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From: Huyser, Matthew <Huyser.Matthew@epa.gov> on behalf of Huyser, Matthew
Sent on: Friday, July 26, 2019 10:32:42 PM
To: Webster, James <Webster.James@epa.gov>; Moore, Tony <moore.tony@epa.gov>
CC: Eichinger, Kevin <Eichinger.Kevin@epa.gov>; Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Able Fire - story map

Tetra tech was charged today with building a story map that displays information and data on the Able Contracting Fire Site. This task was done with remote resources that are both supporting requests from the field and accessing data from the field without imposing any reporting burden on field personnel - in this restriction Tetra Tech demonstrates the capability to create the story map without slowing the response even during the first 24 hours.

This is the first version of the story map. Edits are needed and the VIPER data dashboard is still under construction until later this evening. The resource dedication for this task was light, so the delay is a factor of resources and not overall time.

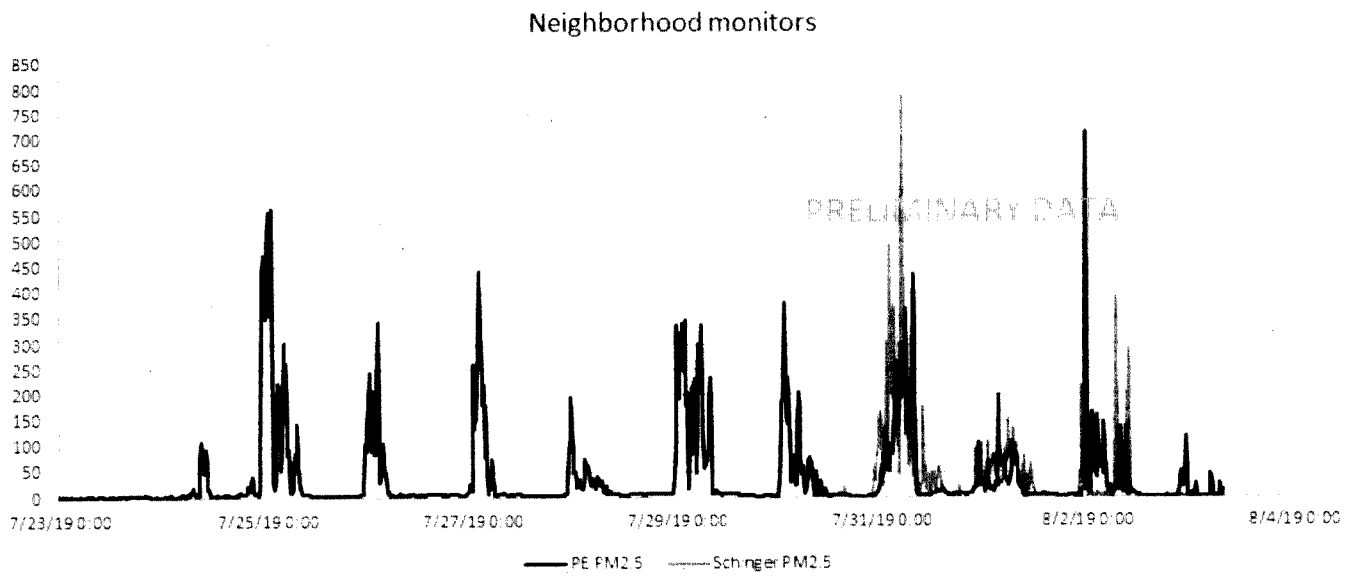
The story map works extremely well on a mobile device. This product is a demonstration of proof of capability and is not intended to be used for public dissemination. If it WERE to be released to the public, this product would be reviewed and approved by the PAD prior to external publication. Under an emergency response that required this product for the public, we would hope that approval would be done within a matter of hours.

https://storymaps.arcgis.com/stories/3d81262963bb420097e625b94807a0a9

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax:**404-562-8699**
epaosc.org

From: Reynolds, Scott <REYNOLDS@dhec.sc.gov>
Sent on: Saturday, August 3, 2019 12:31:36 PM
To: thompsrb@dhec.sc.gov; Frost, Keith <frostrk@dhec.sc.gov>; shealyrg@dhec.sc.gov; Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; reecemc@dhec.sc.gov; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Porter, Henry <porterhj@dhec.sc.gov>; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; Taylor, Monica N. <TAYLORMN@dhec.sc.gov>; Dickman, Jacquelyn S. <DICKMAJS@dhec.sc.gov>; Timmerman, Kelsey A. <timmerka@dhec.sc.gov>; Threatt, Richard <threatrl@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Boswell, Wendy <BOSWELWM@dhec.sc.gov>
CC: Timmerman, Kelsey A. <timmerka@dhec.sc.gov>; Threatt, Richard <threatrl@dhec.sc.gov>; Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Able PM

Yesterday's 24 hour averages (Aug 1 Midnight to midnight)
Palmetto Exterminators 29ug/M3 (Moderate)
Schinger* 17ug/M3 (Moderate)
*Since Noon yesterday the Schinger monitor concentrations have been uncannily low and consistent. 'Tho it's been generally upwind and there's been precip, if someone can put eyes on it to confirm it the particulate inlet appears OK, I'd feel better..



From: Pinkney, James <Pinkney.James@epa.gov> on behalf of Pinkney, James
Sent on: Monday, July 29, 2019 2:58:51 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: ACTION: The Island Packet & Beaufort Gazette Inquiry

Jordan,

Can you answer the following questions or do you prefer an interview?

Call me, (404) 695-5503

James Pinkney
Public Affairs Specialist
U.S. Environmental Protection Agency, Region 4
Office of External Affairs
Phone: (404) 562-9183
Email: pinkney.james@epa.gov
https://www.epa.gov/aboutepa/about-epa-region-4-southeast
Follow Region 4 on Twitter: www.twitter.com/EPASoutheast
And Facebook: www.facebook.com/eparegion4

Subject: Story on Deadline

Hello,

I'm a reporter with The Island Packet and Beaufort Gazette in Beaufort County, S.C. and I'm working on a story about a lingering fire at a recycling facility in Ridgeland, S.C. at Able Contracting Inc. I received an email from a DHEC representative Friday that said the EPA was investigating the fire as well. I'm working to get a story out today about the investigation so I can alert the public about potential health and environmental concerns. My deadline is this afternoon, so if I could speak with someone from the EPA by noon, that would be great. I'll send some of my questions below:

When did the EPA first get involved in the investigation?
What's the EPA's role in the investigation?
How are the EPA, DHEC and Jasper County Emergency Services working to stop the flames?
What is causing the flames?
There's an air monitor at the site that is testing for fine particulate matter. The numbers on the monitor seem rather high. What are the concerns about the fine particulate matter? What toxins are being tested for in the air?
What toxins are the EPA concerned about?
What are the potential effects of the air quality on the people living in the area?
Water samples are also being taken from the site. What is being tested for in the water? What has been found in the water?
I saw there was runoff from the site. Where is this runoff going?
What steps is the EPA taking to investigate this situation?

Thank you,

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Sent on: Monday, July 29, 2019 2:58:51 PM
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Subject: ACTION: The Island Packet & Beaufort Gazette Inquiry

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Public Affairs Specialist
U.S. Environmental Protection Agency, Region 4
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Phone: (404) 562-9183
Email: pinkney.james@epa.gov
https://www.epa.gov/aboutepa/about-epa-region-4-southeast
Follow Region 4 on Twitter: www.twitter.com/EPASoutheast
And Facebook: www.facebook.com/eparegion4

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What toxins are the EPA concerned about?
What are the potential effects of the air quality on the people living in the area?
Water samples are also being taken from the site. What is being tested for in the water? What has been found in the water?
I saw there was runoff from the site. Where is this runoff going?
What steps is the EPA taking to investigate this situation?

Thank you,

From: Jones, Chris <chris.jones@tetratech.com>
Sent on: Friday, August 9, 2019 10:04:00 PM
To: Huyser, Matthew <Huyser.Matthew@epa.gov>; Garrard, Jordan <Garrard.Jordan@epa.gov>
CC: John Snyder <john.snyder@tetratech.com>; Redd, Courtney <Courtney.Redd@tetratech.com>; Josiah Williams <josiah.williams@tetratech.com>; Huss, Eric <Eric.Huss@tetratech.com>
Subject: Air Data tables
Attachments: Air Data_072719_Able Contracting Fire.pdf (227.57 KB), Air Data_080219_Able Contracting Fire.pdf (174.98 KB)

Matt and Jordan,

See attached for validated air data tables for samples collected 7/27 and 28 and 8/2.

Chris Jones | Readiness Coordinator
Direct **(678) 775-3081** | Main **(678) 775-3080** | Cell **(404) 395-5220** | chris.jones@tetratech.com

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Think Green: Reduce, Reuse, Recycle

Armstrong, Kathy

From: Jones, Chris <chris.jones@tetratech.com>
Sent: Friday, August 09, 2019 6:04 PM
To: Huyser, Matthew; Garrard, Jordan
Cc: John Snyder; Redd, Courtney; Josiah Williams; Huss, Eric
Subject: Air Data tables
Attachments: Air Data_072719_Able Contracting Fire.pdf; Air Data_080219_Able Contracting Fire.pdf

Matt and Jordan,

See attached for validated air data tables for samples collected 7/27 and 28 and 8/2.

Chris Jones | Readiness Coordinator
Direct **(678) 775-3081** | Main **(678) 775-3080** | Cell **(404) 395-5220** | chris.jones@tetratech.com

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Think Green: Reduce, Reuse, Recycle

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR JULY 27 and 28, 2019

		BACKGROUND	STATION 1 (SE Corner)	STATION 2 (SW Corner)
		ACF-AS-BKGD-072819	ACF-AS-RES-AM-072719	ACF-AS-SMOKE-AM-07271
Date		**7/28/2019**	**7/27/2019**	**7/27/2019**
Start Time		**11:30**	**0:18**	**1:00**
End time		**19:15**	**8:10**	**8:35**
Analyte	**EPA RMLs**	***Sample Volume***	***Sample Volume***	***Sample Volume***
Asbestos (fibers/cc)		*946.3 Liters*	*767 Liters*	*898.6 Liters*
Asbestos	Not Listed	None detected	None detected	None detected
Phosgene (µg/m^3)		*537.10 Liters*	-	-
Phosgene	0.94	**4.31 J**	*Not sampled*	*Not sampled*
Formaldehyde (µg/m^3)		*516.20 Liters*	*410.60 Liters*	*411.80 Liters*
Formaldehyde	22	**4.88**	**1.70**	**2.50**
Metals (µg/m^3)		*776.6 Liters*	*672.6 Liters*	*657.5 Liters*
Aluminum	16	**0.55**	**0.77**	**0.52**
Antimony	Not Listed	0.19 U	0.22 U	0.23 U
Arsenic	Not Listed	0.39 U	0.45 U	0.46 U
Barium	1.6	0.11 U	0.13 U	**0.25 J+**
Beryllium	Not Listed	0.039 U	0.045 U	0.046 U
Cadmium	Not Listed	0.039 U	0.045 U	0.046 U
Calcium	Not Listed	**52.7 J+**	0.54 U	55.1 U
Chromium	Not Listed	0.73 U	0.89 U	0.9 U
Cobalt	0.019	0.039 U	0.045 U	0.046 U
Copper	Not Listed	0.019 U	0.22 U	0.23 U
Iron	Not Listed	**0.93 J+**	**1.3 J+**	0.87 U
Lead	Not Listed	0.039 U	0.045 U	0.046 U
Manganese	Not Listed	0.19 U	0.22 U	0.23 U
Magnesium	Not Listed	**9.6 J+**	**11.2 J+**	**11.5 J+**
Nickel	Not Listed	0.19 U	0.22 U	0.23 U
Selenium	63	0.39 U	0.45 U	0.46 U
Silver	Not Listed	0.039 U	0.045 U	0.046 U
Thallium	Not Listed	0.039 U	0.045 U	0.046 U
Vanadium	Not Listed	0.39 U	0.45 U	0.46 U
Zinc	Not Listed	0.39 U	0.45 U	0.46 U
Potassium	Not Listed	3.9 U	4.5 U	4.6 U
Sodium	Not Listed	**12.7 J+**	**15.8 J+**	**16.5 J+**
Volatile Organic Compounds (µg/m^3)		-	-	-
Propylene	9,400	**2.91**	**7.88**	**3.99**

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR JULY 27 and 28, 2019

		BACKGROUND	STATION 1 (SE Corner)	STATION 2 (SW Corner)
		ACF-AS-BKGD-072819	ACF-AS-RES-AM-072719	ACF-AS-SMOKE-AM-07271
Date		**7/28/2019**	**7/27/2019**	**7/27/2019**
Start Time		**11:30**	**0:18**	**1:00**
End time		**19:15**	**8:10**	**8:35**
Analyte	**EPA RMLs**	***Sample Volume***	***Sample Volume***	***Sample Volume***
Allyl chloride (3-chloropropene)	Not Listed	0.225 U	0.226 U	0.225 U
Acetonitrile	190	**1.85**	**2.17**	**0.892**
Methylene chloride	1900	**0.691 J+**	**0.871 J+**	**0.674 J+**
trans-1,2-Dichloroethene	Not Listed	0.289 U	0.29 U	0.289 U
Methyl tert-butyl ether	Not Listed	0.264 U	0.265 U	0.264 U
Acrylonitrile	4	0.159 U	0.159 U	0.158 U
Hexane	Not Listed	**4.05**	**1.55**	**0.647**
1,1-Dichloroethane	Not Listed	0.285 U	0.286 U	0.285 U
Vinyl acetate	630	0.256 U	0.257 U	0.256 U
cis-1,2-Dichloroethene	Not Listed	0.285 U	0.287 U	0.285 U
Methyl ethyl ketone (2-Butanone)	16,000	**1.02**	**0.847**	**0.805**
Ethyl acetate	220	0.259 U	0.261 U	0.259 U
Chloroform	12	0.353 U	0.354 U	0.353 U
Tetrahydrofuran	Not Listed	0.213 U	**0.472**	**0.373**
1,1,1-Trichloroethane	Not Listed	0.388 U	0.39 U	0.388 U
Cyclohexane	19,000	**0.999**	**0.262**	0.25 U
Carbon tetrachloride	47	**0.481**	**0.482**	**0.478**
Benzene	36	**2.52**	**6.46**	**3.4**
2,2,4-trimethylpentane	Not Listed	**2.12**	**0.684**	0.342 U
1,2-Dichloroethane	Not Listed	0.296 U	0.297 U	0.296 U
Heptane	Not Listed	**2.26**	**0.769**	**0.365**
Trichloroethene	Not Listed	0.386 U	0.387 U	**0.385 U**
1,2-Dichloropropane	Not Listed	0.338 U	0.339 U	0.337 U
Methyl methacrylate	2200	0.304 U	0.305 U	0.303 U
1,4-Dioxane	Not Listed	**0.321**	**0.294**	**0.26 U**
Bromodichloromethane	7.6	0.476 U	0.478 U	**0.475 U**
cis-1,3-Dichloropropene	Not Listed	*0.319* U	*0.32* U	*0.319* U
Methyl isobutyl ketone	Not Listed	0.302 U	**0.373**	0.302 U
Toluene	16000	**9.82**	**6.48**	**2.62**
trans-1,3-Dichloropropene	Not Listed	0.33 U	0.331 U	0.329 U
1,1,2-Trichloroethane	Not Listed	0.391 U	0.393 U	0.391 U
Tetrachloroethene	Not Listed	0.489 U	0.491 U	0.489 U

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR JULY 27 and 28, 2019

		BACKGROUND	STATION 1 (SE Corner)	STATION 2 (SW Corner)
		ACF-AS-BKGD-072819	ACF-AS-RES-AM-072719	ACF-AS-SMOKE-AM-07271
Date		**7/28/2019**	**7/27/2019**	**7/27/2019**
Start Time		**11:30**	**0:18**	**1:00**
End time		**19:15**	**8:10**	**8:35**
Analyte	**EPA RMLs**	***Sample Volume***	***Sample Volume***	***Sample Volume***
1,3-Dichlorobenzene	Not Listed	0.434 U	0.436 U	0.433 U
1,4-Dichlorobenzene	Not Listed	0.431 U	0.433 U	0.431 U
Benzyl chloride	3.1	0.369 U	0.371 U	0.369 U
1,2-Dichlorobenzene	Not Listed	0.438 U	0.44 U	0.438 U
1,2,4-Trichlorobenzene	Not Listed	0.538 U	0.541 U	0.538 U
Hexachlorobutadiene	13	0.764 U	0.767 U	0.763 U
Naphthalene	Not Listed	**0.336 J**	0.39 U	0.388 U
1-Bromopropane	Not Listed	0.355 U	0.357 U	0.355 U
1-Octene	Not Listed	0.321 U	0.322 U	0.321 U
n-Octane	Not Listed	**0.99**	**0.353**	0.334 U
Isopropylbenzene	Not Listed	0.357 U	**0.838**	0.421
n-Propylbenzene	Not Listed	**0.629**	0.359 U	0.357 U
Semivolatile Organic Compounds ($\mu g/m^3$)		*439.4 Liters*	*486.2 Liters*	*562.5 Liters*
Semivolatile Organic Compounds	Not Listed	None detected	None detected	None detected
N-Nitrosodimethylamine	Not Listed	8.78 U	7.94 U	6.86 U
Pyridine	Not Listed	17.1 U	15.4 U	13.3 U
Phenol (CCC)	Not Listed	7.39 U	6.67 U	5.77 U
Aniline	3.1	7.90 U	7.14 U	6.17 U
bis(2-Chloroethyl)ether	0.85	8.97 U	8.10 U	7.00 U
2-Chlorophenol	Not Listed	7.10 U	6.42 U	5.55 U
1,3-Dichlorobenzene	Not Listed	6.35 U	5.74 U	4.96 U
1,4-Dichlorobenzene (CCC)	Not Listed	6.01 U	5.43 U	4.69 U
Benzyl alcohol	Not Listed	7.97 U	7.20 U	6.22 U
1,2-Dichlorobenzene	Not Listed	6.35 U	5.74 U	4.96 U
2-Methylphenol	Not Listed	7.70 U	6.96 U	6.02 U
bis(2-Chloroisopropyl) ether	Not Listed	11.2 U	10.1 U	8.73 U
3/4-Methylphenol	Not Listed	6.73 U	6.08 U	5.25 U
N-Nitroso-di-n-propylamine (SPCC)	Not Listed	9.47 U	8.56 U	7.40 U
o-Toluidine	Not Listed	56.9 U	51.4 U	44.4 U
Hexachloroethane	26	7.19 U	6.50 U	5.62 U
Nitrobenzene	7	9.29 U	8.39 U	7.25 U

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR JULY 27 and 28, 2019

		BACKGROUND	STATION 1 (SE Corner)	STATION 2 (SW Corner)
		ACF-AS-BKGD-072819	ACF-AS-RES-AM-072719	ACF-AS-SMOKE-AM-07271
Date		**7/28/2019**	**7/27/2019**	**7/27/2019**
Start Time		**11:30**	**0:18**	**1:00**
End time		**19:15**	**8:10**	**8:35**
Analyte	**EPA RMLs**	***Sample Volume***	***Sample Volume***	***Sample Volume***
Hexachlorocyclopentadiene (SPCC)	Not Listed	92.4 U	83.5 U	72.2 U
2,4,6-Trichlorophenol (CCC)	Not Listed	8.40 U	7.59 U	6.56 U
2,4,5-Trichlorophenol	Not Listed	6.16 U	5.56 U	4.81 U
Biphenyl	Not Listed	56.9 U	51.4 U	44.4 U
2-Chloronaphthalene	Not Listed	7.42 U	6.71 U	5.80 U
2-Nitroaniline	Not Listed	11.0 U	9.93 U	8.59 U
1,4-Dinitrobenzene	Not Listed	7.65 U	6.91 U	5.97 U
Dimethylphthalate	Not Listed	9.21 U	8.32 U	7.19 U
1,3-Dinitrobenzene	Not Listed	9.32 U	8.42 U	7.28 U
2,6-Dinitrotoluene	Not Listed	8.82 U	7.97 U	6.89 U
1,2-Dinitrobenzene	Not Listed	8.84 U	7.99 U	6.91 U
Acenaphthylene	Not Listed	7.68 U	6.94 U	6.00 U
3-Nitroaniline	Not Listed	9.29 U	8.39 U	7.25 U
Acenaphthene (CCC)	Not Listed	10.6 U	9.61 U	8.30 U
2,4-Dinitrophenol (SPCC)	Not Listed	56.9 U	51.4 U	44.4 U
4-Nitrophenol (SPCC)	Not Listed	56.9 U	51.4 U	44.4 U
2,4-Dinitrotoluene	Not Listed	9.15 U	8.27 U	7.15 U
Dibenzofuran	Not Listed	7.83 U	7.08 U	6.12 U
2,3,5,6-Tetrachlorophenol	Not Listed	8.66 U	7.83 U	6.76 U
2,3,4,6-Tetrachlorophenol	Not Listed	7.98 U	7.21 U	6.23 U
Diethlyphthalate	Not Listed	11.6 U	10.5 U	9.07 U
4-Chlorophenyl-phenylether	Not Listed	8.58 U	7.75 U	6.70 U
Fluorene	Not Listed	8.91 U	8.05 U	6.96 U
4-Nitroaniline	Not Listed	7.90 U	7.14 U	6.17 U
4,6-Dinitro2-methylphenol	Not Listed	56.9 U	51.4 U	44.4 U
N-Nitrosodiphenylamine (CCC)	Not Listed	8.15 U	7.36 U	6.36 U
Azobenzene	9.1	11.3 U	10.2 U	8.81 U
4-Bromophenyl-phenylether	Not Listed	7.64 U	6.90 U	5.96 U
Hexachlorobenzene	0.61	6.21 U	5.61 U	4.85 U
Pentachlorophenol (CCC)	Not Listed	56.9 U	51.4 U	44.4 U
Phenanthrene	Not Listed	8.77 U	7.93 U	6.85 U
Anthracene	Not Listed	8.65 U	7.82 U	6.76 U

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR JULY 27 and 28, 2019

		BACKGROUND	STATION 1 (SE Corner)	STATION 2 (SW Corner)
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End time		**19:15**	**8:10**	**8:35**
Analyte	**EPA RMLs**	***Sample Volume***	***Sample Volume***	***Sample Volume***
7,12-Dimethylbenz(a)anthracene	Not Listed	56.9 **U**	51.4 **U**	44.4 **U**
Benzo(b)fluoranthene	Not Listed	3.41 **U**	3.09 **U**	2.67 **U**
Benzo(k)fluoranthene	Not Listed	4.05 **U**	3.66 **U**	3.16 **U**
Benzo(e)pyrene	Not Listed	3.87 **U**	3.50 **U**	3.02 **U**
Benzo(a)pyrene (CCC)	Not Listed	3.87 **U**	3.50 **U**	3.02 **U**
Perylene	Not Listed	3.87 **U**	3.50 **U**	3.02 **U**
3-Methylcholanthrene	Not Listed	56.9 **U**	51.4 **U**	44.4 **U**
Indeno(1,2,3-cd)pyrene	Not Listed	3.41 **U**	3.09 **U**	2.67 **U**
Dibenz(a,h)anthracene	Not Listed	4.84 **U**	4.37 **U**	3.78 **U**
Benzo(g,h,i)perylene	Not Listed	4.01 **U**	3.62 **U**	3.13 **U**
Dibenzo(a,e)pyrene	Not Listed	56.9 **U**	51.4 **U**	44.4 **U**

Notes:

ACF	Able Contracting Fire
EPA	Environmental Protection Agency
J	The identification of the analyte is acceptable; the reported value is an estimate
J+	The identification of the analyte is acceptable; the reported value is an estimate biased high
µg/m³	Micrograms per cubic meter
NA	Not Analysed
ND	Not Detected
RMLs	Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carcinogenic/noncarcinogenic listed
U	The analyte was not detected at or above the reporting limit
UJ	The analyte
BOLD	Bolded values

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR AUGUST 2, 2019

		STATION 1 (SE Corner)		STATION 2 (West Side)	
		ACF-AS-RES-24HRVOC		ACF-AS-SMOKE-24HRVO	
Date		**8/2/2019**		**8/2/2019**	
Start Time		**20:10**		**20:30**	
End time		**15:20**		**12:55**	
Analyte	**EPA RMLs**	***Sample Volume***		***Sample Volume***	
Volatile Organic Compounds (µg/m^3)		-		-	
Propylene	9,400	**2.98**		**21.5**	
Freon 12 (CCl2F2)	Not Listed	**2.44**		**2.43**	
Freon 114 (C2Cl2F4)	Not Listed	0.481	U	0.483	U
Chloromethane	280	**3.53**		**13.8**	
Chloroethene (Vinyl chloride)	Not Listed	0.177	U	0.178	U
1,3-Butadiene	Not Listed	**0.195**		**2.35**	
Bromomethane	16	0.264	U	**0.46**	
Chloroethane	Not Listed	0.183	U	**0.268**	
Bromoethene (Vinyl bromide)	Not Listed	0.300	U	0.301	U
Freon 11 (CCl3F)	Not Listed	**1.42**		**1.41**	
Ethanol	Not Listed	**2.62**		**3.26**	
Acrolein	0.063	**0.307**		**2.56**	
Freon 113 (C2Cl3F3)	Not Listed	**0.591**		**0.613**	
1,1-Dichloroethene	Not Listed	0.273	U	**0.274**	U
Acetone	97000	**6.87**		**14.7**	
Carbon disulfide	2200	**0.448**	J+	**0.736**	J+
Isopropyl alcohol	Not Listed	**0.432**		**0.41**	
Allyl chloride (3-chloropropene)	Not Listed	0.217	U	0.218	U
Acetonitrile	190	**1.17**		**3.64**	
Methylene chloride	1900	**0.625**	J+	**0.66**	J+
trans-1,2-Dichloroethene	Not Listed	0.278	U	0.279	U
Methyl tert-butyl ether	Not Listed	0.254	U	**0.355**	
Acrylonitrile	4	0.153	U	**0.946**	
Hexane	Not Listed	**0.849**		**1.71**	
1,1-Dichloroethane	Not Listed	0.274	U	0.275	U
Vinyl acetate	630	0.246	U	0.247	U
cis-1,2-Dichloroethene	Not Listed	0.275	U	0.276	U
Methyl ethyl ketone (2-Butanone)	16,000	**0.657**		**2.69**	
Ethyl acetate	220	**0.719**		**0.251**	U
Chloroform	12	0.340	U	**0.341**	U
Tetrahydrofuran	Not Listed	**0.222**		**1.32**	
1,1,1-Trichloroethane	Not Listed	0.374	U	0.375	U
Cyclohexane	19,000	0.241	U	**0.319**	
Carbon tetrachloride	47	**0.523**		**0.497**	
Benzene	36	**2.00**		**26.2**	
2,2,4-trimethylpentane	Not Listed	**0.322**		0.331	U
1,2-Dichloroethane	Not Listed	0.285	U	0.286	U
Heptane	Not Listed	**0.478**		**1.51**	
Trichloroethene	Not Listed	0.371	U	0.373	U
1,2-Dichloropropane	Not Listed	0.325	U	0.326	U

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR AUGUST 2, 2019

		STATION 1 (SE Corner)		STATION 2 (West Side)	
		ACF-AS-RES-24HRVOC		ACF-AS-SMOKE-24HRVOC	
Date		**8/2/2019**		**8/2/2019**	
Start Time		**20:10**		**20:30**	
End time		**15:20**		**12:55**	
Analyte	**EPA RMLs**	***Sample Volume***		***Sample Volume***	
Volatile Organic Compounds (µg/m³)		-		-	
1,4-Dichlorobenzene	Not Listed	0.415	U	0.417	U
Benzyl chloride	3.1	0.355	U	0.357	U
1,2-Dichlorobenzene	Not Listed	0.422	U	0.423	U
1,2,4-Trichlorobenzene	Not Listed	0.518	U	0.520	U
Hexachlorobutadiene	13	0.735	U	0.738	U
Naphthalene	Not Listed	0.373	U	**1.02**	
1-Bromopropane	Not Listed	0.342	U	0.343	U
1-Octene	Not Listed	0.309	U	0.310	U
n-Octane	Not Listed	0.322	U	**0.957**	
Isopropylbenzene	Not Listed	**0.466**		**1.92**	
n-Propylbenzene	Not Listed	0.344	U	**0.453**	

Notes:

ACF	Able Contracting Fire
EPA	Environmental Protection Agency
J+	The identification of the analyte is acceptable; the reported value is an estimate biased high
µg/m³	Micrograms per cubic meter
NA	Not Analysed
ND	Not Detected
RMLs	Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carc 04/THQ+3.0)
U	The analyte was not detected at or above the reporting limit
UJ	The analyte
BOLD	Bolded values

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR AUGUST 2, 2019

ABLE CONTRACTING FIRE
AIR SAMPLE RESULTS FOR AUGUST 2, 2019

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, July 26, 2019 3:17:00 PM
To: threatrl@dhec.sc.gov
Subject: air monitoring data for 2000 7/25/19 to 0700 7/26/19
Attachments: Viper Summary report_AR and DustTrack_ABLE CONTRACTING_072619.pdf (166.16 KB), Map for 7072619 meeting.pdf (12.03 MB), SOGT106_Particulate_Monitoring_Guideline_02232017_final.pdf (489.33 KB)

Please feel free to share

Thanks

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Summary

- This guide is intended to be used for monitoring particulates released from fires. Effects from other potential pollutants and products of combustion are not addressed in this document. Refer to EPA Emergency Response Air Monitoring Guidance Tables, 2012 Edition 3[a] for guidance on other pollutants.
- $PM_{2.5}$ is the preferred metric for fire response particulate monitoring.
- The DataRAM 4 and the DustTrak DRX 8533EP are the standard monitoring instrument for measuring particulate concentrations.
- The E-BAM, available from ERT, is the alternate monitoring instrument when accuracy is a critical factor.
- Instrument accessories may be needed to offset weather variables and provide power during extended monitoring periods.
- Establish monitoring sites downwind of the hot zone and immediately upwind. Monitoring may also be recommended in the hot zone if there is a health risk to response workers.
- Use Table 1 to select the appropriate response action. Community action levels apply to everyone in neighboring areas affected by smoke. Worker action levels apply to response workers at the site.

Introduction

Fire presents a multitude of health and safety hazards as a result of effects on air quality. Smoke is the most visible air pollutant and is composed of Carbon Monoxide (CO), Carbon Dioxide (CO_2), Water Vapor, Particulate Matter (PM), hydrocarbons, organic chemicals, Nitric Oxides (NO_X), and minerals. Smoke can disperse quickly and may present significant health risks for nearby communities. Variables that impact dispersion include wind, temperature, moisture, and topography. Air monitoring guidance for these and other products of combustion are presented in the EPA Emergency Response Air Monitoring Guidance Tables[a].

PM consists of solid and liquid particles suspended in air. PM can readily enter the body through inhalation and can cause both acute and chronic health effects. Particulates will be present in all smoke resulting from a fire, regardless of the fuel source; however, different types of fuels will produce different sizes and concentrations of PM. Heat is also a factor which can effect particulate concentrations. After a fire has been suppressed, particulate concentrations can be higher during the smoldering phase because of less-complete combustion[b].

Most particulates in smoke are between 0.4 - 0.7 micrometers (μm) which is considered respirable. Particulates are typically classified as PM_{10} or $PM_{2.5}$ which refers to the particulate size.

- PM_{10} is defined as "course" particles measuring 10 μm or less in diameter.
- $PM_{2.5}$ is defined as "fine" particles with a diameter equal to or less than 2.5 μm.

It is recommended that monitoring efforts focus on measuring $PM_{2.5}$ during emergency fire responses. The California Air Resource Board states that most smoke particulates are between 0.4 – 0.7 μm, and concludes $PM_{2.5}$ would be a more practical monitoring parameter to use[b]. In 2007, Naeher et al. also indicated that $PM_{2.5}$ was the more suitable particulate monitoring metric [c]. Further, the EPA Air Quality Index (AQI) uses $PM_{2.5}$ in the health rating guide, also suggesting that $PM_{2.5}$ is the more appropriate standard when looking at the health hazards of particulates.

Links to Additional Information:

- Graph of particle size distribution of atmospheric particles
- Graph of particle size from particulate emissions
- Emission Study with graph of particle size distribution

Air Quality Thresholds, Actions and Recommendations

Evacuation and/or protect-in-place procedures should be recommended for areas downwind of or in the visible smoke cloud.

Once instrument readings become available, the concentrations may be an indication of potential exposure. Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) lists the threshold levels for different concentrations and the recommended actions that should be taken to prevent harm to community members and workers/responders at the response site. These actions may include communication with community members, evacuations, and medical monitoring. Consider consulting ATSDR to assist with generating public health statements, factsheets and possible development of a medical monitoring plan.

Criteria listed in the Protective Action Criteria (PAC) were assessed, but the values for particulates were much higher than those used in the AQI[d]. Because of this, the PAC values are not the preferred metric for response action guidance.

Odors and visible air opacity may trigger complaints and concerns in affected areas. Conditions and individual sensitivities can play a significant role in determining the point at which smoke becomes noticeable. If such concerns are presented, monitoring instrument results and Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) recommendations should be used to guide response actions.

TABLE 1: Threshold Levels and Recommended Response Actions for $PM_{2.5}$

$PM_{2.5}$ Threshold Levels ($\mu g/m^3$)		Level of Health Concern	Meaning	Action
1 Hr. Avg.[1]	**24 Hr. Avg.[1]**			
COMMUNITY ACTION LEVELS				
0.0 – 40.0	0.0 – 12.0	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	Implement communication plan [2].
40.1 – 80.0	12.1 - 35.4	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive [3] to air pollution.	Issue public announcement about health effects [2]. Stay out of areas with visible smoke.
80.1 – 175.0	35.5 - 55.4	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
175.1 – 300.0	55.5 - 150.4	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
300.1 - 500.0	150.5 - 250.4	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
> 500.0	> 250.5	Hazardous	Health alert: everyone may experience more serious health effects	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.
Source	**Particulates not otherwise regulated/specified ($\mu g/m^3$) 8 Hr. Avg.**		**Meaning**	**Action**
WORKER ACTION LEVELS				
OSHA PEL	15,000 (total dust) 5,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Levels above the 8 hour TWA require the use of level C PPE (use P100 particulate filter). See ERRB P100 – PPE Guidelines for Specific Activities/Tasks and P102 - Respiratory Protection Equipment Selection.
ACGIH TLV	10,000 (inhalable fraction - <100µm) 3,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Consider implementing industrial hygiene measures and/or using level C PPE.

[1] Threshold values taken from original EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc for $PM_{2.5}$ (24 hour) and Idaho Department of Environmental Quality AQI for $PM_{2.5}$ (1 hour) taken from http://app.airsis.com/usfs/aqi.asp.

[2] Recommendations from EPA Air Now web site. See Reference E.

[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.

[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

TABLE 2: Threshold Levels and Recommended Response Actions for PM_{10}

PM_{10} Threshold Levels ($\mu g/m^3$)[1] 24 Hr. Avg.	Level of Health Concern	Meaning	Action
COMMUNITY ACTION LEVELS			
0.0 – 12.0	Good	None	Implement communication plan [2].
12.1 – 55.0	Moderate	Unusually sensitive[3] people should consider reducing prolonged or heavy exertion.	Issue public announcement about health effects [4].
55.1 – 155.0	Unhealthy for Sensitive Groups	Increasing likelihood of respiratory symptoms and aggravation of lung disease, such as asthma.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
155.1 – 255.0	Unhealthy	Increased respiratory symptoms and aggravation of lung disease, such as asthma; possible respiratory effects in general population.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
255.1-355.0	Very Unhealthy	Significant increase in respiratory symptoms and aggravation of lung disease, such as asthma; increasing likelihood of respiratory effects in general population.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
355.1-425.0	Hazardous	Serious risk of respiratory symptoms and aggravation of lung disease, such as asthma; respiratory effects likely in general population.	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.

[1] Threshold values taken from EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc
[2] Recommendations from EPA Air Now web site. See Reference E.
[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.
[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

Monitoring Instruments and Methods

Region IV Emergency Response, Removal and Prevention Branch (ERRPB) currently uses the DataRAM 4 and the DustTrak DRX 8533EP for particulate monitoring.

The DustTrak DRX 8533EP was added to the Branch inventory in February 2017. The DustTrak uses light scattering measurement similar to the DataRAM 4 but has the ability to both size and mass fractions simultaneously. The unit concurrently provides PM10, PM4, PM2.5, PM1 and Total particulate data without having to change the impactor head. The customized units the Branch maintains have external pumps, and a built in/automatic heater unit that is preset to keep the moisture level below 40%.

The DataRAM 4 has advantages such as portability, an internal power supply, and a large detection range. One of the drawbacks of the DataRAM 4 is that mass concentrations tend to be over-estimated. United States Forestry Service (USFS) studies have shown that the DataRAM 4 estimations are on average 144% higher than actual concentrations[f]. Because of this, the USFS recommends applying a correction factor of 0.39 to instrument readings[f]. The DataRAM 4 is the preferred instrument when portability is important and/or if very high concentrations are expected (i.e. at source).

The E-BAM monitor is available through EPA Environmental Response Team (ERT), and is considered to be the most accurate monitoring instrument available. Some of the drawbacks include reduced portability (heavier, awkward shape), narrow detection range, and it requires an auxiliary power source. The E-BAM is the preferred instrument when accuracy is a critical factor and high concentrations are not expected (i.e. better for measuring fugitive dust concentrations on metals removal sites).

Use of monitoring instruments can also be affected by available resources, weather, and environmental conditions. Accessories and adapters may be required to offset the effects of these variables.

- Heater: A temperature conditioning heater must be used if humidity is > 40%. Without a heater in these conditions, measurements may be biased towards higher readings. Refer to instrument manual for further instruction. These are available for most particulate monitoring instruments.
- Power Generation: Most instruments will run for 15-24 hours on a full battery charge. A generator, solar panel, or auxiliary battery system will likely be needed for equipment without a built-in power supply or for continuous monitoring > 15 hours.
- GFCI: If a power generation system is used, a power strip/surge protector should be used to accommodate other accessories and monitoring equipment. This will also prevent possible electrical damage to expensive equipment.
- Impactor: The DataRAM and DustTrak are used with an impactor attachment which connects to the air intake. This functions as a pre-collector to help offset some of the effects of wind and precipitation. It should be utilized at all times.

TABLE 3. Instruments Available for an EPA Response

Criteria	DataRAM 4	E-BAM	DUSTTRAK DRX 8533EP
Accuracy (% above actual) [1]	144%	1%	Not determined
Detection Range (µg/m³) [2]	0.1 - 400,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)[2]	13	28 (without battery)	
Setup Time	15 min	15-30 min	15 min
Measurement Method	light scattering	filter tape	90° light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option avail.	Dual re-chargeable batteries, 12 hour run time each.
Availability	Regional Readiness Center (6 units)	1-2 days via EPA ERT	Regional Readiness Center (3 units)

[1] based on results from US Forest Service 2006 study *Smoke Particulate Monitors*. See Reference F.
[2] taken from manufacturers specifications.

Table 4. Comparison of Common Particulate Monitors on the Market

Criteria	DataRAM 4000	DataRAM 2000	E-BAM	E-Sampler	DUSTTRAK
Accuracy (% above actual)[1]	144%	15%	1%	13%	217%
Detection Range ($\mu g/m^3$)[2]	0.1 - 400,000	0.1 - 400,000	0.1 - 65,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)[2]	13	12	28 (without battery)	12 (without battery)	9 (device only); 38 (with enclosure)
Setup Time	15 min	15 min	15-30 min	15-30 min	Unknown
Measurement Method	light scattering	light scattering	filter tape	light scattering	90-degree light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option	Requires AC power source or external DC. Solar option	Re-chargeable internal battery. 15-24 hr. run time.

[1] based on results from US Sorest Service 2006 study *Smoke Particulate Monitors*. See Reference a.
[2] taken from manufacturers specs

Monitoring Locations

Monitoring for particulates should take place both at the work zone and in surrounding areas where the smoke may travel or accumulate. Consider areas between the release point and sensitive receptors. Temperature, wind, and humidity can affect where smoke travels. As the earth's surface is heated in the afternoon, the atmosphere becomes more unstable when heated air expands. This causes smoke to disperse in a more vertical pattern in the afternoon and early evening. Warm temperatures or major changes in daytime high/low temperatures will cause the smoke to rise higher than in cooler temperatures with a narrow high/low range. As the atmosphere stabilizes overnight and through the morning, smoke will disperse horizontally and settle into low-lying areas and valleys[g].

Wind is a significant factor in smoke dispersion. Unstable atmospheric conditions in the afternoon also increase wind speed which increases the rate and distance of dispersion. Humidity above 80% can cause moisture to condense on smoke particles. This can create a fog type effect which slows and settles smoke. Precipitation can cause a similar effect and slow dispersion. Atmospheric inversions should be taken into consideration when determining monitoring locations and recommending evacuation or protect-in-place zones. An atmospheric inversion occurs when a layer of air that is warmer than the air below traps the surface air in place and prevents dispersion of any pollutants it contains.

Surface structures such as buildings and trees can significantly change air flow direction and cause stagnant air pockets to form. This can trap smoke in small, confined areas and create hot spots with significantly higher particulate concentrations than nearby locations. When monitoring areas which are surrounding the source consider the following:

- Downwind areas will be most impacted by smoke.
- It should be expected that particulate readings at ground level will be higher at night or in the morning than in the afternoon or early evening.

Monitoring at the work zone may be necessary to establish appropriate levels of PPE for response workers. This will also help to determine safe areas to stage response support activities where workers may not be using protective equipment.

When choosing a monitoring site, some additional items should also be considered:

- Availability of power sources will determine what type of power generation is required. The absence of auxiliary power will require more frequent maintenance and may require additional staffing, especially if the monitoring period is > 24 hours.
- Consider security measures (i.e. locked boxes, chains, etc.) if instruments are to be sited in public areas and left unattended.
- Ensure generators or equipment from other activities which may release emissions do not interfere with monitoring stations.
- Power lines or electrical utility areas should be avoided.

Health Effects

PM_{10} and $PM_{2.5}$ are considered to be respirable. Particulates > 10 µm do not typically reach the lungs, but can irritate the eyes, nose, and throat. Although PM_{10} is respirable, $PM_{2.5}$ is inhaled deeper into lung tissue due to their small size (approximately 1/30th the average width of human hair[h]), and thus presents a greater health hazard than larger particulates. PM between 0.1 µm and 1 µm can remain in the atmosphere for days or weeks, meaning there is a potential for long range dispersion from the source.

Smoke and particulate exposure will typically have the largest effect on the respiratory system. Irritation and coughing are common acute symptoms of exposure to particulates. Individuals subject to particulate exposure may first notice irritation of the throat, eyes, and nose. This may be followed by coughing, chest pain, and shortness of breath if exposure continues.

- Acute effects of particulate exposure include irritation of the respiratory system, coughing, and breathing difficulties.
- Chronic effects of particulate exposure include reduced lung function, asthma, lung cancer, chronic bronchitis, cardiovascular disease, premature death, and may cause birth defects[e].

These symptoms can be magnified for sensitive individuals, which can include groups or individuals with pre-existing conditions (e.g.: asthma, heart disease, lung disease), children, the elderly, and pregnant women. Sensitive individuals can experience aggravation of respiratory and cardiovascular systems at lower levels which may not affect non-sensitive individuals[e].

PM can also transport other pollutants which creates additional health concerns. Special consideration and precautions should be made if other pollutants are expected. ATSDR can provide assistance with generating public health statements, factsheets and possible development of a medical monitoring plan.

Reporting

Generate air monitoring summary reports to present data to the Incident Management Team (IMT) during Command, Planning, and Tactical meetings/briefings. Air monitoring summary reports typically group instruments by location and summarize each analyte result with number of readings, number of detections, concentration range, and a time-time weighted average over the period of the report. For particulates, specifically, the air monitoring report typically classifies the reporting period based on the AQI as seen in Table 1 and Table 2.

Develop the reporting schedule around the operational periods established by the IMT, and include sufficient time to review air monitoring summary reports prior to meetings/briefings since they often become the data backing up health-based decisions (e.g. whether to modify/implement evacuation zones or how to advise schools on openings/delayed starts).

References

a. EPA ERTG – *Air Monitoring Guidance Tables* http://www.epaosc.org/sites/0001/files/US%20EPA%20Air%20Tables%20Edition3_FINAL%202.pdf
b. California Air Resource Board. *Wildfire Smoke, A Guide for Public Health Officials*. July 2008. http://www.arb.ca.gov/carpa/toolkit/data-to-mes/wildfire-smoke-guide.pdf
c. Naeher, L.P., Brauer, M., Lipsett, M., Zelikoff, J.T., Simpson, C.D., Koenig, J.Q. and Smith, K.R. 2007. *Woodsmoke Health Effects: A Review*. Inhalation Toxicology. 19: 67–106.
d. US Department of Energy. *Protective Action Criteria* http://www.atlintl.com/doe/teels/teel.html
e. EPA Air Now. *Air Quality Index – A Guide to Air Quality and Your Health.* http://www.airnow.gov/index.cfm?action=aqibasics.aqi
f. USDA Forest Service – Technology Development Program. *Smoke Particulate Monitors: 2006 Update.* December 2006. https://www3.epa.gov/ttnamti1/files/ambient/smoke/ebamrpt.pdf
g. Auburn University. *Smoke Dispersion* http://www.auburn.edu/academic/forestry_wildlife/fire/smoke_guide/smoke_dispersion.htm
h. US Environmental Protection Agency. Fine particle ($PM_{2.5}$) Designations, Frequent Questions. http://www.epa.gov/pmdesignations/faq.htm

Able Contracting Fire
Instrumentation Configuration
Night of 7/25/19
Legend
EPA Air Monitoring Station
SCDHEC Air Monitoring Station
Station 157
Station 155
Station 156
Mackinaw Way
SCDHEC AirStation
N
300 ft
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From: Eichinger, Kevin <Eichinger.Kevin@epa.gov> on behalf of Eichinger, Kevin
Sent on: Sunday, July 28, 2019 10:07:54 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Table, 07/27, 0700 through 07/28, 0700 (24 hour period)
Attachments: Viper_Summary_Report_AR and DustTrack_07272019_0700_07282019_0700.pdf (265.39 KB)

Attached and uploaded to the website.

Kevin

Kevin Eichinger, CHMM - Federal On-Scene Coordinator and Industrial Hygienist
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Superfund and Emergency Management Division
Emergency Response, Removal, Prevention and Prepardness Branch (ERRPPB)
office: **404-562-8268** | cell: **678-897-3759** | **response.epa.gov**

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/27/19** **0700 hours** ***To:*** ***7/28/19*** ***0700 hours***

Location 1						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 1	VOC	No	11,334	6,623	0 - 2535 ppb	86.3 p
	CO	No	11,334	455	0 - 11 ppm	0.2 pp
	H_2S	No	11,334	0	0 - 0 ppm	0 pp
	O_2	No	11,334	11,334	20.9 - 20.9%	20.9
	LEL	No	11,334	0	0 - 0%	0%
DustTrak 1	PM-2.5	Good	41,230	39,154	0 - 498 µg/m³	8.5 µg

Location 2						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 2	VOC	No	11,166	45	0 - 718 ppb	6.1 pp
	CO	No	11,166	135	0 - 7 ppm	0 pp
	H_2S	No	11,166	4	0 - 0.6 ppm	0 pp
	O_2	No	11,166	11,166	20.9 - 20.9%	20.9
	LEL	No	11,166	0	0 - 0 %	0%
DustTrak 2	PM-2.5	Very Unhealthy	48,763	48,763	8 - 6550 µg/m³	202.6 µ

Location 3						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 3	VOC	No	11,528	7,621	0 - 3538 ppb	70.6 p
	CO	No	11,528	31	0 - 7 ppm	0 ppr
	H_2S	No	11,528	0	0 - 0 ppm	0 ppr
	O_2	No	11,528	11,528	20.9 - 20.9%	20.9
	LEL	No	11,528	0	0 - 0%	0%
DustTrak 3	PM-2.5	Unhealthy	42,191	42,191	16 - 7890 µg/m³	88.4 µg

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

From: Eichinger, Kevin <Eichinger.Kevin@epa.gov> on behalf of Eichinger, Kevin
Sent on: Monday, July 29, 2019 12:55:34 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Table, 07/28, 0700 through 07/29, 0200
Attachments: Viper_Summary_Report_AR and DustTrack_Able_Contracting_07282019_0700_07292019_0200.pdf (200.43 KB)

Attached and will get up on the website.

From: Eichinger, Kevin
Sent: Sunday, July 28, 2019 6:08 PM
To: Garrard, Jordan (Garrard.Jordan@epa.gov) <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Table, 07/27, 0700 through 07/28, 0700 (24 hour period)

Attached and uploaded to the website.

Kevin

Kevin Eichinger, CHMM - Federal On-Scene Coordinator and Industrial Hygienist
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Superfund and Emergency Management Division
Emergency Response, Removal, Prevention and Preparedness Branch (ERRPPB)
office: **404-562-8268** | cell: **678-897-3759** | **response.epa.gov**

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/28/19** **0700 hours** ***To:*** ***7/29/19*** ***0200 hours***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	2,452	1,406	0 - 3,302 ppb	77.7 ppb	1,000 ppb
	CO	No	2,452	26	0 - 6 ppm	0 ppm	83 ppm
	H_2S	No	2,452	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,452	2,452	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,452	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	6,341	6,332	0 - 351 µg/m³	8.6 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	2,432	1	0 - 119 ppb	0 ppb	1,000 ppb
	CO	No	2,432	3	0 - 4 ppm	0 ppm	83 ppm
	H_2S	No	2,432	1	0 - 0.4 ppm	0 ppm	0.5 ppm
	O_2	No	2,432	2,432	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,432	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Unhealthy for Sensitive Groups	7,267	7,267	11 - 363 µg/m³	40.6 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	2,449	1,096	0 - 3,200 ppb	36 ppb	1,000 ppb
	CO	No	2,449	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	2,449	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,449	2,449	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,449	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy	4,708	4,708	19 - 1060 µg/m³	101.6 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	2,434	404	0 - 36,051 ppb	27.5 ppb	1,000 ppb
	CO	No	2,434	95	0 - 19 ppm	0.2 ppm	83 ppm
	H_2S	No	2,434	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,434	2,434	20.9 - 21.3%	20.9%	<19.5 or >23%
	LEL	No	2,434	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parts per million
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

From: Eichinger, Kevin <Eichinger.Kevin@epa.gov> on behalf of Eichinger, Kevin
Sent on: Saturday, July 27, 2019 10:30:14 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Tables
Attachments: Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072519_1951_through_07262019_0700.pdf (166.16 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_0700_through_07262019_1900.pdf.pdf (193.92 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_1900_through_07272019_0700.pdf (158.44 KB)

Attached are the three summary tables. I renamed them so you can tell the time period by the file name. They have been loaded up to the website.

Kevin

Kevin Eichinger, CHMM - Federal On-Scene Coordinator and Industrial Hygienist
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Superfund and Emergency Management Division
Emergency Response, Removal, Prevention and Prepardness Branch (ERRPPB)
office: **404-562-8268** | cell: **678-897-3759** | **response.epa.gov**

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/26/19 7:00** ***To:*** ***7/26/19 18:59***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,598	109	0 - 6,319 ppb	7 ppb	1,000 ppb
	CO	No	7,598	529	0 - 19 ppm	0.3 ppm	83 ppm
	H_2S	No	7,598	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,598	7,598	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,598	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	25,313	25,310	0 - 220 µg/m³	6.3 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	7,795	111	0 - 5,277 ppb	2.4 ppb	1,000 ppb
	CO	No	7,795	148	0 - 13 ppm	0.1 ppm	83 ppm
	H_2S	No	7,795	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,795	7,795	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,795	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Unhealthy	44,965	44,965	1 - 1260 µg/m³	84.2 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	8,496	4,210	0 - 20,802 ppb	45.9 ppb	1,000 ppb
	CO	No	8,496	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	8,496	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	8,496	8,496	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	8,496	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy for Sensative Groups	38,022	38,022	14 - 1390 µg/m³	52 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	7,855	88	0 - 21,572 ppb	4.7 ppb	1,000 ppb
	CO	No	7,855	607	0 - 24 ppm	0.5 ppm	83 ppm
	H_2S	No	7,855	17	0 - 1 ppm	0 ppm	0.5 ppm
	O_2	No	7,855	7,855	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,855	0	0 - 0%	0%	10%

Notes:

- % Percent
- < Less than
- > Greater than
- AEGL Acute Exposure Guideline levels for airborne chemicals
- CO Carbon monoxide
- H_2S Hydrogen Sulfide
- LEL Lower Explosive Level
- min Minute
- O_2 Oxygen
- PEL Permissible exposure limit
- ppb Parts per billion
- ppm Parts per million
- PM Particulate matter
- SOG Standard Operating Guidelines
- TLV Threshold limit value
- µg/m³ Micrograms per cubic meter
- VOC Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/26/19** **1900 hours** ***To:*** ***7/27/19*** ***0700 hours***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	6,934	4,053	0 - 881 ppb	27.8 ppb	1 ppm
	CO	No	6,934	268	0 - 11 ppm	0.2 ppm	83 ppm
	H_2S	No	6,934	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,934	6,934	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,934	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	36,181	36,175	0 - 417 µg/m³	7.6 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	7,164	1,248	0 - 1513 ppb	24.8 ppb	1 ppm
	CO	No	7,164	426	0 - 16 ppm	0.2 ppm	83 ppm
	H_2S	No	7,164	13	0 - 1 ppm	0 ppm	0.5 ppm
	O_2	No	7,164	7,164	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,164	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Very Unhealthy	44,566	44,566	10 - 10400 µg/m³	167.8 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	7,952	7,952	0 - 920 ppb	31.9 ppb	1 ppm
	CO	No	7,952	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	7,952	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,952	7,952	20.9 - 21.1%	20.9%	<19.5 or >23%
	LEL	No	7,952	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy	39,505	39,505	16 - 2430 µg/m³	57.8 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	7,372	219	0 - 112984 ppb	29.2 ppb	1 ppm
	CO	No	7,372	59	0 - 23 ppm	0.1 ppm	83 ppm
	H_2S	No	7,372	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,372	7,372	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,372	0	0 - 0%	0%	10%

Notes:

- % Percent
- < Less than
- > Greater than
- AEGL Acute Exposure Guideline levels for airborne chemicals
- CO Carbon monoxide
- H_2S Hydrogen Sulfide
- LEL Lower Explosive Level

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

Share Copy link Download Delete Copy to Version history Previous 53 of 61

From: Harper, Greg <Harper.Greg@epa.gov> on behalf of Harper, Greg
Sent on: Friday, August 16, 2019 4:16:18 PM
To: chris.jones@tetratech.com
CC: Garrard, Jordan <Garrard.Jordan@epa.gov>; Huyser, Matthew <Huyser.Matthew@epa.gov>; Negron, Jose <Negron.Jose@epa.gov>
Subject: Air Sampling and monitoring data for Able

Chris,

Can you send me the air sampling results and air monitoring data START collected at Able? Can it be provided today? EPA has a request from the USCG for the information.

Thanks
Greg

Gregory L. Harper
EPA On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4
Emergency Response Removal and Prevention Branch, 11th Floor
61 Forsyth Street. S.W.
Atlanta, Georgia 30303
Office (404) 562-8322
Cell (770) 570-8106
harper.greg@epa.gov

Sent from my iPhone

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Monday, July 29, 2019 2:35:14 PM
To: ablecontracting29936@gmail.com
Subject: Air summary tables
Attachments: Viper_Summary_Report_AR and DustTrack_Able_Contracting_07282019_0700_07292019_0200.pdf (200.43 KB), Viper_Summary_Report_AR and DustTrack_07272019_0700_07282019_0700.pdf (265.39 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072519_1951_through_07262019_0700.pdf (166.16 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_0700_through_07262019_1900.pdf.pdf (193.92 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_1900_through_07272019_0700.pdf (158.44 KB), Viper Summary report_AR and DustTrack_ABLE CONTRACTING_072619.pdf (166.16 KB), SOGT106_Particulate_Monitoring_Guideline_02232017_final.pdf (489.33 KB), Map for 7072619 meeting.pdf (12.03 MB)

Mr. Lloyd,

I have attached the summary tables from the air monitoring that the EPA conducted. If you have any questions please contact me.

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/28/19** **0700 hours** ***To:*** ***7/29/19*** ***0200 hours***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	2,452	1,406	0 - 3,302 ppb	77.7 ppb	1,000 ppb
	CO	No	2,452	26	0 - 6 ppm	0 ppm	83 ppm
	H_2S	No	2,452	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,452	2,452	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,452	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	6,341	6,332	0 - 351 µg/m³	8.6 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	2,432	1	0 - 119 ppb	0 ppb	1,000 ppb
	CO	No	2,432	3	0 - 4 ppm	0 ppm	83 ppm
	H_2S	No	2,432	1	0 - 0.4 ppm	0 ppm	0.5 ppm
	O_2	No	2,432	2,432	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,432	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Unhealthy for Sensitive Groups	7,267	7,267	11 - 363 µg/m³	40.6 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	2,449	1,096	0 - 3,200 ppb	36 ppb	1,000 ppb
	CO	No	2,449	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	2,449	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,449	2,449	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,449	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy	4,708	4,708	19 - 1060 µg/m³	101.6 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	2,434	404	0 - 36,051 ppb	27.5 ppb	1,000 ppb
	CO	No	2,434	95	0 - 19 ppm	0.2 ppm	83 ppm
	H_2S	No	2,434	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,434	2,434	20.9 - 21.3%	20.9%	<19.5 or >23%
	LEL	No	2,434	0	0 - 0%	0%	10%

Notes:

- % Percent
- < Less than
- > Greater than
- AEGL Acute Exposure Guideline levels for airborne chemicals
- CO Carbon monoxide
- H_2S Hydrogen Sulfide
- LEL Lower Explosive Level
- min Minute
- O_2 Oxygen
- PEL Permissible exposure limit
- ppm Parts per million
- ppm Parts per million
- PM Particulate matter
- SOG Standard Operating Guidelines
- TLV Threshold limit value
- µg/m³ Micrograms per cubic meter
- VOC Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/27/19** **0700 hours** ***To:*** ***7/28/19*** ***0700 hours***

Location 1						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 1	VOC	No	11,334	6,623	0 - 2535 ppb	86.3 p
	CO	No	11,334	455	0 - 11 ppm	0.2 p
	H_2S	No	11,334	0	0 - 0 ppm	0 pp
	O_2	No	11,334	11,334	20.9 - 20.9%	20.9
	LEL	No	11,334	0	0 - 0%	0%
DustTrak 1	PM-2.5	Good	41,230	39,154	0 - 498 µg/m³	8.5 µg

Location 2						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 2	VOC	No	11,166	45	0 - 718 ppb	6.1 pp
	CO	No	11,166	135	0 - 7 ppm	0 pp
	H_2S	No	11,166	4	0 - 0.6 ppm	0 pp
	O_2	No	11,166	11,166	20.9 - 20.9%	20.9
	LEL	No	11,166	0	0 - 0 %	0%
DustTrak 2	PM-2.5	Very Unhealthy	48,763	48,763	8 - 6550 µg/m³	202.6 µ

Location 3						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 3	VOC	No	11,528	7,621	0 - 3538 ppb	70.6 p
	CO	No	11,528	31	0 - 7 ppm	0 ppr
	H_2S	No	11,528	0	0 - 0 ppm	0 ppr
	O_2	No	11,528	11,528	20.9 - 20.9%	20.9
	LEL	No	11,528	0	0 - 0%	0%
DustTrak 3	PM-2.5	Unhealthy	42,191	42,191	16 - 7890 µg/m³	88.4 µg

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/26/19 7:00** ***To:*** ***7/26/19 18:59***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,598	109	0 - 6,319 ppb	7 ppb	1,000 ppb
	CO	No	7,598	529	0 - 19 ppm	0.3 ppm	83 ppm
	H_2S	No	7,598	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,598	7,598	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,598	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	25,313	25,310	0 - 220 µg/m³	6.3 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	7,795	111	0 - 5,277 ppb	2.4 ppb	1,000 ppb
	CO	No	7,795	148	0 - 13 ppm	0.1 ppm	83 ppm
	H_2S	No	7,795	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,795	7,795	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,795	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Unhealthy	44,965	44,965	1 - 1260 µg/m³	84.2 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	8,496	4,210	0 - 20,802 ppb	45.9 ppb	1,000 ppb
	CO	No	8,496	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	8,496	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	8,496	8,496	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	8,496	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy for Sensative Groups	38,022	38,022	14 - 1390 µg/m³	52 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	7,855	88	0 - 21,572 ppb	4.7 ppb	1,000 ppb
	CO	No	7,855	607	0 - 24 ppm	0.5 ppm	83 ppm
	H_2S	No	7,855	17	0 - 1 ppm	0 ppm	0.5 ppm
	O_2	No	7,855	7,855	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,855	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/26/19** **1900 hours** ***To:*** ***7/27/19*** ***0700 hours***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	6,934	4,053	0 - 881 ppb	27.8 ppb	1 ppm
	CO	No	6,934	268	0 - 11 ppm	0.2 ppm	83 ppm
	H_2S	No	6,934	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,934	6,934	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,934	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	36,181	36,175	0 - 417 µg/m³	7.6 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	7,164	1,248	0 - 1513 ppb	24.8 ppb	1 ppm
	CO	No	7,164	426	0 - 16 ppm	0.2 ppm	83 ppm
	H_2S	No	7,164	13	0 - 1 ppm	0 ppm	0.5 ppm
	O_2	No	7,164	7,164	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,164	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Very Unhealthy	44,566	44,566	10 - 10400 µg/m³	167.8 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	7,952	7,952	0 - 920 ppb	31.9 ppb	1 ppm
	CO	No	7,952	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	7,952	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,952	7,952	20.9 - 21.1%	20.9%	<19.5 or >23%
	LEL	No	7,952	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy	39,505	39,505	16 - 2430 µg/m³	57.8 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	7,372	219	0 - 112984 ppb	29.2 ppb	1 ppm
	CO	No	7,372	59	0 - 23 ppm	0.1 ppm	83 ppm
	H_2S	No	7,372	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,372	7,372	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,372	0	0 - 0%	0%	10%

Notes:

- % Percent
- < Less than
- > Greater than
- AEGL Acute Exposure Guideline levels for airborne chemicals
- CO Carbon monoxide
- H_2S Hydrogen Sulfide
- LEL Lower Explosive Level

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Summary

- This guide is intended to be used for monitoring particulates released from fires. Effects from other potential pollutants and products of combustion are not addressed in this document. Refer to EPA Emergency Response Air Monitoring Guidance Tables, 2012 Edition 3[a] for guidance on other pollutants.
- $PM_{2.5}$ is the preferred metric for fire response particulate monitoring.
- The DataRAM 4 and the DustTrak DRX 8533EP are the standard monitoring instrument for measuring particulate concentrations.
- The E-BAM, available from ERT, is the alternate monitoring instrument when accuracy is a critical factor.
- Instrument accessories may be needed to offset weather variables and provide power during extended monitoring periods.
- Establish monitoring sites downwind of the hot zone and immediately upwind. Monitoring may also be recommended in the hot zone if there is a health risk to response workers.
- Use Table 1 to select the appropriate response action. Community action levels apply to everyone in neighboring areas affected by smoke. Worker action levels apply to response workers at the site.

Introduction

Fire presents a multitude of health and safety hazards as a result of effects on air quality. Smoke is the most visible air pollutant and is composed of Carbon Monoxide (CO), Carbon Dioxide (CO_2), Water Vapor, Particulate Matter (PM), hydrocarbons, organic chemicals, Nitric Oxides (NO_X), and minerals. Smoke can disperse quickly and may present significant health risks for nearby communities. Variables that impact dispersion include wind, temperature, moisture, and topography. Air monitoring guidance for these and other products of combustion are presented in the EPA Emergency Response Air Monitoring Guidance Tables[a].

PM consists of solid and liquid particles suspended in air. PM can readily enter the body through inhalation and can cause both acute and chronic health effects. Particulates will be present in all smoke resulting from a fire, regardless of the fuel source; however, different types of fuels will produce different sizes and concentrations of PM. Heat is also a factor which can effect particulate concentrations. After a fire has been suppressed, particulate concentrations can be higher during the smoldering phase because of less-complete combustion[b].

Most particulates in smoke are between 0.4 - 0.7 micrometers (μm) which is considered respirable. Particulates are typically classified as PM_{10} or $PM_{2.5}$ which refers to the particulate size.

- PM_{10} is defined as "course" particles measuring 10 μm or less in diameter.
- $PM_{2.5}$ is defined as "fine" particles with a diameter equal to or less than 2.5 μm.

It is recommended that monitoring efforts focus on measuring $PM_{2.5}$ during emergency fire responses. The California Air Resource Board states that most smoke particulates are between 0.4 – 0.7 μm, and concludes $PM_{2.5}$ would be a more practical monitoring parameter to use[b]. In 2007, Naeher et al. also indicated that $PM_{2.5}$ was the more suitable particulate monitoring metric [c]. Further, the EPA Air Quality Index (AQI) uses $PM_{2.5}$ in the health rating guide, also suggesting that $PM_{2.5}$ is the more appropriate standard when looking at the health hazards of particulates.

Links to Additional Information:

- Graph of particle size distribution of atmospheric particles
- Graph of particle size from particulate emissions
- Emission Study with graph of particle size distribution

Air Quality Thresholds, Actions and Recommendations

Evacuation and/or protect-in-place procedures should be recommended for areas downwind of or in the visible smoke cloud.

Once instrument readings become available, the concentrations may be an indication of potential exposure. Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) lists the threshold levels for different concentrations and the recommended actions that should be taken to prevent harm to community members and workers/responders at the response site. These actions may include communication with community members, evacuations, and medical monitoring. Consider consulting ATSDR to assist with generating public health statements, factsheets and possible development of a medical monitoring plan.

Criteria listed in the Protective Action Criteria (PAC) were assessed, but the values for particulates were much higher than those used in the AQI[d]. Because of this, the PAC values are not the preferred metric for response action guidance.

Odors and visible air opacity may trigger complaints and concerns in affected areas. Conditions and individual sensitivities can play a significant role in determining the point at which smoke becomes noticeable. If such concerns are presented, monitoring instrument results and Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) recommendations should be used to guide response actions.

TABLE 1: Threshold Levels and Recommended Response Actions for $PM_{2.5}$

$PM_{2.5}$ Threshold Levels (µg/m³)		Level of Health Concern	Meaning	Action
1 Hr. Avg.[1]	**24 Hr. Avg.[1]**			
COMMUNITY ACTION LEVELS				
0.0 – 40.0	0.0 – 12.0	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	Implement communication plan [2].
40.1 – 80.0	12.1 - 35.4	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive [3] to air pollution.	Issue public announcement about health effects [2]. Stay out of areas with visible smoke.
80.1 – 175.0	35.5 - 55.4	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
175.1 – 300.0	55.5 - 150.4	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
300.1 - 500.0	150.5 - 250.4	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
> 500.0	> 250.5	Hazardous	Health alert: everyone may experience more serious health effects	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.
Source	**Particulates not otherwise regulated/specified (µg/m³) 8 Hr. Avg.**		**Meaning**	**Action**
WORKER ACTION LEVELS				
OSHA PEL	15,000 (total dust) 5,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Levels above the 8 hour TWA require the use of level C PPE (use P100 particulate filter). See ERRB P100 – PPE Guidelines for Specific Activities/Tasks and P102 - Respiratory Protection Equipment Selection.
ACGIH TLV	10,000 (inhalable fraction - <100µm) 3,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Consider implementing industrial hygiene measures and/or using level C PPE.

[1] Threshold values taken from original EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc for $PM_{2.5}$ (24 hour) and Idaho Department of Environmental Quality AQI for $PM_{2.5}$ (1 hour) taken from http://app.airsis.com/usfs/aqi.asp.

[2] Recommendations from EPA Air Now web site. See Reference E.

[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.

[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

TABLE 2: Threshold Levels and Recommended Response Actions for PM_{10}

PM_{10} Threshold Levels ($\mu g/m^3$)[1] 24 Hr. Avg.	Level of Health Concern	Meaning	Action
COMMUNITY ACTION LEVELS			
0.0 – 12.0	Good	None	Implement communication plan [2].
12.1 – 55.0	Moderate	Unusually sensitive[3] people should consider reducing prolonged or heavy exertion.	Issue public announcement about health effects [4].
55.1 – 155.0	Unhealthy for Sensitive Groups	Increasing likelihood of respiratory symptoms and aggravation of lung disease, such as asthma.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
155.1 – 255.0	Unhealthy	Increased respiratory symptoms and aggravation of lung disease, such as asthma; possible respiratory effects in general population.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
255.1-355.0	Very Unhealthy	Significant increase in respiratory symptoms and aggravation of lung disease, such as asthma; increasing likelihood of respiratory effects in general population.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
355.1-425.0	Hazardous	Serious risk of respiratory symptoms and aggravation of lung disease, such as asthma; respiratory effects likely in general population.	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.

[1] Threshold values taken from EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc
[2] Recommendations from EPA Air Now web site. See Reference E.
[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.
[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

Monitoring Instruments and Methods

Region IV Emergency Response, Removal and Prevention Branch (ERRPB) currently uses the DataRAM 4 and the DustTrak DRX 8533EP for particulate monitoring.

The DustTrak DRX 8533EP was added to the Branch inventory in February 2017. The DustTrak uses light scattering measurement similar to the DataRAM 4 but has the ability to both size and mass fractions simultaneously. The unit concurrently provides PM10, PM4, PM2.5, PM1 and Total particulate data without having to change the impactor head. The customized units the Branch maintains have external pumps, and a built in/automatic heater unit that is preset to keep the moisture level below 40%.

The DataRAM 4 has advantages such as portability, an internal power supply, and a large detection range. One of the drawbacks of the DataRAM 4 is that mass concentrations tend to be over-estimated. United States Forestry Service (USFS) studies have shown that the DataRAM 4 estimations are on average 144% higher than actual concentrations[f]. Because of this, the USFS recommends applying a correction factor of 0.39 to instrument readings[f]. The DataRAM 4 is the preferred instrument when portability is important and/or if very high concentrations are expected (i.e. at source).

The E-BAM monitor is available through EPA Environmental Response Team (ERT), and is considered to be the most accurate monitoring instrument available. Some of the drawbacks include reduced portability (heavier, awkward shape), narrow detection range, and it requires an auxiliary power source. The E-BAM is the preferred instrument when accuracy is a critical factor and high concentrations are not expected (i.e. better for measuring fugitive dust concentrations on metals removal sites).

Use of monitoring instruments can also be affected by available resources, weather, and environmental conditions. Accessories and adapters may be required to offset the effects of these variables.

- Heater: A temperature conditioning heater must be used if humidity is > 40%. Without a heater in these conditions, measurements may be biased towards higher readings. Refer to instrument manual for further instruction. These are available for most particulate monitoring instruments.
- Power Generation: Most instruments will run for 15-24 hours on a full battery charge. A generator, solar panel, or auxiliary battery system will likely be needed for equipment without a built-in power supply or for continuous monitoring > 15 hours.
- GFCI: If a power generation system is used, a power strip/surge protector should be used to accommodate other accessories and monitoring equipment. This will also prevent possible electrical damage to expensive equipment.
- Impactor: The DataRAM and DustTrak are used with an impactor attachment which connects to the air intake. This functions as a pre-collector to help offset some of the effects of wind and precipitation. It should be utilized at all times.

TABLE 3. Instruments Available for an EPA Response

Criteria	DataRAM 4	E-BAM	DUSTTRAK DRX 8533EP
Accuracy (% above actual) [1]	144%	1%	Not determined
Detection Range (μg/m³) [2]	0.1 - 400,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)$_2$	13	28 (without battery)	
Setup Time	15 min	15-30 min	15 min
Measurement Method	light scattering	filter tape	90° light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option avail.	Dual re-chargeable batteries, 12 hour run time each.
Availability	Regional Readiness Center (6 units)	1-2 days via EPA ERT	Regional Readiness Center (3 units)

[1] based on results from US Forest Service 2006 study *Smoke Particulate Monitors*. See Reference F.
[2] taken from manufacturers specifications.

Table 4. Comparison of Common Particulate Monitors on the Market

Criteria	DataRAM 4000	DataRAM 2000	E-BAM	E-Sampler	DUSTTRAK
Accuracy (% above actual)[1]	144%	15%	1%	13%	217%
Detection Range ($\mu g/m^3$)[2]	0.1 - 400,000	0.1 - 400,000	0.1 - 65,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)[2]	13	12	28 (without battery)	12 (without battery)	9 (device only); 38 (with enclosure)
Setup Time	15 min	15 min	15-30 min	15-30 min	Unknown
Measurement Method	light scattering	light scattering	filter tape	light scattering	90-degree light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option	Requires AC power source or external DC. Solar option	Re-chargeable internal battery. 15-24 hr. run time.

[1] based on results from US Sorest Service 2006 study *Smoke Particulate Monitors*. See Reference a.
[2] taken from manufacturers specs

Monitoring Locations

Monitoring for particulates should take place both at the work zone and in surrounding areas where the smoke may travel or accumulate. Consider areas between the release point and sensitive receptors. Temperature, wind, and humidity can affect where smoke travels. As the earth's surface is heated in the afternoon, the atmosphere becomes more unstable when heated air expands. This causes smoke to disperse in a more vertical pattern in the afternoon and early evening. Warm temperatures or major changes in daytime high/low temperatures will cause the smoke to rise higher than in cooler temperatures with a narrow high/low range. As the atmosphere stabilizes overnight and through the morning, smoke will disperse horizontally and settle into low-lying areas and valleys[g].

Wind is a significant factor in smoke dispersion. Unstable atmospheric conditions in the afternoon also increase wind speed which increases the rate and distance of dispersion. Humidity above 80% can cause moisture to condense on smoke particles. This can create a fog type effect which slows and settles smoke. Precipitation can cause a similar effect and slow dispersion. Atmospheric inversions should be taken into consideration when determining monitoring locations and recommending evacuation or protect-in-place zones. An atmospheric inversion occurs when a layer of air that is warmer than the air below traps the surface air in place and prevents dispersion of any pollutants it contains.

Surface structures such as buildings and trees can significantly change air flow direction and cause stagnant air pockets to form. This can trap smoke in small, confined areas and create hot spots with significantly higher particulate concentrations than nearby locations. When monitoring areas which are surrounding the source consider the following:

- Downwind areas will be most impacted by smoke.
- It should be expected that particulate readings at ground level will be higher at night or in the morning than in the afternoon or early evening.

Monitoring at the work zone may be necessary to establish appropriate levels of PPE for response workers. This will also help to determine safe areas to stage response support activities where workers may not be using protective equipment.

When choosing a monitoring site, some additional items should also be considered:

- Availability of power sources will determine what type of power generation is required. The absence of auxiliary power will require more frequent maintenance and may require additional staffing, especially if the monitoring period is > 24 hours.
- Consider security measures (i.e. locked boxes, chains, etc.) if instruments are to be sited in public areas and left unattended.
- Ensure generators or equipment from other activities which may release emissions do not interfere with monitoring stations.
- Power lines or electrical utility areas should be avoided.

Health Effects

PM_{10} and $PM_{2.5}$ are considered to be respirable. Particulates > 10 µm do not typically reach the lungs, but can irritate the eyes, nose, and throat. Although PM_{10} is respirable, $PM_{2.5}$ is inhaled deeper into lung tissue due to their small size (approximately 1/30th the average width of human hair[h]), and thus presents a greater health hazard than larger particulates. PM between 0.1 µm and 1 µm can remain in the atmosphere for days or weeks, meaning there is a potential for long range dispersion from the source.

Smoke and particulate exposure will typically have the largest effect on the respiratory system. Irritation and coughing are common acute symptoms of exposure to particulates. Individuals subject to particulate exposure may first notice irritation of the throat, eyes, and nose. This may be followed by coughing, chest pain, and shortness of breath if exposure continues.

- Acute effects of particulate exposure include irritation of the respiratory system, coughing, and breathing difficulties.
- Chronic effects of particulate exposure include reduced lung function, asthma, lung cancer, chronic bronchitis, cardiovascular disease, premature death, and may cause birth defects[e].

These symptoms can be magnified for sensitive individuals, which can include groups or individuals with pre-existing conditions (e.g.: asthma, heart disease, lung disease), children, the elderly, and pregnant women. Sensitive individuals can experience aggravation of respiratory and cardiovascular systems at lower levels which may not affect non-sensitive individuals[e].

PM can also transport other pollutants which creates additional health concerns. Special consideration and precautions should be made if other pollutants are expected. ATSDR can provide assistance with generating public health statements, factsheets and possible development of a medical monitoring plan.

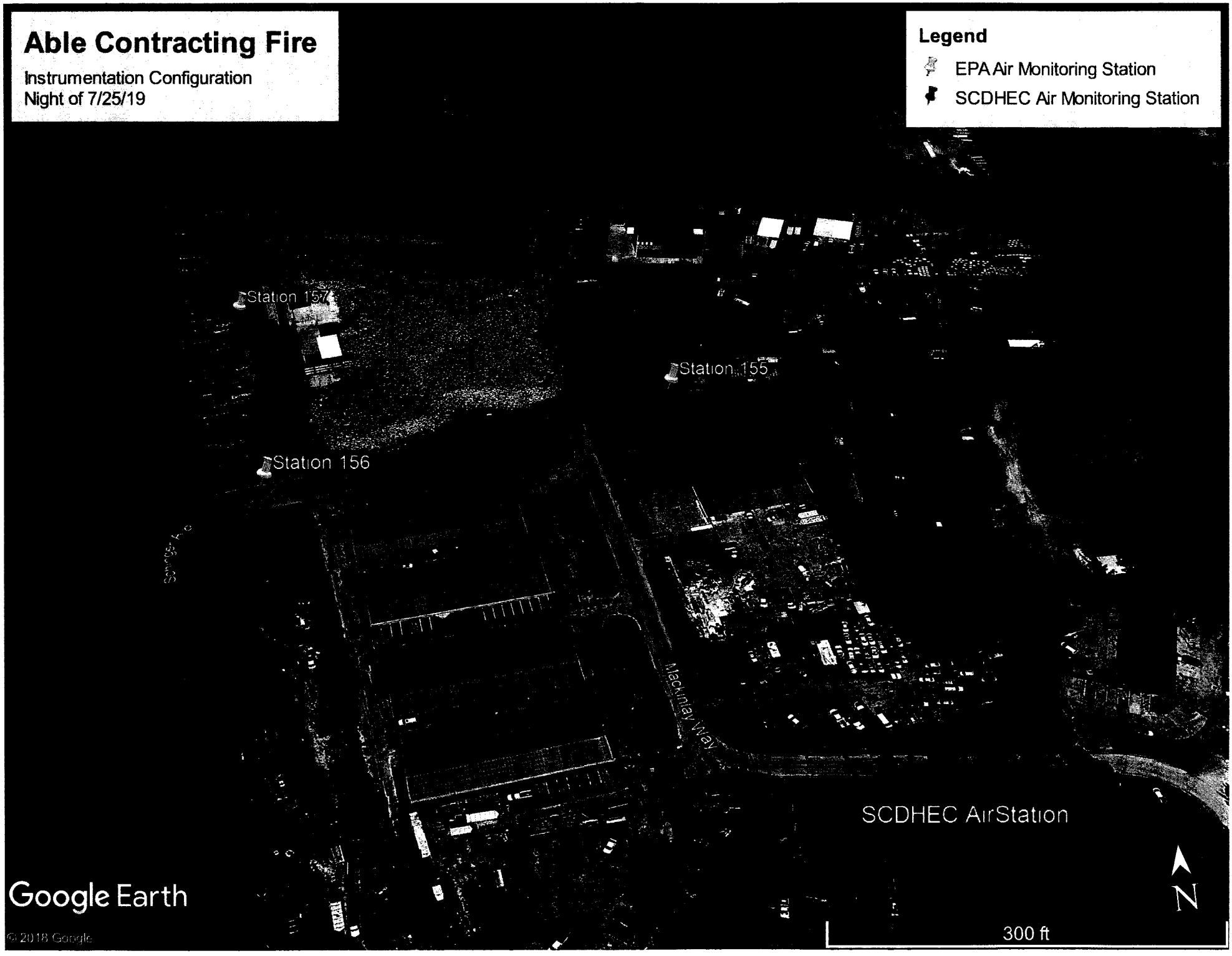
Reporting

Generate air monitoring summary reports to present data to the Incident Management Team (IMT) during Command, Planning, and Tactical meetings/briefings. Air monitoring summary reports typically group instruments by location and summarize each analyte result with number of readings, number of detections, concentration range, and a time-time weighted average over the period of the report. For particulates, specifically, the air monitoring report typically classifies the reporting period based on the AQI as seen in Table 1 and Table 2.

Develop the reporting schedule around the operational periods established by the IMT, and include sufficient time to review air monitoring summary reports prior to meetings/briefings since they often become the data backing up health-based decisions (e.g. whether to modify/implement evacuation zones or how to advise schools on openings/delayed starts).

References

a. EPA ERTG – *Air Monitoring Guidance Tables* http://www.epaosc.org/sites/0001/files/US%20EPA%20Air%20Tables%20Edition3_FINAL%202.pdf
b. California Air Resource Board. *Wildfire Smoke, A Guide for Public Health Officials*. July 2008. http://www.arb.ca.gov/carpa/toolkit/data-to-mes/wildfire-smoke-guide.pdf
c. Naeher, L.P., Brauer, M., Lipsett, M., Zelikoff, J.T., Simpson, C.D., Koenig, J.Q. and Smith, K.R. 2007. *Woodsmoke Health Effects: A Review*. Inhalation Toxicology. 19: 67–106.
d. US Department of Energy. *Protective Action Criteria http://www.atlintl.com/doe/teels/teel.html*
e. EPA Air Now. *Air Quality Index – A Guide to Air Quality and Your Health.* http://www.airnow.gov/index.cfm?action=aqibasics.aqi
f. USDA Forest Service – Technology Development Program. *Smoke Particulate Monitors: 2006 Update.* December 2006. https://www3.epa.gov/ttnamti1/files/ambient/smoke/ebamrpt.pdf
g. Auburn University. *Smoke Dispersion* *http://www.auburn.edu/academic/forestry_wildlife/fire/smoke_guide/smoke_dispersion.htm*
h. US Environmental Protection Agency. Fine particle ($PM_{2.5}$) Designations, Frequent Questions. http://www.epa.gov/pmdesignations/faq.htm


Able Contracting Fire
Instrumentation Configuration
Night of 7/25/19
Legend
EPA Air Monitoring Station
SCDHEC Air Monitoring Station
Station 157
Station 155
Station 156
Mackinaw Way
SCDHEC AirStation
N
300 ft
Google Earth
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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Thursday, August 8, 2019 8:16:10 PM
To: Matthew Huyser <Huyser.Matthew@epa.gov>
Subject: ATSDR

I have been referring all medical or symptom questions to Sue Casteel with ATSDR. They do not have the air sample data yet, but have all the particulate air monitoring data and have been speaking to residents about pm2.5

Jordan

From: Snyder, John <John.Snyder@tetratech.com>
Sent on: Saturday, August 3, 2019 2:54:52 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Aug 02 NIGHT Air monitoring summary table
Attachments: Viper Summary report_SPM_08022019NIGHT.pdf (135.72 KB)

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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TETRA TECH

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: ABLE CONTRACTING FIRE

From: **8/2/19 20:59** ***To:*** ***8/3/19 8:59***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL / RML / 60 min AEGL)
SPM Flex 1	Phosgene (COCl2)	0	2192	0	0 - 0 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL / RML / 60 min AEGL)
SPM Flex 2	Phosgene (COCl2)	0	1337	0	0 - 0 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL / RML / 60 min AEGL)
SPM Flex 3	Phosgene (COCl2)	0	1844	0	0 - 0 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Notes:

AEGL	Acute Exposure Guideline levels for airborne chemicals (8 hour exposure)
min	Minute
PEL	Permissible exposure limit
ppb	Parts per billion
RML	Removal Management Level
TLV	Threshold limit value

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From: Threatt, Richard <threatrl@dhec.sc.gov>
Sent on: Friday, July 26, 2019 5:57:53 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; reecemc@dhec.sc.gov
CC: Tuten, Reahnita <TUTENRS@dhec.sc.gov>; Timmerman, Kelsey A. <timmerka@dhec.sc.gov>
Subject: Contact Information for local SC DHEC Beaufort Office

I will be on vacation next week so the local contacts will or 7/27/2019 through 8/5/2019 will be:

Reahnita Tuten-Point of Contact
tutenrs@dhec.sc.gov
803-943-6025

Kelsey Timmerman-ERT rep for next week
timmerka@dhec.sc.gov
843-592-8674

Richard L. Threatt, Jr.
Office Manager
Lowcountry- Beaufort EA
S.C. Dept. of Health & Environmental Control
Office: (843) 846-1030
Cell: (843) 986-4426
Fax: (843) 846-0604
Connect: **www.scdhec.gov** **Facebook** **Twitter**

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Tuesday, July 30, 2019 3:07:20 PM
To: nrstromer@gmail.com
Subject: Contacts for additional health questions concerning Able Contracting Fire

R. Keith Frost
Assistant Chief, Bureau of Air Quality
S.C. Dept. of Health & Environmental Control
Office: (803) 898-4115
frostrk@dhec.sc.gov

Sue Casteel
Agency For Toxic Substances and Disease Registry (ATSDR)
404-562-0637

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From: Snyder, John <John.Snyder@tetratech.com>
Sent on: Thursday, August 8, 2019 3:32:29 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Data summary
Attachments: Draft_Summary Tables Able Contracting_round 2 added.pdf (104.21 KB)

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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TETRA TECH

ABLE CONTRACTING FIRE
AIR SAMPLES
Summary of Detections
DATA HAS NOT BEEN QC'd - NOT FOR PUBLIC DISTRIBUTION

	EPA RMLs	BACKGROUND ACF-AS-BKGD-072819	STATION 1 (SE Corner) ACF-AS-RES-AM-072719	STATION 2 (SW Corner) ACF-AS-SMOKE-AM-072719	STATION 1 (SE Corner) ACF-AS-RES-PM-072719	STATION 2 (SW Corner) ACF-AS-SMOKE-PM-072719	STATION 1 (SE Corner) ACF-AS-RES-AM-072819	STATION 2 (SW Corner) ACF-AS-SMOKE-AM-072819	STATION 1 (SE Corner) ACF-AS-RES-PM-072819	STATION 2 (SW Corner) ACF-AS-SMOKE-PM-072819
		Sample Volume	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*
/cc)		*946.3 Liters*	*767 Liters*	*898.6 Liters*	*965.3 Liters*	*913.3 Liters*	-	-	-	-
		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
^{3})		*537.10 Liters*	-	-	-	-	*473.90 Liters*	*603.90 Liters*	*542.50 Liters*	*550.50 Liters*
	0.94		*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*				
(µg/m^3)		*516.20 Liters*	*410.60 Liters*	*411.80 Liters*	*541.50 Liters*	*549.50 Liters*	-	-	-	-
	22	**4.88**	**1.70**	**2.50**	**3.04**	**6.09**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
		776.6 Liters	*672.6 Liters*	*657.5 Liters*	*744.8 Liters*	*784.6 Liters*	-	-	-	-
	16	**0.55**	**0.77**	**0.52**	**0.5**	**0.48**				
	1.6	**0.11**	**0.13**	**0.25**	**0.13**	**0.11**				
	Not Listed	**52.7**	**0.54**	**55.1**	**48**	**41.3**				
	Not Listed	**0.73**	**0.89**	**0.9**	**1.1**	**0.75**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	Not Listed	**0.93**	**1.3**	**0.87**	**0.81**	**0.86**				
	Not Listed	**9.6**	**11.2**	**11.5**	**10.4**	**8.5**				
	Not Listed	**12.7**	**15.8**	**16.5**	**14.7**	**12**				
c Compounds (µg/m^3)		-	-	-	-	-	-	-	-	-
	97,000	**12**	**8.66**	**7.51**	**10.5**	**16.1**				
	190	**1.85**	**2.17**	**0.892**	**0.99**	**1.63**				
	0.063									
	4.1	0.159 U	0.159 U	0.158 U	0.163 U	0.202 U				
	36	**2.52**	**6.46**	**3.4**	**2.5**	**15.1**				
	16	0.275 U	0.276 U	0.274 U	0.282 U	0.277 U				
	6.3	**0.749**	**1.06**	**0.689**	**0.769**	**2.21**				
	2,200	**0.214**	**0.514**	**0.279**	**0.444**	**0.405**				
ide	47	**0.481**	**0.482**	**0.478**	**0.496**	**0.466**				
	160	0.339 U	0.34 U	0.338 U	0.348 U	0.342 U				
	31,000	0.19 U	0.191 U	0.19 U	0.195 U	**0.276**				
	280	**1.23**	**4.76**	**2.95**	**1.23**	**11.6**				
	3,100	**0.999**	**0.262**	0.25 U	**0.803**	0.253 U				
	56	**0.321**	**0.294**	0.26 U	0.267 U	**0.374**				
	Not Listed	**16.7**	**4.28**	**2.33**	**9.26**	**2.56**				
	220	0.259 U	0.261 U	0.259 U	0.266 U	0.262 U				
	110	**2.07**	**3.36**	**1.12**	**0.768**	**5.86**				
	Not Listed	**0.913**	0.355 U	0.354 U	0.363 U	0.357 U				
)	Not Listed	**1.18**	**1.38**	**1.33**	**1.4**	**1.28**				
)	Not Listed	**2.33**	**2.4**	**2.38**	**2.41**	**2.36**				
F_3)	Not Listed	**0.554**	**0.66**	**0.547**	**0.605**	**0.577**				
	1,300	**2.26**	**0.769**	**0.365**	**0.891**	**1**				
	2,200	**4.05**	**1.55**	**0.647**	**2.37**	**1.43**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	630	**0.404**	**0.468**	**0.434**	**0.949**	**0.478**				
	Not Listed	0.357 U	**0.838**	**0.421**	0.366 U	**1.06**				
ne (2-Butanone)	16,000	**1.02**	**0.847**	**0.805**	**0.612**	**1.57**				
ctone	9,400	0.302 U	**0.373**	0.302 U	0.31 U	0.305 U				
ate	2,200	0.304 U	0.305 U	0.303 U	0.312 U	**0.857**				
ether	1,100	0.264 U	0.265 U	0.264 U	**0.312**	0.267 U				
le	1,900	**0.691**	**0.871**	**0.674**	**0.999**	**0.651**				
	8.3	**0.336**	0.39 U	0.388 U	0.398 U	**0.537**				
	Not Listed	**0.99**	**0.353**	0.334 U	0.343 U	**0.562**				
	3,100	**0.629**	0.359 U	0.357 U	0.367 U	0.361 U				
	9,400	**2.91**	**7.88**	**3.99**	**2.96**	**14.2**				
	3,100	**0.348**	**1.71**	**2.13**	**0.446**	**8.66**				
	1,100	0.489 U	0.491 U	0.489 U	**0.736**	0.494 U				
	6,300	0.213 U	**0.472**	**0.373**	0.218 U	**0.796**				
	16,000	**9.82**	**6.48**	**2.62**	**5.08**	**7.6**				
nzene	190	**3.23**	**0.784**	**0.318**	**0.817**	**0.414**				
nzene	190	**0.898**	0.354 U	0.352 U	0.362 U	0.356 U				
ntane	Not Listed	**2.12**	**0.684**	0.342 U	**0.487**	0.346 U				
	310	**6.86**	**2.37**	**0.941**	**2.51**	**1.66**				
	310	**2.75**	**0.95**	**0.362**	**0.916**	**0.759**				
anic Compounds (µg/m^3)		*439.4 Liters*	*486.2 Liters*	*562.5 Liters*	*421.4 Liters*	*438.3 Liters*	-	-	-	-
nic Compounds		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*

Notes:

ACF	Able Contracting Fire
EPA	Environmental Protection Agency
J	The identification of the analyte is acceptable; the reported value is an estimate
µg/m^3	Micrograms per cubic meter
NA	Not Analysed
ND	Not Detected
RMLs	Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carcinogenic/noncarcinogenic listed; TR=1E-04/THQ+3.0)
U	The analyte was not detected at or above the reporting limit
UJ	The analyte was
BOLD	Bolded values
BOLD	Shaded and **bolded** values exceed the April 2019 Residential RMLs

ABLE CONTRACTING FIRE
AIR SAMPLES
Summary of Detections
DATA HAS NOT BEEN QC'd - NOT FOR PUBLIC DISTRIBUTION

Analyte	EPA RMLs	STATION 1 (SE Corner) ACF-AS-RES-24HRVOC *Sample Volume*	STATION 2 (West Side) ACF-AS-SMOKE-24HRVOC *Sample Volume*	STATION 3 (Upwind) ACF-AS-UPWIND-24HRVOC *Sample Volume*		STATION 1 (SE Corner) ACF-AS-RES-NIGHT *Sample Volume*	STATION 2 (West Side) ACF-AS-SMOKE-NIGHT *Sample Volume*	STATION 3 (Upwind) ACF-AS-UPWIND-NIGHT *Sample Volume*		STATION 1 (SE Corner) ACF-AS-RES-DAY *Sample Volume*	STATION 2 (West Side) ACF-AS-SMOKE-DAY *Sample Volume*
Asbestos (fibers/cc)		-	-	-		-	-	-		-	-
Asbestos		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*
Phosgene (µg/m³)						*623.80 Liters*	*556.80 Liters*	*520.80 Liters*		*535.20 Liters*	*542.40 Liters*
Phosgene	0.94	*Not sampled*	*Not sampled*	*Not sampled*		**0.652 J**	**1.02 J**	**0.501 J**		0.277 J	**1.22 J**
Formaldehyde (µg/m³)		-	-	-		-	-	-		-	-
Formaldehyde	22	*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*
Metals (µg/m³)		-	-	-		-	-	-		-	-
Aluminum	16	*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*
Barium	1.6										
Calcium	Not Listed										
Chromium	Not Listed										
Iron	Not Listed										
Magnesium	Not Listed										
Sodium	Not Listed										
Volatile Organic Compounds (µg/m³)		-	-	-		-	-	-		-	-
Acetone	97,000	**6.87**	**14.7**	**5.46**		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*
Acetonitrile	190	**1.17**	**3.64**	**0.893**							
Acrolein	0.063										
Acrylonitrile	4.1	1.53 U	**0.946**	0.155 U							
Benzene	36	**2.00**	**26.2**	0.223 U							
Bromomethane	16	0.26 U	**0.46**	0.268 U							
1,3-Butadiene	6.3	**0.195**	**2.35**	0.151							
Carbon disulfide	2,200	**0.448**	**0.736**	**0.262**							
Carbon tetrachloride	47	**0.523**	**0.497**	**0.491**							
Chlorobenzene	160	0.326 U	**0.748**	0.331 U							
Chloroethane	31,000	0.183 U	**0.268**	0.186 U							
Chloroimethane	280	**3.53**	**13.8**	**2.09**							
Cyclohexane	3,100	0.241 U	**0.319**	0.244 U							
1,4-Dioxane	56	0.251 U	**0.584**	0.254 U							
Ethanol	Not Listed	**2.62**	**3.26**	**1.21**							
Ethyl acetate	220	**0.719**	0.251 U	0.253 U							
Ethylbenzene	110	**1.33**	**8.00**	0.298 U							
4-Ethyltoluene	Not Listed	0.341 U	0.342 U	0.346 U							
Freon 11 (CCl_3F_3)	Not Listed	**1.42**	**1.41**	**1.39**							
Freon 12 (CCl_2F_2)	Not Listed	**2.44**	**2.43**	**2.37**							
Freon 113 ($C_2Cl_3F_3$)	Not Listed	**0.591**	**0.613**	**0.584**							
Heptane	1,300	**0.478**	**1.51**	0.288 U							
Hexane	2,200	**0.849**	**1.71**	**0.28**							
Isopropyl alcohol	630	**0.432**	**0.41**	**0.305**							
Isopropylbenzene	Not Listed	**0.466**	**1.92**	**0.355**							
Methyl ethyl ketone (2-Butanone)	16,000	**0.657**	**0.338**	**0.42**							
Methyl isobutyl ketone	9,400	0.286 U	0.292 U	0.295 U							
Methyl methacrylate	2,200	0.292 U	**1.4**	0.297 U							
Methyl tert-butyl ether	1,100	0.254 U	**0.355**	0.258 U							
Methylene chloride	1,900	**0.625**	**0.66**	**0.551**							
Naphthalene	8.3	0.373 U	**1.02**	0.379 U							
n-Octane	Not Listed	0.322 U	**0.957**	0.327 U							
n-Propylbenzene	3,100	0.344 U	**0.453**	0.349 U							
Propylene	9,400	**2.98**	**21.5**	**0.633**							
Styrene	3,100	**0.842**	**21.2**	0.29 U							
Tetrachloroethene	1,100	0.471 U	0.473 U	0.478 U							
Tetrahydrofuran	6,300	**0.222**	**1.32**	0.208 U							
Toluene	16,000	**2.26**	**11.8**	**0.657**							
1,2,4-Trimethylbenzene	190	0.336 U	**0.534**	0.341 U							
1,3,5-Trimethylbenzene	190	0.339 U	**0.535**	0.344 U							
2,2,4-Trimethylpentane	Not Listed	**0.332 J**	0.331 U	0.334 U							
m-/p-Xylenes	310	**0.673**	**2.07**	0.307 U							
o-Xylene	310	**0.284**	**0.98**	0.303 U							
Semivolatile Organic Compounds (µg/m³)		-	-	-		-	-	-		-	-
Semivolatile Organic Compounds		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*

Notes:

ACF	Able Contracting Fire
EPA	Environmental Protection Agency
J	The identification of the analyte is acceptable; the reported value is an estimate
µg/m³	Micrograms per cubic meter
NA	Not Analysed
ND	Not Detected
RMLs	Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carcinogenic/noncarcinogenic listed; TR=1E-04/THQ+3.0)
U	The analyte was not detected at or above the reporting limit
UJ	The analyte was
BOLD	Bolded values
BOLD	Shaded and **bolded** values exceed the April 2019 Residential RMLs

TETRA TECH

From: Reynolds, Scott <REYNOLDS@dhec.sc.gov>
Sent on: Saturday, August 3, 2019 12:14:01 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: DHEC air monitor links

In the event it would be useful :

tinyurl for the air sensor in at Palmetto Exterminators- installed July 3
http://tinyurl.com/MOIX17468

Full url for the monitor on Schinger Ave - installed 7/30
https://grovestreams.com/singleDash.html?itemUid=7d56a758-30f3-3f9a-975d-db74a25bd6e6&org=15772a4f-dbea-3f07-afd1-822eb81046b4&api_key=d9fff443-7d5e-3c69-9644-2114020fddb9

Parameters

- $PM_{2.5}$
- Temperature
- Humidity
- Pressure
- Wind Speed and Direction

data every 15 minutes

Open Share Copy link Print Download Delete Copy to Version history

DATA HAS NOT BEEN QC'd - NOT FOR PUBLIC DISTRIBUTION

Analyte	EPA RMLs	BACKGROUND ACT-AS-BKGR-072819 Sample Volume	STATION 1 (SE Corner) ACT-AS-RES-AM-072719 Sample Volume	STATION 1 (SW Corner) ACT-AS-SMOKE-AM-072719 Sample Volume	STATION 1 (SE Corner) ACT-AS-RES-PM-072719 Sample Volume	STATION 1 (SW Corner) ACT-AS-SMOKE-PM-072719 Sample Volume	STATION 1 (SE Corner) ACT-AS-RES-AM-072819 Sample Volume	STATION 1 (SW Corner) ACT-AS-SMOKE-AM-072819 Sample Volume	STATION 1 (SE Corner) ACT-AS-RES-PM-072819 Sample Volume	STATION 1 (SW Corner) ACT-AS-SMOKE-PM-072819 Sample Volume
Asbestos (fibers/cc)		[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters	-	-	-	-
[illegible]		None detected	None detected	None detected	None detected	None detected	Not sampled	Not sampled	Not sampled	Not sampled
Phosgene (µg/m³)		[illegible] Liters	-	-	-	-	[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters
Phosgene	[illegible]	[illegible]	Not sampled	Not sampled	Not sampled	Not sampled	[illegible]	[illegible]	[illegible]	[illegible]
Formaldehyde (µg/m³)		[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters	-	-	-	-
Formaldehyde	[illegible]	4.88	1.70	2.50	1.8	6.89	Not sampled	Not sampled	Not sampled	Not sampled
Metals (µg/m³)		[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters	-	-	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Not sampled	Not sampled	Not sampled	Not sampled
Volatile Organic Compounds (µg/m³)		-	-	-	-	-	-	-	-	-
Acetone	[illegible]	[illegible]	[illegible]	7.81	10.5	16.1	Not sampled	Not sampled	Not sampled	Not sampled
Benzene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Not sampled	Not sampled	Not sampled	Not sampled
Semivolatile Organic Compounds (µg/m³)		[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters	[illegible] Liters	-	-	-	-
[illegible]		None detected	None detected	None detected	None detected	None detected	Not sampled	Not sampled	Not sampled	Not sampled

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From: Masterson, Chris <Masterson.Christopher@epa.gov> on behalf of Masterson, Chris
Sent on: Thursday, July 25, 2019 5:11:21 PM
To: Bates, Lloyd <Bates.Lloyd@epa.gov>
CC: Huyser, Matthew <Huyser.Matthew@epa.gov>; Garrard, Jordan <Garrard.Jordan@epa.gov>; Eichinger, Kevin <Eichinger.Kevin@epa.gov>
Subject: ER Site Birth Request - C4A6 - Able Contracting Fire
Attachments: C4A6 - Able Contracting Fire.pdf (23.45 KB)

Please birth the attached site with ER accounts.

Please note, Jordan and Kevin are responding, and it is currently not known if it will remain a PRP lead so please add RV accounts.

Thanks!

Christopher Masterson
Field Technician III | Digital Infrastructure
US EPA - End User Services

Emergency Response, Removal, Prevention, and Preparedness Branch (ERRPPB)
61 Forsyth St SW, 11th Fl
Atlanta, GA 30303
Office: 404-562-8706
Cell: 678-644-6538
Fax: 404-562-8701
Email: masterson.christopher@epa.gov

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Team SAIC - Redefining Ingenuity ™

Armstrong, Kathy

From: Masterson, Chris
Sent: Thursday, July 25, 2019 1:11 PM
To: Bates, Lloyd
Cc: Huyser, Matthew; Garrard, Jordan; Eichinger, Kevin
Subject: ER Site Birth Request - C4A6 - Able Contracting Fire
Attachments: C4A6 - Able Contracting Fire.pdf

Please birth the attached site with ER accounts.

Please note, Jordan and Kevin are responding, and it is currently not known if it will remain a PRP lead so please add RV accounts.

Thanks!

Christopher Masterson
Field Technician III | Digital Infrastructure
US EPA - End User Services

Emergency Response, Removal, Prevention, and Preparedness Branch (ERRPPB)
61 Forsyth St SW, 11th Fl
Atlanta, GA 30303
Office: 404-562-8706
Cell: 678-644-6538
Fax: 404-562-8701
Email: masterson.christopher@epa.gov

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SUPERFUND SITE SPILL ID REQUEST
CERCLA EMERGENCY RESPONSE

ASSIGNED ID# C4A6

Date of Request: 7/25/19 OSC: J. Garrard Phone: 2-8642

Site Name (include known aliases): Able Contracting Fire

Physical Site Address (street and/or nearest intersection of mile marker, no PO Box):

472 Schinger Ave

County: Jasper

City: Ridgeland State: SC Zip Code: 29936

Latitude: 32.323489 Longitude: -80.941162

Response Lead (circle one): EPA Fund Lead, **PRP Lead w/EPA**, Enforcement Lead, USCG, Mixed Funding PRP and EPA, State Lead, PRP Lead w/ State, State Enforcement, Federal Facility

Site ID# (if already existing site): _____ EPA Generator ID# (if known): _____

Site History (Assessment, Emergency Response, Time-Critical Removal, Non Time-Critical Removal, PA/SI, and/or NPL with dates if known): RV accounting code needed in case RP is not leading after all. Kevin Eichinger also responding.

Date Submitted: 7/25/19

MAD Data

Collection Method: Address Matching - House Number
Reference Datum: Other
Reference Point: Solid Waste Storage Area
Map Scale: 1:25,000
Collection Date: 7/25/19
Verification Method: EPA Staff
Source: Contractor
Point/Line/Area: Area
Measurement Sequence: Unknown

From: Snyder, John <John.Snyder@tetratech.com>
Sent on: Thursday, August 8, 2019 5:38:49 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: first round of analytical
Attachments: 0719-205.pdf (4.67 MB)

Don't know if I've given this to you...

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

Tetra Tech | Complex World, Clear Solutions™ | **Tetra Tech** EMI
Raleigh, NC (Cary) | tetratech.com

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TETRA TECH

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From: Reynolds, Scott <REYNOLDS@dhec.sc.gov>
Sent on: Thursday, August 1, 2019 6:06:44 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Friday call with DHEC
Urgent: High

We're supposed to be on a call with Jasper Co folks at 10AM on Friday.
Assuming you get some preliminary results today, would it be possible to have a call earlier to get an idea of the findings?

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Thursday, August 8, 2019 6:24:09 PM
To: Matthew Huyser <Huyser.Matthew@epa.gov>
Subject: FW: Able Construction Work Group - Conference Call 10 am Friday

This is the mailing list to include SCDECH and Jasper County.

From: Garrard, Jordan
Sent: Tuesday, August 6, 2019 9:24 AM
To: Reece, Myra <reecemc@dhec.sc.gov>; Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
Cc: Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David M. <scaturdm@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Ellenberg, Kristy E. <ellenbke@dhec.sc.gov>; Scott Reynolds <reynolds@dhec.sc.gov>; shealyrg@dhec.sc.gov
Subject: RE: Able Construction Work Group - Conference Call 10 am Friday

Just wanted to give everyone an update on timeline of analytical results. After speaking with the lab, we should receive preliminary phosgene data this evening or tomorrow am. VOC data will not be ready until sometime on Thursday. I still recommend have a conference call on Friday morning to discuss results.

Thanks

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

From: Reece, Myra <reecemc@dhec.sc.gov>
Sent: Thursday, August 1, 2019 6:16 PM
To: Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
Cc: Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David M. <scaturdm@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Ellenberg, Kristy E. <ellenbke@dhec.sc.gov>;

Armstrong, Kathy

Subject:	FW: Able Contracting Call with SCDECH and Jasper County
Location:	call in provided
Start:	Fri 8/9/2019 10:00 AM
End:	Fri 8/9/2019 11:00 AM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Garrard, Jordan

-----Original Appointment-----
From: Garrard, Jordan
Sent: Thursday, August 8, 2019 12:08 PM
To: Garrard, Jordan; Moore, Tony; James Webster; Frederick, Tim; Glenn Adams; Chan, Sydney
Subject: Able Contracting Call with SCDECH and Jasper County
When: Friday, August 9, 2019 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: call in provided

Conference Call Dial-in (605) 313-5380
Enter the access code:(b)(6) Personal Privacy

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Sunday, July 28, 2019 10:21:11 PM
To: keith.frost@dhec.sc.gov; threatrl@dhec.sc.gov; rwells@jaspercountysc.gov
Subject: FW: Air Monitoring Summary Table, 07/27, 0700 through 07/28, 0700 (24 hour period)
Attachments: Viper_Summary_Report_AR and DustTrack_07272019_0700_07282019_0700.pdf (265.39 KB)

The fire department was onsite again last night for approximately 1.5 hours. We will be done sampling by 20:00 tonight. We collected 2 rounds of sampling consisting of a nighttime and daytime run at the source and downwind at the closest resident. We also collected an upwind sample for comparison. The samples will be delivered to the lab on July 29. The samples will be analyzed on a 3 day turn around for VOCs, SVOCs, Metals, Formaldehyde, Phosgene, and Asbestos. I hope to have preliminary data by Thursday evening. We will continue to operate the air monitoring stations until 0700 July 29, 2019, at that time we will begin demobilizing resources. If you have any questions please contact me.

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

From: Eichinger, Kevin
Sent: Sunday, July 28, 2019 6:08 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Table, 07/27, 0700 through 07/28, 0700 (24 hour period)

Attached and uploaded to the website.

Kevin

Kevin Eichinger, CHMM - Federal On-Scene Coordinator and Industrial Hygienist
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Superfund and Emergency Management Division
Emergency Response, Removal, Prevention and Preparedness Branch (ERRPPB)
office: **404-562-8268** | cell: **678-897-3759** | **response.epa.gov**

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/27/19** **0700 hours** ***To:*** ***7/28/19*** ***0700 hours***

Location 1						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 1	VOC	No	11,334	6,623	0 - 2535 ppb	86.3 p
	CO	No	11,334	455	0 - 11 ppm	0.2 pp
	H_2S	No	11,334	0	0 - 0 ppm	0 pp
	O_2	No	11,334	11,334	20.9 - 20.9%	20.9
	LEL	No	11,334	0	0 - 0%	0%
DustTrak 1	PM-2.5	Good	41,230	39,154	0 - 498 µg/m³	8.5 µg

Location 2						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 2	VOC	No	11,166	45	0 - 718 ppb	6.1 pp
	CO	No	11,166	135	0 - 7 ppm	0 ppm
	H_2S	No	11,166	4	0 - 0.6 ppm	0 ppm
	O_2	No	11,166	11,166	20.9 - 20.9%	20.9
	LEL	No	11,166	0	0 - 0 %	0%
DustTrak 2	PM-2.5	Very Unhealthy	48,763	48,763	8 - 6550 µg/m³	202.6 µg

Location 3						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 3	VOC	No	11,528	7,621	0 - 3538 ppb	70.6 pp
	CO	No	11,528	31	0 - 7 ppm	0 ppm
	H_2S	No	11,528	0	0 - 0 ppm	0 ppm
	O_2	No	11,528	11,528	20.9 - 20.9%	20.9%
	LEL	No	11,528	0	0 - 0%	0%
DustTrak 3	PM-2.5	Unhealthy	42,191	42,191	16 - 7890 µg/m³	88.4 µg

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Monday, July 29, 2019 2:27:30 PM
To: Paul Lee <LeePD@dhec.sc.gov>; rwells@jaspercountysc.gov; keith.frost@dhec.sc.gov; threatrl@dhec.sc.gov
Subject: FW: Air Monitoring Summary Table, 07/28, 0700 through 07/29, 0200
Attachments: Viper_Summary_Report_AR and DustTrack_Able_Contracting_07282019_0700_07292019_0200.pdf (200.43 KB)

I will provide an final 0200 – 0700 data table this afternoon. EPA has completed the air monitoring and sampling. We have demobilized resources.

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

From: Eichinger, Kevin
Sent: Monday, July 29, 2019 8:56 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Table, 07/28, 0700 through 07/29, 0200

Attached and will get up on the website.

From: Eichinger, Kevin
Sent: Sunday, July 28, 2019 6:08 PM
To: Garrard, Jordan (Garrard.Jordan@epa.gov) <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Table, 07/27, 0700 through 07/28, 0700 (24 hour period)

Attached and uploaded to the website.

Kevin

Kevin Eichinger, CHMM - Federal On-Scene Coordinator and Industrial Hygienist
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Superfund and Emergency Management Division
Emergency Response, Removal, Prevention and Preparedness Branch (ERRPPB)
office: **404-562-8268** | cell: **678-897-3759** | **response.epa.gov**

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/28/19** **0700 hours** ***To:*** ***7/29/19*** ***0200 hours***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	2,452	1,406	0 - 3,302 ppb	77.7 ppb	1,000 ppb
	CO	No	2,452	26	0 - 6 ppm	0 ppm	83 ppm
	H_2S	No	2,452	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,452	2,452	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,452	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	6,341	6,332	0 - 351 µg/m³	8.6 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	2,432	1	0 - 119 ppb	0 ppb	1,000 ppb
	CO	No	2,432	3	0 - 4 ppm	0 ppm	83 ppm
	H_2S	No	2,432	1	0 - 0.4 ppm	0 ppm	0.5 ppm
	O_2	No	2,432	2,432	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,432	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Unhealthy for Sensitive Groups	7,267	7,267	11 - 363 µg/m³	40.6 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	2,449	1,096	0 - 3,200 ppb	36 ppb	1,000 ppb
	CO	No	2,449	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	2,449	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,449	2,449	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,449	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy	4,708	4,708	19 - 1060 µg/m³	101.6 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	2,434	404	0 - 36,051 ppb	27.5 ppb	1,000 ppb
	CO	No	2,434	95	0 - 19 ppm	0.2 ppm	83 ppm
	H_2S	No	2,434	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,434	2,434	20.9 - 21.3%	20.9%	<19.5 or >23%
	LEL	No	2,434	0	0 - 0%	0%	10%

Notes:

- % Percent
- < Less than
- > Greater than
- AEGL Acute Exposure Guideline levels for airborne chemicals
- CO Carbon monoxide
- H_2S Hydrogen Sulfide
- LEL Lower Explosive Level
- min Minute
- O_2 Oxygen
- PEL Permissible exposure limit
- ppm Parts per million
- ppm Parts per million
- PM Particulate matter
- SOG Standard Operating Guidelines
- TLV Threshold limit value
- µg/m³ Micrograms per cubic meter
- VOC Volatile organic compoud

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Saturday, July 27, 2019 10:41:32 PM
To: threatrl@dhec.sc.gov; keith.frost@dhec.sc.gov
Subject: FW: Air Monitoring Summary Tables
Attachments: Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072519_1951_through_07262019_0700.pdf (166.16 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_0700_through_07262019_1900.pdf.pdf (193.92 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_1900_through_07272019_0700.pdf (158.44 KB)

From: Eichinger, Kevin
Sent: Saturday, July 27, 2019 6:30 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Tables

Attached are the three summary tables. I renamed them so you can tell the time period by the file name. They have been loaded up to the website.

Kevin

Kevin Eichinger, CHMM - Federal On-Scene Coordinator and Industrial Hygienist
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Superfund and Emergency Management Division
Emergency Response, Removal, Prevention and Prepardness Branch (ERRPPB)
office: **404-562-8268** | cell: **678-897-3759** | **response.epa.gov**

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/26/19 7:00** ***To:*** ***7/26/19 18:59***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,598	109	0 - 6,319 ppb	7 ppb	1,000 ppb
	CO	No	7,598	529	0 - 19 ppm	0.3 ppm	83 ppm
	H_2S	No	7,598	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,598	7,598	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,598	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	25,313	25,310	0 - 220 µg/m³	6.3 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	7,795	111	0 - 5,277 ppb	2.4 ppb	1,000 ppb
	CO	No	7,795	148	0 - 13 ppm	0.1 ppm	83 ppm
	H_2S	No	7,795	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,795	7,795	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,795	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Unhealthy	44,965	44,965	1 - 1260 µg/m³	84.2 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	8,496	4,210	0 - 20,802 ppb	45.9 ppb	1,000 ppb
	CO	No	8,496	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	8,496	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	8,496	8,496	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	8,496	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy for Sensative Groups	38,022	38,022	14 - 1390 µg/m³	52 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	7,855	88	0 - 21,572 ppb	4.7 ppb	1,000 ppb
	CO	No	7,855	607	0 - 24 ppm	0.5 ppm	83 ppm
	H_2S	No	7,855	17	0 - 1 ppm	0 ppm	0.5 ppm
	O_2	No	7,855	7,855	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,855	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/26/19** **1900 hours** ***To:*** ***7/27/19*** ***0700 hours***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	6,934	4,053	0 - 881 ppb	27.8 ppb	1 ppm
	CO	No	6,934	268	0 - 11 ppm	0.2 ppm	83 ppm
	H_2S	No	6,934	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,934	6,934	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,934	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	36,181	36,175	0 - 417 µg/m³	7.6 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	7,164	1,248	0 - 1513 ppb	24.8 ppb	1 ppm
	CO	No	7,164	426	0 - 16 ppm	0.2 ppm	83 ppm
	H_2S	No	7,164	13	0 - 1 ppm	0 ppm	0.5 ppm
	O_2	No	7,164	7,164	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,164	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Very Unhealthy	44,566	44,566	10 - 10400 µg/m³	167.8 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	7,952	7,952	0 - 920 ppb	31.9 ppb	1 ppm
	CO	No	7,952	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	7,952	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,952	7,952	20.9 - 21.1%	20.9%	<19.5 or >23%
	LEL	No	7,952	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy	39,505	39,505	16 - 2430 µg/m³	57.8 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	7,372	219	0 - 112984 ppb	29.2 ppb	1 ppm
	CO	No	7,372	59	0 - 23 ppm	0.1 ppm	83 ppm
	H_2S	No	7,372	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,372	7,372	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,372	0	0 - 0%	0%	10%

Notes:

- % Percent
- < Less than
- > Greater than
- AEGL Acute Exposure Guideline levels for airborne chemicals
- CO Carbon monoxide
- H_2S Hydrogen Sulfide
- LEL Lower Explosive Level

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Saturday, July 27, 2019 10:42:15 PM
To: rwells@jaspercountysc.gov
Subject: FW: Air Monitoring Summary Tables
Attachments: Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072519_1951_through_07262019_0700.pdf (166.16 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_0700_through_07262019_1900.pdf.pdf (193.92 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_1900_through_07272019_0700.pdf (158.44 KB)

From: Eichinger, Kevin
Sent: Saturday, July 27, 2019 6:30 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>
Subject: Air Monitoring Summary Tables

Attached are the three summary tables. I renamed them so you can tell the time period by the file name. They have been loaded up to the website.

Kevin

Kevin Eichinger, CHMM - Federal On-Scene Coordinator and Industrial Hygienist
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Superfund and Emergency Management Division
Emergency Response, Removal, Prevention and Prepardness Branch (ERRPPB)
office: **404-562-8268** | cell: **678-897-3759** | **response.epa.gov**

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Tuesday, July 30, 2019 3:37:57 PM
To: aov2@cdc.gov
Subject: FW: Air summary tables for Able Contracting Fire
Attachments: Viper_Summary_Report_AR and DustTrack_Able_Contracting_07282019_0700_07292019_0200.pdf (200.43 KB), Viper_Summary_Report_AR and DustTrack_07272019_0700_07282019_0700.pdf (265.39 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072519_1951_through_07262019_0700.pdf (166.16 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_0700_through_07262019_1900.pdf.pdf (193.92 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_1900_through_07272019_0700.pdf (158.44 KB), Viper Summary report_AR and DustTrack_ABLE CONTRACTING_072619.pdf (166.16 KB), SOGT106_Particulate_Monitoring_Guideline_02232017_final.pdf (489.33 KB), Map for 7072619 meeting.pdf (12.03 MB)

Thanks Sue

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

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From: Snyder, John <John.Snyder@tetratech.com>
Sent on: Thursday, August 8, 2019 2:04:07 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: FW: Completed Report (0819-013) Able Contracting
Attachments: 0819-013 TO15 Ambient EDD-(SF3Dig).xlsx (5.19 MB), 0819-013.pdf (1.32 MB), 0819-013unsigned.pdf (764.74 KB)

-----Original Message-----
From: Michael Schapira <mike.schapira@enthalpy.com>
Sent: Wednesday, August 7, 2019 6:12 PM
To: Vickers, Jessica <jessica.vickers@tetratech.com>; Snyder, John <John.Snyder@tetratech.com>
Cc: Enthalpy-Sales <EnthalpySales@enthalpy.com>
Subject: Completed Report (0819-013) Able Contracting

⚠? CAUTION: This email originated from an external sender. Verify the source before opening links or attachments. ⚠?

Jessica and John,

Good evening. Your samples have been analyzed and two copies of the completed report are attached. One is signed and sealed against changes (the official report) and one is not signed or sealed (in case you need to insert our report into one of your own). An EDD for the TO-15 data is also attached. Please let us know if you have any questions, and have a great evening!

Mike

Michael Steven Schapira
mike.schapira@enthalpy.com
QA Associate II

Enthalpy Analytical, LLC
800 Capitola Drive, Suite 1
Durham, NC 27713
Phone: 919/850-4392
Fax: 919/850-9012

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LIMs Export Table Quant Report

LABORATORY_NAME	SAMPLE_NAME	BATCH_NAME	SAMPLE_DATE	SAMPLE_TIME	DATA_FILE	ACQ_TIME	ACQ_DATE	TEST_METHOD	SAMPLE_TYPE	COMPOUND_TYPE	CAS_NUMBER	COMPOUND_NAME	DILUTION_FAC	RESULT	RESULT_UNITS	RESULT2	RESULT_UNITS	MDL	MDL_UNITS	MDL2	MDL2_UNITS	RL	RL_UNITS	RL2	RL2_UNITS	LAB_FLAGS	DETECT_FLAG	SAMPLE_MATRIX
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	115-07-1	Propylene	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-71-8	Freon 12 (CCl2F2)	1		ppbV		ug/m3	0.0350	ppbV	0.173	ug/m3	0.0390	ppbV	0.193	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	76-14-2	Freon 114 (C2Cl2F4)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	74-87-3	Chloromethane	1		ppbV		ug/m3	0.0350	ppbV	0.0723	ug/m3	0.0390	ppbV	0.0806	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-01-4	Chloroethene (Vinyl chloride)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	106-99-0	1,3-Butadiene	1		ppbV		ug/m3	0.0350	ppbV	0.0774	ug/m3	0.0391	ppbV	0.0863	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	74-83-9	Bromomethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-00-3	Chloroethane	1		ppbV		ug/m3	0.0350	ppbV	0.0924	ug/m3	0.0403	ppbV	0.106	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	593-60-2	Bromoethene (Vinyl bromide)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-69-4	Freon 11 (CCl3F)	1		ppbV		ug/m3	0.0350	ppbV	0.197	ug/m3	0.0413	ppbV	0.233	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	64-17-5	Ethanol	1	0.126	ppbV	0.237	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	107-02-8	Acrolein	1		ppbV		ug/m3	0.0350	ppbV	0.0803	ug/m3	0.0397	ppbV	0.0911	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	76-13-1	Freon 113 (C2Cl3F3)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-35-4	1,1-Dichloroethene	1		ppbV		ug/m3	0.0350	ppbV	0.139	ug/m3	0.0400	ppbV	0.159	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	67-64-1	Acetone	1	0.0612	ppbV	0.153	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-15-0	Carbon disulfide	1		ppbV		ug/m3	0.0350	ppbV	0.109	ug/m3	0.0402	ppbV	0.125	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	67-63-0	Isopropyl alcohol	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	107-05-1	Allyl chloride (3-chloropropene)	1		ppbV		ug/m3	0.0350	ppbV	0.110	ug/m3	0.0402	ppbV	0.126	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-05-8	Acetonitrile	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-09-2	Methylene chloride	1	0.0507	ppbV	0.176	ug/m3	0.0350	ppbV	0.122	ug/m3	0.0405	ppbV	0.141	ug/m3	J	Y	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	156-60-5	trans-1,2-Dichloroethene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	1634-04-4	Methyl tert-butyl ether	1		ppbV		ug/m3	0.0350	ppbV	0.126	ug/m3	0.0410	ppbV	0.148	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	107-13-1	Acrylonitrile	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	110-54-3	Hexane	1		ppbV		ug/m3	0.0350	ppbV	0.122	ug/m3	0.0404	ppbV	0.142	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-34-3	1,1-Dichloroethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	108-05-4	Vinyl acetate	1		ppbV		ug/m3	0.0350	ppbV	0.123	ug/m3	0.0407	ppbV	0.143	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	156-59-2	cis-1,2-Dichloroethene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	78-93-3	Methyl ethyl ketone (2-Butanone)	1		ppbV		ug/m3	0.0350	ppbV	0.103	ug/m3	0.0406	ppbV	0.120	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	141-78-6	Ethyl acetate	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	67-66-3	Chloroform	1		ppbV		ug/m3	0.0350	ppbV	0.171	ug/m3	0.0404	ppbV	0.197	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	109-99-9	Tetrahydrofuran	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	71-55-6	1,1,1-Trichloroethane	1		ppbV		ug/m3	0.0350	ppbV	0.191	ug/m3	0.0398	ppbV	0.217	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	110-82-7	Cyclohexane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	56-23-5	Carbon tetrachloride	1		ppbV		ug/m3	0.0350	ppbV	0.220	ug/m3	0.0402	ppbV	0.253	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	71-43-2	Benzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	540-84-1	2,2,4-Trimethylpentane	1		ppbV		ug/m3	0.0350	ppbV	0.164	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	107-06-2	1,2-Dichloroethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	142-82-5	Heptane	1		ppbV		ug/m3	0.0350	ppbV	0.143	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	79-01-6	Trichloroethene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	78-87-5	1,2-Dichloropropane	1		ppbV		ug/m3	0.0350	ppbV	0.162	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	80-62-6	Methyl methacrylate	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	123-91-1	1,4-Dioxane	1		ppbV		ug/m3	0.0350	ppbV	0.126	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-27-4	Bromodichloromethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	10061-01-5	cis-1,3-Dichloropropene	1		ppbV		ug/m3	0.0350	ppbV	0.159	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	108-10-1	Methyl isobutyl ketone	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	108-88-3	Toluene	1		ppbV		ug/m3	0.0350	ppbV	0.132	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	10061-02-6	trans-1,3-Dichloropropene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	79-00-5	1,1,2-Trichloroethane	1		ppbV		ug/m3	0.0350	ppbV	0.191	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	127-18-4	Tetrachloroethene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	591-78-6	2-Hexanone (Methyl butyl ketone)	1		ppbV		ug/m3	0.0350	ppbV	0.143	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	124-48-1	Dibromochloromethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	106-93-4	1,2-Dibromoethane	1		ppbV		ug/m3	0.0350	ppbV	0.269	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	108-90-7	Chlorobenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	100-41-4	Ethylbenzene	1		ppbV		ug/m3	0.0350	ppbV	0.152	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	630-20-6	1,1,1,2-Tetrachloroethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	108-38-3 &/ 106-42-3	m-,p-Xylene	1		ppbV		ug/m3	0.0350	ppbV	0.152	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	95-47-6	o-Xylene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	100-42-5	Styrene	1		ppbV		ug/m3	0.0350	ppbV	0.149	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	75-25-2	Bromoform	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	79-34-5	1,1,2,2-Tetrachloroethane	1		ppbV		ug/m3	0.0350	ppbV	0.240	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	622-96-8	4-Ethyltoluene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	95-49-8	2-Chlorotoluene	1		ppbV		ug/m3	0.0350	ppbV	0.181	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	108-67-8	1,3,5-Trimethylbenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	95-63-6	1,2,4-Trimethylbenzene	1		ppbV		ug/m3	0.0350	ppbV	0.172	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	541-73-1	1,3-Dichlorobenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	106-46-7	1,4-Dichlorobenzene	1		ppbV		ug/m3	0.0350	ppbV	0.210	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	100-44-7	Benzyl chloride	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	95-50-1	1,2-Dichlorobenzene	1		ppbV		ug/m3	0.0350	ppbV	0.210	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	120-82-1	1,2,4-Trichlorobenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	87-68-3	Hexachlorobutadiene	1		ppbV		ug/m3	0.0350	ppbV	0.373	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	91-20-3	Naphthalene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	106-94-5	1-Bromopropane	1		ppbV		ug/m3	0.0350	ppbV	0.176	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	111-66-0	1-Octene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	111-65-9	n-Octane	1		ppbV		ug/m3	0.0350	ppbV	0.164	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	98-82-8	Isopropylbenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-BLANK	X080519A			X1902833.D	14:05:43	8/5/2019	TO15	Sample	Target	103-65-1	n-Propylbenzene	1		ppbV		ug/m3	0.0350	ppbV	0.172	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	115-07-1	Propylene	1	1.29	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-71-8	Freon 12 (CCl2F2)	1	0.493	ppbV	2.44	ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	76-14-2	Freon 114 (C2Cl2F4)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	74-87-3	Chloromethane	1	1.71	ppbV	3.53	ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-01-4	Chloroethene (Vinyl chloride)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	106-99-0	1,3-Butadiene	1	0.0883	ppbV	0.195	ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	74-83-9	Bromomethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-00-3	Chloroethane	1		ppbV		ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	593-60-2	Bromoethene (Vinyl bromide)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-69-4	Freon 11 (CCl3F)	1	0.253	ppbV	1.42	ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	64-17-5	Ethanol	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	107-02-8	Acrolein	1	0.124	ppbV	[illegible]	ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	76-13-1	Freon 113 (C2Cl3F3)	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-35-4	1,1-Dichloroethene	1		ppbV		ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	67-64-1	Acetone	1	3.88	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-15-0	Carbon disulfide	1	0.144	ppbV	0.448	ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	67-63-0	Isopropyl alcohol	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	107-05-1	Allyl chloride (3-chloropropene)	1		ppbV		ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-05-8	Acetonitrile	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-09-2	Methylene chloride	1	0.180	ppbV	0.626	ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	156-60-5	trans-1,2-Dichloroethene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	1634-04-4	Methyl tert-butyl ether	1		ppbV		ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	107-13-1	Acrylonitrile	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	110-54-3	Hexane	1	0.261	ppbV	[illegible]	ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-34-3	1,1-Dichloroethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	108-05-4	Vinyl acetate	1		ppbV		ug/m3	0.0602	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	156-59-2	cis-1,2-Dichloroethene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	0.275	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	78-93-3	Methyl ethyl ketone (2-Butanone)	1	0.223	ppbV	0.657	ug/m3	0.0602	ppbV	0.178	ug/m3	0.0699	ppbV	0.206	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	141-78-6	Ethyl acetate	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	67-66-3	Chloroform	1		ppbV		ug/m3	0.0602	ppbV	0.294	ug/m3	0.0696	ppbV	0.340	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	109-99-9	Tetrahydrofuran	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	71-55-6	1,1,1-Trichloroethane	1		ppbV		ug/m3	0.0602	ppbV	0.328	ug/m3	0.0685	ppbV	0.374	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	110-82-7	Cyclohexane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	56-23-5	Carbon tetrachloride	1	[illegible]	ppbV	0.523	ug/m3	0.0602	ppbV	0.379	ug/m3	0.0696	ppbV	0.438	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	71-43-2	Benzene	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	540-84-1	2,2,4-Trimethylpentane	1	[illegible]	ppbV	0.322	ug/m3	0.0602	ppbV	0.281	ug/m3	0.0705	ppbV	0.329	ug/m3	J	Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	107-06-2	1,2-Dichloroethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	142-82-5	Heptane	1	0.117	ppbV	0.478	ug/m3	0.0602	ppbV	0.247	ug/m3	0.0691	ppbV	0.283	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	79-01-6	Trichloroethene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	78-87-5	1,2-Dichloropropane	1		ppbV		ug/m3	0.0602	ppbV	0.278	ug/m3	0.0703	ppbV	0.325	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	80-62-6	Methyl methacrylate	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	123-91-1	1,4-Dioxane	1		ppbV		ug/m3	0.0602	ppbV	0.217	ug/m3	0.0696	ppbV	0.251	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-27-4	Bromodichloromethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	10061-01-5	cis-1,3-Dichloropropene	1		ppbV		ug/m3	0.0602	ppbV	0.273	ug/m3	0.0676	ppbV	0.307	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	108-10-1	Methyl isobutyl ketone	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	108-88-3	Toluene	1	0.599	ppbV	2.26	ug/m3	0.0602	ppbV	0.227	ug/m3	0.0699	ppbV	0.263	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	10061-02-6	trans-1,3-Dichloropropene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	79-00-5	1,1,2-Trichloroethane	1		ppbV		ug/m3	0.0602	ppbV	0.328	ug/m3	0.0689	ppbV	0.376	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	127-18-4	Tetrachloroethene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	591-78-6	2-Hexanone (Methyl butyl ketone)	1		ppbV		ug/m3	0.0602	ppbV	0.247	ug/m3	0.0699	ppbV	0.286	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	124-48-1	Dibromochloromethane	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	106-93-4	1,2-Dibromoethane	1		ppbV		ug/m3	0.0602	ppbV	0.463	ug/m3	0.0697	ppbV	0.535	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	108-90-7	Chlorobenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	100-41-4	Ethylbenzene	1	0.306	ppbV	1.33	ug/m3	0.0602	ppbV	0.261	ug/m3	0.0677	ppbV	0.294	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	630-20-6	1,1,1,2-Tetrachloroethane	1		ppbV		ug/m3	[illegible]	ppbV	0.413	ug/m3	[illegible]	ppbV	0.472	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	108-38-3 &/ 106-42-3	m-,p-Xylene	1	0.155	ppbV	0.673	ug/m3	0.0602	ppbV	0.261	ug/m3	0.0697	ppbV	0.303	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	95-47-6	o-Xylene	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	J	Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	100-42-5	Styrene	1	0.190	ppbV	0.842	ug/m3	0.0602	ppbV	0.256	ug/m3	0.0670	ppbV	0.285	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	75-25-2	Bromoform	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	79-34-5	1,1,2,2-Tetrachloroethane	1		ppbV		ug/m3	0.0602	ppbV	0.413	ug/m3	0.0688	ppbV	0.472	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	622-96-8	4-Ethyltoluene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	95-49-8	2-Chlorotoluene	1		ppbV		ug/m3	0.0602	ppbV	0.312	ug/m3	0.0693	ppbV	0.359	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	108-67-8	1,3,5-Trimethylbenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	95-63-6	1,2,4-Trimethylbenzene	1		ppbV		ug/m3	0.0602	ppbV	0.296	ug/m3	0.0684	ppbV	0.336	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	541-73-1	1,3-Dichlorobenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	106-46-7	1,4-Dichlorobenzene	1		ppbV		ug/m3	0.0602	ppbV	0.362	ug/m3	0.0698	ppbV	0.415	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	100-44-7	Benzyl chloride	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	95-50-1	1,2-Dichlorobenzene	1		ppbV		ug/m3	0.0602	ppbV	0.362	ug/m3	0.0701	ppbV	0.422	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	120-82-1	1,2,4-Trichlorobenzene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	87-68-3	Hexachlorobutadiene	1		ppbV		ug/m3	0.0602	ppbV	0.642	ug/m3	0.0690	ppbV	0.735	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	91-20-3	Naphthalene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	106-94-5	1-Bromopropane	1		ppbV		ug/m3	0.0602	ppbV	0.303	ug/m3	0.0680	ppbV	0.342	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	111-66-0	1-Octene	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	111-65-9	n-Octane	1		ppbV		ug/m3	0.0602	ppbV	0.281	ug/m3	0.0680	ppbV	0.322	ug/m3	ND	N	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	98-82-8	Isopropylbenzene	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-RES-24HVOC	X080519A	8/2/2019	20:30:00	X1902834.D	15:01:45	8/5/2019	TO15	Sample	Target	103-65-1	n-Propylbenzene	1		ppbV		ug/m3	0.0602	ppbV	0.296	ug/m3	0.0700	ppbV	0.344	ug/m3	ND	N	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	115-07-1	Propylene	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	75-71-8	Freon 12 (CCl2F2)	1	0.492	ppbV	2.43	ug/m3	0.0604	ppbV	0.299	ug/m3	0.0674	ppbV	0.333	ug/m3		Y	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	76-14-2	Freon 114 (C2Cl2F4)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	74-87-3	Chloromethane	1	6.67	ppbV	13.8	ug/m3	0.0604	ppbV	0.125	ug/m3	0.0674	ppbV	0.139	ug/m3		Y	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	75-01-4	Chloroethene (Vinyl chloride)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	106-99-0	1,3-Butadiene	1	1.06	ppbV	2.35	ug/m3	0.0604	ppbV	0.134	ug/m3	0.0675	ppbV	0.149	ug/m3		Y	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	74-83-9	Bromomethane	1	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3		Y	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	75-00-3	Chloroethane	1	0.102	ppbV	0.268	ug/m3	0.0604	ppbV	0.159	ug/m3	0.0696	ppbV	0.184	ug/m3		Y	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	593-60-2	Bromoethene (Vinyl bromide)	1		ppbV		ug/m3	[illegible]	ppbV	[illegible]	ug/m3	[illegible]	ppbV	[illegible]	ug/m3	ND	N	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	75-69-4	Freon 11 (CCl3F)	1	0.251	ppbV	1.41	ug/m3	0.0604	ppbV	0.340	ug/m3	0.0717	ppbV	0.403	ug/m3		Y	AIR
ENT	ACP-AS-SMOKE-24HVOC	X080519A	8/2/2019	20:10:00	X1902835.D	15:57:48	8/5/2019	TO15	Sample	Target	64-17-5	Ethanol	1	1.73	ppbV	3.26	ug/m3	0.173	ppbV	0.326	ug/m3	0.173	ppbV	0.326	ug/m3		Y	AIR

ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	107-02-8	Acrolein	1	1.12 PPBV	2.56 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	76-13-1	Freon 113 (C2Cl3F3)	1	0.0800 PPBV	0.613 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	75-35-4	1,1-Dichloroethene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	67-64-1	Acetone	1	7.03 PPBV	16.7 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	75-15-0	Carbon disulfide	1	0.236 PPBV	0.736 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	67-63-0	Isopropyl alcohol	1	0.167 PPBV	0.410 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	107-05-1	Allyl chloride (3-chloropropene)	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	75-05-8	Acetonitrile	1	2.17 PPBV	3.64 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	75-09-2	Methylene chloride	1	0.159 PPBV	0.552 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	156-60-5	trans-1,2-Dichloroethene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	1634-04-4	Methyl tert-butyl ether	1	0.0988 PPBV	0.356 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	107-13-1	Acrylonitrile	1	[illegible] PPBV	0.346 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	110-54-3	Hexane	1	0.486 PPBV	1.71 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	75-34-3	1,1-Dichloroethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	108-05-4	Vinyl acetate	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	156-59-2	cis-1,2-Dichloroethene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	78-93-3	Methyl ethyl ketone (2-Butanone)	1	0.812 PPBV	2.40 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	141-78-6	Ethyl acetate	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	67-66-3	Chloroform	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	109-99-9	Tetrahydrofuran	1	0.446 PPBV	1.32 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	71-55-6	1,1,1-Trichloroethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	110-82-7	Cyclohexane	1	0.0928 PPBV	0.319 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	56-23-5	Carbon tetrachloride	1	0.0788 PPBV	0.497 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	71-43-2	Benzene	1	8.19 PPBV	26.2 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	540-84-1	2,2,4-trimethylpentane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	107-06-2	1,2-Dichloroethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	142-82-5	Heptane	1	0.368 PPBV	1.51 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	79-01-6	Trichloroethene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	78-87-5	1,2-Dichloropropane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	80-62-6	Methyl methacrylate	1	0.342 PPBV	1.40 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	123-91-1	1,4-Dioxane	1	0.162 PPBV	0.584 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	75-27-4	Bromodichloromethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	10061-01-5	cis-1,3-Dichloropropene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	108-10-1	Methyl isobutyl ketone	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	108-88-3	Toluene	1	3.12 PPBV	11.8 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	10061-02-6	trans-1,3-Dichloropropene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	79-00-5	1,1,2-Trichloroethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	127-18-4	Tetrachloroethene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	591-78-6	2-Hexanone (Methyl butyl ketone)	1	0.0826 PPBV	0.338 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	124-48-1	Dibromochloromethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	106-93-4	1,2-Dibromoethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	108-90-7	Chlorobenzene	1	[illegible] PPBV	[illegible] ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	100-41-4	Ethylbenzene	1	1.84 PPBV	8.00 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	630-20-6	1,1,1,2-Tetrachloroethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	108-38-3 &/ 106-42-3	m-,p-Xylene	1	0.477 PPBV	2.07 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	95-47-6	o-Xylene	1	0.228 PPBV	0.990 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	100-42-5	Styrene	1	4.97 PPBV	21.2 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	75-25-2	Bromoform	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	79-34-5	1,1,2,2-Tetrachloroethane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	622-96-8	4-Ethyltoluene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	95-49-8	2-Chlorotoluene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	108-67-8	1,3,5-Trimethylbenzene	1	0.189 PPBV	0.928 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	95-63-6	1,2,4-Trimethylbenzene	1	0.109 PPBV	0.534 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	541-73-1	1,3-Dichlorobenzene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	106-46-7	1,4-Dichlorobenzene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	100-44-7	Benzyl chloride	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	95-50-1	1,2-Dichlorobenzene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	120-82-1	1,2,4-Trichlorobenzene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	87-68-3	Hexachlorobutadiene	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	91-20-3	Naphthalene	1	0.194 PPBV	1.02 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	106-94-5	1-Bromopropane	1	PPBV	ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3	ND	N	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	111-66-0	1-Octene	1	0.205 PPBV	0.942 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	111-65-9	n-Octane	1	0.261 PPBV	1.22 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	98-82-8	Isopropylbenzene	1	0.0922 PPBV	0.453 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-SHORE-24HVOC	X080519A	8/2/2019	20:10:00 X1902835.D	15:57:48	8/5/2019 TO15	Sample	Target	103-65-1	n-Propylbenzene	1	0.0980 PPBV	0.482 ug/m3	0.0604 PPBV	[illegible] ug/m3	[illegible] PPBV	[illegible] ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-71-8	Freon 12 (CCl2F2)	1	0.479 PPBV	2.37 ug/m3	0.0611 PPBV	0.302 ug/m3	0.0682 PPBV	0.337 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	76-14-2	Freon 114 (C2Cl2F4)	1	PPBV	ug/m3	0.0611 PPBV	0.427 ug/m3	0.0697 PPBV	0.488 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	74-87-3	Chloromethane	1	1.01 PPBV	2.09 ug/m3	0.0611 PPBV	0.126 ug/m3	0.0681 PPBV	0.141 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-01-4	Chloroethene (Vinyl chloride)	1	PPBV	ug/m3	0.0611 PPBV	0.156 ug/m3	0.0700 PPBV	0.179 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	106-99-0	1,3-Butadiene	1	PPBV	ug/m3	0.0611 PPBV	0.135 ug/m3	0.0682 PPBV	0.151 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	74-83-9	Bromomethane	1	PPBV	ug/m3	0.0611 PPBV	0.237 ug/m3	0.0681 PPBV	0.265 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-00-3	Chloroethane	1	PPBV	ug/m3	0.0611 PPBV	0.161 ug/m3	0.0704 PPBV	0.186 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	593-60-2	Bromoethene (Vinyl bromide)	1	PPBV	ug/m3	0.0611 PPBV	0.267 ug/m3	0.0696 PPBV	0.305 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-69-4	Freon 11 (CCl3F)	1	0.247 PPBV	1.39 ug/m3	0.0611 PPBV	0.343 ug/m3	0.0725 PPBV	0.407 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	64-17-5	Ethanol	1	0.663 PPBV	1.25 ug/m3	0.175 PPBV	0.330 ug/m3	0.175 PPBV	0.330 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	107-02-8	Acrolein	1	0.119 PPBV	0.273 ug/m3	0.0611 PPBV	0.140 ug/m3	0.0694 PPBV	0.159 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	76-13-1	Freon 113 (C2Cl3F3)	1	0.0782 PPBV	0.600 ug/m3	0.0611 PPBV	0.468 ug/m3	0.0690 PPBV	0.529 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-35-4	1,1-Dichloroethene	1	PPBV	ug/m3	0.0611 PPBV	0.242 ug/m3	0.0699 PPBV	0.277 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	67-64-1	Acetone	1	2.36 PPBV	5.60 ug/m3	0.0611 PPBV	0.145 ug/m3	0.0708 PPBV	0.167 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-15-0	Carbon disulfide	1	0.0843 PPBV	0.262 ug/m3	0.0611 PPBV	0.190 ug/m3	0.0701 PPBV	0.218 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	67-63-0	Isopropyl alcohol	1	0.124 PPBV	0.306 ug/m3	0.0611 PPBV	0.150 ug/m3	0.0700 PPBV	0.172 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	107-05-1	Allyl chloride (3-chloropropene)	1	PPBV	ug/m3	0.0611 PPBV	0.191 ug/m3	0.0703 PPBV	0.220 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-05-8	Acetonitrile	1	0.532 PPBV	0.893 ug/m3	0.0611 PPBV	0.103 ug/m3	0.0702 PPBV	0.118 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-09-2	Methylene chloride	1	0.159 PPBV	0.551 ug/m3	0.0611 PPBV	0.212 ug/m3	0.0707 PPBV	0.246 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	156-60-5	trans-1,2-Dichloroethene	1	PPBV	ug/m3	0.0611 PPBV	0.242 ug/m3	0.0712 PPBV	0.282 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	1634-04-4	Methyl tert-butyl ether	1	PPBV	ug/m3	0.0611 PPBV	0.220 ug/m3	0.0715 PPBV	0.258 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	107-13-1	Acrylonitrile	1	PPBV	ug/m3	0.0611 PPBV	0.133 ug/m3	0.0714 PPBV	0.155 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	110-54-3	Hexane	1	0.0793 PPBV	0.280 ug/m3	0.0611 PPBV	0.215 ug/m3	0.0704 PPBV	0.249 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-34-3	1,1-Dichloroethane	1	PPBV	ug/m3	0.0611 PPBV	0.247 ug/m3	0.0688 PPBV	0.278 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	108-05-4	Vinyl acetate	1	PPBV	ug/m3	0.0611 PPBV	0.215 ug/m3	0.0710 PPBV	0.250 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	156-59-2	cis-1,2-Dichloroethene	1	PPBV	ug/m3	0.0611 PPBV	0.242 ug/m3	0.0703 PPBV	0.279 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	78-93-3	Methyl ethyl ketone (2-Butanone)	1	0.142 PPBV	0.420 ug/m3	0.0611 PPBV	0.180 ug/m3	0.0716 PPBV	0.209 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	141-78-6	Ethyl acetate	1	PPBV	ug/m3	0.0611 PPBV	0.220 ug/m3	0.0700 PPBV	0.252 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	67-66-3	Chloroform	1	PPBV	ug/m3	0.0611 PPBV	0.298 ug/m3	0.0706 PPBV	0.345 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	109-99-9	Tetrahydrofuran	1	PPBV	ug/m3	0.0611 PPBV	0.180 ug/m3	0.0698 PPBV	0.206 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	71-55-6	1,1,1-Trichloroethane	1	PPBV	ug/m3	0.0611 PPBV	0.333 ug/m3	0.0695 PPBV	0.379 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	110-82-7	Cyclohexane	1	PPBV	ug/m3	0.0611 PPBV	0.210 ug/m3	0.0710 PPBV	0.244 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	56-23-5	Carbon tetrachloride	1	0.0780 PPBV	0.491 ug/m3	0.0611 PPBV	0.384 ug/m3	0.0707 PPBV	0.445 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	71-43-2	Benzene	1	PPBV	ug/m3	0.0611 PPBV	0.195 ug/m3	0.0697 PPBV	0.223 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	540-84-1	2,2,4-trimethylpentane	1	PPBV	ug/m3	0.0611 PPBV	0.286 ug/m3	0.0716 PPBV	0.334 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	107-06-2	1,2-Dichloroethane	1	PPBV	ug/m3	0.0611 PPBV	0.247 ug/m3	0.0714 PPBV	0.289 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	142-82-5	Heptane	1	PPBV	ug/m3	0.0611 PPBV	0.250 ug/m3	0.0702 PPBV	0.288 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	79-01-6	Trichloroethene	1	PPBV	ug/m3	0.0611 PPBV	0.328 ug/m3	0.0702 PPBV	0.377 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	78-87-5	1,2-Dichloropropane	1	PPBV	ug/m3	0.0611 PPBV	0.282 ug/m3	0.0714 PPBV	0.330 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	80-62-6	Methyl methacrylate	1	PPBV	ug/m3	0.0611 PPBV	0.250 ug/m3	0.0726 PPBV	0.297 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	123-91-1	1,4-Dioxane	1	PPBV	ug/m3	0.0611 PPBV	0.220 ug/m3	0.0706 PPBV	0.254 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-27-4	Bromodichloromethane	1	PPBV	ug/m3	0.0611 PPBV	0.409 ug/m3	0.0694 PPBV	0.465 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	10061-01-5	cis-1,3-Dichloropropene	1	PPBV	ug/m3	0.0611 PPBV	0.277 ug/m3	0.0687 PPBV	0.312 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	108-10-1	Methyl isobutyl ketone	1	PPBV	ug/m3	0.0611 PPBV	0.250 ug/m3	0.0720 PPBV	0.295 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	108-88-3	Toluene	1	0.174 PPBV	0.657 ug/m3	0.0611 PPBV	0.230 ug/m3	0.0710 PPBV	0.267 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	10061-02-6	trans-1,3-Dichloropropene	1	PPBV	ug/m3	0.0611 PPBV	0.277 ug/m3	0.0720 PPBV	0.327 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	79-00-5	1,1,2-Trichloroethane	1	PPBV	ug/m3	0.0611 PPBV	0.333 ug/m3	0.0700 PPBV	0.382 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	127-18-4	Tetrachloroethene	1	PPBV	ug/m3	0.0611 PPBV	0.414 ug/m3	0.0706 PPBV	0.479 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	591-78-6	2-Hexanone (Methyl butyl ketone)	1	PPBV	ug/m3	0.0611 PPBV	0.250 ug/m3	0.0710 PPBV	0.291 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	124-48-1	Dibromochloromethane	1	PPBV	ug/m3	0.0611 PPBV	0.520 ug/m3	0.0690 PPBV	0.587 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	106-93-4	1,2-Dibromoethane	1	PPBV	ug/m3	0.0611 PPBV	0.470 ug/m3	0.0707 PPBV	0.544 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	108-90-7	Chlorobenzene	1	PPBV	ug/m3	0.0611 PPBV	0.281 ug/m3	0.0716 PPBV	0.330 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	100-41-4	Ethylbenzene	1	PPBV	ug/m3	0.0611 PPBV	0.265 ug/m3	0.0687 PPBV	0.298 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	630-20-6	1,1,1,2-Tetrachloroethane	1	PPBV	ug/m3	0.0611 PPBV	0.420 ug/m3	0.0698 PPBV	0.479 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	108-38-3 &/ 106-42-3	m-,p-Xylene	1	PPBV	ug/m3	0.0611 PPBV	0.265 ug/m3	0.0707 PPBV	0.307 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	95-47-6	o-Xylene	1	PPBV	ug/m3	0.0611 PPBV	0.265 ug/m3	0.0689 PPBV	0.299 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	100-42-5	Styrene	1	PPBV	ug/m3	0.0611 PPBV	0.260 ug/m3	0.0680 PPBV	0.290 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	75-25-2	Bromoform	1	PPBV	ug/m3	0.0611 PPBV	0.632 ug/m3	0.0705 PPBV	0.729 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	79-34-5	1,1,2,2-Tetrachloroethane	1	PPBV	ug/m3	0.0611 PPBV	0.420 ug/m3	0.0698 PPBV	0.479 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	622-96-8	4-Ethyltoluene	1	PPBV	ug/m3	0.0611 PPBV	0.300 ug/m3	0.0703 PPBV	0.346 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	95-49-8	2-Chlorotoluene	1	PPBV	ug/m3	0.0611 PPBV	0.316 ug/m3	0.0703 PPBV	0.364 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	108-67-8	1,3,5-Trimethylbenzene	1	PPBV	ug/m3	0.0611 PPBV	0.300 ug/m3	0.0700 PPBV	0.344 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	95-63-6	1,2,4-Trimethylbenzene	1	PPBV	ug/m3	0.0611 PPBV	0.300 ug/m3	0.0694 PPBV	0.341 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	541-73-1	1,3-Dichlorobenzene	1	PPBV	ug/m3	0.0611 PPBV	0.367 ug/m3	0.0706 PPBV	0.424 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	106-46-7	1,4-Dichlorobenzene	1	PPBV	ug/m3	0.0611 PPBV	0.367 ug/m3	0.0700 PPBV	0.421 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	100-44-7	Benzyl chloride	1	PPBV	ug/m3	0.0611 PPBV	0.316 ug/m3	0.0697 PPBV	0.361 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	95-50-1	1,2-Dichlorobenzene	1	PPBV	ug/m3	0.0611 PPBV	0.367 ug/m3	0.0712 PPBV	0.428 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	120-82-1	1,2,4-Trichlorobenzene	1	PPBV	ug/m3	0.0611 PPBV	0.454 ug/m3	0.0720 PPBV	0.534 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	87-68-3	Hexachlorobutadiene	1	PPBV	ug/m3	0.0611 PPBV	0.652 ug/m3	0.0700 PPBV	0.746 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	91-20-3	Naphthalene	1	PPBV	ug/m3	0.0611 PPBV	0.320 ug/m3	0.0723 PPBV	0.379 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	106-94-5	1-Bromopropane	1	PPBV	ug/m3	0.0611 PPBV	0.307 ug/m3	0.0690 PPBV	0.347 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	111-66-0	1-Octene	1	PPBV	ug/m3	0.0611 PPBV	0.281 ug/m3	0.0685 PPBV	0.314 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	111-65-9	n-Octane	1	PPBV	ug/m3	0.0611 PPBV	0.286 ug/m3	0.0700 PPBV	0.327 ug/m3	ND	N	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	98-82-8	Isopropylbenzene	1	0.0723 PPBV	0.355 ug/m3	0.0611 PPBV	0.300 ug/m3	0.0706 PPBV	0.348 ug/m3		Y	AIR
ENT	ACF-AS-UPWIND-24HVOC	X080519A	8/2/2019	21:00:00 X1902836.D	16:53:54	8/5/2019 TO15	Sample	Target	103-65-1	n-Propylbenzene	1	PPBV	ug/m3	0.0611 PPBV	0.300 ug/m3	0.0710 PPBV	0.349 ug/m3	ND	N	AIR

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Thursday, August 8, 2019 5:35:36 PM
To: Matthew Huyser <Huyser.Matthew@epa.gov>
Subject: FW: Data summary
Attachments: Draft_Summary Tables Able Contracting_round 2 added.pdf (104.21 KB)

From: Snyder, John <John.Snyder@tetratech.com>
Sent: Thursday, August 8, 2019 11:32 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Data summary

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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TETRA TECH

ABLE CONTRACTING FIRE
AIR SAMPLES
Summary of Detections
DATA HAS NOT BEEN QC'd - NOT FOR PUBLIC DISTRIBUTION

	EPA RMLs	BACKGROUND	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)
		ACF-AS-BKGD-072819	ACF-AS-RES-AM-072719	ACF-AS-SMOKE-AM-072719	ACF-AS-RES-PM-072719	ACF-AS-SMOKE-PM-072719	ACF-AS-RES-AM-072819	ACF-AS-SMOKE-AM-072819	ACF-AS-RES-PM-072819	ACF-AS-SMOKE-PM-072819
		Sample Volume	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*
vcc)		*946.3 Liters*	*767 Liters*	*898.6 Liters*	*965.3 Liters*	*913.3 Liters*	-	-	-	-
		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
^{3})		*537.10 Liters*	-	-	-	-	*473.90 Liters*	*603.90 Liters*	*542.50 Liters*	*550.50 Liters*
	0.94		*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*				
(µg/m^3)		*516.20 Liters*	*410.60 Liters*	*411.80 Liters*	*541.50 Liters*	*549.50 Liters*	-	-	-	-
	22	**4.88**	**1.70**	**2.50**	**3.04**	**6.09**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
		776.6 Liters	*672.6 Liters*	*657.5 Liters*	*744.8 Liters*	*784.6 Liters*	-	-	-	-
	16	**0.55**	**0.77**	**0.52**	**0.5**	**0.48**				
	1.6	**0.11**	**0.13**	**0.25**	**0.13**	**0.11**				
	Not Listed	**52.7**	**0.54**	**55.1**	**48**	**41.3**				
	Not Listed	**0.73**	**0.89**	**0.9**	**1.1**	**0.75**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	Not Listed	**0.93**	**1.3**	**0.87**	**0.81**	**0.86**				
	Not Listed	**9.6**	**11.2**	**11.5**	**10.4**	**8.5**				
	Not Listed	**12.7**	**15.8**	**16.5**	**14.7**	**12**				
e Compounds (µg/m^3)		-	-	-	-	-	-	-	-	-
	97,000	**12**	**8.66**	**7.51**	**10.5**	**16.1**				
	190	**1.85**	**2.17**	**0.892**	**0.99**	**1.63**				
	0.063									
	4.1	0.159 U	0.159 U	0.158 U	0.163 U	0.202 U				
	36	**2.52**	**6.46**	**3.4**	**2.5**	**15.1**				
	16	0.275 U	0.276 U	0.274 U	0.282 U	0.277 U				
	6.3	**0.749**	**1.06**	**0.689**	**0.769**	**2.21**				
	2,200	**0.214**	**0.514**	**0.279**	**0.444**	**0.405**				
ide	47	**0.481**	**0.482**	**0.478**	**0.496**	**0.466**				
	160	0.339 U	0.34 U	0.338 U	0.348 U	0.342 U				
	31,000	0.19 U	0.191 U	0.19 U	0.195 U	**0.276**				
	280	**1.23**	**4.76**	**2.95**	**1.23**	**11.6**				
	3,100	**0.999**	**0.262**	0.25 U	**0.803**	0.253 U				
	56	**0.321**	**0.294**	0.26 U	0.267 U	**0.374**				
	Not Listed	**16.7**	**4.28**	**2.33**	**9.26**	**2.56**				
	220	0.259 U	0.261 U	0.259 U	0.266 U	0.262 U				
	110	**2.07**	**3.36**	**1.12**	**0.768**	**5.86**				
	Not Listed	**0.913**	0.355 U	0.354 U	0.363 U	0.357 U				
)	Not Listed	**1.18**	**1.38**	**1.33**	**1.4**	**1.28**				
)	Not Listed	**2.33**	**2.4**	**2.38**	**2.41**	**2.36**				
$_5$)	Not Listed	**0.554**	**0.66**	**0.547**	**0.605**	**0.577**				
	1,300	**2.26**	**0.769**	**0.365**	**0.891**	**1**				
	2,200	**4.05**	**1.55**	**0.647**	**2.37**	**1.43**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	630	**0.404**	**0.468**	**0.434**	**0.949**	**0.478**				
	Not Listed	0.357 U	**0.838**	**0.421**	0.366 U	**1.06**				
e (2-Butanone)	16,000	**1.02**	**0.847**	**0.805**	**0.612**	**1.57**				
tone	9,400	0.302 U	**0.373**	0.302 U	0.31 U	0.305 U				
te	2,200	0.304 U	0.305 U	0.303 U	0.312 U	**0.857**				
ther	1,100	0.264 U	0.265 U	0.264 U	**0.312**	0.267 U				
e	1,900	**0.691**	**0.871**	**0.674**	**0.999**	**0.651**				
	8.3	**0.336**	0.39 U	0.388 U	0.398 U	**0.537**				
	Not Listed	**0.99**	**0.353**	0.334 U	0.343 U	**0.562**				
	3,100	**0.629**	0.359 U	0.357 U	0.367 U	0.361 U				
	9,400	**2.91**	**7.88**	**3.99**	**2.96**	**14.2**				
	3,100	**0.348**	**1.71**	**2.13**	**0.446**	**8.66**				
	1,100	0.489 U	0.491 U	0.489 U	**0.736**	0.494 U				
	6,300	0.213 U	**0.472**	**0.373**	0.218 U	**0.796**				
	16,000	**9.82**	**6.48**	**2.62**	**5.08**	**7.6**				
nzene	190	**3.23**	**0.784**	**0.318**	**0.817**	**0.414**				
nzene	190	**0.898**	0.354 U	0.352 U	0.362 U	0.356 U				
ntane	Not Listed	**2.12**	**0.684**	0.342 U	**0.487**	0.346 U				
	310	**6.86**	**2.37**	**0.941**	**2.51**	**1.66**				
	310	**2.75**	**0.95**	**0.362**	**0.916**	**0.759**				
nic Compounds (µg/m^3)		*439.4 Liters*	*486.2 Liters*	*562.5 Liters*	*421.4 Liters*	*438.3 Liters*	-	-	-	-
ic Compounds		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*

Notes:

ACF	Able Contracting Fire
EPA	Environmental Protection Agency
J	The identification of the analyte is acceptable; the reported value is an estimate
µg/m^3	Micrograms per cubic meter
NA	Not Analysed
ND	Not Detected
RMLs	Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carcinogenic/noncarcinogenic listed; TR=1E-04/THQ+3.0)
U	The analyte was not detected at or above the reporting limit
UJ	The analyte was
BOLD	Bolded values
BOLD	Shaded and **bolded** values exceed the April 2019 Residential RMLs

ABLE CONTRACTING FIRE
AIR SAMPLES
Summary of Detections
DATA HAS NOT BEEN QC'd - NOT FOR PUBLIC DISTRIBUTION

Analyte	EPA RMLs	STATION 1 (SE Corner) ACF-AS-RES-24HRVOC *Sample Volume*	STATION 2 (West Side) ACF-AS-SMOKE-24HRVOC *Sample Volume*	STATION 3 (Upwind) ACF-AS-UPWIND-24HRVOC *Sample Volume*		STATION 1 (SE Corner) ACF-AS-RES-NIGHT *Sample Volume*	STATION 2 (West Side) ACF-AS-SMOKE-NIGHT *Sample Volume*	STATION 3 (Upwind) ACF-AS-UPWIND-NIGHT *Sample Volume*		STATION 1 (SE Corner) ACF-AS-RES-DAY *Sample Volume*	STATION 2 (West Side) ACF-AS-SMOKE-DAY *Sample Volume*
Asbestos (fibers/cc)		-	-	-		-	-	-		-	-
Asbestos		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*
Phosgene (µg/m³)						*623.80 Liters*	*556.80 Liters*	*520.80 Liters*		*535.20 Liters*	*542.40 Liters*
Phosgene	0.94	*Not sampled*	*Not sampled*	*Not sampled*		**0.652** J	**1.02** J	**0.501** J		0.277 J	**1.22** J
Formaldehyde (µg/m³)		-	-	-		-	-	-		-	-
Formaldehyde	22	*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*
Metals (µg/m³)		-	-	-		-	-	-		-	-
Aluminum	16	*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*
Barium	1.6										
Calcium	Not Listed										
Chromium	Not Listed										
Iron	Not Listed										
Magnesium	Not Listed										
Sodium	Not Listed										
Volatile Organic Compounds (µg/m³)		-	-	-		-	-	-		-	-
Acetone	97,000	**6.87**	**14.7**	**5.46**		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*
Acetonitrile	190	**1.17**	**3.64**	**0.893**							
Acrolein	0.063	**[illegible]**	**[illegible]**	**[illegible]**							
Acrylonitrile	4.1	1.53 U	**0.946**	0.155 U							
Benzene	36	**2.00**	**26.2**	0.223 U							
Bromomethane	16	0.26 U	**0.46**	0.268 U							
1,3-Butadiene	6.3	**0.195**	**2.35**	0.151							
Carbon disulfide	2,200	**0.448**	**0.736**	**0.262**							
Carbon tetrachloride	47	**0.523**	**0.497**	**0.491**							
Chlorobenzene	160	0.326 U	**0.748**	0.331 U							
Chloroethane	31,000	0.183 U	**0.268**	0.186 U							
Chloromethane	280	**3.53**	**13.8**	**2.09**							
Cyclohexane	3,100	0.241 U	**0.319**	0.244 U							
1,4-Dioxane	56	0.251 U	**0.584**	0.254 U							
Ethanol	Not Listed	**2.62**	**3.26**	**1.21**							
Ethyl acetate	220	**0.719**	0.251 U	0.253 U							
Ethylbenzene	110	**1.33**	**8.00**	0.298 U							
4-Ethyltoluene	Not Listed	0.341 U	0.342 U	0.346 U							
Freon 11 (CCl_3F_3)	Not Listed	**1.42**	**1.41**	**1.39**							
Freon 12 (CCl_2F_2)	Not Listed	**2.44**	**2.43**	**2.37**							
Freon 113 ($C_2Cl_3F_3$)	Not Listed	**0.591**	**0.613**	**0.584**							
Heptane	1,300	**0.478**	**1.51**	0.288 U							
Hexane	2,200	**0.849**	**1.71**	**0.28**							
Isopropyl alcohol	630	**0.432**	**0.41**	**0.305**							
Isopropylbenzene	Not Listed	**0.466**	**1.92**	**0.355**							
Methyl ethyl ketone (2-Butanone)	16,000	**0.657**	**0.338**	**0.42**							
Methyl isobutyl ketone	9,400	0.286 U	0.292 U	0.295 U							
Methyl methacrylate	2,200	0.292 U	**1.4**	0.297 U							
Methyl tert-butyl ether	1,100	0.254 U	**0.355**	0.258 U							
Methylene chloride	1,900	**0.625**	**0.66**	**0.551**							
Naphthalene	8.3	0.373 U	**1.02**	0.379 U							
n-Octane	Not Listed	0.322 U	**0.957**	0.327 U							
n-Propylbenzene	3,100	0.344 U	**0.453**	0.349 U							
Propylene	9,400	**2.98**	**21.5**	**0.633**							
Styrene	3,100	**0.842**	**21.2**	0.29 U							
Tetrachloroethene	1,100	0.471 U	0.473 U	0.478 U							
Tetrahydrofuran	6,300	**0.222**	**1.32**	0.208 U							
Toluene	16,000	**2.26**	**11.8**	**0.657**							
1,2,4-Trimethylbenzene	190	0.336 U	**0.534**	0.341 U							
1,3,5-Trimethylbenzene	190	0.339 U	**0.535**	0.344 U							
2,2,4-Trimethylpentane	Not Listed	**0.332** J	0.331 U	0.334 U							
m-/p-Xylenes	310	**0.673**	**2.07**	0.307 U							
o-Xylene	310	**0.284**	**0.98**	0.303 U							
Semivolatile Organic Compounds (µg/m³)		-	-	-		-	-	-		-	-
Semivolatile Organic Compounds		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*	*Not sampled*		*Not sampled*	*Not sampled*

Notes:

ACF	Able Contracting Fire
EPA	Environmental Protection Agency
J	The identification of the analyte is acceptable; the reported value is an estimate
µg/m³	Micrograms per cubic meter
NA	Not Analysed
ND	Not Detected
RMLs	Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carcinogenic/noncarcinogenic listed; TR=1E-04/THQ=3.0)
U	The analyte was not detected at or above the reporting limit
UJ	The analyte was
BOLD	Bolded values
BOLD	Shaded and bolded values exceed the April 2019 Residential RMLs

TETRA TECH

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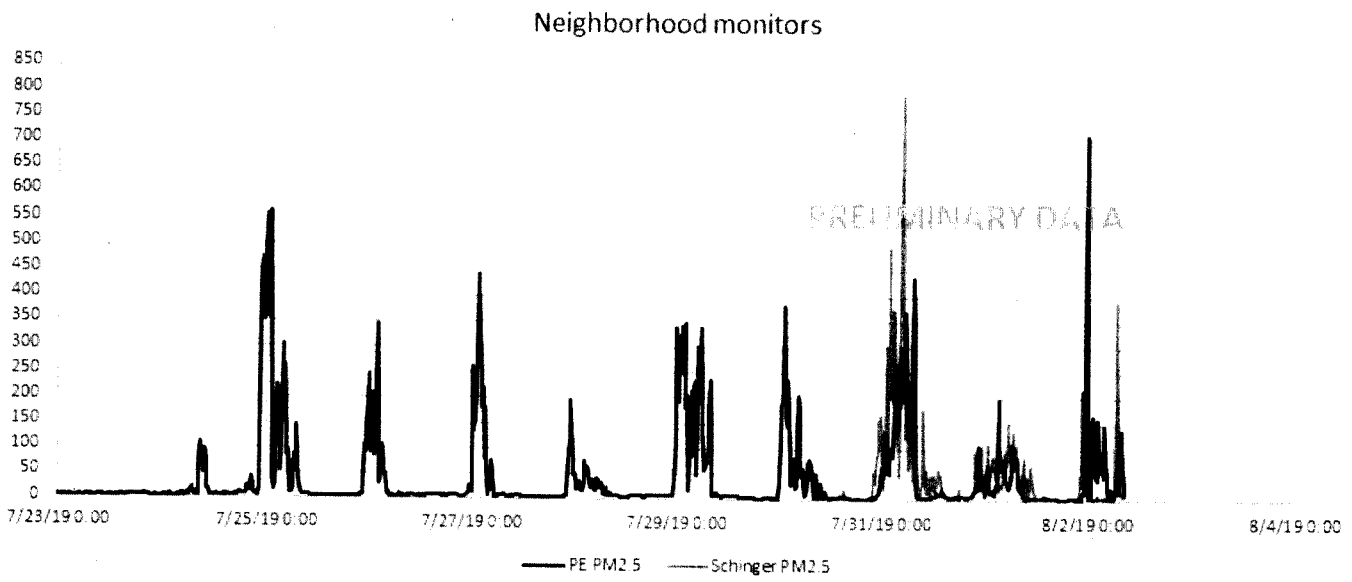
From: Reynolds, Scott <REYNOLDS@dhec.sc.gov>
Sent on: Friday, August 2, 2019 2:10:32 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Fw: fyi-high numbers again last night

From: Reynolds, Scott <REYNOLDS@dhec.sc.gov>
Sent: Friday, August 2, 2019 9:14 AM
To: Thompson, Rhonda <thompsrb@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; Shealy, Renee <shealyrg@dhec.sc.gov>; Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Reece, Myra <reecemc@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Porter, Henry <porterhj@dhec.sc.gov>; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; Taylor, Monica N. <TAYLORMN@dhec.sc.gov>; Dickman, Jacquelyn S. <DICKMAJS@dhec.sc.gov>
Cc: Boswell, Wendy <BOSWELWM@dhec.sc.gov>; Timmerman, Kelsey A. <timmerka@dhec.sc.gov>; Threatt, Richard <threatrl@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>
Subject: Re: fyi-high numbers again last night

Last night -both monitors
Yesterday's24 hour averages (Aug 1 Midnight to midnight)
Palmetto Exterminators 31ug/M3 (Moderate)
Schinger 41ug/M3 (Unhealthy for Sensitive Groups)



From: Reynolds, Scott <REYNOLDS@dhec.sc.gov>
Sent: Saturday, July 27, 2019 4:27:37 PM
To: Thompson, Rhonda <thompsrb@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; Shealy, Renee

From: Pinkney, James <Pinkney.James@epa.gov> on behalf of Pinkney, James
Sent on: Wednesday, August 21, 2019 3:40:41 PM
To: Huyser, Matthew <Huyser.Matthew@epa.gov>; Garrard, Jordan <Garrard.Jordan@epa.gov>
CC: Webster, James <Webster.James@epa.gov>; Moore, Tony <moore.tony@epa.gov>
Subject: FW: Media Inquiry, WJCL

Guys,

Isn't DHEC the appropriate agency to respond?

James

From: Littlehales, Alex <Alex.Littlehales@hearst.com>
Sent: Wednesday, August 21, 2019 11:37 AM
To: Pinkney, James <Pinkney.James@epa.gov>
Subject: Media Inquiry, WJCL

To whom is may concern,

We are looking for the following information in regards to the Able Contracting fire in Jasper County, SC:

What is the difference between a landfill and a recycling center? What are the some of the regulations and guidelines that distinguish the two?

What regulations, if applicable, were absent from Able Contracting's business practices? What allowed to debris to grow as large as it did?

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 2, 2019 11:52:44 AM
To: Kevin Eichinger <Eichinger.Kevin@epa.gov>
Subject: FW: Preliminary Air Sampling Data
Attachments: Draft_Summary Tables Able Contracting.pdf (74.83 KB)

From: Snyder, John <John.Snyder@tetratech.com>
Sent: Thursday, August 1, 2019 9:18 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Preliminary Air Sampling Data

Jordan,
See attached data summary. Please let folks know that this has not been validated or QC'd and is therefore not fit for public consumption.

That being said, I'm surprised how clean it is. Phosgene is an issue everywhere, as is acrolein.

Good luck,
John

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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Raleigh, NC (Cary) | tetratech.com

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TETRA TECH

ABLE CONTRACTING FIRE
AIR SAMPLES
Summary of Detections
DATA HAS NOT BEEN QC'd - NOT FOR PUBLIC DISTRIBUTION

	EPA RMLs	BACKGROUND	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)
		ACF-AS-BKGD-072819	ACF-AS-RES-AM-072719	ACF-AS-SMOKE-AM-072719	ACF-AS-RES-PM-072719	ACF-AS-SMOKE-PM-072719	ACF-AS-RES-AM-072819	ACF-AS-SMOKE-AM-072819	ACF-AS-RES-PM-072819	ACF-AS-SMOKE-PM-072819
		Sample Volume	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*
		946.3 Liters	*767 Liters*	*898.6 Liters*	*965.3 Liters*	*913.3 Liters*	-	-	-	-
		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
		537.10 Liters	-	-	-	-	*473.90 Liters*	*603.90 Liters*	*542.50 Liters*	*550.50 Liters*
	0.94	[illegible]	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*	[illegible]	[illegible]	[illegible]	[illegible]
		516.20 Liters	*410.60 Liters*	*411.80 Liters*	*541.50 Liters*	*549.50 Liters*	-	-	-	-
	22	**4.88**	**1.70**	**2.50**	**3.04**	**6.09**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
		776.6 Liters	*672.6 Liters*	*657.5 Liters*	*744.8 Liters*	*784.6 Liters*	-	-	-	-
	16	**0.55**	**0.77**	**0.52**	**0.5**	**0.48**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	1.6	**0.11**	**0.13**	**0.25**	**0.13**	**0.11**				
	Not Listed	**52.7**	**0.54**	**55.1**	**48**	**41.3**				
	Not Listed	**0.73**	**0.89**	**0.9**	**1.1**	**0.75**				
	Not Listed	**0.93**	**1.3**	**0.87**	**0.81**	**0.86**				
	Not Listed	**9.6**	**11.2**	**11.5**	**10.4**	**8.5**				
	Not Listed	**12.7**	**15.8**	**16.5**	**14.7**	**12**				
unds (µg/m³)		-	-	-	-	-	-	-	-	-
	97,000	**12**	**8.66**	**7.51**	**10.5**	**16.1**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	190	**1.85**	**2.17**	**0.892**	**0.99**	**1.63**				
	0.063	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
	36	**2.52**	**6.46**	**3.4**	**2.5**	**15.1**				
	6.3	**0.749**	**1.06**	**0.689**	**0.769**	**2.21**				
	2,200	**0.214**	**0.514**	**0.279**	**0.444**	**0.405**				
	47	**0.481**	**0.482**	**0.478**	**0.496**	**0.466**				
	31,000	0.19 U	0.191 U	0.19 U	0.195 U	**0.276**				
	280	**1.23**	**4.76**	**2.95**	**1.23**	**11.6**				
	3,100	**0.999**	**0.262**	0.25 U	**0.803**	0.253 U				
	56	**0.321**	**0.294**	0.26 U	0.267 U	**0.374**				
	Not Listed	**16.7**	**4.28**	**2.33**	**9.26**	**2.56**				
	110	**2.07**	**3.36**	**1.12**	**0.768**	**5.86**				
	Not Listed	**0.913**	0.355 U	0.354 U	0.363 U	**0.357 U**				
	Not Listed	**1.18**	**1.38**	**1.33**	**1.4**	**1.28**				
	Not Listed	**2.33**	**2.4**	**2.38**	**2.41**	**2.36**				
	Not Listed	**0.554**	**0.66**	**0.547**	**0.605**	**0.577**				
	1,300	**2.26**	**0.769**	**0.365**	**0.891**	**1**				
	2,200	**4.05**	**1.55**	**0.647**	**2.37**	**1.43**				
	630	**0.404**	**0.468**	**0.434**	**0.949**	**0.478**				
	Not Listed	0.357 U	**0.838**	**0.421**	0.366 U	**1.06**				
anone)	16,000	**1.02**	**0.847**	**0.805**	**0.612**	**1.57**				
	9,400	0.302 U	**0.373**	0.302 U	0.31 U	0.305 U				
	2,200	0.304 U	0.305 U	0.303 U	0.312 U	**0.857**				
	1,100	0.264 U	0.265 U	0.264 U	**0.312**	0.267 U				
	1,900	**0.691**	**0.871**	**0.674**	**0.999**	**0.651**				
	8.3	**0.336**	0.39 U	0.388 U	0.398 U	**0.537**				
	Not Listed	**0.99**	**0.353**	0.334 U	0.343 U	**0.562**				
	3,100	**0.629**	0.359 U	0.357 U	0.367 U	0.361 U				
	9,400	**2.91**	**7.88**	**3.99**	**2.96**	**14.2**				
	3,100	**0.348**	**1.71**	**2.13**	**0.446**	**8.66**				
	1,100	0.489 U	0.491 U	0.489 U	**0.736**	0.494 U				
	6,300	0.213 U	**0.472**	**0.373**	0.218 U	**0.796**				
	16,000	**9.82**	**6.48**	**2.62**	**5.08**	**7.6**				
	190	**3.23**	**0.784**	**0.318**	**0.817**	**0.414**				
	190	**0.898**	0.354 U	0.352 U	0.362 U	0.356 U				
	Not Listed	**2.12**	**0.684**	0.342 U	**0.487**	0.346 U				
	310	**6.86**	**2.37**	**0.941**	**2.51**	**1.66**				
	310	**2.75**	**0.95**	**0.362**	**0.916**	**0.759**				
pounds (µg/m³)		*439.4 Liters*	*486.2 Liters*	*562.5 Liters*	*421.4 Liters*	*438.3 Liters*	-	-	-	-
ounds		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*

Able Contracting Fire
Environmental Protection Agency
The identification of the analyte is acceptable; the reported value is an estimate
Micrograms per cubic meter
Not Analysed
Not Detected
Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carcinogenic/noncarcinogenic listed; TR=1E-04/THQ=3.0)
The analyte was not detected at or above the reporting limit
The analyte was not detected at or above the reporting limit; which is considered approximate due to deficiencies in one or more quality control criteria
Bolded values indicate a chemical detection
Shaded and **bolded** values exceed the April 2019 Residential RMLs

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From: Jardine, Rick <Jardine.Richard@epa.gov> on behalf of Jardine, Rick
Sent on: Saturday, August 3, 2019 2:46:34 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: FW: R4 SPECIAL ERNS REPORT - ABLE CONTRACTING FIRE

This is what I'll build on

From: Huyser, Matthew <Huyser.Matthew@epa.gov>
Sent: Thursday, July 25, 2019 3:03 PM
To: R4 Special ERNS Report <R4-Special-ERNS-Report@epa.gov>
Subject: R4 SPECIAL ERNS REPORT - ABLE CONTRACTING FIRE

SPECIAL ERNS REPORT FOR 07/25/2019

-

NRC# 1253131 – Able Contracting Fire, Ridgeland, Jasper County, SC

At 1000hrs the South Carolina Department of Health and Environmental Control (DHEC) requested that the EPA respond to an ongoing fire at the Able Contracting recycled materials process facility. The facility is approximately two acres in size and contains a large pile of shredded debris. Frequent fires have been reported resulting in fire department responses to extinguish flames, however a persistent plume of smoke has been observed by locals as well as county and state officials. The property owner was applying water to the pile but reportedly ceased application on July 24. Two EPA On-Scene Coordinators (OSCs) have been deployed with EPA START contractors; initial response efforts will include monitoring and sampling in air and water. For further information, please contact OSC Jordan Garrard.

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax: **404-562-8699**
epaosc.org

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, July 26, 2019 10:24:56 PM
To: Matthew Huyser <Huyser.Matthew@epa.gov>
Subject: FW: update summary tables
Attachments: Viper Summary report_AR and DustTrack_ABLE CONTRACTING_072619.pdf (166.16 KB)

From: Snyder, John <John.Snyder@tetratech.com>
Sent: Friday, July 26, 2019 9:19 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: update summary tables

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Saturday, July 27, 2019 7:12:33 PM
To: Kevin Eichinger <Eichinger.Kevin@epa.gov>
Subject: FW: update summary tables
Attachments: Viper Summary report_AR and DustTrack_ABLE CONTRACTING_072619.pdf (166.16 KB)

From: Snyder, John <John.Snyder@tetratech.com>
Sent: Friday, July 26, 2019 9:19 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: update summary tables

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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TETRA TECH

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

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From: Moore, Tony <moore.tony@epa.gov> on behalf of Moore, Tony
Sent on: Monday, July 29, 2019 5:37:06 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; Eichinger, Kevin <Eichinger.Kevin@epa.gov>
Subject: Fwd: Able - Attorney Request Form
Attachments: Able_AttorneyRequestForm.doc (41 KB), ATT00001.htm (364 Bytes)

Sent from my iPhone

Begin forwarded message:

From: "Johnson, MaryC" <Johnson.MaryC@epa.gov>
Date: July 29, 2019 at 1:25:06 PM EDT
To: "Cobb, Wilda" <Cobb.Wilda@epa.gov>, "Moore, Tony" <moore.tony@epa.gov>
Subject: FW: Able - Attorney Request Form

Tony

I have asked Wilda if she can handle – she is out today but should be in tomorrow.

Thanks
Mary

From: Moore, Tony <moore.tony@epa.gov>
Sent: Friday, July 26, 2019 3:29 PM
To: Johnson, MaryC <Johnson.MaryC@epa.gov>; Clay, David <Clay.David@epa.gov>
Subject: Fwd: Able - Attorney Request Form

Can you assign an attorney to this site. Thanks

Sent from my iPhone

Begin forwarded message:

From: "Huyser, Matthew" <Huyser.Matthew@epa.gov>
Date: July 25, 2019 at 3:40:53 PM EDT
To: "Moore, Tony" <moore.tony@epa.gov>
Subject: Able - Attorney Request Form

CERCLA Request for an Attorney and/or EPM

☒ Attorney
☐ EPM

Site Name and Brief History:

Brief History: At 1000hrs the South Carolina Department of Health and Environmental Control (DHEC) requested that the EPA respond to an ongoing fire at the Able Contracting recycled materials process facility. The facility is approximately two acres in size and contains a large pile of shredded debris. Frequent fires have been reported resulting in fire department responses to extinguish flames, however a persistent plume of smoke has been observed by locals as well as county and state officials. The property owner was applying water to the pile but reportedly ceased application on July 24. Two EPA On-Scene Coordinators (OSCs) have been deployed with EPA START contractors; initial response efforts will include monitoring and sampling in air and water.

Site ID #: C4A9

RPM/OSC: Jordan Garrard

Phone Numbers: Office: 404-562-8642 Cell: 678-644-8648

Site address: 472 Schinger Road, Ridgeland, SC

Constituents of concern: PAHs

Threat posed: Inhalation to surrounding community

SERVICES NEEDED (check requested needs):

☒ Site Access
☐ Title Search
☐ PRP Search
☐ ROD Amendment
☐ ESD
☐ IC Issue
☐ Prospective Purchaser
☒ Other (specify): Assist OSC in negotiating RP-lead action or in assuming EPA-lead for the response

---

SPECIAL INSTRUCTIONS:
Contact OSC prior to making contact with PRP

Known PRPS:

Company:
Contact Person:
Address:
E-mail:
Phone Numbers
Work:
Mobile:
Fax: Other:

Known PRPS:

Company: Able Contracting
Contact Person: Chandler Lloyd
Address: 472 Schinger Road, Ridgeland, SC
E-mail:
Phone Numbers
Work: 843-379-2344
Mobile:
Fax:
Other:

Contact Person:
Address:
E-mail:
Phone Numbers
Work:
Mobile:
Fax:
Other:

Contact Person:
Address:
E-mail:
Phone Numbers
Work:
Mobile:
Fax:
Other:

Contact Person:
Address:
E-mail:
Phone Numbers

Work:
Mobile:
Fax:
Other:

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Sunday, August 4, 2019 1:07:45 PM
To: Scott Reynolds <reynolds@dhec.sc.gov>; rwells@jaspercountysc.gov; keith.frost@dhec.sc.gov; threatrl@dhec.sc.gov
Subject: Fwd: Able Contracting Air Monitoring Results - 080319 - 080419
Attachments: Viper Summary report_SPM_08032019-08042019.pdf (116.39 KB), ATT00001.htm (178 Bytes)

PDF version

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Prys, Paul" <Paul.Prys@tetratech.com>
Date: August 4, 2019 at 9:05:13 AM EDT
To: "Garrard, Jordan" <garrard.jordan@epa.gov>
Cc: "Snyder, John" <John.Snyder@tetratech.com>, "Lawrence, Laura" <Laura.Lawrence@tetratech.com>
Subject: Able Contracting Air Monitoring Results - 080319 - 080419

Paul Prys | Senior Environmental Scientist/Project Manager
Direct: 678.775.3106 | Cell: 404.849.7136 | Fax: 678.775.3138
paul.prys@tetratech.com

Tetra Tech | Atlanta Office
1955 Evergreen Blvd. Bldg. 200, Ste. 300, Duluth, GA 30096 www.tetratech.com | NASDAQ:TTEK

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Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: ABLE CONTRACTING FIRE

From: **8/3/19** **0:00** ***To:*** ***8/4/19*** ***6:59***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL / RML / 60 min AEGL)
SPM Flex 1	Phosgene (COCl2)	3	4337	3	0 - 6 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL / RML / 60 min AEGL)
SPM Flex 2	Phosgene (COCl2)	0	3267	0	0 - 0 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL / RML / 60 min AEGL)
SPM Flex 3	Phosgene (COCl2)	5	4319	5	0 - 22 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Notes:

AEGL	Acute Exposure Guideline levels for airborne chemicals (8 hour exposure)
min	Minute
PEL	Permissible exposure limit
ppb	Parts per billion
RML	Removal Management Level
TLV	Threshold limit value

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Tuesday, August 6, 2019 10:14:04 AM
To: John Snyder <john.snyder@tetratech.com>
Subject: Fwd: Able Contracting Fire

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Adams, Glenn" <Adams.Glenn@epa.gov>
Date: August 5, 2019 at 9:49:20 PM EDT
To: "Turner, Nardina" <Turner.Nardina@epa.gov>
Cc: "Frederick, Tim" <Frederick.Tim@epa.gov>, "Garrard, Jordan" <Garrard.Jordan@epa.gov>
Subject: Re: Able Contracting Fire

Thanks Nardina.

Jordan, it might be too late, but your START might want to talk with Nardina about this.
Glenn

Sent from my iPhone

On Aug 5, 2019, at 10:00 AM, Turner, Nardina <Turner.Nardina@epa.gov> wrote:

The lab package indicates that the client blank and the lab blank are below the LOQ. The problem is that all the results are below the LOQ. The results are all pushing the limits of the method. The lab cites OSHA Method 61, which I looked up. It is showing an LOQ of 0.014 mg/m3 (14 ug/m3). So, if additional testing will be done, we may want to research a better method. There is an EPA method that looks like it may be more sensitive, but more information would be needed on it.

From: Turner, Nardina
Sent: Monday, August 5, 2019 9:06 AM
To: Adams, Glenn <Adams.Glenn@epa.gov>
Cc: Frederick, Tim <Frederick.Tim@epa.gov>
Subject: RE: Able Contracting Fire

Armstrong, Kathy

From: Garrard, Jordan
Sent: Tuesday, August 06, 2019 6:14 AM
To: John Snyder
Subject: Fwd: Able Contracting Fire

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

> **From:** "Adams, Glenn" <Adams.Glenn@epa.gov>
> **Date:** August 5, 2019 at 9:49:20 PM EDT
> **To:** "Turner, Nardina" <Turner.Nardina@epa.gov>
> **Cc:** "Frederick, Tim" <Frederick.Tim@epa.gov>, "Garrard, Jordan" <Garrard.Jordan@epa.gov>
> **Subject: Re: Able Contracting Fire**
>
> Thanks Nardina.
>
> Jordan, it might be too late, but your START might want to talk with Nardina about this.
> Glenn
>
> Sent from my iPhone
>
> On Aug 5, 2019, at 10:00 AM, Turner, Nardina <Turner.Nardina@epa.gov> wrote:
>
>> The lab package indicates that the client blank and the lab blank are below the LOQ. The problem is that all the results are below the LOQ. The results are all pushing the limits of the method. The lab cites OSHA Method 61, which I looked up. It is showing an LOQ of 0.014 mg/m3 (14 ug/m3). So, if additional testing will be done, we may want to research a better method. There is an EPA method that looks like it may be more sensitive, but more information would be needed on it.
>>
>> **From:** Turner, Nardina
>> **Sent:** Monday, August 5, 2019 9:06 AM
>> **To:** Adams, Glenn <Adams.Glenn@epa.gov>
>> **Cc:** Frederick, Tim <Frederick.Tim@epa.gov>
>> **Subject:** RE: Able Contracting Fire
>>
>> Looking at the lab package now.
>>
>> **From:** Adams, Glenn <Adams.Glenn@epa.gov>
>> **Sent:** Monday, August 5, 2019 9:05 AM

To: Turner, Nardina <Turner.Nardina@epa.gov>
Cc: Frederick, Tim <Frederick.Tim@epa.gov>
Subject: RE: Able Contracting Fire

I talked to Jordan this morning, you are correct about the background sample, but both the lab and field blanks had contamination. They resampled and moved the background sample further away. That data will hopefully be available soon.

From: Turner, Nardina <Turner.Nardina@epa.gov>
Sent: Monday, August 5, 2019 8:06 AM
To: Adams, Glenn <Adams.Glenn@epa.gov>
Cc: Frederick, Tim <Frederick.Tim@epa.gov>
Subject: RE: Able Contracting Fire

Jordan's message says the field blank is contaminated, so he may be talking about the background sample. If so, my quick take is the contamination may have already migrated to the location they selected as "background". If they have unused sample media (filters?), maybe have the lab run one to confirm no contamination coming from the lab or the sampling media.

From: Adams, Glenn <Adams.Glenn@epa.gov>
Sent: Monday, August 5, 2019 7:42 AM
To: Turner, Nardina <Turner.Nardina@epa.gov>
Subject: FW: Able Contracting Fire

FYI

From: Frederick, Tim <Frederick.Tim@epa.gov>
Sent: Friday, August 2, 2019 8:02 AM
To: Adams, Glenn <Adams.Glenn@epa.gov>
Subject: Fwd: Able Contracting Fire

Here's data. Missed it last night when it came in at 10:30. Saw it in my way in. Mad scramble.

Sent from my iPhone

Begin forwarded message:

> **From:** "Garrard, Jordan" <Garrard.Jordan@epa.gov>
> **Date:** August 1, 2019 at 10:24:55 PM EDT
> **To:** "Frederick, Tim" <Frederick.Tim@epa.gov>, "Moore, Tony" <moore.tony@epa.gov>, "Webster, James" <Webster.James@epa.gov>
> **Subject: Able Contracting Fire**
>
> Preliminary Data not QA/QC
>
> 2 hits above Residential RML - Phosgene and Acrolein
>
> Phosgene detected in every sample including the field blank.
>
> Acrolein detected in every sample.

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 2, 2019 7:19:32 PM
To: shealyrg@dhec.sc.gov
Subject: Fwd: Able Contracting Fire Water Data Summary Table
Attachments: Able Contracting Fire SW Pre-Review Table.pdf (72.38 KB), ATT00001.htm (178 Bytes)

Waiting on EDD

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Jones, Chris" <chris.jones@tetratech.com>
Date: August 2, 2019 at 3:16:44 PM EDT
To: "Garrard, Jordan" <garrard.jordan@epa.gov>
Cc: "Snyder, John" <John.Snyder@tetratech.com>
Subject: Able Contracting Fire Water Data Summary Table

Mr. Garrard,

See attached for the data summary table for water samples collected at the Able Contracting Fire. I will send you the EDD momentarily.

Let me know if you need anything else.

Chris Jones | Readiness Coordinator
Direct **(678) 775-3081** | Main **(678) 775-3080** | Cell **(404) 395-5220** | chris.jones@tetratech.com

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PRE-REVIEW SURFACE WATER RESULTS SUMMARY TABLE
ABLE CONTRACTING FIRE

Parameter	MCL	ACF-SW-477R	ACF-SW-DITCH	ACF-SW-POND
Metals (µg/L)				
Aluminum	NL	100 U	527	251
Antimony	6	5.0 U	**63.8**	**32.3**
Arsenic	10	10.0 U	**554**	**493**
Barium	2,000	5.7	175	133
Cadmium	5	1.0 U	4.3	3.6
Calcium	NL	27200	904000	725000
Chromium	100	5.0 U	**191**	**148**
Copper	1,300	27.6	38.1	20.2
Iron	NL	50.0 U	1070	300
Lead	15	5.0 U	3.0 J	5.0 U
Magnesium	NL	9370	83100	48900
Manganese	NL	21.8	820	526
Nickel	NL	2.6 J	43.2	30.5
Potassium	NL	2760 J	112000	75300
Sodium	NL	10600	430000	248000
Vanadium	NL	5.0 U	36.4	22.7
Zinc	NL	130	72.7	24.4
Volatile Organic Compounds (µg/L)				
1,2-Dichloroethane	5	1.0 U	0.83 J	0.55 J
2-Butanone (MEK)	NL	5.0 U	71.6	43.2
2-Hexanone	NL	5.0 U	3.5 J	5.0 U
4-Methyl-2-pentanone (MIBK)	NL	5.0 U	9.4 J	5.0 U
Acetone	NL	25.0 U	325	269
Benzene	5	1.0 U	**29.7**	**21.4**
Chloromethane	NL	0.69 J	2.0 U	1.8
Ethylbenzene	700	1.0 U	6.2	6.0
m&p-Xylene	NL	2.0 U	2.4 J	1.8 J
Naphthalene	NL	1.0 U	3.9	2.3
o-Xylene	NL	1.0 U	1.6 J	1.1
Toluene	1,000	1.0 U	14.5	10.5
Xylene (Total)	10,000	1.0 U	2.0 U	1.1
Semivolatile Organic Compounds (µg/L)				
2,4-Dimethylphenol	NL	100 U	108	6.0 J
2-Methylphenol(o-Cresol)	NL	100 U	137	11.1
3&4-Methylphenol(m&p Cresol)	NL	100 U	82.9 J	7.9 J

Notes:

BOLD Reported value exceeds the MCL.

J The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

MCL Maximum contaminant level

NL Not listed

U The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 2, 2019 8:08:48 PM
To: John Snyder <john.snyder@tetratech.com>; Chris Jones <chris.jones@ttemi.com>
Subject: Fwd: Able Contracting Fire Water Data Summary Table

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Marcus, Mike" <MARCUSJM@dhec.sc.gov>
Date: August 2, 2019 at 4:03:09 PM EDT
To: "Shealy, Renee" <shealyrg@dhec.sc.gov>, "Garrard, Jordan" <Garrard.Jordan@epa.gov>
Cc: "Stewart, Jill C." <STEWARJC@dhec.sc.gov>
Subject: Re: Able Contracting Fire Water Data Summary Table

Jordan,

Renee forwarded on to me the water summary data table. Thank you very much for that. In re: benchmarks for comparison:

GW -- as is listed, we will use the Federal MCLs; when an MCL is not published, we will go to the USEPA RSL tables (tap water value)

SW -- we will use State stream standards https://www.scdhec.gov/sites/default/files/media/document/R.61-68_0.pdf
for parameters where values are not promulgated, we will go to the USEPA R4 ecological screening guidance to check for a supplemental
https://www.epa.gov/risk/regional-ecological-risk-assessment-era-supplemental-guidance

Thanks again and hope that your weekend is not too difficult. Stay safe.

Best Regards,

Mike

Armstrong, Kathy

From: Garrard, Jordan
Sent: Friday, August 02, 2019 4:09 PM
To: John Snyder; Chris Jones
Subject: Fwd: Able Contracting Fire Water Data Summary Table

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Marcus, Mike" <MARCUSJM@dhec.sc.gov>
Date: August 2, 2019 at 4:03:09 PM EDT
To: "Shealy, Renee" <shealyrg@dhec.sc.gov>, "Garrard, Jordan" <Garrard.Jordan@epa.gov>
Cc: "Stewart, Jill C." <STEWARJC@dhec.sc.gov>
Subject: Re: Able Contracting Fire Water Data Summary Table

Jordan,

Renee forwarded on to me the water summary data table. Thank you very much for that. In re: benchmarks for comparison:

GW -- as is listed, we will use the Federal MCLs; when an MCL is not published, we will go to the USEPA RSL tables (tap water value)

SW -- we will use State stream standards https://www.scdhec.gov/sites/default/files/media/document/R.61-68_0.pdf
for parameters where values are not promulgated, we will go to the USEPA R4 ecological screening guidance to check for a supplemental
https://www.epa.gov/risk/regional-ecological-risk-assessment-era-supplemental-guidance

Thanks again and hope that your weekend is not too difficult. Stay safe.

Best Regards,

Mike

Mike Marcus, Ph.D.

Chief, Bureau of Water
S.C. Dept. of Health & Environmental Control
Office: (803) 898-4210
Fax: (803) 898-3795
Connect: www.scdhec.gov Facebook witter

From: Shealy, Renee <shealyrg@dhec.sc.gov>
Sent: Friday, August 2, 2019 3:33:14 PM
To: Marcus, Mike <MARCUSJM@dhec.sc.gov>
Subject: Fw: Able Contracting Fire Water Data Summary Table

From: Garrard, Jordan <Garrard.Jordan@epa.gov>
Sent: Friday, August 2, 2019 3:19 PM
To: Shealy, Renee <shealyrg@dhec.sc.gov>
Subject: Fwd: Able Contracting Fire Water Data Summary Table

*** Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Waiting on EDD

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

> **From:** "Jones, Chris" <chris.jones@tetratech.com>
> **Date:** August 2, 2019 at 3:16:44 PM EDT
> **To:** "Garrard, Jordan" <garrard.jordan@epa.gov>
> **Cc:** "Snyder, John" <John.Snyder@tetratech.com>
> **Subject: Able Contracting Fire Water Data Summary Table**
>
> Mr. Garrard,
>
> See attached for the data summary table for water samples collected at the Able Contracting Fire. I will send you the EDD momentarily.

Let me know if you need anything else.

Chris Jones | Readiness Coordinator

Direct **(678) 775-3081** | Main **(678) 775-3080** | Cell **(404) 395-5220** | chris.jones@tetratech.com

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From: Pinkney, James <Pinkney.James@epa.gov> on behalf of Pinkney, James
Sent on: Wednesday, July 31, 2019 2:19:38 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Fwd: Able Contracting

Jordan,

Here's another inquiry. If you could answer the below questions and forward the responses to me, I'll close the loop with the reporter.

Thanks,

James Pinkney
Public Affairs Specialist
U.S. Environmental Protection Agency, Region 4 Office of Public & Government Affairs
Email: Pinkney.james@epa.gov
Phone: (404) 562-9183
Cell phone: (404) 695-5503
Follow Region 4 on Twitter: www.twitter.com/EPASoutheast
And Facebook: www.facebook.com/eparegion4

Begin forwarded message:

From: "Bartelme, Tony" <tbartelme@postandcourier.com>
Date: July 31, 2019 at 8:44:28 AM CDT
To: "pinkney.james@epa.gov" <pinkney.james@epa.gov>
Subject: Able Contracting

Good morning James,
I had a few questions about the big pile in Jasper County, SC. Would you let me know why EPA is involved, the scope of EPA's activities and what kinds of results the agency has found from its sampling?
Thanks in advance!
Tony

Tony Bartelme
Special Projects
The Post and Courier
134 Columbus St.
Charleston, SC 29403

843.937.5554 office
843.412.2283 mobile
Holy shrimp! Here's my recent TEDx talk: https://tedxcharleston.org/watch/tony-bartelme/
My new book, A Surgeon in the Village, is on sale here: http://amzn.to/2ngJKPj

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Sunday, August 4, 2019 12:48:39 PM
To: Moore, Tony <moore.tony@epa.gov>; Webster, James <Webster.James@epa.gov>
Subject: Fwd: Able Contractor Air Monitoring Results - 080319 to 0804019
Attachments: Viper Summary report_SPM_08032019-08042019.xlsx (14.24 MB), ATT00001.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Prys, Paul" <Paul.Prys@tetratech.com>
To: "Garrard, Jordan" <Garrard.Jordan@epa.gov>
Cc: "John Snyder" <john.snyder@tetratech.com>, "Lawrence, Laura" <Laura.Lawrence@tetratech.com>
Subject: Able Contractor Air Monitoring Results - 080319 to 0804019

Here's the data summary for air monitoring conducted from 080319 to 080419.

Paul Prys | Senior Environmental Scientist/Project Manager
Direct: 678.775.3106 | Cell: 404.849.7136 | Fax: 678.775.3138
paul.prys@tetratech.com

Tetra Tech | Atlanta Office
1955 Evergreen Blvd. Bldg. 200, Ste. 300, Duluth, GA 30096 www.tetratech.com | NASDAQ:TTEK

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Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: ABLE CONTRACTING FIRE

From: **8/3/19** **0:00** ***To:*** ***8/4/19*** ***6:59***

Location 1 (Southeast Corner; Residential Property Line)							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL / RML / 60 min AEGL)**
SPM Flex 1	Phosgene (COCl2)	3	4337	3	0 - 6 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Location 2 (West Side of Pile)							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL / RML / 60 min AEGL)**
SPM Flex 2	Phosgene (COCl2)	0	3267	0	0 - 0 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Location 3 (Upwind; North)							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL / RML / 60 min AEGL)**
SPM Flex 3	Phosgene (COCl2)	5	4319	5	0 - 22 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Notes:

AEGL	Acute Exposure Guideline levels for airborne chemicals (8 hour exposure)
min	Minute
PEL	Permissible exposure limit
ppb	Parts per billion
RML	Removal Management Level
TLV	Threshold limit value

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Sunday, August 4, 2019 12:51:21 PM
To: rwells@jaspercountysc.gov; Scott Reynolds <reynolds@dhec.sc.gov>; keith.frost@dhec.sc.gov; threatrl@dhec.sc.gov
Subject: Fwd: Able Contractor Air Monitoring Results - 080319 to 0804019
Attachments: Viper Summary report_SPM_08032019-08042019.xlsx (14.24 MB), ATT00001.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Prys, Paul" <Paul.Prys@tetratech.com>
To: "Garrard, Jordan" <Garrard.Jordan@epa.gov>
Cc: "John Snyder" <john.snyder@tetratech.com>, "Lawrence, Laura" <Laura.Lawrence@tetratech.com>
Subject: Able Contractor Air Monitoring Results - 080319 to 0804019

Here's the data summary for air monitoring conducted from 080319 to 080419.

Paul Prys | Senior Environmental Scientist/Project Manager
Direct: 678.775.3106 | Cell: 404.849.7136 | Fax: 678.775.3138
paul.prys@tetratech.com

Tetra Tech | Atlanta Office
1955 Evergreen Blvd. Bldg. 200, Ste. 300, Duluth, GA 30096 www.tetratech.com | NASDAQ:TTEK

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Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: ABLE CONTRACTING FIRE

From: **8/3/19** **0:00** ***To:*** ***8/4/19*** ***6:59***

Location 1 (Southeast Corner, Residential Property Line)							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL / RML / 60 min AEGL)**
SPM Flex 1	Phosgene (COCl2)	3	4337	3	0 - 6 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Location 2 (West Side of Pile)							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL / RML / 60 min AEGL)**
SPM Flex 2	Phosgene (COCl2)	0	3267	0	0 - 0 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Location 3 (Downwind North)							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL / RML / 60 min AEGL)**
SPM Flex 3	Phosgene (COCl2)	5	4319	5	0 - 22 ppb	0 ppb	100 ppb / 0.23ppb / 40 ppb

Notes:

AEGL	Acute Exposure Guideline levels for airborne chemicals (8 hour exposure)
min	Minute
PEL	Permissible exposure limit
ppb	Parts per billion
RML	Removal Management Level
TLV	Threshold limit value

Share Copy link Download Delete Copy to Version history Previous 88 of 30

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Thursday, July 25, 2019 5:48:44 PM
To: Eichinger, Kevin <Eichinger.Kevin@epa.gov>; John Snyder <john.snyder@ttemi.com>
Subject: Fwd: Able Fire - air sampling methods
Attachments: image001.png (18.17 KB), ATT00001.htm (336 Bytes), 1502566 COC.PDF (279.75 KB), ATT00002.htm (216 Bytes), 1504268 Report.pdf (500.5 KB), ATT00003.htm (168 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Huyser, Matthew" <Huyser.Matthew@epa.gov>
Date: July 25, 2019 at 1:40:29 PM EDT
To: Jessica Vickers <Jessica.Vickers@tetratech.com>
Cc: "Garrard, Jordan" <Garrard.Jordan@epa.gov>
Subject: Able Fire - air sampling methods

Below is a list from Dave Mickunas on sampling methodology that would be beneficial.

- Primary focus should be on PAHs which are expected
- Formaldehyde method is also provided below
- Both Dave and SESD recommended considering phthalates, except the TO-13A method doesn't list phthalates so Dave is checking in with a laboratory in CA on phthalates and will respond to me in an hour about their response
- VOCs may still be beneficial for poly-vinyl chloride and benzene so measurement of VOCs shouldn't be completely dismissed
- Dioxins, pesticides, and PCBs are optional

Attached is a COC and report from Bennett Landfill sampling. These samples were taken over the smoke plume. Analyses in the COC is listed below and the report contains the method numbers

- VOCs
- PM2.5 mass
- Total metals
- Particle Size
- Formaldehyde
- Total Mass

1502566

ALS Life Sciences Division
4388 Glendale Milford Road, Cincinnati, OH 45242
Tel: (513) 483-3174
www.alsglobal.com

CHAIN OF CUSTODY FORM FOR AIR SAMPLE ANALYSIS

Client name: Tetra Tech EM, Inc.
Address: 1955 Evergreen Blvd, Bldg 200, Suite 300
Duluth, GA 30096

Contact: Didi Fung
Phone: 678-775-3095
Fax: 678-775-3138

Project Name/#: Bennett Landfill / 02003
Samplers Name: Didi Fung
Sampling Date: 2/19/2015

	SAMPLE ID	SAMPLE DESCRIPTION (e.g. Locations, Name, etc)	PUMP NUMBER	TIME			FLOW RATE (L/min)			VOLUME (L)	ANALYSIS REQUESTED/REMARKS
				START	END	TOTAL(hh:min)	INITIAL	FINAL	AVG		
1	BLSMK03Z23-021915	Center of Landfill Grid Z23	Summa 109135	10:47	10:47	<00:01	29.5 in Hg	3 in Hg	not applicable	not applicable	VOCs
2	BLSMK04AA24-021915	Center of Landfill AA24	AirCon-2 EPA G2	11:38	12:38	60	9.930	9.524	9.727	583.6	PM2.5 mass; filter # 1044
3	BLSMK04AA24-021915	Center of Landfill AA24	AirCon-2 EPA G3	11:38	12:38	60	4.015	3.854	3.935	236.1	Total Metals
4	BLSMK04AA24-021915	Center of Landfill AA24	AirCon-2 EPA G4	11:38	12:38	60	8.032	7.725	7.879	472.7	Particle Size
5	BLSMK04AA24-021915	Center of Landfill AA24	AirCon-2 EPA G5	11:38	12:38	60	1.023	1.076	1.050	63.0	Formaldehyde
6	BLSMK04AA24-021915	Center of Landfill AA24	AirCon-2 EPA G6	11:38	12:38	60	16.77	16.31	16.54	992.4	Total Mass
7	BLSMK05AA24-021915	Center of Landfill AA24	AirCon-2 EPA G4	15:01	15:28	27	8.054	7.197	7.63	205.9	Particle Size

Turnaround Time: Normal (5 days): YES 3 Days Rush: 2 Days Rush: Next Day Rush:

Comments:

Relinquished By:	Didi Fung	Date/Time:	2/23/15 1830
Received By:	FedEx	Date/Time:	2/23/15 1930
Relinquished By:		Date/Time:	
Received By:	Suzanne Hall	Date/Time:	2/24/15 12:29

Delivered Direct to Lab: O Shipped: FedEx
Method of Shipment: Priority Overnight
Lab Recipient: Sample Receiving
Date Shipped: 2/23/2015

ALS Environmental

09-Apr-2015

DiDi Fung
Tetra Tech, Inc.
1955 Evergreen Pkwy
Ste. 300 Bldg. 200
Duluth, GA 30096

Tel: (678) 775-3095
Fax:

Re: Bennett Landfill; 103X902702003 Work Order: **1504268**

Dear DiDi,

ALS Environmental received 15 samples on 09-Apr-2015 08:42 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 12.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Shawn Smythe

Electronically approved by: Shawn Smythe

Shawn Smythe
Project Manager

ALS Environmental

Date: 09-Apr-15

Client: Tetra Tech, Inc.
Project: Bennett Landfill; 103X902702003
Work Order: **1504268**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1504268-01	BLCH-040715	Air		4/7/2015 10:01	4/9/2015 08:42	☐
1504268-02	BLCH-040715	Air		4/7/2015 10:02	4/9/2015 08:42	☐
1504268-03	BLCH-040715	Air		4/7/2015 09:43	4/9/2015 08:42	☐
1504268-04	BLGAS-040715	Air		4/7/2015 11:28	4/9/2015 08:42	☐
1504268-05	BLGAS-040715	Air		4/7/2015 11:28	4/9/2015 08:42	☐
1504268-06	BLGAS-040715	Air		4/7/2015 11:28	4/9/2015 08:42	☐
1504268-07	BLLF-040715	Air		4/7/2015 12:56	4/9/2015 08:42	☐
1504268-08	BLLF-040715	Air		4/7/2015 12:56	4/9/2015 08:42	☐
1504268-09	BLLF-040715	Air		4/7/2015 12:56	4/9/2015 08:42	☐
1504268-10	BLMA-040715	Air		4/7/2015 09:00	4/9/2015 08:42	☐
1504268-11	BLMA-040715	Air		4/7/2015 09:00	4/9/2015 08:42	☐
1504268-12	BLMA-040715	Air		4/7/2015 09:00	4/9/2015 08:42	☐
1504268-13	BLFA-040815	Air		4/8/2015 15:30	4/9/2015 08:42	☐
1504268-14	BLFA-040815	Air		4/8/2015 15:30	4/9/2015 08:42	☐
1504268-15	BLFA-040815	Air		4/8/2015 15:30	4/9/2015 08:42	☐

Client: Tetra Tech, Inc.
Project: Bennett Landfill; 103X902702003
Work Order: 1504268

Case Narrative

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

ALS Environmental

Date: *09-Apr-15*

Client: Tetra Tech, Inc.
Project: Bennett Landfill; 103X902702003

Work Order: 1504268

Analytical Results

Lab ID: 1504268-01A
Client Sample ID: BLCH-040715
Collection Date: 4/7/2015 10:01:00 AM
Matrix: AIR

Analyses

HYDROGEN CYANIDE BY NIOSH 6010 MOD. Method: **N6010** Air Volume (L): **91.16** Analyst: **CTS**
Date Analyzed: 4/9/2015

	µg/sample	Reporting Limit µg/sample	mg/m3
Hydrogen cyanide	ND	1.0	<0.011

Lab ID: 1504268-02A
Client Sample ID: BLCH-040715
Collection Date: 4/7/2015 10:02:00 AM
Matrix: AIR

Analyses

MERCURY BY NIOSH 6009 MOD. Method: **N6009** Air Volume (L): **92.81** Analyst: **SLW**
Date Analyzed: 4/9/2015 14:39

	µg/sample	Reporting Limit µg/sample	mg/m3
Mercury	ND	0.050	<0.00054

Lab ID: 1504268-03A
Client Sample ID: BLCH-040715
Collection Date: 4/7/2015 9:43:00 AM
Matrix: AIR

Analyses

ALDEHYDES BY HPLC Method: **ETO-11** Air Volume (L): **587** Analyst: **MRS**
Date Analyzed: 4/9/2015 13:08

	µg/sample	Reporting Limit µg/sample	**ppm**
Formaldehyde	**0.89**	**0.20**	**0.0012**

Lab ID: 1504268-04A
Client Sample ID: BLGAS-040715
Collection Date: 4/7/2015 11:28:00 AM
Matrix: AIR

Analyses

HYDROGEN CYANIDE BY NIOSH 6010 MOD. Method: **N6010** Air Volume (L): **83.4** Analyst: **CTS**
Date Analyzed: 4/9/2015

	µg/sample	Reporting Limit µg/sample	mg/m3
Hydrogen cyanide	ND	1.0	<0.012

Note:

ALS Environmental

Date: *09-Apr-15*

Client: Tetra Tech, Inc.
Project: Bennett Landfill; 103X902702003

Work Order: 1504268

Analytical Results

Lab ID: 1504268-05A
Client Sample ID: BLGAS-040715

Collection Date: 4/7/2015 11:28:00 AM
Matrix: AIR

Analyses

MERCURY BY NIOSH 6009 MOD. Method: **N6009** Air Volume (L): **94.9** Analyst: **SLW**
Date Analyzed: 4/9/2015 14:43

	µg/sample	Reporting Limit µg/sample	mg/m3
Mercury	ND	0.050	<0.00053

Lab ID: 1504268-06A
Client Sample ID: BLGAS-040715

Collection Date: 4/7/2015 11:28:00 AM
Matrix: AIR

Analyses

ALDEHYDES BY HPLC Method: **ETO-11** Air Volume (L): **710** Analyst: **MRS**
Date Analyzed: 4/9/2015 13:29

	µg/sample	Reporting Limit µg/sample	**ppm**
Formaldehyde	**0.90**	**0.20**	**0.0010**

Lab ID: 1504268-07A
Client Sample ID: BLLF-040715

Collection Date: 4/7/2015 12:56:00 PM
Matrix: AIR

Analyses

HYDROGEN CYANIDE BY NIOSH 6010 MOD. Method: **N6010** Air Volume (L): **89.65** Analyst: **CTS**
Date Analyzed: 4/9/2015

	µg/sample	Reporting Limit µg/sample	mg/m3
Hydrogen cyanide	ND	1.0	<0.011

Lab ID: 1504268-08A
Client Sample ID: BLLF-040715

Collection Date: 4/7/2015 12:56:00 PM
Matrix: AIR

Analyses

MERCURY BY NIOSH 6009 MOD. Method: **N6009** Air Volume (L): **95.71** Analyst: **SLW**
Date Analyzed: 4/9/2015 14:51

	µg/sample	Reporting Limit µg/sample	mg/m3
Mercury	ND	0.050	<0.00052

Note:

ALS Environmental

Date: *09-Apr-15*

Client: Tetra Tech, Inc.
Project: Bennett Landfill; 103X902702003

Work Order: 1504268

Analytical Results

Lab ID: 1504268-09A
Client Sample ID: BLLF-040715
Collection Date: 4/7/2015 12:56:00 PM
Matrix: AIR

Analyses

ALDEHYDES BY HPLC Method: **ETO-11** Air Volume (L): **714.1** Analyst: **MRS**
Date Analyzed: 4/9/2015 13:50

	µg/sample	Reporting Limit µg/sample	ppm
Formaldehyde	**1.4**	**0.20**	**0.0016**

Lab ID: 1504268-10A
Client Sample ID: BLMA-040715
Collection Date: 4/7/2015 9:00:00 AM
Matrix: AIR

Analyses

HYDROGEN CYANIDE BY NIOSH 6010 MOD. Method: **N6010** Air Volume (L): **0** Analyst: **CTS**
Date Analyzed: 4/9/2015

	µg/sample	Reporting Limit µg/sample	mg/m3
Hydrogen cyanide	ND	1.0	NA

Lab ID: 1504268-11A
Client Sample ID: BLMA-040715
Collection Date: 4/7/2015 9:00:00 AM
Matrix: AIR

Analyses

MERCURY BY NIOSH 6009 MOD. Method: **N6009** Air Volume (L): **0** Analyst: **SLW**
Date Analyzed: 4/9/2015 14:55

	µg/sample	Reporting Limit µg/sample	mg/m3
Mercury	ND	0.050	NA

Lab ID: 1504268-12A
Client Sample ID: BLMA-040715
Collection Date: 4/7/2015 9:00:00 AM
Matrix: AIR

Analyses

ALDEHYDES BY HPLC Method: **ETO-11** Air Volume (L): **0** Analyst: **MRS**
Date Analyzed: 4/9/2015 14:12

	µg/sample	Reporting Limit µg/sample	ppm
Formaldehyde	ND	0.20	NA

Note:

ALS Environmental

Date: *09-Apr-15*

Client: Tetra Tech, Inc.
Project: Bennett Landfill; 103X902702003

Work Order: 1504268

Analytical Results

Lab ID: 1504268-13A
Client Sample ID: BLFA-040815

Collection Date: 4/8/2015 3:30:00 PM
Matrix: AIR

Analyses

HYDROGEN CYANIDE BY NIOSH 6010 MOD. Method: **N6010** Air Volume (L): **0** Analyst: **CTS**
Date Analyzed: 4/9/2015

	µg/sample	Reporting Limit µg/sample	mg/m3
Hydrogen cyanide	ND	1.0	NA

Lab ID: 1504268-14A
Client Sample ID: BLFA-040815

Collection Date: 4/8/2015 3:30:00 PM
Matrix: AIR

Analyses

MERCURY BY NIOSH 6009 MOD. Method: **N6009** Air Volume (L): **0** Analyst: **SLW**
Date Analyzed: 4/9/2015 15:00

	µg/sample	Reporting Limit µg/sample	mg/m3
Mercury	ND	0.050	NA

Lab ID: 1504268-15A
Client Sample ID: BLFA-040815

Collection Date: 4/8/2015 3:30:00 PM
Matrix: AIR

Analyses

ALDEHYDES BY HPLC Method: **ETO-11** Air Volume (L): **0** Analyst: **MRS**
Date Analyzed: 4/9/2015 14:33

	µg/sample	Reporting Limit µg/sample	ppm
Formaldehyde	ND	0.20	NA

Note:

ALS Environmental

Date: 09-Apr-15

QC BATCH REPORT

Client: Tetra Tech, Inc.
Work Order: 1504268
Project: Bennett Landfill; 103X902702003

Batch ID: **27748** Instrument ID: **HG1** Method: **N6009**

MBLK Sample ID: **MBLK-27748-27748** Units: **µg/sample** Analysis Date: **4/9/2015 02:35 PM**
Client ID: Run ID: **HG1_150409A** SeqNo: **1033770** Prep Date: **4/9/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.050								

LCS Sample ID: **LCS-27748-27748** Units: **µg/sample** Analysis Date: **4/9/2015 02:31 PM**
Client ID: Run ID: **HG1_150409A** SeqNo: **1033768** Prep Date: **4/9/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.566	0.050	0.5	0	113	64.7-123	0			

LCSD Sample ID: **LCSD-27748-27748** Units: **µg/sample** Analysis Date: **4/9/2015 02:33 PM**
Client ID: Run ID: **HG1_150409A** SeqNo: **1033769** Prep Date: **4/9/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.522	0.050	0.5	0	104	64.7-123	0.566	8.09	20	

The following samples were analyzed in this batch:

1504268-02A	1504268-05A	1504268-08A
1504268-11A	1504268-14A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech, Inc.
Work Order: 1504268
Project: Bennett Landfill; 103X902702003

QC BATCH REPORT

Batch ID: **27761** Instrument ID: **HPLC2** Method: **ETO-11**

MBLK Sample ID: **MBLK-27761-27761** Units: **µg/sample** Analysis Date: **4/9/2015 12:20 PM**
Client ID: Run ID: **HPLC2_150409A** SeqNo: **1033841** Prep Date: **4/9/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Formaldehyde	ND	0.20								

LCS Sample ID: **LCS-27761-27761** Units: **µg/sample** Analysis Date: **4/9/2015 11:59 AM**
Client ID: Run ID: **HPLC2_150409A** SeqNo: **1033839** Prep Date: **4/9/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Formaldehyde	1.96	0.20	2	0	98	70-130	0			

LCSD Sample ID: **LCSD-27761-27761** Units: **µg/sample** Analysis Date: **4/9/2015 12:09 PM**
Client ID: Run ID: **HPLC2_150409A** SeqNo: **1033840** Prep Date: **4/9/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Formaldehyde	2.014	0.20	2	0	101	70-130	1.96	2.75	20	

The following samples were analyzed in this batch:

1504268-03A	1504268-06A	1504268-09A
1504268-12A	1504268-15A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech, Inc.
Work Order: 1504268
Project: Bennett Landfill; 103X902702003

QC BATCH REPORT

Batch ID: **R117303** Instrument ID: **WETCHEM** Method: **N6010**

MBLK Sample ID: **MB-R117303-R117303** Units: **µg/sample** Analysis Date: **4/9/2015**
Client ID: Run ID: **WETCHEM_150409A** SeqNo: **1033730** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Hydrogen cyanide	ND	1.0								

LCS Sample ID: **LCS-R117303-R117303** Units: **µg/sample** Analysis Date: **4/9/2015**
Client ID: Run ID: **WETCHEM_150409A** SeqNo: **1033731** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Hydrogen cyanide	171.2	1.0	231.2	0	74.1	50-150	0			

LCSD Sample ID: **LCSD-R117303** Units: **µg/sample** Analysis Date: **4/9/2015**
Client ID: Run ID: **WETCHEM_150409A** SeqNo: **1033737** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Hydrogen cyanide	170.4	1.0	231.2	0	73.7	50-150	171.2	0.509		

The following samples were analyzed in this batch:

1504268-01A	1504268-04A	1504268-07A
1504268-10A	1504268-13A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Date: 09-Apr-15

Client: Tetra Tech, Inc.
Project: Bennett Landfill; 103X902702003
WorkOrder: **1504268**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
E	EPA Method
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SDL	Sample Detection Limit
SW	SW-846 Method

Units Reported	Description
µg/sample	

ALS Environmental

Sample Receipt Checklist

Client Name: **TETRATECH-DULUTH**

Date/Time Received: **09-Apr-15 08:42**

Work Order: **1504268**

Received by: **JNW**

Checklist completed by: Jan Wilcox (eSignature) 09-Apr-15 (Date)

Reviewed by: Shawn Smythe (eSignature) 09-Apr-15 (Date)

Matrices:

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):			
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☐	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

Share Copy link Download Delete Copy to Version history Previous 89 of 30

From: Huyser, Matthew <Huyser.Matthew@epa.gov> on behalf of Huyser, Matthew
Sent on: Saturday, July 27, 2019 12:17:57 PM
To: Eichinger, Kevin <Eichinger.Kevin@epa.gov>; Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>; Josiah Williams <josiah.williams@tetratech.com>
Subject: Fwd: Additional information for Automated Downloads

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax:**404-562-8699**
epaosc.org

Begin forwarded message:

From: ERT Support <ERTSupport@epa.gov>
Date: July 26, 2019 at 1:16:47 PM EDT
To: "Wise, Katie" <katie.wise@tetratech.com>
Cc: "Huyser, Matthew" <Huyser.Matthew@epa.gov>
Subject: Additional information for Automated Downloads

Katie,

Here's the additional information you need to access the automated Viper data exports:

Password =
R04AbleF!re2019

Passwords are case
sensitive.

For Additional Information Please Contact

ERT Software Support

1-800-999-6990

1-732-321-6724 (fax)

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From: Huyser, Matthew <Huyser.Matthew@epa.gov> on behalf of Huyser, Matthew
Sent on: Friday, July 26, 2019 12:26:17 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; Eichinger, Kevin <Eichinger.Kevin@epa.gov>; Jessica Vickers <Jessica.Vickers@tetratech.com>; John Snyder <john.snyder@tetratech.com>; Josiah Williams <josiah.williams@tetratech.com>; Amber.Falkner@tetratech.com
Subject: Fwd: Air Methods

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax:**404-562-8699**
epaosc.org

Begin forwarded message:

From: "Mickunas, Dave" <Mickunas.Dave@epa.gov>
Date: July 25, 2019 at 5:01:27 PM EDT
To: "Huyser, Matthew" <Huyser.Matthew@epa.gov>
Cc: "Hoppe, Michael" <Hoppe.Michael@epa.gov>
Subject: RE: Air Methods

Good Afternoon,

For dioxin analysis via TO-9.

Vista Analytical Laboratory, Inc.
1104 Windfield Way
916-995-5171 El Dorado Hills, CA 95762-9622
TO-9 Dioxin analysis

Best regards,
David B. Mickunas
Trace Atmospheric Gas Analyzer (TAGA) Laboratories Coordinator
US EPA/Environmental Response Team
109 T.W. Alexander Drive
Mail Code E343-04
Research Triangle Park, NC 27711
919 541 4191 (office)
609 865 1574 (cellular)

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Sent on: Friday, July 26, 2019 12:25:45 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>; Eichinger, Kevin <Eichinger.Kevin@epa.gov>; Jessica Vickers <Jessica.Vickers@tetratech.com>; John Snyder <john.snyder@tetratech.com>; Josiah Williams <josiah.williams@tetratech.com>
Subject: Fwd: Air Methods

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609 865 1574 (cellular)

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From: Huyser, Matthew <Huyser.Matthew@epa.gov> on behalf of Huyser, Matthew
Sent on: Friday, July 26, 2019 12:58:19 AM
To: Jessica Vickers <Jessica.Vickers@tetratech.com>; Garrard, Jordan <Garrard.Jordan@epa.gov>; Eichinger, Kevin <Eichinger.Kevin@epa.gov>; John Snyder <john.snyder@tetratech.com>; Josiah Williams <josiah.williams@tetratech.com>; Amber.Falkner@tetratech.com; chris.draper@tetratech.com
Subject: Fwd: Air Methods

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax:**404-562-8699**
epaosc.org

Begin forwarded message:

From: "Mickunas, Dave" <Mickunas.Dave@epa.gov>
Date: July 25, 2019 at 8:48:04 PM EDT
To: "Huyser, Matthew" <Huyser.Matthew@epa.gov>
Cc: "Hoppe, Michael" <Hoppe.Michael@epa.gov>
Subject: RE: Air Methods

Good Evening,

Below are labs for methods TO-11A, TO-10, and TO-17.

Bureau Veritas North America, Inc. Michigan

22345 Roethel Drive
Novi, MI 48375-4710
Laura Parker 248-344-2649
Aldehydes in Air TO-11A (DNPH)
Aldehydes in Air TO-11A (SKC 226-119)
Aldehydes in Air TO-11A (SKC 226-120)
Formaldehyde in Air TO-11A

Con-Test Analytical Laboratory

39 Spruce Street
East Longmeadow, MA 01028
Theresa Ferentino (?) 413-525-2332
Pesticides, Chlorinated (PUF 226-14) in Air TO-10
Pesticides, Chlorinated (PUF 226-92) in Air TO-10
PCBs (low Volume) in Air TO-10

From: Threatt, Richard <threatrl@dhec.sc.gov>
Sent on: Friday, July 26, 2019 3:38:26 PM
To: Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; porterhi@dhec.sc.gov; reecemc@dhec.sc.gov
CC: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Fwd: air monitoring data for 2000 7/25/19 to 0700 7/26/19
Attachments: Viper Summary report_AR and DustTrack_ABLE CONTRACTING_072619.pdf (166.16 KB), ATT00001.htm (236 Bytes), Map for 7072619 meeting.pdf (12.03 MB), ATT00002.htm (236 Bytes), SOGT106_Particulate_Monitoring_Guideline_02232017_final.pdf (489.33 KB), ATT00003.htm (178 Bytes)

Sent from my iPhone

Begin forwarded message:

From: "Garrard, Jordan" <Garrard.Jordan@epa.gov>
To: "Threatt, Richard" <threatrl@dhec.sc.gov>
Subject: air monitoring data for 2000 7/25/19 to 0700 7/26/19

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Please feel free to share

Thanks

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Able Contracting Fire
Instrumentation Configuration
Night of 7/25/19
Legend
EPA Air Monitoring Station
SCDHEC Air Monitoring Station
Station 157
Station 155
Station 156
Mackinaw Way
SCDHEC AirStation
Google Earth
© 2018 Google
300 ft
N

Summary

- This guide is intended to be used for monitoring particulates released from fires. Effects from other potential pollutants and products of combustion are not addressed in this document. Refer to EPA Emergency Response Air Monitoring Guidance Tables, 2012 Edition 3[a] for guidance on other pollutants.
- $PM_{2.5}$ is the preferred metric for fire response particulate monitoring.
- The DataRAM 4 and the DustTrak DRX 8533EP are the standard monitoring instrument for measuring particulate concentrations.
- The E-BAM, available from ERT, is the alternate monitoring instrument when accuracy is a critical factor.
- Instrument accessories may be needed to offset weather variables and provide power during extended monitoring periods.
- Establish monitoring sites downwind of the hot zone and immediately upwind. Monitoring may also be recommended in the hot zone if there is a health risk to response workers.
- Use Table 1 to select the appropriate response action. Community action levels apply to everyone in neighboring areas affected by smoke. Worker action levels apply to response workers at the site.

Introduction

Fire presents a multitude of health and safety hazards as a result of effects on air quality. Smoke is the most visible air pollutant and is composed of Carbon Monoxide (CO), Carbon Dioxide (CO_2), Water Vapor, Particulate Matter (PM), hydrocarbons, organic chemicals, Nitric Oxides (NO_X), and minerals. Smoke can disperse quickly and may present significant health risks for nearby communities. Variables that impact dispersion include wind, temperature, moisture, and topography. Air monitoring guidance for these and other products of combustion are presented in the EPA Emergency Response Air Monitoring Guidance Tables[a].

PM consists of solid and liquid particles suspended in air. PM can readily enter the body through inhalation and can cause both acute and chronic health effects. Particulates will be present in all smoke resulting from a fire, regardless of the fuel source; however, different types of fuels will produce different sizes and concentrations of PM. Heat is also a factor which can effect particulate concentrations. After a fire has been suppressed, particulate concentrations can be higher during the smoldering phase because of less-complete combustion[b].

Most particulates in smoke are between 0.4 - 0.7 micrometers (μm) which is considered respirable. Particulates are typically classified as PM_{10} or $PM_{2.5}$ which refers to the particulate size.

- PM_{10} is defined as "course" particles measuring 10 μm or less in diameter.
- $PM_{2.5}$ is defined as "fine" particles with a diameter equal to or less than 2.5 μm.

It is recommended that monitoring efforts focus on measuring $PM_{2.5}$ during emergency fire responses. The California Air Resource Board states that most smoke particulates are between 0.4 – 0.7 μm, and concludes $PM_{2.5}$ would be a more practical monitoring parameter to use[b]. In 2007, Naeher et al. also indicated that $PM_{2.5}$ was the more suitable particulate monitoring metric [c]. Further, the EPA Air Quality Index (AQI) uses $PM_{2.5}$ in the health rating guide, also suggesting that $PM_{2.5}$ is the more appropriate standard when looking at the health hazards of particulates.

Links to Additional Information:

- Graph of particle size distribution of atmospheric particles
- Graph of particle size from particulate emissions
- Emission Study with graph of particle size distribution

Air Quality Thresholds, Actions and Recommendations

Evacuation and/or protect-in-place procedures should be recommended for areas downwind of or in the visible smoke cloud.

Once instrument readings become available, the concentrations may be an indication of potential exposure. Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) lists the threshold levels for different concentrations and the recommended actions that should be taken to prevent harm to community members and workers/responders at the response site. These actions may include communication with community members, evacuations, and medical monitoring. Consider consulting ATSDR to assist with generating public health statements, factsheets and possible development of a medical monitoring plan.

Criteria listed in the Protective Action Criteria (PAC) were assessed, but the values for particulates were much higher than those used in the AQI[d]. Because of this, the PAC values are not the preferred metric for response action guidance.

Odors and visible air opacity may trigger complaints and concerns in affected areas. Conditions and individual sensitivities can play a significant role in determining the point at which smoke becomes noticeable. If such concerns are presented, monitoring instrument results and Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) recommendations should be used to guide response actions.

TABLE 1: Threshold Levels and Recommended Response Actions for $PM_{2.5}$

$PM_{2.5}$ Threshold Levels ($\mu g/m^3$)		Level of Health Concern	Meaning	Action
1 Hr. Avg.[1]	**24 Hr. Avg.[1]**			
COMMUNITY ACTION LEVELS				
0.0 – 40.0	0.0 – 12.0	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	Implement communication plan [2].
40.1 – 80.0	12.1 - 35.4	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive [3] to air pollution.	Issue public announcement about health effects [2]. Stay out of areas with visible smoke.
80.1 – 175.0	35.5 - 55.4	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
175.1 – 300.0	55.5 - 150.4	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
300.1 - 500.0	150.5 - 250.4	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
> 500.0	> 250.5	Hazardous	Health alert: everyone may experience more serious health effects	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.
Source	**Particulates not otherwise regulated/specified ($\mu g/m^3$) 8 Hr. Avg.**		**Meaning**	**Action**
WORKER ACTION LEVELS				
OSHA PEL	15,000 (total dust) 5,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Levels above the 8 hour TWA require the use of level C PPE (use P100 particulate filter). See ERRB P100 – PPE Guidelines for Specific Activities/Tasks and P102 - Respiratory Protection Equipment Selection.
ACGIH TLV	10,000 (inhalable fraction - <100µm) 3,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Consider implementing industrial hygiene measures and/or using level C PPE.

[1] Threshold values taken from original EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc for $PM_{2.5}$ (24 hour) and Idaho Department of Environmental Quality AQI for $PM_{2.5}$ (1 hour) taken from http://app.airsis.com/usfs/aqi.asp.

[2] Recommendations from EPA Air Now web site. See Reference E.

[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.

[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

TABLE 2: Threshold Levels and Recommended Response Actions for PM_{10}

PM_{10} Threshold Levels ($\mu g/m^3$)[1]			
24 Hr. Avg.	**Level of Health Concern**	**Meaning**	**Action**
COMMUNITY ACTION LEVELS			
0.0 – 12.0	Good	None	Implement communication plan [2].
12.1 – 55.0	Moderate	Unusually sensitive[3] people should consider reducing prolonged or heavy exertion.	Issue public announcement about health effects [4].
55.1 – 155.0	Unhealthy for Sensitive Groups	Increasing likelihood of respiratory symptoms and aggravation of lung disease, such as asthma.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
155.1 – 255.0	Unhealthy	Increased respiratory symptoms and aggravation of lung disease, such as asthma; possible respiratory effects in general population.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
255.1-355.0	Very Unhealthy	Significant increase in respiratory symptoms and aggravation of lung disease, such as asthma; increasing likelihood of respiratory effects in general population.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
355.1-425.0	Hazardous	Serious risk of respiratory symptoms and aggravation of lung disease, such as asthma; respiratory effects likely in general population.	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.

[1] Threshold values taken from EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc
[2] Recommendations from EPA Air Now web site. See Reference E.
[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.
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Monitoring Instruments and Methods

Region IV Emergency Response, Removal and Prevention Branch (ERRPB) currently uses the DataRAM 4 and the DustTrak DRX 8533EP for particulate monitoring.

The DustTrak DRX 8533EP was added to the Branch inventory in February 2017. The DustTrak uses light scattering measurement similar to the DataRAM 4 but has the ability to both size and mass fractions simultaneously. The unit concurrently provides PM10, PM4, PM2.5, PM1 and Total particulate data without having to change the impactor head. The customized units the Branch maintains have external pumps, and a built in/automatic heater unit that is preset to keep the moisture level below 40%.

The DataRAM 4 has advantages such as portability, an internal power supply, and a large detection range. One of the drawbacks of the DataRAM 4 is that mass concentrations tend to be over-estimated. United States Forestry Service (USFS) studies have shown that the DataRAM 4 estimations are on average 144% higher than actual concentrations[f]. Because of this, the USFS recommends applying a correction factor of 0.39 to instrument readings[f]. The DataRAM 4 is the preferred instrument when portability is important and/or if very high concentrations are expected (i.e. at source).

The E-BAM monitor is available through EPA Environmental Response Team (ERT), and is considered to be the most accurate monitoring instrument available. Some of the drawbacks include reduced portability (heavier, awkward shape), narrow detection range, and it requires an auxiliary power source. The E-BAM is the preferred instrument when accuracy is a critical factor and high concentrations are not expected (i.e. better for measuring fugitive dust concentrations on metals removal sites).

Use of monitoring instruments can also be affected by available resources, weather, and environmental conditions. Accessories and adapters may be required to offset the effects of these variables.

- Heater: A temperature conditioning heater must be used if humidity is > 40%. Without a heater in these conditions, measurements may be biased towards higher readings. Refer to instrument manual for further instruction. These are available for most particulate monitoring instruments.
- Power Generation: Most instruments will run for 15-24 hours on a full battery charge. A generator, solar panel, or auxiliary battery system will likely be needed for equipment without a built-in power supply or for continuous monitoring > 15 hours.
- GFCI: If a power generation system is used, a power strip/surge protector should be used to accommodate other accessories and monitoring equipment. This will also prevent possible electrical damage to expensive equipment.
- Impactor: The DataRAM and DustTrak are used with an impactor attachment which connects to the air intake. This functions as a pre-collector to help offset some of the effects of wind and precipitation. It should be utilized at all times.

TABLE 3. Instruments Available for an EPA Response

Criteria	DataRAM 4	E-BAM	DUSTTRAK DRX 8533EP
Accuracy (% above actual) [1]	144%	1%	Not determined
Detection Range (µg/m³) [2]	0.1 - 400,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)$_2$	13	28 (without battery)	
Setup Time	15 min	15-30 min	15 min
Measurement Method	light scattering	filter tape	90° light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option avail.	Dual re-chargeable batteries, 12 hour run time each.
Availability	Regional Readiness Center (6 units)	1-2 days via EPA ERT	Regional Readiness Center (3 units)

[1] based on results from US Forest Service 2006 study *Smoke Particulate Monitors*. See Reference F.
[2] taken from manufacturers specifications.

Table 4. Comparison of Common Particulate Monitors on the Market

Criteria	DataRAM 4000	DataRAM 2000	E-BAM	E-Sampler	DUSTTRAK
Accuracy (% above actual)[1]	144%	15%	1%	13%	217%
Detection Range ($\mu g/m^3$)[2]	0.1 - 400,000	0.1 - 400,000	0.1 - 65,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)[2]	13	12	28 (without battery)	12 (without battery)	9 (device only); 38 (with enclosure)
Setup Time	15 min	15 min	15-30 min	15-30 min	Unknown
Measurement Method	light scattering	light scattering	filter tape	light scattering	90-degree light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option	Requires AC power source or external DC. Solar option	Re-chargeable internal battery. 15-24 hr. run time.

[1] based on results from US Sorest Service 2006 study *Smoke Particulate Monitors*. See Reference a.
[2] taken from manufacturers specs

Monitoring Locations

Monitoring for particulates should take place both at the work zone and in surrounding areas where the smoke may travel or accumulate. Consider areas between the release point and sensitive receptors. Temperature, wind, and humidity can affect where smoke travels. As the earth's surface is heated in the afternoon, the atmosphere becomes more unstable when heated air expands. This causes smoke to disperse in a more vertical pattern in the afternoon and early evening. Warm temperatures or major changes in daytime high/low temperatures will cause the smoke to rise higher than in cooler temperatures with a narrow high/low range. As the atmosphere stabilizes overnight and through the morning, smoke will disperse horizontally and settle into low-lying areas and valleys[g].

Wind is a significant factor in smoke dispersion. Unstable atmospheric conditions in the afternoon also increase wind speed which increases the rate and distance of dispersion. Humidity above 80% can cause moisture to condense on smoke particles. This can create a fog type effect which slows and settles smoke. Precipitation can cause a similar effect and slow dispersion. Atmospheric inversions should be taken into consideration when determining monitoring locations and recommending evacuation or protect-in-place zones. An atmospheric inversion occurs when a layer of air that is warmer than the air below traps the surface air in place and prevents dispersion of any pollutants it contains.

Surface structures such as buildings and trees can significantly change air flow direction and cause stagnant air pockets to form. This can trap smoke in small, confined areas and create hot spots with significantly higher particulate concentrations than nearby locations. When monitoring areas which are surrounding the source consider the following:

- Downwind areas will be most impacted by smoke.
- It should be expected that particulate readings at ground level will be higher at night or in the morning than in the afternoon or early evening.

Monitoring at the work zone may be necessary to establish appropriate levels of PPE for response workers. This will also help to determine safe areas to stage response support activities where workers may not be using protective equipment.

When choosing a monitoring site, some additional items should also be considered:

- Availability of power sources will determine what type of power generation is required. The absence of auxiliary power will require more frequent maintenance and may require additional staffing, especially if the monitoring period is > 24 hours.
- Consider security measures (i.e. locked boxes, chains, etc.) if instruments are to be sited in public areas and left unattended.
- Ensure generators or equipment from other activities which may release emissions do not interfere with monitoring stations.
- Power lines or electrical utility areas should be avoided.

Health Effects

PM_{10} and $PM_{2.5}$ are considered to be respirable. Particulates > 10 µm do not typically reach the lungs, but can irritate the eyes, nose, and throat. Although PM_{10} is respirable, $PM_{2.5}$ is inhaled deeper into lung tissue due to their small size (approximately 1/30th the average width of human hair[h]), and thus presents a greater health hazard than larger particulates. PM between 0.1 µm and 1 µm can remain in the atmosphere for days or weeks, meaning there is a potential for long range dispersion from the source.

Smoke and particulate exposure will typically have the largest effect on the respiratory system. Irritation and coughing are common acute symptoms of exposure to particulates. Individuals subject to particulate exposure may first notice irritation of the throat, eyes, and nose. This may be followed by coughing, chest pain, and shortness of breath if exposure continues.

- Acute effects of particulate exposure include irritation of the respiratory system, coughing, and breathing difficulties.
- Chronic effects of particulate exposure include reduced lung function, asthma, lung cancer, chronic bronchitis, cardiovascular disease, premature death, and may cause birth defects[e].

These symptoms can be magnified for sensitive individuals, which can include groups or individuals with pre-existing conditions (e.g.: asthma, heart disease, lung disease), children, the elderly, and pregnant women. Sensitive individuals can experience aggravation of respiratory and cardiovascular systems at lower levels which may not affect non-sensitive individuals[e].

PM can also transport other pollutants which creates additional health concerns. Special consideration and precautions should be made if other pollutants are expected. ATSDR can provide assistance with generating public health statements, factsheets and possible development of a medical monitoring plan.

Reporting

Generate air monitoring summary reports to present data to the Incident Management Team (IMT) during Command, Planning, and Tactical meetings/briefings. Air monitoring summary reports typically group instruments by location and summarize each analyte result with number of readings, number of detections, concentration range, and a time-time weighted average over the period of the report. For particulates, specifically, the air monitoring report typically classifies the reporting period based on the AQI as seen in Table 1 and Table 2.

Develop the reporting schedule around the operational periods established by the IMT, and include sufficient time to review air monitoring summary reports prior to meetings/briefings since they often become the data backing up health-based decisions (e.g. whether to modify/implement evacuation zones or how to advise schools on openings/delayed starts).

References

a. EPA ERTG – *Air Monitoring Guidance Tables* http://www.epaosc.org/sites/0001/files/US%20EPA%20Air%20Tables%20Edition3_FINAL%202.pdf
b. California Air Resource Board. *Wildfire Smoke, A Guide for Public Health Officials*. July 2008. http://www.arb.ca.gov/carpa/toolkit/data-to-mes/wildfire-smoke-guide.pdf
c. Naeher, L.P., Brauer, M., Lipsett, M., Zelikoff, J.T., Simpson, C.D., Koenig, J.Q. and Smith, K.R. 2007. *Woodsmoke Health Effects: A Review*. Inhalation Toxicology. 19: 67–106.
d. US Department of Energy. *Protective Action Criteria http://www.atlintl.com/doe/teels/teel.html*
e. EPA Air Now. *Air Quality Index – A Guide to Air Quality and Your Health.* http://www.airnow.gov/index.cfm?action=aqibasics.aqi
f. USDA Forest Service – Technology Development Program. *Smoke Particulate Monitors: 2006 Update.* December 2006. https://www3.epa.gov/ttnamti1/files/ambient/smoke/ebamrpt.pdf
g. Auburn University. *Smoke Dispersion* *http://www.auburn.edu/academic/forestry_wildlife/fire/smoke_guide/smoke_dispersion.htm*
h. US Environmental Protection Agency. Fine particle ($PM_{2.5}$) Designations, Frequent Questions. http://www.epa.gov/pmdesignations/faq.htm

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Sunday, July 28, 2019 10:22:25 PM
To: leepd@dhec.sc.gov
Subject: Fwd: Air Monitoring Summary Table, 07/27, 0700 through 07/28, 0700 (24 hour period)
Attachments: Viper_Summary_Report_AR and DustTrack_07272019_0700_07282019_0700.pdf (265.39 KB), ATT00001.htm (178 Bytes)

Sorry I forgot to add you

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Garrard, Jordan" <Garrard.Jordan@epa.gov>
Date: July 28, 2019 at 6:21:11 PM EDT
To: "keith.frost@dhec.sc.gov" <keith.frost@dhec.sc.gov>, "threatrl@dhec.sc.gov" <threatrl@dhec.sc.gov>, "rwells@jaspercountysc.gov" <rwells@jaspercountysc.gov>
Subject: FW: Air Monitoring Summary Table, 07/27, 0700 through 07/28, 0700 (24 hour period)

The fire department was onsite again last night for approximately 1.5 hours. We will be done sampling by 20:00 tonight. We collected 2 rounds of sampling consisting of a nighttime and daytime run at the source and downwind at the closest resident. We also collected an upwind sample for comparison. The samples will be delivered to the lab on July 29. The samples will be analyzed on a 3 day turn around for VOCs, SVOCs, Metals, Formaldehyde, Phosgene, and Asbestos. I hope to have preliminary data by Thursday evening. We will continue to operate the air monitoring stations until 0700 July 29, 2019, at that time we will begin demobilizing resources. If you have any questions please contact me.

Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

From: Eichinger, Kevin
Sent: Sunday, July 28, 2019 6:08 PM

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/27/19** **0700 hours** ***To:*** ***7/28/19*** ***0700 hours***

Location 1						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 1	VOC	No	11,334	6,623	0 - 2535 ppb	86.3 p
	CO	No	11,334	455	0 - 11 ppm	0.2 p
	H_2S	No	11,334	0	0 - 0 ppm	0 pp
	O_2	No	11,334	11,334	20.9 - 20.9%	20.9
	LEL	No	11,334	0	0 - 0%	0%
DustTrak 1	PM-2.5	Good	41,230	39,154	0 - 498 µg/m³	8.5 µg

Location 2						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 2	VOC	No	11,166	45	0 - 718 ppb	6.1 pp
	CO	No	11,166	135	0 - 7 ppm	0 ppr
	H_2S	No	11,166	4	0 - 0.6 ppm	0 ppr
	O_2	No	11,166	11,166	20.9 - 20.9%	20.9
	LEL	No	11,166	0	0 - 0 %	0%
DustTrak 2	PM-2.5	Very Unhealthy	48,763	48,763	8 - 6550 µg/m³	202.6 µg

Location 3						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 3	VOC	No	11,528	7,621	0 - 3538 ppb	70.6 pp
	CO	No	11,528	31	0 - 7 ppm	0 ppr
	H_2S	No	11,528	0	0 - 0 ppm	0 ppr
	O_2	No	11,528	11,528	20.9 - 20.9%	20.9%
	LEL	No	11,528	0	0 - 0%	0%
DustTrak 3	PM-2.5	Unhealthy	42,191	42,191	16 - 7890 µg/m³	88.4 µg/

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

From: Casteel, Sue A. (ATSDR/DCHI/CB) <aov2@cdc.gov>

Sent on: Wednesday, July 31, 2019 9:30:40 PM

To: Garrard, Jordan <Garrard.Jordan@epa.gov>

CC: Bing, Kathryn L. (Leann) (ATSDR/DCHI/CB) <kgb0@cdc.gov>; jzw1@cdc.gov; Hanley, Jack (ATSDR/DCHI/CB) <jah8@cdc.gov>; ran2@cdc.gov

Subject: Fwd: Air summary tables for Able Contracting Fire

Attachments: Viper_Summary_Report_AR and DustTrack_Able_Contracting_07282019_0700_07292019_0200.pdf (200.43 KB), Viper_Summary_Report_AR and DustTrack_07272019_0700_07282019_0700.pdf (265.39 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072519_1951_through_07262019_0700.pdf (166.16 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_0700_through_07262019_1900.pdf.pdf (193.92 KB), Viper_Summary_Report_AR and DustTrack_ABLE CONTRACTING_072619_1900_through_07272019_0700.pdf (158.44 KB), Viper Summary report_AR and DustTrack_ABLE CONTRACTING_072619.pdf (166.16 KB), SOGT106_Particulate_Monitoring_Guideline_02232017_final.pdf (489.33 KB), Map for 7072619 meeting.pdf (12.03 MB)

Jordon,

Could you please confirm where the samples are being collected? Leann reviewed the data and it appears the sample locations In the tables don't match the information on the maps.

Thanks.

If I can assist with public health messaging please let me know.

Sue Casteel
ATSDR
404-562-0637

From: Casteel, Sue A. (ATSDR/DCHI/CB)
Sent: Tuesday, July 30, 2019 2:01:40 PM

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/28/19 0700 hours** ***To:*** ***7/29/19 0200 hours***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	2,452	1,406	0 - 3,302 ppb	77.7 ppb	1,000 ppb
	CO	No	2,452	26	0 - 6 ppm	0 ppm	83 ppm
	H_2S	No	2,452	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,452	2,452	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,452	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	6,341	6,332	0 - 351 µg/m³	8.6 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	2,432	1	0 - 119 ppb	0 ppb	1,000 ppb
	CO	No	2,432	3	0 - 4 ppm	0 ppm	83 ppm
	H_2S	No	2,432	1	0 - 0.4 ppm	0 ppm	0.5 ppm
	O_2	No	2,432	2,432	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,432	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Unhealthy for Sensitive Groups	7,267	7,267	11 - 363 µg/m³	40.6 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	2,449	1,096	0 - 3,200 ppb	36 ppb	1,000 ppb
	CO	No	2,449	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	2,449	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,449	2,449	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	2,449	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy	4,708	4,708	19 - 1060 µg/m³	101.6 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	2,434	404	0 - 36,051 ppb	27.5 ppb	1,000 ppb
	CO	No	2,434	95	0 - 19 ppm	0.2 ppm	83 ppm
	H_2S	No	2,434	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	2,434	2,434	20.9 - 21.3%	20.9%	<19.5 or >23%
	LEL	No	2,434	0	0 - 0%	0%	10%

Notes:

- % Percent
- < Less than
- > Greater than
- AEGL Acute Exposure Guideline levels for airborne chemicals
- CO Carbon monoxide
- H_2S Hydrogen Sulfide
- LEL Lower Explosive Level
- min Minute
- O_2 Oxygen
- PEL Permissible exposure limit
- ppm Parts per million
- ppm Parts per million
- PM Particulate matter
- SOG Standard Operating Guidelines
- TLV Threshold limit value
- µg/m³ Micrograms per cubic meter
- VOC Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/27/19** **0700 hours** ***To:*** ***7/28/19*** ***0700 hours***

Location 1						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 1	VOC	No	11,334	6,623	0 - 2535 ppb	86.3 p
	CO	No	11,334	455	0 - 11 ppm	0.2 pp
	H_2S	No	11,334	0	0 - 0 ppm	0 pp
	O_2	No	11,334	11,334	20.9 - 20.9%	20.9
	LEL	No	11,334	0	0 - 0%	0%
DustTrak 1	PM-2.5	Good	41,230	39,154	0 - 498 µg/m³	8.5 µg

Location 2						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Av**
AreaRAE 2	VOC	No	11,166	45	0 - 718 ppb	6.1 p
	CO	No	11,166	135	0 - 7 ppm	0 pp
	H_2S	No	11,166	4	0 - 0.6 ppm	0 pp
	O_2	No	11,166	11,166	20.9 - 20.9%	20.9
	LEL	No	11,166	0	0 - 0 %	0%
DustTrak 2	PM-2.5	Very Unhealthy	48,763	48,763	8 - 6550 µg/m³	202.6 µ

Location 3						
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period A**
AreaRAE 3	VOC	No	11,528	7,621	0 - 3538 ppb	70.6 p
	CO	No	11,528	31	0 - 7 ppm	0 pp
	H_2S	No	11,528	0	0 - 0 ppm	0 pp
	O_2	No	11,528	11,528	20.9 - 20.9%	20.9
	LEL	No	11,528	0	0 - 0%	0%
DustTrak 3	PM-2.5	Unhealthy	42,191	42,191	16 - 7890 µg/m³	88.4 µ

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
Station 155							
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
Station 156							
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
Station 157							
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
Columbia Park							
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/26/19 7:00** ***To:*** ***7/26/19 18:59***

Location 1

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,598	109	0 - 6,319 ppb	7 ppb	1,000 ppb
	CO	No	7,598	529	0 - 19 ppm	0.3 ppm	83 ppm
	H_2S	No	7,598	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,598	7,598	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,598	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	25,313	25,310	0 - 220 µg/m³	6.3 µg/m³	See SOG #: T106

Location 2

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	7,795	111	0 - 5,277 ppb	2.4 ppb	1,000 ppb
	CO	No	7,795	148	0 - 13 ppm	0.1 ppm	83 ppm
	H_2S	No	7,795	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,795	7,795	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,795	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Unhealthy	44,965	44,965	1 - 1260 µg/m³	84.2 µg/m³	See SOG #: T106

Location 3

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	8,496	4,210	0 - 20,802 ppb	45.9 ppb	1,000 ppb
	CO	No	8,496	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	8,496	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	8,496	8,496	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	8,496	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy for Sensative Groups	38,022	38,022	14 - 1390 µg/m³	52 µg/m³	See SOG #: T106

Location 4

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	7,855	88	0 - 21,572 ppb	4.7 ppb	1,000 ppb
	CO	No	7,855	607	0 - 24 ppm	0.5 ppm	83 ppm
	H_2S	No	7,855	17	0 - 1 ppm	0 ppm	0.5 ppm
	O_2	No	7,855	7,855	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,855	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Able Contracting Fire

From: **7/26/19** **1900 hours** ***To:*** ***7/27/19*** ***0700 hours***

Location 1							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 1	VOC	No	6,934	4,053	0 - 881 ppb	27.8 ppb	1 ppm
	CO	No	6,934	268	0 - 11 ppm	0.2 ppm	83 ppm
	H_2S	No	6,934	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,934	6,934	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,934	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Good	36,181	36,175	0 - 417 µg/m³	7.6 µg/m³	See SOG #: T106

Location 2							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 2	VOC	No	7,164	1,248	0 - 1513 ppb	24.8 ppb	1 ppm
	CO	No	7,164	426	0 - 16 ppm	0.2 ppm	83 ppm
	H_2S	No	7,164	13	0 - 1 ppm	0 ppm	0.5 ppm
	O_2	No	7,164	7,164	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,164	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Very Unhealthy	44,566	44,566	10 - 10400 µg/m³	167.8 µg/m³	See SOG #: T106

Location 3							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 3	VOC	No	7,952	7,952	0 - 920 ppb	31.9 ppb	1 ppm
	CO	No	7,952	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	7,952	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,952	7,952	20.9 - 21.1%	20.9%	<19.5 or >23%
	LEL	No	7,952	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Unhealthy	39,505	39,505	16 - 2430 µg/m³	57.8 µg/m³	See SOG #: T106

Location 4							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 4	VOC	No	7,372	219	0 - 112984 ppb	29.2 ppb	1 ppm
	CO	No	7,372	59	0 - 23 ppm	0.1 ppm	83 ppm
	H_2S	No	7,372	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,372	7,372	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,372	0	0 - 0%	0%	10%

Notes:

- % Percent
- < Less than
- > Greater than
- AEGL Acute Exposure Guideline levels for airborne chemicals
- CO Carbon monoxide
- H_2S Hydrogen Sulfide
- LEL Lower Explosive Level

min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
$\mu g/m^3$	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Moderate	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Moderate	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Summary

- This guide is intended to be used for monitoring particulates released from fires. Effects from other potential pollutants and products of combustion are not addressed in this document. Refer to EPA Emergency Response Air Monitoring Guidance Tables, 2012 Edition 3[a] for guidance on other pollutants.
- $PM_{2.5}$ is the preferred metric for fire response particulate monitoring.
- The DataRAM 4 and the DustTrak DRX 8533EP are the standard monitoring instrument for measuring particulate concentrations.
- The E-BAM, available from ERT, is the alternate monitoring instrument when accuracy is a critical factor.
- Instrument accessories may be needed to offset weather variables and provide power during extended monitoring periods.
- Establish monitoring sites downwind of the hot zone and immediately upwind. Monitoring may also be recommended in the hot zone if there is a health risk to response workers.
- Use Table 1 to select the appropriate response action. Community action levels apply to everyone in neighboring areas affected by smoke. Worker action levels apply to response workers at the site.

Introduction

Fire presents a multitude of health and safety hazards as a result of effects on air quality. Smoke is the most visible air pollutant and is composed of Carbon Monoxide (CO), Carbon Dioxide (CO_2), Water Vapor, Particulate Matter (PM), hydrocarbons, organic chemicals, Nitric Oxides (NO_X), and minerals. Smoke can disperse quickly and may present significant health risks for nearby communities. Variables that impact dispersion include wind, temperature, moisture, and topography. Air monitoring guidance for these and other products of combustion are presented in the EPA Emergency Response Air Monitoring Guidance Tables[a].

PM consists of solid and liquid particles suspended in air. PM can readily enter the body through inhalation and can cause both acute and chronic health effects. Particulates will be present in all smoke resulting from a fire, regardless of the fuel source; however, different types of fuels will produce different sizes and concentrations of PM. Heat is also a factor which can effect particulate concentrations. After a fire has been suppressed, particulate concentrations can be higher during the smoldering phase because of less-complete combustion[b].

Most particulates in smoke are between 0.4 - 0.7 micrometers (µm) which is considered respirable. Particulates are typically classified as PM_{10} or $PM_{2.5}$ which refers to the particulate size.

- PM_{10} is defined as "course" particles measuring 10 µm or less in diameter.
- $PM_{2.5}$ is defined as "fine" particles with a diameter equal to or less than 2.5 µm.

It is recommended that monitoring efforts focus on measuring $PM_{2.5}$ during emergency fire responses. The California Air Resource Board states that most smoke particulates are between 0.4 – 0.7 µm, and concludes $PM_{2.5}$ would be a more practical monitoring parameter to use[b]. In 2007, Naeher et al. also indicated that $PM_{2.5}$ was the more suitable particulate monitoring metric [c]. Further, the EPA Air Quality Index (AQI) uses $PM_{2.5}$ in the health rating guide, also suggesting that $PM_{2.5}$ is the more appropriate standard when looking at the health hazards of particulates.

Links to Additional Information:

- Graph of particle size distribution of atmospheric particles
- Graph of particle size from particulate emissions
- Emission Study with graph of particle size distribution

Air Quality Thresholds, Actions and Recommendations

Evacuation and/or protect-in-place procedures should be recommended for areas downwind of or in the visible smoke cloud.

Once instrument readings become available, the concentrations may be an indication of potential exposure. Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) lists the threshold levels for different concentrations and the recommended actions that should be taken to prevent harm to community members and workers/responders at the response site. These actions may include communication with community members, evacuations, and medical monitoring. Consider consulting ATSDR to assist with generating public health statements, factsheets and possible development of a medical monitoring plan.

Criteria listed in the Protective Action Criteria (PAC) were assessed, but the values for particulates were much higher than those used in the AQI[d]. Because of this, the PAC values are not the preferred metric for response action guidance.

Odors and visible air opacity may trigger complaints and concerns in affected areas. Conditions and individual sensitivities can play a significant role in determining the point at which smoke becomes noticeable. If such concerns are presented, monitoring instrument results and Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) recommendations should be used to guide response actions.

TABLE 1: Threshold Levels and Recommended Response Actions for $PM_{2.5}$

$PM_{2.5}$ Threshold Levels ($\mu g/m^3$)				
1 Hr. Avg.[1]	**24 Hr. Avg.[1]**	**Level of Health Concern**	**Meaning**	**Action**
COMMUNITY ACTION LEVELS				
0.0 – 40.0	0.0 – 12.0	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	Implement communication plan [2].
40.1 – 80.0	12.1 - 35.4	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive [3] to air pollution.	Issue public announcement about health effects [2]. Stay out of areas with visible smoke.
80.1 – 175.0	35.5 - 55.4	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
175.1 – 300.0	55.5 - 150.4	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
300.1 - 500.0	150.5 - 250.4	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
> 500.0	> 250.5	Hazardous	Health alert: everyone may experience more serious health effects	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.
Source	**Particulates not otherwise regulated/specified ($\mu g/m^3$) 8 Hr. Avg.**		**Meaning**	**Action**
WORKER ACTION LEVELS				
OSHA PEL	15,000 (total dust) 5,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Levels above the 8 hour TWA require the use of level C PPE (use P100 particulate filter). See ERRB P100 – PPE Guidelines for Specific Activities/Tasks and P102 - Respiratory Protection Equipment Selection.
ACGIH TLV	10,000 (inhalable fraction - <100µm) 3,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Consider implementing industrial hygiene measures and/or using level C PPE.

[1] Threshold values taken from original EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc for $PM_{2.5}$ (24 hour) and Idaho Department of Environmental Quality AQI for $PM_{2.5}$ (1 hour) taken from http://app.airsis.com/usfs/aqi.asp.

[2] Recommendations from EPA Air Now web site. See Reference E.

[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.

[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

TABLE 2: Threshold Levels and Recommended Response Actions for PM_{10}

PM_{10} Threshold Levels ($\mu g/m^3$)[1] 24 Hr. Avg.	Level of Health Concern	Meaning	Action
COMMUNITY ACTION LEVELS			
0.0 – 12.0	Good	None	Implement communication plan [2].
12.1 – 55.0	Moderate	Unusually sensitive[3] people should consider reducing prolonged or heavy exertion.	Issue public announcement about health effects [4].
55.1 – 155.0	Unhealthy for Sensitive Groups	Increasing likelihood of respiratory symptoms and aggravation of lung disease, such as asthma.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
155.1 – 255.0	Unhealthy	Increased respiratory symptoms and aggravation of lung disease, such as asthma; possible respiratory effects in general population.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
255.1-355.0	Very Unhealthy	Significant increase in respiratory symptoms and aggravation of lung disease, such as asthma; increasing likelihood of respiratory effects in general population.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
355.1-425.0	Hazardous	Serious risk of respiratory symptoms and aggravation of lung disease, such as asthma; respiratory effects likely in general population.	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.

[1] Threshold values taken from EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc
[2] Recommendations from EPA Air Now web site. See Reference E.
[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.
[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

Monitoring Instruments and Methods

Region IV Emergency Response, Removal and Prevention Branch (ERRPB) currently uses the DataRAM 4 and the DustTrak DRX 8533EP for particulate monitoring.

The DustTrak DRX 8533EP was added to the Branch inventory in February 2017. The DustTrak uses light scattering measurement similar to the DataRAM 4 but has the ability to both size and mass fractions simultaneously. The unit concurrently provides PM10, PM4, PM2.5, PM1 and Total particulate data without having to change the impactor head. The customized units the Branch maintains have external pumps, and a built in/automatic heater unit that is preset to keep the moisture level below 40%.

The DataRAM 4 has advantages such as portability, an internal power supply, and a large detection range. One of the drawbacks of the DataRAM 4 is that mass concentrations tend to be over-estimated. United States Forestry Service (USFS) studies have shown that the DataRAM 4 estimations are on average 144% higher than actual concentrations[f]. Because of this, the USFS recommends applying a correction factor of 0.39 to instrument readings[f]. The DataRAM 4 is the preferred instrument when portability is important and/or if very high concentrations are expected (i.e. at source).

The E-BAM monitor is available through EPA Environmental Response Team (ERT), and is considered to be the most accurate monitoring instrument available. Some of the drawbacks include reduced portability (heavier, awkward shape), narrow detection range, and it requires an auxiliary power source. The E-BAM is the preferred instrument when accuracy is a critical factor and high concentrations are not expected (i.e. better for measuring fugitive dust concentrations on metals removal sites).

Use of monitoring instruments can also be affected by available resources, weather, and environmental conditions. Accessories and adapters may be required to offset the effects of these variables.

- Heater: A temperature conditioning heater must be used if humidity is > 40%. Without a heater in these conditions, measurements may be biased towards higher readings. Refer to instrument manual for further instruction. These are available for most particulate monitoring instruments.
- Power Generation: Most instruments will run for 15-24 hours on a full battery charge. A generator, solar panel, or auxiliary battery system will likely be needed for equipment without a built-in power supply or for continuous monitoring > 15 hours.
- GFCI: If a power generation system is used, a power strip/surge protector should be used to accommodate other accessories and monitoring equipment. This will also prevent possible electrical damage to expensive equipment.
- Impactor: The DataRAM and DustTrak are used with an impactor attachment which connects to the air intake. This functions as a pre-collector to help offset some of the effects of wind and precipitation. It should be utilized at all times.

TABLE 3. Instruments Available for an EPA Response

Criteria	DataRAM 4	E-BAM	DUSTTRAK DRX 8533EP
Accuracy (% above actual) [1]	144%	1%	Not determined
Detection Range (μg/m³) [2]	0.1 - 400,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)$_2$	13	28 (without battery)	
Setup Time	15 min	15-30 min	15 min
Measurement Method	light scattering	filter tape	90° light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option avail.	Dual re-chargeable batteries, 12 hour run time each.
Availability	Regional Readiness Center (6 units)	1-2 days via EPA ERT	Regional Readiness Center (3 units)

[1] based on results from US Forest Service 2006 study *Smoke Particulate Monitors*. See Reference F.
[2] taken from manufacturers specifications.

Table 4. Comparison of Common Particulate Monitors on the Market

Criteria	DataRAM 4000	DataRAM 2000	E-BAM	E-Sampler	DUSTTRAK
Accuracy (% above actual)[1]	144%	15%	1%	13%	217%
Detection Range ($\mu g/m^3$)[2]	0.1 - 400,000	0.1 - 400,000	0.1 - 65,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)[2]	13	12	28 (without battery)	12 (without battery)	9 (device only); 38 (with enclosure)
Setup Time	15 min	15 min	15-30 min	15-30 min	Unknown
Measurement Method	light scattering	light scattering	filter tape	light scattering	90-degree light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option	Requires AC power source or external DC. Solar option	Re-chargeable internal battery. 15-24 hr. run time.

[1] based on results from US Sorest Service 2006 study *Smoke Particulate Monitors*. See Reference a.
[2] taken from manufacturers specs

Monitoring Locations

Monitoring for particulates should take place both at the work zone and in surrounding areas where the smoke may travel or accumulate. Consider areas between the release point and sensitive receptors. Temperature, wind, and humidity can affect where smoke travels. As the earth's surface is heated in the afternoon, the atmosphere becomes more unstable when heated air expands. This causes smoke to disperse in a more vertical pattern in the afternoon and early evening. Warm temperatures or major changes in daytime high/low temperatures will cause the smoke to rise higher than in cooler temperatures with a narrow high/low range. As the atmosphere stabilizes overnight and through the morning, smoke will disperse horizontally and settle into low-lying areas and valleys[8].

Wind is a significant factor in smoke dispersion. Unstable atmospheric conditions in the afternoon also increase wind speed which increases the rate and distance of dispersion. Humidity above 80% can cause moisture to condense on smoke particles. This can create a fog type effect which slows and settles smoke. Precipitation can cause a similar effect and slow dispersion. Atmospheric inversions should be taken into consideration when determining monitoring locations and recommending evacuation or protect-in-place zones. An atmospheric inversion occurs when a layer of air that is warmer than the air below traps the surface air in place and prevents dispersion of any pollutants it contains.

Surface structures such as buildings and trees can significantly change air flow direction and cause stagnant air pockets to form. This can trap smoke in small, confined areas and create hot spots with significantly higher particulate concentrations than nearby locations. When monitoring areas which are surrounding the source consider the following:

- Downwind areas will be most impacted by smoke.
- It should be expected that particulate readings at ground level will be higher at night or in the morning than in the afternoon or early evening.

Monitoring at the work zone may be necessary to establish appropriate levels of PPE for response workers. This will also help to determine safe areas to stage response support activities where workers may not be using protective equipment.

When choosing a monitoring site, some additional items should also be considered:

- Availability of power sources will determine what type of power generation is required. The absence of auxiliary power will require more frequent maintenance and may require additional staffing, especially if the monitoring period is > 24 hours.
- Consider security measures (i.e. locked boxes, chains, etc.) if instruments are to be sited in public areas and left unattended.
- Ensure generators or equipment from other activities which may release emissions do not interfere with monitoring stations.
- Power lines or electrical utility areas should be avoided.

Health Effects

PM_{10} and $PM_{2.5}$ are considered to be respirable. Particulates > 10 µm do not typically reach the lungs, but can irritate the eyes, nose, and throat. Although PM_{10} is respirable, $PM_{2.5}$ is inhaled deeper into lung tissue due to their small size (approximately 1/30th the average width of human hair[h]), and thus presents a greater health hazard than larger particulates. PM between 0.1 µm and 1 µm can remain in the atmosphere for days or weeks, meaning there is a potential for long range dispersion from the source.

Smoke and particulate exposure will typically have the largest effect on the respiratory system. Irritation and coughing are common acute symptoms of exposure to particulates. Individuals subject to particulate exposure may first notice irritation of the throat, eyes, and nose. This may be followed by coughing, chest pain, and shortness of breath if exposure continues.

- Acute effects of particulate exposure include irritation of the respiratory system, coughing, and breathing difficulties.
- Chronic effects of particulate exposure include reduced lung function, asthma, lung cancer, chronic bronchitis, cardiovascular disease, premature death, and may cause birth defects[e].

These symptoms can be magnified for sensitive individuals, which can include groups or individuals with pre-existing conditions (e.g.: asthma, heart disease, lung disease), children, the elderly, and pregnant women. Sensitive individuals can experience aggravation of respiratory and cardiovascular systems at lower levels which may not affect non-sensitive individuals[e].

PM can also transport other pollutants which creates additional health concerns. Special consideration and precautions should be made if other pollutants are expected. ATSDR can provide assistance with generating public health statements, factsheets and possible development of a medical monitoring plan.

Reporting

Generate air monitoring summary reports to present data to the Incident Management Team (IMT) during Command, Planning, and Tactical meetings/briefings. Air monitoring summary reports typically group instruments by location and summarize each analyte result with number of readings, number of detections, concentration range, and a time-time weighted average over the period of the report. For particulates, specifically, the air monitoring report typically classifies the reporting period based on the AQI as seen in Table 1 and Table 2.

Develop the reporting schedule around the operational periods established by the IMT, and include sufficient time to review air monitoring summary reports prior to meetings/briefings since they often become the data backing up health-based decisions (e.g. whether to modify/implement evacuation zones or how to advise schools on openings/delayed starts).

References

a. EPA ERTG – *Air Monitoring Guidance Tables* http://www.epaosc.org/sites/0001/files/US%20EPA%20Air%20Tables%20Edition3_FINAL%202.pdf
b. California Air Resource Board. *Wildfire Smoke, A Guide for Public Health Officials*. July 2008. http://www.arb.ca.gov/carpa/toolkit/data-to-mes/wildfire-smoke-guide.pdf
c. Naeher, L.P., Brauer, M., Lipsett, M., Zelikoff, J.T., Simpson, C.D., Koenig, J.Q. and Smith, K.R. 2007. *Woodsmoke Health Effects: A Review*. Inhalation Toxicology. 19: 67–106.
d. US Department of Energy. *Protective Action Criteria* http://www.atlintl.com/doe/teels/teel.html
e. EPA Air Now. *Air Quality Index – A Guide to Air Quality and Your Health.* http://www.airnow.gov/index.cfm?action=aqibasics.aqi
f. USDA Forest Service – Technology Development Program. *Smoke Particulate Monitors: 2006 Update.* December 2006. https://www3.epa.gov/ttnamti1/files/ambient/smoke/ebamrpt.pdf
g. Auburn University. *Smoke Dispersion* http://www.auburn.edu/academic/forestry_wildlife/fire/smoke_guide/smoke_dispersion.htm
h. US Environmental Protection Agency. Fine particle ($PM_{2.5}$) Designations, Frequent Questions. http://www.epa.gov/pmdesignations/faq.htm

Able Contracting Fire

Instrumentation Configuration
Night of 7/25/19

Legend

- EPA Air Monitoring Station
- SCDHEC Air Monitoring Station

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Saturday, August 3, 2019 3:06:17 PM
To: Moore, Tony <moore.tony@epa.gov>; Webster, James <Webster.James@epa.gov>
Subject: Fwd: Aug 02 NIGHT Air monitoring summary table
Attachments: image001.png (1.21 KB), ATT00001.htm (456 Bytes), image002.png (1.4 KB), ATT00002.htm (469 Bytes), image003.png (1.37 KB), ATT00003.htm (820 Bytes), image004.jpg (2.06 KB), ATT00004.htm (356 Bytes), Viper Summary report_SPM_08022019NIGHT.pdf (135.72 KB), ATT00005.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Snyder, John" <John.Snyder@tetratech.com>
Date: August 3, 2019 at 10:54:52 AM EDT
To: "Garrard, Jordan" <garrard.jordan@epa.gov>
Subject: Aug 02 NIGHT Air monitoring summary table

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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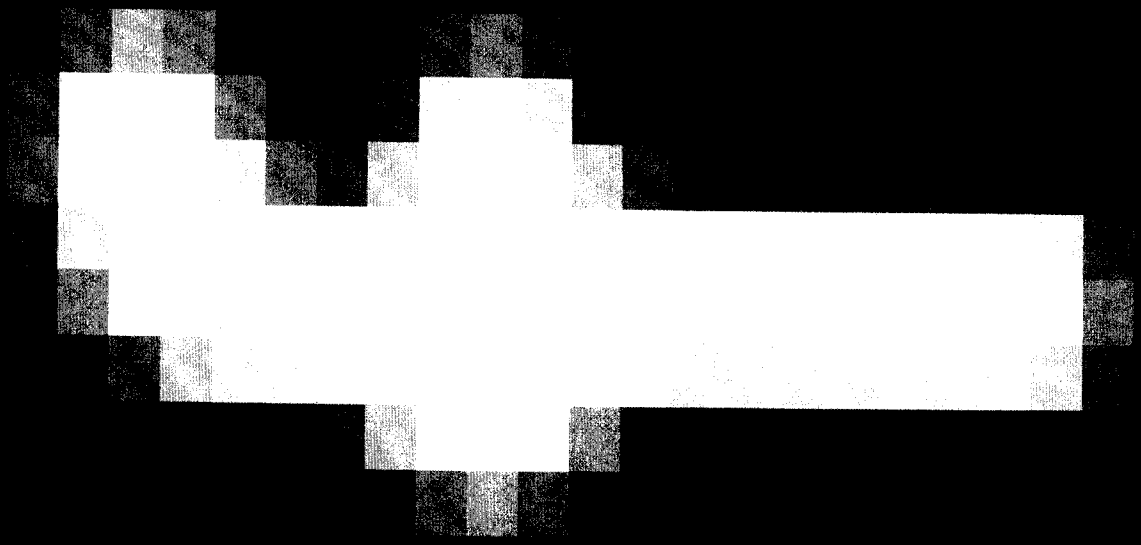

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Sent on: Saturday, August 3, 2019 7:23:19 PM
To: rwells@jaspercountysc.gov; Scott Reynolds <reynolds@dhec.sc.gov>; keith.frost@dhec.sc.gov; threatrl@dhec.sc.gov
Subject: Fwd: Aug 02 NIGHT Air monitoring summary table
Attachments: image001.png (1.21 KB), ATT00001.htm (456 Bytes), image002.png (1.4 KB), ATT00002.htm (469 Bytes), image003.png (1.37 KB), ATT00003.htm (820 Bytes), image004.jpg (2.06 KB), ATT00004.htm (356 Bytes), Viper Summary report_SPM_08022019NIGHT.pdf (135.72 KB), ATT00005.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Snyder, John" <John.Snyder@tetratech.com>
Date: August 3, 2019 at 10:54:52 AM EDT
To: "Garrard, Jordan" <garrard.jordan@epa.gov>
Subject: Aug 02 NIGHT Air monitoring summary table

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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Raleigh, NC (Cary) | tetratech.com

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From: Huyser, Matthew <Huyser.Matthew@epa.gov> on behalf of Huyser, Matthew
Sent on: Saturday, July 27, 2019 12:17:37 PM
To: Eichinger, Kevin <Eichinger.Kevin@epa.gov>; Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>; Josiah Williams <josiah.williams@tetratech.com>
Subject: Fwd: Automated Viper Exports for the R04 Able Construction Fire
Attachments: image002.png (1.21 KB), image003.png (1.4 KB), image004.png (1.37 KB)

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax:**404-562-8699**
epaosc.org

Begin forwarded message:

From: "Spiking, Bill" <bill.spiking@tetratech.com>
Date: July 26, 2019 at 1:17:16 PM EDT
To: "Wise, Katie" <Katie.Wise@tetratech.com>
Cc: "Huyser, Matthew" <huyser.matthew@epa.gov>
Subject: RE: Automated Viper Exports for the R04 Able Construction Fire

Cool. Please send the email with the password when you get it.

Bill Spiking, GISP | GIS Analyst/Project Manager
Direct **+1 (816) 412-1780** | Main **+1 (816) 412-1741** | Cell **+1 (816) 520-9269** | LinkedIn profile

Tetra Tech | Complex World, Clear Solutions™ | Environmental Services Divisions
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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, July 26, 2019 3:52:33 PM
To: John Snyder <john.snyder@tetratech.com>
Subject: Fwd: July 22-25 air sensor data and daily averages
Attachments: July 22-25 2019 data.pdf (363.56 KB), ATT00001.htm (518 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Thompson, Rhonda" <thompsrb@dhec.sc.gov>
Date: July 26, 2019 at 11:48:05 AM EDT
To: "Garrard.Jordan@epa.gov" <Garrard.Jordan@epa.gov>
Subject: Fwd: July 22-25 air sensor data and daily averages

This is all of our air sensor PM2.5 data since July 22.

July 22-25, 2019 Air Sensor $PM_{2.5}$ Concentrations

Time	Concentration	Ambient Temperature	Relative Humidity	Barometric Pressure	Wind Direction	Wind Speed
7/22/2019 0:00	5.000ug/m3	26.9Â°C	79%	1015.4mbar	150Deg	0.4m/s
7/22/2019 0:15	4.000ug/m3	26.7Â°C	80%	1015.4mbar	170Deg	0.4m/s
7/22/2019 0:30	6.000ug/m3	26.6Â°C	80%	1015.4mbar	166Deg	0.5m/s
7/22/2019 0:45	7.000ug/m3	26.4Â°C	80%	1015.3mbar	167Deg	0.5m/s
7/22/2019 1:00	7.000ug/m3	26.3Â°C	80%	1015.3mbar	117Deg	0.5m/s
7/22/2019 1:15	4.000ug/m3	26.2Â°C	80%	1015.4mbar	179Deg	0.5m/s
7/22/2019 1:30	4.000ug/m3	26.1Â°C	79%	1015.3mbar	195Deg	0.4m/s
7/22/2019 1:45	6.000ug/m3	25.8Â°C	80%	1015.1mbar	252Deg	0.3m/s
7/22/2019 2:00	6.000ug/m3	25.4Â°C	82%	1014.9mbar	323Deg	0.3m/s
7/22/2019 2:15	4.000ug/m3	25.2Â°C	82%	1014.8mbar	165Deg	0.4m/s
7/22/2019 2:30	3.000ug/m3	24.9Â°C	83%	1014.8mbar	148Deg	0.3m/s
7/22/2019 2:45	4.000ug/m3	24.7Â°C	83%	1014.6mbar	134Deg	0.4m/s
7/22/2019 3:00	5.000ug/m3	24.5Â°C	83%	1014.6mbar	146Deg	0.3m/s
7/22/2019 3:15	5.000ug/m3	24.4Â°C	83%	1014.6mbar	125Deg	0.4m/s
7/22/2019 3:30	3.000ug/m3	24.2Â°C	84%	1014.5mbar	102Deg	0.4m/s
7/22/2019 3:45	3.000ug/m3	24.1Â°C	83%	1014.5mbar	119Deg	0.3m/s
7/22/2019 4:00	4.000ug/m3	24.0Â°C	83%	1014.4mbar	108Deg	0.3m/s
7/22/2019 4:15	5.000ug/m3	23.8Â°C	84%	1014.2mbar	111Deg	0.4m/s
7/22/2019 4:30	4.000ug/m3	23.6Â°C	84%	1014.2mbar	132Deg	0.3m/s
7/22/2019 4:45	3.000ug/m3	23.5Â°C	84%	1014.2mbar	105Deg	0.4m/s
7/22/2019 5:00	4.000ug/m3	23.4Â°C	85%	1014.3mbar	123Deg	0.4m/s
7/22/2019 5:15	5.000ug/m3	23.3Â°C	85%	1014.3mbar	160Deg	0.3m/s
7/22/2019 5:30	4.000ug/m3	23.3Â°C	85%	1014.3mbar	60Deg	0.3m/s
7/22/2019 5:45	3.000ug/m3	23.1Â°C	87%	1014.3mbar	66Deg	0.4m/s
7/22/2019 6:00	3.000ug/m3	22.5Â°C	93%	1014.4mbar	87Deg	0.5m/s
7/22/2019 6:15	3.000ug/m3	22.1Â°C	93%	1014.6mbar	115Deg	0.4m/s
7/22/2019 6:30	3.000ug/m3	21.7Â°C	94%	1014.7mbar	151Deg	0.3m/s
7/22/2019 6:45	4.000ug/m3	21.6Â°C	94%	1014.8mbar	141Deg	0.3m/s
7/22/2019 7:00	3.000ug/m3	21.7Â°C	94%	1014.9mbar	207Deg	0.3m/s
7/22/2019 7:15	2.000ug/m3	21.9Â°C	95%	1015.0mbar	195Deg	0.3m/s
7/22/2019 7:30	2.000ug/m3	22.1Â°C	95%	1015.2mbar	190Deg	0.4m/s
7/22/2019 7:45	2.000ug/m3	22.8Â°C	95%	1015.4mbar	192Deg	0.4m/s
7/22/2019 8:00	3.000ug/m3	23.1Â°C	94%	1015.5mbar	212Deg	0.7m/s
7/22/2019 8:15	3.000ug/m3	23.1Â°C	93%	1015.6mbar	186Deg	0.6m/s
7/22/2019 8:30	4.000ug/m3	23.2Â°C	93%	1015.7mbar	185Deg	1.0m/s
7/22/2019 8:45	5.000ug/m3	23.6Â°C	92%	1015.6mbar	215Deg	0.8m/s
7/22/2019 9:00	10.000ug/m3	23.8Â°C	92%	1015.6mbar	187Deg	0.9m/s
7/22/2019 9:15	9.000ug/m3	24.3Â°C	92%	1015.7mbar	221Deg	0.9m/s
7/22/2019 9:30	6.000ug/m3	24.7Â°C	91%	1015.7mbar	253Deg	1.1m/s
7/22/2019 9:45	4.000ug/m3	25.2Â°C	90%	1015.8mbar	252Deg	0.9m/s
7/22/2019 10:00	3.000ug/m3	26.0Â°C	88%	1015.8mbar	286Deg	1.2m/s
7/22/2019 10:15	3.000ug/m3	26.6Â°C	85%	1015.9mbar	292Deg	1.4m/s
7/22/2019 10:30	3.000ug/m3	27.2Â°C	82%	1016.0mbar	263Deg	1.2m/s

7/22/2019 10:45	2.000ug/m3	28.0Â°C	79%	1016.0mbar	292Deg	1.2m/s
7/22/2019 11:00	3.000ug/m3	28.8Â°C	76%	1015.9mbar	268Deg	1.2m/s
7/22/2019 11:15	3.000ug/m3	29.7Â°C	72%	1015.8mbar	287Deg	1.3m/s
7/22/2019 11:30	3.000ug/m3	30.5Â°C	66%	1015.8mbar	261Deg	1.2m/s
7/22/2019 11:45	3.000ug/m3	31.5Â°C	61%	1015.6mbar	270Deg	1.1m/s
7/22/2019 12:00	3.000ug/m3	31.8Â°C	57%	1015.4mbar	287Deg	1.3m/s
7/22/2019 12:15	3.000ug/m3	32.3Â°C	56%	1015.3mbar	247Deg	1.2m/s
7/22/2019 12:30	4.000ug/m3	32.6Â°C	53%	1015.2mbar	317Deg	1.3m/s
7/22/2019 12:45	3.000ug/m3	32.1Â°C	54%	1015.2mbar	310Deg	1.4m/s
7/22/2019 13:00	4.000ug/m3	32.7Â°C	52%	1015.0mbar	272Deg	1.1m/s
7/22/2019 13:15	3.000ug/m3	33.6Â°C	50%	1014.8mbar	243Deg	1.0m/s
7/22/2019 13:30	4.000ug/m3	33.7Â°C	48%	1014.7mbar	310Deg	1.3m/s
7/22/2019 13:45	3.000ug/m3	33.6Â°C	49%	1014.7mbar	283Deg	1.1m/s
7/22/2019 14:00	4.000ug/m3	34.4Â°C	47%	1014.5mbar	281Deg	1.0m/s
7/22/2019 14:15	3.000ug/m3	34.4Â°C	46%	1014.3mbar	256Deg	1.1m/s
7/22/2019 14:30	4.000ug/m3	33.9Â°C	47%	1014.1mbar	227Deg	0.9m/s
7/22/2019 14:45	3.000ug/m3	34.8Â°C	47%	1013.9mbar	136Deg	0.9m/s
7/22/2019 15:00	3.000ug/m3	33.9Â°C	50%	1013.7mbar	107Deg	0.6m/s
7/22/2019 15:15	3.000ug/m3	33.9Â°C	49%	1013.4mbar	113Deg	1.0m/s
7/22/2019 15:30	3.000ug/m3	34.3Â°C	52%	1013.2mbar	184Deg	0.8m/s
7/22/2019 15:45	3.000ug/m3	34.9Â°C	49%	1013.0mbar	176Deg	0.9m/s
7/22/2019 16:00	3.000ug/m3	33.8Â°C	50%	1012.9mbar	157Deg	0.8m/s
7/22/2019 16:15	3.000ug/m3	33.0Â°C	53%	1012.9mbar	152Deg	0.8m/s
7/22/2019 16:30	4.000ug/m3	34.5Â°C	51%	1012.7mbar	142Deg	0.9m/s
7/22/2019 16:45	4.000ug/m3	34.7Â°C	49%	1012.6mbar	165Deg	1.0m/s
7/22/2019 17:00	4.000ug/m3	34.7Â°C	50%	1012.6mbar	178Deg	0.9m/s
7/22/2019 17:15	4.000ug/m3	34.0Â°C	48%	1012.6mbar	209Deg	1.1m/s
7/22/2019 17:30	3.000ug/m3	32.9Â°C	50%	1012.6mbar	184Deg	0.9m/s
7/22/2019 17:45	3.000ug/m3	32.0Â°C	54%	1012.6mbar	151Deg	0.7m/s
7/22/2019 18:00	3.000ug/m3	31.9Â°C	55%	1012.7mbar	191Deg	0.9m/s
7/22/2019 18:15	3.000ug/m3	32.3Â°C	55%	1012.7mbar	219Deg	1.1m/s
7/22/2019 18:30	3.000ug/m3	31.8Â°C	55%	1012.5mbar	195Deg	1.1m/s
7/22/2019 18:45	3.000ug/m3	31.9Â°C	55%	1012.4mbar	230Deg	1.1m/s
7/22/2019 19:00	3.000ug/m3	32.0Â°C	55%	1012.3mbar	210Deg	0.9m/s
7/22/2019 19:15	3.000ug/m3	32.0Â°C	54%	1012.3mbar	180Deg	0.7m/s
7/22/2019 19:30	3.000ug/m3	31.6Â°C	55%	1012.4mbar	206Deg	0.8m/s
7/22/2019 19:45	3.000ug/m3	30.8Â°C	58%	1012.5mbar	186Deg	0.7m/s
7/22/2019 20:00	3.000ug/m3	30.0Â°C	61%	1012.8mbar	181Deg	0.6m/s
7/22/2019 20:15	4.000ug/m3	28.9Â°C	66%	1013.0mbar	146Deg	0.7m/s
7/22/2019 20:30	4.000ug/m3	28.4Â°C	70%	1013.1mbar	130Deg	0.7m/s
7/22/2019 20:45	4.000ug/m3	28.1Â°C	72%	1012.8mbar	143Deg	0.7m/s
7/22/2019 21:00	4.000ug/m3	27.8Â°C	74%	1012.9mbar	122Deg	0.5m/s
7/22/2019 21:15	4.000ug/m3	27.6Â°C	76%	1013.1mbar	186Deg	0.5m/s
7/22/2019 21:30	4.000ug/m3	27.5Â°C	76%	1013.2mbar	115Deg	0.5m/s
7/22/2019 21:45	5.000ug/m3	27.4Â°C	77%	1013.4mbar	220Deg	0.5m/s
7/22/2019 22:00	3.000ug/m3	27.2Â°C	78%	1013.4mbar	200Deg	0.4m/s

7/22/2019 22:15	2.000ug/m3	27.2Â°C	78%	1013.3mbar	182Deg	0.7m/s
7/22/2019 22:30	3.000ug/m3	27.2Â°C	79%	1013.3mbar	108Deg	0.5m/s
7/22/2019 22:45	4.000ug/m3	27.0Â°C	80%	1013.1mbar	140Deg	0.4m/s
7/22/2019 23:00	3.000ug/m3	26.8Â°C	82%	1013.1mbar	157Deg	0.4m/s
7/22/2019 23:15	2.000ug/m3	26.7Â°C	82%	1013.2mbar	141Deg	0.4m/s
7/22/2019 23:30	3.000ug/m3	26.7Â°C	82%	1013.2mbar	185Deg	0.4m/s
7/22/2019 23:45	4.000ug/m3	26.8Â°C	83%	1013.3mbar	225Deg	0.6m/s
7/23/2019 0:00	3.000ug/m3	26.8Â°C	83%	1013.3mbar	321Deg	0.4m/s
7/23/2019 0:15	2.000ug/m3	26.7Â°C	83%	1013.3mbar	195Deg	0.5m/s
7/23/2019 0:30	2.000ug/m3	26.6Â°C	84%	1013.1mbar	152Deg	0.4m/s
7/23/2019 0:45	4.000ug/m3	26.4Â°C	84%	1012.9mbar	148Deg	0.4m/s
7/23/2019 1:00	3.000ug/m3	26.2Â°C	85%	1012.8mbar	189Deg	0.4m/s
7/23/2019 1:15	2.000ug/m3	26.1Â°C	84%	1012.7mbar	201Deg	0.4m/s
7/23/2019 1:30	3.000ug/m3	26.0Â°C	85%	1012.6mbar	8Deg	0.5m/s
7/23/2019 1:45	4.000ug/m3	26.0Â°C	84%	1012.5mbar	264Deg	0.5m/s
7/23/2019 2:00	3.000ug/m3	25.9Â°C	85%	1012.2mbar	213Deg	0.6m/s
7/23/2019 2:15	2.000ug/m3	25.7Â°C	85%	1012.2mbar	168Deg	0.4m/s
7/23/2019 2:30	3.000ug/m3	25.4Â°C	86%	1012.1mbar	123Deg	0.4m/s
7/23/2019 2:45	4.000ug/m3	25.2Â°C	87%	1012.0mbar	86Deg	0.4m/s
7/23/2019 3:00	3.000ug/m3	25.3Â°C	87%	1011.8mbar	292Deg	0.4m/s
7/23/2019 3:15	2.000ug/m3	25.2Â°C	87%	1011.8mbar	146Deg	0.4m/s
7/23/2019 3:30	2.000ug/m3	25.0Â°C	88%	1011.6mbar	157Deg	0.4m/s
7/23/2019 3:45	3.000ug/m3	24.9Â°C	88%	1011.5mbar	193Deg	0.3m/s
7/23/2019 4:00	3.000ug/m3	24.7Â°C	89%	1011.4mbar	134Deg	0.4m/s
7/23/2019 4:15	2.000ug/m3	24.6Â°C	89%	1011.4mbar	137Deg	0.3m/s
7/23/2019 4:30	2.000ug/m3	24.5Â°C	90%	1011.5mbar	121Deg	0.3m/s
7/23/2019 4:45	2.000ug/m3	24.4Â°C	90%	1011.4mbar	122Deg	0.3m/s
7/23/2019 5:00	4.000ug/m3	24.3Â°C	91%	1011.3mbar	123Deg	0.3m/s
7/23/2019 5:15	2.000ug/m3	24.2Â°C	91%	1011.4mbar	123Deg	0.3m/s
7/23/2019 5:30	2.000ug/m3	24.2Â°C	91%	1011.4mbar	157Deg	0.4m/s
7/23/2019 5:45	2.000ug/m3	24.2Â°C	92%	1011.5mbar	113Deg	0.4m/s
7/23/2019 6:00	2.000ug/m3	24.0Â°C	94%	1011.6mbar	340Deg	0.5m/s
7/23/2019 6:15	3.000ug/m3	23.9Â°C	94%	1011.7mbar	82Deg	0.4m/s
7/23/2019 6:30	5.000ug/m3	23.7Â°C	94%	1011.8mbar	274Deg	0.4m/s
7/23/2019 6:45	4.000ug/m3	23.6Â°C	95%	1011.9mbar	252Deg	0.4m/s
7/23/2019 7:00	4.000ug/m3	23.4Â°C	95%	1012.2mbar	239Deg	0.3m/s
7/23/2019 7:15	3.000ug/m3	23.4Â°C	95%	1012.3mbar	198Deg	0.3m/s
7/23/2019 7:30	4.000ug/m3	23.4Â°C	95%	1012.3mbar	192Deg	0.3m/s
7/23/2019 7:45	3.000ug/m3	23.4Â°C	95%	1012.4mbar	176Deg	0.3m/s
7/23/2019 8:00	3.000ug/m3	23.5Â°C	95%	1012.5mbar	161Deg	0.4m/s
7/23/2019 8:15	3.000ug/m3	23.6Â°C	95%	1012.5mbar	165Deg	0.4m/s
7/23/2019 8:30	3.000ug/m3	23.9Â°C	95%	1012.5mbar	195Deg	0.5m/s
7/23/2019 8:45	3.000ug/m3	24.1Â°C	95%	1012.5mbar	214Deg	0.8m/s
7/23/2019 9:00	4.000ug/m3	24.3Â°C	95%	1012.4mbar	190Deg	0.8m/s
7/23/2019 9:15	5.000ug/m3	24.5Â°C	94%	1012.1mbar	234Deg	0.9m/s
7/23/2019 9:30	5.000ug/m3	24.8Â°C	94%	1011.9mbar	232Deg	0.9m/s

7/23/2019 9:45	4.000ug/m3	25.3Â°C	94%	1011.6mbar	286Deg	0.8m/s
7/23/2019 10:00	4.000ug/m3	25.7Â°C	92%	1011.4mbar	235Deg	0.9m/s
7/23/2019 10:15	3.000ug/m3	26.0Â°C	91%	1011.2mbar	225Deg	1.0m/s
7/23/2019 10:30	3.000ug/m3	26.5Â°C	89%	1011.3mbar	230Deg	0.9m/s
7/23/2019 10:45	3.000ug/m3	27.0Â°C	87%	1011.2mbar	239Deg	1.0m/s
7/23/2019 11:00	3.000ug/m3	27.4Â°C	83%	1011.1mbar	264Deg	1.4m/s
7/23/2019 11:15	3.000ug/m3	28.2Â°C	78%	1011.0mbar	237Deg	1.3m/s
7/23/2019 11:30	6.000ug/m3	29.3Â°C	72%	1010.8mbar	278Deg	1.5m/s
7/23/2019 11:45	3.000ug/m3	30.4Â°C	66%	1010.7mbar	270Deg	1.4m/s
7/23/2019 12:00	3.000ug/m3	31.2Â°C	60%	1010.7mbar	277Deg	1.6m/s
7/23/2019 12:15	4.000ug/m3	31.7Â°C	57%	1010.6mbar	279Deg	1.4m/s
7/23/2019 12:30	4.000ug/m3	31.9Â°C	55%	1010.6mbar	292Deg	1.7m/s
7/23/2019 12:45	3.000ug/m3	32.3Â°C	55%	1010.3mbar	277Deg	1.2m/s
7/23/2019 13:00	3.000ug/m3	32.8Â°C	53%	1010.0mbar	287Deg	1.3m/s
7/23/2019 13:15	3.000ug/m3	33.6Â°C	51%	1009.7mbar	247Deg	1.1m/s
7/23/2019 13:30	4.000ug/m3	33.8Â°C	47%	1009.3mbar	250Deg	1.2m/s
7/23/2019 13:45	3.000ug/m3	34.4Â°C	46%	1009.1mbar	239Deg	1.2m/s
7/23/2019 14:00	3.000ug/m3	34.5Â°C	45%	1008.8mbar	235Deg	1.3m/s
7/23/2019 14:15	4.000ug/m3	34.9Â°C	44%	1008.5mbar	277Deg	1.3m/s
7/23/2019 14:30	6.000ug/m3	35.2Â°C	42%	1008.3mbar	282Deg	1.4m/s
7/23/2019 14:45	5.000ug/m3	35.3Â°C	42%	1008.1mbar	268Deg	1.3m/s
7/23/2019 15:00	4.000ug/m3	35.5Â°C	42%	1008.0mbar	195Deg	1.2m/s
7/23/2019 15:15	3.000ug/m3	34.5Â°C	47%	1008.0mbar	210Deg	1.1m/s
7/23/2019 15:30	4.000ug/m3	33.4Â°C	54%	1007.9mbar	180Deg	0.9m/s
7/23/2019 15:45	4.000ug/m3	33.8Â°C	55%	1007.8mbar	163Deg	0.8m/s
7/23/2019 16:00	4.000ug/m3	33.5Â°C	56%	1007.8mbar	161Deg	1.0m/s
7/23/2019 16:15	5.000ug/m3	33.4Â°C	57%	1007.8mbar	186Deg	1.1m/s
7/23/2019 16:30	4.000ug/m3	34.1Â°C	55%	1007.7mbar	230Deg	1.3m/s
7/23/2019 16:45	4.000ug/m3	34.0Â°C	55%	1007.7mbar	165Deg	1.1m/s
7/23/2019 17:00	6.000ug/m3	31.9Â°C	63%	1007.9mbar	162Deg	0.9m/s
7/23/2019 17:15	5.000ug/m3	29.5Â°C	77%	1007.9mbar	142Deg	0.9m/s
7/23/2019 17:30	5.000ug/m3	29.8Â°C	73%	1007.7mbar	120Deg	1.0m/s
7/23/2019 17:45	5.000ug/m3	30.4Â°C	70%	1007.5mbar	181Deg	1.0m/s
7/23/2019 18:00	5.000ug/m3	31.1Â°C	67%	1007.3mbar	147Deg	1.0m/s
7/23/2019 18:15	5.000ug/m3	31.2Â°C	65%	1007.4mbar	224Deg	1.1m/s
7/23/2019 18:30	4.000ug/m3	31.6Â°C	63%	1007.4mbar	237Deg	1.1m/s
7/23/2019 18:45	4.000ug/m3	31.6Â°C	61%	1007.4mbar	235Deg	1.2m/s
7/23/2019 19:00	4.000ug/m3	31.3Â°C	62%	1007.2mbar	210Deg	1.0m/s
7/23/2019 19:15	4.000ug/m3	30.8Â°C	64%	1007.1mbar	161Deg	0.8m/s
7/23/2019 19:30	6.000ug/m3	28.9Â°C	73%	1007.4mbar	121Deg	0.7m/s
7/23/2019 19:45	8.000ug/m3	27.1Â°C	84%	1008.0mbar	142Deg	0.6m/s
7/23/2019 20:00	5.000ug/m3	26.8Â°C	85%	1008.8mbar	206Deg	0.9m/s
7/23/2019 20:15	4.000ug/m3	26.2Â°C	78%	1009.5mbar	309Deg	2.5m/s
7/23/2019 20:30	5.000ug/m3	23.9Â°C	85%	1009.7mbar	309Deg	1.9m/s
7/23/2019 20:45	5.000ug/m3	22.6Â°C	90%	1010.4mbar	244Deg	0.9m/s
7/23/2019 21:00	4.000ug/m3	22.5Â°C	93%	1010.6mbar	175Deg	0.4m/s

7/23/2019 21:15	3.000ug/m3	22.7Â°C	93%	1010.5mbar	291Deg	0.5m/s
7/23/2019 21:30	3.000ug/m3	22.8Â°C	93%	1010.9mbar	212Deg	0.4m/s
7/23/2019 21:45	3.000ug/m3	22.8Â°C	93%	1011.1mbar	89Deg	0.6m/s
7/23/2019 22:00	2.000ug/m3	22.7Â°C	93%	1011.0mbar	94Deg	0.7m/s
7/23/2019 22:15	5.000ug/m3	22.8Â°C	94%	1010.9mbar	2Deg	0.7m/s
7/23/2019 22:30	4.000ug/m3	22.8Â°C	93%	1010.7mbar	10Deg	0.7m/s
7/23/2019 22:45	1.000ug/m3	22.6Â°C	93%	1010.9mbar	115Deg	0.4m/s
7/23/2019 23:00	1.000ug/m3	22.7Â°C	93%	1010.9mbar	25Deg	0.4m/s
7/23/2019 23:15	1.000ug/m3	22.7Â°C	93%	1010.9mbar	298Deg	0.3m/s
7/23/2019 23:30	2.000ug/m3	22.7Â°C	94%	1011.0mbar	240Deg	0.3m/s
7/23/2019 23:45	2.000ug/m3	22.8Â°C	94%	1010.9mbar	238Deg	0.4m/s
7/24/2019 0:00	2.000ug/m3	22.6Â°C	93%	1010.9mbar	106Deg	0.4m/s
7/24/2019 0:15	5.000ug/m3	22.8Â°C	94%	1010.7mbar	351Deg	0.5m/s
7/24/2019 0:30	5.000ug/m3	22.8Â°C	94%	1010.5mbar	295Deg	0.4m/s
7/24/2019 0:45	2.000ug/m3	22.6Â°C	94%	1010.6mbar	281Deg	0.4m/s
7/24/2019 1:00	3.000ug/m3	22.6Â°C	94%	1010.5mbar	261Deg	0.3m/s
7/24/2019 1:15	5.000ug/m3	22.7Â°C	94%	1010.4mbar	44Deg	0.5m/s
7/24/2019 1:30	2.000ug/m3	22.7Â°C	94%	1010.1mbar	17Deg	0.7m/s
7/24/2019 1:45	8.000ug/m3	22.8Â°C	94%	1010.1mbar	354Deg	0.6m/s
7/24/2019 2:00	6.000ug/m3	22.8Â°C	94%	1010.1mbar	357Deg	0.6m/s
7/24/2019 2:15	2.000ug/m3	22.6Â°C	93%	1010.2mbar	35Deg	0.9m/s
7/24/2019 2:30	3.000ug/m3	22.4Â°C	93%	1010.3mbar	356Deg	0.9m/s
7/24/2019 2:45	1.000ug/m3	22.1Â°C	93%	1010.1mbar	5Deg	1.2m/s
7/24/2019 3:00	1.000ug/m3	21.8Â°C	93%	1010.1mbar	14Deg	1.2m/s
7/24/2019 3:15	1.000ug/m3	21.5Â°C	92%	1010.0mbar	29Deg	0.9m/s
7/24/2019 3:30	5.000ug/m3	21.5Â°C	93%	1010.3mbar	21Deg	0.7m/s
7/24/2019 3:45	1.000ug/m3	21.4Â°C	93%	1010.4mbar	74Deg	0.8m/s
7/24/2019 4:00	5.000ug/m3	21.4Â°C	93%	1010.6mbar	355Deg	1.1m/s
7/24/2019 4:15	9.000ug/m3	21.3Â°C	93%	1010.5mbar	337Deg	1.3m/s
7/24/2019 4:30	9.000ug/m3	21.1Â°C	93%	1010.6mbar	4Deg	1.1m/s
7/24/2019 4:45	4.000ug/m3	20.8Â°C	93%	1010.6mbar	16Deg	1.0m/s
7/24/2019 5:00	3.000ug/m3	20.8Â°C	93%	1010.7mbar	39Deg	0.9m/s
7/24/2019 5:15	9.000ug/m3	20.8Â°C	93%	1010.8mbar	9Deg	0.9m/s
7/24/2019 5:30	9.000ug/m3	20.9Â°C	93%	1011.1mbar	14Deg	1.1m/s
7/24/2019 5:45	4.000ug/m3	20.8Â°C	93%	1011.1mbar	13Deg	0.9m/s
7/24/2019 6:00	6.000ug/m3	20.7Â°C	94%	1011.2mbar	24Deg	1.0m/s
7/24/2019 6:15	11.000ug/m3	20.6Â°C	95%	1011.3mbar	14Deg	1.1m/s
7/24/2019 6:30	15.000ug/m3	20.5Â°C	95%	1011.5mbar	11Deg	0.7m/s
7/24/2019 6:45	20.000ug/m3	20.4Â°C	95%	1011.7mbar	354Deg	1.2m/s
7/24/2019 7:00	15.000ug/m3	20.3Â°C	95%	1011.7mbar	11Deg	1.2m/s
7/24/2019 7:15	7.000ug/m3	20.2Â°C	95%	1011.8mbar	3Deg	0.9m/s
7/24/2019 7:30	4.000ug/m3	20.1Â°C	95%	1012.0mbar	34Deg	1.0m/s
7/24/2019 7:45	10.000ug/m3	20.1Â°C	95%	1012.1mbar	17Deg	1.1m/s
7/24/2019 8:00	4.000ug/m3	20.0Â°C	95%	1012.2mbar	32Deg	1.1m/s
7/24/2019 8:15	4.000ug/m3	20.1Â°C	95%	1012.2mbar	27Deg	0.9m/s
7/24/2019 8:30	77.000ug/m3	20.2Â°C	95%	1012.3mbar	22Deg	1.0m/s

7/24/2019 8:45	110.000ug/m3	20.3Â°C	95%	1012.5mbar	1Deg	1.4m/s
7/24/2019 9:00	59.000ug/m3	20.3Â°C	95%	1012.6mbar	1Deg	1.1m/s
7/24/2019 9:15	57.000ug/m3	20.4Â°C	95%	1012.9mbar	357Deg	1.4m/s
7/24/2019 9:30	47.000ug/m3	20.4Â°C	94%	1012.9mbar	9Deg	1.5m/s
7/24/2019 9:45	93.000ug/m3	20.4Â°C	94%	1012.9mbar	345Deg	1.5m/s
7/24/2019 10:00	64.000ug/m3	20.5Â°C	93%	1013.0mbar	21Deg	1.3m/s
7/24/2019 10:15	18.000ug/m3	20.5Â°C	93%	1013.0mbar	34Deg	1.1m/s
7/24/2019 10:30	16.000ug/m3	20.7Â°C	93%	1013.1mbar	31Deg	1.4m/s
7/24/2019 10:45	4.000ug/m3	20.8Â°C	92%	1013.0mbar	33Deg	1.2m/s
7/24/2019 11:00	5.000ug/m3	20.9Â°C	91%	1013.0mbar	63Deg	1.1m/s
7/24/2019 11:15	5.000ug/m3	21.0Â°C	91%	1013.1mbar	43Deg	1.2m/s
7/24/2019 11:30	6.000ug/m3	21.5Â°C	89%	1013.0mbar	47Deg	1.4m/s
7/24/2019 11:45	6.000ug/m3	21.9Â°C	87%	1013.1mbar	22Deg	1.5m/s
7/24/2019 12:00	6.000ug/m3	22.6Â°C	85%	1013.0mbar	36Deg	1.4m/s
7/24/2019 12:15	6.000ug/m3	23.3Â°C	82%	1013.1mbar	66Deg	1.6m/s
7/24/2019 12:30	7.000ug/m3	23.8Â°C	78%	1012.9mbar	11Deg	1.7m/s
7/24/2019 12:45	6.000ug/m3	25.2Â°C	72%	1012.8mbar	32Deg	1.6m/s
7/24/2019 13:00	6.000ug/m3	25.2Â°C	69%	1012.7mbar	35Deg	1.8m/s
7/24/2019 13:15	6.000ug/m3	26.1Â°C	67%	1012.5mbar	34Deg	1.5m/s
7/24/2019 13:30	6.000ug/m3	26.5Â°C	65%	1012.5mbar	19Deg	1.7m/s
7/24/2019 13:45	6.000ug/m3	27.5Â°C	61%	1012.4mbar	31Deg	1.7m/s
7/24/2019 14:00	6.000ug/m3	28.1Â°C	58%	1012.2mbar	31Deg	1.8m/s
7/24/2019 14:15	7.000ug/m3	27.9Â°C	58%	1012.0mbar	44Deg	1.6m/s
7/24/2019 14:30	6.000ug/m3	28.5Â°C	58%	1011.9mbar	57Deg	1.4m/s
7/24/2019 14:45	6.000ug/m3	28.6Â°C	56%	1011.8mbar	44Deg	1.5m/s
7/24/2019 15:00	7.000ug/m3	28.6Â°C	56%	1011.8mbar	34Deg	1.6m/s
7/24/2019 15:15	5.000ug/m3	29.0Â°C	55%	1011.7mbar	44Deg	1.2m/s
7/24/2019 15:30	6.000ug/m3	28.8Â°C	55%	1011.6mbar	39Deg	1.4m/s
7/24/2019 15:45	5.000ug/m3	28.5Â°C	56%	1011.5mbar	62Deg	1.3m/s
7/24/2019 16:00	5.000ug/m3	29.6Â°C	52%	1011.5mbar	14Deg	1.5m/s
7/24/2019 16:15	5.000ug/m3	29.1Â°C	51%	1011.5mbar	35Deg	1.6m/s
7/24/2019 16:30	6.000ug/m3	29.4Â°C	52%	1011.4mbar	49Deg	1.4m/s
7/24/2019 16:45	7.000ug/m3	29.8Â°C	49%	1011.4mbar	19Deg	1.4m/s
7/24/2019 17:00	5.000ug/m3	29.6Â°C	50%	1011.3mbar	28Deg	1.4m/s
7/24/2019 17:15	6.000ug/m3	29.6Â°C	51%	1011.4mbar	21Deg	1.2m/s
7/24/2019 17:30	8.000ug/m3	29.5Â°C	51%	1011.5mbar	2Deg	1.4m/s
7/24/2019 17:45	10.000ug/m3	29.3Â°C	51%	1011.6mbar	353Deg	1.5m/s
7/24/2019 18:00	10.000ug/m3	28.7Â°C	53%	1011.9mbar	357Deg	1.1m/s
7/24/2019 18:15	9.000ug/m3	28.8Â°C	54%	1011.9mbar	342Deg	1.1m/s
7/24/2019 18:30	7.000ug/m3	28.7Â°C	55%	1012.0mbar	22Deg	1.0m/s
7/24/2019 18:45	8.000ug/m3	28.1Â°C	57%	1012.0mbar	77Deg	0.7m/s
7/24/2019 19:00	8.000ug/m3	27.6Â°C	61%	1012.1mbar	77Deg	0.6m/s
7/24/2019 19:15	10.000ug/m3	26.8Â°C	67%	1012.1mbar	97Deg	0.4m/s
7/24/2019 19:30	23.000ug/m3	27.4Â°C	72%	1012.1mbar	248Deg	0.4m/s
7/24/2019 19:45	14.000ug/m3	27.2Â°C	70%	1012.2mbar	188Deg	0.4m/s
7/24/2019 20:00	14.000ug/m3	26.6Â°C	74%	1012.3mbar	218Deg	0.4m/s

7/24/2019 20:15	24.000ug/m3	25.5Â°C	78%	1012.5mbar	264Deg	0.4m/s
7/24/2019 20:30	41.000ug/m3	24.7Â°C	81%	1012.6mbar	211Deg	0.4m/s
7/24/2019 20:45	22.000ug/m3	24.3Â°C	82%	1012.6mbar	166Deg	0.4m/s
7/24/2019 21:00	13.000ug/m3	24.0Â°C	84%	1012.7mbar	202Deg	0.3m/s
7/24/2019 21:15	7.000ug/m3	23.8Â°C	84%	1012.8mbar	185Deg	0.3m/s
7/24/2019 21:30	9.000ug/m3	23.5Â°C	86%	1012.9mbar	223Deg	0.3m/s
7/24/2019 21:45	7.000ug/m3	23.3Â°C	87%	1013.1mbar	222Deg	0.3m/s
7/24/2019 22:00	5.000ug/m3	23.1Â°C	88%	1013.3mbar	222Deg	0.3m/s
7/24/2019 22:15	22.000ug/m3	22.8Â°C	89%	1013.4mbar	222Deg	0.3m/s
7/24/2019 22:30	123.000ug/m3	22.6Â°C	90%	1013.5mbar	222Deg	0.3m/s
7/24/2019 22:45	440.000ug/m3	22.5Â°C	91%	1013.5mbar	219Deg	0.3m/s
7/24/2019 23:00	474.000ug/m3	22.3Â°C	91%	1013.5mbar	217Deg	0.3m/s
7/24/2019 23:15	447.000ug/m3	22.1Â°C	92%	1013.5mbar	217Deg	0.3m/s
7/24/2019 23:30	352.000ug/m3	22.1Â°C	92%	1013.6mbar	216Deg	0.3m/s
7/24/2019 23:45	440.000ug/m3	22.0Â°C	92%	1013.6mbar	226Deg	0.4m/s
7/25/2019 0:00	497.000ug/m3	22.0Â°C	92%	1013.6mbar	247Deg	0.4m/s
7/25/2019 0:15	558.000ug/m3	21.8Â°C	92%	1013.6mbar	240Deg	0.4m/s
7/25/2019 0:30	357.000ug/m3	21.6Â°C	93%	1013.7mbar	220Deg	0.3m/s
7/25/2019 0:45	366.000ug/m3	21.4Â°C	93%	1013.7mbar	220Deg	0.3m/s
7/25/2019 1:00	565.000ug/m3	21.3Â°C	93%	1013.8mbar	210Deg	0.3m/s
7/25/2019 1:15	99.000ug/m3	21.2Â°C	93%	1013.9mbar	210Deg	0.3m/s
7/25/2019 1:30	38.000ug/m3	21.1Â°C	94%	1013.9mbar	217Deg	0.3m/s
7/25/2019 1:45	18.000ug/m3	21.0Â°C	94%	1013.9mbar	256Deg	0.3m/s
7/25/2019 2:00	36.000ug/m3	20.9Â°C	94%	1013.8mbar	260Deg	0.3m/s
7/25/2019 2:15	101.000ug/m3	20.9Â°C	94%	1013.8mbar	289Deg	0.4m/s
7/25/2019 2:30	224.000ug/m3	20.9Â°C	94%	1013.7mbar	300Deg	0.5m/s
7/25/2019 2:45	189.000ug/m3	20.9Â°C	93%	1013.6mbar	354Deg	0.3m/s
7/25/2019 3:00	178.000ug/m3	20.8Â°C	93%	1013.6mbar	285Deg	0.5m/s
7/25/2019 3:15	55.000ug/m3	20.7Â°C	93%	1013.6mbar	286Deg	0.4m/s
7/25/2019 3:30	149.000ug/m3	20.7Â°C	93%	1013.6mbar	316Deg	0.5m/s
7/25/2019 3:45	305.000ug/m3	20.8Â°C	93%	1013.6mbar	311Deg	0.6m/s
7/25/2019 4:00	211.000ug/m3	20.6Â°C	93%	1013.6mbar	318Deg	0.4m/s
7/25/2019 4:15	263.000ug/m3	20.5Â°C	93%	1013.7mbar	289Deg	0.5m/s
7/25/2019 4:30	129.000ug/m3	20.3Â°C	93%	1013.7mbar	265Deg	0.4m/s
7/25/2019 4:45	85.000ug/m3	20.2Â°C	93%	1013.8mbar	262Deg	0.3m/s
7/25/2019 5:00	95.000ug/m3	19.8Â°C	93%	1013.9mbar	200Deg	0.4m/s
7/25/2019 5:15	11.000ug/m3	19.6Â°C	93%	1014.1mbar	271Deg	0.4m/s
7/25/2019 5:30	20.000ug/m3	19.6Â°C	94%	1014.3mbar	265Deg	0.4m/s
7/25/2019 5:45	12.000ug/m3	19.5Â°C	94%	1014.5mbar	259Deg	0.4m/s
7/25/2019 6:00	21.000ug/m3	19.6Â°C	95%	1014.7mbar	200Deg	0.4m/s
7/25/2019 6:15	49.000ug/m3	19.5Â°C	95%	1014.8mbar	246Deg	0.4m/s
7/25/2019 6:30	87.000ug/m3	19.1Â°C	95%	1014.9mbar	276Deg	0.3m/s
7/25/2019 6:45	64.000ug/m3	19.0Â°C	95%	1015.0mbar	328Deg	0.4m/s
7/25/2019 7:00	143.000ug/m3	19.1Â°C	95%	1015.1mbar	303Deg	0.3m/s
7/25/2019 7:15	56.000ug/m3	19.2Â°C	96%	1015.3mbar	342Deg	0.3m/s
7/25/2019 7:30	21.000ug/m3	19.5Â°C	96%	1015.4mbar	355Deg	0.5m/s

7/25/2019 7:45	25.000ug/m3	20.3Â°C	96%	1015.5mbar	6Deg	0.7m/s
7/25/2019 8:00	10.000ug/m3	20.6Â°C	96%	1015.7mbar	1Deg	0.9m/s
7/25/2019 8:15	8.000ug/m3	20.7Â°C	96%	1016.0mbar	24Deg	0.8m/s
7/25/2019 8:30	8.000ug/m3	21.1Â°C	96%	1016.3mbar	41Deg	1.0m/s
7/25/2019 8:45	7.000ug/m3	21.6Â°C	95%	1016.3mbar	36Deg	1.0m/s
7/25/2019 9:00	7.000ug/m3	22.0Â°C	95%	1016.3mbar	36Deg	1.1m/s
7/25/2019 9:15	8.000ug/m3	22.3Â°C	94%	1016.4mbar	48Deg	1.3m/s
7/25/2019 9:30	9.000ug/m3	22.6Â°C	93%	1016.5mbar	3Deg	1.4m/s
7/25/2019 9:45	8.000ug/m3	22.9Â°C	92%	1016.5mbar	53Deg	1.3m/s
7/25/2019 10:00	7.000ug/m3	23.3Â°C	89%	1016.6mbar	65Deg	1.5m/s
7/25/2019 10:15	6.000ug/m3	23.7Â°C	85%	1016.6mbar	59Deg	1.7m/s
7/25/2019 10:30	6.000ug/m3	24.4Â°C	81%	1016.6mbar	65Deg	1.3m/s
7/25/2019 10:45	6.000ug/m3	25.5Â°C	75%	1016.7mbar	92Deg	1.3m/s
7/25/2019 11:00	5.000ug/m3	26.4Â°C	61%	1016.9mbar	75Deg	1.4m/s
7/25/2019 11:15	5.000ug/m3	27.6Â°C	55%	1017.0mbar	89Deg	1.4m/s
7/25/2019 11:30	4.000ug/m3	28.5Â°C	52%	1017.0mbar	78Deg	1.2m/s
7/25/2019 11:45	4.000ug/m3	29.0Â°C	49%	1017.0mbar	105Deg	1.2m/s
7/25/2019 12:00	4.000ug/m3	29.4Â°C	47%	1017.0mbar	86Deg	1.3m/s
7/25/2019 12:15	4.000ug/m3	29.9Â°C	47%	1016.9mbar	114Deg	1.0m/s
7/25/2019 12:30	4.000ug/m3	30.1Â°C	46%	1017.0mbar	54Deg	1.4m/s
7/25/2019 12:45	4.000ug/m3	30.6Â°C	44%	1017.1mbar	82Deg	1.2m/s
7/25/2019 13:00	5.000ug/m3	30.9Â°C	44%	1017.1mbar	74Deg	1.3m/s
7/25/2019 13:15	5.000ug/m3	30.6Â°C	42%	1017.2mbar	32Deg	1.5m/s
7/25/2019 13:30	5.000ug/m3	30.9Â°C	41%	1017.1mbar	47Deg	1.5m/s
7/25/2019 13:45	5.000ug/m3	31.1Â°C	41%	1017.1mbar	43Deg	1.4m/s
7/25/2019 14:00	5.000ug/m3	31.5Â°C	41%	1017.0mbar	71Deg	1.3m/s
7/25/2019 14:15	6.000ug/m3	31.9Â°C	38%	1016.9mbar	26Deg	1.5m/s
7/25/2019 14:30	4.000ug/m3	31.6Â°C	39%	1016.7mbar	63Deg	1.3m/s
7/25/2019 14:45	4.000ug/m3	31.3Â°C	39%	1016.8mbar	44Deg	1.4m/s
7/25/2019 15:00	4.000ug/m3	31.0Â°C	39%	1016.7mbar	46Deg	1.3m/s
7/25/2019 15:15	4.000ug/m3	31.6Â°C	35%	1016.7mbar	64Deg	1.6m/s
7/25/2019 15:30	4.000ug/m3	31.5Â°C	35%	1016.7mbar	35Deg	1.7m/s
7/25/2019 15:45	4.000ug/m3	31.7Â°C	35%	1016.6mbar	54Deg	1.5m/s
7/25/2019 16:00	4.000ug/m3	32.1Â°C	36%	1016.4mbar	91Deg	1.0m/s
7/25/2019 16:15	5.000ug/m3	32.2Â°C	36%	1016.4mbar	90Deg	1.2m/s
7/25/2019 16:30	4.000ug/m3	32.3Â°C	36%	1016.3mbar	63Deg	1.3m/s
7/25/2019 16:45	4.000ug/m3	31.9Â°C	35%	1016.3mbar	80Deg	1.5m/s
7/25/2019 17:00	4.000ug/m3	31.8Â°C	35%	1016.3mbar	50Deg	1.4m/s
7/25/2019 17:15	4.000ug/m3	31.4Â°C	35%	1016.4mbar	75Deg	1.6m/s
7/25/2019 17:30	4.000ug/m3	31.0Â°C	40%	1016.2mbar	98Deg	0.9m/s
7/25/2019 17:45	4.000ug/m3	31.1Â°C	44%	1016.1mbar	113Deg	0.8m/s
7/25/2019 18:00	5.000ug/m3	31.2Â°C	45%	1016.0mbar	123Deg	0.7m/s
7/25/2019 18:15	4.000ug/m3	30.7Â°C	47%	1016.1mbar	112Deg	1.0m/s
7/25/2019 18:30	4.000ug/m3	30.6Â°C	48%	1016.2mbar	128Deg	0.8m/s
7/25/2019 18:45	4.000ug/m3	30.5Â°C	49%	1016.2mbar	149Deg	0.8m/s
7/25/2019 19:00	4.000ug/m3	30.7Â°C	48%	1016.3mbar	125Deg	0.7m/s

7/25/2019 19:15	4.000ug/m3	30.8Â°C	49%	1016.4mbar	138Deg	0.6m/s
7/25/2019 19:30	4.000ug/m3	30.6Â°C	49%	1016.5mbar	135Deg	0.6m/s
7/25/2019 19:45	4.000ug/m3	29.6Â°C	51%	1016.6mbar	136Deg	0.5m/s
7/25/2019 20:00	5.000ug/m3	28.2Â°C	55%	1016.8mbar	125Deg	0.5m/s
7/25/2019 20:15	5.000ug/m3	26.8Â°C	59%	1016.8mbar	116Deg	0.4m/s
7/25/2019 20:30	6.000ug/m3	25.8Â°C	62%	1016.8mbar	139Deg	0.3m/s
7/25/2019 20:45	6.000ug/m3	25.2Â°C	65%	1016.9mbar	112Deg	0.3m/s
7/25/2019 21:00	6.000ug/m3	24.6Â°C	69%	1017.1mbar	79Deg	0.4m/s
7/25/2019 21:15	6.000ug/m3	24.1Â°C	73%	1017.3mbar	83Deg	0.3m/s
7/25/2019 21:30	6.000ug/m3	23.9Â°C	74%	1017.4mbar	83Deg	0.3m/s
7/25/2019 21:45	7.000ug/m3	23.9Â°C	75%	1017.5mbar	89Deg	0.3m/s
7/25/2019 22:00	7.000ug/m3	23.7Â°C	76%	1017.6mbar	110Deg	0.3m/s
7/25/2019 22:15	8.000ug/m3	23.4Â°C	78%	1017.8mbar	188Deg	0.3m/s
7/25/2019 22:30	20.000ug/m3	23.2Â°C	80%	1018.0mbar	194Deg	0.3m/s
7/25/2019 22:45	107.000ug/m3	23.0Â°C	82%	1018.3mbar	203Deg	0.3m/s
7/25/2019 23:00	91.000ug/m3	22.7Â°C	84%	1018.3mbar	203Deg	0.3m/s
7/25/2019 23:15	129.000ug/m3	22.5Â°C	85%	1018.3mbar	203Deg	0.3m/s
7/25/2019 23:30	180.000ug/m3	22.3Â°C	86%	1018.3mbar	203Deg	0.3m/s
7/25/2019 23:45	247.000ug/m3	22.1Â°C	87%	1018.4mbar	203Deg	0.3m/s

From: Thompson, Rhonda <thompsrb@dhec.sc.gov>
Sent on: Friday, July 26, 2019 3:48:05 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Fwd: July 22-25 air sensor data and daily averages
Attachments: July 22-25 2019 data.pdf (363.56 KB), ATT00001.htm (352 Bytes)

This is all of our air sensor PM2.5 data since July 22.

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July 22-25, 2019 Air Sensor $PM_{2.5}$ Concentrations

Time	Concentration	Ambient Temperature	Relative Humidity	Barometric Pressure	Wind Direction	Wind Speed
7/22/2019 0:00	5.000ug/m3	26.9Â°C	79%	1015.4mbar	150Deg	0.4m/s
7/22/2019 0:15	4.000ug/m3	26.7Â°C	80%	1015.4mbar	170Deg	0.4m/s
7/22/2019 0:30	6.000ug/m3	26.6Â°C	80%	1015.4mbar	166Deg	0.5m/s
7/22/2019 0:45	7.000ug/m3	26.4Â°C	80%	1015.3mbar	167Deg	0.5m/s
7/22/2019 1:00	7.000ug/m3	26.3Â°C	80%	1015.3mbar	117Deg	0.5m/s
7/22/2019 1:15	4.000ug/m3	26.2Â°C	80%	1015.4mbar	179Deg	0.5m/s
7/22/2019 1:30	4.000ug/m3	26.1Â°C	79%	1015.3mbar	195Deg	0.4m/s
7/22/2019 1:45	6.000ug/m3	25.8Â°C	80%	1015.1mbar	252Deg	0.3m/s
7/22/2019 2:00	6.000ug/m3	25.4Â°C	82%	1014.9mbar	323Deg	0.3m/s
7/22/2019 2:15	4.000ug/m3	25.2Â°C	82%	1014.8mbar	165Deg	0.4m/s
7/22/2019 2:30	3.000ug/m3	24.9Â°C	83%	1014.8mbar	148Deg	0.3m/s
7/22/2019 2:45	4.000ug/m3	24.7Â°C	83%	1014.6mbar	134Deg	0.4m/s
7/22/2019 3:00	5.000ug/m3	24.5Â°C	83%	1014.6mbar	146Deg	0.3m/s
7/22/2019 3:15	5.000ug/m3	24.4Â°C	83%	1014.6mbar	125Deg	0.4m/s
7/22/2019 3:30	3.000ug/m3	24.2Â°C	84%	1014.5mbar	102Deg	0.4m/s
7/22/2019 3:45	3.000ug/m3	24.1Â°C	83%	1014.5mbar	119Deg	0.3m/s
7/22/2019 4:00	4.000ug/m3	24.0Â°C	83%	1014.4mbar	108Deg	0.3m/s
7/22/2019 4:15	5.000ug/m3	23.8Â°C	84%	1014.2mbar	111Deg	0.4m/s
7/22/2019 4:30	4.000ug/m3	23.6Â°C	84%	1014.2mbar	132Deg	0.3m/s
7/22/2019 4:45	3.000ug/m3	23.5Â°C	84%	1014.2mbar	105Deg	0.4m/s
7/22/2019 5:00	4.000ug/m3	23.4Â°C	85%	1014.3mbar	123Deg	0.4m/s
7/22/2019 5:15	5.000ug/m3	23.3Â°C	85%	1014.3mbar	160Deg	0.3m/s
7/22/2019 5:30	4.000ug/m3	23.3Â°C	85%	1014.3mbar	60Deg	0.3m/s
7/22/2019 5:45	3.000ug/m3	23.1Â°C	87%	1014.3mbar	66Deg	0.4m/s
7/22/2019 6:00	3.000ug/m3	22.5Â°C	93%	1014.4mbar	87Deg	0.5m/s
7/22/2019 6:15	3.000ug/m3	22.1Â°C	93%	1014.6mbar	115Deg	0.4m/s
7/22/2019 6:30	3.000ug/m3	21.7Â°C	94%	1014.7mbar	151Deg	0.3m/s
7/22/2019 6:45	4.000ug/m3	21.6Â°C	94%	1014.8mbar	141Deg	0.3m/s
7/22/2019 7:00	3.000ug/m3	21.7Â°C	94%	1014.9mbar	207Deg	0.3m/s
7/22/2019 7:15	2.000ug/m3	21.9Â°C	95%	1015.0mbar	195Deg	0.3m/s
7/22/2019 7:30	2.000ug/m3	22.1Â°C	95%	1015.2mbar	190Deg	0.4m/s
7/22/2019 7:45	2.000ug/m3	22.8Â°C	95%	1015.4mbar	192Deg	0.4m/s
7/22/2019 8:00	3.000ug/m3	23.1Â°C	94%	1015.5mbar	212Deg	0.7m/s
7/22/2019 8:15	3.000ug/m3	23.1Â°C	93%	1015.6mbar	186Deg	0.6m/s
7/22/2019 8:30	4.000ug/m3	23.2Â°C	93%	1015.7mbar	185Deg	1.0m/s
7/22/2019 8:45	5.000ug/m3	23.6Â°C	92%	1015.6mbar	215Deg	0.8m/s
7/22/2019 9:00	10.000ug/m3	23.8Â°C	92%	1015.6mbar	187Deg	0.9m/s
7/22/2019 9:15	9.000ug/m3	24.3Â°C	92%	1015.7mbar	221Deg	0.9m/s
7/22/2019 9:30	6.000ug/m3	24.7Â°C	91%	1015.7mbar	253Deg	1.1m/s
7/22/2019 9:45	4.000ug/m3	25.2Â°C	90%	1015.8mbar	252Deg	0.9m/s
7/22/2019 10:00	3.000ug/m3	26.0Â°C	88%	1015.8mbar	286Deg	1.2m/s
7/22/2019 10:15	3.000ug/m3	26.6Â°C	85%	1015.9mbar	292Deg	1.4m/s
7/22/2019 10:30	3.000ug/m3	27.2Â°C	82%	1016.0mbar	263Deg	1.2m/s

7/22/2019 10:45	2.000ug/m3	28.0Â°C	79%	1016.0mbar	292Deg	1.2m/s
7/22/2019 11:00	3.000ug/m3	28.8Â°C	76%	1015.9mbar	268Deg	1.2m/s
7/22/2019 11:15	3.000ug/m3	29.7Â°C	72%	1015.8mbar	287Deg	1.3m/s
7/22/2019 11:30	3.000ug/m3	30.5Â°C	66%	1015.8mbar	261Deg	1.2m/s
7/22/2019 11:45	3.000ug/m3	31.5Â°C	61%	1015.6mbar	270Deg	1.1m/s
7/22/2019 12:00	3.000ug/m3	31.8Â°C	57%	1015.4mbar	287Deg	1.3m/s
7/22/2019 12:15	3.000ug/m3	32.3Â°C	56%	1015.3mbar	247Deg	1.2m/s
7/22/2019 12:30	4.000ug/m3	32.6Â°C	53%	1015.2mbar	317Deg	1.3m/s
7/22/2019 12:45	3.000ug/m3	32.1Â°C	54%	1015.2mbar	310Deg	1.4m/s
7/22/2019 13:00	4.000ug/m3	32.7Â°C	52%	1015.0mbar	272Deg	1.1m/s
7/22/2019 13:15	3.000ug/m3	33.6Â°C	50%	1014.8mbar	243Deg	1.0m/s
7/22/2019 13:30	4.000ug/m3	33.7Â°C	48%	1014.7mbar	310Deg	1.3m/s
7/22/2019 13:45	3.000ug/m3	33.6Â°C	49%	1014.7mbar	283Deg	1.1m/s
7/22/2019 14:00	4.000ug/m3	34.4Â°C	47%	1014.5mbar	281Deg	1.0m/s
7/22/2019 14:15	3.000ug/m3	34.4Â°C	46%	1014.3mbar	256Deg	1.1m/s
7/22/2019 14:30	4.000ug/m3	33.9Â°C	47%	1014.1mbar	227Deg	0.9m/s
7/22/2019 14:45	3.000ug/m3	34.8Â°C	47%	1013.9mbar	136Deg	0.9m/s
7/22/2019 15:00	3.000ug/m3	33.9Â°C	50%	1013.7mbar	107Deg	0.6m/s
7/22/2019 15:15	3.000ug/m3	33.9Â°C	49%	1013.4mbar	113Deg	1.0m/s
7/22/2019 15:30	3.000ug/m3	34.3Â°C	52%	1013.2mbar	184Deg	0.8m/s
7/22/2019 15:45	3.000ug/m3	34.9Â°C	49%	1013.0mbar	176Deg	0.9m/s
7/22/2019 16:00	3.000ug/m3	33.8Â°C	50%	1012.9mbar	157Deg	0.8m/s
7/22/2019 16:15	3.000ug/m3	33.0Â°C	53%	1012.9mbar	152Deg	0.8m/s
7/22/2019 16:30	4.000ug/m3	34.5Â°C	51%	1012.7mbar	142Deg	0.9m/s
7/22/2019 16:45	4.000ug/m3	34.7Â°C	49%	1012.6mbar	165Deg	1.0m/s
7/22/2019 17:00	4.000ug/m3	34.7Â°C	50%	1012.6mbar	178Deg	0.9m/s
7/22/2019 17:15	4.000ug/m3	34.0Â°C	48%	1012.6mbar	209Deg	1.1m/s
7/22/2019 17:30	3.000ug/m3	32.9Â°C	50%	1012.6mbar	184Deg	0.9m/s
7/22/2019 17:45	3.000ug/m3	32.0Â°C	54%	1012.6mbar	151Deg	0.7m/s
7/22/2019 18:00	3.000ug/m3	31.9Â°C	55%	1012.7mbar	191Deg	0.9m/s
7/22/2019 18:15	3.000ug/m3	32.3Â°C	55%	1012.7mbar	219Deg	1.1m/s
7/22/2019 18:30	3.000ug/m3	31.8Â°C	55%	1012.5mbar	195Deg	1.1m/s
7/22/2019 18:45	3.000ug/m3	31.9Â°C	55%	1012.4mbar	230Deg	1.1m/s
7/22/2019 19:00	3.000ug/m3	32.0Â°C	55%	1012.3mbar	210Deg	0.9m/s
7/22/2019 19:15	3.000ug/m3	32.0Â°C	54%	1012.3mbar	180Deg	0.7m/s
7/22/2019 19:30	3.000ug/m3	31.6Â°C	55%	1012.4mbar	206Deg	0.8m/s
7/22/2019 19:45	3.000ug/m3	30.8Â°C	58%	1012.5mbar	186Deg	0.7m/s
7/22/2019 20:00	3.000ug/m3	30.0Â°C	61%	1012.8mbar	181Deg	0.6m/s
7/22/2019 20:15	4.000ug/m3	28.9Â°C	66%	1013.0mbar	146Deg	0.7m/s
7/22/2019 20:30	4.000ug/m3	28.4Â°C	70%	1013.1mbar	130Deg	0.7m/s
7/22/2019 20:45	4.000ug/m3	28.1Â°C	72%	1012.8mbar	143Deg	0.7m/s
7/22/2019 21:00	4.000ug/m3	27.8Â°C	74%	1012.9mbar	122Deg	0.5m/s
7/22/2019 21:15	4.000ug/m3	27.6Â°C	76%	1013.1mbar	186Deg	0.5m/s
7/22/2019 21:30	4.000ug/m3	27.5Â°C	76%	1013.2mbar	115Deg	0.5m/s
7/22/2019 21:45	5.000ug/m3	27.4Â°C	77%	1013.4mbar	220Deg	0.5m/s
7/22/2019 22:00	3.000ug/m3	27.2Â°C	78%	1013.4mbar	200Deg	0.4m/s

7/22/2019 22:15	2.000ug/m3	27.2Â°C	78%	1013.3mbar	182Deg	0.7m/s
7/22/2019 22:30	3.000ug/m3	27.2Â°C	79%	1013.3mbar	108Deg	0.5m/s
7/22/2019 22:45	4.000ug/m3	27.0Â°C	80%	1013.1mbar	140Deg	0.4m/s
7/22/2019 23:00	3.000ug/m3	26.8Â°C	82%	1013.1mbar	157Deg	0.4m/s
7/22/2019 23:15	2.000ug/m3	26.7Â°C	82%	1013.2mbar	141Deg	0.4m/s
7/22/2019 23:30	3.000ug/m3	26.7Â°C	82%	1013.2mbar	185Deg	0.4m/s
7/22/2019 23:45	4.000ug/m3	26.8Â°C	83%	1013.3mbar	225Deg	0.6m/s
7/23/2019 0:00	3.000ug/m3	26.8Â°C	83%	1013.3mbar	321Deg	0.4m/s
7/23/2019 0:15	2.000ug/m3	26.7Â°C	83%	1013.3mbar	195Deg	0.5m/s
7/23/2019 0:30	2.000ug/m3	26.6Â°C	84%	1013.1mbar	152Deg	0.4m/s
7/23/2019 0:45	4.000ug/m3	26.4Â°C	84%	1012.9mbar	148Deg	0.4m/s
7/23/2019 1:00	3.000ug/m3	26.2Â°C	85%	1012.8mbar	189Deg	0.4m/s
7/23/2019 1:15	2.000ug/m3	26.1Â°C	84%	1012.7mbar	201Deg	0.4m/s
7/23/2019 1:30	3.000ug/m3	26.0Â°C	85%	1012.6mbar	8Deg	0.5m/s
7/23/2019 1:45	4.000ug/m3	26.0Â°C	84%	1012.5mbar	264Deg	0.5m/s
7/23/2019 2:00	3.000ug/m3	25.9Â°C	85%	1012.2mbar	213Deg	0.6m/s
7/23/2019 2:15	2.000ug/m3	25.7Â°C	85%	1012.2mbar	168Deg	0.4m/s
7/23/2019 2:30	3.000ug/m3	25.4Â°C	86%	1012.1mbar	123Deg	0.4m/s
7/23/2019 2:45	4.000ug/m3	25.2Â°C	87%	1012.0mbar	86Deg	0.4m/s
7/23/2019 3:00	3.000ug/m3	25.3Â°C	87%	1011.8mbar	292Deg	0.4m/s
7/23/2019 3:15	2.000ug/m3	25.2Â°C	87%	1011.8mbar	146Deg	0.4m/s
7/23/2019 3:30	2.000ug/m3	25.0Â°C	88%	1011.6mbar	157Deg	0.4m/s
7/23/2019 3:45	3.000ug/m3	24.9Â°C	88%	1011.5mbar	193Deg	0.3m/s
7/23/2019 4:00	3.000ug/m3	24.7Â°C	89%	1011.4mbar	134Deg	0.4m/s
7/23/2019 4:15	2.000ug/m3	24.6Â°C	89%	1011.4mbar	137Deg	0.3m/s
7/23/2019 4:30	2.000ug/m3	24.5Â°C	90%	1011.5mbar	121Deg	0.3m/s
7/23/2019 4:45	2.000ug/m3	24.4Â°C	90%	1011.4mbar	122Deg	0.3m/s
7/23/2019 5:00	4.000ug/m3	24.3Â°C	91%	1011.3mbar	123Deg	0.3m/s
7/23/2019 5:15	2.000ug/m3	24.2Â°C	91%	1011.4mbar	123Deg	0.3m/s
7/23/2019 5:30	2.000ug/m3	24.2Â°C	91%	1011.4mbar	157Deg	0.4m/s
7/23/2019 5:45	2.000ug/m3	24.2Â°C	92%	1011.5mbar	113Deg	0.4m/s
7/23/2019 6:00	2.000ug/m3	24.0Â°C	94%	1011.6mbar	340Deg	0.5m/s
7/23/2019 6:15	3.000ug/m3	23.9Â°C	94%	1011.7mbar	82Deg	0.4m/s
7/23/2019 6:30	5.000ug/m3	23.7Â°C	94%	1011.8mbar	274Deg	0.4m/s
7/23/2019 6:45	4.000ug/m3	23.6Â°C	95%	1011.9mbar	252Deg	0.4m/s
7/23/2019 7:00	4.000ug/m3	23.4Â°C	95%	1012.2mbar	239Deg	0.3m/s
7/23/2019 7:15	3.000ug/m3	23.4Â°C	95%	1012.3mbar	198Deg	0.3m/s
7/23/2019 7:30	4.000ug/m3	23.4Â°C	95%	1012.3mbar	192Deg	0.3m/s
7/23/2019 7:45	3.000ug/m3	23.4Â°C	95%	1012.4mbar	176Deg	0.3m/s
7/23/2019 8:00	3.000ug/m3	23.5Â°C	95%	1012.5mbar	161Deg	0.4m/s
7/23/2019 8:15	3.000ug/m3	23.6Â°C	95%	1012.5mbar	165Deg	0.4m/s
7/23/2019 8:30	3.000ug/m3	23.9Â°C	95%	1012.5mbar	195Deg	0.5m/s
7/23/2019 8:45	3.000ug/m3	24.1Â°C	95%	1012.5mbar	214Deg	0.8m/s
7/23/2019 9:00	4.000ug/m3	24.3Â°C	95%	1012.4mbar	190Deg	0.8m/s
7/23/2019 9:15	5.000ug/m3	24.5Â°C	94%	1012.1mbar	234Deg	0.9m/s
7/23/2019 9:30	5.000ug/m3	24.8Â°C	94%	1011.9mbar	232Deg	0.9m/s

7/23/2019 9:45	4.000ug/m3	25.3Â°C	94%	1011.6mbar	286Deg	0.8m/s
7/23/2019 10:00	4.000ug/m3	25.7Â°C	92%	1011.4mbar	235Deg	0.9m/s
7/23/2019 10:15	3.000ug/m3	26.0Â°C	91%	1011.2mbar	225Deg	1.0m/s
7/23/2019 10:30	3.000ug/m3	26.5Â°C	89%	1011.3mbar	230Deg	0.9m/s
7/23/2019 10:45	3.000ug/m3	27.0Â°C	87%	1011.2mbar	239Deg	1.0m/s
7/23/2019 11:00	3.000ug/m3	27.4Â°C	83%	1011.1mbar	264Deg	1.4m/s
7/23/2019 11:15	3.000ug/m3	28.2Â°C	78%	1011.0mbar	237Deg	1.3m/s
7/23/2019 11:30	6.000ug/m3	29.3Â°C	72%	1010.8mbar	278Deg	1.5m/s
7/23/2019 11:45	3.000ug/m3	30.4Â°C	66%	1010.7mbar	270Deg	1.4m/s
7/23/2019 12:00	3.000ug/m3	31.2Â°C	60%	1010.7mbar	277Deg	1.6m/s
7/23/2019 12:15	4.000ug/m3	31.7Â°C	57%	1010.6mbar	279Deg	1.4m/s
7/23/2019 12:30	4.000ug/m3	31.9Â°C	55%	1010.6mbar	292Deg	1.7m/s
7/23/2019 12:45	3.000ug/m3	32.3Â°C	55%	1010.3mbar	277Deg	1.2m/s
7/23/2019 13:00	3.000ug/m3	32.8Â°C	53%	1010.0mbar	287Deg	1.3m/s
7/23/2019 13:15	3.000ug/m3	33.6Â°C	51%	1009.7mbar	247Deg	1.1m/s
7/23/2019 13:30	4.000ug/m3	33.8Â°C	47%	1009.3mbar	250Deg	1.2m/s
7/23/2019 13:45	3.000ug/m3	34.4Â°C	46%	1009.1mbar	239Deg	1.2m/s
7/23/2019 14:00	3.000ug/m3	34.5Â°C	45%	1008.8mbar	235Deg	1.3m/s
7/23/2019 14:15	4.000ug/m3	34.9Â°C	44%	1008.5mbar	277Deg	1.3m/s
7/23/2019 14:30	6.000ug/m3	35.2Â°C	42%	1008.3mbar	282Deg	1.4m/s
7/23/2019 14:45	5.000ug/m3	35.3Â°C	42%	1008.1mbar	268Deg	1.3m/s
7/23/2019 15:00	4.000ug/m3	35.5Â°C	42%	1008.0mbar	195Deg	1.2m/s
7/23/2019 15:15	3.000ug/m3	34.5Â°C	47%	1008.0mbar	210Deg	1.1m/s
7/23/2019 15:30	4.000ug/m3	33.4Â°C	54%	1007.9mbar	180Deg	0.9m/s
7/23/2019 15:45	4.000ug/m3	33.8Â°C	55%	1007.8mbar	163Deg	0.8m/s
7/23/2019 16:00	4.000ug/m3	33.5Â°C	56%	1007.8mbar	161Deg	1.0m/s
7/23/2019 16:15	5.000ug/m3	33.4Â°C	57%	1007.8mbar	186Deg	1.1m/s
7/23/2019 16:30	4.000ug/m3	34.1Â°C	55%	1007.7mbar	230Deg	1.3m/s
7/23/2019 16:45	4.000ug/m3	34.0Â°C	55%	1007.7mbar	165Deg	1.1m/s
7/23/2019 17:00	6.000ug/m3	31.9Â°C	63%	1007.9mbar	162Deg	0.9m/s
7/23/2019 17:15	5.000ug/m3	29.5Â°C	77%	1007.9mbar	142Deg	0.9m/s
7/23/2019 17:30	5.000ug/m3	29.8Â°C	73%	1007.7mbar	120Deg	1.0m/s
7/23/2019 17:45	5.000ug/m3	30.4Â°C	70%	1007.5mbar	181Deg	1.0m/s
7/23/2019 18:00	5.000ug/m3	31.1Â°C	67%	1007.3mbar	147Deg	1.0m/s
7/23/2019 18:15	5.000ug/m3	31.2Â°C	65%	1007.4mbar	224Deg	1.1m/s
7/23/2019 18:30	4.000ug/m3	31.6Â°C	63%	1007.4mbar	237Deg	1.1m/s
7/23/2019 18:45	4.000ug/m3	31.6Â°C	61%	1007.4mbar	235Deg	1.2m/s
7/23/2019 19:00	4.000ug/m3	31.3Â°C	62%	1007.2mbar	210Deg	1.0m/s
7/23/2019 19:15	4.000ug/m3	30.8Â°C	64%	1007.1mbar	161Deg	0.8m/s
7/23/2019 19:30	6.000ug/m3	28.9Â°C	73%	1007.4mbar	121Deg	0.7m/s
7/23/2019 19:45	8.000ug/m3	27.1Â°C	84%	1008.0mbar	142Deg	0.6m/s
7/23/2019 20:00	5.000ug/m3	26.8Â°C	85%	1008.8mbar	206Deg	0.9m/s
7/23/2019 20:15	4.000ug/m3	26.2Â°C	78%	1009.5mbar	309Deg	2.5m/s
7/23/2019 20:30	5.000ug/m3	23.9Â°C	85%	1009.7mbar	309Deg	1.9m/s
7/23/2019 20:45	5.000ug/m3	22.6Â°C	90%	1010.4mbar	244Deg	0.9m/s
7/23/2019 21:00	4.000ug/m3	22.5Â°C	93%	1010.6mbar	175Deg	0.4m/s

7/23/2019 21:15	3.000ug/m3	22.7Â°C	93%	1010.5mbar	291Deg	0.5m/s
7/23/2019 21:30	3.000ug/m3	22.8Â°C	93%	1010.9mbar	212Deg	0.4m/s
7/23/2019 21:45	3.000ug/m3	22.8Â°C	93%	1011.1mbar	89Deg	0.6m/s
7/23/2019 22:00	2.000ug/m3	22.7Â°C	93%	1011.0mbar	94Deg	0.7m/s
7/23/2019 22:15	5.000ug/m3	22.8Â°C	94%	1010.9mbar	2Deg	0.7m/s
7/23/2019 22:30	4.000ug/m3	22.8Â°C	93%	1010.7mbar	10Deg	0.7m/s
7/23/2019 22:45	1.000ug/m3	22.6Â°C	93%	1010.9mbar	115Deg	0.4m/s
7/23/2019 23:00	1.000ug/m3	22.7Â°C	93%	1010.9mbar	25Deg	0.4m/s
7/23/2019 23:15	1.000ug/m3	22.7Â°C	93%	1010.9mbar	298Deg	0.3m/s
7/23/2019 23:30	2.000ug/m3	22.7Â°C	94%	1011.0mbar	240Deg	0.3m/s
7/23/2019 23:45	2.000ug/m3	22.8Â°C	94%	1010.9mbar	238Deg	0.4m/s
7/24/2019 0:00	2.000ug/m3	22.6Â°C	93%	1010.9mbar	106Deg	0.4m/s
7/24/2019 0:15	5.000ug/m3	22.8Â°C	94%	1010.7mbar	351Deg	0.5m/s
7/24/2019 0:30	5.000ug/m3	22.8Â°C	94%	1010.5mbar	295Deg	0.4m/s
7/24/2019 0:45	2.000ug/m3	22.6Â°C	94%	1010.6mbar	281Deg	0.4m/s
7/24/2019 1:00	3.000ug/m3	22.6Â°C	94%	1010.5mbar	261Deg	0.3m/s
7/24/2019 1:15	5.000ug/m3	22.7Â°C	94%	1010.4mbar	44Deg	0.5m/s
7/24/2019 1:30	2.000ug/m3	22.7Â°C	94%	1010.1mbar	17Deg	0.7m/s
7/24/2019 1:45	8.000ug/m3	22.8Â°C	94%	1010.1mbar	354Deg	0.6m/s
7/24/2019 2:00	6.000ug/m3	22.8Â°C	94%	1010.1mbar	357Deg	0.6m/s
7/24/2019 2:15	2.000ug/m3	22.6Â°C	93%	1010.2mbar	35Deg	0.9m/s
7/24/2019 2:30	3.000ug/m3	22.4Â°C	93%	1010.3mbar	356Deg	0.9m/s
7/24/2019 2:45	1.000ug/m3	22.1Â°C	93%	1010.1mbar	5Deg	1.2m/s
7/24/2019 3:00	1.000ug/m3	21.8Â°C	93%	1010.1mbar	14Deg	1.2m/s
7/24/2019 3:15	1.000ug/m3	21.5Â°C	92%	1010.0mbar	29Deg	0.9m/s
7/24/2019 3:30	5.000ug/m3	21.5Â°C	93%	1010.3mbar	21Deg	0.7m/s
7/24/2019 3:45	1.000ug/m3	21.4Â°C	93%	1010.4mbar	74Deg	0.8m/s
7/24/2019 4:00	5.000ug/m3	21.4Â°C	93%	1010.6mbar	355Deg	1.1m/s
7/24/2019 4:15	9.000ug/m3	21.3Â°C	93%	1010.5mbar	337Deg	1.3m/s
7/24/2019 4:30	9.000ug/m3	21.1Â°C	93%	1010.6mbar	4Deg	1.1m/s
7/24/2019 4:45	4.000ug/m3	20.8Â°C	93%	1010.6mbar	16Deg	1.0m/s
7/24/2019 5:00	3.000ug/m3	20.8Â°C	93%	1010.7mbar	39Deg	0.9m/s
7/24/2019 5:15	9.000ug/m3	20.8Â°C	93%	1010.8mbar	9Deg	0.9m/s
7/24/2019 5:30	9.000ug/m3	20.9Â°C	93%	1011.1mbar	14Deg	1.1m/s
7/24/2019 5:45	4.000ug/m3	20.8Â°C	93%	1011.1mbar	13Deg	0.9m/s
7/24/2019 6:00	6.000ug/m3	20.7Â°C	94%	1011.2mbar	24Deg	1.0m/s
7/24/2019 6:15	11.000ug/m3	20.6Â°C	95%	1011.3mbar	14Deg	1.1m/s
7/24/2019 6:30	15.000ug/m3	20.5Â°C	95%	1011.5mbar	11Deg	0.7m/s
7/24/2019 6:45	20.000ug/m3	20.4Â°C	95%	1011.7mbar	354Deg	1.2m/s
7/24/2019 7:00	15.000ug/m3	20.3Â°C	95%	1011.7mbar	11Deg	1.2m/s
7/24/2019 7:15	7.000ug/m3	20.2Â°C	95%	1011.8mbar	3Deg	0.9m/s
7/24/2019 7:30	4.000ug/m3	20.1Â°C	95%	1012.0mbar	34Deg	1.0m/s
7/24/2019 7:45	10.000ug/m3	20.1Â°C	95%	1012.1mbar	17Deg	1.1m/s
7/24/2019 8:00	4.000ug/m3	20.0Â°C	95%	1012.2mbar	32Deg	1.1m/s
7/24/2019 8:15	4.000ug/m3	20.1Â°C	95%	1012.2mbar	27Deg	0.9m/s
7/24/2019 8:30	77.000ug/m3	20.2Â°C	95%	1012.3mbar	22Deg	1.0m/s

7/24/2019 8:45	110.000ug/m3	20.3Â°C	95%	1012.5mbar	1Deg	1.4m/s
7/24/2019 9:00	59.000ug/m3	20.3Â°C	95%	1012.6mbar	1Deg	1.1m/s
7/24/2019 9:15	57.000ug/m3	20.4Â°C	95%	1012.9mbar	357Deg	1.4m/s
7/24/2019 9:30	47.000ug/m3	20.4Â°C	94%	1012.9mbar	9Deg	1.5m/s
7/24/2019 9:45	93.000ug/m3	20.4Â°C	94%	1012.9mbar	345Deg	1.5m/s
7/24/2019 10:00	64.000ug/m3	20.5Â°C	93%	1013.0mbar	21Deg	1.3m/s
7/24/2019 10:15	18.000ug/m3	20.5Â°C	93%	1013.0mbar	34Deg	1.1m/s
7/24/2019 10:30	16.000ug/m3	20.7Â°C	93%	1013.1mbar	31Deg	1.4m/s
7/24/2019 10:45	4.000ug/m3	20.8Â°C	92%	1013.0mbar	33Deg	1.2m/s
7/24/2019 11:00	5.000ug/m3	20.9Â°C	91%	1013.0mbar	63Deg	1.1m/s
7/24/2019 11:15	5.000ug/m3	21.0Â°C	91%	1013.1mbar	43Deg	1.2m/s
7/24/2019 11:30	6.000ug/m3	21.5Â°C	89%	1013.0mbar	47Deg	1.4m/s
7/24/2019 11:45	6.000ug/m3	21.9Â°C	87%	1013.1mbar	22Deg	1.5m/s
7/24/2019 12:00	6.000ug/m3	22.6Â°C	85%	1013.0mbar	36Deg	1.4m/s
7/24/2019 12:15	6.000ug/m3	23.3Â°C	82%	1013.1mbar	66Deg	1.6m/s
7/24/2019 12:30	7.000ug/m3	23.8Â°C	78%	1012.9mbar	11Deg	1.7m/s
7/24/2019 12:45	6.000ug/m3	25.2Â°C	72%	1012.8mbar	32Deg	1.6m/s
7/24/2019 13:00	6.000ug/m3	25.2Â°C	69%	1012.7mbar	35Deg	1.8m/s
7/24/2019 13:15	6.000ug/m3	26.1Â°C	67%	1012.5mbar	34Deg	1.5m/s
7/24/2019 13:30	6.000ug/m3	26.5Â°C	65%	1012.5mbar	19Deg	1.7m/s
7/24/2019 13:45	6.000ug/m3	27.5Â°C	61%	1012.4mbar	31Deg	1.7m/s
7/24/2019 14:00	6.000ug/m3	28.1Â°C	58%	1012.2mbar	31Deg	1.8m/s
7/24/2019 14:15	7.000ug/m3	27.9Â°C	58%	1012.0mbar	44Deg	1.6m/s
7/24/2019 14:30	6.000ug/m3	28.5Â°C	58%	1011.9mbar	57Deg	1.4m/s
7/24/2019 14:45	6.000ug/m3	28.6Â°C	56%	1011.8mbar	44Deg	1.5m/s
7/24/2019 15:00	7.000ug/m3	28.6Â°C	56%	1011.8mbar	34Deg	1.6m/s
7/24/2019 15:15	5.000ug/m3	29.0Â°C	55%	1011.7mbar	44Deg	1.2m/s
7/24/2019 15:30	6.000ug/m3	28.8Â°C	55%	1011.6mbar	39Deg	1.4m/s
7/24/2019 15:45	5.000ug/m3	28.5Â°C	56%	1011.5mbar	62Deg	1.3m/s
7/24/2019 16:00	5.000ug/m3	29.6Â°C	52%	1011.5mbar	14Deg	1.5m/s
7/24/2019 16:15	5.000ug/m3	29.1Â°C	51%	1011.5mbar	35Deg	1.6m/s
7/24/2019 16:30	6.000ug/m3	29.4Â°C	52%	1011.4mbar	49Deg	1.4m/s
7/24/2019 16:45	7.000ug/m3	29.8Â°C	49%	1011.4mbar	19Deg	1.4m/s
7/24/2019 17:00	5.000ug/m3	29.6Â°C	50%	1011.3mbar	28Deg	1.4m/s
7/24/2019 17:15	6.000ug/m3	29.6Â°C	51%	1011.4mbar	21Deg	1.2m/s
7/24/2019 17:30	8.000ug/m3	29.5Â°C	51%	1011.5mbar	2Deg	1.4m/s
7/24/2019 17:45	10.000ug/m3	29.3Â°C	51%	1011.6mbar	353Deg	1.5m/s
7/24/2019 18:00	10.000ug/m3	28.7Â°C	53%	1011.9mbar	357Deg	1.1m/s
7/24/2019 18:15	9.000ug/m3	28.8Â°C	54%	1011.9mbar	342Deg	1.1m/s
7/24/2019 18:30	7.000ug/m3	28.7Â°C	55%	1012.0mbar	22Deg	1.0m/s
7/24/2019 18:45	8.000ug/m3	28.1Â°C	57%	1012.0mbar	77Deg	0.7m/s
7/24/2019 19:00	8.000ug/m3	27.6Â°C	61%	1012.1mbar	77Deg	0.6m/s
7/24/2019 19:15	10.000ug/m3	26.8Â°C	67%	1012.1mbar	97Deg	0.4m/s
7/24/2019 19:30	23.000ug/m3	27.4Â°C	72%	1012.1mbar	248Deg	0.4m/s
7/24/2019 19:45	14.000ug/m3	27.2Â°C	70%	1012.2mbar	188Deg	0.4m/s
7/24/2019 20:00	14.000ug/m3	26.6Â°C	74%	1012.3mbar	218Deg	0.4m/s

7/24/2019 20:15	24.000ug/m3	25.5Â°C	78%	1012.5mbar	264Deg	0.4m/s
7/24/2019 20:30	41.000ug/m3	24.7Â°C	81%	1012.6mbar	211Deg	0.4m/s
7/24/2019 20:45	22.000ug/m3	24.3Â°C	82%	1012.6mbar	166Deg	0.4m/s
7/24/2019 21:00	13.000ug/m3	24.0Â°C	84%	1012.7mbar	202Deg	0.3m/s
7/24/2019 21:15	7.000ug/m3	23.8Â°C	84%	1012.8mbar	185Deg	0.3m/s
7/24/2019 21:30	9.000ug/m3	23.5Â°C	86%	1012.9mbar	223Deg	0.3m/s
7/24/2019 21:45	7.000ug/m3	23.3Â°C	87%	1013.1mbar	222Deg	0.3m/s
7/24/2019 22:00	5.000ug/m3	23.1Â°C	88%	1013.3mbar	222Deg	0.3m/s
7/24/2019 22:15	22.000ug/m3	22.8Â°C	89%	1013.4mbar	222Deg	0.3m/s
7/24/2019 22:30	123.000ug/m3	22.6Â°C	90%	1013.5mbar	222Deg	0.3m/s
7/24/2019 22:45	440.000ug/m3	22.5Â°C	91%	1013.5mbar	219Deg	0.3m/s
7/24/2019 23:00	474.000ug/m3	22.3Â°C	91%	1013.5mbar	217Deg	0.3m/s
7/24/2019 23:15	447.000ug/m3	22.1Â°C	92%	1013.5mbar	217Deg	0.3m/s
7/24/2019 23:30	352.000ug/m3	22.1Â°C	92%	1013.6mbar	216Deg	0.3m/s
7/24/2019 23:45	440.000ug/m3	22.0Â°C	92%	1013.6mbar	226Deg	0.4m/s
7/25/2019 0:00	497.000ug/m3	22.0Â°C	92%	1013.6mbar	247Deg	0.4m/s
7/25/2019 0:15	558.000ug/m3	21.8Â°C	92%	1013.6mbar	240Deg	0.4m/s
7/25/2019 0:30	357.000ug/m3	21.6Â°C	93%	1013.7mbar	220Deg	0.3m/s
7/25/2019 0:45	366.000ug/m3	21.4Â°C	93%	1013.7mbar	220Deg	0.3m/s
7/25/2019 1:00	565.000ug/m3	21.3Â°C	93%	1013.8mbar	210Deg	0.3m/s
7/25/2019 1:15	99.000ug/m3	21.2Â°C	93%	1013.9mbar	210Deg	0.3m/s
7/25/2019 1:30	38.000ug/m3	21.1Â°C	94%	1013.9mbar	217Deg	0.3m/s
7/25/2019 1:45	18.000ug/m3	21.0Â°C	94%	1013.9mbar	256Deg	0.3m/s
7/25/2019 2:00	36.000ug/m3	20.9Â°C	94%	1013.8mbar	260Deg	0.3m/s
7/25/2019 2:15	101.000ug/m3	20.9Â°C	94%	1013.8mbar	289Deg	0.4m/s
7/25/2019 2:30	224.000ug/m3	20.9Â°C	94%	1013.7mbar	300Deg	0.5m/s
7/25/2019 2:45	189.000ug/m3	20.9Â°C	93%	1013.6mbar	354Deg	0.3m/s
7/25/2019 3:00	178.000ug/m3	20.8Â°C	93%	1013.6mbar	285Deg	0.5m/s
7/25/2019 3:15	55.000ug/m3	20.7Â°C	93%	1013.6mbar	286Deg	0.4m/s
7/25/2019 3:30	149.000ug/m3	20.7Â°C	93%	1013.6mbar	316Deg	0.5m/s
7/25/2019 3:45	305.000ug/m3	20.8Â°C	93%	1013.6mbar	311Deg	0.6m/s
7/25/2019 4:00	211.000ug/m3	20.6Â°C	93%	1013.6mbar	318Deg	0.4m/s
7/25/2019 4:15	263.000ug/m3	20.5Â°C	93%	1013.7mbar	289Deg	0.5m/s
7/25/2019 4:30	129.000ug/m3	20.3Â°C	93%	1013.7mbar	265Deg	0.4m/s
7/25/2019 4:45	85.000ug/m3	20.2Â°C	93%	1013.8mbar	262Deg	0.3m/s
7/25/2019 5:00	95.000ug/m3	19.8Â°C	93%	1013.9mbar	200Deg	0.4m/s
7/25/2019 5:15	11.000ug/m3	19.6Â°C	93%	1014.1mbar	271Deg	0.4m/s
7/25/2019 5:30	20.000ug/m3	19.6Â°C	94%	1014.3mbar	265Deg	0.4m/s
7/25/2019 5:45	12.000ug/m3	19.5Â°C	94%	1014.5mbar	259Deg	0.4m/s
7/25/2019 6:00	21.000ug/m3	19.6Â°C	95%	1014.7mbar	200Deg	0.4m/s
7/25/2019 6:15	49.000ug/m3	19.5Â°C	95%	1014.8mbar	246Deg	0.4m/s
7/25/2019 6:30	87.000ug/m3	19.1Â°C	95%	1014.9mbar	276Deg	0.3m/s
7/25/2019 6:45	64.000ug/m3	19.0Â°C	95%	1015.0mbar	328Deg	0.4m/s
7/25/2019 7:00	143.000ug/m3	19.1Â°C	95%	1015.1mbar	303Deg	0.3m/s
7/25/2019 7:15	56.000ug/m3	19.2Â°C	96%	1015.3mbar	342Deg	0.3m/s
7/25/2019 7:30	21.000ug/m3	19.5Â°C	96%	1015.4mbar	355Deg	0.5m/s

7/25/2019 7:45	25.000ug/m3	20.3Â°C	96%	1015.5mbar	6Deg	0.7m/s
7/25/2019 8:00	10.000ug/m3	20.6Â°C	96%	1015.7mbar	1Deg	0.9m/s
7/25/2019 8:15	8.000ug/m3	20.7Â°C	96%	1016.0mbar	24Deg	0.8m/s
7/25/2019 8:30	8.000ug/m3	21.1Â°C	96%	1016.3mbar	41Deg	1.0m/s
7/25/2019 8:45	7.000ug/m3	21.6Â°C	95%	1016.3mbar	36Deg	1.0m/s
7/25/2019 9:00	7.000ug/m3	22.0Â°C	95%	1016.3mbar	36Deg	1.1m/s
7/25/2019 9:15	8.000ug/m3	22.3Â°C	94%	1016.4mbar	48Deg	1.3m/s
7/25/2019 9:30	9.000ug/m3	22.6Â°C	93%	1016.5mbar	3Deg	1.4m/s
7/25/2019 9:45	8.000ug/m3	22.9Â°C	92%	1016.5mbar	53Deg	1.3m/s
7/25/2019 10:00	7.000ug/m3	23.3Â°C	89%	1016.6mbar	65Deg	1.5m/s
7/25/2019 10:15	6.000ug/m3	23.7Â°C	85%	1016.6mbar	59Deg	1.7m/s
7/25/2019 10:30	6.000ug/m3	24.4Â°C	81%	1016.6mbar	65Deg	1.3m/s
7/25/2019 10:45	6.000ug/m3	25.5Â°C	75%	1016.7mbar	92Deg	1.3m/s
7/25/2019 11:00	5.000ug/m3	26.4Â°C	61%	1016.9mbar	75Deg	1.4m/s
7/25/2019 11:15	5.000ug/m3	27.6Â°C	55%	1017.0mbar	89Deg	1.4m/s
7/25/2019 11:30	4.000ug/m3	28.5Â°C	52%	1017.0mbar	78Deg	1.2m/s
7/25/2019 11:45	4.000ug/m3	29.0Â°C	49%	1017.0mbar	105Deg	1.2m/s
7/25/2019 12:00	4.000ug/m3	29.4Â°C	47%	1017.0mbar	86Deg	1.3m/s
7/25/2019 12:15	4.000ug/m3	29.9Â°C	47%	1016.9mbar	114Deg	1.0m/s
7/25/2019 12:30	4.000ug/m3	30.1Â°C	46%	1017.0mbar	54Deg	1.4m/s
7/25/2019 12:45	4.000ug/m3	30.6Â°C	44%	1017.1mbar	82Deg	1.2m/s
7/25/2019 13:00	5.000ug/m3	30.9Â°C	44%	1017.1mbar	74Deg	1.3m/s
7/25/2019 13:15	5.000ug/m3	30.6Â°C	42%	1017.2mbar	32Deg	1.5m/s
7/25/2019 13:30	5.000ug/m3	30.9Â°C	41%	1017.1mbar	47Deg	1.5m/s
7/25/2019 13:45	5.000ug/m3	31.1Â°C	41%	1017.1mbar	43Deg	1.4m/s
7/25/2019 14:00	5.000ug/m3	31.5Â°C	41%	1017.0mbar	71Deg	1.3m/s
7/25/2019 14:15	6.000ug/m3	31.9Â°C	38%	1016.9mbar	26Deg	1.5m/s
7/25/2019 14:30	4.000ug/m3	31.6Â°C	39%	1016.7mbar	63Deg	1.3m/s
7/25/2019 14:45	4.000ug/m3	31.3Â°C	39%	1016.8mbar	44Deg	1.4m/s
7/25/2019 15:00	4.000ug/m3	31.0Â°C	39%	1016.7mbar	46Deg	1.3m/s
7/25/2019 15:15	4.000ug/m3	31.6Â°C	35%	1016.7mbar	64Deg	1.6m/s
7/25/2019 15:30	4.000ug/m3	31.5Â°C	35%	1016.7mbar	35Deg	1.7m/s
7/25/2019 15:45	4.000ug/m3	31.7Â°C	35%	1016.6mbar	54Deg	1.5m/s
7/25/2019 16:00	4.000ug/m3	32.1Â°C	36%	1016.4mbar	91Deg	1.0m/s
7/25/2019 16:15	5.000ug/m3	32.2Â°C	36%	1016.4mbar	90Deg	1.2m/s
7/25/2019 16:30	4.000ug/m3	32.3Â°C	36%	1016.3mbar	63Deg	1.3m/s
7/25/2019 16:45	4.000ug/m3	31.9Â°C	35%	1016.3mbar	80Deg	1.5m/s
7/25/2019 17:00	4.000ug/m3	31.8Â°C	35%	1016.3mbar	50Deg	1.4m/s
7/25/2019 17:15	4.000ug/m3	31.4Â°C	35%	1016.4mbar	75Deg	1.6m/s
7/25/2019 17:30	4.000ug/m3	31.0Â°C	40%	1016.2mbar	98Deg	0.9m/s
7/25/2019 17:45	4.000ug/m3	31.1Â°C	44%	1016.1mbar	113Deg	0.8m/s
7/25/2019 18:00	5.000ug/m3	31.2Â°C	45%	1016.0mbar	123Deg	0.7m/s
7/25/2019 18:15	4.000ug/m3	30.7Â°C	47%	1016.1mbar	112Deg	1.0m/s
7/25/2019 18:30	4.000ug/m3	30.6Â°C	48%	1016.2mbar	128Deg	0.8m/s
7/25/2019 18:45	4.000ug/m3	30.5Â°C	49%	1016.2mbar	149Deg	0.8m/s
7/25/2019 19:00	4.000ug/m3	30.7Â°C	48%	1016.3mbar	125Deg	0.7m/s

7/25/2019 19:15	4.000ug/m3	30.8Â°C	49%	1016.4mbar	138Deg	0.6m/s
7/25/2019 19:30	4.000ug/m3	30.6Â°C	49%	1016.5mbar	135Deg	0.6m/s
7/25/2019 19:45	4.000ug/m3	29.6Â°C	51%	1016.6mbar	136Deg	0.5m/s
7/25/2019 20:00	5.000ug/m3	28.2Â°C	55%	1016.8mbar	125Deg	0.5m/s
7/25/2019 20:15	5.000ug/m3	26.8Â°C	59%	1016.8mbar	116Deg	0.4m/s
7/25/2019 20:30	6.000ug/m3	25.8Â°C	62%	1016.8mbar	139Deg	0.3m/s
7/25/2019 20:45	6.000ug/m3	25.2Â°C	65%	1016.9mbar	112Deg	0.3m/s
7/25/2019 21:00	6.000ug/m3	24.6Â°C	69%	1017.1mbar	79Deg	0.4m/s
7/25/2019 21:15	6.000ug/m3	24.1Â°C	73%	1017.3mbar	83Deg	0.3m/s
7/25/2019 21:30	6.000ug/m3	23.9Â°C	74%	1017.4mbar	83Deg	0.3m/s
7/25/2019 21:45	7.000ug/m3	23.9Â°C	75%	1017.5mbar	89Deg	0.3m/s
7/25/2019 22:00	7.000ug/m3	23.7Â°C	76%	1017.6mbar	110Deg	0.3m/s
7/25/2019 22:15	8.000ug/m3	23.4Â°C	78%	1017.8mbar	188Deg	0.3m/s
7/25/2019 22:30	20.000ug/m3	23.2Â°C	80%	1018.0mbar	194Deg	0.3m/s
7/25/2019 22:45	107.000ug/m3	23.0Â°C	82%	1018.3mbar	203Deg	0.3m/s
7/25/2019 23:00	91.000ug/m3	22.7Â°C	84%	1018.3mbar	203Deg	0.3m/s
7/25/2019 23:15	129.000ug/m3	22.5Â°C	85%	1018.3mbar	203Deg	0.3m/s
7/25/2019 23:30	180.000ug/m3	22.3Â°C	86%	1018.3mbar	203Deg	0.3m/s
7/25/2019 23:45	247.000ug/m3	22.1Â°C	87%	1018.4mbar	203Deg	0.3m/s

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From: Thompson, Rhonda <thompsrb@dhec.sc.gov>
Sent on: Friday, July 26, 2019 3:48:05 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Fwd: July 22-25 air sensor data and daily averages
Attachments: July 22-25 2019 data.pdf (363.56 KB), ATT00001.htm (352 Bytes)

This is all of our air sensor PM2.5 data since July 22.

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From: Snyder, John <John.Snyder@tetratech.com>
Sent on: Friday, August 9, 2019 11:20:41 AM
To: Huyser, Matthew <Huyser.Matthew@epa.gov>; Garrard, Jordan <Garrard.Jordan@epa.gov>; chris.jones@tetratech.com; Jessica Vickers <Jessica.Vickers@tetratech.com>
Subject: Fwd: Phosgene Analysis by OSHA Method 61?
Attachments: ATT00001.txt (51 Bytes)

Matt,
FYI, we may have a lead on another lab that can run Phosgene. We can discuss later.

Jessica,
Please look into this. Thanks

Get Outlook for Android

From: Fuller, David
Sent: Thursday, August 8, 5:45 PM
Subject: RE: Phosgene Analysis by OSHA Method 61?
To: Vickers, Jessica
Cc: Snyder, John

⚠ CAUTION: This email originated from an external sender. Verify the source before opening links or attachments. ⚠

If you strike out, I heard from one of my clients that is a "lab broker", for lack of a better term. They said:

"Yes, we do have a lab that does this analysis. OSHA 61 is an industrial hygiene method, but some clients have had success adapting these methods for other types of air sample collection, as well. As long as the sampling is not for compliance, or if the regulatory entity is on-board, this is a good approach.

This lab is AIHA/ISO 17025-accredited for this analysis.
Phosgene by OSHA 61 is $83 USD per sample. The lab has a 3-sample minimum for this analysis. Samples are collected on treated XAD-2 tubes, SKC 226-17 or ORBO 24. There is no charge for this sampling media, aside from shipping costs (because they need to be kept cold, the tubes would be Overnighted). The standard turnaround time for analysis is 5-10 business days, depending on laboratory backlog.

Let me know if you want their contact info.

David Fuller
Account Executive

Eurofins TestAmerica
6500 McDonough Drive, Suite C-10
Norcross, GA 30093
USA

2838 B Queen City Drive

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Saturday, August 3, 2019 4:02:39 PM
To: Moore, Tony <moore.tony@epa.gov>; Webster, James <Webster.James@epa.gov>
Subject: Fwd: Surface Water Summary
Attachments: image001.png (1.21 KB), ATT00001.htm (456 Bytes), image002.png (1.4 KB), ATT00002.htm (469 Bytes), image003.png (1.37 KB), ATT00003.htm (820 Bytes), image004.jpg (2.06 KB), ATT00004.htm (356 Bytes), Able Contracting Fire SW Pre-Review Table.pdf (8.15 KB), ATT00005.htm (178 Bytes)

Water sample summary table

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Snyder, John" <John.Snyder@tetratech.com>
Date: August 3, 2019 at 12:00:25 PM EDT
To: "Garrard, Jordan" <garrard.jordan@epa.gov>
Subject: Surface Water Summary

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Saturday, August 3, 2019 7:23:39 PM
To: Scott Reynolds <reynolds@dhec.sc.gov>; threatrl@dhec.sc.gov; rwells@jaspercountysc.gov
Subject: Fwd: Surface Water Summary
Attachments: image001.png (1.21 KB), ATT00001.htm (456 Bytes), image002.png (1.4 KB), ATT00002.htm (469 Bytes), image003.png (1.37 KB), ATT00003.htm (820 Bytes), image004.jpg (2.06 KB), ATT00004.htm (356 Bytes), Able Contracting Fire SW Pre-Review Table.pdf (8.15 KB), ATT00005.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Snyder, John" <John.Snyder@tetratech.com>
Date: August 3, 2019 at 12:00:25 PM EDT
To: "Garrard, Jordan" <garrard.jordan@epa.gov>
Subject: Surface Water Summary

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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PRE-REVIEW SURFACE WATER RESULTS SUMMARY TABLE
DETECTIONS ONLY
ABLE CONTRACTING FIRE

Parameter	MCL/RSL[1]	ACF-GW-872R		DHEC (min/cont) /EPA (chr/acute)[2]	ACF-SW-DITCH	ACF-SW-POND
	Groundwater			Surface Water		
Metals (µg/L)						
Aluminum	*2,000*	100 U		*87/750*	527	251
Antimony	6	5.0 U		*190/900*	61.0	32.3
Arsenic	10	10.0 U		340/150	554	493
Barium	2,000	5.7		*220/2,000*	175	133
Cadmium	5	1.0 U		0.53/0.10	4.3	3.6
Calcium	NL	27,200		*116,000/NL*	904,000	725,000
Chromium	100	5.0 U		580/28	191	148
Copper	1,300	27.6		3.8/2.9	38.1	20.2
Iron	*1,400*	50.0 U		*1,000/NL*	1,070	300
Lead	15	5.0 U		14/0.54	3.0 J	5.0 U
Magnesium	NL	9,370		*82,000/NL*	83,100	48,900
Manganese	*48*	21.8		*93/1,680*	820	526
Nickel	*40*	2.6 J		150/16	43.5	30.5
Potassium	NL	2,760 J		*53,000/NL*	112,000	75,300
Sodium	NL	10,600		*680,000/NL*	430,000	248,000
Vanadium	NL	5.0 U		*27/79*	36.4	22.7
Zinc	*600*	130		37/37	72.7	24.4
Volatile Organic Compounds (µg/L)						
1,2-Dichloroethane	5	1.0 U		*2,000/8,200*	0.83 J	0.55 J
2-Butanone (MEK)	*1,200*	5.0 U		*22,000/200,000*	71.6	43.2
2-Hexanone	*10*	5.0 U		*99/1,800*	3.5 J	5.0 U
4-Methyl-2-pentanone (MIBK)	*630*	5.0 U		*170/2,200*	9.4 J	5.0 U
Acetone	*1,800*	25.0 U		*1,700/15,000*	325	269
Benzene	5	1.0 U		*160/700*	29.7	21.4
Chloromethane	*19*	0.69 J		NL	2.0 U	1.8
Ethylbenzene	700	1.0 U		*61/550*	6.2	6.0
m&p-Xylene	*400*	2.0 U		*27/240*	2.4 J	1.8 J
Naphthalene	*40*	1.0 U		*21/170*	3.9	2.3
o-Xylene	*400*	1.0 U		*27/240*	1.6 J	1.1
Toluene	1,000	1.0 U		*62/560*	14.5	10.5
Xylene (Total)	10,000	1.0 U		*27/240*	2.0 U	1.1
Semivolatile Organic Compounds (µg/L)						
2,4-Dimethylphenol	*40*	100 U		*15/140*	108	6.0 J
2-Methylphenol(o-Cresol)	*100*	100 U		*67/600*	137	11.1
3&4-Methylphenol(m&p Cresol)	*200*	100 U		*62/560*	82.9 J	7.9 J

Notes:

1 Drinking water values are compared to EPA MCLs. When an MCL is not listed, the EPA RSL is used

2 Surface water values are compared to DHEC Freshwater Aquatic Life levels. When DHEC levels are not listed, EPA Surface Water Screening Values are used

SHAD Reported value exceeds the comparison criteria

Acute Acute exposure

Chr Chronic exposure

Cont Continuous exposure

J The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

Max Maximum exposure level

MCL Maximum contaminant level

NL Not listed

RSL Regional Screening Level; Tapwater TR=1E-06, THQ=0.1

U The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).

µg/L micrograms per liter

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Tuesday, July 30, 2019 12:57:52 PM
To: Scott Reynolds <reynolds@dhec.sc.gov>
Subject: Fwd: Viper Data

Let me know if you can't download the files.

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Eichinger, Kevin" <Eichinger.Kevin@epa.gov>
Date: July 29, 2019 at 4:31:29 PM EDT
To: Eric Huss <Eric.huss@tetratech.com>
Cc: "Garrard, Jordan" <Garrard.Jordan@epa.gov>
Subject: Viper Data

Files are too large to email. Go to the following website to downloads:

https://viper.ert.org/R04AbleFire

Username: R04AbleFire

Password: R04AbleF!re2019

Everything is case sensitive.

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 2, 2019 9:02:44 PM
To: Pinkney, James <Pinkney.James@epa.gov>
Subject: Fwd: ZN Able Construction/Able Recycling/Enforcement
Attachments: Local Emergency Declaration - Able Recycling Center.pdf (45.38 KB), ATT00001.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Tisha L. Williams" <tlwilliams@jaspercountysc.gov>
Date: August 2, 2019 at 3:55:03 PM EDT
To: Frank Edwards <fedwards@jaspercountysc.gov>, Lisa Wagner <lwagner@jaspercountysc.gov>, "chris.collins2@redcross.org" <chris.collins2@redcross.org>, "haley.lawson@redcross.org" <haley.lawson@redcross.org>, David Tedder <dtedder@jaspercountysc.gov>, Andrew Fulghum <afulghum@jaspercountysc.gov>, "reecemc@dhec.sc.gov" <reecemc@dhec.sc.gov>, "porterhj@dhec.sc.gov" <porterhj@dhec.sc.gov>, "keith.frost@dhec.sc.gov" <keith.frost@dhec.sc.gov>, "thompsrb@dhec.sc.gov" <thompsrb@dhec.sc.gov>, "keislecv@dhec.sc.gov" <keislecv@dhec.sc.gov>, "blalocje@dhec.sc.gov" <blalocje@dhec.sc.gov>, "dickmaj@dhec.sc.gov" <dickmaj@dhec.sc.gov>, "garrard.jordan@epa.gov" <garrard.jordan@epa.gov>, "john.snyder@tetratech.com" <john.snyder@tetratech.com>, Clay Graves <cgraves@jaspercountysc.gov>, Russell Wells <rwells@jaspercountysc.gov>, "eturner@emd.sc.gov" <eturner@emd.sc.gov>, "threatrl@dhec.sc.gov" <threatrl@dhec.sc.gov>, "ltucker@emd.sc.gov" <ltucker@emd.sc.gov>
Subject: ZN Able Construction/Able Recycling/Enforcement

All:

Please find attached the Local Emergency Declaration regarding Able Construction/Able Recycling Center.

Thank you,

Declaration of Local Emergency

Whereas, I in my capacity as County Council Chairman, and pursuant to the authority granted pursuant to Article III of the Jasper County Code of Ordinances, and the adopted Jasper County Emergency Operation Plan and its Letter of Promulgation, have determined that a local emergency exists in the area described below, based upon the following:

1)SC DHEC has declared an imminent and substantial danger to human health and the environment in its Emergency Order dated 5:12pm August 1, 2019 regarding the unhealthy environmental situation arising from the continuing fire at Able Recycling Center on Schinger Avenue, (a copy of the Order attached);

2) EPA and DHEC have determined from sampling the air quality that an "Unhealthy" level of particulate concentrations continue to exist;

3) the situation as exist constitutes an ongoing danger to the health, safety and welfare of these residents living in close proximity to the site, especially members of vulnerable populations such as pregnant women, children and those suffering from pulmonary conditions.

Having determine the emergency exists it is ordered that

1) All Residents living along Schinger Avenue between 352 and 472 Schinger Avenue voluntarily evacuate and seek alternative housing for at least the next seven days until 8a.m. Friday August 9th);

2) Residents are further advised that Jasper County has made arrangements for temporary housing, and to that end, efforts are being made to contact each residence individually.

3) This Declaration shall remain in effect until such time as SC DHEC determines the Air Quality at this area no longer poses a public health danger to these residents or County Council declares the Emergence no longer exists.

And it is so Ordered.

S/ D Thomas Johnson, Jr.

D. Thomas Johnson Jr., Chairman

Jasper County Council

DATE: August 2, 2019 TIME: 3:20 p.m.

JASPER COUNTY SEAL SOUTH CAROLINA

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 2, 2019 8:26:31 PM
To: Webster, James <Webster.James@epa.gov>; Moore, Tony <moore.tony@epa.gov>
Subject: Fwd: ZN Able Construction/Able Recycling/Enforcement
Attachments: Able EO.PDF (163.36 KB), ATT00001.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: David Tedder <dtedder@jaspercountysc.gov>
Date: August 2, 2019 at 4:25:38 PM EDT
To: "Tisha L. Williams" <tlwilliams@jaspercountysc.gov>, Frank Edwards <fedwards@jaspercountysc.gov>, Lisa Wagner <lwagner@jaspercountysc.gov>, "chris.collins2@redcross.org" <chris.collins2@redcross.org>, "haley.lawson@redcross.org" <haley.lawson@redcross.org>, Andrew Fulghum <afulghum@jaspercountysc.gov>, "reecemc@dhec.sc.gov" <reecemc@dhec.sc.gov>, "porterhj@dhec.sc.gov" <porterhj@dhec.sc.gov>, "keith.frost@dhec.sc.gov" <keith.frost@dhec.sc.gov>, "thompsrb@dhec.sc.gov" <thompsrb@dhec.sc.gov>, "keislecv@dhec.sc.gov" <keislecv@dhec.sc.gov>, "blalocje@dhec.sc.gov" <blalocje@dhec.sc.gov>, "dickmaj@dhec.sc.gov" <dickmaj@dhec.sc.gov>, "garrard.jordan@epa.gov" <garrard.jordan@epa.gov>, "john.snyder@tetratech.com" <john.snyder@tetratech.com>, Clay Graves <cgraves@jaspercountysc.gov>, Russell Wells <rwells@jaspercountysc.gov>, "eturner@emd.sc.gov" <eturner@emd.sc.gov>, "threatrl@dhec.sc.gov" <threatrl@dhec.sc.gov>, "ltucker@emd.sc.gov" <ltucker@emd.sc.gov>
Subject: RE: ZN Able Construction/Able Recycling/Enforcement

Try this again with the attachment

David L. Tedder
Jasper County Attorney
POB 420
Ridgeland, SC 29936
(843) 717-3688
(843)726-3240 (fax)
dtedder@jaspercountysc.gov

An Equal Opportunity Employer.

THE STATE OF SOUTH CAROLINA
BEFORE THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

IN RE: CHANDLER LLOYD; ABLE CONTRACTING, INC.; EARLBEE, LLC

JASPER COUNTY

NOTICE AND EMERGENCY ORDER

Chandler Lloyd, Able Contracting, Inc., and EARLBEE, LLC., (collectively, "Able") are responsible for a registered Construction and Demolition ("C&D") Processing Facility known as the Able Contracting Facility ("Able Facility") located at 472 Schinger Ave., Ridgeland, SC 29936 in Jasper County. A fire at the Able Facility has created an imminent and substantial danger to human health and the environment requiring the issuance of this Emergency Order.

TAKE NOTICE:

1. On or about June 3, 2019, the Department received complaints concerning outbreaks of flame and smoke at the Able Facility; and

2. The Able Facility is located in close proximity to numerous commercial and residential structures housing a number of residents and employees, including members of vulnerable populations such as pregnant women and children; and

3. Between June 3, 2019 and July 3, 2019, the Department conducted an investigation and received numerous complaints from nearby residents and employees of businesses located near the Able Facility regarding smoke and odors, and observed that the Able Facility was actively pumping water onto the material pile; and

4. On July 3, 2019, the Department issued a letter requiring Able to cease accepting new material, and requiring a plan be submitted to the Department detailing efforts to extinguish the fire and procedures to ensure fire is extinguished both internally and externally ("Cease and Desist"); and

5. The Department deployed a portable air sensor near the Able Facility to detect fine particulate matter on July 3, 2019; and

6. Able filed a Request for Review of the Cease and Desist on July 8, 2019; which was denied by the South Carolina Board of Health and Environmental Control on July 30, 2019, and

7. A representative of Able informed the Department on July 24, 2019 that Able was unable to continue pumping water onto the material pile due to a lack of resources; and

8. On July 24th, 25th, 27th, and 29th, 2019, concentration data from air sensors indicated levels above EPA health-based standards for fine particulate matter (35 micrograms per cubic meter, for a 24- hour average); and

9. Since their installation, the Department air sensor has detected instantaneous levels as high as 565 micrograms per cubic meter; and

10. These elevated levels constitute an emergency requiring immediate action to protect the public health or property pursuant to S.C. Code Ann. Sections 48-1-290 and 44-1-140; and

11. Whereas, S.C. Code Ann. Section 48-1-290 provides that the Department may issue an order requiring immediate action be taken as the Department deems necessary to meet an emergency and protect public health; and

12. Whereas, S.C. Code Ann. Section 44-1-140 provides that the Department may make orders to meet any emergency not provided for by general rules and regulations, for purposes of suppressing nuisances dangerous to the public health.

NOW, THEREFORE, THE DEPARTMENT FINDS, that the continued operations and current conditions at the Able Facility, a solid waste facility located at 472 Schinger Road, Ridgeland, South Carolina, present an imminent and substantial danger to human health and the environment.

IT IS THEREFORE ORDERED that Able shall:

1. Upon the execution date of the Order, immediately cease all operations at the Able Facility not related to completely extinguishing the fire, including the acceptance of new material. Continued operation of the Able Facility, without express written consent of the Department, is considered a violation of this Order. Each day of continued violation will be considered a separate offense.

2. Monitor conditions at the Able Facility 24 hours per day until the fire is completely extinguished. If visibility is impaired on a public roadway or any open flame is visible, notify the County Fire Department.

3. Due to the imminent and substantial danger to human health and the environment from the smoke being produced by material on fire at the Able Facility, the Able Facility must secure the services of a contracting company with experience in extinguishing fires of this nature to develop a plan for smoke abatement and complete extinguishment of the fire at the Able Facility, and provide a copy of the plan to the Department within 48 hours of this Order.

4. Contract with the consulting company to implement the plan for smoke abatement and complete extinguishment of the fire. Due to the imminent nature of the health concerns associated with this event, the plan must be initiated within 72 hours of the Order, and fully-implemented as soon as reasonably possible.

5. Allow unrestricted access to Department personnel or contractors for oversight of these measures.

6. Submit a written certification to the Department when all work has been completed.

7. The Department's point of contact for all matters related to this Order will be:

Marty Lindler
2600 Bull Street
Columbia, SC 29201
803-898-0456
lindlema@dhec.sc.gov

IT IS FURTHER ORDERED that the Department reserves the right to take further enforcement action for the above-observed conditions and any violations of this Emergency Order, or the Solid Waste Policy and Management Act and associated Regulations, including but not limited to the assessment of civil penalties.

IT IS FURTHER ORDERED that the execution date of this Order is the date this Order is signed by the Director of Environmental Affairs.

Failure to comply with this Order **MAY SUBJECT YOU TO PENALTIES OR CRIMINAL PROSECUTION** pursuant to S.C. Code Ann. Sections 44-1-150, 48-1-320, and 48-1-330. The Department reserves the right to take any actions necessary to address this emergency and seek cost recovery as authorized by applicable law.

AND IT IS SO ORDERED.

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

By: Myra Reece

Myra Reece, Director of Environmental Affairs

DATE: 7/31/19 TIME: 5:12 pm

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 2, 2019 7:55:55 PM
To: Moore, Tony <moore.tony@epa.gov>; Webster, James <Webster.James@epa.gov>
Subject: Fwd: ZN Able Construction/Able Recycling/Enforcement
Attachments: Local Emergency Declaration - Able Recycling Center.pdf (45.38 KB), ATT00001.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

Begin forwarded message:

From: "Tisha L. Williams" <tlwilliams@jaspercountysc.gov>
Date: August 2, 2019 at 3:55:03 PM EDT
To: Frank Edwards <fedwards@jaspercountysc.gov>, Lisa Wagner <lwagner@jaspercountysc.gov>, "chris.collins2@redcross.org" <chris.collins2@redcross.org>, "haley.lawson@redcross.org" <haley.lawson@redcross.org>, David Tedder <dtedder@jaspercountysc.gov>, Andrew Fulghum <afulghum@jaspercountysc.gov>, "reecemc@dhec.sc.gov" <reecemc@dhec.sc.gov>, "porterhj@dhec.sc.gov" <porterhj@dhec.sc.gov>, "keith.frost@dhec.sc.gov" <keith.frost@dhec.sc.gov>, "thompsrb@dhec.sc.gov" <thompsrb@dhec.sc.gov>, "keislecv@dhec.sc.gov" <keislecv@dhec.sc.gov>, "blalocje@dhec.sc.gov" <blalocje@dhec.sc.gov>, "dickmaj@dhec.sc.gov" <dickmaj@dhec.sc.gov>, "garrard.jordan@epa.gov" <garrard.jordan@epa.gov>, "john.snyder@tetratech.com" <john.snyder@tetratech.com>, Clay Graves <cgraves@jaspercountysc.gov>, Russell Wells <rwells@jaspercountysc.gov>, "eturner@emd.sc.gov" <eturner@emd.sc.gov>, "threatrl@dhec.sc.gov" <threatrl@dhec.sc.gov>, "ltucker@emd.sc.gov" <ltucker@emd.sc.gov>
Subject: ZN Able Construction/Able Recycling/Enforcement

All:

Please find attached the Local Emergency Declaration regarding Able Construction/Able Recycling Center.

Thank you,

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 2, 2019 9:02:59 PM
To: Pinkney, James <Pinkney.James@epa.gov>
Subject: Fwd: ZN Able Construction/Able Recycling/Enforcement
Attachments: Able EO.PDF (163.36 KB), ATT00001.htm (178 Bytes)

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

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David L. Tedder
Jasper County Attorney
POB 420
Ridgeland, SC 29936
(843) 717-3688
(843)726-3240 (fax)
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THE STATE OF SOUTH CAROLINA
BEFORE THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

IN RE: CHANDLER LLOYD; ABLE CONTRACTING, INC.; EARLBEE, LLC

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Marty Lindler
2600 Bull Street
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803-898-0456
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SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

By: Myra Reece

Myra Reece, Director of Environmental Affairs

DATE: 7/31/19 TIME: 5:12 pm

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Here's the folder that Huyser, Matthew shared with you.

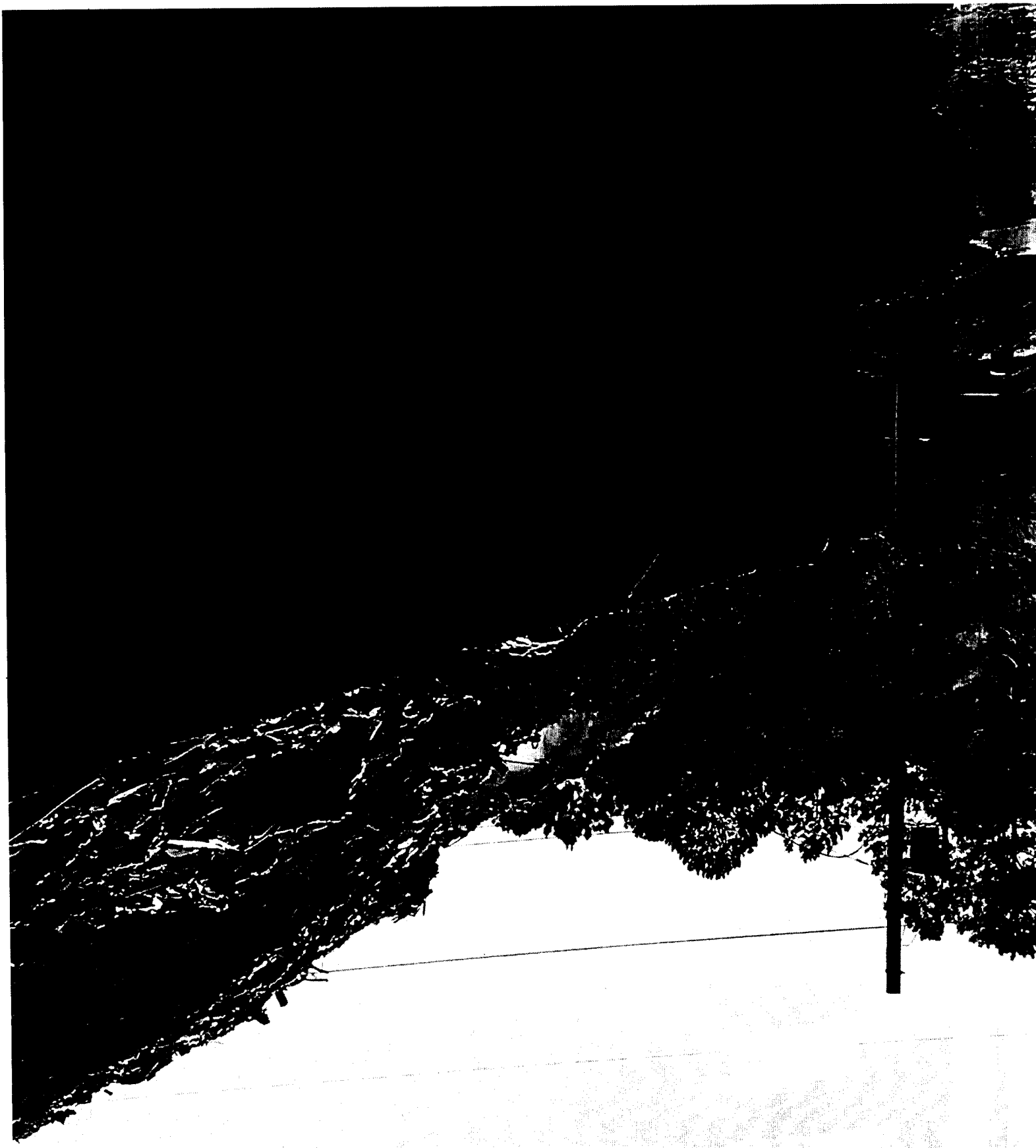
This link only works for the direct recipients of this message.

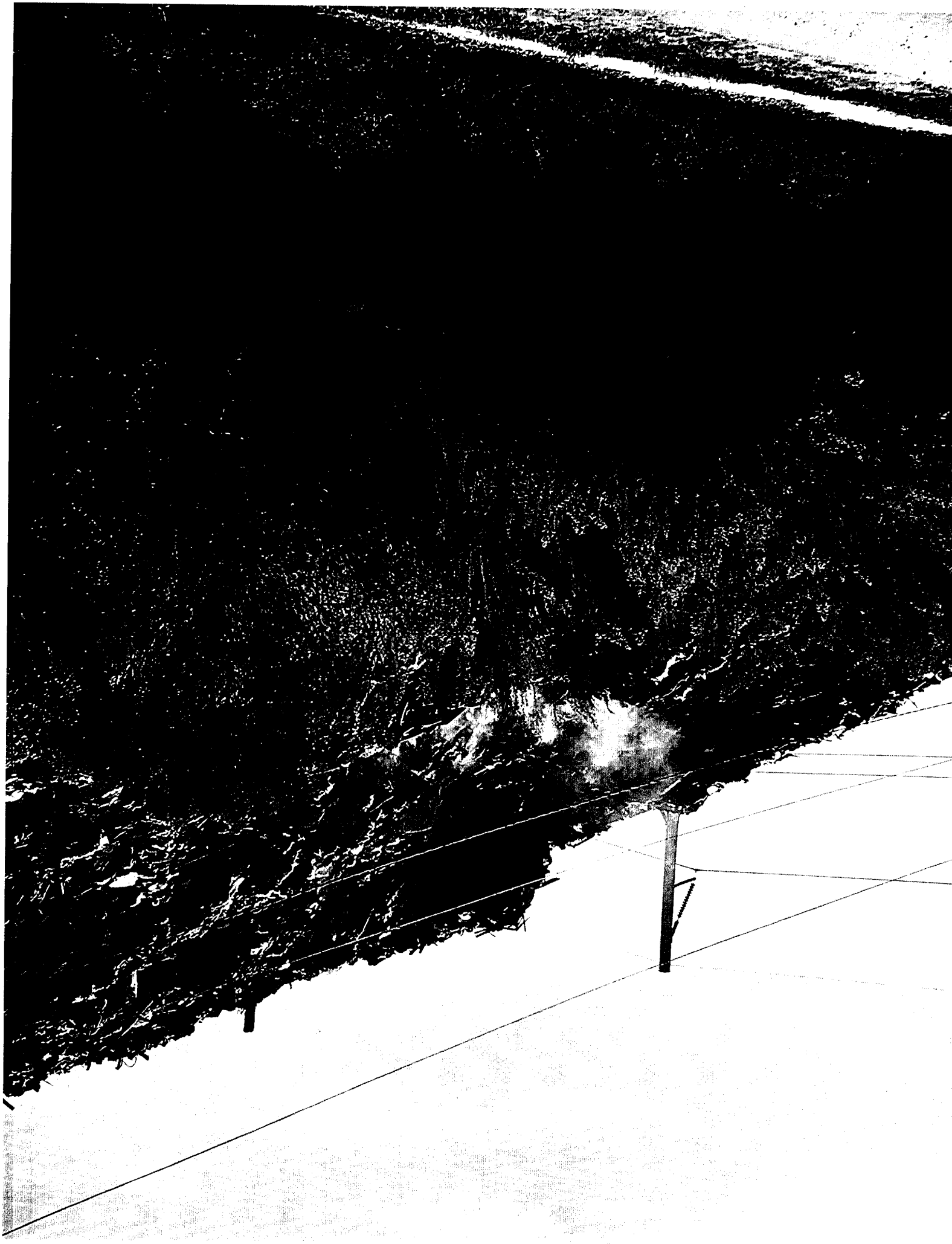
Able_DHEC_Sharepoint_20190725

Open

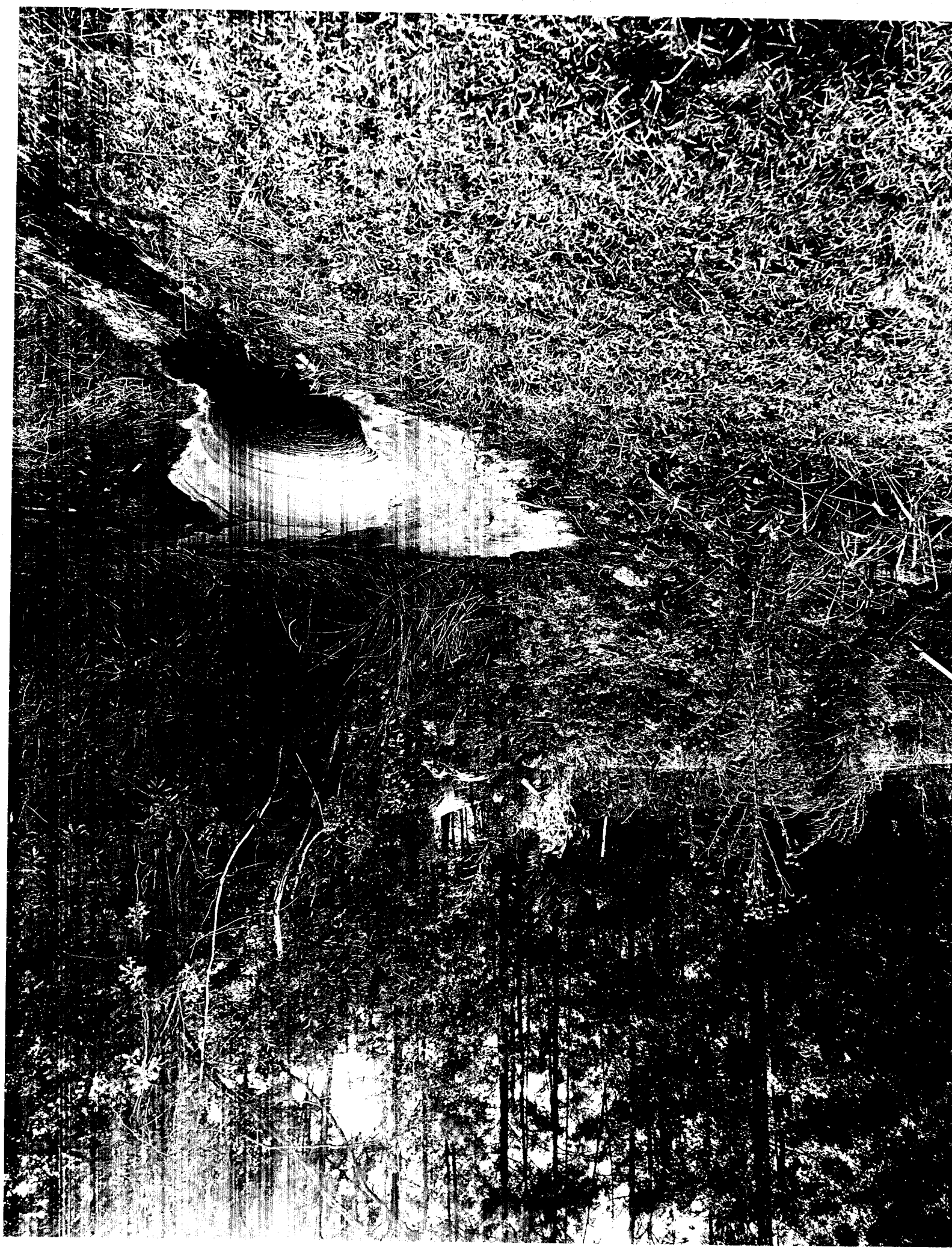
Microsoft OneDrive

Microsoft respects your privacy. To learn more, please read our Privacy Statement.
Microsoft Corporation, One Microsoft Way, Redmond, WA 98052

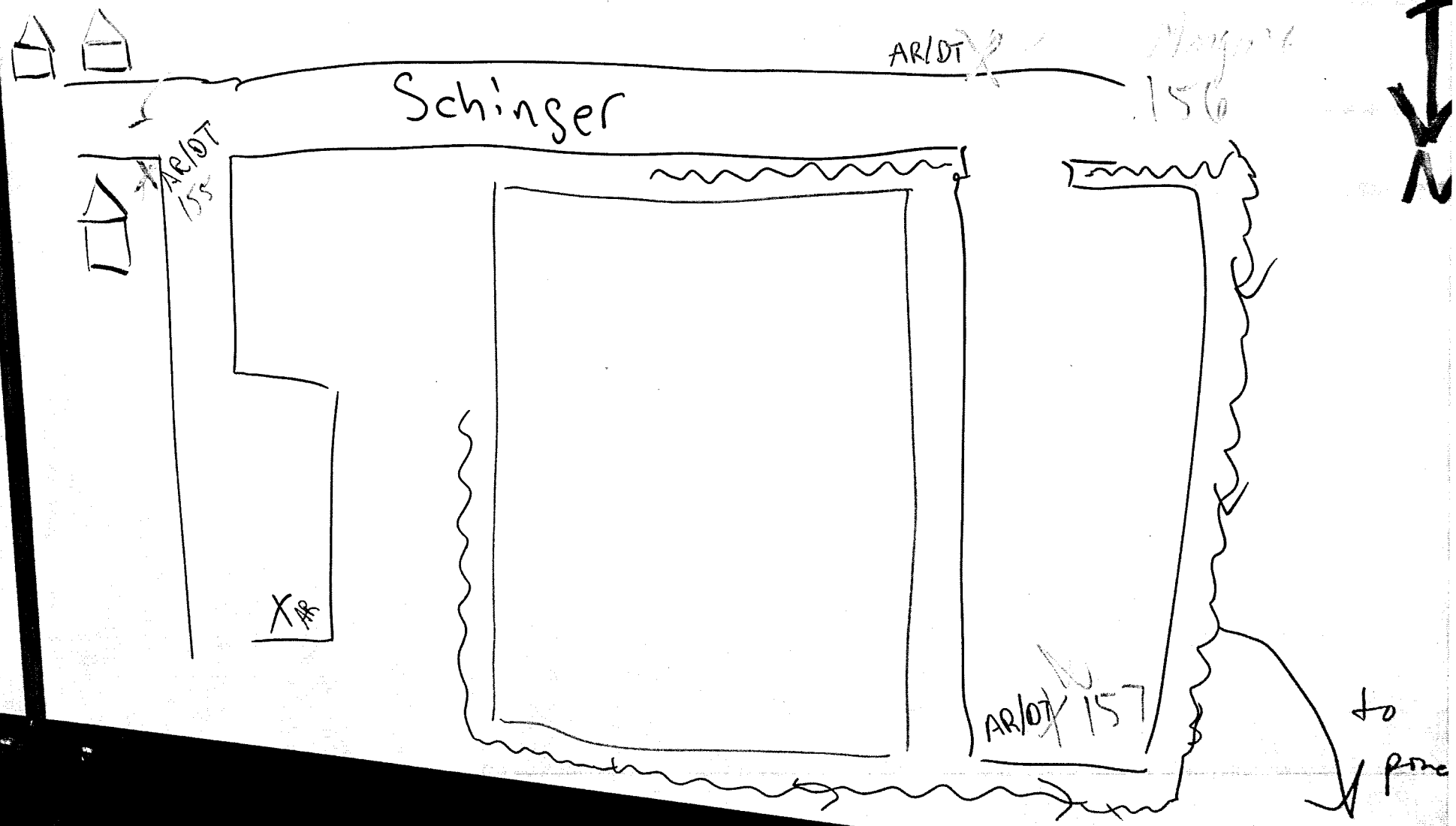




WAS



Wind Tonight to the West



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, S.W.
ATLANTA, GEORGIA 30303

7/26/19

SUBJ: Notice of Federal Interest

Dear Mr. Chandler Lloyd:

The purpose of this letter is to inform you that a release or threatened release of hazardous substances, pollutants or contaminants for which you may be responsible, has occurred or threatens to occur at the following location:

472 Schinger Ave, Ridgeland, SC 29936

The United States Environmental Protection Agency (EPA) has an interest in this incident and may conclude that a removal action is necessary to clean up or contain the release. A removal action is an action that may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, pollutants or contaminants and includes physical removal and disposal of hazardous substances, pollutants or contaminants. Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA is authorized to address this release or threatened release.

If EPA determines that a removal action is necessary, EPA may request that liable parties conduct the removal action if EPA determines that the liable parties will conduct such action promptly and properly. Liable parties under Section 107 of CERCLA generally include the current owner or operator of the property, anyone who owned or operated at the property when hazardous substances were disposed, generators of hazardous substances disposed of at the Site, and transporters of hazardous substances.

EPA's On-Scene Coordinator shall determine the adequacy of the removal action performed by liable parties and shall provide guidance and oversight of such action. The On-Scene Coordinator for this incident is [illegible] contact the On-Scene Coordinator before taking any action to address [illegible]

If liable parties decline the opportunity to take appropriate action or if EPA determines that liable parties cannot perform the removal action promptly and properly, EPA may conduct the removal action itself. If EPA conducts the removal action, liable parties will be held financially responsible for costs incurred by the EPA as set forth in Section 107 of CERCLA.

You are strongly encouraged to contact an attorney who can advise you of your rights and responsibilities under CERCLA. Should you require further information concerning this matter, please contact the On-Scene Coordinator by telephone at (~~404) 562-8268~~ 678-644-8648 or you may write to the address below.

~~Kevin Eichinger~~ Jordan Gorrod
On-Scene Coordinator
U.S. Environmental Protection Agency
Region 4
ERRB
61 Forsyth Street S.W.
Atlanta, Georgia 30303

Sincerely,

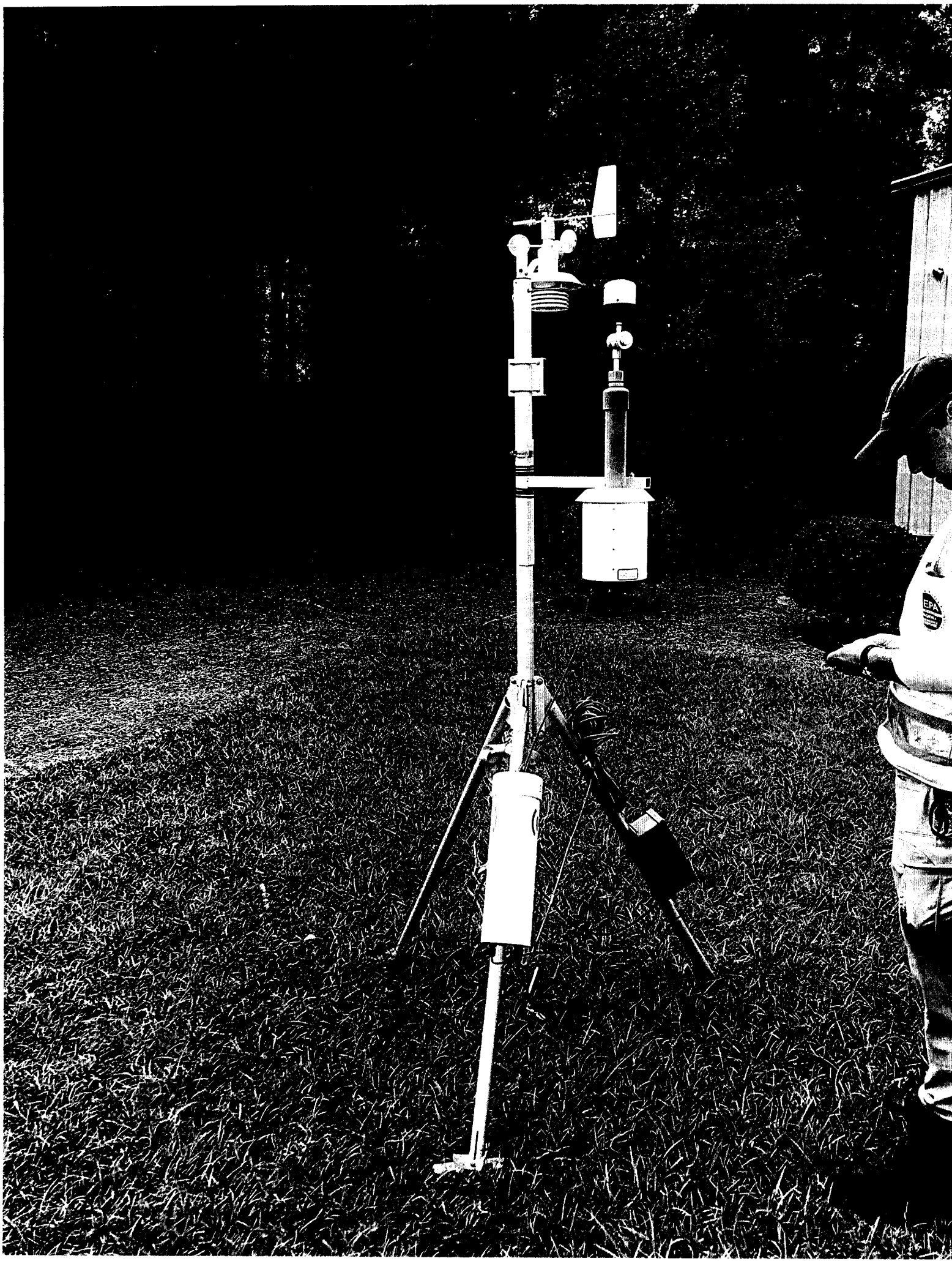
~~Kevin Eichinger~~ Jordan Gorrod
On-Scene Coordinator

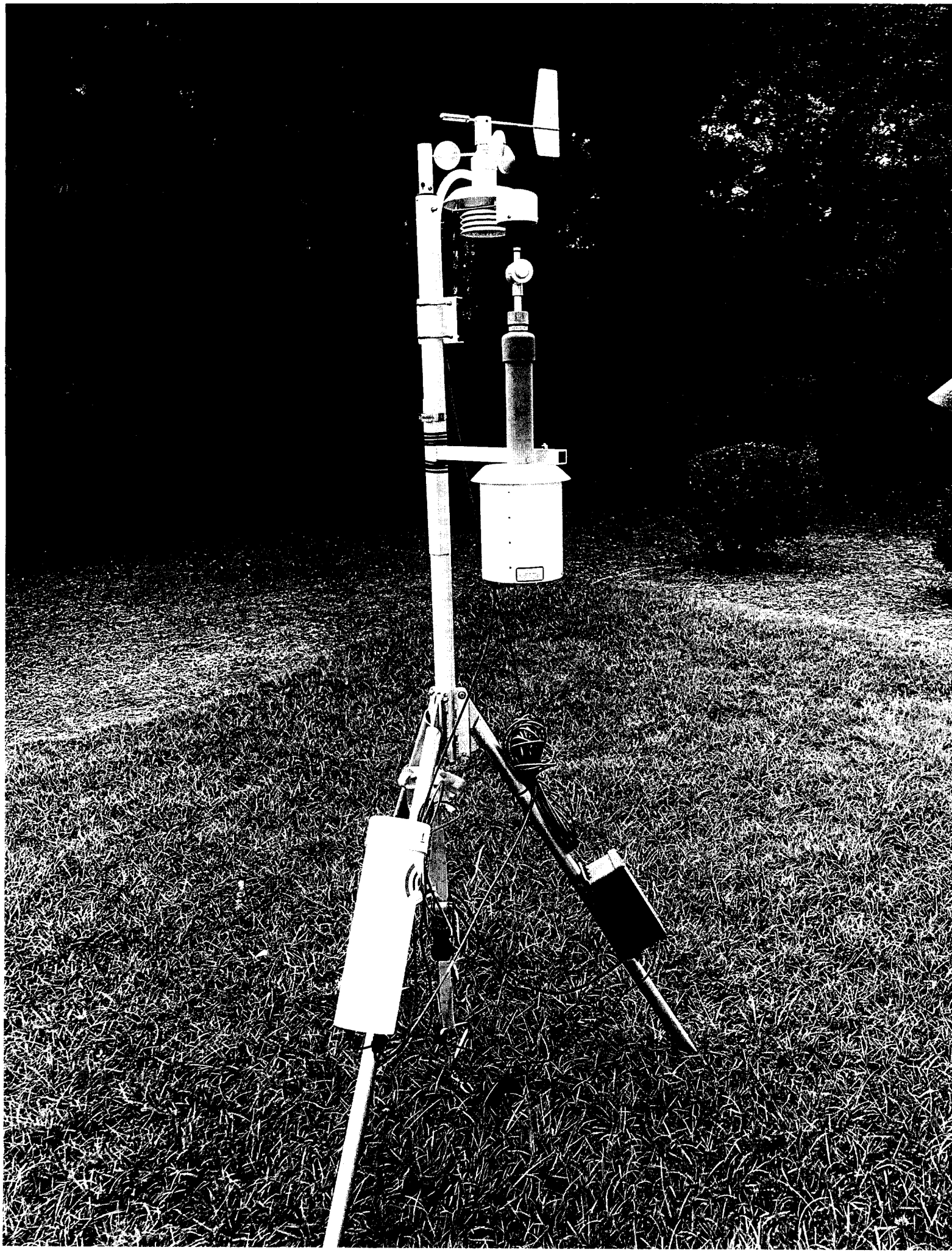
Receipt and Acknowledgement

Received by _____ Date 9/26/19

_____ Date _____

Printed name _____


EPA



S.C. DHEC
CALIBRATED

U.S. EPA
OSC

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MACKINAC ROAD

MACKINAC BRIDGE

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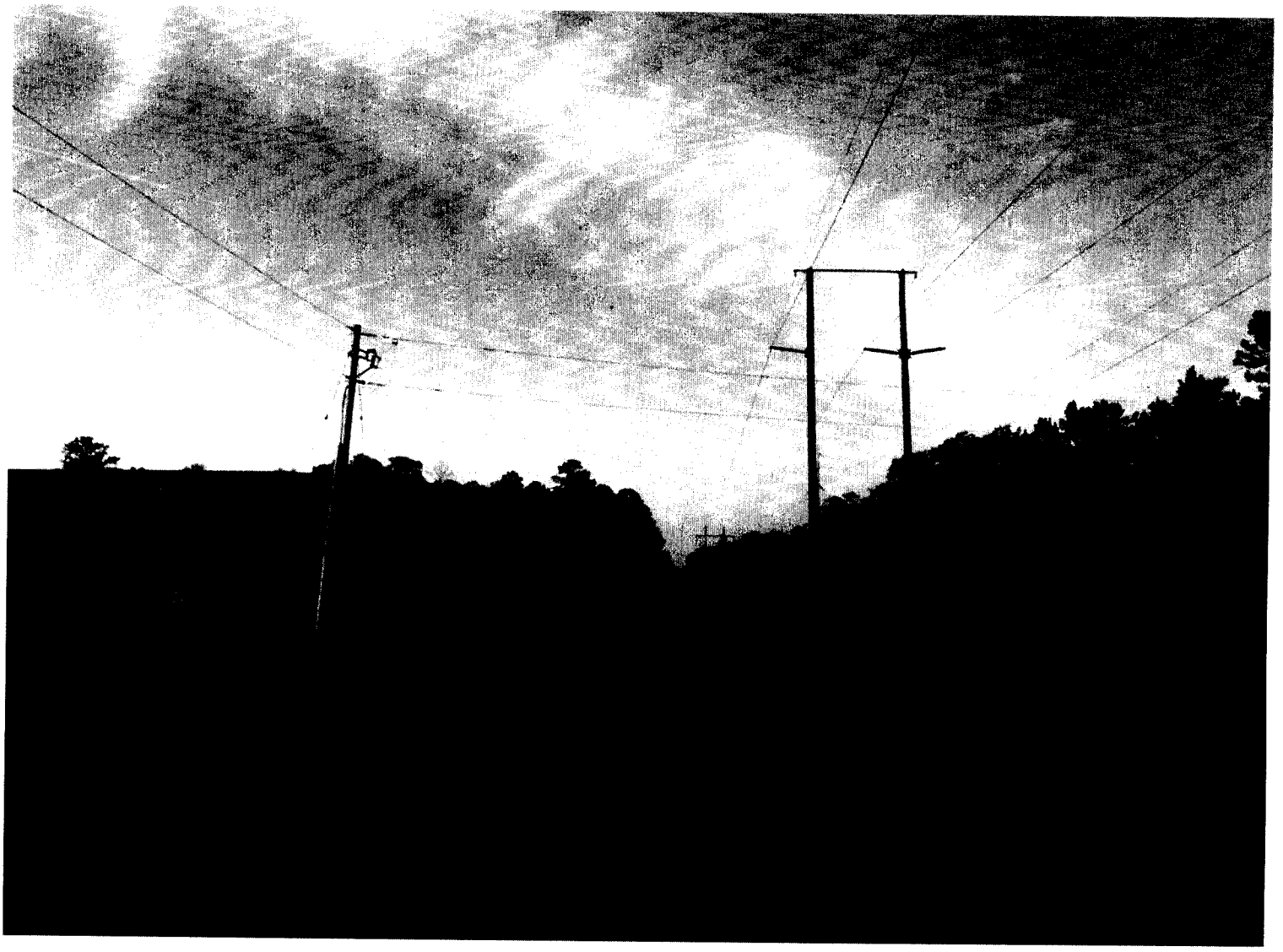


: use "cell" data set; if available

Report: edit VOC ppm vs ppb

: update $PM_{2.5}$ risk summary

: AreaRAEae 2 → AreaRAE 2

* - Keep FD Radio on person at all times

- Jasper MA or Jasper Dispatch to talk to FD
- 843-305-0265 - On Duty Battalion Chief - Jasper FD
- 843-263-1316 - Chief Wells (cell)
- 843-726-7519 - Non-ER Jasper County Dispatch

VOC
SVOC
Metals

✓ VOC - [illegible] - 24 hr 6L Sm

✓ Metals - 1 hr @ 4 L/min (8hr

✓ Formaldehyde - TO-11A - 8hr @ 1 L/min

✓ SVOC - 8270D - 8hr @ 1 L/m

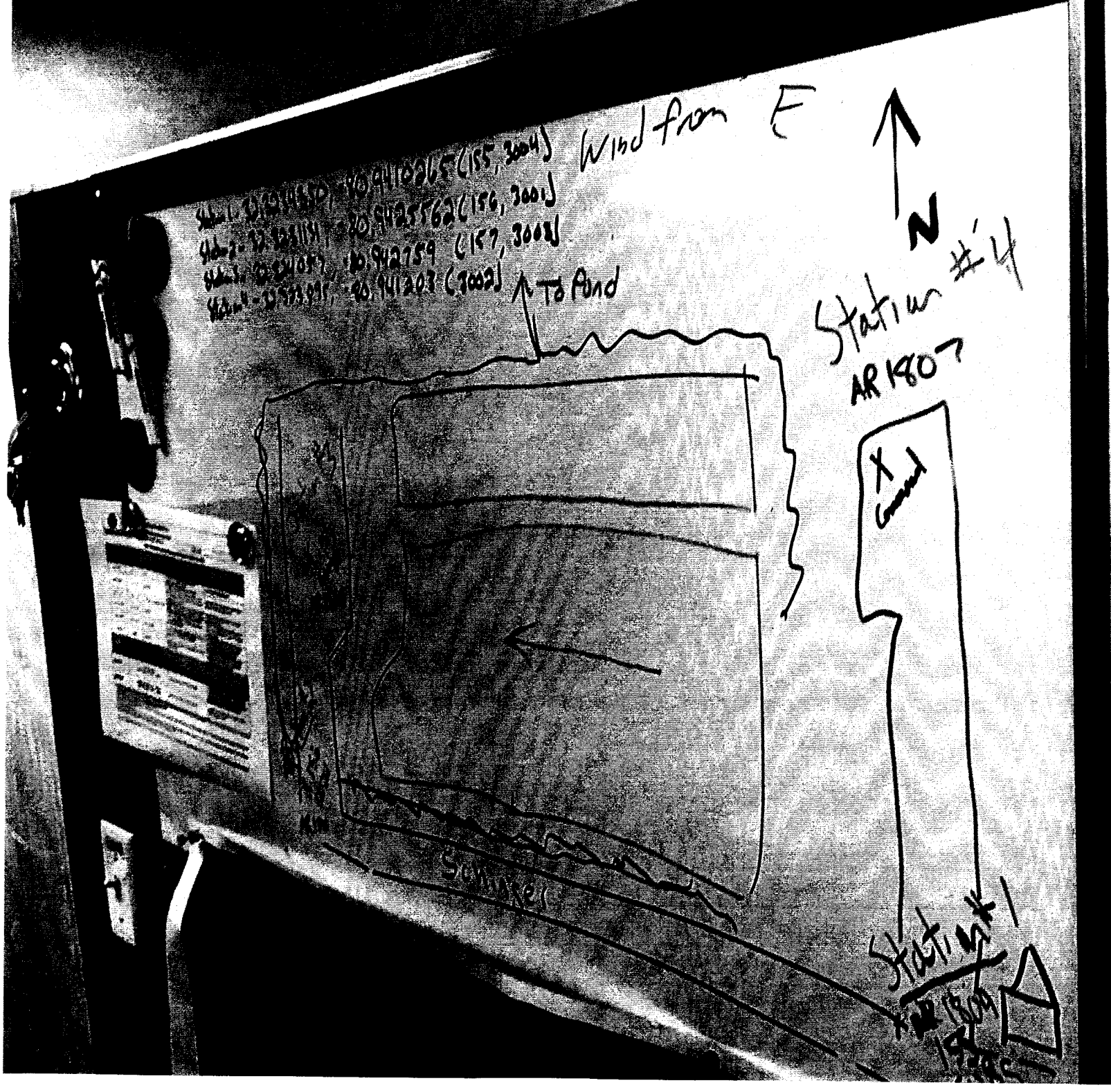
× Diox/Fur - TO-9A - 8hr @ 5L/m

✓ Phozgene - OSHA Meth 61 - 8hr @ 1 L/m

× Mercury - NIOSH 6009 - 8hr @ 0.2

✓ Asbestos - TEM - 8hr @ 5 c/m

If it rains get w/ Norm and discuss removal of earth dam
Sample water before removing dam



Report:

★-Keep
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CAT
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CAT
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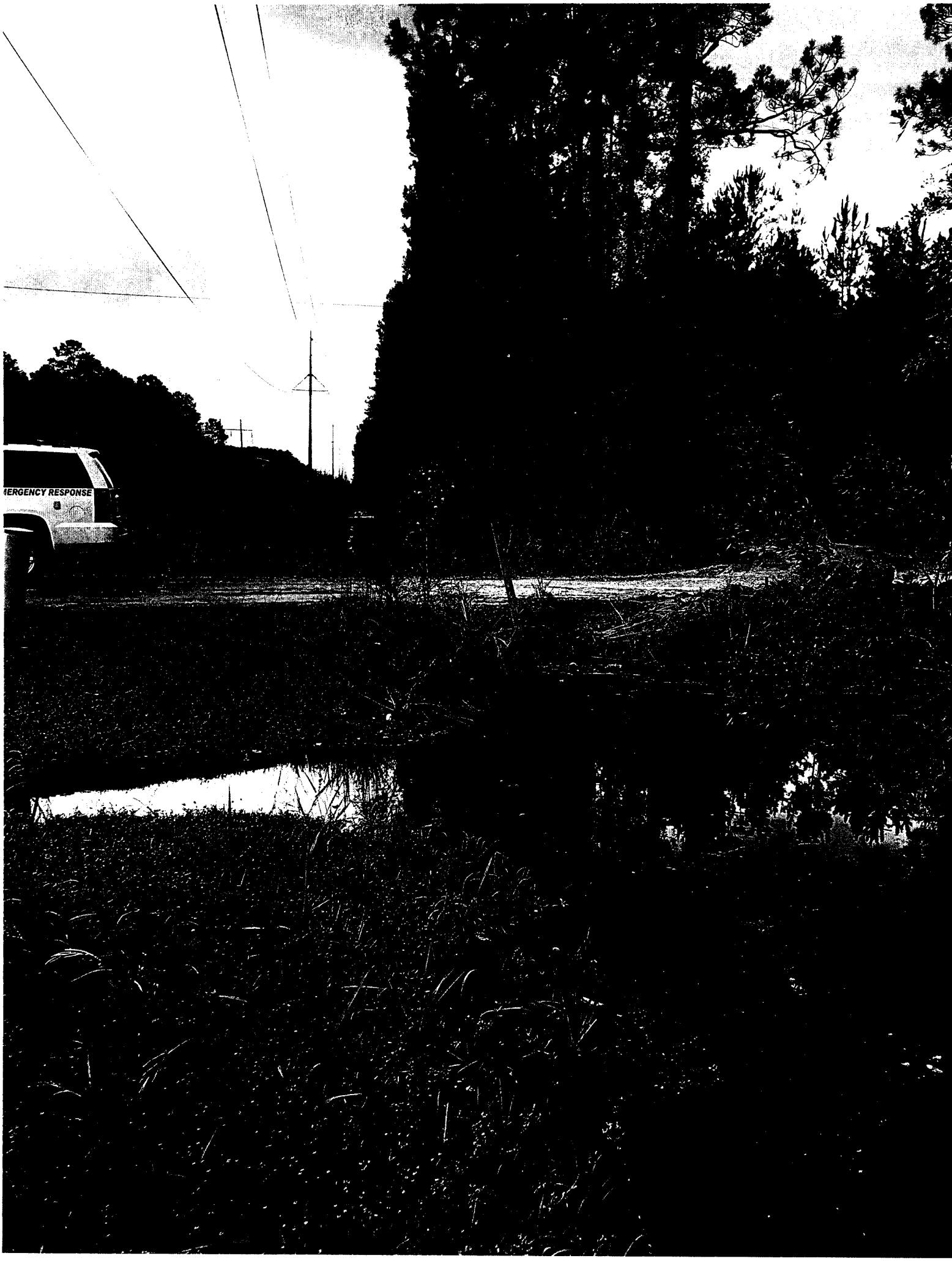
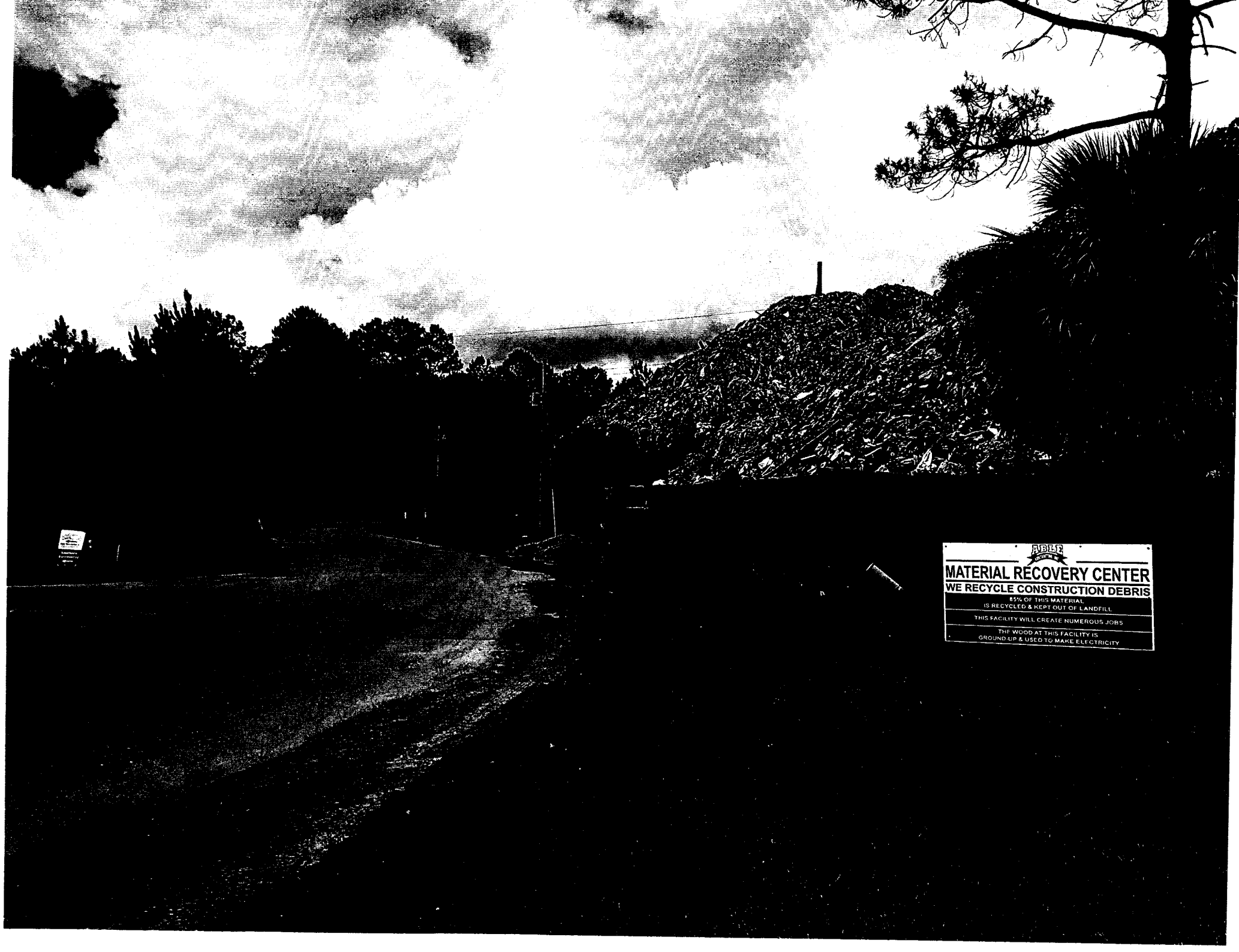

ERGENCY RESPONSE


ABLE
MATERIAL RECOVERY CENTER
WE RECYCLE CONSTRUCTION DEBRIS
85% OF THIS MATERIAL
IS RECYCLED & KEPT OUT OF LANDFILL
THIS FACILITY WILL CREATE NUMEROUS JOBS
THE WOOD AT THIS FACILITY IS
GROUND UP & USED TO MAKE ELECTRICITY

Share Copy link Download Delete Copy to Version history Previous 174 of 1

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Thursday, August 1, 2019 6:04:19 PM
To: ablecontracting29936@gmail.com
Subject: Map correction

Station 155 – Station 1
Station 156 – Station 2
Station 157 – Station 3
Station 4 is arearae to the northwest of station 3

Able Contracting Fire

Instrumentation Configuration
Night of 7/25/19

Legend

- EPA Air Monitoring Station
- SCDHEC Air Monitoring Station

Share Copy link Download Delete Copy to Version history Previous 176 of 1

From: Pinkney, James <Pinkney.James@epa.gov> on behalf of Pinkney, James
Sent on: Tuesday, August 6, 2019 6:30:34 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Media Inquiry -

Jordan,

I just received a call from the Island Packet asking if the sampling results were available. Give me a call.

James Pinkney
Public Affairs Specialist
U.S. Environmental Protection Agency, Region 4
Office of External Affairs
Phone: (404) 562-9183
Email: pinkney.james@epa.gov
https://www.epa.gov/aboutepa/about-epa-region-4-southeast
Follow Region 4 on Twitter: www.twitter.com/EPASoutheast
And Facebook: www.facebook.com/eparegion4

Share Copy link Download Delete Copy to Version history Previous 177 of 1

From: Snyder, John <John.Snyder@tetratech.com>
Sent on: Friday, July 26, 2019 1:07:57 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: meeting files
Attachments: Map for 7072619 meeting.pdf (12.03 MB), SOGT106_Particulate_Monitoring_Guideline_02232017_final.pdf (489.33 KB), Viper Summary report_AR and DustTrack_ABLE CONTRACTING_072619.pdf (166.66 KB)

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

Tetra Tech | Complex World, Clear Solutions™ | **Tetra Tech** EMI
Raleigh, NC (Cary) | tetratech.com

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Please consider the environment before printing. Read more

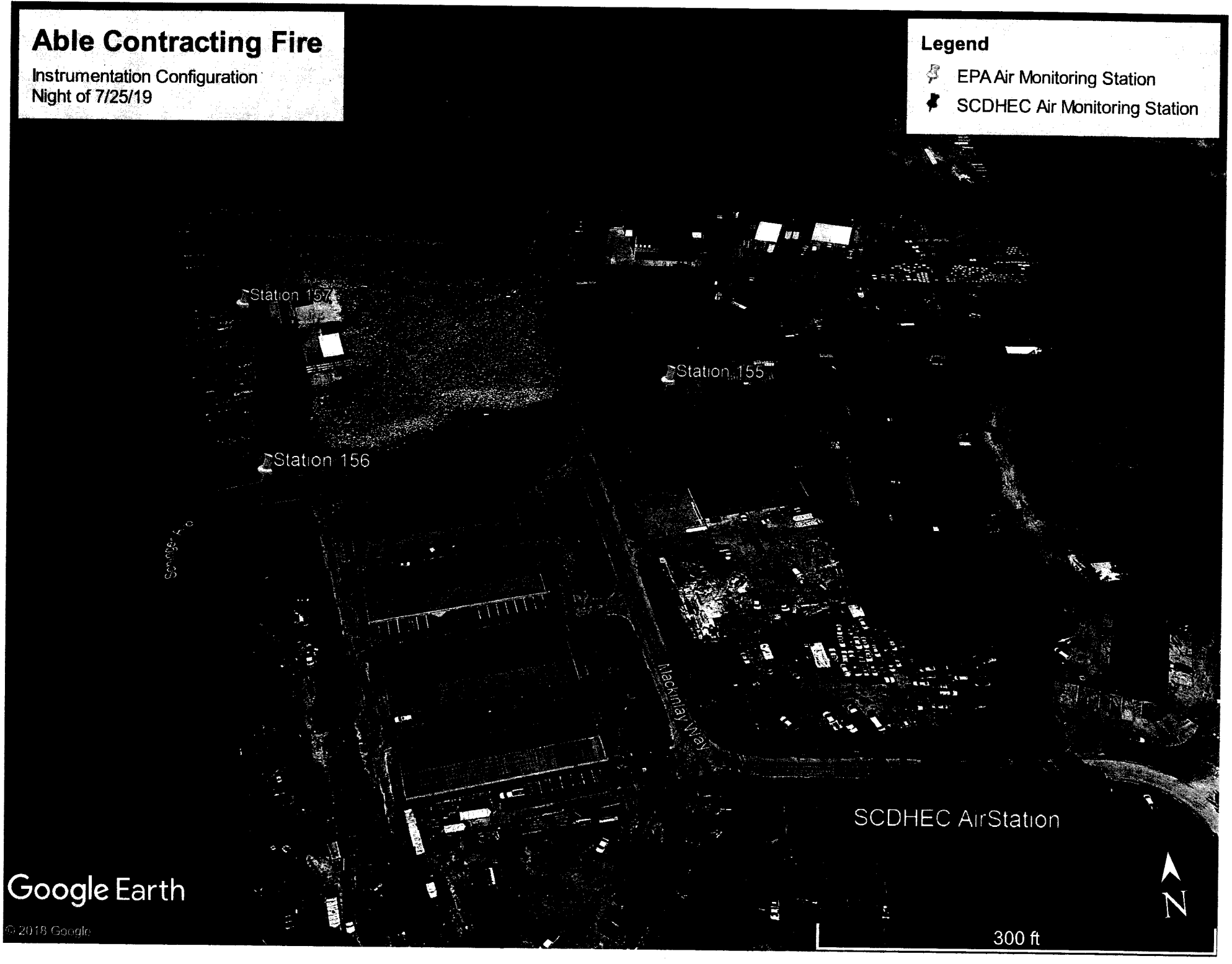
TETRA TECH

Able Contracting Fire

Instrumentation Configuration
Night of 7/25/19

Legend

- EPA Air Monitoring Station
- SCDHEC Air Monitoring Station



Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: **Able Contracting Fire**

From: **7/25/19 19:51** ***To:*** ***7/26/19 7:00***

Station 155

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 1	VOC	No	7,362	5,396	0 - 30,618 ppb	49.5 ppb	1,000 ppb
	CO	No	7,362	662	0 - 36 ppm	0.5 ppm	83 ppm
	H_2S	No	7,362	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	7,362	7,362	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	7,362	0	0 - 0%	0%	10%
DustTrak 1	PM-2.5	Unhealthy for Sensitive Populations	11,564	11,564	2 - 652 µg/m³	13.8 µg/m³	See SOG #: T106

Station 156

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 2	VOC	No	6,209	315	0 - 1,349 ppb	7.4 ppb	1,000 ppb
	CO	No	6,209	2,943	0 - 41 ppm	5.1 ppm	83 ppm
	H_2S	No	6,209	202	0 - 2.3 ppm	0 ppm	0.5 ppm
	O_2	No	6,209	6,209	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,209	0	0 - 0 %	0%	10%
DustTrak 2	PM-2.5	Moderate	14,670	14,670	9 - 438 µg/m³	33.8 µg/m³	See SOG #: T106

Station 157

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 3	VOC	No	6,741	0	0 - 0 ppb	0 ppb	1,000 ppb
	CO	No	6,741	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,741	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,741	6,741	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,741	0	0 - 0%	0%	10%
DustTrak 3	PM-2.5	Good	8,281	8,281	11 - 216 µg/m³	23.3 µg/m³	See SOG #: T106

Continuous Point

Instrument	Analyte	Period Average Exceedances	Number of Readings	Number of Detections	Concentration Range	Period Average	Action Level (PEL/TLV/60 min AEGL)
AreaRAE 4	VOC	No	6,476	15	0 - 698 ppb	0.4 ppb	1,000 ppb
	CO	No	6,476	26	0 - 10 ppm	0 ppm	83 ppm
	H_2S	No	6,476	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,476	6,476	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,476	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppb	Parts per billion
ppm	Parts per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Summary

- This guide is intended to be used for monitoring particulates released from fires. Effects from other potential pollutants and products of combustion are not addressed in this document. Refer to EPA Emergency Response Air Monitoring Guidance Tables, 2012 Edition 3[a] for guidance on other pollutants.
- $PM_{2.5}$ is the preferred metric for fire response particulate monitoring.
- The DataRAM 4 and the DustTrak DRX 8533EP are the standard monitoring instrument for measuring particulate concentrations.
- The E-BAM, available from ERT, is the alternate monitoring instrument when accuracy is a critical factor.
- Instrument accessories may be needed to offset weather variables and provide power during extended monitoring periods.
- Establish monitoring sites downwind of the hot zone and immediately upwind. Monitoring may also be recommended in the hot zone if there is a health risk to response workers.
- Use Table 1 to select the appropriate response action. Community action levels apply to everyone in neighboring areas affected by smoke. Worker action levels apply to response workers at the site.

Introduction

Fire presents a multitude of health and safety hazards as a result of effects on air quality. Smoke is the most visible air pollutant and is composed of Carbon Monoxide (CO), Carbon Dioxide (CO_2), Water Vapor, Particulate Matter (PM), hydrocarbons, organic chemicals, Nitric Oxides (NO_X), and minerals. Smoke can disperse quickly and may present significant health risks for nearby communities. Variables that impact dispersion include wind, temperature, moisture, and topography. Air monitoring guidance for these and other products of combustion are presented in the EPA Emergency Response Air Monitoring Guidance Tables[a].

PM consists of solid and liquid particles suspended in air. PM can readily enter the body through inhalation and can cause both acute and chronic health effects. Particulates will be present in all smoke resulting from a fire, regardless of the fuel source; however, different types of fuels will produce different sizes and concentrations of PM. Heat is also a factor which can effect particulate concentrations. After a fire has been suppressed, particulate concentrations can be higher during the smoldering phase because of less-complete combustion[b].

Most particulates in smoke are between 0.4 - 0.7 micrometers (µm) which is considered respirable. Particulates are typically classified as PM_{10} or $PM_{2.5}$ which refers to the particulate size.

- PM_{10} is defined as "course" particles measuring 10 µm or less in diameter.
- $PM_{2.5}$ is defined as "fine" particles with a diameter equal to or less than 2.5 µm.

It is recommended that monitoring efforts focus on measuring $PM_{2.5}$ during emergency fire responses. The California Air Resource Board states that most smoke particulates are between 0.4 – 0.7 µm, and concludes $PM_{2.5}$ would be a more practical monitoring parameter to use[b]. In 2007, Naeher et al. also indicated that $PM_{2.5}$ was the more suitable particulate monitoring metric [c]. Further, the EPA Air Quality Index (AQI) uses $PM_{2.5}$ in the health rating guide, also suggesting that $PM_{2.5}$ is the more appropriate standard when looking at the health hazards of particulates.

Links to Additional Information:

- Graph of particle size distribution of atmospheric particles
- Graph of particle size from particulate emissions
- Emission Study with graph of particle size distribution

Air Quality Thresholds, Actions and Recommendations

Evacuation and/or protect-in-place procedures should be recommended for areas downwind of or in the visible smoke cloud.

Once instrument readings become available, the concentrations may be an indication of potential exposure. Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) lists the threshold levels for different concentrations and the recommended actions that should be taken to prevent harm to community members and workers/responders at the response site. These actions may include communication with community members, evacuations, and medical monitoring. Consider consulting ATSDR to assist with generating public health statements, factsheets and possible development of a medical monitoring plan.

Criteria listed in the Protective Action Criteria (PAC) were assessed, but the values for particulates were much higher than those used in the AQI[d]. Because of this, the PAC values are not the preferred metric for response action guidance.

Odors and visible air opacity may trigger complaints and concerns in affected areas. Conditions and individual sensitivities can play a significant role in determining the point at which smoke becomes noticeable. If such concerns are presented, monitoring instrument results and Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) recommendations should be used to guide response actions.

TABLE 1: Threshold Levels and Recommended Response Actions for $PM_{2.5}$

$PM_{2.5}$ Threshold Levels ($\mu g/m^3$)		Level of Health Concern	Meaning	Action
1 Hr. Avg.[1]	**24 Hr. Avg.[1]**			
COMMUNITY ACTION LEVELS				
0.0 – 40.0	0.0 – 12.0	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	Implement communication plan [2].
40.1 – 80.0	12.1 - 35.4	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive [3] to air pollution.	Issue public announcement about health effects [2]. Stay out of areas with visible smoke.
80.1 – 175.0	35.5 - 55.4	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
175.1 – 300.0	55.5 - 150.4	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
300.1 - 500.0	150.5 - 250.4	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
> 500.0	> 250.5	Hazardous	Health alert: everyone may experience more serious health effects	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.
Source	**Particulates not otherwise regulated/specified ($\mu g/m^3$) 8 Hr. Avg.**		**Meaning**	**Action**
WORKER ACTION LEVELS				
OSHA PEL	15,000 (total dust) 5,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Levels above the 8 hour TWA require the use of level C PPE (use P100 particulate filter). See ERRB P100 – PPE Guidelines for Specific Activities/Tasks and P102 - Respiratory Protection Equipment Selection.
ACGIH TLV	10,000 (inhalable fraction - <100µm) 3,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Consider implementing industrial hygiene measures and/or using level C PPE.

[1] Threshold values taken from original EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc for $PM_{2.5}$ (24 hour) and Idaho Department of Environmental Quality AQI for $PM_{2.5}$ (1 hour) taken from http://app.airsis.com/usfs/aqi.asp.

[2] Recommendations from EPA Air Now web site. See Reference E.

[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.

[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

TABLE 2: Threshold Levels and Recommended Response Actions for PM_{10}

PM_{10} Threshold Levels ($\mu g/m^3$)[1] 24 Hr. Avg.	Level of Health Concern	Meaning	Action
COMMUNITY ACTION LEVELS			
0.0 – 12.0	Good	None	Implement communication plan [2].
12.1 – 55.0	Moderate	Unusually sensitive[3] people should consider reducing prolonged or heavy exertion.	Issue public announcement about health effects [4].
55.1 – 155.0	Unhealthy for Sensitive Groups	Increasing likelihood of respiratory symptoms and aggravation of lung disease, such as asthma.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
155.1 – 255.0	Unhealthy	Increased respiratory symptoms and aggravation of lung disease, such as asthma; possible respiratory effects in general population.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
255.1-355.0	Very Unhealthy	Significant increase in respiratory symptoms and aggravation of lung disease, such as asthma; increasing likelihood of respiratory effects in general population.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
355.1-425.0	Hazardous	Serious risk of respiratory symptoms and aggravation of lung disease, such as asthma; respiratory effects likely in general population.	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.

[1] Threshold values taken from EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc
[2] Recommendations from EPA Air Now web site. See Reference E.
[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.
[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

Monitoring Instruments and Methods

Region IV Emergency Response, Removal and Prevention Branch (ERRPB) currently uses the DataRAM 4 and the DustTrak DRX 8533EP for particulate monitoring.

The DustTrak DRX 8533EP was added to the Branch inventory in February 2017. The DustTrak uses light scattering measurement similar to the DataRAM 4 but has the ability to both size and mass fractions simultaneously. The unit concurrently provides PM10, PM4, PM2.5, PM1 and Total particulate data without having to change the impactor head. The customized units the Branch maintains have external pumps, and a built in/automatic heater unit that is preset to keep the moisture level below 40%.

The DataRAM 4 has advantages such as portability, an internal power supply, and a large detection range. One of the drawbacks of the DataRAM 4 is that mass concentrations tend to be over-estimated. United States Forestry Service (USFS) studies have shown that the DataRAM 4 estimations are on average 144% higher than actual concentrations[f]. Because of this, the USFS recommends applying a correction factor of 0.39 to instrument readings[f]. The DataRAM 4 is the preferred instrument when portability is important and/or if very high concentrations are expected (i.e. at source).

The E-BAM monitor is available through EPA Environmental Response Team (ERT), and is considered to be the most accurate monitoring instrument available. Some of the drawbacks include reduced portability (heavier, awkward shape), narrow detection range, and it requires an auxiliary power source. The E-BAM is the preferred instrument when accuracy is a critical factor and high concentrations are not expected (i.e. better for measuring fugitive dust concentrations on metals removal sites).

Use of monitoring instruments can also be affected by available resources, weather, and environmental conditions. Accessories and adapters may be required to offset the effects of these variables.

- Heater: A temperature conditioning heater must be used if humidity is > 40%. Without a heater in these conditions, measurements may be biased towards higher readings. Refer to instrument manual for further instruction. These are available for most particulate monitoring instruments.
- Power Generation: Most instruments will run for 15-24 hours on a full battery charge. A generator, solar panel, or auxiliary battery system will likely be needed for equipment without a built-in power supply or for continuous monitoring > 15 hours.
- GFCI: If a power generation system is used, a power strip/surge protector should be used to accommodate other accessories and monitoring equipment. This will also prevent possible electrical damage to expensive equipment.
- Impactor: The DataRAM and DustTrak are used with an impactor attachment which connects to the air intake. This functions as a pre-collector to help offset some of the effects of wind and precipitation. It should be utilized at all times.

TABLE 3. Instruments Available for an EPA Response

Criteria	DataRAM 4	E-BAM	DUSTTRAK DRX 8533EP
Accuracy (% above actual) [1]	144%	1%	Not determined
Detection Range (µg/m³) [2]	0.1 - 400,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)[2]	13	28 (without battery)	
Setup Time	15 min	15-30 min	15 min
Measurement Method	light scattering	filter tape	90° light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option avail.	Dual re-chargeable batteries, 12 hour run time each.
Availability	Regional Readiness Center (6 units)	1-2 days via EPA ERT	Regional Readiness Center (3 units)

[1] based on results from US Forest Service 2006 study *Smoke Particulate Monitors*. See Reference F.
[2] taken from manufacturers specifications.

Table 4. Comparison of Common Particulate Monitors on the Market

Criteria	DataRAM 4000	DataRAM 2000	E-BAM	E-Sampler	DUSTTRAK
Accuracy (% above actual)[1]	144%	15%	1%	13%	217%
Detection Range ($\mu g/m^3$)[2]	0.1 - 400,000	0.1 - 400,000	0.1 - 65,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)[2]	13	12	28 (without battery)	12 (without battery)	9 (device only); 38 (with enclosure)
Setup Time	15 min	15 min	15-30 min	15-30 min	Unknown
Measurement Method	light scattering	light scattering	filter tape	light scattering	90-degree light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option	Requires AC power source or external DC. Solar option	Re-chargeable internal battery. 15-24 hr. run time.

[1] based on results from US Sorest Service 2006 study *Smoke Particulate Monitors*. See Reference a.
[2] taken from manufacturers specs

Monitoring Locations

Monitoring for particulates should take place both at the work zone and in surrounding areas where the smoke may travel or accumulate. Consider areas between the release point and sensitive receptors. Temperature, wind, and humidity can affect where smoke travels. As the earth's surface is heated in the afternoon, the atmosphere becomes more unstable when heated air expands. This causes smoke to disperse in a more vertical pattern in the afternoon and early evening. Warm temperatures or major changes in daytime high/low temperatures will cause the smoke to rise higher than in cooler temperatures with a narrow high/low range. As the atmosphere stabilizes overnight and through the morning, smoke will disperse horizontally and settle into low-lying areas and valleys[8].

Wind is a significant factor in smoke dispersion. Unstable atmospheric conditions in the afternoon also increase wind speed which increases the rate and distance of dispersion. Humidity above 80% can cause moisture to condense on smoke particles. This can create a fog type effect which slows and settles smoke. Precipitation can cause a similar effect and slow dispersion. Atmospheric inversions should be taken into consideration when determining monitoring locations and recommending evacuation or protect-in-place zones. An atmospheric inversion occurs when a layer of air that is warmer than the air below traps the surface air in place and prevents dispersion of any pollutants it contains.

Surface structures such as buildings and trees can significantly change air flow direction and cause stagnant air pockets to form. This can trap smoke in small, confined areas and create hot spots with significantly higher particulate concentrations than nearby locations. When monitoring areas which are surrounding the source consider the following:

- Downwind areas will be most impacted by smoke.
- It should be expected that particulate readings at ground level will be higher at night or in the morning than in the afternoon or early evening.

Monitoring at the work zone may be necessary to establish appropriate levels of PPE for response workers. This will also help to determine safe areas to stage response support activities where workers may not be using protective equipment.

When choosing a monitoring site, some additional items should also be considered:

- Availability of power sources will determine what type of power generation is required. The absence of auxiliary power will require more frequent maintenance and may require additional staffing, especially if the monitoring period is > 24 hours.
- Consider security measures (i.e. locked boxes, chains, etc.) if instruments are to be sited in public areas and left unattended.
- Ensure generators or equipment from other activities which may release emissions do not interfere with monitoring stations.
- Power lines or electrical utility areas should be avoided.

Health Effects

PM_{10} and $PM_{2.5}$ are considered to be respirable. Particulates > 10 µm do not typically reach the lungs, but can irritate the eyes, nose, and throat. Although PM_{10} is respirable, $PM_{2.5}$ is inhaled deeper into lung tissue due to their small size (approximately 1/30th the average width of human hair[h]), and thus presents a greater health hazard than larger particulates. PM between 0.1 µm and 1 µm can remain in the atmosphere for days or weeks, meaning there is a potential for long range dispersion from the source.

Smoke and particulate exposure will typically have the largest effect on the respiratory system. Irritation and coughing are common acute symptoms of exposure to particulates. Individuals subject to particulate exposure may first notice irritation of the throat, eyes, and nose. This may be followed by coughing, chest pain, and shortness of breath if exposure continues.

- Acute effects of particulate exposure include irritation of the respiratory system, coughing, and breathing difficulties.
- Chronic effects of particulate exposure include reduced lung function, asthma, lung cancer, chronic bronchitis, cardiovascular disease, premature death, and may cause birth defects[e].

These symptoms can be magnified for sensitive individuals, which can include groups or individuals with pre-existing conditions (e.g.: asthma, heart disease, lung disease), children, the elderly, and pregnant women. Sensitive individuals can experience aggravation of respiratory and cardiovascular systems at lower levels which may not affect non-sensitive individuals[e].

PM can also transport other pollutants which creates additional health concerns. Special consideration and precautions should be made if other pollutants are expected. ATSDR can provide assistance with generating public health statements, factsheets and possible development of a medical monitoring plan.

Reporting

Generate air monitoring summary reports to present data to the Incident Management Team (IMT) during Command, Planning, and Tactical meetings/briefings. Air monitoring summary reports typically group instruments by location and summarize each analyte result with number of readings, number of detections, concentration range, and a time-time weighted average over the period of the report. For particulates, specifically, the air monitoring report typically classifies the reporting period based on the AQI as seen in Table 1 and Table 2.

Develop the reporting schedule around the operational periods established by the IMT, and include sufficient time to review air monitoring summary reports prior to meetings/briefings since they often become the data backing up health-based decisions (e.g. whether to modify/implement evacuation zones or how to advise schools on openings/delayed starts).

References

a. EPA ERTG – *Air Monitoring Guidance Tables* http://www.epaosc.org/sites/0001/files/US%20EPA%20Air%20Tables%20Edition3_FINAL%202.pdf
b. California Air Resource Board. *Wildfire Smoke, A Guide for Public Health Officials*. July 2008. http://www.arb.ca.gov/carpa/toolkit/data-to-mes/wildfire-smoke-guide.pdf
c. Naeher, L.P., Brauer, M., Lipsett, M., Zelikoff, J.T., Simpson, C.D., Koenig, J.Q. and Smith, K.R. 2007. *Woodsmoke Health Effects: A Review*. Inhalation Toxicology. 19: 67–106.
d. US Department of Energy. *Protective Action Criteria http://www.atlintl.com/doe/teels/teel.html*
e. EPA Air Now. *Air Quality Index – A Guide to Air Quality and Your Health.* http://www.airnow.gov/index.cfm?action=aqibasics.aqi
f. USDA Forest Service – Technology Development Program. *Smoke Particulate Monitors: 2006 Update.* December 2006. https://www3.epa.gov/ttnamti1/files/ambient/smoke/ebamrpt.pdf
g. Auburn University. *Smoke Dispersion* *http://www.auburn.edu/academic/forestry_wildlife/fire/smoke_guide/smoke_dispersion.htm*
h. US Environmental Protection Agency. Fine particle ($PM_{2.5}$) Designations, Frequent Questions. http://www.epa.gov/pmdesignations/faq.htm

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From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@usepa.onmicrosoft.com> on behalf of Webster, James
Sent on: Thursday, August 8, 2019 5:28:15 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Meeting Forward Notification: Able Contracting Fire

Your meeting was forwarded

Webster, James has forwarded your meeting request to additional recipients.

Meeting

Able Contracting Fire

Meeting Time

Thursday, August 8, 2019 1:30 PM-2:30 PM.

Recipients

Huyser, Matthew

Franco, Benjamin

All times listed are in the following time zone: (UTC-05:00) Eastern Time (US & Canada)

Sent by Microsoft Exchange Server

Share Copy link Download Delete Copy to Version history Previous 179 of 2

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Saturday, July 27, 2019 6:49:58 PM
To: threatrl@dhec.sc.gov; keith.frost@dhec.sc.gov
Subject: Monday

I read in the notes we will be having another meeting on Monday at 13:00. Do we know where we are meeting or will it be a conference call? We will be done with our sampling by Sunday evening. I was planning on continuing to monitor until Monday am and then take down the monitors.

Jordan

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Thursday, August 8, 2019 11:42:49 PM
To: Huyser, Matthew <Huyser.Matthew@epa.gov>
Subject: Nofi able Contracting
Attachments: IMG_0772.jpg (1.93 MB), ATT00001.txt (6 Bytes), IMG_0773.jpg (1.7 MB), ATT00002.txt (99 Bytes)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, S.W.
ATLANTA, GEORGIA 30303

7/26/19

SUBJ: Notice of Federal Interest

Dear Mr. Chandler Lloyd:

The purpose of this letter is to inform you that a release or threatened release of hazardous substances, pollutants or contaminants for which you may be responsible, has occurred or threatens to occur at the following location:

472 Schinger Ave., Ridgeland, SC 29936

The United States Environmental Protection Agency (EPA) has an interest in this incident and may conclude that a removal action is necessary to clean up or contain the release. A removal action is an action that may be necessary to monitor, assess, and evaluate the release or threat of release of hazardo substances, pollutants or contaminants and includes physical removal and disposal of hazardous substances, pollutants or contaminants. Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA is authorized to address this release or threatened release.

If EPA determines that a removal action is necessary, EPA may request that liable parties conduct the removal action. If EPA determines that the liable parties will conduct such action promptly and properly, Liable parties under Section 107 of CERCLA generally include the current owner or operator of the property, anyone who owned or operated at the property when hazardous substances w disposed, generators of hazardous substances disposed of at the site, and transporters of hazardous substances.

[illegible]

If liable parties decline the opportunity to take appropriate action or if EPA determines that liable parties cannot perform the removal action promptly and properly, EPA may conduct the removal action itself. If EPA conducts the removal action, liable parties will be held financially responsible for costs incurred by the EPA as set forth in Section 107 of CERCLA.

You are strongly encouraged to contact an attorney who can advise you of your rights and responsibilities under CERCLA. Should you require further information concerning this matter, please contact the On-Scene Coordinator by telephone at ~~(404) 562-8268~~ 678-644-8648 or you may write to the address below.

~~Kevin Eichinger~~ Jordan Gorrod
On-Scene Coordinator
U.S. Environmental Protection Agency
Region 4
ERRB
61 Forsyth Street S.W.
Atlanta, Georgia 30303

Sincerely,

~~Kevin Eichinger~~ Jordan Gorrod
On-Scene Coordinator

Receipt and Acknowledgement:

Received by _____ Date: _____

Date: _____

Printed name _____

Title _____

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From: Tisha L. Williams <tlwilliams@jaspercountysc.gov>
Sent on: Friday, July 26, 2019 8:38:37 PM
To: chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; Andrew Fulghum <afulghum@jaspercountysc.gov>; reecemc@dhec.sc.gov; porterhi@dhec.sc.gov; keith.frost@dhec.sc.gov; thompsrb@dhec.sc.gov; keislecv@dhec.sc.gov; blalocje@dhec.sc.gov; dickmaj@dhec.sc.gov; Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; threatrl@dhec.sc.gov
Subject: Notes From July 26, 2019 Able Construction Meeting

All:

Here's a follow-up to what we said we would do.

IMMEDIATE ACTION ITEMS:

- **Housing Options**

  Haley Lawson of American Red Cross will contact Fred Lyda and coordinate with Andrew Fulghum if there are opportunities. Andrew will provide information to DHEC in the event there are opportunities, and DHEC will notify the residents.

- **EPA will be on site over the weekend and will continue monitoring in conjunction with DHEC. In the event flames flare up, or a particulate matter becomes extremely unhealthy, EPA and DHEC to coordinate notification to Jasper EMS Fire Rescue (Russell Wells) so fire suppression efforts can be undertaken.**

  Andrew Fulghum to contact BJWSA and provide direction on the water source to Fire Rescue.

- **DHEC will advise Beaufort County of the proposed fire suppression efforts in regards to storm water discharge and address Beaufort County concerns to the extent possible**

  David Tedder will also attempt to contact Jennifer Roach at Thomas and Hutton to better describe storm water flow in that area.

- **DHEC is to contact contractors with experience in this type of event regarding obtaining proposals for extinguishing the fire, both short term and long, with alternatives dependent on the hazardous materials sampling to be obtained from EPA later next week.**

- **EPA will expand it's monitoring over the weekend to examine other potential hazardous material discharge water and air with results expected late next week.**

- **Public Relations/ Press**

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From: Tisha L. Williams <tlwilliams@jaspercountysc.gov>
Sent on: Tuesday, July 30, 2019 2:44:51 PM
To: Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; Andrew Fulghum <afulghum@jaspercountysc.gov>; reecemc@dhec.sc.gov; porterhj@dhec.sc.gov; keith.frost@dhec.sc.gov; thompsrb@dhec.sc.gov; keislecv@dhec.sc.gov; blalocje@dhec.sc.gov; dickmaj@dhec.sc.gov; Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; threatrl@dhec.sc.gov
Subject: Notes From July 29, 2019 Able Construction Work Group - Conference Call

All:

In follow up to our telephone conversation this afternoon with the working group, we note the following as our action plan supplementing that of Friday, July 26th:

As background information, DHEC has graphed the data received over the weekend, and is expecting peaks in particulates after midnight. As a result of apparently not having continuous water going to the site, the average levels have increased over time, which raises concerns about health risks. The receipt of more detailed analysis from EPA testing later this week will be helpful in formulating an updated action plan.

The plan for this week:

- **Working Group is still waiting on a contractor to get DHEC a plan and cost for containment and clean-up.**
- **DHEC has contacted their prime contractors with expertise in closing out landfill sites and some experience in extinguishing landfill fires and are attempting to have someone come to the site today.**
- **DHEC will contact the owners representative to advise of the site visit, Russell Wells will be out Point of Contact for that visit.**

Chief Wells will serve as Point of Contact for DHEC and DHEC's Contractor to visit the site and assist them with evaluating a short and long term proposed action plan to extinguish and clean up the site. Emergency

From: Masterson, Chris <Masterson.Christopher@epa.gov> on behalf of Masterson, Chris
Sent on: Thursday, July 25, 2019 4:45:59 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: NRC 1253131
Attachments: NRC 1253131.pdf (44.03 KB)

Christopher Masterson
Field Technician III | Digital Infrastructure
US EPA - End User Services

Emergency Response, Removal, Prevention, and Preparedness Branch (ERRPPB)
61 Forsyth St SW, 11th Fl
Atlanta, GA 30303
Office: 404-562-8706
Cell: 678-644-6538
Fax: 404-562-8701
Email: masterson.christopher@epa.gov

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NATIONAL RESPONSE CENTER 1-800-424-8802
GOVERNMENT USE ONLYGOVERNMENT USE ONLY***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1253131

INCIDENT DESCRIPTION

*Report taken by NRC at 12:12 on 25-JUL-19
Incident Type: FIXED
Incident Cause: UNKNOWN
Affected Area:
Incident was discovered on 25-JUL-19 at 09:36 local incident time.
Affected Medium: AIR

REPORTING PARTY

Name: DANA COOK

Organization: SC DHEC
Address: 2600 BULL STREET

COLUMBIA, SC 29201

Email Address:

PRIMARY Phone: (803)8964117
Type of Organization: STATE GOVERNMENT

SUSPECTED RESPONSIBLE PARTY

Name: UNKNOWN
Organization: ABLE CONTRACTING

RIDGELAND, SC
PRIMARY Phone: (843)3792344

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

472 SCHINGER AVE County: JASPER
City: RIDGELAND State: SC
C AND D RECYCLING PLANT

RELEASED MATERIAL(S)

CHRIS Code: UNK Official Material Name: UNKNOWN MATERIAL
Also Known As:
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER IS REPORTING AN ACTIVE FIRE AT THE C AND D RECYCLING PLANT.

INCIDENT DETAILS

Package: NO
Building ID:
Type of Fixed Object: RECYCLING FACILITY
Power Generating Facility: UNKNOWN
Generating Capacity:
Type of Fuel:
NPDES:
NPDES Compliance: UNKNOWN

IMPACT

Fire Involved: YES Fire Extinguished: NO
INJURIES: NO Sent to Hospital: Empl/Crew: Passenger:
FATALITIES: NO Empl/Crew: Passenger: Occupant:
EVACUATIONS: UNKNOWN Who Evacuated: Radius/Area:

Damages: NO

Closure Type	Description of Closure	Hours Closed	Direction of Closure
Air: NO			
Road: NO			
Waterway: NO			
Track: NO			

Major Artery: NO

REMEDIAL ACTIONS

FIREFIGHTING OPERATIONS
Release Secured: NO
Release Rate:
Estimated Release Duration:

WEATHER

ADDITIONAL AGENCIES NOTIFIED

Federal: EPA
State/Local: DHEC, EMD
State/Local On Scene:
State Agency Number: 201902688

NOTIFICATIONS BY NRC

CENTERS FOR DISEASE CONTROL (GRASP)
25-JUL-19 12:22 (770)4887100
CG INVESTIGATIVE SERVICE CHARLESTON (CGIS RAC CHARLESTON)
25-JUL-19 12:22 (843)7403170
CHEM SAFETY AND HAZARD INVEST BOARD (MAIN OFFICE)
25-JUL-19 12:25 (202) NO VERBAL
CHEM SAFETY AND HAZARD INVEST BOARD (CSB AUTOMATIC NOTIFICATIONS)
25-JUL-19 12:22 (202)3780334
DEPT OF HEALTH AND HUMAN SERVICES (SECRETARY'S OPERATION CENTER (SOC))
25-JUL-19 12:22
DHS DEFENSE THREAT REDUCTION AGENCY (CHEMICAL AND BIOLOGICAL TECHNOLOGIES DEPARTMENT)
25-JUL-19 12:22 (703)7673477
DHS SOUTH CAROLINA FUSION CENTER (LE SENSITIVE ADVISORS & LIASON PROGRAM)
25-JUL-19 12:22 (866)4728477
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
25-JUL-19 12:22 (202)3661863
U.S. EPA IV (MAIN OFFICE)
25-JUL-19 12:24 (404)6504955 R4 PAGER
U.S. EPA IV (DUTY OSC)
25-JUL-19 12:22 (404)6504955
GA BUREAU OF INVESTIGATION (COMMAND CENTER)
25-JUL-19 12:22 (404)3081460
SAVANNAH-CHATHAM METRO POLICE (PRIMARY OFFICE)
25-JUL-19 12:22 (912)
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
25-JUL-19 12:22 (202)2829201
NOAA RPTS FOR SC (MAIN OFFICE)
25-JUL-19 12:22 (206)5264911
NATIONAL RESPONSE CENTER HQ (MAIN OFFICE)
25-JUL-19 12:22
PIPELINE & HAZMAT SAFETY ADMIN (HAZARDOUS MATERIAL ACCIDENT INVESTIGATION)
25-JUL-19 12:22 (202)3664031
DOI FOR REGION 4 (MAIN OFFICE)
25-JUL-19 12:22 (404)3314524
SC DHS TSA COORDINATION CENTER (COORDINATION CENTER)
25-JUL-19 12:22 (803)4515181
SC EMERGENCY MANAGEMENT DIVISION (MAIN OFFICE)
25-JUL-19 12:22 (803)7378500
SECTOR CHARLESTON (COMMAND CENTER)
25-JUL-19 12:25 (843)7407050 WILLIAMS
SC DEPT OF ENV CNTL ATTN: ERS (MAIN OFFICE)
25-JUL-19 12:22 (803)2536488
TSA OFFICE OF SECURITY OPERATIONS (SURFACE COMPLIANCE BRANCH SE REGION)
25-JUL-19 12:22 (904)9804075
TSA OFFICE OF SECURITY OPERATIONS (TRANSPORTATION SECURITY INSPECTION-SURFACE)
25-JUL-19 12:22 (904)3804077
U.S. ARMY CORP OF ENGINEERS (SAVANNAH DISTRICT)
25-JUL-19 12:22 (912)6526086
USCG DISTRICT 7 (MAIN OFFICE)
25-JUL-19 12:22 (305)4156800
USCG DISTRICT 7 (PREVENTION DEPT)
25-JUL-19 12:22 (305)4156838
USCG DISTRICT 7 (INCIDENT MANAGEMENT ADVISOR)
25-JUL-19 12:22 (305)4156838

ADDITIONAL INFORMATION

*** END INCIDENT REPORT # 1253131 ***
Report any problems by calling 1-800-424-8802

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From: <ert-frcc@dhec.sc.gov>
Sent on: Thursday, July 25, 2019 4:26:56 PM
To: R4DutyOSC <R4DutyOSC@epa.gov>; leepd@dhec.sc.gov
Subject: NRC Report 1253131

The NRC report has been made and the number for the Able Contracting fire is 1253131.

Dana

Duty Officer, Division of Emergency Response
S.C. Department of Health & Environmental Control
Mobile: (803) 920-4840
24-Hour: (888) 481-0125
ert-frcc@dhec.sc.gov

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From: <HQS-PF-fldr-NRC@uscg.mil>
Sent on: Thursday, July 25, 2019 4:23:11 PM
To: R4DutyOSC <R4DutyOSC@epa.gov>
Subject: NRC#1253131

NATIONAL RESPONSE CENTER 1-800-424-8802
GOVERNMENT USE ONLYGOVERNMENT USE ONLY***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1253131

INCIDENT DESCRIPTION

*Report taken by NRC at 12:12 on 25-JUL-19
Incident Type: FIXED
Incident Cause: UNKNOWN
Affected Area:
Incident was discovered on 25-JUL-19 at 09:36 local incident time.
Affected Medium: AIR

REPORTING PARTY
Name: DANA COOK
Organization: SC DHEC
Address: 2600 BULL STREET
COLUMBIA, SC 29201
Email Address:

PRIMARY Phone: (803)8964117
Type of Organization: STATE GOVERNMENT

SUSPECTED RESPONSIBLE PARTY
Name: UNKNOWN
Organization: ABLE CONTRACTING
Address: 472 SCHINGER AVE
RIDGELAND, SC
PRIMARY Phone: (843)3792344
Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION
472 SCHINGER AVE County: JASPER
City: RIDGELAND State: SC
C AND D RECYCLING PLANT

RELEASED MATERIAL(S)
CHRIS Code: UNK Official Material Name: UNKNOWN MATERIAL
Also Known As:
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT
CALLER REPORTING AN ACTIVE FIRE AT THE C AND D RECYCLING PLANT.

SENSITIVE INFORMATION

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From: <HQS-PF-fldr-NRC@uscg.mil>
Sent on: Thursday, August 1, 2019 3:09:35 AM
To: R4DutyOSC <R4DutyOSC@epa.gov>
Subject: NRC#1253836

NATIONAL RESPONSE CENTER 1-800-424-8802
GOVERNMENT USE ONLYGOVERNMENT USE ONLY***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1253836

INCIDENT DESCRIPTION

*Report taken by NRC at 22:59 on 31-JUL-19
Incident Type: FIXED
Incident Cause: OTHER
Affected Area:
Incident occurred on 31-JUL-19 at 16:51 local incident time.
Affected Medium: LAND / ASPHALT

REPORTING PARTY
Name: DAVID DESHA
Organization: CLEAN HARBORS-SAFETY KLEEN
Address: 8401 LINDSEY ROAD
LITTLE ROCK, AR 72206
Email Address:
CLEAN HARBORS-SAFETY KLEEN reported for the responsible party.
PRIMARY Phone: (423)4131218
Type of Organization: PRIVATE ENTERPRISE

SUSPECTED RESPONSIBLE PARTY
Name: DOUG GREER
Organization: CLEAN HARBORS REIDSVILLE LLC
Address: 208 WATLINGTON INDUSTRIAL DRIVE
REIDSVILLE, NC 27302
PRIMARY Phone: (336)4511629
Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION
208 WATLINGTON INDUSTRIAL DRIVE County: ROCKINGHAM
City: REIDSVILLE State: NC Zip: 27302
BUILDING 2

RELEASED MATERIAL(S)
CHRIS Code: NCC Official Material Name: NO CHRIS CODE
Also Known As: FIRE FIGHTING WATER (WATER AND FOAM) BURNT ISOCYAN
Qty Released: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT
CALLER IS REPORTING THAT A CONTAINER HOLDING ISOCYANATE AND OTHER NEARBY PALLETS CAUGHT FIRE AT A WAREHOUSE FACILITY. A MIXTURE OF FIRE FIGHTING WATER (WATER AND FOAM) AND THE BURNT ISOCYANATE WAS RELEASED ONTO THE GROUND DURING THE RESPONSE.

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Saturday, July 27, 2019 2:36:12 AM
To: keith.frost@dhec.sc.gov
Subject: Poc tonight at able

John Snyder - 770-402-9013

Jordan Garrard
On Scene Coordinator
EPA Region 4
Garrard.jordan@epa.gov
678-644-8648

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From: Snyder, John <John.Snyder@tetratech.com>
Sent on: Friday, August 2, 2019 1:17:41 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: Preliminary Air Sampling Data
Attachments: Draft_Summary Tables Able Contracting.pdf (74.83 KB)

Jordan,
See attached data summary. Please let folks know that this has not been validated or QC'd and is therefore not fit for public consumption.

That being said, I'm surprised how clean it is. Phosgene is an issue everywhere, as is acrolein.

Good luck,
John

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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Please consider the environment before printing. Read more

TETRA TECH

Armstrong, Kathy

From: Snyder, John <John.Snyder@tetratech.com>
Sent: Thursday, August 01, 2019 9:18 PM
To: Garrard, Jordan
Subject: Preliminary Air Sampling Data
Attachments: Draft_Summary Tables Able Contracting.pdf

Jordan,
See attached data summary. Please let folks know that this has not been validated or QC'd and is therefore not fit for public consumption.

That being said, I'm surprised how clean it is. Phosgene is an issue everywhere, as is acrolein.

Good luck,
John

John Snyder, PG, PE | Environmental Engineer
Mobile **+1 (770) 402-9013** | john.snyder@tetratech.com

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TETRA TECH

ABLE CONTRACTING FIRE
AIR SAMPLES
Summary of Detections
DATA HAS NOT BEEN QC'd - NOT FOR PUBLIC DISTRIBUTION

	EPA RMLs	BACKGROUND ACF-AS-BKGD-072819	STATION 1 (SE Corner) ACF-AS-RES-AM-072719	STATION 2 (SW Corner) ACF-AS-SMOKE-AM-072719	STATION 1 (SE Corner) ACF-AS-RES-PM-072719	STATION 2 (SW Corner) ACF-AS-SMOKE-PM-072719	STATION 1 (SE Corner) ACF-AS-RES-AM-072819	STATION 2 (SW Corner) ACF-AS-SMOKE-AM-072819	STATION 1 (SE Corner) ACF-AS-RES-PM-072819	STATION 2 (SW Corner) ACF-AS-SMOKE-PM-072819
		Sample Volume	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*
		946.3 Liters	*767 Liters*	*898.6 Liters*	*965.3 Liters*	*913.3 Liters*	-	-	-	-
		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
		537.10 Liters	-	-	-	-	*473.90 Liters*	*603.90 Liters*	*542.50 Liters*	*550.50 Liters*
	0.94	**[illegible]**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**
		516.20 Liters	*410.60 Liters*	*411.80 Liters*	*541.50 Liters*	*549.50 Liters*	-	-	-	-
	22	**4.88**	**1.70**	**2.50**	**3.04**	**6.09**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
		776.6 Liters	*672.6 Liters*	*657.5 Liters*	*744.8 Liters*	*784.6 Liters*	-	-	-	-
	16	**0.55**	**0.77**	**0.52**	**0.5**	**0.48**				
	1.6	**0.11**	**0.13**	**0.25**	**0.13**	**0.11**				
	Not Listed	**52.7**	**0.54**	**55.1**	**48**	**41.3**				
	Not Listed	**0.73**	**0.89**	**0.9**	**1.1**	**0.75**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	Not Listed	**0.93**	**1.3**	**0.87**	**0.81**	**0.86**				
	Not Listed	**9.6**	**11.2**	**11.5**	**10.4**	**8.5**				
	Not Listed	**12.7**	**15.8**	**16.5**	**14.7**	**12**				
unds (µg/m³)		-	-	-	-	-	-	-	-	-
	97,000	**12**	**8.66**	**7.51**	**10.5**	**16.1**				
	190	**1.85**	**2.17**	**0.892**	**0.99**	**1.63**				
	0.063	**0.25**	**0.97**	**0.98**	**0.88**	**1.58**				
	36	**2.52**	**6.46**	**3.4**	**2.5**	**15.1**				
	6.3	**0.749**	**1.06**	**0.689**	**0.769**	**2.21**				
	2,200	**0.214**	**0.514**	**0.279**	**0.444**	**0.405**				
	47	**0.481**	**0.482**	**0.478**	**0.496**	**0.466**				
	31,000	0.19 U	0.191 U	0.19 U	0.195 U	**0.276**				
	280	**1.23**	**4.76**	**2.95**	**1.23**	**11.6**				
	3,100	**0.999**	**0.262**	0.25 U	**0.803**	0.253 U				
	56	**0.321**	**0.294**	0.26 U	0.267 U	**0.374**				
	Not Listed	**16.7**	**4.28**	**2.33**	**9.26**	**2.56**				
	110	**2.07**	**3.36**	**1.12**	**0.768**	**5.86**				
	Not Listed	**0.913**	0.355 U	0.354 U	0.363 U	**0.357** U				
	Not Listed	**1.18**	**1.38**	**1.33**	**1.4**	**1.28**				
	Not Listed	**2.33**	**2.4**	**2.38**	**2.41**	**2.36**				
	Not Listed	**0.554**	**0.66**	**0.547**	**0.605**	**0.577**				
	1,300	**2.26**	**0.769**	**0.365**	**0.891**	**1**				
	2,200	**4.05**	**1.55**	**0.647**	**2.37**	**1.43**				
	630	**0.404**	**0.468**	**0.434**	**0.949**	**0.478**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	Not Listed	0.357 U	**0.838**	**0.421**	0.366 U	**1.06**				
anone)	16,000	**1.02**	**0.847**	**0.805**	**0.612**	**1.57**				
	9,400	0.302 U	**0.373**	0.302 U	0.31 U	0.305 U				
	2,200	0.304 U	0.305 U	0.303 U	0.312 U	**0.857**				
	1,100	0.264 U	0.265 U	0.264 U	**0.312**	0.267 U				
	1,900	**0.691**	**0.871**	**0.674**	**0.999**	**0.651**				
	8.3	**0.336**	0.39 U	0.388 U	0.398 U	**0.537**				
	Not Listed	**0.99**	**0.353**	0.334 U	0.343 U	**0.562**				
	3,100	**0.629**	0.359 U	0.357 U	0.367 U	0.361 U				
	9,400	**2.91**	**7.88**	**3.99**	**2.96**	**14.2**				
	3,100	**0.348**	**1.71**	**2.13**	**0.446**	**8.66**				
	1,100	0.489 U	0.491 U	0.489 U	**0.736**	0.494 U				
	6,300	0.213 U	**0.472**	**0.373**	0.218 U	**0.796**				
	16,000	**9.82**	**6.48**	**2.62**	**5.08**	**7.6**				
	190	**3.23**	**0.784**	**0.318**	**0.817**	**0.414**				
	190	**0.898**	0.354 U	0.352 U	0.362 U	0.356 U				
	Not Listed	**2.12**	**0.684**	0.342 U	**0.487**	0.346 U				
	310	**6.86**	**2.37**	**0.941**	**2.51**	**1.66**				
	310	**2.75**	**0.95**	**0.362**	**0.916**	**0.759**				
apounds (µg/m³)		*439.4 Liters*	*486.2 Liters*	*562.5 Liters*	*421.4 Liters*	*438.3 Liters*	-	-	-	-
ounds		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*

Able Contracting Fire
Environmental Protection Agency
The identification of the analyte is acceptable; the reported value is an estimate
Micrograms per cubic meter
Not Analysed
Not Detected
Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carcinogenic/noncarcinogenic listed; TR=1E-04/THQ+3.0)
The analyte was not detected at or above the reporting limit
The analyte was not detected at or above the reporting limit; which is considered approximate due to deficiencies in one or more quality control criteria
Bolded values indicate a chemical detection
Shaded and **bolded** values exceed the April 2019 Residential RMLs

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From: Huyser, Matthew <Huyser.Matthew@epa.gov> on behalf of Huyser, Matthew
Sent on: Thursday, July 25, 2019 7:03:05 PM
To: R4 Special ERNS Report <R4-Special-ERNS-Report@epa.gov>
Subject: R4 SPECIAL ERNS REPORT - ABLE CONTRACTING FIRE

SPECIAL ERNS REPORT FOR 07/25/2019

-

NRC# 1253131 – Able Contracting Fire, Ridgeland, Jasper County, SC

At 1000hrs the South Carolina Department of Health and Environmental Control (DHEC) requested that the EPA respond to an ongoing fire at the Able Contracting recycled materials process facility. The facility is approximately two acres in size and contains a large pile of shredded debris. Frequent fires have been reported resulting in fire department responses to extinguish flames, however a persistent plume of smoke has been observed by locals as well as county and state officials. The property owner was applying water to the pile but reportedly ceased application on July 24. Two EPA On-Scene Coordinators (OSCs) have been deployed with EPA START contractors; initial response efforts will include monitoring and sampling in air and water. For further information, please contact OSC Jordan Garrard.

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax: **404-562-8699**
epaosc.org

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 9, 2019 11:49:47 AM
To: Huyser, Matthew <Huyser.Matthew@epa.gov>
Subject: RE: Able - AQI sheet

Yes we gave them the fire SOG with the AQI table.

From: Huyser, Matthew <Huyser.Matthew@epa.gov>
Sent: Friday, August 9, 2019 7:48 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Cc: John Snyder <john.snyder@tetratech.com>
Subject: Able - AQI sheet

Jordan,

On the phone yesterday DHEC mentioned receiving the Idaho AQI numbers. Did you provide the Kevin Eichinger SOG T106 with the AQI number table or the actual Idaho AQI sheet? I can't find the Idaho AQI sheet anywhere and the link is broken now.

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax: **404-562-8699**
epaosc.org

From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Friday, August 9, 2019 11:50:34 AM
To: Huyser, Matthew <Huyser.Matthew@epa.gov>
CC: John Snyder <john.snyder@tetratech.com>
Subject: RE: Able - AQI sheet
Attachments: SOGT106_Particulate_Monitoring_Guideline_02232017_final.pdf (489.33 KB)

From: Huyser, Matthew <Huyser.Matthew@epa.gov>
Sent: Friday, August 9, 2019 7:48 AM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Cc: John Snyder <john.snyder@tetratech.com>
Subject: Able - AQI sheet

Jordan,

On the phone yesterday DHEC mentioned receiving the Idaho AQI numbers. Did you provide the Kevin Eichinger SOG T106 with the AQI number table or the actual Idaho AQI sheet? I can't find the Idaho AQI sheet anywhere and the link is broken now.

Matthew J. Huyser, PE - On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4 | 61 Forsyth St SW | Atlanta, Georgia | 30303
Emergency Response Removal and Prevention Branch (ERRPB)
office: **404-562-8934** | cell: **678-427-8829** | fax: **404-562-8699**
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epaosc.org

Armstrong, Kathy

From: Garrard, Jordan
Sent: Friday, August 09, 2019 7:51 AM
To: Huyser, Matthew
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epaosc.org

Summary

- This guide is intended to be used for monitoring particulates released from fires. Effects from other potential pollutants and products of combustion are not addressed in this document. Refer to EPA Emergency Response Air Monitoring Guidance Tables, 2012 Edition 3[a] for guidance on other pollutants.
- $PM_{2.5}$ is the preferred metric for fire response particulate monitoring.
- The DataRAM 4 and the DustTrak DRX 8533EP are the standard monitoring instrument for measuring particulate concentrations.
- The E-BAM, available from ERT, is the alternate monitoring instrument when accuracy is a critical factor.
- Instrument accessories may be needed to offset weather variables and provide power during extended monitoring periods.
- Establish monitoring sites downwind of the hot zone and immediately upwind. Monitoring may also be recommended in the hot zone if there is a health risk to response workers.
- Use Table 1 to select the appropriate response action. Community action levels apply to everyone in neighboring areas affected by smoke. Worker action levels apply to response workers at the site.

Introduction

Fire presents a multitude of health and safety hazards as a result of effects on air quality. Smoke is the most visible air pollutant and is composed of Carbon Monoxide (CO), Carbon Dioxide (CO_2), Water Vapor, Particulate Matter (PM), hydrocarbons, organic chemicals, Nitric Oxides (NO_X), and minerals. Smoke can disperse quickly and may present significant health risks for nearby communities. Variables that impact dispersion include wind, temperature, moisture, and topography. Air monitoring guidance for these and other products of combustion are presented in the EPA Emergency Response Air Monitoring Guidance Tables[a].

PM consists of solid and liquid particles suspended in air. PM can readily enter the body through inhalation and can cause both acute and chronic health effects. Particulates will be present in all smoke resulting from a fire, regardless of the fuel source; however, different types of fuels will produce different sizes and concentrations of PM. Heat is also a factor which can effect particulate concentrations. After a fire has been suppressed, particulate concentrations can be higher during the smoldering phase because of less-complete combustion[b].

Most particulates in smoke are between 0.4 - 0.7 micrometers (µm) which is considered respirable. Particulates are typically classified as PM_{10} or $PM_{2.5}$ which refers to the particulate size.

- PM_{10} is defined as "course" particles measuring 10 µm or less in diameter.
- $PM_{2.5}$ is defined as "fine" particles with a diameter equal to or less than 2.5 µm.

It is recommended that monitoring efforts focus on measuring $PM_{2.5}$ during emergency fire responses. The California Air Resource Board states that most smoke particulates are between 0.4 – 0.7 µm, and concludes $PM_{2.5}$ would be a more practical monitoring parameter to use[b]. In 2007, Naeher et al. also indicated that $PM_{2.5}$ was the more suitable particulate monitoring metric [c]. Further, the EPA Air Quality Index (AQI) uses $PM_{2.5}$ in the health rating guide, also suggesting that $PM_{2.5}$ is the more appropriate standard when looking at the health hazards of particulates.

Links to Additional Information:

- Graph of particle size distribution of atmospheric particles
- Graph of particle size from particulate emissions
- Emission Study with graph of particle size distribution

Air Quality Thresholds, Actions and Recommendations

Evacuation and/or protect-in-place procedures should be recommended for areas downwind of or in the visible smoke cloud.

Once instrument readings become available, the concentrations may be an indication of potential exposure. Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) lists the threshold levels for different concentrations and the recommended actions that should be taken to prevent harm to community members and workers/responders at the response site. These actions may include communication with community members, evacuations, and medical monitoring. Consider consulting ATSDR to assist with generating public health statements, factsheets and possible development of a medical monitoring plan.

Criteria listed in the Protective Action Criteria (PAC) were assessed, but the values for particulates were much higher than those used in the AQI[d]. Because of this, the PAC values are not the preferred metric for response action guidance.

Odors and visible air opacity may trigger complaints and concerns in affected areas. Conditions and individual sensitivities can play a significant role in determining the point at which smoke becomes noticeable. If such concerns are presented, monitoring instrument results and Table 1 (for $PM_{2.5}$) and Table 2 (for PM_{10}) recommendations should be used to guide response actions.

TABLE 1: Threshold Levels and Recommended Response Actions for $PM_{2.5}$

$PM_{2.5}$ Threshold Levels (µg/m³)				
1 Hr. Avg.[1]	**24 Hr. Avg.[1]**	**Level of Health Concern**	**Meaning**	**Action**
COMMUNITY ACTION LEVELS				
0.0 – 40.0	0.0 – 12.0	Good	Air quality is considered satisfactory, and air pollution poses little or no risk	Implement communication plan [2].
40.1 – 80.0	12.1 - 35.4	Moderate	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive [3] to air pollution.	Issue public announcement about health effects [2]. Stay out of areas with visible smoke.
80.1 – 175.0	35.5 - 55.4	Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
175.1 – 300.0	55.5 - 150.4	Unhealthy	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
300.1 - 500.0	150.5 - 250.4	Very Unhealthy	Health warnings of emergency conditions. The entire population is more likely to be affected.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
> 500.0	> 250.5	Hazardous	Health alert: everyone may experience more serious health effects	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.
Source	**Particulates not otherwise regulated/specified (µg/m³) 8 Hr. Avg.**		**Meaning**	**Action**
WORKER ACTION LEVELS				
OSHA PEL	15,000 (total dust) 5,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Levels above the 8 hour TWA require the use of level C PPE (use P100 particulate filter). See ERRB P100 – PPE Guidelines for Specific Activities/Tasks and P102 - Respiratory Protection Equipment Selection.
ACGIH TLV	10,000 (inhalable fraction - <100µm) 3,000 (respirable fraction - <10µm)		Safe with use of level D PPE up to this level.	Consider implementing industrial hygiene measures and/or using level C PPE.

[1] Threshold values taken from original EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc for $PM_{2.5}$ (24 hour) and Idaho Department of Environmental Quality AQI for $PM_{2.5}$ (1 hour) taken from http://app.airsis.com/usfs/aqi.asp.

[2] Recommendations from EPA Air Now web site. See Reference E.

[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.

[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

TABLE 2: Threshold Levels and Recommended Response Actions for PM_{10}

PM_{10} Threshold Levels ($\mu g/m^3$)[1] 24 Hr. Avg.	Level of Health Concern	Meaning	Action
COMMUNITY ACTION LEVELS			
0.0 – 12.0	Good	None	Implement communication plan [2].
12.1 – 55.0	Moderate	Unusually sensitive[3] people should consider reducing prolonged or heavy exertion.	Issue public announcement about health effects [4].
55.1 – 155.0	Unhealthy for Sensitive Groups	Increasing likelihood of respiratory symptoms and aggravation of lung disease, such as asthma.	Recommend evacuation or shelter-in-place for sensitive populations [2,4].
155.1 – 255.0	Unhealthy	Increased respiratory symptoms and aggravation of lung disease, such as asthma; possible respiratory effects in general population.	Consider closing schools and cancelling outdoor events. Recommend shelter-in-place for affected neighborhoods.
255.1-355.0	Very Unhealthy	Significant increase in respiratory symptoms and aggravation of lung disease, such as asthma; increasing likelihood of respiratory effects in general population.	Consider closing schools and cancel all outdoor events. Recommend shelter-in-place and/or evacuation for affected neighborhoods.
355.1-425.0	Hazardous	Serious risk of respiratory symptoms and aggravation of lung disease, such as asthma; respiratory effects likely in general population.	Recommend closing schools & cancel outdoor events. Recommend closing workplaces and evacuating affected neighborhood.

[1] Threshold values taken from EPA AQI online calculator found at http://airnow.gov/index.cfm?action=resources.aqi_conc_calc
[2] Recommendations from EPA Air Now web site. See Reference E.
[3] People who are unusually sensitive to air pollution are a subset of Sensitive Individuals. Unusually sensitive to air pollution can be defined as the very young, the elderly, pregnant women, and the immunocompromised.
[4] Sensitive individuals defined as people with lung disease, older adults and children who are at a greater risk from exposure to ozone; and persons with heart and lung disease, older adults and children who are at greater risk from the presence of particles in the air. See Reference E.

Monitoring Instruments and Methods

Region IV Emergency Response, Removal and Prevention Branch (ERRPB) currently uses the DataRAM 4 and the DustTrak DRX 8533EP for particulate monitoring.

The DustTrak DRX 8533EP was added to the Branch inventory in February 2017. The DustTrak uses light scattering measurement similar to the DataRAM 4 but has the ability to both size and mass fractions simultaneously. The unit concurrently provides PM10, PM4, PM2.5, PM1 and Total particulate data without having to change the impactor head. The customized units the Branch maintains have external pumps, and a built in/automatic heater unit that is preset to keep the moisture level below 40%.

The DataRAM 4 has advantages such as portability, an internal power supply, and a large detection range. One of the drawbacks of the DataRAM 4 is that mass concentrations tend to be over-estimated. United States Forestry Service (USFS) studies have shown that the DataRAM 4 estimations are on average 144% higher than actual concentrations[f]. Because of this, the USFS recommends applying a correction factor of 0.39 to instrument readings[f]. The DataRAM 4 is the preferred instrument when portability is important and/or if very high concentrations are expected (i.e. at source).

The E-BAM monitor is available through EPA Environmental Response Team (ERT), and is considered to be the most accurate monitoring instrument available. Some of the drawbacks include reduced portability (heavier, awkward shape), narrow detection range, and it requires an auxiliary power source. The E-BAM is the preferred instrument when accuracy is a critical factor and high concentrations are not expected (i.e. better for measuring fugitive dust concentrations on metals removal sites).

Use of monitoring instruments can also be affected by available resources, weather, and environmental conditions. Accessories and adapters may be required to offset the effects of these variables.

- Heater: A temperature conditioning heater must be used if humidity is > 40%. Without a heater in these conditions, measurements may be biased towards higher readings. Refer to instrument manual for further instruction. These are available for most particulate monitoring instruments.
- Power Generation: Most instruments will run for 15-24 hours on a full battery charge. A generator, solar panel, or auxiliary battery system will likely be needed for equipment without a built-in power supply or for continuous monitoring > 15 hours.
- GFCI: If a power generation system is used, a power strip/surge protector should be used to accommodate other accessories and monitoring equipment. This will also prevent possible electrical damage to expensive equipment.
- Impactor: The DataRAM and DustTrak are used with an impactor attachment which connects to the air intake. This functions as a pre-collector to help offset some of the effects of wind and precipitation. It should be utilized at all times.

TABLE 3. Instruments Available for an EPA Response

Criteria	DataRAM 4	E-BAM	DUSTTRAK DRX 8533EP
Accuracy (% above actual) [1]	144%	1%	Not determined
Detection Range (μg/m³) [2]	0.1 - 400,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)$_2$	13	28 (without battery)	
Setup Time	15 min	15-30 min	15 min
Measurement Method	light scattering	filter tape	90° light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option avail.	Dual re-chargeable batteries, 12 hour run time each.
Availability	Regional Readiness Center (6 units)	1-2 days via EPA ERT	Regional Readiness Center (3 units)

[1] based on results from US Forest Service 2006 study *Smoke Particulate Monitors*. See Reference F.
[2] taken from manufacturers specifications.

Table 4. Comparison of Common Particulate Monitors on the Market

Criteria	DataRAM 4000	DataRAM 2000	E-BAM	E-Sampler	DUSTTRAK
Accuracy (% above actual)[1]	144%	15%	1%	13%	217%
Detection Range ($\mu g/m^3$)[2]	0.1 - 400,000	0.1 - 400,000	0.1 - 65,000	0.1 - 65,000	0.1 - 400,000
Weight (lbs)[2]	13	12	28 (without battery)	12 (without battery)	9 (device only); 38 (with enclosure)
Setup Time	15 min	15 min	15-30 min	15-30 min	Unknown
Measurement Method	light scattering	light scattering	filter tape	light scattering	90-degree light scattering
Power Requirements	Re-chargeable internal battery. 24 hr. run time.	Re-chargeable internal battery. 24 hr. run time.	Requires AC power source or external DC. Solar option	Requires AC power source or external DC. Solar option	Re-chargeable internal battery. 15-24 hr. run time.

[1] based on results from US Sorest Service 2006 study *Smoke Particulate Monitors*. See Reference a.
[2] taken from manufacturers specs

Monitoring Locations

Monitoring for particulates should take place both at the work zone and in surrounding areas where the smoke may travel or accumulate. Consider areas between the release point and sensitive receptors. Temperature, wind, and humidity can affect where smoke travels. As the earth's surface is heated in the afternoon, the atmosphere becomes more unstable when heated air expands. This causes smoke to disperse in a more vertical pattern in the afternoon and early evening. Warm temperatures or major changes in daytime high/low temperatures will cause the smoke to rise higher than in cooler temperatures with a narrow high/low range. As the atmosphere stabilizes overnight and through the morning, smoke will disperse horizontally and settle into low-lying areas and valleys[g].

Wind is a significant factor in smoke dispersion. Unstable atmospheric conditions in the afternoon also increase wind speed which increases the rate and distance of dispersion. Humidity above 80% can cause moisture to condense on smoke particles. This can create a fog type effect which slows and settles smoke. Precipitation can cause a similar effect and slow dispersion. Atmospheric inversions should be taken into consideration when determining monitoring locations and recommending evacuation or protect-in-place zones. An atmospheric inversion occurs when a layer of air that is warmer than the air below traps the surface air in place and prevents dispersion of any pollutants it contains.

Surface structures such as buildings and trees can significantly change air flow direction and cause stagnant air pockets to form. This can trap smoke in small, confined areas and create hot spots with significantly higher particulate concentrations than nearby locations. When monitoring areas which are surrounding the source consider the following:

- Downwind areas will be most impacted by smoke.
- It should be expected that particulate readings at ground level will be higher at night or in the morning than in the afternoon or early evening.

Monitoring at the work zone may be necessary to establish appropriate levels of PPE for response workers. This will also help to determine safe areas to stage response support activities where workers may not be using protective equipment.

When choosing a monitoring site, some additional items should also be considered:

- Availability of power sources will determine what type of power generation is required. The absence of auxiliary power will require more frequent maintenance and may require additional staffing, especially if the monitoring period is > 24 hours.
- Consider security measures (i.e. locked boxes, chains, etc.) if instruments are to be sited in public areas and left unattended.
- Ensure generators or equipment from other activities which may release emissions do not interfere with monitoring stations.
- Power lines or electrical utility areas should be avoided.

Health Effects

PM_{10} and $PM_{2.5}$ are considered to be respirable. Particulates > 10 µm do not typically reach the lungs, but can irritate the eyes, nose, and throat. Although PM_{10} is respirable, $PM_{2.5}$ is inhaled deeper into lung tissue due to their small size (approximately 1/30th the average width of human hair[h]), and thus presents a greater health hazard than larger particulates. PM between 0.1 µm and 1 µm can remain in the atmosphere for days or weeks, meaning there is a potential for long range dispersion from the source.

Smoke and particulate exposure will typically have the largest effect on the respiratory system. Irritation and coughing are common acute symptoms of exposure to particulates. Individuals subject to particulate exposure may first notice irritation of the throat, eyes, and nose. This may be followed by coughing, chest pain, and shortness of breath if exposure continues.

- Acute effects of particulate exposure include irritation of the respiratory system, coughing, and breathing difficulties.
- Chronic effects of particulate exposure include reduced lung function, asthma, lung cancer, chronic bronchitis, cardiovascular disease, premature death, and may cause birth defects[e].

These symptoms can be magnified for sensitive individuals, which can include groups or individuals with pre-existing conditions (e.g.: asthma, heart disease, lung disease), children, the elderly, and pregnant women. Sensitive individuals can experience aggravation of respiratory and cardiovascular systems at lower levels which may not affect non-sensitive individuals[e].

PM can also transport other pollutants which creates additional health concerns. Special consideration and precautions should be made if other pollutants are expected. ATSDR can provide assistance with generating public health statements, factsheets and possible development of a medical monitoring plan.

Reporting

Generate air monitoring summary reports to present data to the Incident Management Team (IMT) during Command, Planning, and Tactical meetings/briefings. Air monitoring summary reports typically group instruments by location and summarize each analyte result with number of readings, number of detections, concentration range, and a time-time weighted average over the period of the report. For particulates, specifically, the air monitoring report typically classifies the reporting period based on the AQI as seen in Table 1 and Table 2.

Develop the reporting schedule around the operational periods established by the IMT, and include sufficient time to review air monitoring summary reports prior to meetings/briefings since they often become the data backing up health-based decisions (e.g. whether to modify/implement evacuation zones or how to advise schools on openings/delayed starts).

References

a. EPA ERTG – *Air Monitoring Guidance Tables* http://www.epaosc.org/sites/0001/files/US%20EPA%20Air%20Tables%20Edition3_FINAL%202.pdf
b. California Air Resource Board. *Wildfire Smoke, A Guide for Public Health Officials*. July 2008. http://www.arb.ca.gov/carpa/toolkit/data-to-mes/wildfire-smoke-guide.pdf
c. Naeher, L.P., Brauer, M., Lipsett, M., Zelikoff, J.T., Simpson, C.D., Koenig, J.Q. and Smith, K.R. 2007. *Woodsmoke Health Effects: A Review*. Inhalation Toxicology. 19: 67–106.
d. US Department of Energy. *Protective Action Criteria http://www.atlintl.com/doe/teels/teel.html*
e. EPA Air Now. *Air Quality Index – A Guide to Air Quality and Your Health.* http://www.airnow.gov/index.cfm?action=aqibasics.aqi
f. USDA Forest Service – Technology Development Program. *Smoke Particulate Monitors: 2006 Update.* December 2006. https://www3.epa.gov/ttnamti1/files/ambient/smoke/ebamrpt.pdf
g. Auburn University. *Smoke Dispersion http://www.auburn.edu/academic/forestry_wildlife/fire/smoke_guide/smoke_dispersion.htm*
h. US Environmental Protection Agency. Fine particle ($PM_{2.5}$) Designations, Frequent Questions. http://www.epa.gov/pmdesignations/faq.htm

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To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: RE: Able - AQI sheet

So, the former. Thanks.

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office: **404-562-8934** | cell: **678-427-8829** | fax: **404-562-8699**
epaosc.org

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From: Reece, Myra <reecemc@dhec.sc.gov>
Sent on: Thursday, August 8, 2019 8:26:39 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
CC: Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>; Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David M. <scaturdm@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Ellenberg, Kristy E. <ellenbke@dhec.sc.gov>; Scott Reynolds <reynolds@dhec.sc.gov>; shealyrg@dhec.sc.gov; Huyser, Matthew <Huyser.Matthew@epa.gov>
Subject: Re: Able Construction Work Group - Conference Call 10 am Friday

Got it! Thanks again Team EPA!

Sent from my iPad

On Aug 8, 2019, at 2:55 PM, Garrard, Jordan <Garrard.Jordan@epa.gov> wrote:

*** Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***
Matt Huyser's cell 678-427-8829 , huyser.matthew@epa.gov

From: Garrard, Jordan
Sent: Tuesday, August 6, 2019 9:24 AM
To: Reece, Myra <reecemc@dhec.sc.gov>; Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
Cc: Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David M. <scaturdm@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Ellenberg, Kristy E. <ellenbke@dhec.sc.gov>; Scott Reynolds <reynolds@dhec.sc.gov>; shealyrg@dhec.sc.gov
Subject: RE: Able Construction Work Group - Conference Call 10 am Friday

Just wanted to give everyone an update on timeline of analytical results. After speaking with the lab, we should receive preliminary phosgene data this evening or tomorrow am. VOC data will not be ready until sometime on Thursday. I still recommend have a conference call on Friday morning to

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From: Frank Edwards <fedwards@jaspercountysc.gov>
Sent on: Thursday, August 8, 2019 7:45:20 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: RE: Able Construction Work Group - Conference Call 10 am Friday

Jordon,
I'm assuming we are not doing this conference call based on the changes and now having the physical meeting in the morning at 10 am as we will all be at that meeting.

From: Garrard, Jordan [mailto:Garrard.Jordan@epa.gov]
Sent: Thursday, August 8, 2019 2:55 PM
To: reecemc@dhec.sc.gov; Tisha L. Williams; Frank Edwards; Lisa Wagner; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder; Andrew Fulghum; Porter, Henry; Frost, Keith; thompsrb@dhec.sc.gov; Keisler, Van; Blalock, Juli; dickmaj@dhec.sc.gov; John Snyder; Clay Graves; Russell Wells; eturner@emd.sc.gov; Threatt, Richard
Cc: Marshall, Frances (Fran); Marcus, Mike; Scaturo, David M.; Boyce, Lawra; Ellenberg, Kristy E.; Scott Reynolds; shealyrg@dhec.sc.gov; Huyser, Matthew
Subject: RE: Able Construction Work Group - Conference Call 10 am Friday

Matt Huyser's cell 678-427-8829 , huyser.matthew@epa.gov

From: Garrard, Jordan
Sent: Tuesday, August 6, 2019 9:24 AM
To: Reece, Myra <reecemc@dhec.sc.gov>; Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
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Jordan Garrard
On-Scene Coordinator
EPA Region 4
Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Thursday, August 8, 2019 6:54:48 PM
To: Reece, Myra <reecemc@dhec.sc.gov>; Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
CC: Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David M. <scaturdm@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Ellenberg, Kristy E. <ellenbke@dhec.sc.gov>; Scott Reynolds <reynolds@dhec.sc.gov>; shealyrg@dhec.sc.gov; Matthew Huyser <Huyser.Matthew@epa.gov>
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From: Garrard, Jordan <Garrard.Jordan@epa.gov> on behalf of Garrard, Jordan
Sent on: Tuesday, August 6, 2019 1:23:36 PM
To: Reece, Myra <reecemc@dhec.sc.gov>; Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
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Sent: Thursday, August 1, 2019 6:16 PM
To: Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
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Subject: Able Construction Work Group - Conference Call 10 am Friday

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From: Frost, Keith <frostrk@dhec.sc.gov>
Sent on: Friday, August 2, 2019 6:56:05 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
Subject: RE: Able Construction Work Group - Conference Call 10 am Friday
Attachments: ATT00001.txt (51 Bytes)

Jordan, can you give me a call when you get to the site? We need to have the temporary berm removed so that storm water can flow south, under Schinger Ave., and not back up onto adjacent properties. We discussed that with Mr. Lloyd when were there last week but given the sporadic nature of his presence at the site, we probably need to proceed with getting it done. If he would do it, that would be great. I also have a call into the county to see if they can dispatch someone to clear the ditch since it's part of the county's storm water system for that area. You can call my cell number below. Thanks,,,,

R. Keith Frost
Assistant Chief, Bureau of Air Quality
S.C. Dept. of Health & Environmental Control
Office: (803) 898-4115
Mobile: (803) 465-1529
Connect: www.scdhec.gov Facebook Twitter
http://www.scdhec.gov/images/logo_email.jpg

From: Garrard, Jordan <Garrard.Jordan@epa.gov>
Sent: Friday, August 2, 2019 9:24 AM
To: Reece, Myra <reecemc@dhec.sc.gov>; Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; Thompson, Rhonda <thompsrb@dhec.sc.gov>; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Webster, James <Webster.James@epa.gov>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>; Frederick, Tim <Frederick.Tim@epa.gov>
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Subject: RE: Able Construction Work Group - Conference Call 10 am Friday

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Jordan Garrard

Armstrong, Kathy

From: Frost, Keith <frostrk@dhec.sc.gov>
Sent: Friday, August 02, 2019 2:56 PM
To: Garrard, Jordan
Subject: RE: Able Construction Work Group - Conference Call 10 am Friday
Attachments: ATT00001.txt

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Emergency Response and Removal Branch
Work: 404-562-8642
Cell: 678-644-8648

From: Reece, Myra <reecemc@dhec.sc.gov>
Sent: Thursday, August 1, 2019 6:16 PM
To: Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; Garrard, Jordan <Garrard.Jordan@epa.gov>; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
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Subject: Able Construction Work Group - Conference Call 10 am Friday

Hi Team! Just a reminder of our 10 am conference call tomorrow morning.....conference line/code highlighted in yellow at the end of the notes below.....talk soon!

DHEC staff: gathering in the SARR conference room

Myra C. Reece

Director of Environmental Affairs
S.C. Dept. of Health & Environmental Control
Office (803) 898-4102
Mobile (803) 667-1113
Connect: www.scdhec.gov Facebook Twitter

From: Tisha L. Williams <tlwilliams@jaspercountysc.gov>
Sent: Tuesday, July 30, 2019 10:44 AM
To: Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org <chris.collins2@redcross.org>; haley.lawson@redcross.org <haley.lawson@redcross.org>; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov <afulghum@jaspercountysc.gov>; Reece, Myra <reecemc@dhec.sc.gov>; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; Thompson, Rhonda <thompsrb@dhec.sc.gov>; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov <dickmaj@dhec.sc.gov>; garrard.jordan@epa.gov <garrard.jordan@epa.gov>; john.snyder@tetratech.com <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov <eturner@emd.sc.gov>; Threatt, Richard <threatrl@dhec.sc.gov>
Subject: Notes From July 29, 2019 Able Construction Work Group - Conference Call

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All:

In follow up to our telephone conversation this afternoon with the working group, we note the following as our action plan supplementing that of Friday, July 26th:

As background information, DHEC has graphed the data received over the weekend, and is expecting peaks in particulates after midnight. As a result of apparently not having continuous water going to the site, the

average levels have increased over time, which raises concerns about health risks. The receipt of more detailed analysis from EPA testing later this week will be helpful in formulating an updated action plan.

The plan for this week:

- **Working Group is still waiting on a contractor to get DHEC a plan and cost for containment and clean-up.**

- **DHEC has contacted their prime contractors with expertise in closing out landfill sites and some experience in extinguishing landfill fires and are attempting to have someone come to the site today.**

- **DHEC will contact the owners representative to advise of the site visit, Russell Wells will be out Point of Contact for that visit.**

Chief Wells will serve as Point of Contact for DHEC and DHEC's Contractor to visit the site and assist them with evaluating a short and long term proposed action plan to extinguish and clean up the site. Emergency Services will visit the site at dusk and at midnight to look for hot spots and apply water as

needed. Throughout the day, they will do a visual inspection and will apply water as either a result of those inspections or a call for water by DHEC, who will be monitoring the particulate matter for spikes in the case of a flare up.

- **In Response to the need for Temporary Housing, Haley Lawson contacted Beaufort County Human Service Alliance and requested them to inquire of their resources and they're still waiting on responses from that network.**

- **The working Group noted there were several call complaining over the weekend.**

- **DHEC reports that the Owner says he was working on a proposal to extinguish the fire and clean up the site.**

- **EPA reported that it had completed it's air quality and water quality sampling but does not expect to have any results until late Thursday.**

- **We shared the Media contacts with EPA and DHEC being James Pinckney (EPA) 404-695-5503, and DHEC** media@dhec.sc.gov **or 803-898-7769.**

- **We have Coordinated another Conference Call for Friday August 2, 2019 at 10:00am**

Conference Call Dial-in **(605) 313-5380**
Enter the access code: (b)(6) Personal Privacy

Thank you,

Tisha L. Williams
Administrative Assistant
(843) 717-3690

Jasper County Administrator's Office
Mr. Andrew P. Fulghum
358 Third Avenue
Ridgeland, South Carolina 29936

Jasper County is An Equal Opportunity Employer
TDD 843-726-7519
Special Accommodations Available Upon Request to Individuals with Disabilities
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Sent on: Friday, August 2, 2019 1:23:45 PM
To: Reece, Myra <reecemc@dhec.sc.gov>; Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; James Webster <Webster.James@epa.gov>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>; Frederick, Tim <Frederick.Tim@epa.gov>
CC: Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David M. <scaturdm@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Ellenberg, Kristy E. <ellenbke@dhec.sc.gov>; Scott Reynolds <reynolds@dhec.sc.gov>; shealyrg@dhec.sc.gov
Subject: RE: Able Construction Work Group - Conference Call 10 am Friday
Attachments: Draft_Summary Tables Able Contracting.pdf (74.83 KB)

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Cc: Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David

ABLE CONTRACTING FIRE
AIR SAMPLES
Summary of Detections
DATA HAS NOT BEEN QC'd - NOT FOR PUBLIC DISTRIBUTION

	EPA RMLs	BACKGROUND	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)	STATION 1 (SE Corner)	STATION 2 (SW Corner)
		ACF-AS-BKGD-072819	ACF-AS-RES-AM-072719	ACF-AS-SMOKE-AM-072719	ACF-AS-RES-PM-072719	ACF-AS-SMOKE-PM-072719	ACF-AS-RES-AM-072819	ACF-AS-SMOKE-AM-072819	ACF-AS-RES-PM-072819	ACF-AS-SMOKE-PM-072819
		Sample Volume	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*	*Sample Volume*
		946.3 Liters	*767 Liters*	*898.6 Liters*	*965.3 Liters*	*913.3 Liters*	-	-	-	-
		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
		537.10 Liters	-	-	-	-	*473.90 Liters*	*603.90 Liters*	*542.50 Liters*	*550.50 Liters*
	0.94	[illegible]	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*	[illegible]	[illegible]	[illegible]	[illegible]
		516.20 Liters	*410.60 Liters*	*411.80 Liters*	*541.50 Liters*	*549.50 Liters*	-	-	-	-
	22	**4.88**	**1.70**	**2.50**	**3.04**	**6.09**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
		776.6 Liters	*672.6 Liters*	*657.5 Liters*	*744.8 Liters*	*784.6 Liters*	-	-	-	-
	16	**0.55**	**0.77**	**0.52**	**0.5**	**0.48**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	1.6	**0.11**	**0.13**	**0.25**	**0.13**	**0.11**				
	Not Listed	**52.7**	**0.54**	**55.1**	**48**	**41.3**				
	Not Listed	**0.73**	**0.89**	**0.9**	**1.1**	**0.75**				
	Not Listed	**0.93**	**1.3**	**0.87**	**0.81**	**0.86**				
	Not Listed	**9.6**	**11.2**	**11.5**	**10.4**	**8.5**				
	Not Listed	**12.7**	**15.8**	**16.5**	**14.7**	**12**				
nds (µg/m³)		-	-	-	-	-	-	-	-	-
	97,000	**12**	**8.66**	**7.51**	**10.5**	**16.1**	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*
	190	**1.85**	**2.17**	**0.892**	**0.99**	**1.63**				
	0.063	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
	36	**2.52**	**6.46**	**3.4**	**2.5**	**15.1**				
	6.3	**0.749**	**1.06**	**0.689**	**0.769**	**2.21**				
	2,200	**0.214**	**0.514**	**0.279**	**0.444**	**0.405**				
	47	**0.481**	**0.482**	**0.478**	**0.496**	**0.466**				
	31,000	0.19 U	0.191 U	0.19 U	0.195 U	**0.276**				
	280	**1.23**	**4.76**	**2.95**	**1.23**	**11.6**				
	3,100	**0.999**	**0.262**	0.25 U	**0.883**	0.253 U				
	56	**0.321**	**0.294**	0.26 U	0.267 U	**0.374**				
	Not Listed	**16.7**	**4.28**	**2.33**	**9.26**	**2.56**				
	110	**2.07**	**3.36**	**1.12**	**0.768**	**5.86**				
	Not Listed	**0.913**	0.355 U	0.354 U	0.363 U	**0.357 U**				
	Not Listed	**1.18**	**1.38**	**1.33**	**1.4**	**1.28**				
	Not Listed	**2.33**	**2.4**	**2.38**	**2.41**	**2.36**				
	Not Listed	**0.554**	**0.66**	**0.547**	**0.605**	**0.577**				
	1,300	**2.26**	**0.769**	**0.365**	**0.891**	**1**				
	2,200	**4.05**	**1.55**	**0.647**	**2.37**	**1.43**				
	630	**0.404**	**0.468**	**0.434**	**0.949**	**0.478**				
	Not Listed	0.357 U	**0.838**	**0.421**	0.366 U	**1.06**				
tanone)	16,000	**1.02**	**0.847**	**0.805**	**0.612**	**1.57**				
	9,400	0.302 U	**0.373**	0.302 U	0.31 U	0.305 U				
	2,200	0.304 U	0.305 U	0.303 U	0.312 U	**0.857**				
	1,100	0.264 U	0.265 U	0.264 U	**0.312**	0.267 U				
	1,900	**0.691**	**0.871**	**0.674**	**0.999**	**0.651**				
	8.3	**0.336**	0.39 U	0.388 U	0.398 U	**0.537**				
	Not Listed	**0.99**	**0.353**	0.334 U	0.343 U	**0.562**				
	3,100	**0.629**	0.359 U	0.357 U	0.367 U	0.361 U				
	9,400	**2.91**	**7.88**	**3.99**	**2.96**	**14.2**				
	3,100	**0.348**	**1.71**	**2.13**	**0.446**	**8.66**				
	1,100	0.489 U	0.491 U	0.489 U	**0.736**	0.494 U				
	6,300	0.213 U	**0.472**	**0.373**	0.218 U	**0.796**				
	16,000	**9.82**	**6.48**	**2.62**	**5.08**	**7.6**				
	190	**3.23**	**0.784**	**0.318**	**0.817**	**0.414**				
	190	**0.898**	0.354 U	0.352 U	0.362 U	0.356 U				
	Not Listed	**2.12**	**0.684**	0.342 U	**0.487**	0.346 U				
	310	**6.86**	**2.37**	**0.941**	**2.51**	**1.66**				
	310	**2.75**	**0.95**	**0.362**	**0.916**	**0.759**				
mpounds (µg/m³)		*439.4 Liters*	*486.2 Liters*	*562.5 Liters*	*421.4 Liters*	*438.3 Liters*	-	-	-	-
pounds		None detected	None detected	None detected	None detected	None detected	*Not sampled*	*Not sampled*	*Not sampled*	*Not sampled*

Able Contracting Fire
Environmental Protection Agency
The identification of the analyte is acceptable; the reported value is an estimate
Micrograms per cubic meter
Not Analysed
Not Detected
Removal Management Levels; Residential Ambient Air, April 2019. (Lower value of carcinogenic/noncarcinogenic listed; TR=1E-04/THQ+3.0)
The analyte was not detected at or above the reporting limit
The analyte was not detected at or above the reporting limit; which is considered approximate due to deficiencies in one or more quality control criteria
Bolded values indicate a chemical detection
Shaded and **bolded** values exceed the April 2019 Residential RMLs

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From: Reece, Myra <reecemc@dhec.sc.gov>
Sent on: Thursday, August 8, 2019 8:26:39 PM
To: Garrard, Jordan <Garrard.Jordan@epa.gov>
CC: Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>; Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David M. <scaturdm@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Ellenberg, Kristy E. <ellenbke@dhec.sc.gov>; Scott Reynolds <reynolds@dhec.sc.gov>; shealyrg@dhec.sc.gov; Huyser, Matthew <Huyser.Matthew@epa.gov>
Subject: Re: Able Construction Work Group - Conference Call 10 am Friday

Got it! Thanks again Team EPA!

Sent from my iPad

On Aug 8, 2019, at 2:55 PM, Garrard, Jordan <Garrard.Jordan@epa.gov> wrote:

*** Caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***
Matt Huyser's cell 678-427-8829 , huyser.matthew@epa.gov

From: Garrard, Jordan
Sent: Tuesday, August 6, 2019 9:24 AM
To: Reece, Myra <reecemc@dhec.sc.gov>; Tisha L. Williams <tlwilliams@jaspercountysc.gov>; Frank Edwards <fedwards@jaspercountysc.gov>; Lisa Wagner <lwagner@jaspercountysc.gov>; chris.collins2@redcross.org; haley.lawson@redcross.org; David Tedder <dtedder@jaspercountysc.gov>; afulghum@jaspercountysc.gov; Porter, Henry <porterhj@dhec.sc.gov>; Frost, Keith <frostrk@dhec.sc.gov>; thompsrb@dhec.sc.gov; Keisler, Van <keislecv@dhec.sc.gov>; Blalock, Juli <blalocje@dhec.sc.gov>; dickmaj@dhec.sc.gov; John Snyder <john.snyder@tetratech.com>; Clay Graves <cgraves@jaspercountysc.gov>; Russell Wells <rwells@jaspercountysc.gov>; eturner@emd.sc.gov; Threatt, Richard <threatrl@dhec.sc.gov>
Cc: Marshall, Frances (Fran) <marshaf2@dhec.sc.gov>; Marcus, Mike <MARCUSJM@dhec.sc.gov>; Scaturo, David M. <scaturdm@dhec.sc.gov>; Boyce, Lawra <boycelc@dhec.sc.gov>; Ellenberg, Kristy E. <ellenbke@dhec.sc.gov>; Scott Reynolds <reynolds@dhec.sc.gov>; shealyrg@dhec.sc.gov
Subject: RE: Able Construction Work Group - Conference Call 10 am Friday

Just wanted to give everyone an update on timeline of analytical results. After speaking with the lab, we should receive preliminary phosgene data this evening or tomorrow am. VOC data will not be ready until sometime on Thursday. I still recommend have a conference call on Friday morning to