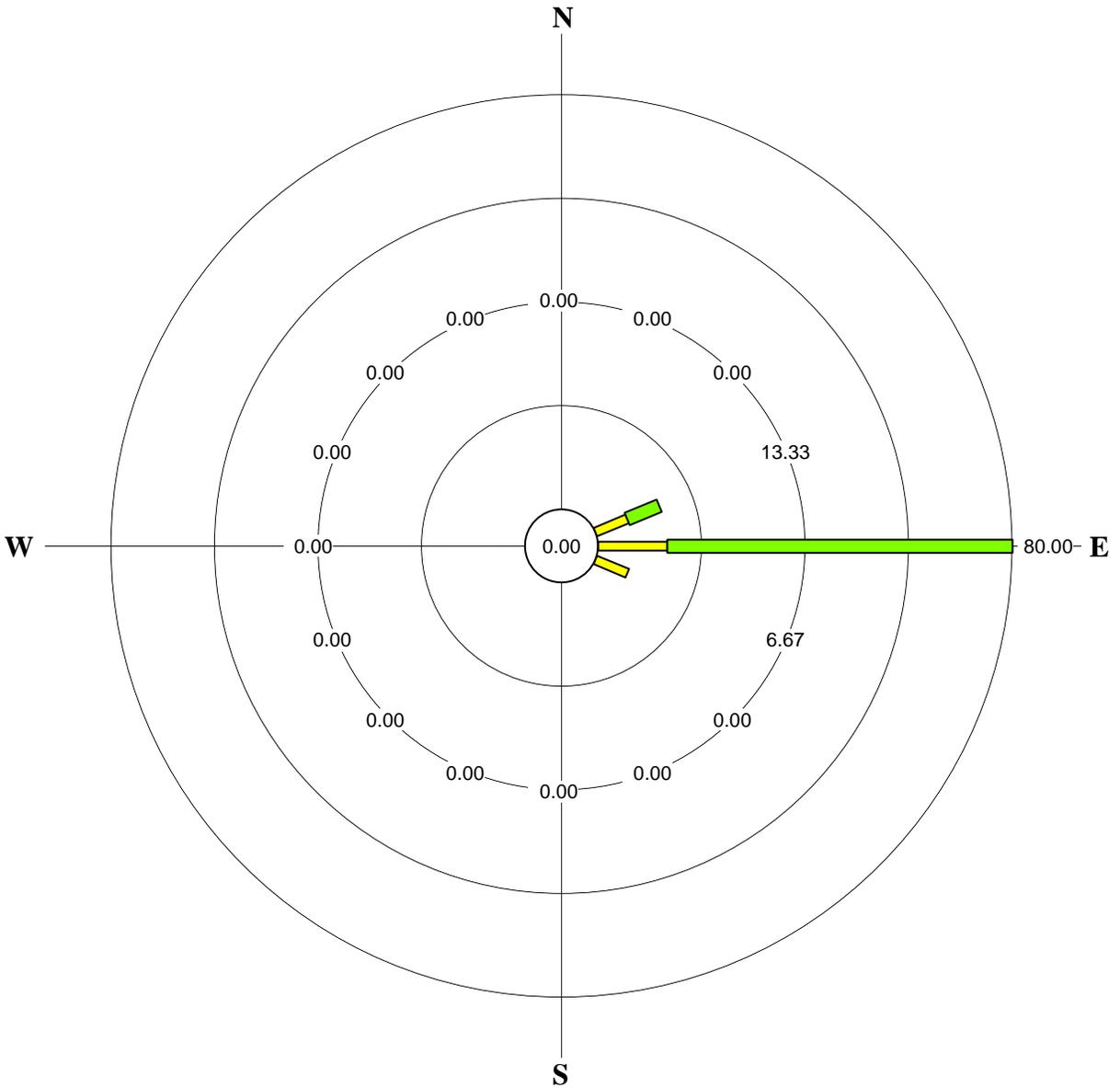
**CORAL BAY AIR SAMPLING SITE
 CYRIL E KING AIRPORT (STT)
 CHARLOTTE AMALIE, ST. THOMAS, USVI
 SEPTEMBER 17, 2008 (1100 - 2100)**



Wind Speed (Miles Per Hour)

Calms included at center.
 Rings drawn at 10% intervals.
 Wind flow is FROM the directions shown.
 No observations were missing.

**CORAL BAY AIR SAMPLING SITE
 CYRIL E KING AIRPORT (STT)
 CHARLOTTE AMALIE, ST. THOMAS, USVI
 SEPTEMBER 18 (1700) - SEPTEMBER 19, 2008 (0700)**



Wind Speed (Miles Per Hour)

Calms included at center.
 Rings drawn at 20% intervals.
 Wind flow is FROM the directions shown.
 No observations were missing.