From: Osbourne, Margaret
To: Champion, Traylor
Subject: RE: GP Crossett Passive Sampling
Date: Tuesday, January 03, 2017 3:55:00 PM

Hi Traylor:

Would you like to connect by video or is phone fine for you? If video, please send me your video number.

Do you have an agenda for tomorrow's meeting?

Talk to you then.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Tuesday, January 03, 2017 2:56 PM
To: Thompson, Steve <thompson.steve@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Lathrop, Alison J. (GP LAW) <Alison.Lathrop@GAPAC.com>; Gesser, Ryan <Ryan.Gesser@gapac.com>; Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Ross, Sarah M. <Sarah.Ross@GAPAC.com>; Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>
Subject: GP Crossett Passive Sampling

Steve – Thanks for taking the time to speak with us tomorrow to discuss EPA's planned H2S passive sampling in Crossett and around GP's wastewater treatment system. In preparation for that discussion, I'm forwarding: 1) a clean and red-lined version of EPA's November 7 Statement of Work with GP's comments; and 2) results from GP's passive sampling around the wastewater treatment system.

Regarding the SOW, we have added some additional specificity, such as details on GP's continuous monitor and EPA's passive samplers. We have also revised some of the language and terminology used to more accurately reflect the nature of the passive sampling and the appropriate ATSDR MRL. We note that EPA's SOW indicates samplers will be collected every 14 days, so ATSDR's acute (1- to 14-day) MRL of 70 ppb is relevant. We've omitted references to the ATSDR intermediate (15- to 365-day average) MRL of 20 ppb because the passive samplers will not measure over that extended averaging period. Furthermore, because each sample will have a different limit of quantification (due primarily to effect of ambient temperature on sampling rate and diffusion), averaging results over multiple samples to calculate an average over a longer period may be precluded. Similarly, sustained monitoring of 1 year or more would be necessary to compare results to the RfC.

Also, Alison is reviewing a standard template access agreement she received from another internal counsel to customize it for this effort. We will forward that in the next day or two.

We look forward to discussing this with you further tomorrow.

From:	Champion, Traylor
To:	Thompson, Steve; Osbourne, Margaret
Cc:	Lathrop, Alison J. (GP LAW); Gesser, Ryan; Kuhlman, Steven J.; Ross, Sarah M.; Curtis, Michael
Subject:	GP Crossett Passive Sampling
Date:	Tuesday, January 03, 2017 2:56:10 PM
Attachments:	Crossett EPA H2S Monitoring Scope of Work - GP comments.docx Crossett - EPA Passive H2S SOW Compare FINAL 1-3-17.pdf Jan 2017 EPA data share.docx

---

Steve – Thanks for taking the time to speak with us tomorrow to discuss EPA's planned H2S passive sampling in Crossett and around GP's wastewater treatment system. In preparation for that discussion, I'm forwarding: 1) a clean and red-lined version of EPA's November 7 Statement of Work with GP's comments; and 2) results from GP's passive sampling around the wastewater treatment system.

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Also, Alison is reviewing a standard template access agreement she received from another internal counsel to customize it for this effort. We will forward that in the next day or two.

We look forward to discussing this with you further tomorrow.

From: Hirtz, James
To: Frey, Sarah
Cc: Spence, Kelley
Subject: RE: Modeling Run - Crossett
Date: Thursday, January 05, 2017 2:52:25 PM
Attachments: image001.png

Great, As far as using the passive and continuous monitoring data, I could do a model run over the 2 week periods and obtain results, so roughly 12 intermediate model runs if the passive monitors will be operated for a 6 month period. So for source characterization (emission estimates), I would need to do 12 individual model runs and develop a profile (range of emissions we might expect for a year). The only thing we would be lacking is looking at any seasonal / biological component during times in which we see a large change in flux temperatures during the course of the day (ie late summer periods July – August.) It may difficult to develop this biological factor/increase to look at acute hourly increases in H2S utilizing the passive monitoring data, but I will try.

So we can than take this modeled value and back calculate an emission rate which we could compare to TRI or any NCASI estimates they have provided.

Based upon the modeling I have done with a limited data set, I am approaching about 150 TPY vs the 208 – 266 TPY in which they have reported to TRI. I expect my modeling to change a little bit over the next 2 weeks and I will get back to you on the results for Model Run 1 which is looking at ambient data from Oct 1, 2014 – Sept 30, 2016.

So I expect I will do another Model Run 2 and incorporate the passive monitoring data around late July, to see how this data sets up a Final Modeling Run to look at chronic and acute impacts around August-Sept 2017.

Jim

From: Frey, Sarah
Sent: Thursday, January 05, 2017 3:30 PM
To: Hirtz, James <Hirtz.James@epa.gov>
Cc: Spence, Kelley <Spence.Kelley@epa.gov>
Subject: RE: Modeling Run - Crossett

Hi Jim,

We are getting ready to launch our passives next Friday (hooray!). In preparation for our study, GP started setting out passives at various locations, and I have attached the data they shared with us. The values are in ppb, but the first three runs are 1 week duration, and the remainder are 2 week durations.

Were you able to get the TRC website to work for you? It will have updated H2S and met data, if you would like more recent data.

Moving forward, will you be able to use the continuous community monitor and our passive data to potentially back calculate the amount of H2S being generated by the Mill and see how it compares to their reported TRI values?

I will set up a call for us to discuss potential items for a final report, etc.

Let me know if you need anything!

Sarah

From: Hirtz, James
Sent: Wednesday, December 28, 2016 9:49 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Spence, Kelley <Spence.Kelley@epa.gov>
Subject: RE: Modeling Run - Crossett

Thanks I will do some mapping with these new coordinates and adjust my modeling file if necessary. Have a Happy New Year as well, once I get done with the adjustments also want to talk to you about developing a report or study for this site and get your views on how we want to wrap this up. If you have a second I am in today and tomorrow until 1130 am. Then I will be back all next week, except for Monday

Thx

Jim

James Hirtz
Environmental Protection Agency
OAQPS/HEID/ATAG
109 T.W. Alexander Drive
RTP, NC

w# (919)-541-0881

From:	Frey, Sarah
To:	Hirtz, James
Cc:	Spence, Kelley
Subject:	RE: Modeling Run - Crossett
Date:	Thursday, January 05, 2017 2:29:00 PM
Attachments:	image001.png Jan 2017 EPA data share.docx

Hi Jim,

We are getting ready to launch our passives next Friday (hooray!). In preparation for our study, GP started setting out passives at various locations, and I have attached the data they shared with us. The values are in ppb, but the first three runs are 1 week duration, and the remainder are 2 week durations.

Were you able to get the TRC website to work for you? It will have updated H2S and met data, if you would like more recent data.

Moving forward, will you be able to use the continuous community monitor and our passive data to potentially back calculate the amount of H2S being generated by the Mill and see how it compares to their reported TRI values?

I will set up a call for us to discuss potential items for a final report, etc.

Let me know if you need anything!

Sarah

From: Hirtz, James
Sent: Wednesday, December 28, 2016 9:49 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Spence, Kelley <Spence.Kelley@epa.gov>
Subject: RE: Modeling Run - Crossett

Thanks I will do some mapping with these new coordinates and adjust my modeling file if necessary. Have a Happy New Year as well, once I get done with the adjustments also want to talk to you about developing a report or study for this site and get your views on how we want to wrap this up. If you have a second I am in today and tomorrow until 1130 am. Then I will be back all next week, except for Monday

Thx

Jim

James Hirtz
Environmental Protection Agency
OAQPS/HEID/ATAG
109 T.W. Alexander Drive
RTP, NC

w# (919)-541-0881

Osbourne, Margaret

Subject:	Georgia Pacific Crossett Monthly Coordination Call
Location:	866-299-3188, code 214-665-6508
Start:	Wed 1/25/2017 1:30 PM
End:	Wed 1/25/2017 2:00 PM
Show Time As:	Tentative
Recurrence:	Monthly
Recurrence Pattern:	Occurs every month on the fourth Wednesday of the month from 1:30 PM to 2:00 PM effective 3/23/2016.
Meeting Status:	Not yet responded
Organizer:	Osbourne, Margaret
Required Attendees:	Thompson, Steve; Blanco, Arturo; Tillman, Tressa; spencer@adeq.state.ar.us; Vaughn, Gloria
Optional Attendees:	braun@adeq.state.ar.us

Osbourne, Margaret

From: Osbourne, Margaret
Sent: Wednesday, April 05, 2017 10:41 AM
To: Seager, Cheryl; Gilrein, Stephen
Cc: Thompson, Steve
Subject: FW: GP Crossett H2S PDFs
Attachments: community.pdf; on-site.pdf

Hi Cheryl:

Attached are the two maps that we provided to Sam at the GP briefing last week. We are sharing the on-site data with GP as we receive it (and they're sharing their collocated results with us), but we are not sharing the community data with GP or the public. We will share the individual data with the citizens who are hosting monitors on their property at the end of the study. Additionally, we will write a summary report for all of the data that we'll share with the public at the end of the study.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

From: Haynes, James
Sent: Wednesday, April 05, 2017 9:09 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: GP Crossett H2S PDFs

See attached.

James S. Haynes
Physical Scientist
U.S. Environmental Protection Agency, Region 6
Air Toxics Enforcement Section

1445 Ross Avenue, Suite 1200 (MC: 6EN-AT)
Dallas, TX 75202

Osbourne, Margaret

From: Thompson, Steve
Sent: Wednesday, July 20, 2016 11:56 AM
To: Osbourne, Margaret
Subject: ADEQ interested in working with us on GP H2S monitoring ..reminder to follow up

Sent from my iPhone

From: Osbourne, Margaret
To: Frey, Sarah
Cc: Thompson, Steve
Subject: FW: Equipment
Date: Friday, August 19, 2016 4:37:00 PM

OECA couldn't get us the handhelds. At this point, we can try to rent them from a company or, alternatively, ERG could assist us. They seemed eager to assist us at every stage of the process.

Let's talk on Monday.

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Fried, Gregory
Sent: Friday, August 19, 2016 4:22 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Re: Equipment

Margaret,

We could not get the handhelds approved. I was told there was no way to get the equipment ordered and in our possession by 9/12. If there is any additional money that comes our way I will make another run at purchasing them.

Greg

Sent from my iPhone

On Aug 19, 2016, at 12:02 PM, Osbourne, Margaret <osbourne.margaret@epa.gov> wrote:

Hi Greg:

I was out of the office Wed and Thurs of this week. Did you happen to get an answer on the H2S handhelds?

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Fried, Gregory
Sent: Tuesday, August 16, 2016 5:08 PM
To: Breneman, Sara <breneman.sara@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Equipment

Sara/Margaret,

John Fogarty was on jury duty today so our equipment discussion got pushed to tomorrow. I will try to catch him in the morning.

-Greg

Gregory Fried
Chief, Stationary Source Enforcement Branch

Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
202-564-7016
fried.gregory@epa.gov

From:	Osbourne, Margaret
To:	Champion, Traylor
Subject:	RE: GP Crossett follow-up conversation
Date:	Wednesday, October 12, 2016 10:26:00 AM
Attachments:	image011.png image012.png image013.png image014.png image015.png

---

Hi Traylor:

EPA participants in today's call include:

Steve Thompson
Sarah Frey
Leonard Schilling
Tressa Tillman
Margaret Osbourne

Talk to you in a bit.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Friday, October 07, 2016 9:02 AM

To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: GP Crossett follow-up conversation

Margaret…we can make it work 11:00 – 12:00 Dallas time on the 12th. Do you want to set it up as a conference call or a video conference?

Traylor Champion
SVP, Environmental Affairs and Product Safety
Georgia-Pacific, LLC
133 Peachtree St. NE
Atlanta, GA
404-652-4776 (office)
404-281-3219 (cell)

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Thursday, October 06, 2016 10:49 PM
To: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: GP Crossett follow-up conversation

Sent by an external sender

Thanks for reaching out, Traylor. Would sometime between 11:00 and 2:00 on Wednesday, Oct. 12 work for your team? Or between 3:00 and 4:00 on the same day?

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Thursday, October 06, 2016 2:41 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: GP Crossett follow-up conversation

Margaret…could you provide a couple of dates/time for a follow-up conversation. GP participants will be the same group as today. We'll see if we can match up with your preferred dates.

Thanks

Traylor Champion
SVP, Environmental Affairs and Product Safety
Georgia-Pacific, LLC
133 Peachtree St. NE
Atlanta, GA
404-652-4776 (office)
404-281-3219 (cell)

Osbourne, Margaret

From: Osbourne, Margaret
Sent: Tuesday, November 01, 2016 12:07 PM
To: Spencer, Stuart
Subject: RE: Call with ADEQ to discuss GP

Sure, or you can propose a time that would work for you. Would some time on Monday, Nov. 7 work for you?

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Spencer, Stuart [mailto:SPENCER@adeq.state.ar.us]
Sent: Tuesday, November 01, 2016 12:04 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Call with ADEQ to discuss GP

I just found out I will be attending a meeting at the Governor's office tomorrow. I won't be able to make the call. Would it be ok if one of my Manager's participated in my place?

Thanks!

Stuart

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Monday, October 31, 2016 3:13 PM
To: Spencer, Stuart
Subject: Re: Call with ADEQ to discuss GP

Yes, sorry, this Wednesday, Nov 2, at 9:00 am. Talk to you then!

Sent from my iPhone

On Oct 31, 2016, at 2:50 PM, Spencer, Stuart <SPENCER@adeq.state.ar.us> wrote:

> This Wednesday at 9? If so, I am available.
>
> Thanks!
>
> Stuart
>
> ---
>
> **From:** Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
> **Sent:** Monday, October 31, 2016 1:24 PM
> **To:** Spencer, Stuart
> **Subject:** FW: Call with ADEQ to discuss GP
>
> Hi Stuart:
>
> I sent you a calendar invitation for Wednesday, Nov. 5 morning at 9:00 am to discuss EPA's activities at Georgia-Pacific Crossett but the state system rejected it as spam. Are you available?
>
> The call-in number is 866-299-3188, code 214-665-6508.
>
> Thanks,
> Margaret
>
> Margaret Osbourne
> Chief, Air Toxics Enforcement Section
> Compliance Assurance & Enforcement Division
> EPA Region 6
> 1445 Ross Avenue (6EN-AT)
> Dallas, TX 75202

214-665-6508

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From: Microsoft Outlook
Sent: Monday, October 31, 2016 1:21 PM
To: Osbourne, Margaret
Subject: Undeliverable: Call with ADEQ to discuss GP

<image006.jpg>

Your message to SPENCER@adeq.state.ar.us couldn't be delivered.

adeq.state.ar.us suspects your message is spam and rejected it.

osbourne.margaret	**Office 365**	**adeq.state.ar.us**
Sender		**Action Required**
		Messages suspected as spam

How to Fix It

Try to modify your message, or change how you're sending the message, using the guidance in this article:

Bulk E-mailing Best Practices for Senders Using Forefront Online Protection for Exchange. Then resend your message.

If you continue to experience the problem, contact the recipient by some other means (by phone, for example) and ask them to ask their email admin to add your email address, or your domain name, to their allowed senders list.

Was this helpful? Send feedback to Microsoft.

More Info for Email Admins

Status code: 550 5.7.350

When Office 365 tried to send the message to the recipient (outside Office 365), the recipient's email server (or email filtering service) suspected the sender's message is spam.

If the sender can't fix the problem by modifying their message, contact the recipient's email admin and ask them to add your domain name, or the sender's email address, to their list of allowed senders.

Although the sender may be able to alter the message contents to fix this issue, it's likely that only the recipient's email admin can fix this problem. Unfortunately, Office 365 Support is unlikely to be able to help fix these kinds of externally reported errors.

Original Message Details

Created Date:	10/31/2016 6:21:13 PM
Sender Address:	osbourne.margaret@epa.gov
Recipient Address:	SPENCER@adeq.state.ar.us
Subject:	Call with ADEQ to discuss GP

Error Details

Reported error:	*550 5.7.350 Remote server returned message detected as spam -> 554 rejected due to spam content*
DSN generated by:	BN6PR09MB1427.namprd09.prod.outlook.com
Remote server:	baspm1.adpce.ad

Message Hops

HOP	TIME (UTC)	FROM	TO	WITH
1	10/31/2016 6:21:13 PM	CY1PR09MB1018.namprd09.prod.outlook.com	CY1PR09MB1018.namprd09.prod.outlook.com	mapi
2	10/31/2016 6:21:14 PM	CY1PR09MB1018.namprd09.prod.outlook.com	BN6PR09MB1427.namprd09.prod.outlook.com	Microsoft SMTP Server (version=TLS1_2, cipher=TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384_P38

Original Message Headers


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DKIM-Signature: v=1; a=rsa-sha256; c=relaxed/relaxed; d=usepa.onmicrosoft.com;
 s=selector1-epa-gov;
 h=From:Date:Subject:Message-ID:Content-Type:MIME-Version;
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 BN6PR09MB1427.namprd09.prod.outlook.com (10.173.202.15) with Microsoft SMTP
 Server (version=TLS1_2, cipher=TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384_P384) id
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 CY1PR09MB1018.namprd09.prod.outlook.com ([10.166.195.146]) with mapi id
 15.01.0693.009; Mon, 31 Oct 2016 18:21:13 +0000
From: "Osbourne, Margaret" <osbourne.margaret@epa.gov>
To: "Frey, Sarah" <frey.sarah@epa.gov>, "Thompson, Steve"
```

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        <thompson.steve@epa.gov>, "Spencer, Stuart" <SPENCER@adeq.state.ar.us>
Subject: Call with ADEQ to discuss GP
Thread-Topic: Call with ADEQ to discuss GP
Thread-Index: AdIzoX0k/wng7JsRTwic/vIoS77WhQAAhEnA
Date: Mon, 31 Oct 2016 18:21:13 +0000
Message-ID: <CY1PR09MB10182EE07B5C07691B125B67F6AE0@CY1PR09MB1018.namprd09.prod.outlook.com>
Accept-Language: en-US
Content-Language: en-US
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
authentication-results: spf=none (sender IP is )
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x-ms-exchange-messagesentrepresentingtype: 1
x-originating-ip: [2620:117:5030:6d::d010]
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x-microsoft-antispam-prvs: <BN6PR09MB1427D34029A6EA9A4DACB4FCF6AE0@BN6PR09MB1427.namprd09.prod.outlook.com>
x-exchange-antispam-report-test: UriScan:(21748063052155);
x-exchange-antispam-report-cfa-test:
BCL:0;PCL:0;RULEID:(6040176)(601004)(2401047)(5005006)(8121501046)(10201501046)(3002001);SRVR:BN6PR09MB1427
;BCL:0;PCL:0;RULEID:;SRVR:BN6PR09MB1427;
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x-forefront-antispam-report:
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(33656002)(54356999)(229853001)(8676002)(5001770100001)(9686002)(2906002)(76576001)(8936002)(107886002)(305
945005)(101416001)(7846002)(2900100001)(99286002)(87936001)(92566002)(19580395003)(7736002)(450100001)(1225
56002)(86362001)(5002640100001)(105586002)(15975445007)(189998001)(77096005);DIR:OUT;SFP:1102;SCL:1;SRVR:BN
6PR09MB1427;H:CY1PR09MB1018.namprd09.prod.outlook.com;FPR:;SPF:None;PTR:InfoNoRecords;MX:1;A:1;LANG:en;
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 permitted sender hosts)
spamdiagnosticoutput: 1:99
spamdiagnosticmetadata: NSPM
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X-MS-Exchange-CrossTenant-originalarrivaltime: 31 Oct 2016 18:21:13.5832
 (UTC)
X-MS-Exchange-CrossTenant-fromentityheader: Hosted
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X-MS-Exchange-Transport-CrossTenantHeadersStamped: BN6PR09MB1427

Osbourne, Margaret

Subject:	Call with ADEQ to discuss GP
Location:	866-299-3188, code 214-665-6508
Start:	Mon 11/7/2016 11:00 AM
End:	Mon 11/7/2016 11:30 AM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Osbourne, Margaret
Required Attendees:	Frey, Sarah; Thompson, Steve; Spencer, Stuart

From:	Osbourne, Margaret
To:	Champion, Traylor
Cc:	Frey, Sarah; Thompson, Steve
Subject:	RE: Crossett meeting
Date:	Wednesday, November 16, 2016 12:12:00 PM
Attachments:	H2S SOW v5.docx

Hi Traylor:

Please see the attached Statement of Work for the monitoring we plan to conduct in Crossett. We can discuss more at our meeting tomorrow.

Save travels.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Wednesday, November 09, 2016 11:16 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Crossett meeting

Margaret…That date and time will work for us. We look forward to the conversation. As a reminder, I copied below the questions we sent last month that we are hoping to better understand from the discussion on the 17th. We would appreciate you sending drafts of these plans in advance (or anything else you might have in writing that outlines the basics of your plans) to help us better

prepare for the discussion.

GP Attendees will be myself, Sarah Ross, Ryan Gesser, Steve Kuhlman and Alison Lathrop

Thanks…

From: Champion, Traylor
Sent: Thursday, October 06, 2016 7:55 AM
To: Tillman, Tressa <tillman.tressa@epa.gov>
Cc: Ross, Sarah M. <Sarah.Ross@GAPAC.com>; Lathrop, Alison J. (GP LAW) <Alison.Lathrop@GAPAC.com>; Bottini, John C. (GP Law) <John.Bottini@gapac.com>; Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Bailey, Scott K. (GP) <SKBAILEY@GAPAC.com>; Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>; Stresing, Matthew E. <Matthew.Stresing@gapac.com>; Howard, Angela <Angela.Howard@gapac.com>
Subject: ORD call questions

- Has EPA developed a Work Plan for this effort?
    - Does the Work Plan identify the nature of the problem that initiated the study and a conceptual model of the study question to be investigated?
        - Does it include the principal study question and alternative actions depending on the study results? In other words, what types of decisions does EPA intend to make with the data?
        - Does the Conceptual model identify the spatial and temporal boundaries of the study?
    - What are the data quality objectives (DQOs) for the project goal, objectives and study questions?
    - Does the Work Plan describe the type of data needed and how the data will be used?
    - Does the Work Plan include a Quality Assurance Project Plan describing how, when and where data will be obtained, QA/QC criteria, and methods for data analysis, evaluation, and assessment?
    - Does the Work Plan include a Sampling and Analysis Plan with approved data collection and analysis methods with Standard Operating Procedures?
    - Does the Work Plan include split samples or other data sharing means?

- Are the sampling devices being used by EPA to measure emissions or concentrations approved method acceptable for this type of application?

- Are air measurements being taken to estimate mass of H_2S released over time (i.e., pounds of H_2S measured in an hour or over a 24-hour period)? With this particular sampling device, how will the output be translated into a model input value.

- Is the objective of taking measurements to estimate emission rates of H_2S so that a

distribution (spatial and temporal) of concentrations can be obtained from EPA's preferred air dispersion model "AERMOD" or potentially a dense gas model used in support of EPA Risk Management Program?

- Is the objective of taking ambient measurements to establish current background levels of H_2S measured in ppm or micrograms per cubic meter and compare those measurements against ADEQ health standards and/or EPA exposure thresholds?

Thanks

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Wednesday, November 09, 2016 11:14 AM
To: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: Crossett meeting

Sent by an external sender

Hi Traylor:

Let's plan for Thursday, Nov. 17 afternoon. Will 12:30 – 3:30 work?

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Tuesday, November 08, 2016 1:07 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Crossett meeting

Margaret…not sure if I responded or not…the 16th and 17th are the only days next week that work for GP group

---

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Monday, November 07, 2016 10:17 AM
To: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: Crossett meeting

Sent by an external sender

Hi Traylor:

Would Monday afternoon, Nov. 14, work for you? We're very limited on availability that week, and of course the following week is Thanksgiving.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]

Sent: Friday, November 04, 2016 10:22 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Crossett meeting

Margaret. Have you guys looked for a new date for our meeting. Steve mentioned week of 14th. 16/17th work best for us.

Sent with Good (www.good.com)

From: Champion, Traylor
Sent: Monday, October 31, 2016 2:13:11 PM
To: Osbourne, Margaret
Subject: RE: Crossett meeting

Got it…thanks.

GP attendees will be:
myself
Sarah Ross – Mill Environmental Leader
Steve Kuhlman – Business Environmental Leader
Ryan Gesser – GP air modeling SME
Alison Lathrop – GP legal counsel

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Monday, October 31, 2016 2:06 PM
To: Champion, Traylor <BTCHAMPI@GAPAC.com>; Thompson, Steve <thompson.steve@epa.gov>
Cc: Gesser, Ryan <Ryan.Gesser@gapac.com>; Lathrop, Alison J. (GP LAW) <Alison.Lathrop@GAPAC.com>; Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Ross, Sarah M. <Sarah.Ross@GAPAC.com>; Bottini, John C. (GP Law) <John.Bottini@gapac.com>
Subject: RE: Crossett meeting

Sent by an external sender

Hi Traylor:

We're confirmed for Nov. 10. When you arrive at 1445 Ross Ave, please proceed to the 7th floor to get visitor's badges and they will give us a call to meet you and escort you to our meeting room.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division

EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Thursday, October 27, 2016 11:41 AM
To: Thompson, Steve <thompson.steve@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Gesser, Ryan <Ryan.Gesser@gapac.com>; Lathrop, Alison J. (GP LAW) <Alison.Lathrop@GAPAC.com>; Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Ross, Sarah M. <Sarah.Ross@GAPAC.com>; Bottini, John C. (GP Law) <John.Bottini@gapac.com>
Subject: Crossett meeting

Steve/Margaret…confirming that November 10th, 12:30-3:30 at R6 office in Dallas works for the GP team…for space planning purposes there will be 5-6 GP attendees. Look forward to the conversation

From: Osbourne, Margaret
To: Thompson, Steve
Subject: Fwd: H2S Sampling Costs
Date: Tuesday, November 08, 2016 8:19:12 PM

Looks like we can afford 10-12 sites with no help from OECA. Ideally we can get $15K (or Gs) from OECA so we can do the full 20 monitoring locations.

Sent from my iPhone

Begin forwarded message:

From: Jason Sese <Jason.Sese@erg.com>
Date: November 8, 2016 at 7:33:39 PM CST
To: "Frey, Sarah" <frey.sarah@epa.gov>
Cc: Leta Kent <Leta.Kent@erg.com>, "Osbourne, Margaret" <osbourne.margaret@epa.gov>, Dave Dayton <Dave.Dayton@erg.com>, "Gairola, Sounjay" <Gairola.Sounjay@epa.gov>, Paul Buellesbach <Paul.Buellesbach@erg.com>, Jason Sese <Jason.Sese@erg.com>
Subject: RE: H2S Sampling Costs

Sarah/Margaret,

As we discussed earlier, costs can be reduced by only making one trip to the site for installation and setup and not making a second trip to retrieve all the equipment (housings, diffusers, etc.) when the sampling is complete. There are other areas where costs can be reduced, but this is a pretty quick thing to pull out.

Scenario	Total With Equipment Recovery	Total without Equipment Recovery
10 sites	$65,303	$51,785
12 sites	$68,624	$55,111
14 sites	$73,768	$60,251
20 sites	$84,383	$70,870

Thanks,
Jason

From: Jason Sese
Sent: Wednesday, November 02, 2016 3:32 PM
To: 'Frey, Sarah' <frey.sarah@epa.gov>
Cc: Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Dave Dayton <Dave.Dayton@erg.com>; 'Gairola, Sounjay' <Gairola.Sounjay@epa.gov>; Paul Buellesbach <Paul.Buellesbach@erg.com>

Subject: H2S Sampling Costs

All,

Below are cost estimates for 10, 12, 14, and 20 sampling sites. After breaking everything out, there is quite a lot involved. These estimates include the following items:

<!--[if !supportLists]-->- <!--[endif]-->Development of sample sites, logistics, and development of QAPP;

<!--[if !supportLists]-->- <!--[endif]-->Sampling equipment, including housings, diffusers, data sheets, and hardware;

<!--[if !supportLists]-->- <!--[endif]-->Sample tubes, boxes, labels for shipping to laboratory ;

<!--[if !supportLists]-->- <!--[endif]-->2 people driving a van with the materials to the site, installation, and training (7 days);

<!--[if !supportLists]-->- <!--[endif]-->2 people driving a van back to the site after the sampling is complete and breaking down and recovering all the installations (5 days); and

<!--[if !supportLists]-->- <!--[endif]-->Compiling the database of results (but does not include writing a narrative report)

Note that the initial $15K was expended during the initial scoping visit. These costs are starting from 9/30 forward:

Scenario	Hours	Total
10 sites	441	$65,303 ($22,902 for ODCs, travel, and laboratory analysis)
12 sites	449	$68,624 ($25,584 for ODCs, travel, and laboratory analysis)
14 sites	465	$73,768 ($29,079 for ODCs, travel, and laboratory analysis)
20 sites	509	$84,383 ($35,339 for ODCs, travel, and laboratory analysis)

Let us know if you'd like to discuss.

Thanks,
Jason

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Jason Sese
Chemical Engineer
Eastern Research Group, Inc. (ERG)
14555 Avion Parkway, Ste 200
Chantilly, VA 20151
703-633-1657
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, November 01, 2016 1:35 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Proposed Monitoring Sites

Hi Dave,

Attached is a jpg image of our proposed monitoring sites and below is a description of locations. I chose the COM2 location based on where the yellow entrance gate used by the company is located. It may be easier to have it there near the cemetery than using a citizen's backyard.

<!--[if !supportLists]-->• <!--[endif]-->COM1 – collocated with current H2S community monitor, north of WWT system
<!--[if !supportLists]-->• <!--[endif]-->COM2 – Located near community east of the WWT system (fence line)
<!--[if !supportLists]-->• <!--[endif]-->THUR – Located near community northwest of WWT system (fence line)
<!--[if !supportLists]-->• <!--[endif]-->MILL – Prior to streams traveling underground
<!--[if !supportLists]-->• <!--[endif]-->PCLR – Primary Clarifier, when P1/P2 sewers are exposed to atmosphere
<!--[if !supportLists]-->• <!--[endif]-->CONV – Convergence of all streams (P1, P2, P3, dewatering process), post-clarifier
<!--[if !supportLists]-->• <!--[endif]-->WABI, EABI – inlet of east and west ash basins, which are alternated on a 5-wk cycle
<!--[if !supportLists]-->• <!--[endif]-->WABO, EABO – outlet of west and east ash basins
<!--[if !supportLists]-->• <!--[endif]-->SBO – Surge Basin Outlet
<!--[if !supportLists]-->• <!--[endif]-->ASB1 – Aeration Stabilization Basin Zone 1
<!--[if !supportLists]-->• <!--[endif]-->ASB2 – Aeration Stabilization Basin Zone 2
<!--[if !supportLists]-->• <!--[endif]-->OUT – Outfall 001

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Osbourne, Margaret
To: Fried, Gregory
Cc: Thompson, Steve
Subject: FW: H2S Sampling Costs
Date: Wednesday, November 09, 2016 9:57:00 AM

Hi Greg:

Safe travels to Louisiana today! We managed to get $15K knocked off the ERG estimated cost by doing the sample tear-down ourselves, so now we are in need of just $15K from OECA to do the full monitoring project in Crossett. Half price! Is there any way we can get a decision on this before COB Friday? We really want to monitor during the dredging activities in December, and ERG has told us that in order to do that, we must order the monitors and equipment this week. We have the money to do 12 monitors, but in order to fully characterize the wastewater system and potential H2S sources, as well as the impacts to the community, we feel 20 monitors is ideal.

Give me a call if you'd like to discuss further.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Jason Sese [mailto:Jason.Sese@erg.com]
Sent: Tuesday, November 08, 2016 7:34 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Leta Kent <leta.kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Dave Dayton <Dave.Dayton@erg.com>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>; Paul Buellesbach

<paul.buellesbach@erg.com>; Jason Sese <Jason.Sese@erg.com>
Subject: RE: H2S Sampling Costs

Sarah/Margaret,

As we discussed earlier, costs can be reduced by only making one trip to the site for installation and setup and not making a second trip to retrieve all the equipment (housings, diffusers, etc.) when the sampling is complete. There are other areas where costs can be reduced, but this is a pretty quick thing to pull out.

Scenario	Total With Equipment Recovery	Total without Equipment Recovery
10 sites	$65,303	$51,785
12 sites	$68,624	$55,111
14 sites	$73,768	$60,251
20 sites	$84,383	$70,870

Thanks,
Jason

From: Jason Sese
Sent: Wednesday, November 02, 2016 3:32 PM
To: 'Frey, Sarah' <frey.sarah@epa.gov>
Cc: Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Dave Dayton <Dave.Dayton@erg.com>; 'Gairola, Sounjay' <Gairola.Sounjay@epa.gov>; Paul Buellesbach <Paul.Buellesbach@erg.com>
Subject: H2S Sampling Costs

All,

Below are cost estimates for 10, 12, 14, and 20 sampling sites. After breaking everything out, there is quite a lot involved. These estimates include the following items:

- Development of sample sites, logistics, and development of QAPP;
- Sampling equipment, including housings, diffusers, data sheets, and hardware;
- Sample tubes, boxes, labels for shipping to laboratory ;
- 2 people driving a van with the materials to the site, installation, and training (7 days);
- 2 people driving a van back to the site after the sampling is complete and breaking down and recovering all the installations (5 days); and
- Compiling the database of results (but does not include writing a narrative report)

Note that the initial $15K was expended during the initial scoping visit. These costs are starting from 9/30 forward:

Scenario	Hours	Total
10 sites	441	$65,303 ($22,902 for ODCs, travel, and laboratory analysis)

12 sites	449	$68,624 ($25,584 for ODCs, travel, and laboratory analysis)
14 sites	465	$73,768 ($29,079 for ODCs, travel, and laboratory analysis)
20 sites	509	$84,383 ($35,339 for ODCs, travel, and laboratory analysis)

Let us know if you'd like to discuss.

Thanks,
Jason

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Jason Sese
Chemical Engineer
Eastern Research Group, Inc. (ERG)
14555 Avion Parkway, Ste 200
Chantilly, VA 20151
703-633-1657

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, November 01, 2016 1:35 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Proposed Monitoring Sites

Hi Dave,

Attached is a jpg image of our proposed monitoring sites and below is a description of locations. I chose the COM2 location based on where the yellow entrance gate used by the company is located. It may be easier to have it there near the cemetery than using a citizen's backyard.

- COM1 – collocated with current H2S community monitor, north of WWT system
- COM2 – Located near community east of the WWT system (fence line)
- THUR – Located near community northwest of WWT system (fence line)
- MILL – Prior to streams traveling underground
- PCLR – Primary Clarifier, when P1/P2 sewers are exposed to atmosphere
- CONV – Convergence of all streams (P1, P2, P3, dewatering process), post-clarifier
- WABI, EABI – inlet of east and west ash basins, which are alternated on a 5-wk cycle
- WABO, EABO – outlet of west and east ash basins
- SBO – Surge Basin Outlet
- ASB1 – Aeration Stabilization Basin Zone 1
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

- ASB2 – Aeration Stabilization Basin Zone 2
- OUT – Outfall 001

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Osbourne, Margaret
To: Fried, Gregory
Cc: Thompson, Steve
Subject: RE: H2S Sampling Costs
Date: Tuesday, November 15, 2016 3:25:00 PM

Thanks Greg. We are anxious for an answer prior to our meeting with GP on Thursday afternoon. Here's a brief summary and cost breakdown.

Region 6 put $70,000 into the ERG contract for H2S sampling and monitoring in Crossett, Arkansas

The September 26-28 site visit cost $15,000 (for the rental of Jerome handheld monitors, travel, and analysis) leaving us with $55,000.

ERG gave us the following estimates, which include:

- Development of sample sites, logistics, and development of QAPP;
- Sampling equipment, including housings, diffusers, data sheets, and hardware;
- Sample tubes, boxes, labels for shipping to laboratory;
- 2 people driving a van with the materials to the site, installation, and training (7 days);
- Compiling the database of results (but does not include writing a narrative report)

Scenario	With ERG Equipment Recovery		Without ERG Equipment Recovery	
	Hours	Total	Hours	Total
10 sites	441	$65,303 ($22,902 for ODCs, travel, and laboratory analysis)	361	$51,785 ($18,554 for ODCs, travel, and laboratory analysis)
12 sites	449	$68,624 ($25,584 for ODCs, travel, and laboratory analysis)	369	$55,111 ($21,240 for ODCs, travel, and laboratory analysis)
14 sites	465	$73,768 ($29,079 for ODCs, travel, and laboratory analysis)	385	$60,251 ($24,735 for ODCs, travel, and laboratory analysis)
20 sites	509	$84,383 ($35,339 for ODCs, travel, and laboratory analysis)	429	$70,870 ($30,996 for ODCs, travel, and laboratory analysis)

We would like 20 sites (14 on GP property and 6 in the surrounding community). **That option leaves $15,870 that we need from OECA.**

If the contractors can purchase the equipment this week, we can monitor during the final two weeks of annual dredging which appears to have increased H2S emissions.

We have a meeting with GP on Thursday afternoon, 11/17 to discuss the monitoring.

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Fried, Gregory
Sent: Tuesday, November 15, 2016 10:33 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Thompson, Steve <thompson.steve@epa.gov>
Subject: RE: H2S Sampling Costs

Can you send me the revised plan with the breakdown of costs (Region $ and HQ $).

From:
Sent: Wednesday, November 09, 2016 10:57 AM
To: Fried, Gregory <Fried.Gregory@epa.gov>
Cc: Thompson, Steve <thompson.steve@epa.gov>
Subject: FW: H2S Sampling Costs

Hi Greg:

Safe travels to Louisiana today! We managed to get $15K knocked off the ERG estimated cost by doing the sample tear-down ourselves, so now we are in need of just $15K from OECA to do the full monitoring project in Crossett. Half price! Is there any way we can get a decision on this before COB Friday? We really want to monitor during the dredging activities in December, and ERG has told us that in order to do that, we must order the monitors and equipment this week. We have the money to do 12 monitors, but in order to fully characterize the wastewater system and potential H2S sources, as well as the impacts to the community, we feel 20 monitors is ideal.

Give me a call if you'd like to discuss further.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
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Sent: Tuesday, November 08, 2016 7:34 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Leta Kent <leta.kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Dave Dayton <Dave.Dayton@erg.com>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>; Paul Buellesbach <paul.buellesbach@erg.com>; Jason Sese <Jason.Sese@erg.com>
Subject: RE: H2S Sampling Costs

Sarah/Margaret,

As we discussed earlier, costs can be reduced by only making one trip to the site for installation and setup and not making a second trip to retrieve all the equipment (housings, diffusers, etc.) when the sampling is complete. There are other areas where costs can be reduced, but this is a pretty quick thing to pull out.

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10 sites	$65,303	$51,785
12 sites	$68,624	$55,111
14 sites	$73,768	$60,251
20 sites	$84,383	$70,870

Thanks,
Jason

From: Jason Sese
Sent: Wednesday, November 02, 2016 3:32 PM
To: 'Frey, Sarah' <frey.sarah@epa.gov>
Cc: Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Dave Dayton <Dave.Dayton@erg.com>; 'Gairola, Sounjay' <Gairola.Sounjay@epa.gov>; Paul Buellesbach <Paul.Buellesbach@erg.com>

Subject: H2S Sampling Costs

All,

Below are cost estimates for 10, 12, 14, and 20 sampling sites. After breaking everything out, there is quite a lot involved. These estimates include the following items:

- Development of sample sites, logistics, and development of QAPP;
- Sampling equipment, including housings, diffusers, data sheets, and hardware;
- Sample tubes, boxes, labels for shipping to laboratory ;
- 2 people driving a van with the materials to the site, installation, and training (7 days);
- 2 people driving a van back to the site after the sampling is complete and breaking down and recovering all the installations (5 days); and
- Compiling the database of results (but does not include writing a narrative report)

Note that the initial $15K was expended during the initial scoping visit. These costs are starting from 9/30 forward:

Scenario	Hours	Total
10 sites	441	$65,303 ($22,902 for ODCs, travel, and laboratory analysis)
12 sites	449	$68,624 ($25,584 for ODCs, travel, and laboratory analysis)
14 sites	465	$73,768 ($29,079 for ODCs, travel, and laboratory analysis)
20 sites	509	$84,383 ($35,339 for ODCs, travel, and laboratory analysis)

Let us know if you'd like to discuss.

Thanks,
Jason

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Jason Sese
Chemical Engineer
Eastern Research Group, Inc. (ERG)
14555 Avion Parkway, Ste 200
Chantilly, VA 20151
703-633-1657

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, November 01, 2016 1:35 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Proposed Monitoring Sites

Hi Dave,

Attached is a jpg image of our proposed monitoring sites and below is a description of locations. I chose the COM2 location based on where the yellow entrance gate used by the company is located. It may be easier to have it there near the cemetery than using a citizen's backyard.

- COM1 – collocated with current H2S community monitor, north of WWT system
- COM2 – Located near community east of the WWT system (fence line)
- THUR – Located near community northwest of WWT system (fence line)
- MILL – Prior to streams traveling underground
- PCLR – Primary Clarifier, when P1/P2 sewers are exposed to atmosphere
- CONV – Convergence of all streams (P1, P2, P3, dewatering process), post-clarifier
- WABI, EABI – inlet of east and west ash basins, which are alternated on a 5-wk cycle
- WABO, EABO – outlet of west and east ash basins
- SBO – Surge Basin Outlet
- ASB1 – Aeration Stabilization Basin Zone 1
- ASB2 – Aeration Stabilization Basin Zone 2
- OUT – Outfall 001

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

Osbourne, Margaret

From: Osbourne, Margaret
Sent: Monday, December 05, 2016 1:55 PM
To: Tillman, Tressa
Subject: RE: Crossett Contacts

Thanks Tressa!

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Tillman, Tressa
Sent: Monday, December 05, 2016 1:54 PM
To: Thompson, Steve <thompson.steve@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Frey, Sarah <frey.sarah@epa.gov>
Cc: Anderson, Israel <Anderson.Israel@epa.gov>
Subject: Crossett Contacts

Hi, All – Please see below. Thanks! -- Tressa Tillman

The Honorable Marshall Scott McCormick
Mayor of Crossett
Post Office Box 560

Crossett, AR 71635
870-364-8645
s.mccormick@cityofcrossett.net
r.ledbetter@cityofcrossett.net*
(*Ms. Rebecca Ledbetter, Mayor's Secretary. I always include her. Also, the mayor goes by Scott.)

Mr. Tim Toler
President, Crossett Area Chamber of Commerce
Arkansas Farm Bureau Insurance Company
107 Pine Street
Crossett, AR 71635
870-364-8866
timothy.toler@afbic.com

Tressa A. Tillman
Environmental Justice Community Liaison for Arkansas
Office of Environmental Justice, Tribal and International Affairs (6RA-DA)
US Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733
214-665-2261 Fax 214-665-2124
tillman.tressa@epa.gov

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Osbourne, Margaret

From: Osbourne, Margaret
Sent: Wednesday, December 07, 2016 2:23 PM
To: City of Crossett/Rebecca Ledbetter
Cc: Timothy.Toler@afbic.com; Frey, Sarah; Haynes, James
Subject: Re: Meet in Crossett early next week to discuss monitoring study

Great! Let's plan on 1:00 on Monday, Dec. 12th. Can we meet in the Mayor's office?

Thanks,
Margaret

Sent from my iPhone

On Dec 7, 2016, at 1:43 PM, City of Crossett/Rebecca Ledbetter <r.ledbetter@cityofcrossett.net> wrote:

> The mayor said he could do it anytime on Monday as long as its over by 4pm. He has a budget meeting then.
>
> Rebecca Ledbetter
> Personnel/Mayor's Secretary
> City of Crossett
> 870-364-8645 (phone)
> 870-364-4310 (fax)
>
> On Wed, 7 Dec 2016 18:31:53 +0000, "Osbourne, Margaret" <osbourne.margaret@epa.gov> wrote:
>
> > Hi Scott:

After a few rounds of phone tag this morning, I thought it best to reach out with email. We in EPA Region 6 are planning a 6-month monitoring study in Crossett to evaluate the levels of hydrogen sulfide in the community. We have met with Georgia-Pacific and shared our tentative monitoring map and plan.

We'd like to meet with you and Mr. Toler of the Chamber of Commerce to tell you about our plan and get your input on our proposed community monitoring station locations. The monitors we'll be using are passive 2-week monitors, not the continuous monitor that Georgia-Pacific is currently operating, and the purpose of the monitoring is to evaluate the sources of hydrogen sulfide along the wastewater system and any offsite impacts.

Please let me know if you are available on Monday afternoon (12/12/16) or Tuesday morning (12/13/16) to meet, and where you'd like us to meet. We'll be driving into Crossett from Dallas. Mr. Toler – are you also available to meet early next week?

Thanks,

Margaret

Margaret Osbourne

Chief, Air Toxics Enforcement Section

Compliance Assurance & Enforcement Division

EPA Region 6

1445 Ross Avenue (6EN-AT)

Dallas, TX 75202

214-665-6508

<image001.gif> <image002.gif> <image003.gif> <image004.gif> <image005.gif>

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Osbourne, Margaret

From: Osbourne, Margaret <osbourne.margaret@epa.gov>
Sent: Wednesday, December 07, 2016 2:28 PM
To: Thompson, Steve
Subject: FYI - meeting with Crossett mayor on Monday at 1:00

Sent from my iPhone

Osbourne, Margaret

From: Thompson, Steve
Sent: Friday, December 16, 2016 1:52 PM
To: Osbourne, Margaret
Subject: Fwd: GP Crossett

Sent from my iPhone

Begin forwarded message:

From: "Champion, Traylor" <BTCHAMPI@GAPAC.com>
Date: December 16, 2016 at 12:39:16 PM CST
To: "Thompson, Steve" <thompson.steve@epa.gov>
Subject: GP Crossett

Steve…hope all is well.

After our meeting in Dallas recently and further review of EPAs proposed sampling effort in Crossett, we have a few items I would like to further discuss with you as we consider our participation in this effort. Would you be available for a phone conversation next week or 1st week of January to discuss? Below are a few things I would like to discuss. Just let me know your availability. If we don't connect before the holidays, hope you and family have a great holiday season.

- We continue to question the need to conduct additional ambient monitoring beyond the voluntary monitoring we have been conducting the past 2 years (and continue to conduct) in the community. We submitted the monitoring information to EPA/ATSDR/ADH for the initial data collection period in June 2015 as agreed to. The resulting Health Consultation has yet to be completed. Also, as you know, EPA ORD is in the process of developing a separate CSM for the Crossett site and expect to have those results late Q1 2017. We think it would be appropriate for EPA to delay the proposed additional monitoring until these two efforts are completed to determine if there is a need for any additional data collection.

- The SOW states "EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station. At this point we are still unclear on details of how the data collected from the monitors will be compiled and then, what criterion it will be compared to in order to assess what the results mean in terms of potential impacts (if any) to residents in the community. We anticipate this detail will be provided in the forthcoming SSMP/QAPP and we would like an opportunity to review and comment (if not we request that it be included). We feel strongly that it is important to have clarity on this before EPA proceeds.

- If we proceed forward with locating EPA monitoring equipment onsite, our business counsel indicates we need to have the appropriate access agreements in place. Need to discuss logistics of this process.

- As we indicated in our Dallas meeting, we placed a number of passive monitors onsite around our WWTS and have begun collecting data from these units. Would like to discuss initial results and opportunity to share this information.

Osbourne, Margaret

From: Thompson, Steve
Sent: Friday, December 16, 2016 2:04 PM
To: Champion, Traylor
Cc: Osbourne, Margaret
Subject: Re: GP Crossett

Traylor,
Thanks for the email. I am taking the next couple weeks off for the holidays so I think a meeting the first week in January works best. Can you propose some times that week that work best for your team? I can have Margaret check with our folks.

Also, If you could pass along the details (or an example) of the site access agreements, I can see if our counsel can start looking over the document.

Hope you also have a nice holiday! Thanks, Steve

Sent from my iPhone

On Dec 16, 2016, at 12:39 PM, Champion, Traylor <BTCHAMPI@GAPAC.com> wrote:

> Steve…hope all is well.
>
> After our meeting in Dallas recently and further review of EPAs proposed sampling effort in Crossett, we have a few items I would like to further discuss with you as we consider our participation in this effort. Would you be available for a phone conversation next week or 1st week of January to discuss? Below are a few things I would like to discuss. Just let me know your availability. If we don't connect before the holidays, hope you and family have a great holiday season.
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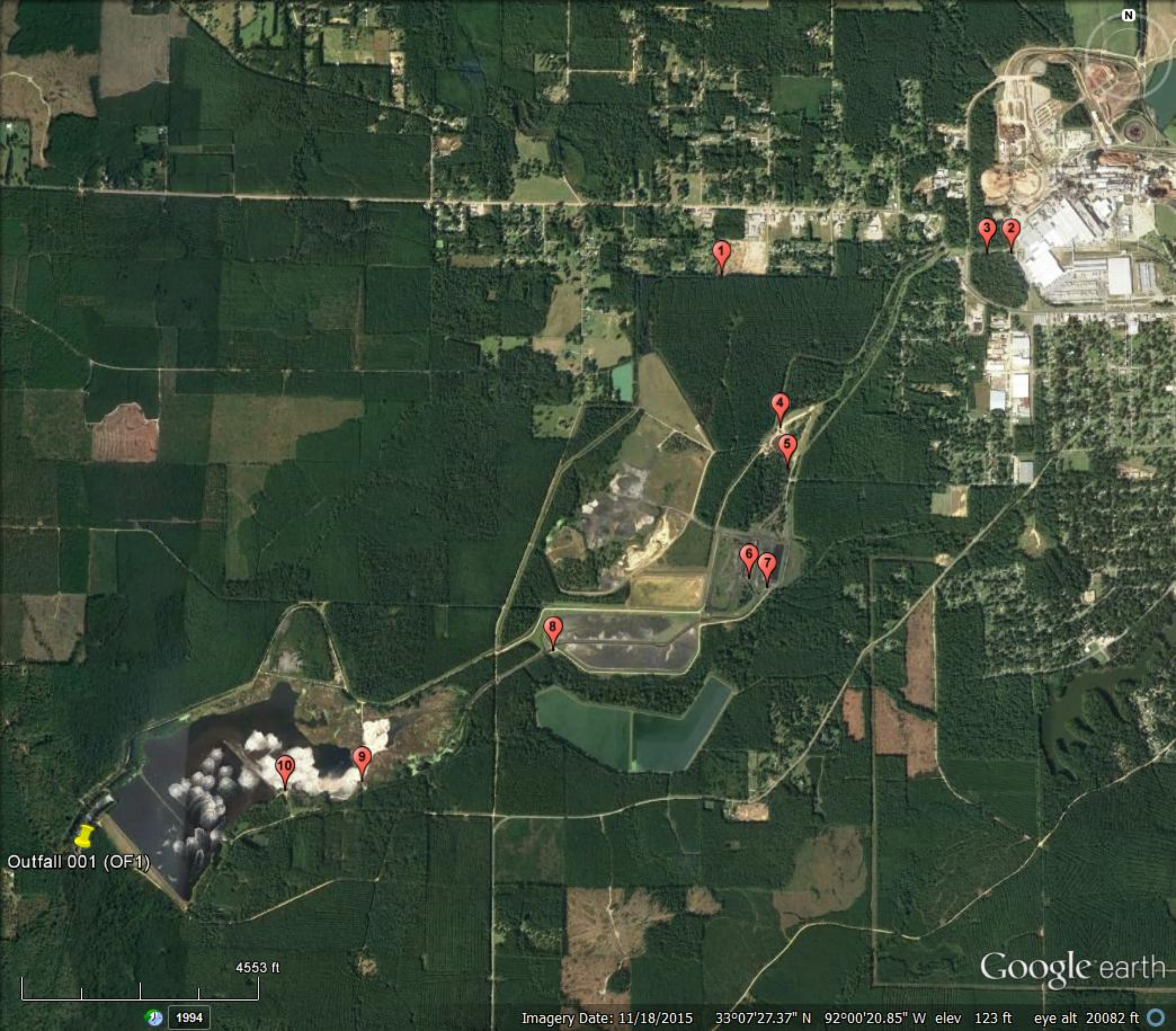
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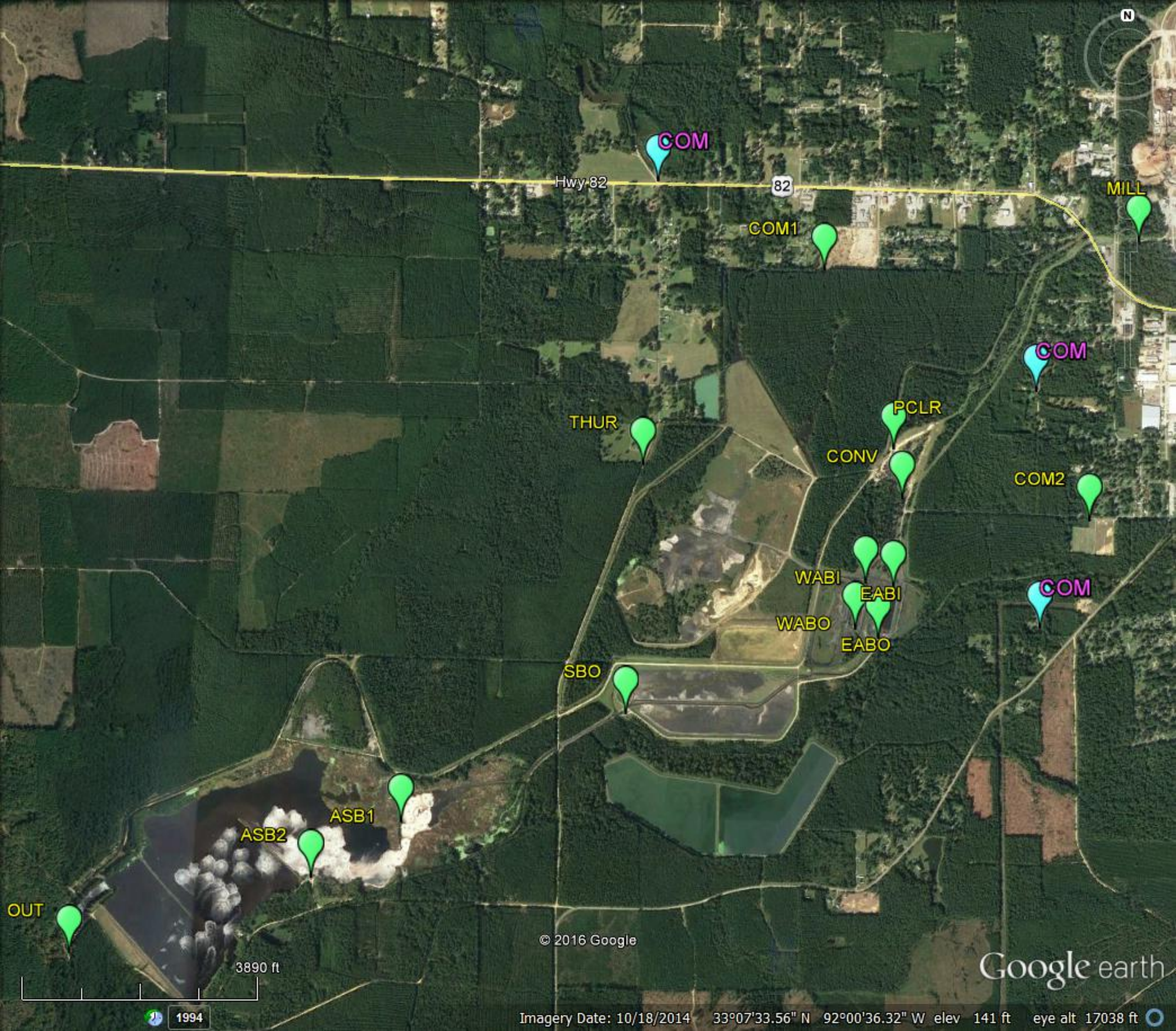
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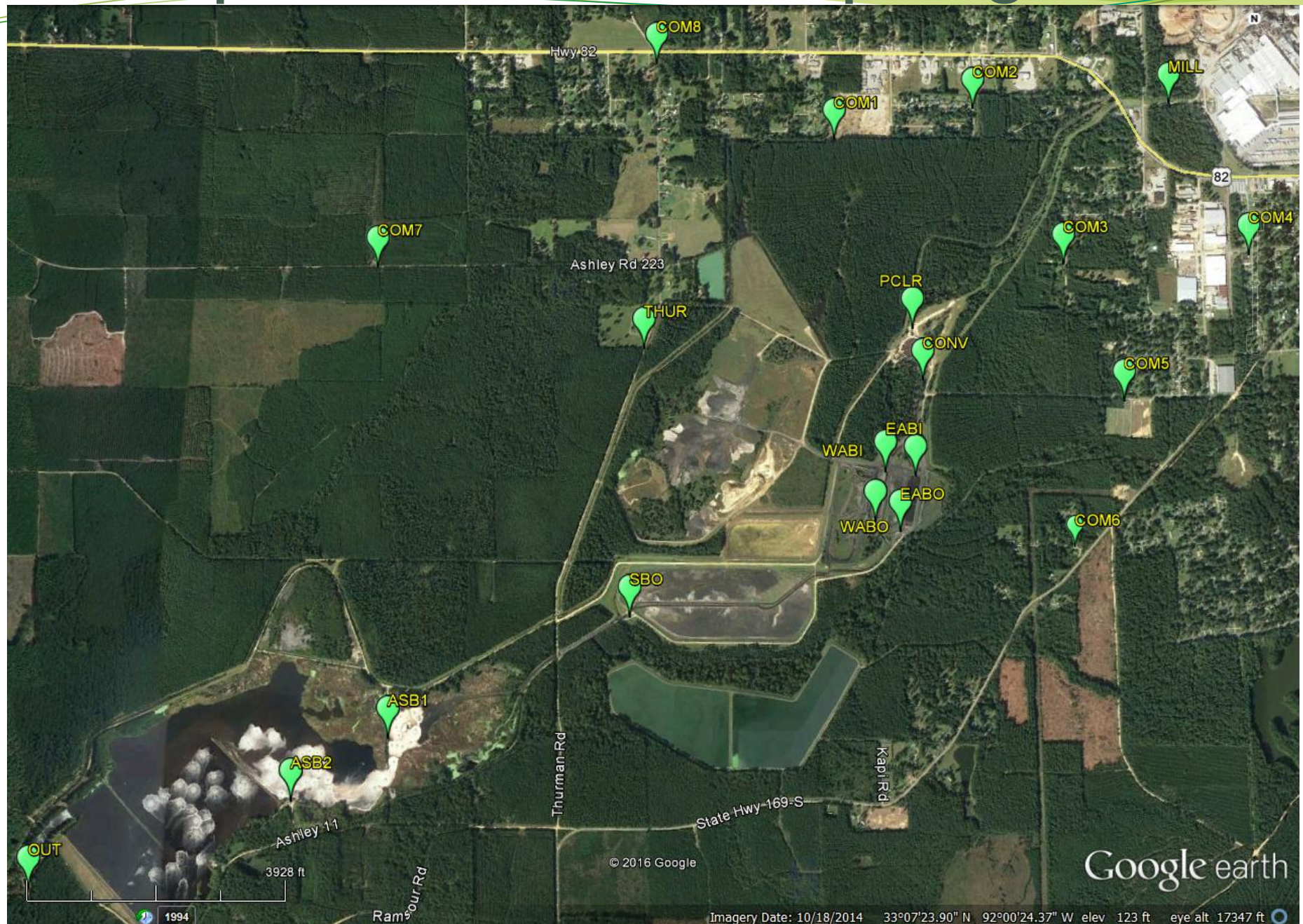
Proposed H_2S Monitoring Georgia-Pacific, Crossett, AR

11/17/16 meeting in Dallas, TX

Proposed H2S Sampling Sites



Community Location Descriptions

- COM1 – collocated with current community monitor, north of WWT system
- COM2 – community monitor on W 3rd Ave
- COM3 – community monitor on Dunmore Loop
- COM4 – community monitor at N Virginia St. and W 3rd Ave
- COM5 – community monitor near Pistole St, east of WWT system (fence line)
- COM6 – community monitor at Lawson Rd and Beathea Rd
- COM7 – community monitor on Ashley Rd 223, west of Thurman Rd
- COM8 – community monitor at Thurman Rd and Hwy 82
- THUR – community monitor on Thurman road at fence line

On-Site Location Descriptions

- MILL – Prior to streams traveling underground
- PCLR – Primary Clarifier, when P1/P2 sewers are exposed to atmosphere
- CONV – Convergence of all streams (P1/P2, P3, dewatering process), post-clarifier
- WABI, EABI – inlet of west and east ash basins
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- SBO – Surge Basin Outlet
- ASB1 – Aeration Stabilization Basin Zone 1
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- OUT – Outfall 001

Monitor Details

- Passive Sampling
  - Does not require active air movement from a pump, collected by diffusion
  - Lower cost, minimal infrastructure at sampling location, physically small
  - Will indicate average pollution levels over a given time period

Monitor Details

- Radiello diffusive sampler
  - Cartridge contains porous material coated with zinc acetate
  - Hydrogen sulfide reacts to form stable zinc sulfide
  - Sample is extracted and analyzed by spectrophotometry
  - Concentrations reported in ppb over a given time period
  - Carbon disulfide is a potential interferent
  - Most important meteorological input is average temperature over given time period

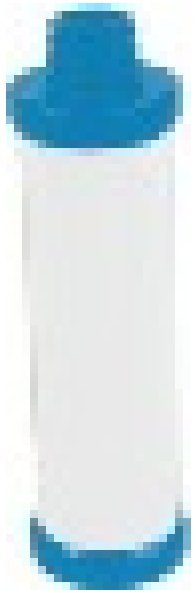
Monitor Details

- At each monitoring site:
  - Sample shelter will be attached to lamp post, fence, tree, or installed post
  - Single-use cartridge is placed into water and particulate resistant diffusive body
  - Each diffusive body is screwed into a triangular support plate, then placed into shelter
  - Sample shelter can house up to four samples at each site

Monitor Details

- Radiello Components to be used

Diffusive Body



Triangular Support Plate

Sample Shelter

H2S Cartridge Adsorbents

Key Components of Monitoring Plan

- Beginning December 2016, and for 24 weeks thereafter, deploy passive sampling assemblies at 20 sampling locations in Crossett, AR, for a 2-week duration
- Retrieve cartridge adsorbent tubes after the 2-week period and ship to the designated laboratory. Cartridges will be replaced during collection
- Retrieve meteorological data, especially temperature, for each 2-week period
- Document placement and retrieval activities, i.e., written (logbook) and photographic documentation
- Additional samples for duplicate collections and field blanks (48 cartridges)
- Contractor will provide QAPP, contract laboratory, and biweekly reports

Region 6 Site Assessments

- September 27-28, 2016 – R6 and contractors evaluated H2S emissions from the WWT system using handheld Jerome J605 hydrogen sulfide monitors. The pH, DO, and temperature of wastewater streams were also measured
- October 26-27, 2016 – Region 5 and 6 staff evaluated H2S emissions from the WWT system via continuous monitoring using the R5 GMAP. Hydrogen sulfide also detected outside the company's fence line
- Site visits, emission detection, community needs, and meteorological data have influenced the location selection for passive monitor long term sampling

September Site Assessment

- Handheld hydrogen sulfide monitors measured concentrations up to 5680 ppb, and seemed to be elevated at points of high agitation
- pH measurements as low as 2.9 (P3 sewer) and high as 10.9 (P2 sewer) were recorded. Chemical pathways to H2S production likely.

Left: P3 Sewer, Post-PC, heading towards convergence of streams. Facing south
Right: P2 Sewer sampling station. Personal H2S monitors measured up to 8ppm

October Site Assessment

- Elevated emissions observed at inlet of East Ash basin, ASB Zones 1 and 2, up to 1100 ppb
- Elevated emissions observed outside fence line on Thurman Rd the morning of October 27
- Observed large amounts of ash/sludge buildup at booms
- Biological pathways to H2S production likely

Additional Considerations

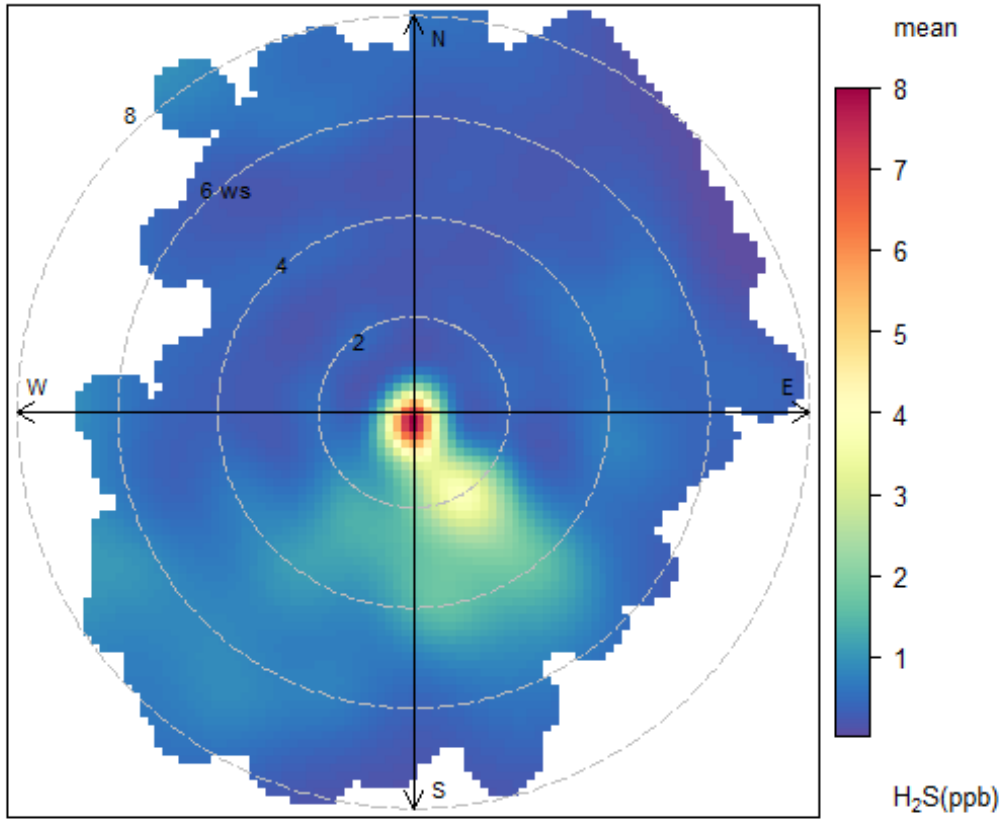
- Water chemistry may be critical to understanding production pathways of hydrogen sulfide, however it is extremely complex
  - Collecting pH, sulfide test kit data, and flow data may elucidate some of the air emission data
- Occasional air grab samples may be needed to identify TRS or other VOCs present
  - Samples would be analyzed by our Houston Lab

Community Monitor

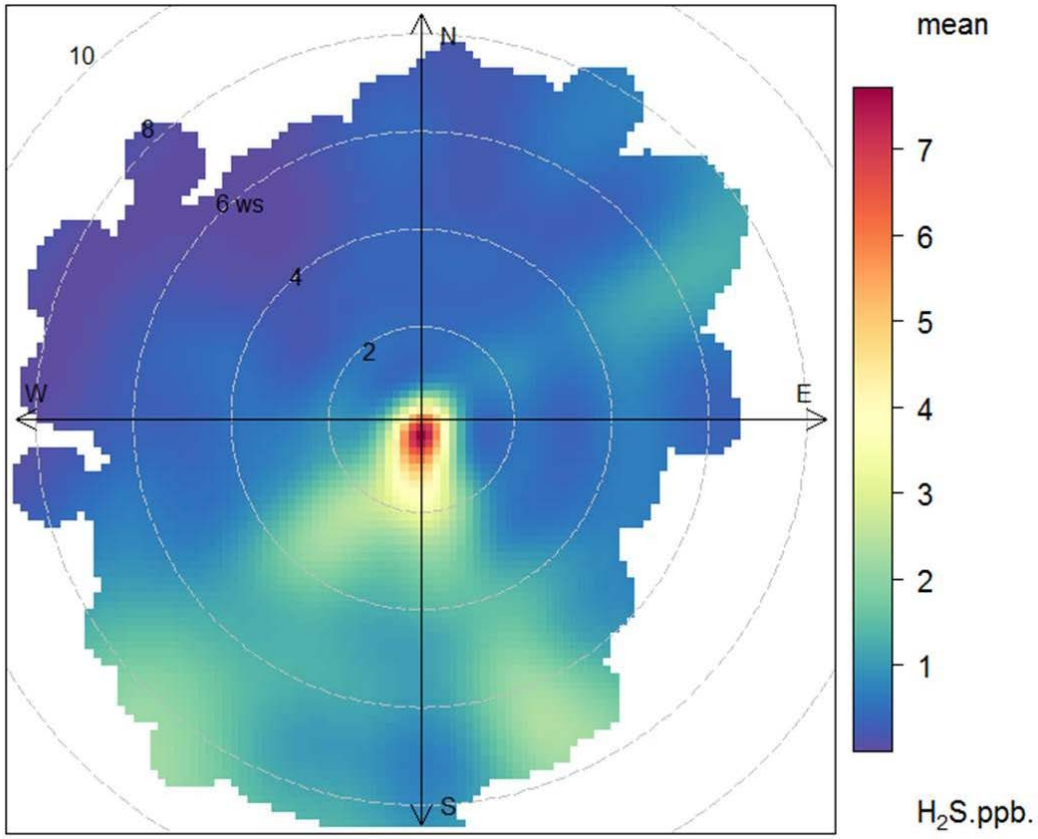
Date Start	Time Start	Date End	Time End	Max Concen.	Reason Given
3/30/2015	11:00pm	3/31/2015	2:00am	120 ppb	due to loss of power, an odor control compound was not operational
6/28/2015	8:45pm	6/28/2015	10:15pm	80 ppb	no response mentioned
8/10/2015	6:00am	8/10/2015	6:40am	73 ppb	biological activity in east ash settling basin
11/23/2015	2:00am	11/23/2015	5:30am	140 ppb	imbalance of pH in pulp line, mill running at half the normal pulping rate
2/5/2016	2:15am	2/5/2016	2:45am	75 ppb	not identified
2/5/2016	4:45am	2/5/2016	7:00am	135 ppb	not identified
2/26/2016	10:45pm	2/27/2016	6:45am	210 ppb	unplanned event triggered a controlled shut-down, additional sulfide containing process streams were sent to the effluent treatment system
2/29/2016	8:00am	2/29/2016	8:30am	95 ppb	above average sulfides in WWT, possibly due to previous shut-down; potential contributions from east ash settling basin
4/3/2016	11:45pm	4/4/2016	6:15am	90 ppb	mechanical issues led to pulp operations being slowed, elevated sulfides entered WWT
6/26/2016	4:30am	6/26/2016	6:45am	83 ppb	not identified
7/1/2016	3:30am	7/1/2016	7:30am	120 ppb	not identified
9/25/2016	2:00am	9/25/2016	7:30am	145 ppb	not identified
9/28/2016	8:30pm	9/28/2016	10:00pm	83 ppb	pH lower than 9, which can release H2S from WWT system
9/30/2016	9:30pm	9/30/2016	11:00pm	115 ppb	pH lower than 9, which can release H2S from WWT system
10/22/2016	7:15pm	10/22/2016	11:45pm	115 ppb	not identified
10/25/2016	11:15pm	10/26/2016	12:30am	82 ppb	not identified
10/30/2016	10:00pm	10/30/2016	11:30pm	91 ppb	typical shut down and startup of pulping or bleaching lines can raise or lower pH in the process and wastewater streams. These changes can contribute to higher readings

Community Monitor Data

Concentration of H2S as a function of wind direction



Oct 2014 to March 2015

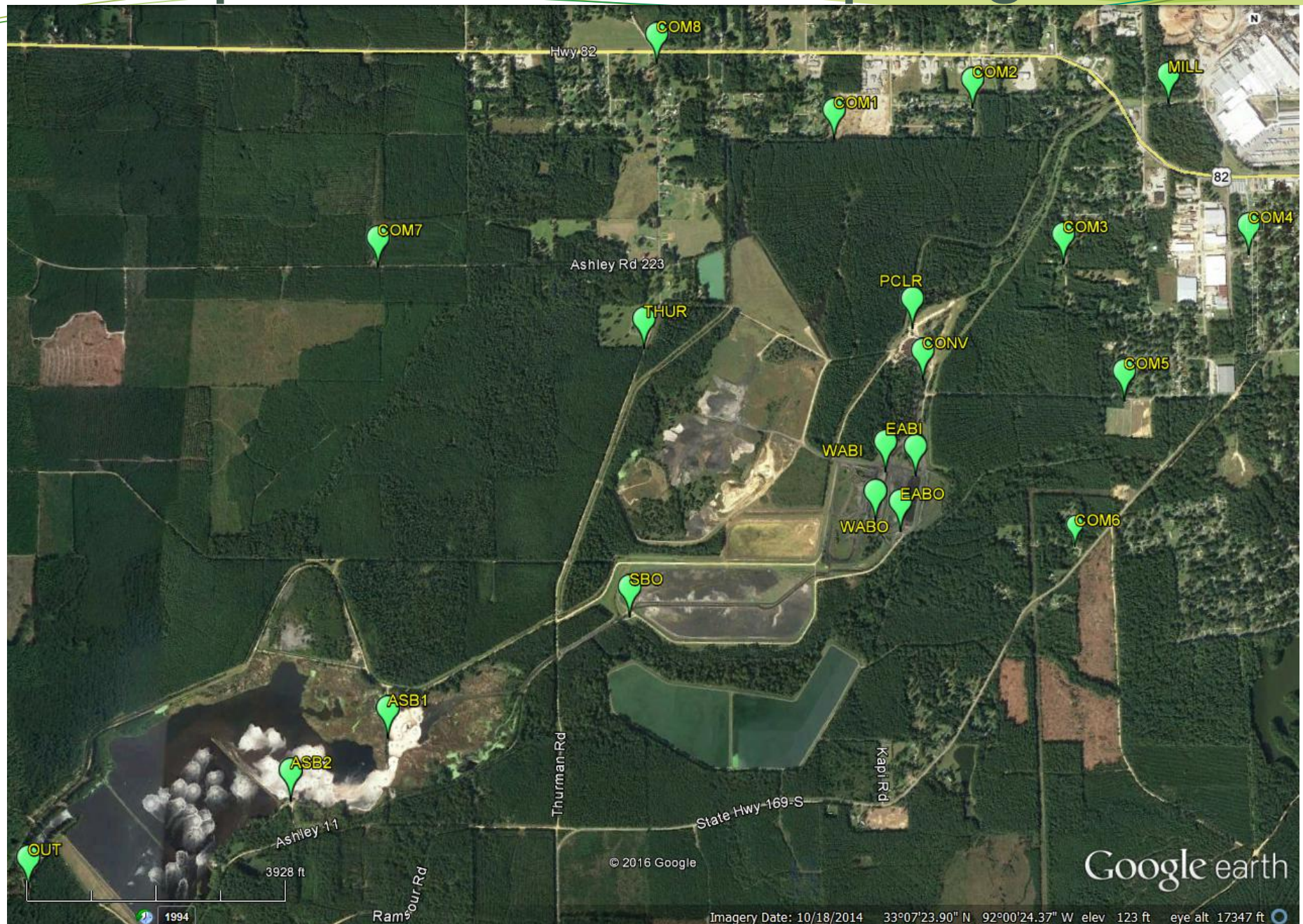


Oct 2014 to Oct 2016

Proposed H_2S Monitoring Georgia-Pacific, Crossett, AR

12/12/16 meeting in Crossett, AR

Proposed H2S Sampling Sites



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- At each monitoring site:
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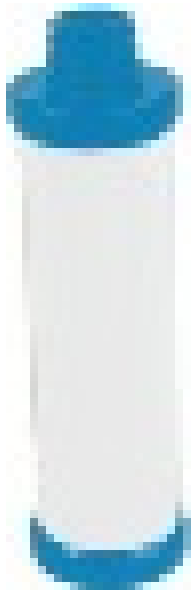

Triangular Support Plate

Sample Shelter

H2S Cartridge Adsorbents

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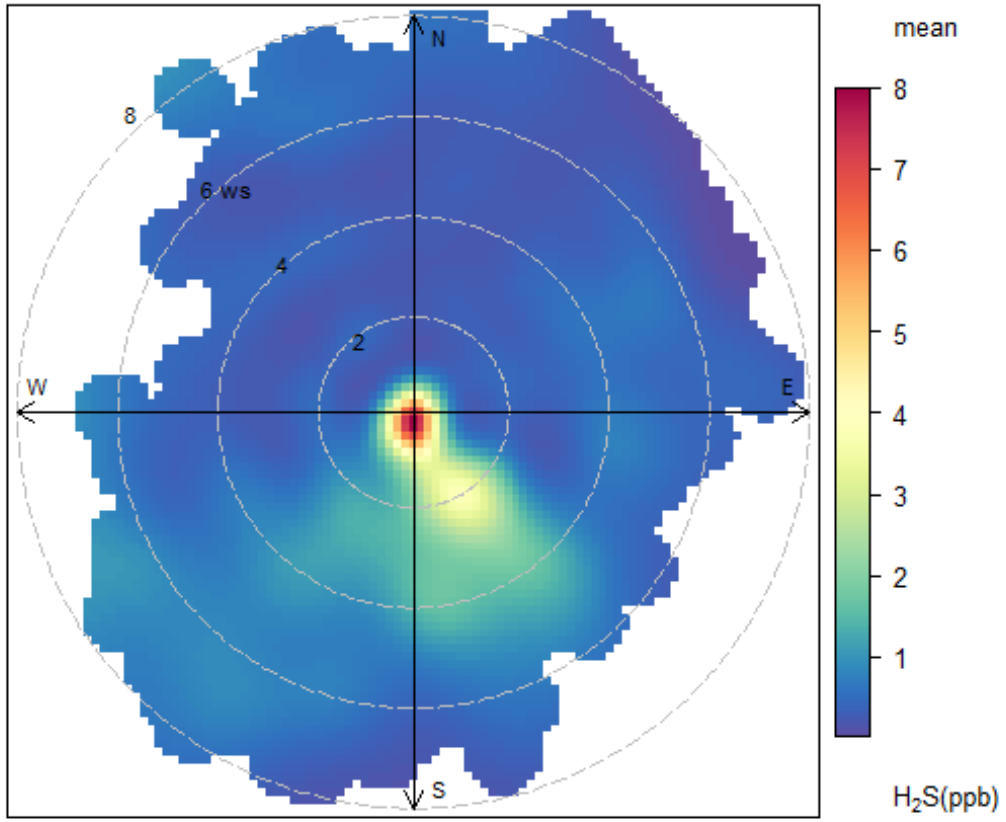
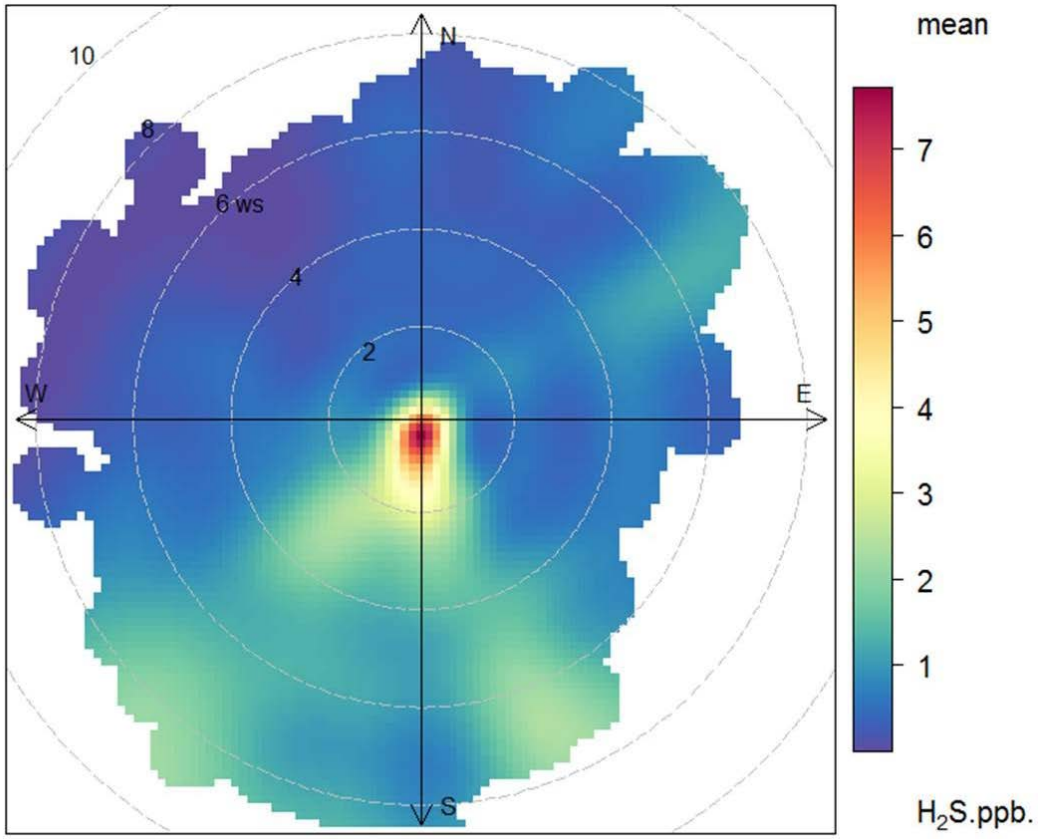
11/23/2015	2:00am	11/23/2015	5:30am	140 ppb	imbalance of pH in pulp line, mill running at half the normal pulping rate
2/5/2016	2:15am	2/5/2016	2:45am	75 ppb	not identified
2/5/2016	4:45am	2/5/2016	7:00am	135 ppb	not identified
2/26/2016	10:45pm	2/27/2016	6:45am	210 ppb	unplanned event triggered a controlled shut-down, additional sulfide containing process streams were sent to the effluent treatment system
2/29/2016	8:00am	2/29/2016	8:30am	95 ppb	above average sulfides in WWT, possibly due to previous shut-down; potential contributions from east ash settling basin
4/3/2016	11:45pm	4/4/2016	6:15am	90 ppb	mechanical issues led to pulp operations being slowed, elevated sulfides entered WWT
6/26/2016	4:30am	6/26/2016	6:45am	83 ppb	not identified
7/1/2016	3:30am	7/1/2016	7:30am	120 ppb	not identified
9/25/2016	2:00am	9/25/2016	7:30am	145 ppb	not identified
9/28/2016	8:30pm	9/28/2016	10:00pm	83 ppb	pH lower than 9, which can release H2S from WWT system
9/30/2016	9:30pm	9/30/2016	11:00pm	115 ppb	pH lower than 9, which can release H2S from WWT system
10/22/2016	7:15pm	10/22/2016	11:45pm	115 ppb	not identified
10/25/2016	11:15pm	10/26/2016	12:30am	82 ppb	not identified
10/30/2016	10:00pm	10/30/2016	11:30pm	91 ppb	typical shut down and startup of pulping or bleaching lines can raise or lower pH in the process and wastewater streams. These changes can contribute to higher readings

Community Monitor Data

Concentration of H2S as a function of wind direction



Oct 2014 to March 2015



Oct 2014 to Oct 2016

From: Dougherty, Joel
To: Frey, Sarah
Subject: Air Monitoring @ GP-Crossett
Date: Tuesday, November 01, 2016 4:03:36 PM

Hi Sarah,

I saw your entry in the WAR about air monitoring for hydrogen sulfide in Crossett.

Has anyone tried to monitor some of the other toxic volatiles that may be emanating from the process wastewater?

The Chemical Plant routinely (and legally under RCRA) discharges phenol and formaldehyde to the P3 sewer. Other volatiles include methanol, ammonia, & cresols.

In addition, sulfides contributed by the Paper Mill may react with organic compounds to produce various thiol compounds, all volatile, and some toxic.

Another source of offensive emissions might come from the landfill just north of the wastewater treatment units (Reclamation Area) where cellulose used to be interred. Anaerobic degradation of cellulose could release various volatile fatty acids, all of which have offensive odors and are corrosive.

Just throwing it out there as food for thought.

Thanks.

joel

From:	Frey, Sarah
To:	Osbourne, Margaret
Cc:	Haynes, James; Thompson, Steve
Subject:	All sites installed!
Date:	Wednesday, January 11, 2017 4:55:00 PM
Attachments:	Final Monitor Sites 1.11.17.jpg

Margaret,

Today was a great success, the ground and weather cooperated and we were able to install all facility on-site locations by lunch and completed the community monitors in the afternoon. GP does plan on collocating samples in our sample shelters.

We took photos of each monitor location. I plan on sending location description and photos of the on-site monitors to GP tomorrow. We can also share the final monitor location map with the Mayor and Chamber of Commerce.

We also chatted briefly with Rev. Bouie while installing COM1. He is still displeased with the rate at which GP informs the community with H2S excursions and asked me some questions on how to read the graphs from the ADEQ website. He was particularly confused as to why the 30-minute average graph showed higher concentrations than the 24-hour average graph. The next Concerned Citizens of Crossett meeting is this Saturday.

We ended up choosing a location for COM7 on the outside of GP's fenceline at Hancock Rd and McDougal Rd (land parcel 706-02666-000, which is owned by the City of Crossett). This location is 0.4 miles north of the MILL location.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Dave Dayton
To: Frey, Sarah; Osbourne, Margaret
Cc: Jason Sese; Leta Kent; Paul Buellesbach
Subject: An issue to make you aware of.
Date: Wednesday, December 14, 2016 8:09:42 AM

Good Day Sarah and Margaret,

We have an issue that I want to make you aware of. We are having trouble receiving the 3 boxes of "Diffusive Bodies" required to conduct any passive sampling. I have been calling Supelco every other day following up on this issue. I have a been provided a specific Supelco customer service person (Lisa) there that I contact directly – which is great as she knows the situation and is doing what she can for us. The problem is with Radiello in Germany. It seems that they are completely out of the bodies and are waiting for the factory that produces them to provide them to Radiello for distribution. As it stands (per a discussion with Lisa this morning):

- Radiello hopes to have the bodies from the factory during the week next week. Unfortunately, this is the best that they can predict, as the factory is not providing them a firm commitment.
- If they do come in next week, Radiello plans to ship them to Supelco for delivery the week of Christmas (which could be a convolution in itself).
- As soon as Supelco receives the bodies, the order as been deemed priority in their computer system and they will expedite them to us overnight FedEx.
- Even with all this falling in place, it is likely that we will not receive them until the first week of January, which would be fine as we would still deploy as currently scheduled). However, if everything does not fall into place and we do not get the bodies, there will be a need to shift our schedule accordingly.

I am making you aware of this now because I don't like providing surprises. I will continue to pulse Lisa at Supelco and keep appraised.

If you need to discuss this further, just let me know and I will set up a call.

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Dr., Suite 700
Morrisville, NC 27560
(919)468-7883

Hydrogen Sulfide - ToxFAQs™

CAS # 7783-06-4

This fact sheet answers the most frequently asked health questions (FAQs) about hydrogen sulfide. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Hydrogen sulfide occurs naturally and is also produced by human activities. Just a few breaths of air containing high levels of hydrogen sulfide can cause death. Lower, longer-term exposure can cause eye irritation, headache, and fatigue. Hydrogen sulfide has been found in at least 34 of the 1,832 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is hydrogen sulfide?

Hydrogen sulfide is a flammable, colorless gas that smells like rotten eggs. People usually can smell hydrogen sulfide at low concentrations in air ranging from 0.0005 to 0.3 parts per million (ppm).

Hydrogen sulfide occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. It can also result from bacterial breakdown of organic matter. Bacteria found in your mouth and digestive tract produce hydrogen sulfide during the digestion of food containing vegetable or animal proteins. Industrial sources of hydrogen sulfide include petroleum refineries, natural gas plants, petrochemical plants, coke oven plants, food processing plants, and tanneries.

It is used primarily in the production of sulfur and sulfuric acid.

What happens to hydrogen sulfide when it enters the environment?

- Hydrogen sulfide can be released into air, water, and soil at places where it is produced or used.
- It is released primarily as a gas and spreads in the air. It can remain in the air from 1 to 42 days, depending on the season.
- In air, it can change into sulfur dioxide and sulfates.
- Levels in water are very low because it readily evaporates.
- In soil, hydrogen sulfide will be consumed by bacteria and changed to sulfur.

How might I be exposed to hydrogen sulfide?

- You might be exposed to hydrogen sulfide from breathing contaminated air or drinking contaminated water.
- People living near a wastewater treatment plant, a gas and oil drilling operation, a farm with manure storage or livestock confinement facilities, or a landfill may be exposed to higher levels of this chemical.
- You can be exposed at work if you work in rayon textiles, petroleum and natural gas drilling and refining, or wastewater treatment industries. Workers on farms with manure storage pits or landfills can be exposed to higher levels of hydrogen sulfide.
- A small amount of hydrogen sulfide is produced by bacteria in your mouth and digestive tract.

How can hydrogen sulfide affect my health?

Studies in humans suggest that the respiratory tract and nervous system are the most sensitive targets of hydrogen sulfide toxicity.

Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Respiratory distress or arrest has been observed in people exposed to very high concentrations of hydrogen sulfide.

Exposure to low concentrations of hydrogen sulfide may cause headaches, poor memory, tiredness, and balance problems. Brief exposures to high concentrations of hydrogen sulfide can cause loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in some individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function.

Hydrogen Sulfide

CAS # 7783-06-4

How likely is hydrogen sulfide to cause cancer?

Hydrogen sulfide has not been shown to cause cancer in humans, and its possible ability to cause cancer in animals has not been studied thoroughly.

The Department of Health and Human Services (DHHS) and the International Agency for Research on Cancer (IARC) have not classified hydrogen sulfide as to its carcinogenicity. The EPA has determined that data for hydrogen sulfide are inadequate for carcinogenic assessments.

How can hydrogen sulfide affect children?

There is very little information on possible health problems in children who have been exposed to hydrogen sulfide. Exposed children probably will experience effects similar to those experienced by exposed adults. Whether children are more sensitive to hydrogen sulfide exposure than adults is not known.

It is not known whether hydrogen sulfide causes birth defects in people. The results of studies in animals suggest that exposure to low concentrations of hydrogen sulfide during pregnancy does not cause birth defects.

How can families reduce the risk of exposure to hydrogen sulfide?

- Hydrogen sulfide is part of the natural environment; the general population will have some exposure to hydrogen sulfide. Families can be exposed to more hydrogen sulfide than the general population if they live near natural or industrial sources of hydrogen sulfide, such as hot springs, manure holding tanks, or pulp and paper mills. However, their exposure levels are unlikely to approach those that sicken people exposed at work.
- Families can reduce their exposure to hydrogen sulfide by avoiding areas that are sources of hydrogen sulfide. For example, individuals of families that live on farms can avoid manure storage areas where high concentrations of hydrogen sulfide may be found.

Is there a medical test to show whether I've been exposed to hydrogen sulfide?

Hydrogen sulfide and its breakdown products (metabolites) can be measured in blood and urine. However, the detection of hydrogen sulfide or its metabolites cannot predict the kind of health effects that might develop from that exposure. Because hydrogen sulfide and its metabolites leave the body fairly rapidly, the tests need to be conducted soon after exposure.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) set an acceptable ceiling limit of 20 ppm for hydrogen sulfide in workplace air. The ceiling limit is a 15-minute time-weighted average that cannot be exceeded at any time during the working day.

The National Institute for Occupational Safety and Health (NIOSH) recommends a 10-minute ceiling limit of 10 ppm. NIOSH also determined that 100 ppm is immediately dangerous to life or health of workers.

References

This ToxFAQs™ information is taken from the 2016 Toxicological Profile for Hydrogen Sulfide and Carbonyl Sulfide produced by the Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333-4027.

Phone: 1-800-232-4636.

ToxFAQs™ on the web: www.atsdr.cdc.gov/toxFAQs.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

From:	Osbourne, Margaret
To:	Blanco, Arturo; Thompson, Steve; Tillman, Tressa; Anderson, Israel; Frey, Sarah; Dwyer, Stacey; Haynes, James; Gray, David; Taheri, Diane; Durant, Jennah; Gilrein, Stephen
Subject:	Canceled: Crossett Sampling Project
Importance:	High

Hi all:

I'm cancelling today's meeting but want to give you all an update. Sarah, James and I went to Crossett on Monday and Tuesday of this week. We had a meeting with the Mayor and the President of Crossett's Chamber of Commerce. They were very open to our monitoring study, offered up some city land (a baseball field) as a monitoring location and gave us some advice on community members we should approach for monitoring locations.

We then went to homes in the neighborhoods surrounding GP's wastewater treatment system. The community members were very willing to help out with the monitoring study and signed our consent forms. In fact, we didn't get a single person saying "no."

The four community members include two people recommended by the Mayor - a policewoman's elderly mom and a wife of a paper company CEO - and two randomly selected people.

We are still on track to install the monitors in Crossett the second week of January.

Let me know if you have any questions.

From:	Ross, Sarah M.
To:	Frey, Sarah
Subject:	Capacities Of Wastewater Treatment Unit Processes GP CPO
Date:	Thursday, December 08, 2016 4:47:11 PM
Attachments:	Capacities Of Wastewater Treatment Unit Processes GP CPO.pdf

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RE: Passive Monitoring of Crossett, Arkansas

Ms. Frey,

Attached is our "Capacities of Wastewater Treatment Unit Processes" information sheet as requested during the EPA site visit September 27-28, 2016. We are working on a property boundary map for distribution. Also, I understand you will be in town next week. If you have plans to come by the paper mill, please let me know in advance. Thank you.

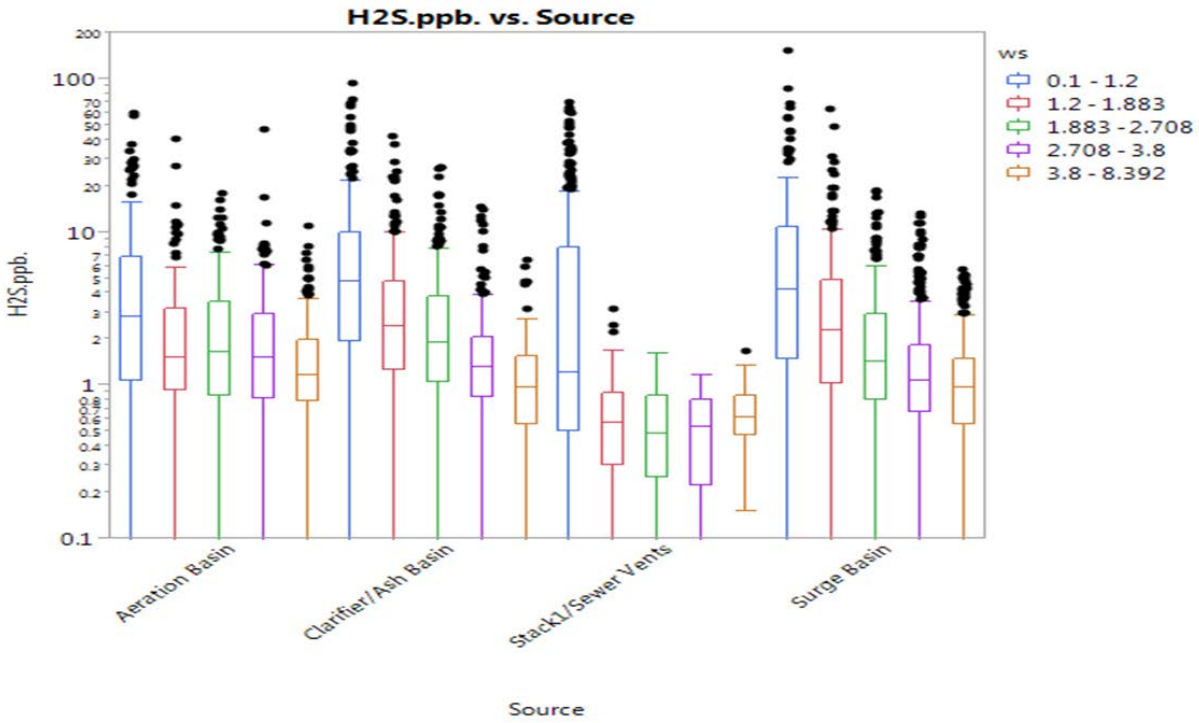
Sincerely,
Sarah Ross, Manager – Environmental Mill Services
GP Crossett Paper Operations
(870) 567-8670

From: Hirtz, James
To: Frey, Sarah; Osbourne, Margaret
Cc: Rimer, Kelly
Subject: Cavity Ring Monitoring Data - GP
Date: Wednesday, November 16, 2016 9:10:59 AM
Attachments: image003.png

How are things going on collecting the H2S data from the cavity ring monitor, I have done some sample modeling runs for the WWTP with the community measurement data (wd, H2S values) used as a rough surrogate for looking at signal strength from each of the key process groups (Aeration Basin – Stage 1, Surge Basin Outfall, Ash Basin Outfall, Clarifier, and the sewer outlets just outside the facility).

Having a slight disconnect of the model to monitored levels when comparing the hourly peaks to the avg concentration over the monitoring period. I believe I can correct this with a temporal hourly adjustment to account for biological generation of H2S. In previous RTR model runs we have modeled some WWTP HAPs in which a factor of 2 multiplier was applied to account for temporal hourly changes in the emissions when compared to the annual average hourly rate.

Below is a box plot analysis of the above process groups utilizing the community monitor, which I believe shows pretty good contribution hits to the monitor from all groups except from the sewer vents and stack air emissions from the plant. Have a good weekend and Thanksgiving my last day is tomorrow and I will be back on Nov 28th.



Jim

RECEIVED
US EPA, DALLAS, TX
ASSOCIATE DIRECTOR
16 NOV 16 PM 4:43
COMPLIANCE ASSURANCE
& ENFORCEMENT DIV.

Thurman Rd. ✓

West 3rd. Ave. ✓

Virginia and Miss. St. ✓

Hidden Acres Dr.

McDougald Rd.

County Rd. 223 ✓

Pistole St. ✓

Dumore Loop ✓

Lawson Rd/Bethea Rd ✓

Cason/Scott/Blake Rd.

1

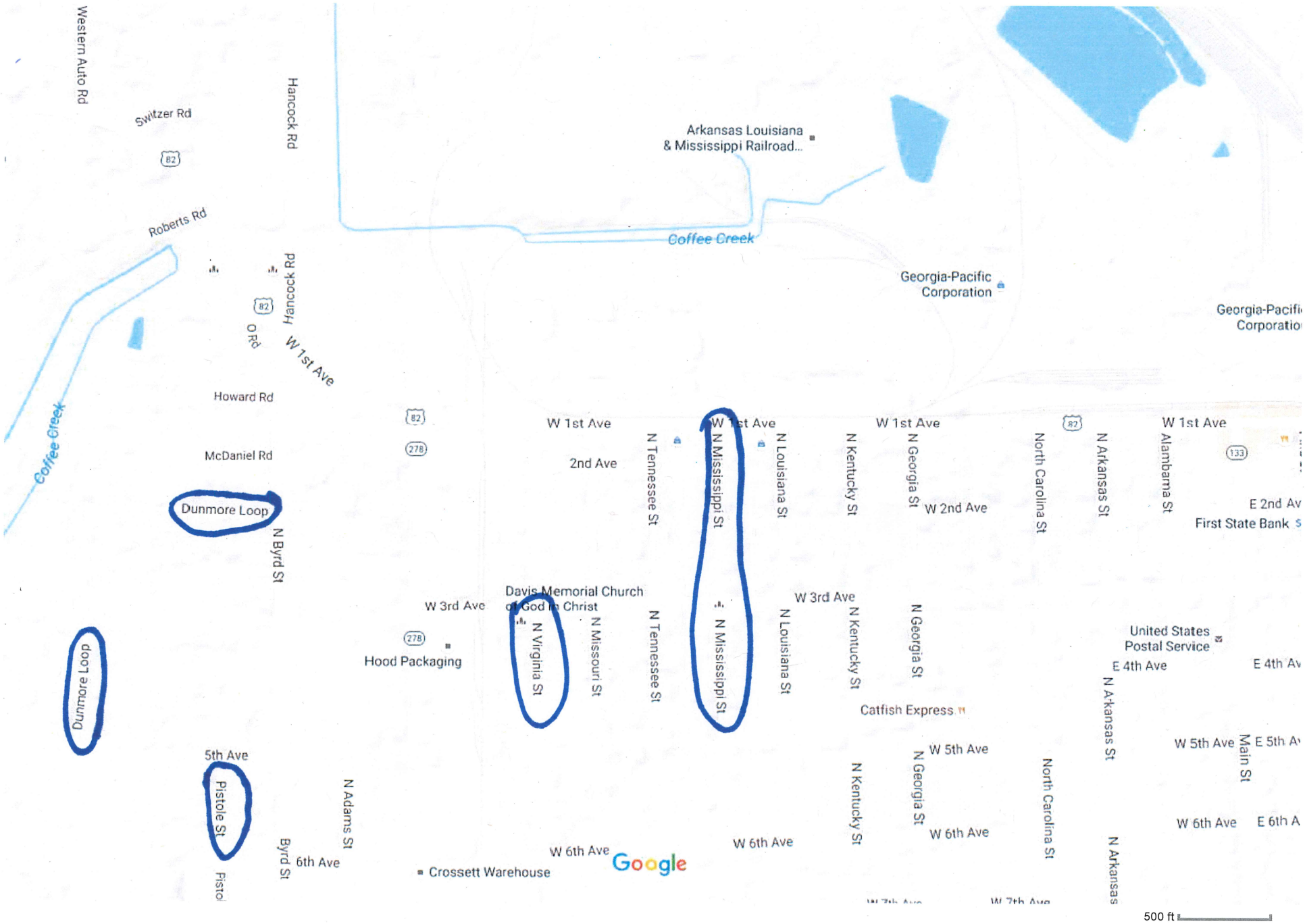
Google Maps GP WWT Community Monitor zoom

2

Google Maps GP WWT PC, AshE, AshW, and SPR zoom

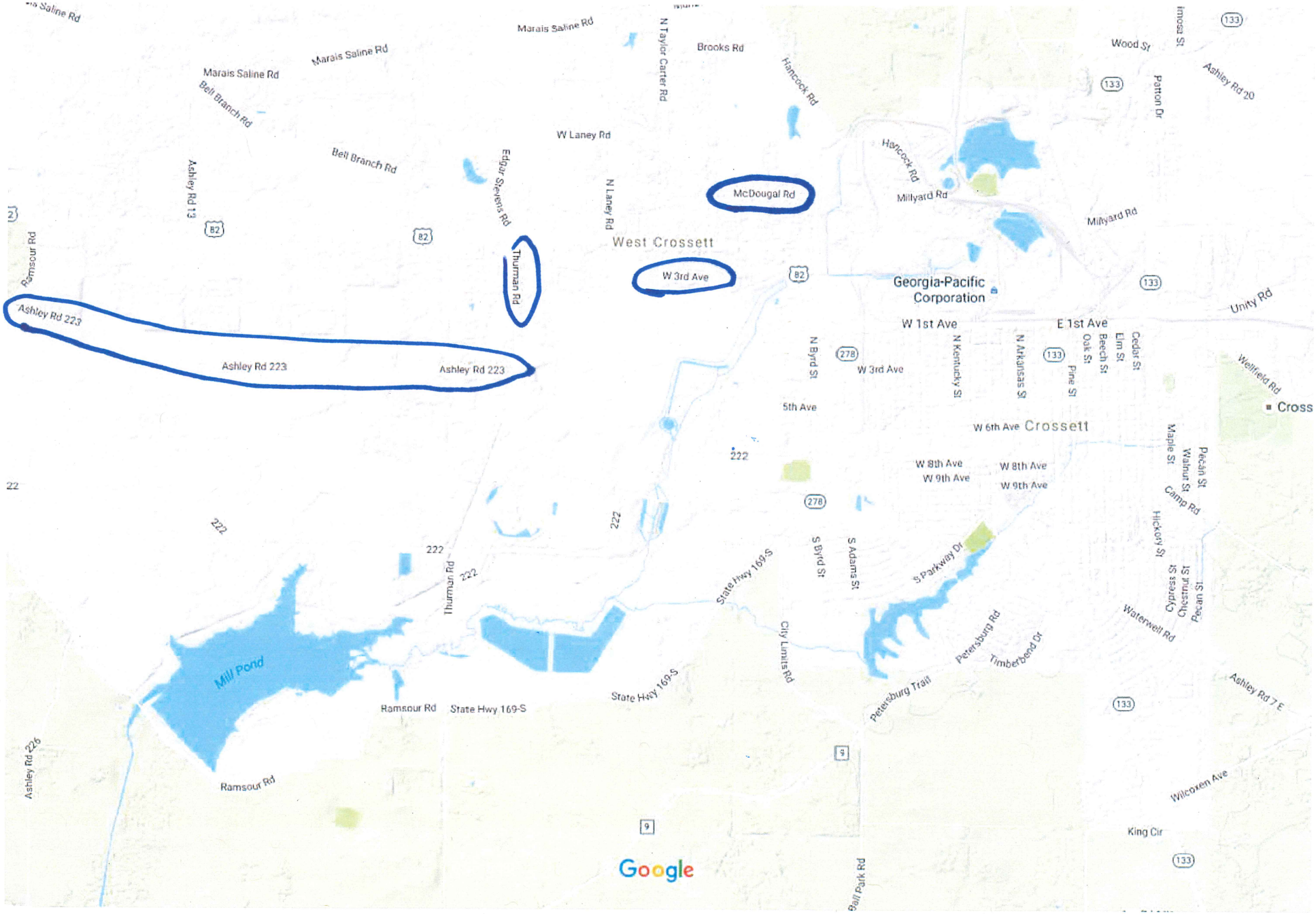
3

Google Maps GP WWT facility zoom



Google Maps GP WWT Overview Map

4



Map data ©2016 Google 2000 ft

From:	Ross, Sarah M.
To:	Frey, Sarah
Cc:	Kuhlman, Steven J.
Subject:	Crossett Info form September 27-28, 2016 visit
Date:	Monday, October 10, 2016 3:08:09 PM
Attachments:	Mill Water Balance 2016 October.pdf Advantage NF1038.pdf AOTech CW SDS.pdf

---

FRS ID: 110000450921
AFIN 02-00013
Facility: Georgia Pacific Crossett LLC, Crossett, Arkansas

Ms. Frey,

To follow-up EPA's site visit to our Crossett Paper Operations on September 27-28, 2016, please find attached:

1. Georgia Pacific LLC Crossett Paper Operations Mill Water Balance which is the upstream schematic requested by Ms. Mitty Mohon.
2. Defoamer Safety Data Sheet for Advantage NF1038 Defoaming Agent by Solenis
3. Odor control product Safety Data Sheet (SDS) for AOTECH CW by ORIN Technologies

We will continue to gather and communicate the other requested information. Thank you.

Sincerely,
Sarah Ross, PE
Manager – Environmental Mill Services
GP Crossett Paper Operations
Email: Sarah.Ross@gapac.com
Phone: (870) 567-8670

From: Osbourne, Margaret
To: Gairola, Sounjay
Cc: Frey, Sarah; Thompson, Steve
Subject: Crossett Monitoring
Date: Wednesday, November 16, 2016 11:28:45 AM

Hi Sounjay:

Please give ERG the go-ahead to order the equipment for 20 monitoring sites, and enough diffusion tubes for 4 months of monitoring. At that point we'll evaluate the data and decide if we need to do 2 more additional months.

I think $55,000 should cover 20 sites for 4 months but you'll probably want ERG to confirm that. We agreed to do the database work ourselves (saving $9,000), along with the previously-discussed monitor tear-down (saving $15,000), according to the latest ERG spreadsheet.

If Greg provides the $6,000, that will go to the additional tubes and analysis for the final 2 months.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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Site #	Site Description	H2S Present	Comments
1	Community Monitor	None detected	Both mornings none detected
2	Thurman Rd community/gate	20-60 ppb	10/27 ~7:50am
3	South of Outfall	NA	NA
4	Sampling Shacks on Mill Side	NA	NA
5	Hancock Road Fence	Low H2S, < 30 ppb	Entered from Hancock Rd, about 100 yards in, immediately before streams go underground
6	Underground Sewers to PC	NA	NA
7	Primary Clarifier (PC)	None detected	Putrid unidentified chemical smell, potential formaldehyde emissions, but no H2S
8	Convergence of all streams, post clarifier	None detected	Flow appeared slower than previous visit
9	Fork prior to Ash Basins	Low H2S, < 30 ppb	
10	East Ash Basin inlet	> 600	East closed 10/21, West opened
11	West Ash Basin inlet	20-60 ppb	Water flowing, higher methane reading compared to E basin inlet
12	East Ash Bain outlet	Very low H2S	Digger operating east of exit, preparing for dredging
13	West Ash Basin outlet	Very low H2S	Water flowing
14	Sludge Pond Reclamation area	None detected	Very brief sampling at entrance of SPR, instrument needed to shutdown due to heat
15	Meteorological Station	None detected	
16	Middle of Surge Basin, north side	None detected	Basin quite dry
17	Post city water addition, flow prior to ASB	< 150 ppb	On bridge, prior to ASB inlet. 10/27 ~ 12:40
18	Surge Basin exit	< 5 ppb	Surge basin outlet
19	Entrance to ASB	< 15 ppb	10/27, ~9:15am
20	ASB Zone 1, from road	NA	NA
21	ASB Zone 1/Zone 2 electrical building	~250 ppb	Aerators relocated for dredging, relatively calm water
22	ASB Zone 2 electrical building	10/26 ~0ppb, **10/27 < 1050 ppb**	Significantly more H2S second day, aerators active both days
23	ASB Zone 3 electrical building	10/26 0 ppb	
24	Zone 4, at curtain	NA	NA
25	Outfall 001	None detected	
North of ASB, Zone 1/Zone 2	33° 6'44.34"N, 92° 1'12.90"W	Up to 900 ppb (morning), up to 600 ppb (afternoon)	Aerators on. Up to 900 ppb when dredge-barge not pumping (10/27 8:30am), up to 600 ppb during active dredging (10/27 12:50)
North of ASB, Spoils Basin	Approximately 33° 6'54.81"N, 92° 1'17.51"W	Up to 170 ppb	10/26 - Sludge actively being pumped in, distinct odor, oil sheen observed, 10/27 9am only south pipe pumping in, 1:10pm both pipes flowing

Table

#	Coordinates	Description	Notes
1	N33º.82.400' – W091º.59.831'	Community Monitoring Site	No H2S detected
2	N33º.07.702' – W092º.00.423'	Thurmon Road	Road toward sludge reclamation pond
3	N33º.05.658' – W092º.02.795'	Ashley Road County Road 11	Pungent odor in waves
4	N33º.08.383' – W091º.58.699'	P1, P2, and P3 sampling stations on mill side	High concentration 5-7 ppm level near P2.
5	N33º.08.301' – W091º.58.887'	Hancock Road	Where P1/P2 & P3 are upwind ~ 100 yd.
6	N33º.08.211' – W091º.59.127'	Sewer Lines W	P1/P2 & P3 covered manholes
7	N33º.07.737' – W091º.59.605'	PC-P1 – Primary Clarifier	Elevated readings
8	N33º.07.605' – W091º.59.587'	To ASH	Post clarifier where P1/P2 & P3 come together and post press in flow
9	N33º.07.436' – W091º.59.652'	Separation point between west and east sludge basin ponds	One site of two sites
10	N33º.07.366' – W091º.59.634'	East Ash Basin Inlet	Open at time of sampling
11	N33º.07.378' – W091º.59.695'	West Ash Basin Inlet	Blocked at time of sampling
12	N33º.07.224' – W091º.59.225'	East Ash Basin Exit	Elevated readings
13	N33º.07.255' – W091º.59.731'	West Ash Basin Exit	
14	N33º.07.489' – W092º.00.219'	Sludge Pond Reclamation Pond	North Side
15	N33º.07.267' – W091º.59.882'	Met Station	150-200 ppb readings at late morning
16	N33º.07.149' – W092º.00.149'	Surge Basin	Center
17	N33º.06.970' – W092º.00.602'	Where City Water enter Plant Stream	
18	N33º.07.016' – W092º.00.488'	Surge Basin Outlet	Elevated readings
19	N33º.06.833' – W092º.00.802'	ASB Inlet	Aeration Stab. Basin Inlet (Zone 1) ASBZ1
20	N33º.06.639' – W092º.00.980'	ASB Zone 1 #2	Along roadway
21	N33º.06.600' – W092º.01.206'	ASB Zone 1 #3	Elevated readings
22	N33º.06.582' – W092º.01.501'	ASB Zone 2	
23	N33º.06.441' – W092º.01.735'	ASB Zone 3	
24	N33º.06.354' – W092º.02.021'	ASB Zone 4	Where curtain is located. No H2S detected
25	N33º.06.382' – W092º.00.285'	Outfall 1	No H2S detected
26	N33º.10.221' – W091º.58.113'	North Landfill	No H2S detected

 Internal deliberative pre-decisional draft

GEORGIA-PACIFIC CROSSETT HYDROGEN SULFIDE AIR MONITORING

ISSUE SUMMARY:

- Region 6 has supported the Arkansas Department of Environmental Quality and the Arkansas Department of Health to evaluate Hydrogen Sulfide (H_2S) sample results from an ambient air monitor downwind from the Georgia-Pacific facility in the community of Crossett, AR. The facility is operating the monitor and providing the data to the State.
- In response to elevated H_2S readings at the ambient air monitor, Region 6 is conducting a 6-month passive air monitoring study on the facility grounds and in the nearby community to evaluate the sources and offsite impacts of H_2S from the facility's wastewater treatment plant.

UPCOMING MILESTONES:

Please list any major upcoming decision points, actions, or milestones and the date. Be sure to note any external deadlines.

- EPA staff are harvesting samples on a biweekly basis and sharing the sampling results from the onsite monitors with Georgia-Pacific. Georgia-Pacific is conducting parallel sampling with collocated monitors. The State is accompanying EPA on some harvesting trips.
- The monitoring period will end on June 30, 2017, after which EPA will write a summary report to share with the public.

BACKGROUND:

- Georgia-Pacific operates an integrated wood, paper, and chemical products complex directly adjacent to the north side of Crossett, Arkansas. The plants in the Crossett complex also share one process wastewater treatment system which eventually discharges to the Ouachita River, more than ten miles downstream of the plant.
- The predominately African-American residents living near the Georgia-Pacific complex complain of frequent breathing problems, eye and throat irritation, corroded HVAC systems and vehicles, and bad smells.
- EPA, ADEQ, ADH, and ATSDR initiated a voluntary 6-month monitoring project for hydrogen sulfide on October 1, 2014, funded by Georgia-Pacific and operated by TRC Solutions. The project has since been extended indefinitely due to increased frequency of elevated readings of H_2S at the monitor. The continued citizen complaints and increased episodes of elevated H_2S led EPA to pursue additional study of these emissions.

KEY EXTERNAL STAKEHOLDERS:

Please check which stakeholder(s) are likely to reach out to the agency about this issue. In the space provided, include concerns stakeholder(s) may raise.

☒ Congress ☒ Industry ☒States ☐ Tribes ☒ Media ☐ Other Federal Agency
☒ NGO ☐ Other (name of stakeholder) _____

Please describe key concern(s):

- Crossett has emerged as a media story recently after the 2016 premiere of a documentary called "Company Town" and a number of articles in national publications like Newsweek and the New Yorker.
- The Tulane Environmental Law Clinic filed a Title VI complaint with EPA's Office of Civil Rights on behalf of Ouachita Riverkeeper and Louisiana Environmental Action Network ("LEAN").
- Reverend Bouie, a local pastor, serves as a leader and organizer for this community. Mr. Bouie represents the local group Concerned Citizens of Crossett for Environmental Justice ("CCCEJ"), which was formed to better address the community's concerns with Georgia-Pacific.
- Other residents of Crossett, including elected officials, civic leaders, and people employed at the Georgia-Pacific mill, are wary of EPA involvement and the negative attention their town has received in the past few years. The mill is the main source of employment for the area.

MOVING FORWARD:

- Region 6 has already allotted $70K for this monitoring study. No additional funding is expected to be necessary.
- Results of the monitoring may be used by Georgia-Pacific to undertake projects to control emissions along the facility's wastewater treatment system.

LEAD OFFICE/REGION: REGION 6 OTHER KEY OFFICES/REGIONS: OECA, ORD

From:	Frey, Sarah
To:	Dave Dayton
Cc:	Leta Kent; Jason Sese; Osbourne, Margaret
Subject:	Expanded Siting in Crossett, AR
Date:	Friday, November 18, 2016 4:09:00 PM
Attachments:	Proposed H2S sites 16.11.17.docx 161117 sample sites.jpg

---

Hello Dave,

Thank you for being flexible as this project has changed and grown. Obviously, my ideal start date will be surpassed, and now we are discussing a start date the first week of January (although I am also available to week of Dec. 19th). Would that be an option for you?

The project has grown from our original list of 14 to a total of 20. For the additional sites, do you need specific GPS coordinates, or a general location? We have 9 sites in the community and 11 on company property. The company suggested that we try to keep the samplers off the road, if possible, to avoid vandalism (and gunshot holes!). We will be working with a community leader to potentially be able to use private yards. Currently, I have them labeled as COM1 to COM8 and THUR. We can change these labels if you would like.

For the post installation, the company would feel more comfortable if they were the ones digging the hole on their property. Is this okay with you? Approximately how deep would the post need to go?

Finally, do you have a draft SOP or procedure for harvesting and shipping the samples to the lab?

Thank you for all your help,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

Fact Sheet for Participants

Hydrogen Sulfide Monitoring

Crossett, AR

Who are we and why are we monitoring the air?

- We are from the United States Environmental Protection Agency (EPA).
- We are checking the air near the Georgia-Pacific (GP) wastewater treatment system for levels of the chemical hydrogen sulfide (H_2S).
- We looking for sources of the hydrogen sulfide (H_2S).
- We are asking for your help by allowing us to put air monitoring equipment on your property.

Where are we monitoring?

- We will use special equipment to monitor the air at several spots near Georgia-Pacific's wastewater treatment system and in neighborhoods close to GP.

How does this air monitoring work?

- We will put air monitoring equipment on your property.
- We may need to keep the equipment on your property for about 24 weeks, from mid-January to late June 2017.
- You will not have to do anything with the equipment.
- The equipment will be attached to a 7/8-inch pole, about 5-feet off the ground. It will be covered with a small box for protection.
- The equipment does not make any noise and does not need pumps or electricity to work.
- We will check the equipment and collect samples every two weeks. We will call you the day before we visit your property.

When will you get the results?

- After our investigation is over, we will give you a report about what the air monitor on your property measured.
- Data from all the monitors will be available to the public after we complete our report.

Are there benefits?

- If you agree to participate, you will find out if any of the chemicals we test are in the outdoor air near your home or property.
- You will also help your community find out if any of the chemicals we test have high concentrations.

Are there risks?

- Air monitors measure what is already in the air. The equipment is quiet, but you may be bothered by seeing the equipment in your yard.
- You will not have to do anything with the equipment, but you may be bothered by workers checking the equipment. We will visit your property every other Friday and will try our best not to bother you.

What about privacy?

- Your privacy is protected by several laws.
- The equipment and samples from your home will have an identification (ID) number.
- We will use this ID number in our reports. Your name or address will never be used in the reports.
- We will have your name, address, phone number, and the ID number so that we can send you the final report about the air around your home. We will not share your name and address, or use it for anything else.

When can you ask questions?

- If you have additional questions about the air monitoring project, you may call:
  - Sarah Frey, EPA at **(214) 665-6499**
  - James Haynes, EPA at **(214) 665-8546**
  - EPA Region 6 toll free number **1-800-887-6063**
- For more information about hydrogen sulfide, you can visit the Agency for Toxic Substances and Disease Registry (ATSDR) website:

  https://www.atsdr.cdc.gov/

Fact Sheet for Participants

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- You will not have to do anything with the equipment, but you may be bothered by workers checking the equipment. We will visit your property every other Friday morning and will try our best not to bother you.

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- Your privacy is protected by several laws.
- The equipment and samples from your home will have an identification (ID) number.
- We will use this ID number in our reports. Your name or address will never be used.
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  - EPA Region 6 toll free number **1-800-887-6063**
- For more information about hydrogen sulfide, you can visit the Agency for Toxic Substances and Disease Registry (ATSDR) website:

  https://www.atsdr.cdc.gov/

From: Osbourne, Margaret
To: Schilling, Leonard; Frey, Sarah; Thompson, Steve
Subject: FW: Crossett meeting
Date: Wednesday, November 09, 2016 11:29:06 AM

FYI

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Wednesday, November 09, 2016 11:16 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Crossett meeting

Margaret…That date and time will work for us. We look forward to the conversation. As a reminder, I copied below the questions we sent last month that we are hoping to better understand from the discussion on the 17th. We would appreciate you sending drafts of these plans in advance (or anything else you might have in writing that outlines the basics of your plans) to help us better prepare for the discussion.

GP Attendees will be myself, Sarah Ross, Ryan Gesser, Steve Kuhlman and Alison Lathrop

Thanks…

From: Champion, Traylor
Sent: Thursday, October 06, 2016 7:55 AM

To: Tillman, Tressa <tillman.tressa@epa.gov>
Cc: Ross, Sarah M. <Sarah.Ross@GAPAC.com>; Lathrop, Alison J. (GP LAW) <Alison.Lathrop@GAPAC.com>; Bottini, John C. (GP Law) <John.Bottini@gapac.com>; Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Bailey, Scott K. (GP) <SKBAILEY@GAPAC.com>; Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>; Stresing, Matthew E. <Matthew.Stresing@gapac.com>; Howard, Angela <Angela.Howard@gapac.com>
Subject: ORD call questions

- Has EPA developed a Work Plan for this effort?
    - Does the Work Plan identify the nature of the problem that initiated the study and a conceptual model of the study question to be investigated?
        - Does it include the principal study question and alternative actions depending on the study results? In other words, what types of decisions does EPA intend to make with the data?
        - Does the Conceptual model identify the spatial and temporal boundaries of the study?
    - What are the data quality objectives (DQOs) for the project goal, objectives and study questions?
    - Does the Work Plan describe the type of data needed and how the data will be used?
    - Does the Work Plan include a Quality Assurance Project Plan describing how, when and where data will be obtained, QA/QC criteria, and methods for data analysis, evaluation, and assessment?
    - Does the Work Plan include a Sampling and Analysis Plan with approved data collection and analysis methods with Standard Operating Procedures?
    - Does the Work Plan include split samples or other data sharing means?

- Are the sampling devices being used by EPA to measure emissions or concentrations approved method acceptable for this type of application?

- Are air measurements being taken to estimate mass of H_2S released over time (i.e., pounds of H_2S measured in an hour or over a 24-hour period)? With this particular sampling device, how will the output be translated into a model input value.

- Is the objective of taking measurements to estimate emission rates of H_2S so that a distribution (spatial and temporal) of concentrations can be obtained from EPA's preferred air dispersion model "AERMOD" or potentially a dense gas model used in support of EPA Risk Management Program?

- Is the objective of taking ambient measurements to establish current background levels of H_2S measured in ppm or micrograms per cubic meter and compare those measurements against ADEQ health standards and/or EPA exposure thresholds?

Thanks

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Wednesday, November 09, 2016 11:14 AM
To: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: Crossett meeting

Sent by an external sender

Hi Traylor:

Let's plan for Thursday, Nov. 17 afternoon. Will 12:30 – 3:30 work?

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Tuesday, November 08, 2016 1:07 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Crossett meeting

Margaret…not sure if I responded or not…the 16th and 17th are the only days next week that work for GP group

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Monday, November 07, 2016 10:17 AM
To: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: Crossett meeting

Sent by an external sender

Hi Traylor:

Would Monday afternoon, Nov. 14, work for you? We're very limited on availability that week, and of course the following week is Thanksgiving.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Friday, November 04, 2016 10:22 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Crossett meeting

Margaret. Have you guys looked for a new date for our meeting. Steve mentioned week of 14th. 16/17th work best for us.

Sent with Good (www.good.com)

From: Champion, Traylor
Sent: Monday, October 31, 2016 2:13:11 PM
To: Osbourne, Margaret
Subject: RE: Crossett meeting

Got it…thanks.

GP attendees will be:
myself
Sarah Ross – Mill Environmental Leader
Steve Kuhlman – Business Environmental Leader
Ryan Gesser – GP air modeling SME
Alison Lathrop – GP legal counsel

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Monday, October 31, 2016 2:06 PM
To: Champion, Traylor <BTCHAMPI@GAPAC.com>; Thompson, Steve <thompson.steve@epa.gov>
Cc: Gesser, Ryan <Ryan.Gesser@gapac.com>; Lathrop, Alison J. (GP LAW) <Alison.Lathrop@GAPAC.com>; Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Ross, Sarah M. <Sarah.Ross@GAPAC.com>; Bottini, John C. (GP Law) <John.Bottini@gapac.com>
Subject: RE: Crossett meeting

Sent by an external sender

Hi Traylor:

We're confirmed for Nov. 10. When you arrive at 1445 Ross Ave, please proceed to the 7th floor to get visitor's badges and they will give us a call to meet you and escort you to our meeting room.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Thursday, October 27, 2016 11:41 AM
To: Thompson, Steve <thompson.steve@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Gesser, Ryan <Ryan.Gesser@gapac.com>; Lathrop, Alison J. (GP LAW) <Alison.Lathrop@GAPAC.com>; Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Ross, Sarah M. <Sarah.Ross@GAPAC.com>; Bottini, John C. (GP Law) <John.Bottini@gapac.com>
Subject: Crossett meeting

Steve/Margaret…confirming that November 10th, 12:30-3:30 at R6 office in Dallas works for the GP team…for space planning purposes there will be 5-6 GP attendees. Look forward to the conversation

From: Osbourne, Margaret
To: Frey, Sarah
Cc: Thompson, Steve
Subject: FW: Equipment
Date: Friday, August 19, 2016 4:37:08 PM

OECA couldn't get us the handhelds. At this point, we can try to rent them from a company or, alternatively, ERG could assist us. They seemed eager to assist us at every stage of the process.
Let's talk on Monday.

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Fried, Gregory
Sent: Friday, August 19, 2016 4:22 PM
To: Osbourne, Margaret
Subject: Re: Equipment

Margaret,
We could not get the handhelds approved. I was told there was no way to get the equipment ordered and in our possession by 9/12. If there is any additional money that comes our way I will make another run at purchasing them.
Greg

Sent from my iPhone

On Aug 19, 2016, at 12:02 PM, Osbourne, Margaret <osbourne.margaret@epa.gov> wrote:

> Hi Greg:
> I was out of the office Wed and Thurs of this week. Did you happen to get an answer on the H2S handhelds?
> Thanks,
> Margaret
> Margaret Osbourne
> Chief, Air Toxics Enforcement Section
> Compliance Assurance & Enforcement Division

EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508
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From: Fried, Gregory
Sent: Tuesday, August 16, 2016 5:08 PM
To: Breneman, Sara <breneman.sara@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Equipment

Sara/Margaret,
John Fogarty was on jury duty today so our equipment discussion got pushed to tomorrow. I will try to catch him in the morning.
-Greg

Gregory Fried
Chief, Stationary Source Enforcement Branch
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
202-564-7016
fried.gregory@epa.gov

From:	Frey, Sarah
To:	Osbourne, Margaret
Subject:	FW: Odor Control Limits
Date:	Tuesday, December 06, 2016 10:59:00 AM
Attachments:	removed.txt

Hi Margaret,

In summary: GP started using the hydrogen peroxide/iron catalyst odor control in July 2014 and allowed to continue until Aug 2015, with notice that a permit modification would be needed.

Their current permit expired 10/31/15, but a permit modification was made effective 10/30/15. I do not have a copy of the permit reflecting the modification and have submitted a work order to try to retrieve the image Sarah attached (which our server deleted). The modification limits were based on GP's reported usage averages, which limits them when additional chemical is necessary (due to upsets, etc).

Also, Sarah stated that they have requested that ADEQ remove the limits from the renewal. I have a copy of the renewal application dated 5/4/15, and therefore does not include the odor control limits.

Sarah

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Tuesday, December 06, 2016 9:26 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Odor Control Limits

Sarah,

In response to your follow-up questions regarding our odor control chemicals, I have included text from the permit modification fact sheet, which provides relevant background, as well as some more specific information below:

- **Page 3 of Fact Sheet for "2nd Major Modification", dated October 16, 2015, effective October 30, 2015**
  NPDES Permit Number: AR0001210
  AFIN: 02-00013

"In a letter dated June 20, 2014, the permittee requested permission to conduct a pilot study to investigate the use of Hydrogen Peroxide with an Organic Iron Catalyst to reduce the emissions of Hydrogen Sulfide. Permission to conduct the study was granted by the Department in a letter dated July 31, 2014. On February 12, 2015, and February 26, 2015, the permittee requested an extension to the time frame allowed for the pilot study since it was thus far considered to be successful. In a letter from the Department to the permittee dated March 24,

2015, the Department granted a 6 month extension to the pilot study and stated that a permit modification would have to be obtained if the facility wanted to continue the use of the chemicals after the extension is over.

The permittee submitted an application to modify their existing NPDES discharge permit which was received on May 27, 2015, with all additional information received by June 30, 2015, as well as an e-mail received August 7, 2015. The facility is requesting that the permit be modified to allow for the use of chemical treatment (Hydrogen Peroxide and organic Iron catalyst) in the primary clarifier, the P2 sewer, and at the chemical plant to reduce sulfide emissions which will result in reduction of odors.

Based on the application and the August 7th e-mail, it is the Department's understanding that Georgia-Pacific LLC (GP) is requesting permission to add Hydrogen Peroxide and an Iron Catalyst at three points in the upper areas of the wastewater collection and treatment system. This will require installation of pumps and tanks at each of the points (P2 Sewer at the manufacturing site, just upstream of the Clarifier, and at the Chemical Plant). The purpose of these additions is to control odor, not to provide treatment of the wastewater.

As allowed in Reg. 6.202(C), the Department has determined that the proposed modifications could be "minor revisions" to the treatment system and therefore not require a State Construction Permit. The Department has reviewed the application to modify the NPDES permit and is satisfied that the addition of the tanks and pumps needed to add the Hydrogen Peroxide and Iron Catalyst for odor control are minor revisions to the treatment system and will not require GP to obtain a State Construction Permit for this activity.

The discharge permit is modified for the remainder of the 5-year term in accordance with the regulations promulgated at 40 CFR 122.46(a) to allow for the use of Hydrogen Peroxide and Organic Iron Catalyst to reduce Hydrogen Sulfide emissions."

On Page 18 of Part II of the permit are the usage restrictions:

cid:image001.jpg@01D24FA1.CBBCC240

- **Additional Information**

During the trial period prior to the issuance of the permit modification, we worked with the vendor to adjust the odor chemical feed based on sulfide loading. Actual addition rates on a mass basis were not tracked during this trial period because it was not required and our trial approvals did not include either average or maximum limitations. When ADEQ was preparing the permit modification, they requested addition rates which we provided based on usages over an extended period during the trial, as calculated by the vendor. At the time, we were unaware that these average usage rates from the trial would be the basis for limits in the permit modification. These averages did not consider the need for increased feed rates based on upsets, mill outages, pH swings and other atypical situations and have been insufficient at times for us to achieve optimal odor control.

Thus, the chemical use restrictions restrict our ability to both manage use to address typical sulfide loadings and increase use to address any upset or unplanned conditions. The usage of these chemicals (hydrogen peroxide and the organic iron catalyst) do not pose any possible impact to the environment. Peroxide functions only as an oxidizer with only byproducts of oxygen and water. It is completely dissociated prior to the exit of the primary clarifier. The amount of organic iron catalyst (AO TECH CW) is very small and only increases the rate of reaction of the peroxide with sulfide.

During the trial period, we found times when it was advantageous to add two or three times the limits outlined above for the clarifier and P2 sewer. Ideally, we request the removal of the limits altogether. Alternately, providing significant more flexibility above the current limits to better manage fluctuating conditions through a modification, addendum, trial or other mechanism would help us to respond better to unusual conditions. As you saw during your visits, our treatment system operation is very dynamic.

Ultimately, for our NPDES permit renewal, we have requested that ADEQ remove the limits from our permit so that we have the flexibility to optimize the use of odor control chemicals. We believe this will allow us to improve odor control and respond to the dynamic wastewater treatment system conditions.

I will request a property line map and I understand from TRC that your access to the database should be coming this week.

Sincerely,
Sarah Ross

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Monday, December 05, 2016 2:26 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: FW: Odor Control Limits

Sent by an external sender

Good afternoon, Ms. Ross,

I am reaching out to you again to obtain specific details regarding the permit limitations for adding odor control chemicals. Please see below.

Additionally, we are preparing our final site map for the upcoming H2S monitoring project. Do you have a map indicating the explicit GP border/fence line?

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Frey, Sarah
Sent: Monday, November 21, 2016 3:46 PM
To: 'Ross, Sarah M.' <Sarah.Ross@GAPAC.com>
Subject: Odor Control Limits

Good afternoon, Sarah,

Could you please give me a few more details regarding the limitations on the odor control chemicals?

For example, what amount is the current cap, and what amount do you think that you need? Do you

have a copy of the accepted permit modification? What date was it requested? What date was it put into effect?

We are working to help find a solution to this conflict.

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Ross, Sarah M.
To:	Frey, Sarah; Hamilton, Scott; Qazzaz, Bilal
Cc:	Ross, Sarah M.
Subject:	Fw: QAPP Status
Date:	Wednesday, October 26, 2016 9:23:29 PM
Attachments:	GP Crossett QAPP Final.pdf

Bilal,

Please find attached the QAPP for the West Crossett, Arkansas monitor.

I plan to meet you all in the morning at 7am in the parking lot at the paper mill.

Thank you,

Sarah Ross

From: Allen, Kara [mailto:Allen.Kara@epa.gov]
Sent: Wednesday, November 12, 2014 8:19 AM
To: Ross, Sarah M.
Cc: Curtis, Michael
Subject: RE: QAPP Status

Thanks Sarah!!

Kara

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Monday, November 10, 2014 10:45 AM
To: Allen, Kara
Cc: Curtis, Michael
Subject: RE: QAPP Status

Good morning, Kara.

Please see the attached file. I look forward to seeing you again on November 20, 2014 here in Crossett. Please let me know if you have any questions prior to your visit.

Sincerely,
Sarah Ross
Environmental Team Leader
GP Crossett Paper Operations
Email: Sarah.Ross@gapac.com
Phone: (870) 567-8670
Fax: (870) 364-9076

File Location: GP Crossett QAPP Final.pdf

From: Allen, Kara [mailto:Allen.Kara@epa.gov]
Sent: Friday, November 07, 2014 2:10 PM
To: Ross, Sarah M.
Cc: Curtis, Michael
Subject: RE: QAPP Status

Sarah,

Do you have a pdf version of the revised 10/2/14 QAPP?

Thanks,
Kara

Kara Allen
Environmental Engineer
Air Quality Analysis Section (PD-Q)
USEPA Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733
(p) 214-665-7333

From:	Frey, Sarah
To:	Hirtz, James
Cc:	Osbourne, Margaret
Subject:	FW: Wind Roses
Date:	Wednesday, September 14, 2016 5:36:00 PM
Attachments:	windroses.pdf

Hi Jim,

I am forwarding you some wind roses prepared by one of our contractors. I'm not sure if you need them, but I thought it may help! Please note that they are just incorporating data from fall to spring.

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Monday, September 12, 2016 7:53 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>
Subject: Wind Roses

Good Day Sarah,

Please see the attached file. It presents 3 Wind Roses (WR) for use in our site placement efforts in Crossett. These WR have been prepared to reflect conditions during the expected period of monitoring (to the extent possible). Descriptions are as follows:

- The WR titled GP-V Oct-Mar presents wind speed/wind direction (WS/WD) information using the TRC data for the period of Oct 2014 through March 2015. It would have been good to have all of the site WS/WD data to work with rather than just this one 6-month period.
- The WR titled 53919 Monticello presents a historical composite WS/WD data from Monticello, AR (~30 miles North of Crossett) for November through April for the years of 2013 thru 2015.
- The WR titled 53992 Bastrop presents a historical composite WS/WD data from Bastrop, LA (~20 miles South of Crossett) for November through April for the years of 2013 thru 2015.

Please let me know if you have questions.

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From:	Frey, Sarah
To:	Dave Dayton
Cc:	Jason Sese; Leta Kent; Osbourne, Margaret
Subject:	GMAP Summary
Date:	Monday, October 31, 2016 4:33:00 PM
Attachments:	Emission Summary 10-26 and 10-27.docx

Hi Dave,

Attached is an emission summary from my trip last week with Region 5 to Crossett. It appears that biological factors were the primary source of H2S on this trip, as opposed to our visit in September (which seemed to be based on the water chemistry). We can discuss more tomorrow.

Happy Halloween!

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Frey, Sarah
To:	Hirtz, James
Subject:	GP Crossett initial data
Date:	Wednesday, October 12, 2016 1:42:00 PM
Attachments:	Clarifier Down.jpg Clarifier Up1.jpg Compiled Jerome Data Sept 2016.xlsx Coordinate Table from GPS readings.docx Coordinates with corresponding H2S readings.xlsx Overview.jpg

---

Hello Jim,

Attached is some preliminary data from our visit September 27 and 28th. The Jerome data spreadsheet is essentially raw data, however I did convert any ppm readings to ppb, for simplicity. I also tried to notate the actual locations that the samples were collected. The second spreadsheet is a general summary (range and average H2S concentrations), trying to match Jerome readings with the coordinate locations on the provided map.

1. Compiled Jerome Data Sept 2016 (each tab is one instrument, also note J4 timestamp differs from the others by 1 hour)
2. Coordinate Table from GPS readings
3. Overview map, location key found in coordinate table
4. Clarifier Up1 map, location key found in coordinate table
5. Clarifier Down map, location key found in coordinate table
6. Coordinates with corresponding H2S readings

I will also be sharing these documents with the ORD staff working on the conceptual site model. I'm hoping that I will have water data to share with you soon.

Please let me know if you have any questions! We will be working with ERG soon to develop our plan for placing passive samplers. Please let me know if you think there are other potential locations that would be useful.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
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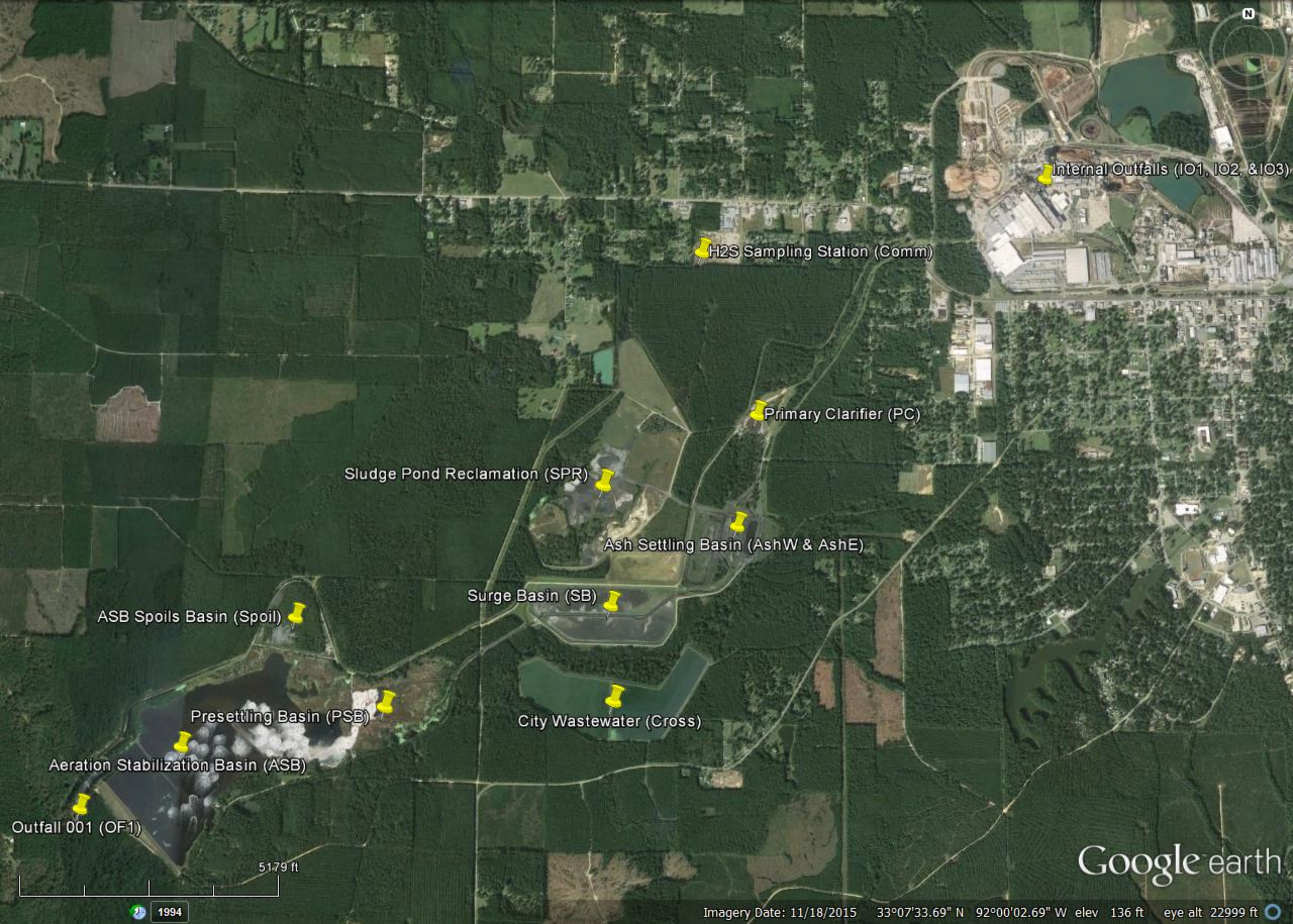
Internal Outfalls (IO1, IO2, &IO3)
H2S Sampling Station (Comm)
Primary Clarifier (PC)
Sludge Pond Reclamation (SPR)
Ash Settling Basin (AshW & AshE)
Surge Basin (SB)
ASB Spoils Basin (Spoil)
Presettling Basin (PSB)
City Wastewater (Cross)
Aeration Stabilization Basin (ASB)
Outfall 001 (OF1)
5179 ft
1994
Google earth
Imagery Date: 11/18/2015 33°07'33.69" N 92°00'02.69" W elev 136 ft eye alt 22999 ft

From:	Ford, Debbie
To:	Frey, Sarah
Cc:	Osbourne, Margaret
Subject:	H2S Alarms from Crossett, AR - Sept 27 - 28
Date:	Wednesday, October 26, 2016 5:54:56 PM
Attachments:	H2S Monitor Alarms.xlsx

I got the driver and software installed today so I pulled the logs from all 6 MSA Altairs.

The 4 we used are in the attached file. There was a problem in that the instrument times were all different, so I did a best guess about how far off from real time they were (based upon when I bump tested them each morning) and adjusted the times accordingly. (also reset all monitors to my computer time)

There was 1 reading that is strange. The monitor did not alarm, but it did detect a reading of 4 ppm. This was about an hour before we got to the P2 Sewer Sampling location. We were at the BAT Lab only about 10 minutes prior to the P2 Sewer.

I also realized that we just handed out the H2S monitors and didn't assign a specific one to an inspector (note to self……), so it is likely that we got different ones on Wed than we had on Tues.

I knew Justin went to the P2 Sewer on Wed, so I'm guessing the alarm was from him.

I did a guess on Tues since you said you only went to a 5 ppm (actually 2 went to 8 ppm), but I saw mine go high. We can discuss.

How are things going?

Debbie S. Ford
Environmental Scientist
U.S. EPA - Region 6 (MC 6EN-AT)
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(214) 665-7235 (desk) (214) 665-3177 (fax)
ford.debbie@epa.gov

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Hydrogen Sulfide Monitoring Equipment

Crossett, AR

From:	Osbourne, Margaret
To:	Toler, Timothy; s.mccormick@cityofcrossett.net; r.ledbetter@cityofcrossett.net
Cc:	Frey, Sarah; Assunto, Carmen; Durant, Jennah; Haynes, James
Subject:	H2S monitoring study
Date:	Wednesday, December 21, 2016 4:29:49 PM
Attachments:	Crossett H2S monitoring sites.jpg

Dear Scott and Tim:

Thank you so much for meeting with us last week to discuss our upcoming air monitoring project in Crossett. With your assistance, we were able to confirm all but one of our community monitor locations. Based on your recommendation, we decided to use the Clemmie Wimberly Athletic Park baseball field as the location for community monitor #4. We will be working with the county to obtain permission for community monitor #7, which will be located on Ashley County Road 223.

Attached is our updated map of approximate monitor locations: the green markers are on GP property, the red markers are community monitors. Our monitoring project is tentatively scheduled to begin the second week of January.

Carmen Assunto is our state and local government liaison – you should both feel free to reach out to her, as well as to Sarah, James or myself, if you have any additional questions about the study.

Here are Carmen's phone numbers:
OFFICE: 281-983-2196
EPA CELL: 469-600-3158

Happy Holidays.

Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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duplicate it or disclose its contents to anyone.

From: Toler, Timothy [mailto:Timothy.Toler@afbic.com]
Sent: Wednesday, December 07, 2016 1:22 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Meet in Crossett early next week to discuss monitoring study

I should be available either day. Just let me know.

Thanks,
Tim

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Wednesday, December 07, 2016 12:32 PM
To: s.mccormick@cityofcrossett.net
Cc: r.ledbetter@cityofcrossett.net; Toler, Timothy
Subject: Meet in Crossett early next week to discuss monitoring study

Hi Scott:

After a few rounds of phone tag this morning, I thought it best to reach out with email. We in EPA Region 6 are planning a 6-month monitoring study in Crossett to evaluate the levels of hydrogen sulfide in the community. We have met with Georgia-Pacific and shared our tentative monitoring map and plan.

We'd like to meet with you and Mr. Toler of the Chamber of Commerce to tell you about our plan and get your input on our proposed community monitoring station locations. The monitors we'll be using are passive 2-week monitors, not the continuous monitor that Georgia-Pacific is currently operating, and the purpose of the monitoring is to evaluate the sources of hydrogen sulfide along the wastewater system and any offsite impacts.

Please let me know if you are available on Monday afternoon (12/12/16) or Tuesday morning (12/13/16) to meet, and where you'd like us to meet. We'll be driving into Crossett from Dallas. Mr. Toler – are you also available to meet early next week?

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202

214-665-6508

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START STATEMENT OF WORK FOR
SITE ASSESSMENT
Hydrogen Sulfide Emissions, Crossett, AR
July 16, 2016

PURPOSE

The purpose of this technical direction document (TDD) is to conduct ambient air monitoring for hydrogen sulfide emissions along the wastewater treatment (WWT) process surrounding the Georgia Pacific Pulp and Paper (GP) facility operations in Crossett, AR. This statement of work (SOW) sets forth the framework and requirements for this effort. The estimated completion of this task order is September 1, 2017.

BACKGROUND

GP, in cooperation with Region 6 of the United States Environmental Protection Agency (EPA), the Arkansas Department of Environmental Quality (ADEQ), and the Arkansas Department of Health (ADH), has been voluntarily conducting an ambient air monitoring assessment for hydrogen sulfide in Crossett beginning in late 2014. This community hydrogen sulfide air monitor is located about ½ mile north of the WWT clarifier and has been measuring episodic elevated readings above the Agency for Toxic Substance and Disease Registry (ATSDR) acute minimal risk level (MRL) of 70 ppb. In response to these elevated emission events, EPA Region 6 will conduct preliminary ambient air monitoring to determine if ambient levels of hydrogen sulfide are detected at levels exceeding the ATSDR intermediate MRL of 20 ppb or the EPA's chronic inhalation reference concentration (RfC) of 1 ppb, and at what general order of magnitude.

PROJECT REQUIREMENTS

Site Pre-Assessment:

Region 6 staff will accompany Region 5 hydrogen sulfide experts in evaluating the area surrounding GP's WWT system. Region 5 has a vehicle equipped with GMAP (Geospatial Mapping of Air Pollution) technologies, with the ability to detect hydrogen sulfide in real-time. The goal will be to determine the sites best suited for deploying passive samplers. Challenges of accessibility may arise. This pre-assessment is scheduled to occur the week of September 12, 2016.

Passive Sampling of Hydrogen Sulfide:

Key components of the work to be performed:

- Determine sampling locations along the WWT system. Ideal sample locations will be determined by initial site assessment, access availability, and distance to the WWT system
- Acquire and deploy a meteorological station[1] that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure
- Receive passive sampling assemblies; diffusive bodies, support plates, sample shelter, and single-use cartridge adsorbent tubes

[1] Readings should be collected by the minute and reported by the hour.

- Beginning March 3, 2017, and for 24 weeks thereafter, deploy passive sampling assemblies at 10 sampling locations in Crossett, AR, for a 2-week duration. Cartridges will be replaced during collection, every two week.
- Retrieve cartridge adsorbent tubes after the 2-week period and ship to the designated laboratory
- Retrieve meteorological data after the 2-week period
- Exchange diffusive bodies, which are to be cleaned using soapy water between sampling
- Document placement and retrieval activities, i.e., written (logbook) and photographic documentation

EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station. The contractor will need to provide a meteorological station that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure. The contractor will not need to provide sampling equipment (other than meteorological station) or analytical services.

Cost Projections:

~$3000 – Sampling Equipment from Sigma-Aldrich (140 single-use cartridges, 20 diffusive bodies, 10 outdoor sampling shelters, 20 triangular support plates), sample shipping supplies

< $20,000 – Contract Laboratory Analysis (10 samples every two weeks for six months)

REPORTING REQUIREMENTS

The contractor is required to provide the following deliverables (format with required content will provided by EPA):

- Bi-Weekly reports
- Monthly reports
- Final Summary Report

START STATEMENT OF WORK FOR
SITE ASSESSMENT
Hydrogen Sulfide Emissions, Crossett, AR
August 8, 2016

PURPOSE

The purpose of this technical direction document (TDD) is to conduct ambient air monitoring for hydrogen sulfide emissions along the wastewater treatment (WWT) process surrounding the Georgia Pacific Pulp and Paper (GP) facility operations in Crossett, AR. This statement of work (SOW) sets forth the framework and requirements for this effort. The estimated completion of this task order is March 31, 2017.

BACKGROUND

GP, in cooperation with Region 6 of the United States Environmental Protection Agency (EPA), the Arkansas Department of Environmental Quality (ADEQ), and the Arkansas Department of Health (ADH), has been voluntarily conducting an ambient air monitoring assessment for hydrogen sulfide in Crossett beginning in late 2014. This community hydrogen sulfide air monitor is located about ½ mile north of the WWT clarifier and has been measuring episodic elevated readings above the Agency for Toxic Substance and Disease Registry (ATSDR) acute minimal risk level (MRL) of 70 ppb. In response to these elevated emission events, EPA Region 6 will conduct preliminary ambient air monitoring to determine if ambient levels of hydrogen sulfide are detected at levels exceeding the ATSDR intermediate MRL of 20 ppb or the EPA's chronic inhalation reference concentration (RfC) of 1 ppb, and at what general order of magnitude.

PROJECT REQUIREMENTS

Site Pre-Assessment:

Region 6 staff will accompany Region 5 hydrogen sulfide experts in evaluating the area surrounding GP's WWT system. Region 5 has a vehicle equipped with GMAP (Geospatial Mapping of Air Pollution) technologies, with the ability to detect hydrogen sulfide in real-time. The goal will be to determine the sites best suited for deploying passive samplers. Challenges of accessibility may arise. This pre-assessment is scheduled to occur the week of September 12, 2016.

Passive Sampling of Hydrogen Sulfide:

Key components of the work to be performed:

- Determine sampling locations along the WWT system. Ideal sample locations will be determined by initial site assessment, access availability, and distance to the WWT system
- Acquire and deploy a meteorological station[1] that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure
- Receive passive sampling assemblies; diffusive bodies, support plates, sample shelter, and single-use cartridge adsorbent tubes

[1] Readings should be collected by the minute and reported by the hour.

- Beginning October 21, 2016, and for 24 weeks thereafter, deploy passive sampling assemblies at 10 sampling locations in Crossett, AR, for a 2-week duration. Cartridges will be replaced during collection, every two week.
- Retrieve cartridge adsorbent tubes after the 2-week period and ship to the designated laboratory
- Retrieve meteorological data after the 2-week period
- Exchange diffusive bodies, which are to be cleaned using soapy water between sampling
- Document placement and retrieval activities, i.e., written (logbook) and photographic documentation

EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station. The contractor will need to provide a meteorological station that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure. The contractor will not need to provide sampling equipment (other than meteorological station) or analytical services.

Cost Projections:

~$3000 – Sampling Equipment from Sigma-Aldrich (140 single-use cartridges, 20 diffusive bodies, 10 outdoor sampling shelters, 20 triangular support plates), sample shipping supplies

< $20,000 – Contract Laboratory Analysis (10 samples every two weeks for six months)

REPORTING REQUIREMENTS

The contractor is required to provide the following deliverables (format with required content will provided by EPA):

- Bi-Weekly reports
- Final Summary Report

STATEMENT OF WORK FOR
SITE ASSESSMENT AND HYDROGEN SULFIDE MONITORING
Hydrogen Sulfide Emissions, Crossett, AR
September 2, 2016

PURPOSE

The purpose of this technical direction document (TDD) is to conduct ambient air monitoring for hydrogen sulfide emissions along the wastewater treatment (WWT) process surrounding the Georgia Pacific Pulp and Paper (GP) facility operations in Crossett, AR. This statement of work (SOW) sets forth the framework and requirements for this effort. The estimated completion of this task order is May 31, 2017.

BACKGROUND

GP, in cooperation with Region 6 of the United States Environmental Protection Agency (EPA), the Arkansas Department of Environmental Quality (ADEQ), and the Arkansas Department of Health (ADH), has been voluntarily conducting an ambient air monitoring assessment for hydrogen sulfide in Crossett beginning in late 2014. This community hydrogen sulfide air monitor is located about ½ mile north of the WWT clarifier and has been measuring episodic elevated readings above the Agency for Toxic Substance and Disease Registry (ATSDR) acute minimal risk level (MRL) of 70 ppb. In response to these elevated emission events, EPA Region 6 will conduct preliminary ambient air monitoring to determine if ambient levels of hydrogen sulfide are detected at levels exceeding the ATSDR intermediate MRL of 20 ppb or the EPA's chronic inhalation reference concentration (RfC) of 1 ppb, and at what general order of magnitude.

PROJECT GOALS

- To identify the most likely point sources of hydrogen sulfide from the WWT system
- To quantify hydrogen sulfide concentrations in areas surrounding the WWT system and approaching the community and determine if they are above the acute or intermediate ATSDR MRLs

PROJECT REQUIREMENTS

Site Pre-Assessment:

Region 6 staff will accompany ERG hydrogen sulfide monitoring experts in evaluating the area surrounding GP's WWT system. ERG will provide handheld Jerome J605 hydrogen sulfide monitors for this trip. The goal will be to determine the sites best suited for deploying passive samplers. Challenges of accessibility may arise. This pre-assessment is scheduled to occur the week of September 26, 2016.

Passive Sampling of Hydrogen Sulfide:

Key components of the work to be performed:

- Determine sampling locations along the WWT system. Ideal sample locations will be determined by initial site assessment, access availability, and distance to the WWT system

- Acquire and deploy a meteorological station[1] that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure. Alternatively, data from a pre-existing meteorological station may be used if appropriately located.
- Acquire passive sampling assemblies; diffusive bodies, support plates, sample shelter, and single-use cartridge adsorbent tubes
- Beginning November 18, 2016, and for 24 weeks thereafter, passive sampling assemblies will be deployed by EPA Region 6 at 10 sampling locations in Crossett, AR, for a 2-week duration. Cartridges will be replaced during collection, every two weeks
- Arkansas Department of Environmental Quality and/or Region 6 staff will retrieve cartridge adsorbent tubes after the 2-week period and ship to the designated laboratory contracted by ERG. The ADEQ and R6 will exchange diffusive bodies, which are to be cleaned using soapy water between sampling.
- Retrieve meteorological data after the 2-week period and share with the contract laboratory to aid in sample analysis
- Document placement and retrieval activities, i.e., written (logbook) and photographic documentation

EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station. The contractor may need to provide a meteorological station that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure. The contractor will need to provide sampling equipment and analytical services, but not sample deployment and retrieval.

REPORTING REQUIREMENTS

The contractor is required to provide the following deliverables (format with required content will provided by EPA):

- Bi-Weekly reports
- Final Summary Report

[1] Readings should be collected by the minute and reported by the hour.

STATEMENT OF WORK FOR
PASSIVE HYDROGEN SULFIDE MONITORING
Crossett, AR
November 7, 2016

PURPOSE

The purpose of this technical direction document (TDD) is to conduct ambient air monitoring for hydrogen sulfide emissions along the wastewater treatment (WWT) process surrounding the Georgia Pacific Pulp and Paper (GP) facility operations in Crossett, AR. This statement of work (SOW) sets forth the framework and requirements for this effort. The estimated completion of this task order is May 5, 2017.

BACKGROUND

GP, in cooperation with Region 6 of the United States Environmental Protection Agency (EPA), the Arkansas Department of Environmental Quality (ADEQ), and the Arkansas Department of Health (ADH), has been voluntarily conducting an ambient air monitoring assessment for hydrogen sulfide in Crossett beginning in late 2014. This community hydrogen sulfide air monitor is located about ½ mile north of the WWT clarifier and has been measuring episodic elevated readings above the Agency for Toxic Substance and Disease Registry (ATSDR) acute minimal risk level (MRL) of 70 ppb. In response to these elevated emission events, EPA Region 6 will conduct preliminary ambient air monitoring to determine if ambient levels of hydrogen sulfide are detected at levels exceeding the ATSDR intermediate MRL of 20 ppb or the EPA's chronic inhalation reference concentration (RfC) of 1 ppb, and at what general order of magnitude.

PROJECT GOALS

- To identify the most likely point sources of hydrogen sulfide from the WWT system
- To quantify hydrogen sulfide concentrations in areas surrounding the WWT system and approaching the community and determine if they are above the acute or intermediate ATSDR MRLs

PROJECT REQUIREMENTS

Passive Sampling of Hydrogen Sulfide:

Key components of the work to be performed:

- Acquire and deploy a meteorological station[1] that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure. Alternatively, data from a pre-existing meteorological station may be used if appropriately located.
- Acquire passive sampling assemblies; diffusive bodies, support plates, sample shelter, and single-use cartridge adsorbent tubes
- Beginning December 2, 2016, and for 24 weeks thereafter, passive sampling assemblies will be deployed by EPA Region 6 at 10-20 predetermined sampling locations in Crossett, AR, for a 2-week duration.

[1] Readings should be collected by the minute and reported by the hour.

- EPA Region 6 staff and/or ADEQ staff will retrieve cartridge adsorbent tubes after the 2-week period and ship to the designated laboratory contracted by ERG.
- Cartridges will be replaced during collection, every two weeks, recording the start time for each adsorbent tube.
- EPA R6 will exchange diffusive bodies, which are to be cleaned using soapy water, between sampling as needed.
- Retrieve meteorological data after the 2-week period, especially average temperature for the given time period, and share with the contract laboratory to aid in sample analysis
- Document placement and retrieval activities, i.e., written (logbook) and photographic documentation

EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station. The contractor may need to provide a meteorological station that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure. The contractor will need to provide sampling equipment and analytical services, but not sample deployment and retrieval.

REPORTING REQUIREMENTS

The contractor is required to provide the following deliverables (format with required content will provided by EPA):

- Bi-Weekly reports
- Final Summary Report

STATEMENT OF WORK FOR
PASSIVE HYDROGEN SULFIDE MONITORING
Crossett, AR
December 1, 2016

PURPOSE

The purpose of this technical direction document (TDD) is to conduct ambient air monitoring for hydrogen sulfide emissions along the wastewater treatment (WWT) process surrounding the Georgia Pacific Pulp and Paper (GP) facility operations in Crossett, AR. This statement of work (SOW) sets forth the framework and requirements for this effort. The estimated completion of this task order is July 14, 2017.

BACKGROUND

GP, in cooperation with Region 6 of the United States Environmental Protection Agency (EPA), the Arkansas Department of Environmental Quality (ADEQ), and the Arkansas Department of Health (ADH), has been voluntarily conducting an ambient air monitoring assessment for hydrogen sulfide in Crossett beginning in late 2014. This community hydrogen sulfide air monitor is located about ½ mile north of the WWT clarifier and has been measuring episodic elevated readings above the Agency for Toxic Substance and Disease Registry (ATSDR) acute minimal risk level (MRL) of 70 ppb. In response to these elevated emission events, EPA Region 6 will conduct preliminary ambient air monitoring to determine if ambient levels of hydrogen sulfide are detected at levels exceeding the ATSDR intermediate MRL of 20 ppb or the EPA's chronic inhalation reference concentration (RfC) of 1 ppb, and at what general order of magnitude.

PROJECT GOALS

- To identify the most likely point sources of hydrogen sulfide from the WWT system
- To quantify hydrogen sulfide concentrations in areas surrounding the WWT system and approaching the community and determine if they are above the acute or intermediate ATSDR MRLs

PROJECT REQUIREMENTS

Passive Sampling of Hydrogen Sulfide:

Key components of the work to be performed:

- Acquire and deploy a meteorological station[1] that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure. Alternatively, data from a pre-existing meteorological station may be used if appropriately located.
- Acquire passive sampling assemblies; diffusive bodies, support plates, sample shelter, and single-use cartridge adsorbent tubes
- Beginning January 13, 2017, and for 24 weeks thereafter, passive sampling assemblies will be deployed by EPA Region 6 at 20 predetermined sampling locations in Crossett, AR, for a 2-week duration.

[1] Readings should be collected by the minute and reported by the hour.

- EPA Region 6 staff and/or ADEQ staff will retrieve cartridge adsorbent tubes after the 2-week period and ship to the designated laboratory contracted by ERG.
- Cartridges will be replaced during collection, every two weeks, recording the start time for each adsorbent tube.
- EPA R6 will exchange diffusive bodies, which are to be cleaned using soapy water, between sampling as needed.
- Retrieve meteorological data after the 2-week period, especially average temperature for the given time period, and share with the contract laboratory to aid in sample analysis
- Document placement and retrieval activities, i.e., written (logbook) and photographic documentation

EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station. The contractor may need to provide a meteorological station that can detect and record wind speed, wind direction, relative humidity, ambient temperature, and barometric pressure. The contractor will need to provide sampling equipment and analytical services, but not sample deployment and retrieval.

REPORTING REQUIREMENTS

The contractor is required to provide the following deliverables (format with required content will provided by EPA):

- Bi-Weekly Laboratory Analysis Reports

The Honorable Marshall Scott McCormick, Mayor of Crossett, Arkansas

Issue: <u>Hydrogen Sulfide Monitoring in Crossett, Arkansas</u>

Message [one or two bullets]

- EPA Region 6 is conducting a 6-month air monitoring study to evaluate the sources and offsite impacts of hydrogen sulfide in the community of Crossett, Arkansas.
- The monitors were installed on January 11-13, 2017 and will be harvested on a biweekly basis through June, 2017.
- On December 12, 2016, Region 6 staff met with Mayor McCormick and Tim Tolar, the President of the Crossett Area Chamber of Commerce to discuss the monitoring study.

Background/Status: [one-three sentences]

Members of the Crossett community have long asserted that they are experiencing impacts from hydrogen sulfide generated by the Georgia Pacific pulp and paper facility in Crossett. Georgia-Pacific installed a continuous hydrogen sulfide air monitor in the community of Crossett in September, 2014. Elevated readings of hydrogen sulfide at that monitor coupled with an increasing frequency of citizen complaints led EPA to pursue additional study of these emissions.

Contact: Margaret Osbourne, 214-665-6508

From:	Frey, Sarah
To:	Fried, Gregory
Cc:	Osbourne, Margaret
Subject:	Justification for Jerome H2S Analyzers
Date:	Tuesday, August 09, 2016 4:52:00 PM

Hello Greg,

Crossett, Arkansas is one of Region 6's priority EJ communities. In Crossett, Georgia-Pacific (GP) owns and operates a pulp and paper mill with a very unconventional wastewater treatment system – basically an open creek channel where nutrients are added to enhance biological activity. The wastewater first flows south into a primary clarifier, then settling basins, through a surge basin, and to an aeration basin before being discharged into a river approximately 8 miles downstream. The community members who live near this stretch of creek have complained about hydrogen sulfide odors for years. GP has been operating a community H2S air monitor about ½ mile north of the clarifier and this monitor has been experiencing episodic elevated H2S readings above ATSDR screening levels of 70 ppb. We would like to characterize both the off-site emissions of H2S from the wastewater system and the off-site impacts to the citizens who live along the creek.

In order to prepare and optimize a sampling plan for a passive H2S monitoring campaign, we will perform a site pre-assessment using GMAP and Jerome Gold Film H2S technologies to locate and quantify hot-spots along the 8 mile stretch of GP's wastewater treatment system. The robust design and immediate, sensitive data collection of the Jerome J605 handheld analyzer can provide data not accessible by other available instrumentation. In the future, this equipment can also be used to provide real-time data for any community complaining of H2S odors, as it has data logging and ultra-sensitive detection capabilities that our current 4-gas meters do not provide.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Hirtz, James
To: Frey, Sarah
Cc: Spence, Kelley
Subject: Modeling Run - Crossett
Date: Tuesday, December 20, 2016 3:14:08 PM
Attachments: HR_Swine_H2S_Rumsey.pdf
image003.png

Hi Sara finished a rough model run for the GP site, and looking at the monitoring data and aligning the modeling run with these results, I have a few questions for you.

1. The modeling run when married with the monitoring data seems to indicate the P1/P3 sewer lines contributing quite a bit to the MIR site (ie the most exposed individual). So what I want to know from a modeling perspective, how would you characterize the site (ie lat/long) dimensions etc.

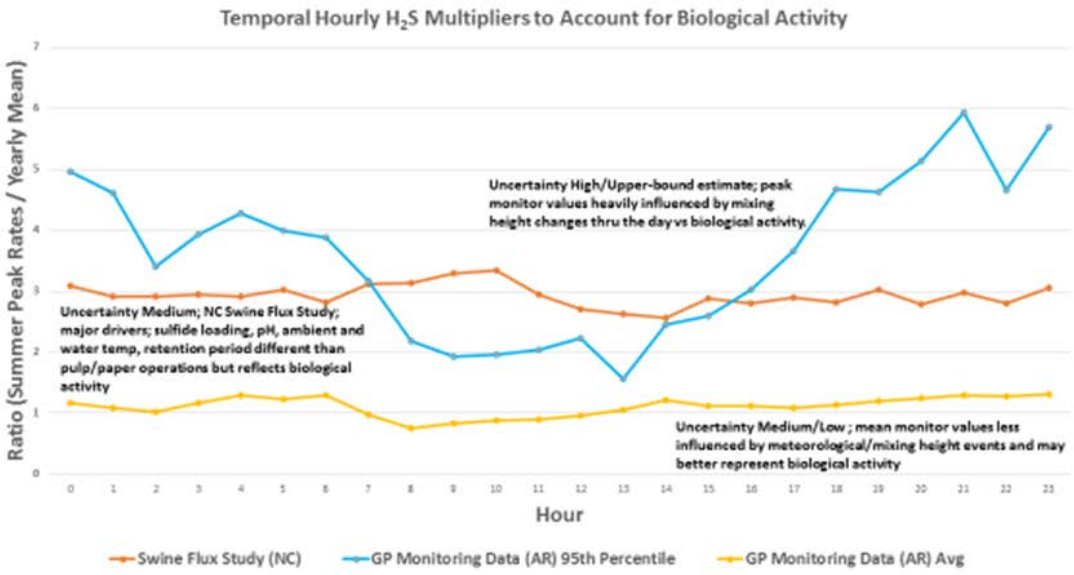
From my modeling run this is primarily the only source with wind direction (73 – 94) degrees besides the stack releases. So for this source I have about 23 tons/year being emitted and about 220 tpy being emitted all together from all sources.

So I have the P1/P2 sewer open at this lat/long:
33.1397 -91.9783

And I am modeling it as an Area Source with dimensions of 20 meters wide by 135 meters long. Based upon the Jerome monitoring data in which you were seeing the largest hits around this area would you agree with these dimensions or propose something else.

I also found a flux measurement study (swine lagoon) done on hydrogen sulfide here in NC, and the multiplier for this site was about 3 , so I looked at the monitoring data in addition to this study to see if I could develop an acute multiplier, I may want to apply. The flux study would basically zero out any met influences and highlight biological activity only. The flux rates maybe sign different when comparing a swine lagoon to a pulp/paper WWTP, but considering everything equal and that the WW charge does not change too much over time for either operation, it seems like a good starting point.

In the end, I settled for a Summer Seasonal multiplier of 2 (mid-point between the flux study and Summer Mean/ Ann Avg Temporal Curve); see chart below have you come across anything in regards to biological activity multipliers that maybe appropriate to use. This would reduce the meteorological influence on the data, vs using the 95th Percentile of Summer Monitoring Data / Yearly Mean Concentration for each hour. Any news on the cavity ring data;



Happy Holidays

Jim

919-541-0881

Weekly Activity Report for the Week of (10/24/2016)
Region 6 Compliance Assurance and Enforcement Division

Hot Topics/Heads Up Items (Prospective):
(Covering Enforcement, Compliance Assurance, Management/Policy Issues and OGC Issues)

1. Enforcement Issues

Confidential items:

Non-confidential items:

2. Compliance Assurance Issues

Confidential items:

Non-confidential items:

Regular Highlights

Enforcement and Compliance Assurance Issues

Non Confidential

Region 5 GMAP (Geospatial Measurement of Air Pollution) Vehicle monitoring trip to Crossett, AR. Region 5 and Region 6 staff will evaluate hydrogen sulfide (H_2S) emissions in Crossett, AR using a GMAP vehicle beginning October 26, 2016. The Region 5 GMAP vehicle has analyzers and meteorological equipment that can detect H_2S emissions in real time. Computers onboard the vehicle collect the emissions data from the analyzers as well as GPS data of the vehicle's location and overlays a graphic of the emissions detected onto a map of the area. Crossett has been selected as a Making a Visible Difference community. **Contact: Sarah Frey (214) 665-6499.**

Confidential

From:	Frey, Sarah
To:	Ross, Sarah M.
Subject:	Photos from 1/11/17
Date:	Thursday, January 12, 2017 3:09:00 PM
Attachments:	Photo Log - GP Crossett AR Installation.pdf

Hello Sarah,

Yesterday during installation, I took 2 photos at each sampling site. Curtis took the same photos. Would you still like me to send you a copy of the photos I took? It would take a few large emails to send them all over. Let me know if you have a Dropbox or other application that would be easier than multiple large emails.

I have attached our photo log document.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

Crossett, Arkansas Monitor Installation for Hydrogen Sulfide Monitoring Project
January 10-13, 2017

Draft Field Activity Plan 1/4/17

Objectives

Long Term:

- To identify the most prevalent point sources of hydrogen sulfide from the WWT system
- To quantify hydrogen sulfide emission concentrations and compare to acute and intermediate ATSDR minimum risk levels (MRLs) and EPA chronic inhalation reference concentration (RfC) value.

Short Term:

- To install 20 passive hydrogen sulfide monitors at optimum sampling locations for a long term passive monitoring project
- To follow QA/QC procedures, as outlined in the QAPP
- To be trained on appropriate deployment and record keeping procedures

Tasks

- Gain access to GP's WWT system, taking all necessary safety trainings at the facility
- ERG will assist in setting up passive sampling monitors
- ERG will train EPA team members in proper handling of the monitors
- Record data acquired in the field, including site and visual information into bound field notebooks and photographs.
- Work with the ERG contractors to identify optimum sampling locations
- Record observations, data, and locations as needed
- Determine ideal route for sample collection

Procedures

- Procedures for using safety devices will be discussed before trip departure
- Detailed information on the sampling Standard Operating Procedure (SOPs), sampling procedures, decontamination procedures, and sampling equipment and support facilities is in the Sampling Plan in Appendix A of the QAPP
- ERG will provide EPA sampling personnel with the materials and guidance on how to follow standard chain-of-custody procedures to ensure analytical results or other information generated from samples collected on this program may be used in litigation.
- All safety requirements will be followed

Resources

Personnel: Sarah Frey, Project Lead
James Haynes, Air Enforcement

Equipment: EPA Equipment Reserved

Equipment Name	Number
H_2S Personal Monitor	S68125
H_2S Personal Monitor	S68122
H_2S Personal Monitor	S68126
H_2S Personal Monitor	S68127
Calibration Gas	Unknown
Digital Camera (w/GPS)	S68174 (#4)

Additional Safety Equipment

Equipment Name	From
Insect Repellant	Individual
Complete PPE	Individual

Equipment that the ERG and EPA teams will use during set up of sample sites include nitrile gloves, zip lock bags, and all the materials associated with the passive sampling technology.

Schedule

- 1/9/17 – call residents who requested notification to remind of installation
- 1/10/17 – travel to Monticello and meet ERG ~3:30pm
- 1/11/17 – install on-property monitors (11 sites total)
- 1/12/17 – install community monitors (9 sites total)
- 1/13/17 – deploy cartridges for first sampling event, document start times
- GP Paper Operations is the main facility to be visited. We will focus primarily on the wastewater treatment system, beginning from the internal outfalls and ending at external Outfall 001. We will visit each monitor location indicated on the sampling site map. Monitoring stations will be assembled, photographed, and documented.
- Community monitors will be installed at the locations where consent has been obtained and on the GP fenceline

Coordination

- Prior notice has been given to residents, Georgia-Pacific staff, and city officials. A call to discuss project details with GP occurred January 4th. Follow-up with Sarah Ross needed.
- ADEQ has been informed, and it is unclear whether they will choose to participate.

Facility Background Information:

Facility background information and WWT system description can be found in previous pre-inspection documents and statements of work.

Proposed Monitoring Sites

1. COM1 – collocated with current H2S community monitor, north of WWT system
2. COM2 – community monitor near S. Wall Rd and W 3rd Ave
3. COM3 – community monitor on Dunmore Loop
4. COM4 – community monitor at N Virginia St./N Missouri St. & 6th Ave
5. COM5 –near Pistole St, east of WWT system (fence line) Westview Cemetery
6. COM6 – community monitor at Lawson Rd and Beathea Rd
7. COM7 – community monitor on Ashley Rd 223, west of Thurman Rd
8. COM8 – community monitor at Thurman Rd/Stephens Rd and Hwy 82
9. THUR – Located near community northwest of WWT system (fence line)
10. MILL – Prior to streams traveling underground
11. PCLR – Primary Clarifier, when P1/P2 sewers are exposed to atmosphere
12. CONV – Convergence of all streams (P1, P2, P3, dewatering process), post-clarifier
13. WABI– inlet of west ash basin
14. EABI – inlet of east ash basin
15. WABO– outlet of west ash basin
16. EABO – outlet of east ash basin
17. SBO – Surge Basin Outlet
18. ASB1 – Aeration Stabilization Basin Zone 1
19. ASB2 – Aeration Stabilization Basin Zone 2
20. OUT – Outfall 001

From:	Frey, Sarah
To:	Ross, Sarah M.
Cc:	Osbourne, Margaret
Subject:	Presentation from yesterday"s meeting
Date:	Friday, November 18, 2016 9:54:00 AM
Attachments:	161117 Proposed H2S Monitoring.pptx

Good morning, Sarah,

Thank you for coming in to meet with us yesterday. Attached is a copy of the presentation, please let me know if you need anything else.

Have a great weekend,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Frey, Sarah
To:	Dave Dayton
Cc:	Jason Sese; Leta Kent; Osbourne, Margaret
Subject:	Proposed Monitoring Sites
Date:	Tuesday, November 01, 2016 12:35:00 PM
Attachments:	Proposed Monitor Locations.jpg

Hi Dave,

Attached is a jpg image of our proposed monitoring sites and below is a description of locations. I chose the COM2 location based on where the yellow entrance gate used by the company is located. It may be easier to have it there near the cemetery than using a citizen's backyard.

- COM1 – collocated with current H2S community monitor, north of WWT system
- COM2 – Located near community east of the WWT system (fence line)
- THUR – Located near community northwest of WWT system (fence line)
- MILL – Prior to streams traveling underground
- PCLR – Primary Clarifier, when P1/P2 sewers are exposed to atmosphere
- CONV – Convergence of all streams (P1, P2, P3, dewatering process), post-clarifier
- WABI, EABI – inlet of east and west ash basins, which are alternated on a 5-wk cycle
- WABO, EABO – outlet of west and east ash basins
- SBO – Surge Basin Outlet
- ASB1 – Aeration Stabilization Basin Zone 1
- ASB2 – Aeration Stabilization Basin Zone 2
- OUT – Outfall 001

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Paul Buellesbach
To:	Frey, Sarah; Osbourne, Margaret; Gairola, Sounjay
Cc:	Jason Sese; Paul Buellesbach
Subject:	R6 Pulp and Paper/H2S Support
Date:	Wednesday, September 07, 2016 9:26:47 AM

Sarah:

It was great talking to you last week. I wanted to get in writing our understanding of your needs based on the call. Let me know if this makes sense.

EPA is investigating hydrogen sulfide (H_2S) emissions from the wastewater treatment system at the Georgia Pacific pulp and paper facility in Crossett, Arkansas. EPA will conduct an initial site visit in September 2016 to identify potential sampling locations and then will conduct an ambient monitoring study using passive sampling tubes. ERG will provide on-site support during the site visit for determining sampling sites, procedures, sampling materials, packaging and chain of custody documents for shipment of the samples to a lab for analysis.

Specifically, ERG shall perform the following activities:

- Rent four (4) handheld Jerome 605 H_2S analyzers and assist EPA in monitoring H2S emissions during a site visit in September 2016.
- Provide one to two personnel, as directed by EPA, to support EPA in determining the optimum sampling locations using results of site visit, and meteorological and topographical data.
- Develop a sampling and analysis plan, and a quality assurance project plan (QAPP), and have EPA's Quality Assurance Manager review and approve the QAPP. The sampling and analysis plan will include procedures for collection of passive tube samples.
- Develop a cost estimate for all necessary equipment and supplies for conducting the sampling effort in accordance with the sampling plan. Identify and coordinate with an analytical laboratory to conduct the necessary analyses. It is anticipated that the sampling time will be 14 days per sample, over the course of 24 weeks.
- Order and provide all necessary equipment and supplies for conducting the sampling effort in accordance with the sampling plan.
- Conduct the sample analysis. EPA will collect the tubes and ship them to the laboratory.
- Prepare a sampling report documenting the analytical results.

Let us know if you have any questions. Thanks!

Paul

From:	Ross, Sarah M.
To:	Frey, Sarah
Cc:	Osbourne, Margaret
Subject:	RE: Capacities Of Wastewater Treatment Unit Processes GP CPO
Date:	Wednesday, December 14, 2016 11:09:17 AM

Understood, thank you.

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Wednesday, December 14, 2016 9:05 AM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Capacities Of Wastewater Treatment Unit Processes GP CPO

Sent by an external sender

Good morning, Sarah,

If you do not have a ready-made property map available, please do not use too many resources to develop one. It is a low priority request.

Thank you,
Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Tuesday, December 13, 2016 5:31 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Capacities Of Wastewater Treatment Unit Processes GP CPO

Thank you, Sarah. Currently, we do not have an up-to-date property boundary map readily available and it will take some time to develop. I will keep you posted.

Sincerely,
Sarah Ross

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Thursday, December 08, 2016 5:39 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>

Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Capacities Of Wastewater Treatment Unit Processes GP CPO

Sent by an external sender

Ms. Ross,

Thank you for providing the capacity table.

We will be in Crossett next week (starting Monday afternoon) to meet with the mayor and begin obtaining access consent forms for our community monitoring sites. We do not plan to visit the mill, however if you would like to have a GP employee join us while selecting final community sites and obtaining consent, you are welcome to do so.

We are tentatively planning on air monitor installation the week of January 9th and will reach out with more detailed information as the timeline and QAPP are finalized.

Sincerely,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Thursday, December 08, 2016 4:47 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Subject: Capacities Of Wastewater Treatment Unit Processes GP CPO

RE: Passive Monitoring of Crossett, Arkansas

Ms. Frey,

Attached is our "Capacities of Wastewater Treatment Unit Processes" information sheet as requested during the EPA site visit September 27-28, 2016. We are working on a property boundary map for distribution. Also, I understand you will be in town next week. If you have plans to come by the paper mill, please let me know in advance. Thank you.

Sincerely,
Sarah Ross, Manager – Environmental Mill Services
GP Crossett Paper Operations
(870) 567-8670

From: Dave Dayton
To: Frey, Sarah
Cc: Jason Sese; Leta Kent
Subject: RE: Checking in.
Date: Monday, October 17, 2016 7:03:35 AM

Morning Sarah,

Thanks you for the update! Per your questions, here are some observations:

- It would be good to have the internal outfall data included, just so that we have a complete dataset.
- For an additional community site(s), I do not see much utility in having one East of the Ash Basins. One East of the primary clarifier at the closest residence that we could arrange for has potential (not really great with respect to prevalent wind direction, but worth consideration). The other location that we should consider is the area on Hancock Rd. (due North from Number 5 on the map) directly West of the Chip Storage Piles. This is North of where the on-site outfall and the effluent streams leave the facility.

If you are in training all week, is it next week that you would want to have a call?

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Friday, October 14, 2016 4:04 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>
Subject: RE: Checking in.

Hi Dave,

Attached is an updated spreadsheet with the water data included. I added extra rows for multiple samples or alternative locations. I did not include data from the internal outfalls, but I can send that separately if you are interested.

I am in training most of next week, but I should have time to access my email.

Do we want to consider potential sites in the neighborhoods east of the primary clarifier and/or east of the ash basins? Or due to the typical wind conditions, it is not likely to be helpful?

Have a great weekend!

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Thursday, October 13, 2016 5:42 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <leta.kent@erg.com>
Subject: RE: Checking in.

Sarah,

I have to say that I do not fully understand if there is expected to be some kind of direct relationship between the H2O data parameters that were collected and the air H2S measurements. If a direct relationship is not really expected, then we can arrange a meeting soon. However, if the is a direct relationship expected, or if it would just be better to have a call when all the data can be assessed, then let's wait until you have the H2O data. Let me know your preference and we can then schedule a call.

I will say, that just doing a quick look over of the H2S data I believe that coming up with 10 relevant sites will certainly be do-able.

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From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Wednesday, October 12, 2016 2:10 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>

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Hello Dave,

Attached is the Jerome data and a slightly modified version of your spreadsheet, with air data inserted. I am still waiting for the water data and will send it as soon as I receive it.

We are still trying to obtain raw met and community monitor data.

When do you think we should have a call?

Have a great day!

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Wednesday, October 12, 2016 10:54 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <leta.kent@erg.com>
Subject: Checking in.

Good Day Sarah,

I hope that you are doing well. Just checking in to see if you had a feel for when we might be able to get together with the map and spreadsheet to discuss siting for the Crossett GP monitoring.

Jason S. is working on a QAPP/monitoring Plan and site determinations (number and location) are needed as part of that process. I have ordered and received the shelters (10 units) and the diffusor/passive tube support plates (20). I also have a staff member here going through the calculations for temperature correction and the concentration calculation using the established "Uptake Rate".

Look forward to hearing from you,

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To: Dave Dayton
Cc: Jason Sese; Leta Kent
Subject: RE: Checking in.
Date: Friday, October 14, 2016 3:03:00 PM
Attachments: Crossett_H2S_10.14.2016.xlsx

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601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From:	Frey, Sarah
To:	Dave Dayton
Cc:	Jason Sese; Leta Kent
Subject:	RE: Checking in.
Date:	Monday, October 17, 2016 7:16:00 AM
Attachments:	Internal Outfall Water Data.xlsx

Good morning Dave,

I am available on Friday this week or any day next week. Please let me know what works best for you.

I have attached the internal outfall water data.

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Monday, October 17, 2016 7:03 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <leta.kent@erg.com>
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Laboratory Facility Manager
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601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From:	Frey, Sarah
To:	Dave Dayton
Cc:	Jason Sese; Leta Kent; Osbourne, Margaret
Subject:	RE: Checking in.
Date:	Wednesday, October 12, 2016 1:09:00 PM
Attachments:	Compiled Jerome Data Sept 2016.xlsx Crossett_H2S_10.12.2016.xlsx

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Subject: Checking in.

Good Day Sarah,

I hope that you are doing well. Just checking in to see if you had a feel for when we might be able to get together with the map and spreadsheet to discuss siting for the Crossett GP monitoring.

Jason S. is working on a QAPP/monitoring Plan and site determinations (number and location) are needed as part of that process. I have ordered and received the shelters (10 units) and the diffusor/passive tube support plates (20). I also have a staff member here going through the calculations for temperature correction and the concentration calculation using the established "Uptake Rate".

Look forward to hearing from you,

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700

Morrisville, NC 27560
(919)468-7883

From:	Osbourne, Margaret
To:	Frey, Sarah
Cc:	Haynes, James
Subject:	RE: Crossett Community Monitors
Date:	Friday, December 02, 2016 8:35:45 AM

Thanks Sarah!

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Frey, Sarah
Sent: Friday, December 02, 2016 8:33 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Haynes, James <haynes.james@epa.gov>
Subject: Crossett Community Monitors

Margaret, for our upcoming call with Rev. Bouie, below are the proposed locations for our community monitors:

Need address/consent

- COM2 – community monitor near S. Wall Rd and W 3rd Ave
- COM3 – community monitor on Dunmore Loop and 5th Ave
- COM4 – community monitor at N. Virginia St. (or N. Missouri St.) and W 3rd Ave
- COM6 – community monitor at Lawson Rd and Beathea Rd
- COM7 – community monitor on Ashley Rd 223, west of Thurman Rd
- COM8 – community monitor at Thurman Rd and Hwy 82

May not need consent, placing monitors near or on GP fence line

- COM1 – collocated with current H2S community monitor, north of WWT system
- COM5 – community monitor near Pistole St, east of WWT system (fence line)
- THUR – Located near community northwest of WWT system (fence line)

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Frey, Sarah
To: Ross, Sarah M.
Cc: Kuhlman, Steven J.; Osbourne, Margaret
Subject: RE: Crossett Info form September 27-28, 2016 visit
Date: Friday, October 14, 2016 3:46:00 PM
Attachments: Water Data Sept 2016.xlsx

Ms. Ross,

Attached is the compiled water sampling data from our visit September 27 and 28th. Please let me know if you need any clarifications.

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Thursday, October 13, 2016 9:32 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Crossett Info form September 27-28, 2016 visit

Thank you, Sarah.

Sincerely,
Sarah Ross
Phone: (870) 567-8670

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Wednesday, October 12, 2016 1:40 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Cc: Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Crossett Info form September 27-28, 2016 visit

Sent by an external sender

Ms. Ross,

Attached is some preliminary data from our visit September 27 and 28th. The Jerome data

spreadsheet is essentially raw data, however I did convert any ppm readings to ppb, for simplicity. I also tried to notate the actual locations that the samples were collected. The second spreadsheet is a general summary (range and average H2S concentrations), trying to match Jerome readings with the coordinate locations on the provided map.

1. Compiled Jerome Data Sept 2016 (each tab is one instrument, also note J4 timestamp differs from the others by 1 hour)
2. Coordinate Table from GPS readings
3. Overview map, location key found in coordinate table
4. Clarifier Up1 map, location key found in coordinate table
5. Clarifier Down map, location key found in coordinate table
6. Coordinates with corresponding H2S readings

I will also be sharing these documents with the ORD staff working on the conceptual site model. I'm hoping that I will have water data to share with you soon.

Please let me know if you have any questions!

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
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EPA Region 6
1445 Ross Ave. (6EN-AT)
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214-665-6499

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Monday, October 10, 2016 3:08 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>
Subject: Crossett Info form September 27-28, 2016 visit

FRS ID: 110000450921
AFIN 02-00013
Facility: Georgia Pacific Crossett LLC, Crossett, Arkansas

Ms. Frey,

To follow-up EPA's site visit to our Crossett Paper Operations on September 27-28, 2016, please find attached:

1. Georgia Pacific LLC Crossett Paper Operations Mill Water Balance which is the upstream schematic requested by Ms. Mitty Mohon.
2. Defoamer Safety Data Sheet for Advantage NF1038 Defoaming Agent by Solenis
3. Odor control product Safety Data Sheet (SDS) for AOTECH CW by ORIN

Technologies

We will continue to gather and communicate the other requested information. Thank you.

Sincerely,
Sarah Ross, PE
Manager – Environmental Mill Services
GP Crossett Paper Operations
Email: Sarah.Ross@gapac.com
Phone: (870) 567-8670

From:	Ross, Sarah M.
To:	Frey, Sarah
Cc:	Kuhlman, Steven J.; Osbourne, Margaret
Subject:	RE: Crossett Info form September 27-28, 2016 visit
Date:	Thursday, October 13, 2016 9:32:14 AM

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Sent: Wednesday, October 12, 2016 1:40 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Cc: Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
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Compliance Assurance & Enforcement Division
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Dallas, TX 75202
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Manager – Environmental Mill Services
GP Crossett Paper Operations
Email: Sarah.Ross@gapac.com
Phone: (870) 567-8670

From:	Frey, Sarah
To:	Ross, Sarah M.
Cc:	Kuhlman, Steven J.; Osbourne, Margaret
Subject:	RE: Crossett Info form September 27-28, 2016 visit
Date:	Wednesday, October 12, 2016 1:37:00 PM
Attachments:	Clarifier Down.jpg Clarifier Up1.jpg Compiled Jerome Data Sept 2016.xlsx Coordinate Table from GPS readings.docx Coordinates with corresponding H2S readings.xlsx Overview.jpg

---

Ms. Ross,

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Compliance Assurance & Enforcement Division
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Dallas, TX 75202
214-665-6499

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Sent: Monday, October 10, 2016 3:08 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>
Subject: Crossett Info form September 27-28, 2016 visit

FRS ID: 110000450921
AFIN 02-00013

Facility: Georgia Pacific Crossett LLC, Crossett, Arkansas

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3. Odor control product Safety Data Sheet (SDS) for AOTECH CW by ORIN Technologies

We will continue to gather and communicate the other requested information. Thank you.

Sincerely,
Sarah Ross, PE
Manager – Environmental Mill Services
GP Crossett Paper Operations
Email: Sarah.Ross@gapac.com
Phone: (870) 567-8670

From:	Frey, Sarah
To:	Osbourne, Margaret
Subject:	RE: Crossett Sept 26th Trip Details
Date:	Thursday, September 15, 2016 4:29:00 PM
Attachments:	Crossett H2S Trip Details v3.docx

Yes,

I attached it to the most recent calendar invite (for Wednesday afternoon).

Sarah

From: Osbourne, Margaret
Sent: Thursday, September 15, 2016 4:26 PM
To: Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Subject: FW: Crossett Sept 26th Trip Details

Do you have a more recent version of this? If not, no worries.

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Frey, Sarah
Sent: Monday, September 12, 2016 3:41 PM
To: Ford, Debbie <Ford.Debbie@epa.gov>; Leathers, James <Leathers.James@epa.gov>; Chen, Justin <Chen.Justin@epa.gov>; Mohon, Mitty <mohon.mitty@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Crossett Sept 26th Trip Details

Hello Everyone,

Attached is a first draft of our trip plan. We will clarify some of the details during tomorrow's meeting. Some background information is included in on the final page.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Dave Dayton
To: Frey, Sarah
Cc: Leta Kent; Jason Sese; Osbourne, Margaret
Subject: RE: Expanded Siting in Crossett, AR
Date: Wednesday, November 23, 2016 6:17:30 AM

Morning Sarah,

I hope that you have a safe and Happy Thanksgiving! Please see my responses below in **RED**.

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, November 22, 2016 4:35 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Leta Kent <Leta.Kent@erg.com>
Subject: RE: Expanded Siting in Crossett, AR

Hi Dave,

Thank you for your responses.

I spoke with Jason, and he informed me that the equipment will not arrive until after Christmas, so we will plan on the second week of January. **If you are in next week, let's have a short call to go over how I think travel/installation/training would go and iron out the details a little. Let me know what your schedule next week looks like.** We will need to have a finalized QAPP in place to share with the company before that time to ensure we will have site access.

In regards to the pole installation, if no holes are necessary, then the company won't dig them. However, it seems for liability reasons they would want to be the ones swinging the hammer. **Certainly not an issue for me (said the 65 year old guy). They are welcome to do all the hammering they want for the ones on GP Property. I would be more than happy to just have to do the ones off property.**

In regards to the procedure provided, I wanted to confirm that it will be updated to reflect the

increase to 20 sites. **Yes it will.** Also, I have a few questions:

- Will we increase the number of collocated samples and field blanks to 2? **No. Looking into it further, a total of 12 collocated pairs will be plenty to establish Method Precision, and 12 Trip/Field Blank samples will be enough to gauge the potential for positive bias. These samples will be collected at a different site each time (which will be specifically scheduled) with half from on-site locations and half from off-site locations.** Will the second field blank be at a different location, or the same location? **Again – no second blank required. All Trip/Field blanks will be collected at the S1/COM1 location. The shelter for that location has been modified to address the requirement.**
- Would it be possible to extend the cleaning of the diffusive bodies to every four weeks, or do you think that the PM will be high enough to need cleaning every two weeks? **Unless you cannot, I would stick with switching out the diffusor bodies after each episode and cleaning the ones that are removed. The pore size is so small that you cannot not really just look at them and assess whether they are okay or not. I replace and wash every time, then the procedure is standardized with not variable added (by sometimes replacing and sometime not). Also, as an FYI – I purchased 3 boxes of 20 diffusor bodies each. This will give you extras to allow an out-right replacement of a body if one looks like it has issues.**
- Will the average temperature for the sample duration be included in the field data sheet for the lab, or will we communicate that value through another means**? As EPA has decided to take on the down-loading of the met data, calculation of the average temperature, and development of the database – it would be up to you/EPA to contact Chris Amidon at ALS to provide the average temperature wit5hin 2 days of shipping him the samples after an episode. (Hopefully you know about this. It was decided by EPA on the call with Head Quarters that you missed – talk to Margaret). In any event, the QAPP will have the details for doing this including the website address for the NWS location in Monticello, AR – which is where we agreed the data would come from. We can discuss this in more detail when the QAPP is being reviewed.**

Have a great Thanksgiving!

Sarah

From:	Ross, Sarah M.
To:	Frey, Sarah
Subject:	RE: Follow-up from today"s call
Date:	Wednesday, January 11, 2017 6:11:02 AM
Attachments:	image002.png image004.png image006.png image007.png image008.png

---

Good morning. Please have the Security personnel call my cell and we'll come to the Front Gate to receive you all.

Thanks,
Sarah

Sent with Good (www.good.com)

From: Frey, Sarah <frey.sarah@epa.gov>
Sent: Wednesday, January 11, 2017 5:59:51 AM
To: Ross, Sarah M.
Subject: RE: Follow-up from today's call

Sent by an external sender

Thank you, Sarah.

We are on track to arrive around 7:15am this morning.

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Tuesday, January 10, 2017 10:38 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Subject: RE: Follow-up from today's call

Hello, I'm just checking in for tomorrow – 7am
Please consider:

- Truck or 4 wheel drive to travel around the WWTS
- Reflective tape for the sample houses around the WWTS
- Insects and snakes are usually less at this time of year, but could still be present around the WWTS, so please be cautious.

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Thursday, January 05, 2017 12:12 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Subject: RE: Follow-up from today's call

Sent by an external sender

Great! We'll plan on arriving between 7 and 7:30am, I want to make sure the sun is up!

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Thursday, January 05, 2017 12:07 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Subject: RE: Follow-up from today's call

You are correct; my apologies. My team can start as early as 7am if that suits you all better.

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Thursday, January 05, 2017 12:04 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Subject: RE: Follow-up from today's call

Sent by an external sender

Hi Sarah,

We did not receive a white card or certificate when we took the training as a group in on September 27th.

Please advise.

Sarah

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Thursday, January 05, 2017 11:51 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Subject: RE: Follow-up from today's call

Please bring your white card demonstrating your training completion or the training certificate for the Security personnel.

Yes, Wednesday and I'm thinking 8am, but will confirm with Chris and Curtis. Thanks!

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Thursday, January 05, 2017 10:56 AM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Subject: RE: Follow-up from today's call

Sent by an external sender

Good morning, Sarah,

The contractors, Justin, and I took the visitors' training in September and James will complete the training before our arrival next week.

Do you still prefer installation on Wednesday? I would like to start as early as possible, in order to attempt installing all 11 monitors. What time should we plan on arriving?

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Thursday, January 05, 2017 9:16 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>; Haynes, James <haynes.james@epa.gov>; Chen, Justin <Chen.Justin@epa.gov>
Cc: Frey, Sarah <frey.sarah@epa.gov>; Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: Follow-up from today's call

Good morning, everyone.

The GP Crossett Paper Operations Visitor Orientation is found here: http://gpcrossett.contractortrainingonline.com. Please take the Visitor portion and print the training certificate for presentation to our Security personnel at the Front Gate upon arrival.

We are actively dredging in Zone 2 of the ASB this quarter.

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Wednesday, January 04, 2017 2:22 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Cc: Frey, Sarah <frey.sarah@epa.gov>; Haynes, James <haynes.james@epa.gov>; Chen, Justin <Chen.Justin@epa.gov>
Subject: Follow-up from today's call

Sent by an external sender

Hi Traylor and Sarah:

The attendees on today's call were:

1) Steve Thompson
2) Patricia Welton
3) Sarah Frey
4) Cheryl Barnett
5) James Haynes
6) Tressa Tillman
7) Margaret Osbourne

The two employees who will need to take the GP safety training online are James Haynes (Haynes.james@epa.gov) and Justin Chen (Chen.justin@epa.gov). Can you please send them the training link?

Are dredging activities still occurring at the Crossett mill or are those over until next Nov/Dec?

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
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From:	Frey, Sarah
To:	Ross, Sarah M.
Subject:	RE: Follow-up from today"s call
Date:	Thursday, January 05, 2017 12:12:00 PM
Attachments:	image006.png image007.png image008.png image009.png image010.png

---

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From:	Hirtz, James
To:	Frey, Sarah
Cc:	Osbourne, Margaret
Subject:	RE: Frey, Sarah has shared "Community Monitor Data"
Date:	Tuesday, November 08, 2016 6:07:53 AM
Attachments:	image002.png

Yes it is

From: Frey, Sarah
Sent: Monday, November 07, 2016 5:30 PM
To: Hirtz, James <Hirtz.James@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Frey, Sarah has shared 'Community Monitor Data'

Hi Jim,

Thank you for the image below. To clarify, is the center of the plot the H2S monitor?

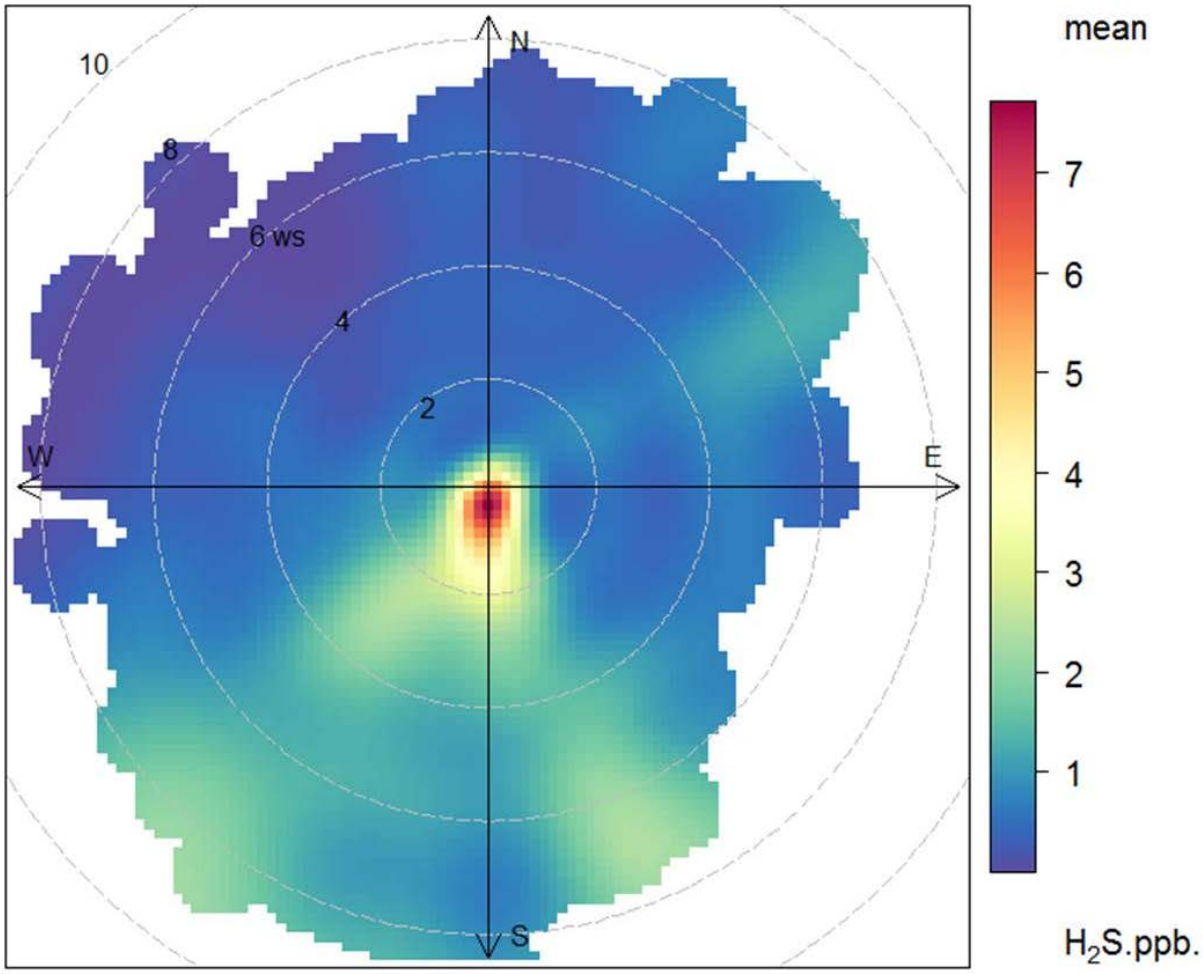
I expect to have the cavity ring-down data by the end of the month.

Sarah

From: Hirtz, James
Sent: Monday, November 07, 2016 11:50 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Frey, Sarah has shared 'Community Monitor Data'

Thanks looking at the 1 hourly merged H2S data with the met data, we see 3 strong signatures when the winds are blowing from 50, 150, and 225 degrees, so Internal Outfall 1, Clarifier, and Aeration Basin (Stage 1 area) at least on the surface. Will need to see how the model run configurations look next, I will use the data from the Jerome monitors to help define these area's and run to see how the correlations look over this time period with swapped met data for (ws, wd). By chance when do you expect to have the cavity ring monitoring data available

R Graphics: Device 2 (ACTIVE)



From: Frey, Sarah
Sent: Friday, November 04, 2016 10:33 AM
To: Hirtz, James <Hirtz.James@epa.gov>
Cc: Frey, Sarah <frey.sarah@epa.gov>
Subject: Frey, Sarah has shared 'Community Monitor Data'

This folder has H2S and Met data from Oct 14 to Oct 16.

Go to Community Monitor Data

Get the OneDrive mobile app! Available for

From: Frey, Sarah
To: Hirtz, James
Subject: RE: GP Crossett initial data
Date: Monday, October 17, 2016 8:33:00 AM
Attachments: Crossett_H2S_10-17-2016.xlsx

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Sarah

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Please let me know if you have any questions! We will be working with ERG soon to develop our plan for placing passive samplers. Please let me know if you think there are other potential locations that would be useful.

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Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Hirtz, James
To: Frey, Sarah
Subject: RE: GP Crossett initial data
Date: Monday, October 17, 2016 8:56:07 AM

Thanks if I can get the additional monitoring data, I maybe of more of use to look at what site(s) you choose as being the most ideal from a modeling standpoint.

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To: Hirtz, James <Hirtz.James@epa.gov>
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6. Coordinates with corresponding H2S readings

I will also be sharing these documents with the ORD staff working on the conceptual site model. I'm hoping that I will have water data to share with you soon.

Please let me know if you have any questions! We will be working with ERG soon to develop our plan for placing passive samplers. Please let me know if you think there are other potential locations that would be useful.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Frey, Sarah
To:	Osbourne, Margaret; Thompson, Steve
Cc:	Welton, Patricia; Barnett, Cheryl; Haynes, James
Subject:	RE: GP Crossett Passive Sampling
Date:	Thursday, January 05, 2017 10:51:00 AM

I'm not sure which elements he is hoping to standardize. The way we collect the cartridges? How we intend to validate the data? The laboratory protocols?

Sarah

From: Osbourne, Margaret
Sent: Thursday, January 05, 2017 10:37 AM
To: Thompson, Steve <thompson.steve@epa.gov>
Cc: Welton, Patricia <Welton.Patricia@epa.gov>; Barnett, Cheryl <Barnett.Cheryl@epa.gov>; Frey, Sarah <frey.sarah@epa.gov>; Haynes, James <haynes.james@epa.gov>
Subject: FW: GP Crossett Passive Sampling

See below. Traylor badly wants the QAPP. James can finalize the Executive Summary by the end of today and we can send that over. Thoughts?

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Wednesday, January 04, 2017 6:50 PM

To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: GP Crossett Passive Sampling

Margaret. After thinking through our conversation today, I would like to request again that EPA share the SSMP/QAAP with us. I think it is important that the sampling effort that we are both undertaking with separate but duplicate sampling devices be as similar and consistent as they can be.

In order to provide that consistency, we need to make sure our sampling program follows procedures similar to those ERG is following, and if not, we will consider if it is appropriate to adjust our protocols if necessary.

Thanks for your consideration.

Sent with Good (www.good.com)

From: Osbourne, Margaret <osbourne.margaret@epa.gov>
Sent: Tuesday, January 3, 2017 4:55:17 PM
To: Champion, Traylor
Subject: RE: GP Crossett Passive Sampling

Sent by an external sender

Hi Traylor:

Would you like to connect by video or is phone fine for you? If video, please send me your video number.

Do you have an agenda for tomorrow's meeting?

Talk to you then.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Tuesday, January 03, 2017 2:56 PM
To: Thompson, Steve <thompson.steve@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Lathrop, Alison J. (GP LAW) <Alison.Lathrop@GAPAC.com>; Gesser, Ryan <Ryan.Gesser@gapac.com>; Kuhlman, Steven J. <SJKUHLMA@GAPAC.com>; Ross, Sarah M. <Sarah.Ross@GAPAC.com>; Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>
Subject: GP Crossett Passive Sampling

Steve – Thanks for taking the time to speak with us tomorrow to discuss EPA's planned H2S passive sampling in Crossett and around GP's wastewater treatment system. In preparation for that discussion, I'm forwarding: 1) a clean and red-lined version of EPA's November 7 Statement of Work with GP's comments; and 2) results from GP's passive sampling around the wastewater treatment system.

Regarding the SOW, we have added some additional specificity, such as details on GP's continuous monitor and EPA's passive samplers. We have also revised some of the language and terminology used to more accurately reflect the nature of the passive sampling and the appropriate ATSDR MRL. We note that EPA's SOW indicates samplers will be collected every 14 days, so ATSDR's acute (1- to 14-day) MRL of 70 ppb is relevant. We've omitted references to the ATSDR intermediate (15- to 365-day average) MRL of 20 ppb because the passive samplers will not measure over that extended averaging period. Furthermore, because each sample will have a different limit of quantification (due primarily to effect of ambient temperature on sampling rate and diffusion), averaging results over multiple samples to calculate an average over a longer period may be precluded. Similarly, sustained monitoring of 1 year or more would be necessary to compare results to the RfC.

Also, Alison is reviewing a standard template access agreement she received from another internal counsel to customize it for this effort. We will forward that in the next day or two.

We look forward to discussing this with you further tomorrow.

From: Frey, Sarah
To: Osbourne, Margaret
Cc: Haynes, James
Subject: RE: GP Crossett
Date: Tuesday, December 27, 2016 8:13:25 AM

Black text is from Traylor Champion Email 12/16. **Blue text is my proposed response**.

After our meeting in Dallas recently and further review of EPAs proposed sampling effort in Crossett, we have a few items I would like to further discuss with you as we consider our participation in this effort. Would you be available for a phone conversation next week or 1st week of January to discuss? Below are a few things I would like to discuss. Just let me know your availability. If we don't connect before the holidays, hope you and family have a great holiday season.

- We continue to question the need to conduct additional ambient monitoring beyond the voluntary monitoring we have been conducting the past 2 years (and continue to conduct) in the community.
    - **The current community monitor is just a single point, and will not help us determine the most prevalent origins of high concentration H2S release. We are also interested in understanding exposure in additional communities.**
    - **In 2015, there were 4 episodes exceeding 70ppb, totaling ~520 minutes**
    - **In 2016, there were 15 episodes exceeding 70ppb, totaling ~2915 minutes**

- We submitted the monitoring information to EPA/ATSDR/ADH for the initial data collection period in June 2015 as agreed to. The resulting Health Consultation has yet to be completed.
    - **It is our understanding that ADH/ATSDR will be releasing 2 Air Health Consultations – the first will detail the monitoring itself and evaluate the first 6 months of data. The second will look at data from March 2015 through 2016. We are unaware of the anticipated release dates.**

- Also, as you know, EPA ORD is in the process of developing a separate CSM for the Crossett site and expect to have those results late Q1 2017.
    - **The conceptual site model evaluates many pathways of a variety of pollutants. ORD is still in the process of identifying data gaps, and our monitoring will not interfere with their work.**

- We think it would be appropriate for EPA to delay the proposed additional monitoring until these two efforts are completed to determine if there is a need for any additional data collection.
    - **We are planning to proceed as planned, installing monitoring stations the second week of January and collecting samples every two weeks for a total of 24 weeks.**

- The SOW states "EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station.
    - **No meteorological station will be installed, data will be retrieved from the TRC**

website and an average temperature for the sampling period will be recorded.

- **Placement of the monitoring devices will occur the second week of January. General locations have been shared via our site map, exact locations will be determined during installation. GP can help select locations that will be out of the way for workers and daily operations.**
- **A 7/8-inch diameter galvanized pole will need to be hammered about 2 feet deep into the ground. The sample shelter will be carefully placed at 5 feet above the ground. There is space in our sample shelter for GP collocated samples, if desired.**
- **Samples will be retrieved bi-weekly. Ideally, this will occur around the same time and route each collection. The collection dates are: 1/27/2017, 2/10/2017, 2/24/2017, 3/10/2017, 3/24/2017, 4/7/2017, 4/21/2017, 5/5/2017, 5/19/2017, 6/2/2017, 6/16/2017, and 6/30/2017.**

- At this point we are still unclear on details of how the data collected from the monitors will be compiled and then, what criterion it will be compared to in order to assess what the results mean in terms of potential impacts (if any) to residents in the community. We anticipate this detail will be provided in the forthcoming SSMP/QAPP and we would like an opportunity to review and comment (if not we request that it be included). We feel strongly that it is important to have clarity on this before EPA proceeds.
  - **Our QAPP outlines the questions we seek to answer:**
    - **What are the sources of hydrogen sulfide in the WWT system at the mill?**
    - **Is hydrogen sulfide leaving the facility property?**
    - **Is there a risk of chronic exposure in the community?**
    - **Should more monitors be placed in the community for long term monitoring?**
  - **The resulting data will be used to determine point sources of hydrogen sulfide in the WWT system and if ambient levels of hydrogen sulfide are detected at levels exceeding the ATSDR intermediate MRL of 20 ppbV or the EPA's chronic inhalation reference concentration (RfC) of 1 ppbV.**
  - **All samples are being analyzed by a contracted laboratory. Data will be compiled by EPA, including QC samples. EPA will use the field QC results to determine how the analytical results may be used.**

- If we proceed forward with locating EPA monitoring equipment onsite, our business counsel indicates we need to have the appropriate **access agreements** in place. Need to discuss logistics of this process.
  - **We will have our regional counsel look over the access agreements, once provided.**

- As we indicated in our Dallas meeting, we placed a number of passive monitors onsite around our WWTS and have begun collecting data from these units. Would like to discuss initial results and opportunity to share this information.

From: Osbourne, Margaret
Sent: Friday, December 16, 2016 2:40 PM

To: Frey, Sarah <frey.sarah@epa.gov>
Subject: FW: GP Crossett

FYI – read the whole chain. I'll set up a call with Traylor.

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Champion, Traylor [mailto:BTCHAMPI@GAPAC.com]
Sent: Friday, December 16, 2016 2:18 PM
To: Thompson, Steve <thompson.steve@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: GP Crossett

Morning of Jan 4th or anytime on the 5th will work on my end…will discuss the access agreement with the legal guys

---

From: Thompson, Steve [mailto:thompson.steve@epa.gov]
Sent: Friday, December 16, 2016 3:04 PM
To: Champion, Traylor <BTCHAMPI@GAPAC.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Re: GP Crossett

Sent by an external sender

Traylor,
Thanks for the email. I am taking the next couple weeks off for the holidays so I think a meeting the first week in January works best. Can you propose some times that week that work best for your team? I can have Margaret check with our folks.

Also, If you could pass along the details (or an example) of the site access agreements, I can see if our counsel can start looking over the document.

Hope you also have a nice holiday! Thanks, Steve

Sent from my iPhone

On Dec 16, 2016, at 12:39 PM, Champion, Traylor <BTCHAMPI@GAPAC.com> wrote:

> Steve…hope all is well.
>
> After our meeting in Dallas recently and further review of EPAs proposed sampling effort in Crossett, we have a few items I would like to further discuss with you as we consider our participation in this effort. Would you be available for a phone conversation next week or 1st week of January to discuss? Below are a few things I would like to discuss. Just let me know your availability. If we don't connect before the holidays, hope you and family have a great holiday season.
>
> - We continue to question the need to conduct additional ambient monitoring beyond the voluntary monitoring we have been conducting the past 2 years (and continue to conduct) in the community. We submitted the monitoring information to EPA/ATSDR/ADH for the initial data collection period in June 2015 as agreed to. The resulting Health Consultation has yet to be completed. Also, as you know, EPA ORD is in the process of developing a separate CSM for the Crossett site and expect to have those results late Q1 2017. We think it would be appropriate for EPA to delay the proposed additional monitoring until these two efforts are completed to determine if there is a need for any additional data collection.
>
> - The SOW states "EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station. At this point we are still unclear on details of how the data collected from the monitors will be compiled and then, what criterion it will be compared to in order to assess what the results mean in terms of potential impacts (if any) to residents in the community. We anticipate this detail will be provided in the forthcoming SSMP/QAPP and we would like an opportunity to review and comment (if not we request that it be included). We feel strongly that it is important to have clarity on this before EPA proceeds.
>
> - If we proceed forward with locating EPA monitoring equipment onsite, our business counsel indicates we need to have the appropriate access agreements in place. Need to discuss logistics of this process.
>
> - As we indicated in our Dallas meeting, we placed a number of passive monitors onsite around our WWTS and have begun collecting data from these units.

Would like to discuss initial results and opportunity to share this information.

From: Hirtz, James
To: Osbourne, Margaret; Frey, Sarah
Subject: RE: GP H2S monitor
Date: Wednesday, August 31, 2016 6:24:25 AM

Thanks Margaret;

I guess my concern is the level of interference especially if the scrubber is not working appropriately that we are sure that GP would not come back later and say the interferences are sign and it could affect the modeling and review of the monitoring data.

My only thought on the SUMMA cannister or some other method(s) is that if you take sample aliquots over a long enough period it may help with any speciation breakdown we could use to adjust any suspect H2S data collected from the monitor. As long as GP is engaged and they assure us the monitor is working appropriately, I am good with that again this was a conversation with a corporate head vs someone at the plant who maybe more familiar with the day to day running of the monitor.

Thx

jim

From: Osbourne, Margaret
Sent: Tuesday, August 30, 2016 3:34 PM
To: Hirtz, James <Hirtz.James@epa.gov>
Subject: FW: GP H2S monitor

See Sarah's note below about the monitor.

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Frey, Sarah
Sent: Tuesday, August 30, 2016 2:09 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: GP H2S monitor

Hi Margaret,

The instrument used has both a hydrocarbon and SO2 scrubber, which allows H2S through to be analyzed. Attached is the interferences section from the instrument's manual. The interferences should be minimal.

Summa canisters are not a good option, in discussions with Raj, they are not effective for H2S sampling.

Sarah

From: Osbourne, Margaret
Sent: Tuesday, August 30, 2016 2:02 PM
To: Verhalen, Frances <verhalen.frances@epa.gov>
Cc: Thompson, Steve <thompson.steve@epa.gov>; Frey, Sarah <frey.sarah@epa.gov>
Subject: GP H2S monitor

Hi Fran:

In a conversation between OAQPS and Mike Curtis, corporate environmental manager for GP, Mike said that GP has conducted an analysis on its H2S monitor and determined that they're picking up other sulfur compounds in addition to H2S – possibly SO2 and carbonyl disulfide. Can EPA help facilitate a conversation with ADH, ADEQ and GP to discuss a better monitoring and reporting strategy?

We are in a bind because we are trying to model the site using, in part, the H2S data GP is reporting, but we are limited in what we can do if it's not speciated. Could GP install summa canisters instead?

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
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From:	Frey, Sarah
To:	Spencer, Stuart; Osbourne, Margaret
Cc:	braun@adeq.state.ar.us; Thompson, Steve
Subject:	RE: GP Information
Date:	Monday, November 07, 2016 4:57:00 PM
Attachments:	H2S SOW v5.docx

Mr. Spencer,

Attached is a Statement of Work explaining our passive H2S monitoring goals and summarizing key components of the project plan.

Please let me know if you need additional details.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Spencer, Stuart [mailto:SPENCER@adeq.state.ar.us]
Sent: Monday, November 07, 2016 11:53 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: braun@adeq.state.ar.us; Thompson, Steve <thompson.steve@epa.gov>; Frey, Sarah <frey.sarah@epa.gov>
Subject: RE: GP Information

Thank you, Margaret. The call was helpful. I appreciate the information.

Stuart

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Monday, November 07, 2016 11:44 AM
To: Spencer, Stuart
Cc: Braun, Heinz; Thompson, Steve; Frey, Sarah
Subject: GP Information

Hi Stuart:

Thanks for the call today.

Here is the link to the database where we post all of our enforcement actions. If you search for "Crossett" you'll see all of our recent enforcement actions (mainly compliance orders) at GP:

https://www.epa.gov/ar/compliance-assurance-and-enforcement-documents-arkansas

At that same website you can view the entire inspection report for each GP Crossett facility – 1,000s of pages – but I'm attaching the narrative reports for both facilities to this email for your convenience. The confidentiality on each of them has been waived.

I'll send you the additional information regarding monitoring later today.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From:	Hirtz, James
To:	Osbourne, Margaret
Cc:	Frey, Sarah
Subject:	RE: GP monitoring data - GIS
Date:	Monday, October 31, 2016 8:18:29 AM
Attachments:	H2S_Jerome_2016.jpg R6_Jerome_Summary_GP_GIS.csv image006.png image007.png image008.png image009.png image010.png

---

Here is the jpg map of the Jerome Monitoring data, the contour mapping is not going to be very useful since we are dealing with such a discrete number of samples over a limited spatial domain, so in essence I would only look at it as a bubble map but GIS provides it with some higher level of interpolation. Also attached is the summary sheet I used to generate the map let me know if I have any of it wrong or if you want some other map generated.

I expect when comparing the contouring with Cavity ring monitor and the model run that I will be doing will be a little more meaningful when I get both the Cavity ring data and the GP monitoring data from the community monitor.

Let me know your thoughts or whether or not we need to talk

jim

From: Osbourne, Margaret
Sent: Wednesday, October 26, 2016 5:37 PM
To: Hirtz, James <Hirtz.James@epa.gov>
Subject: FW: GP monitoring data

Hi Jim:

Can you help me respond to GP? See below.

Thanks!
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Curtis, Michael [mailto:MICHAEL.CURTIS@GAPAC.com]
Sent: Wednesday, October 26, 2016 3:39 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>; Richmond-Bryant, Jennifer <Richmond-Bryant.Jennifer@epa.gov>; Bowser, Jonathan <JBowser@trcsolutions.com>
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: GP monitoring data

Thanks Margaret,

To ensure we get you what you are looking for from GP, please see questions/comments:

1. No problem get data back to Oct. 2014. Minimum data granularity is 1-min data for H2S and 5-min data from the Met Station. Is this the data granularity you are requesting? I have reached out to TRC to request the data and an estimated time required to pull the data together.
2. As for detailed calculations and methodology for H2S emissions estimates; our previous estimate were from SARA 313 calculations based on industry guidance. Is this the H2S emissions calculations you are referring to below?

Thanks,
Mike

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Wednesday, October 26, 2016 4:01 PM
To: Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>; Richmond-Bryant, Jennifer <Richmond-Bryant.Jennifer@epa.gov>; Bowser, Jonathan <JBowser@trcsolutions.com>
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: GP monitoring data

Sent by an external sender

Hi Mike:

After some coordination on our end, Jennifer and I have decided that I will be the Point of Contact for the meteorological and H2S data request to GP.

We would like the raw met data – all parameters listed below – and the raw H2S data from Oct. 2014 to present. Would that be possible?

We are also interested in the detailed calculations and methodology that was applied to GP's emission estimates of H2S beyond what was previously provided, if possible.

Let me know how long it will take to provide the data and if you'd like to discuss.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Enforcement Section
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From: Curtis, Michael [mailto:MICHAEL.CURTIS@GAPAC.com]
Sent: Wednesday, October 26, 2016 8:22 AM
To: Richmond-Bryant, Jennifer <Richmond-Bryant.Jennifer@epa.gov>; Bowser, Jonathan <JBowser@trcsolutions.com>
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: GP monitoring data

Jen,

Have you decided what data you would like to receive from GP for your modeling project? If so:

1. Which data elements?

2. What averaging period of those elements?
3. Beginning and ending dates? Crossett started collecting data from the monitor in Oct. 2014.
4. What file type would you like to have the data saved in?

Margaret Osborne of Region 6 has also asked for the H2S data. She will be reaching out to you with her data request.

Once we receive your request, GP will work with TRC to get you the data in a timely manner.

Thanks, Mike Curtis

From: Richmond-Bryant, Jennifer [mailto:Richmond-Bryant.Jennifer@epa.gov]
Sent: Friday, September 23, 2016 3:24 PM
To: Bowser, Jonathan <JBowser@trcsolutions.com>; Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: GP monitoring data

Sent by an external sender

Great, that's what I thought, but I just wanted to be sure. Thank you, and have a nice weekend.
Jen

Jen Richmond-Bryant, Ph.D. | Senior Physical Scientist | National Center for Environmental Assessment | 109 TW Alexander Drive, MD B243-01, Research Triangle Park, NC | office: 919-541-4518 | mobile: 919-360-1466

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From: Bowser, Jonathan [mailto:JBowser@trcsolutions.com]
Sent: Friday, September 23, 2016 3:15 PM
To: Richmond-Bryant, Jennifer <Richmond-Bryant.Jennifer@epa.gov>; Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: GP monitoring data

Hi Jen,

Yes, deltaT is measured over height and is used in the determination of stability for modeling purposes.

Jon

From: Richmond-Bryant, Jennifer [mailto:Richmond-Bryant.Jennifer@epa.gov]
Sent: Friday, September 23, 2016 3:12 PM
To: Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>; Bowser, Jonathan <JBowser@trcsolutions.com>
Subject: RE: GP monitoring data

Thank you. Maybe this is a stupid question, but is deltaT measured over height?

Jen Richmond-Bryant, Ph.D. | Senior Physical Scientist | National Center for Environmental Assessment | 109 TW Alexander Drive, MD B243-01, Research Triangle Park, NC | office: 919-541-4518 | mobile: 919-360-1466

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From: Curtis, Michael [mailto:MICHAEL.CURTIS@GAPAC.com]
Sent: Friday, September 23, 2016 3:10 PM
To: Richmond-Bryant, Jennifer <Richmond-Bryant.Jennifer@epa.gov>
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>; Bowser, Jonathan <JBowser@trcsolutions.com>
Subject: FW: GP monitoring data

Jen, please see our consultant's message below with a minor correction to my table. //// Mike

---

From: Bowser, Jonathan [mailto:JBowser@trcsolutions.com]
Sent: Friday, September 23, 2016 3:06 PM
To: Curtis, Michael <MICHAEL.CURTIS@GAPAC.com>
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>
Subject: RE: GP monitoring data

Sent by an external sender

Mike,

Minor correction to the Met Parameter Table. We also calculate and store the standard deviation of the wind direction (sigma theta) and the temperature gradient between 10 and 2 meters (delta temperature).

Jon Bowser
Manager, Air Quality and Meteorological Monitoring

TRC Environmental Corporation

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From: Curtis, Michael [mailto:MICHAEL.CURTIS@GAPAC.com]
Sent: Friday, September 23, 2016 2:40 PM
To: richmond-bryant.jennifer@epa.gov
Cc: Champion, Traylor <BTCHAMPI@GAPAC.com>; Bowser, Jonathan <JBowser@trcsolutions.com>
Subject: GP monitoring data

Jen,

Thank you for taking the time to brief discuss EPA modeling project with me that you expect to complete at the Crossett facility. As you requested, I have listed the parameters below that TRC Environmental is monitoring on GP's behalf at the Crossett facility.

Parameter	Unit	Frequency
H2S	ppb	1 minute
Wind Speed	m/s	5 minute
Vector Wind Speed	m/s	5 minute
Wind Direction	(°)	5 minute
Vector Wind Direction	(°)	5 minute
Temperature	°C	5 minute
Theta Temperature	°C	5 minute
Precipitation	mm	5 minute
Relative Humidity	%	5 minute
Barometric Pressure	hPa	5 minute
Solar Radiation	w/m^2	5 minute

As you know, GP and EPA are scheduled for a conference call on October 6th and we will be able to discuss which parameters will have value in the EPA modeling exercise.

We look forward to the discussion.

Mike Curtis

From:	Hamilton, Scott
To:	Frey, Sarah; Fuoco, Marta
Subject:	RE: GP monitoring
Date:	Tuesday, August 23, 2016 10:57:00 AM

Our H2S/CH4 instrument went down yesterday. They are telling me 8-12 weeks for repair. I think I will be able to get them to do it sooner.
I will keep you informed.

From: Frey, Sarah
Sent: Monday, August 15, 2016 1:26 PM
To: Fuoco, Marta ; Hamilton, Scott
Subject: GP monitoring
https://www.adeq.state.ar.us/air/compliance/georgia_pacific.aspx

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Ford, Debbie
To: Frey, Sarah
Subject: RE: H2S Alarms from Crossett, AR - Sept 27 - 28
Date: Thursday, October 27, 2016 9:19:31 AM

The H2S concentrations in the basins may be dependent on where they are in the 5 week cycle.....

From: Frey, Sarah
Sent: Wednesday, October 26, 2016 6:00 PM
To: Ford, Debbie <Ford.Debbie@epa.gov>
Subject: Re: H2S Alarms from Crossett, AR - Sept 27 - 28

Thank you, Debbie!

Its good to know that we have to ability to retrieve the data.

Things are going well. The GMAP is fascinating. Today we are getting lower concentrations than when we visited the plant in September (my nose can definitely tell a difference!). We will monitor again tomorrow.

The most surprising finding is that while the East basin is closed and the West basin is open (opposite of our September trip), the concentrations on the East side are significantly higher than the West! It could be that our last visit highlighted the chemical production and this trip we are seeing more evidence of biological production of H2S.

Sarah

From: Ford, Debbie
Sent: Wednesday, October 26, 2016 5:54:54 PM
To: Frey, Sarah
Cc: Osbourne, Margaret
Subject: H2S Alarms from Crossett, AR - Sept 27 - 28

I got the driver and software installed today so I pulled the logs from all 6 MSA Altairs.

The 4 we used are in the attached file. There was a problem in that the instrument times were all different, so I did a best guess about how far off from real time they were (based upon when I bump tested them each morning) and adjusted the times accordingly. (also reset all monitors to my computer time)

There was 1 reading that is strange. The monitor did not alarm, but it did detect a reading of 4 ppm. This was about an hour before we got to the P2 Sewer Sampling location. We were at the BAT Lab only about 10 minutes prior to the P2 Sewer.

I also realized that we just handed out the H2S monitors and didn't assign a specific one to an inspector (note to self……), so it is likely that we got different ones on Wed than we had on Tues.

I knew Justin went to the P2 Sewer on Wed, so I'm guessing the alarm was from him.

I did a guess on Tues since you said you only went to a 5 ppm (actually 2 went to 8 ppm), but I saw mine go high. We can discuss.

How are things going?

Debbie S. Ford
Environmental Scientist
U.S. EPA - Region 6 (MC 6EN-AT)
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(214) 665-7235 (desk) (214) 665-3177 (fax)
ford.debbie@epa.gov

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From: Paul Buellesbach
To: Frey, Sarah; Osbourne, Margaret; Gairola, Sounjay
Subject: RE: H2S Instruments
Date: Friday, September 02, 2016 8:35:00 AM
Attachments: removed.txt

All:

We are on the call awaiting folks from EPA. Call-in is 888-346-3659, 50506#.

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Thursday, September 1, 2016 2:42 PM
To: Paul Buellesbach <Paul.Buellesbach@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>
Subject: RE: H2S Instruments

The facility is Georgia Pacific Paper Operations in Crossett, AR.

Sarah

From: Paul Buellesbach [mailto:Paul.Buellesbach@erg.com]
Sent: Thursday, September 01, 2016 1:26 PM
To: Frey, Sarah <frey.sarah@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>
Subject: RE: H2S Instruments

Sarah – I think we can accommodate this – I feel much more comfortable renting the equipment if ERG is in the field also. I think there are also longer term benefits to EPA since Dave would be able to better provide longer term consulting if he's seen the facility.

Can you remind me which facility it is?

Paul

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Thursday, September 1, 2016 2:02 PM
To: Paul Buellesbach <Paul.Buellesbach@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Paul Buellesbach <Paul.Buellesbach@erg.com>
Subject: RE: H2S Instruments

Paul,

Thank you for this information. We have a few updates that we can discuss during tomorrow's call:

1) The dates of the site assessment have been pushed back in order to have more time to prepare and gather the needed equipment. We will now be monitoring in Crossett September 27-29.
2) We would like to discuss the potential for an ERG staffer to join us on those days in order to help us develop our long-term passive monitoring project.
3) Four units at $895 each would exceed the allowed limit for our purchase card. If we have an ERG staffer with us, could it be arrange for you to rent the equipment directly and bring it along?

Thank you,
Sarah

From: Paul Buellesbach [mailto:Paul.Buellesbach@erg.com]
Sent: Thursday, September 01, 2016 12:42 PM
To: Frey, Sarah <frey.sarah@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Paul Buellesbach <paul.buellesbach@erg.com>
Subject: FW: H2S Instruments

All:

See the email below. It looks like ECO Rental Solutions can get you what you need. At the prices quoted, would EPA be able to rent these directly? It would be the cleanest way to do this. Let me know if you have questions; Dave can give us more information tomorrow morning if needed.

From: Dave Dayton
Sent: Thursday, September 1, 2016 1:36 PM
To: Paul Buellesbach <Paul.Buellesbach@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>
Subject: RE: H2S Instruments

Paul and Jason,

The rental companies got back to us sooner than we anticipated. Of the 3 firms, the first firm did not carry the Jerome 605 (they carried the Jerome 631 instead). The second firm owned 2 065s, but only one would be available for the dates EPA wants/needs equipment. They also wanted $1,000/week for their units (plus shipping, tax, etc.). However, we have some success with the third company -- ECO-RENTAL SOLUTIONS. See the attached PDF. They have 4 of the units and they are presently available when EPA wants them. They are $895/week each (plus shipping and tax, etc.). There contact information is presented. Gentlemen, this represents the only viable opportunity that we can find.

Hope this helps,

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From: Paul Buellesbach
Sent: Thursday, September 01, 2016 9:38 AM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>
Subject: RE: H2S Instruments

I would think this would be a pretty simple exercise, but I guess not! The region wants to go out in less than two weeks, so please forward me the info as soon as you get it. Thanks!

From: Dave Dayton
Sent: Thursday, September 1, 2016 9:04 AM
To: Paul Buellesbach <Paul.Buellesbach@erg.com>
Subject: H2S Instruments

Paul,

It is going to be tomorrow before I can pass along info on the from whom/how many/and how much of renting the Jerome H2S Instruments. We are waiting for quotes to be sent back to us(supposed to be today).

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

Ddayton tiny

From: Osbourne, Margaret
To: Frey, Sarah
Subject: RE: H2S Jerome Quote
Date: Thursday, August 04, 2016 11:27:53 AM

Thanks Sarah!

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Frey, Sarah
Sent: Thursday, August 04, 2016 11:20 AM
To: Osbourne, Margaret
Subject: RE: H2S Jerome Quote

Photoionization detectors are not sufficient for our needs. while H2S can be detected with a 10.6 eV bulb, it does not necessarily quantify or differentiate between other compounds that are detectable at that ionization potential. 4-gas meters utilize electrochemical sensors and have a resolution of only 1ppm and are set to alarm at 10 and 15 ppm. The reproducibility is +/- 2 ppm. For our purposes, we are expecting to detect H2S between 10 and 100 ppb.

The Jerome uses gold film technology and can quantify hydrogen sulfide as low as 3 ppb and as high as 10 ppm, with few interferences. This instrument is portable, durable, and can instantly log data.

Sarah

From: Osbourne, Margaret
Sent: Thursday, August 04, 2016 10:20 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Subject: FW: H2S Jerome Quote

See Greg's question below. Aside from sensitivity, are there other benefits to the Jerome?

Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
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From: Fried, Gregory
Sent: Thursday, August 04, 2016 10:10 AM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Thompson, Steve <thompson.steve@epa.gov>; Hoyt, Daniel <Hoyt.Daniel@epa.gov>
Subject: RE: H2S Jerome Quote

Margaret,
Is this monitor different from the 4 gas analyzers that you guys have? Is this monitor more sensitive?
Greg

From: Osbourne, Margaret
Sent: Thursday, August 04, 2016 10:09 AM
To: Fried, Gregory <Fried.Gregory@epa.gov>
Cc: Thompson, Steve <thompson.steve@epa.gov>
Subject: H2S Jerome Quote

Hi Greg:
Attached is the quote for the handheld H2S monitor. This would help us out a lot in the Region not only for the upcoming Crossett site visit on Sept. 12-16 but also to respond to the numerous H2S community complaints we receive.
Thanks,
Margaret
Margaret Osbourne
Chief, Air Toxics Enforcement Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

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From: Frey, Sarah
Sent: Thursday, August 04, 2016 9:02 AM

To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Jerome Quote
Attached is the quote for the Jerome J605 with data logging capabilities.
http://www.azic.com/jerome/j605/
Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	John King
To:	Haynes, James
Cc:	Frey, Sarah; Osbourne, Margaret
Subject:	RE: H2S Monitoring in Crossett [WARNING: DKIM validation failed]
Date:	Monday, January 09, 2017 7:02:45 AM
Attachments:	H2S Access Agreement (002) (CG Revised 1 5 16).docx

James – edited H2S access agreement as requested

J. King

From: Haynes, James [mailto:haynes.james@epa.gov]
Sent: Wednesday, January 04, 2017 12:16 PM
To: John King <jking@campbellglobal.com>
Cc: Frey, Sarah <frey.sarah@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: H2S Monitoring in Crossett

Mr. King,

I am following up regarding the hydrogen sulfide monitoring we discussed earlier today. I have attached a Fact Sheet that has been shared with others who are participating in the monitoring project. Additionally, the attached photograph should give you a better idea for the location of where we would like to place the community monitoring station, COM7. Finally, I have attached the Access Agreement document. From our conversation, you indicated that the property was managed by Campbell Global; however, it was owned by Southern Diversified Timber. Will Southern Diversified Timber allow Campbell Global to sign on their behalf as the managing entity? If that is the case, please review the agreement and sign, scan, and return to me at your earliest convenience while noting that the agreement has been signed on behalf of the property owner.

Please let me know of any updates as we have a small window prior to the monitoring stations being deployed. If you have any questions, please contact me.

Thank you,

James S. Haynes
Physical Scientist
U.S. Environmental Protection Agency, Region 6
Air Toxics Enforcement Section
1445 Ross Avenue, Suite 1200 (MC: 6EN-AT)
Dallas, TX 75202

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to protect Campbell Global's clients and business.

From:	John King
To:	Haynes, James
Subject:	RE: H2S Monitoring in Crossett [WARNING: DKIM validation failed]
Date:	Tuesday, January 10, 2017 9:03:13 AM

Campbell Global legal - John Miller 503-275-0621 jmiller@campbellglobal.com

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From: John King
Sent: Monday, January 09, 2017 2:44 PM
To: 'Haynes, James' <haynes.james@epa.gov>
Cc: John Miller <jmiller@campbellglobal.com>
Subject: RE: H2S Monitoring in Crossett

James – on behalf of our client, the attached agreement is not acceptable to us and were not going to be able to grant EPA permission to access So. Diversified LLC properties in Ashley Co., AR. to install the proposed H2S monitoring station.

Thanks,

J. King

From: Haynes, James [mailto:haynes.james@epa.gov]
Sent: Monday, January 09, 2017 10:35 AM
To: John King <jking@campbellglobal.com>
Cc: Frey, Sarah <frey.sarah@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Barnett, Cheryl <Barnett.Cheryl@epa.gov>
Subject: RE: H2S Monitoring in Crossett

Mr. King,

Thank you for your help in coordinating this access agreement with your legal department and working to expedite this process; however, based on the broad liability language and EPA guidance, we are not able to agree to all the changes. I have attached a revised access agreement which incorporated some changes and added language that EPA is solely responsible for the monitoring equipment that would remain on Southern Diversified Timber's property for the duration of the monitoring period. Please forward to your legal department for review.

If your legal team would like to discuss the content of the agreement in detail, please have them contact:
Cheryl M. Barnett - (214) 665-8328
Air Enforcement Attorney
U.S. EPA, Region 6
Office of Regional Counsel (6RC-EA)

We are still planning on being in Crossett to install community monitors this Thursday, so we appreciate your quick responses.

Thank you,

James S. Haynes
Physical Scientist
U.S. Environmental Protection Agency, Region 6
Air Toxics Enforcement Section
1445 Ross Avenue, Suite 1200 (MC: 6EN-AT)
Dallas, TX 75202

From: John King [mailto:jking@campbellglobal.com]
Sent: Monday, January 09, 2017 7:02 AM
To: Haynes, James <haynes.james@epa.gov>
Cc: Frey, Sarah <frey.sarah@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: H2S Monitoring in Crossett [WARNING: DKIM validation failed]

James – edited H2S access agreement as requested

J. King

From: Haynes, James [mailto:haynes.james@epa.gov]
Sent: Wednesday, January 04, 2017 12:16 PM
To: John King <jking@campbellglobal.com>
Cc: Frey, Sarah <frey.sarah@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: H2S Monitoring in Crossett

Mr. King,

I am following up regarding the hydrogen sulfide monitoring we discussed earlier today. I have attached a Fact Sheet that has been shared with others who are participating in the monitoring project. Additionally, the attached photograph should give you a better idea for the location of where we would like to place the community monitoring station, COM7. Finally, I have attached the Access Agreement document. From our conversation, you indicated that the property was managed by Campbell Global; however, it was owned by Southern Diversified Timber. Will Southern Diversified Timber allow Campbell Global to sign on their behalf as the managing entity? If that is the case, please review the agreement and sign, scan, and return to me at your earliest convenience while noting that the agreement has been signed on behalf of the property owner.

Please let me know of any updates as we have a small window prior to the monitoring stations being deployed. If you have any questions, please contact me.

Thank you,

James S. Haynes
Physical Scientist
U.S. Environmental Protection Agency, Region 6
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Dallas, TX 75202

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From:	David Berkowitz
To:	Frey, Sarah
Subject:	RE: H2S passive sampling
Date:	Thursday, July 14, 2016 3:59:21 PM
Attachments:	image001.png

Sarah,
That time works – I have a hard stop at 11:00 EDT, though. Do you want me to call you at the number below?
Best-
David Berkowitz
919-850-4392 Ext. 225
919-491-9841 (mobile)

From: Frey, Sarah [mailto:frey.sarah@usepa.onmicrosoft.com]
Sent: Thursday, July 14, 2016 4:57 PM
To: David Berkowitz
Subject: RE: H2S passive sampling
Hello David,
I am also available to chat tomorrow. I would like to get a better idea about options for passive H2S monitoring and potential costs.
Does 10:30 EST work for you (9:30am central)?
Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: David Berkowitz [mailto:David.Berkowitz@enthalpy.com]
Sent: Thursday, July 14, 2016 12:15 PM
To: Thoma, Eben <Thoma.Eben@epa.gov>; Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Subject: RE: H2S passive sampling
Hi Sarah,
I hope this note finds you well. I talked with Eben today and it sounds like you may have everything worked out for this program. If not, I would love to have a conversation about some passive sampling devices I believe will work very well for the application Eben described. My calendar is open tomorrow morning. Please let me know if you have a time that works. I'm looking forward to our discussion.
Best regards,
David Berkowitz
919-850-4392 Ext. 225
919-491-9841 (mobile)

From: Thoma, Eben [mailto:Thoma.Eben@epa.gov]
Sent: Thursday, July 14, 2016 8:11 AM
To: David Berkowitz; Frey, Sarah
Subject: RE: H2S passive sampling

Hi David,
No worries on the delay and no need to call. Please let me introduce Sarah Frey with EPA R6. Sarah is the project lead for this potential H2S sampling project and she is interested in learning more about the analysis and the costs, etc. I think if you can start and email/phone conversation with Sarah, that would be the most efficient.
As usual, many thanks for information and advice as we do market research on this application.
Eben

Eben Thoma, Ph.D.
U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
109 TW Alexander Drive (M/S E343-02)
Research Triangle Park, NC 27711
Phone: 919-541-7969
Fax: 919-541-0359
Email: thoma.eben@epa.gov

From: David Berkowitz [mailto:David.Berkowitz@enthalpy.com]
Sent: Thursday, July 14, 2016 7:51 AM
To: Thoma, Eben <Thoma.Eben@epa.gov>
Subject: H2S passive sampling
Hi Eben,
I just got your message this morning. I apologize for the delay - it's a long story. Anyway, we can support this. I would love to talk with you about it. I'm at the Capitola office right now and headed to the Ellis office. Give me a ring on my mobile if you get a moment. Otherwise I'll follow up with a phone call in a little bit.
Thanks for reaching out.

David Berkowitz
Enthalpy Analytical, Inc.
800-1 Capitola Dr.
Durham NC, 27713
919-850-4392 Ext. 225 (office)
919-491-9841 (mobile)
www.enthalpy.com
david.berkowitz@enthalpy.com

Sent from my iPhone

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From:	Jason Sese
To:	Osbourne, Margaret
Cc:	Frey, Sarah; Leta Kent; Dave Dayton; Gairola, Sounjay; Paul Buellesbach
Subject:	RE: H2S Sampling Costs
Date:	Thursday, November 03, 2016 7:29:37 AM

Margaret,

Going from 6 to 3 or 4 months is probably not going to move the needle a whole lot, since it would just involve ordering less sample tubes and less analyses. A lot of the costs are going into the setup of the sampling sites and the recovery after the sampling is over. Before I run the numbers again, it would probably help to know what the target budget is so we can discuss what is feasible.

Thanks,
Jason

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Jason Sese
Chemical Engineer
Eastern Research Group, Inc. (ERG)
14555 Avion Parkway, Ste 200
Chantilly, VA 20151
703-633-1657

From: Osbourne, Margaret [mailto:osbourne.margaret@epa.gov]
Sent: Wednesday, November 02, 2016 3:38 PM
To: Jason Sese <Jason.Sese@erg.com>
Cc: Frey, Sarah <frey.sarah@epa.gov>; Leta Kent <Leta.Kent@erg.com>; Dave Dayton <Dave.Dayton@erg.com>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>; Paul Buellesbach <Paul.Buellesbach@erg.com>
Subject: Re: H2S Sampling Costs

Thanks Jason. That's for 6 months of monitoring? That exceeds our budget so can you do the same breakdown for 3 and 4 months?

Thanks,
Margaret

Sent from my iPhone

On Nov 2, 2016, at 2:32 PM, Jason Sese <Jason.Sese@erg.com> wrote:

All,
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Below are cost estimates for 10, 12, 14, and 20 sampling sites. After breaking everything out, there is quite a lot involved. These estimates include the following items:

- Development of sample sites, logistics, and development of QAPP;
- Sampling equipment, including housings, diffusers, data sheets, and hardware;
- Sample tubes, boxes, labels for shipping to laboratory ;
- 2 people driving a van with the materials to the site, installation, and training (7 days);
- 2 people driving a van back to the site after the sampling is complete and breaking down and recovering all the installations (5 days); and
- Compiling the database of results (but does not include writing a narrative report)

Note that the initial $15K was expended during the initial scoping visit. These costs are starting from 9/30 forward:

Scenario	Hours	Total
10 sites	441	$65,303 ($22,902 for ODCs, travel, and laboratory analysis)
12 sites	449	$68,624 ($25,584 for ODCs, travel, and laboratory analysis)
14 sites	465	$73,768 ($29,079 for ODCs, travel, and laboratory analysis)
20 sites	509	$84,383 ($35,339 for ODCs, travel, and laboratory analysis)

Let us know if you'd like to discuss.

Thanks,
Jason

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Jason Sese
Chemical Engineer
Eastern Research Group, Inc. (ERG)
14555 Avion Parkway, Ste 200
Chantilly, VA 20151
703-633-1657

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, November 01, 2016 1:35 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Proposed Monitoring Sites
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Hi Dave,

Attached is a jpg image of our proposed monitoring sites and below is a description of locations. I chose the COM2 location based on where the yellow entrance gate used by the company is located. It may be easier to have it there near the cemetery than using a citizen's backyard.

- COM1 – collocated with current H2S community monitor, north of WWT system
- COM2 – Located near community east of the WWT system (fence line)
- THUR – Located near community northwest of WWT system (fence line)
- MILL – Prior to streams traveling underground
- PCLR – Primary Clarifier, when P1/P2 sewers are exposed to atmosphere
- CONV – Convergence of all streams (P1, P2, P3, dewatering process), post-clarifier
- WABI, EABI – inlet of east and west ash basins, which are alternated on a 5-wk cycle
- WABO, EABO – outlet of west and east ash basins
- SBO – Surge Basin Outlet
- ASB1 – Aeration Stabilization Basin Zone 1
- ASB2 – Aeration Stabilization Basin Zone 2
- OUT – Outfall 001

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Jason Sese
To: Gairola, Sounjay
Cc: Leta Kent; Dave Dayton; Paul Buellesbach; Frey, Sarah; Osbourne, Margaret
Subject: RE: H2S Sampling Costs
Date: Wednesday, November 16, 2016 8:44:32 AM
Attachments: H2S Sampling_Summary_2016.11.16.xlsx

Sounjay,

Attached is a more detailed breakdown of costs. Let me know if you have any questions.

Here's a call in # for our meeting today: 888-346-3659, 50506#.

Thanks,
Jason

From: Jason Sese
Sent: Tuesday, November 15, 2016 3:44 PM
To: Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Leta Kent <Leta.Kent@erg.com>; Dave Dayton <Dave.Dayton@erg.com>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>; Paul Buellesbach <Paul.Buellesbach@erg.com>; Jason Sese <Jason.Sese@erg.com>; Frey, Sarah <frey.sarah@epa.gov>
Subject: RE: H2S Sampling Costs

Margaret,

Per your voicemail, here are the numbers broken down for recovery vs no recovery. Note that these are 1st cut estimates and we can discuss further tomorrow.

Scenario	With ERG Equipment Recovery		Without ERG Equipment Recovery	
	Hours	Total	Hours	Total
10 sites	441	$65,303 ($22,902 for ODCs, travel, and laboratory analysis)	361	$51,785 ($18,554 for ODCs, travel, and laboratory analysis)
12 sites	449	$68,624 ($25,584 for ODCs, travel, and laboratory analysis)	369	$55,111 ($21,240 for ODCs, travel, and laboratory analysis)
14 sites	465	$73,768 ($29,079 for ODCs, travel, and laboratory analysis)	385	$60,251 ($24,735 for ODCs, travel, and laboratory analysis)
20 sites	509	$84,383 ($35,339 for ODCs, travel, and laboratory analysis)	429	$70,870 ($30,996 for ODCs, travel, and laboratory analysis)

Thanks,
Jason

From: Jason Sese
Sent: Tuesday, November 08, 2016 8:34 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Dave Dayton <Dave.Dayton@erg.com>; Gairola, Sounjay <Gairola.Sounjay@epa.gov>; Paul Buellesbach <Paul.Buellesbach@erg.com>; Jason Sese <Jason.Sese@erg.com>
Subject: RE: H2S Sampling Costs

Sarah/Margaret,

As we discussed earlier, costs can be reduced by only making one trip to the site for installation and setup and not making a second trip to retrieve all the equipment (housings, diffusers, etc.) when the sampling is complete. There are other areas where costs can be reduced, but this is a pretty quick thing to pull out.

Scenario	Total With Equipment Recovery	Total without Equipment Recovery
10 sites	$65,303	$51,785
12 sites	$68,624	$55,111
14 sites	$73,768	$60,251
20 sites	$84,383	$70,870

Thanks,
Jason

From: Jason Sese
Sent: Wednesday, November 02, 2016 3:32 PM
To: 'Frey, Sarah' <frey.sarah@epa.gov>
Cc: Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Dave Dayton <Dave.Dayton@erg.com>; 'Gairola, Sounjay' <Gairola.Sounjay@epa.gov>; Paul Buellesbach <Paul.Buellesbach@erg.com>
Subject: H2S Sampling Costs

All,

Below are cost estimates for 10, 12, 14, and 20 sampling sites. After breaking everything out, there is quite a lot involved. These estimates include the following items:

- Development of sample sites, logistics, and development of QAPP;
- Sampling equipment, including housings, diffusers, data sheets, and hardware;
- Sample tubes, boxes, labels for shipping to laboratory ;
- 2 people driving a van with the materials to the site, installation, and training (7 days);
- 2 people driving a van back to the site after the sampling is complete and breaking down and recovering all the installations (5 days); and
- Compiling the database of results (but does not include writing a narrative report)

Note that the initial $15K was expended during the initial scoping visit. These costs are starting from 9/30 forward:

Scenario	Hours	Total
10 sites	441	$65,303 ($22,902 for ODCs, travel, and laboratory analysis)
12 sites	449	$68,624 ($25,584 for ODCs, travel, and laboratory analysis)
14 sites	465	$73,768 ($29,079 for ODCs, travel, and laboratory analysis)
20 sites	509	$84,383 ($35,339 for ODCs, travel, and laboratory analysis)

Let us know if you'd like to discuss.

Thanks,
Jason

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Jason Sese
Chemical Engineer
Eastern Research Group, Inc. (ERG)
14555 Avion Parkway, Ste 200
Chantilly, VA 20151
703-633-1657

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, November 01, 2016 1:35 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Proposed Monitoring Sites

Hi Dave,

Attached is a jpg image of our proposed monitoring sites and below is a description of locations. I chose the COM2 location based on where the yellow entrance gate used by the company is located. It may be easier to have it there near the cemetery than using a citizen's backyard.

- COM1 – collocated with current H2S community monitor, north of WWT system
- COM2 – Located near community east of the WWT system (fence line)
- THUR – Located near community northwest of WWT system (fence line)
- MILL – Prior to streams traveling underground
- PCLR – Primary Clarifier, when P1/P2 sewers are exposed to atmosphere
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- WABI, EABI – inlet of east and west ash basins, which are alternated on a 5-wk cycle
- WABO, EABO – outlet of west and east ash basins
- SBO – Surge Basin Outlet
- ASB1 – Aeration Stabilization Basin Zone 1
- ASB2 – Aeration Stabilization Basin Zone 2
- OUT – Outfall 001
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Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Osbourne, Margaret
To: City of Crossett/Rebecca Ledbetter
Cc: Timothy.Toler@afbic.com; Frey, Sarah; Haynes, James
Subject: Re: Meet in Crossett early next week to discuss monitoring study
Date: Wednesday, December 07, 2016 2:23:30 PM

Great! Let's plan on 1:00 on Monday, Dec. 12th. Can we meet in the Mayor's office?

Thanks,
Margaret

Sent from my iPhone

On Dec 7, 2016, at 1:43 PM, City of Crossett/Rebecca Ledbetter <r.ledbetter@cityofcrossett.net> wrote:

> The mayor said he could do it anytime on Monday as long as its over by 4pm. He has a budget meeting then.
>
> Rebecca Ledbetter
> Personnel/Mayor's Secretary
> City of Crossett
> 870-364-8645 (phone)
> 870-364-4310 (fax)
>
> On Wed, 7 Dec 2016 18:31:53 +0000, "Osbourne, Margaret" <osbourne.margaret@epa.gov> wrote:
>
> > Hi Scott:
> >
> > After a few rounds of phone tag this morning, I thought it best to reach out with email. We in EPA Region 6 are planning a 6-month monitoring study in Crossett to evaluate the levels of hydrogen sulfide in the community. We have met with Georgia-Pacific and shared our tentative monitoring map and plan.
> >
> > We'd like to meet with you and Mr. Toler of the Chamber of Commerce to tell you about our plan and get your input on our proposed community monitoring station locations. The monitors we'll be using are passive 2-week monitors, not the continuous monitor that Georgia-Pacific is currently operating, and the purpose of the monitoring is to evaluate the sources of hydrogen sulfide along the wastewater system and any offsite impacts.
> >
> > Please let me know if you are available on Monday afternoon (12/12/16) or

Tuesday morning (12/13/16) to meet, and where you'd like us to meet. We'll be driving into Crossett from Dallas. Mr. Toler – are you also available to meet early next week?

Thanks,

Margaret

Margaret Osbourne

Chief, Air Toxics Enforcement Section

Compliance Assurance & Enforcement Division

EPA Region 6

1445 Ross Avenue (6EN-AT)

Dallas, TX 75202

214-665-6508

<image001.gif>
<image002.gif> <image003.gif> <image004.gif> <image005.gif>

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From: Ross, Sarah M.
To: Frey, Sarah
Cc: Osbourne, Margaret
Subject: RE: Odor Control Limits
Date: Monday, December 05, 2016 4:23:26 PM

Hello, Sarah. Thank you for checking back in with me and sorry for the delayed response. Let me gather and confirm information. I'll be in the office all week. I hope you both enjoyed your Thanksgiving break.

Sincerely,
Sarah Ross, GP CPO Environmental

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Monday, December 05, 2016 2:26 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: FW: Odor Control Limits

Sent by an external sender

Good afternoon, Ms. Ross,

I am reaching out to you again to obtain specific details regarding the permit limitations for adding odor control chemicals. Please see below.

Additionally, we are preparing our final site map for the upcoming H2S monitoring project. Do you have a map indicating the explicit GP border/fence line?

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Frey, Sarah
Sent: Monday, November 21, 2016 3:46 PM
To: 'Ross, Sarah M.' <Sarah.Ross@GAPAC.com>
Subject: Odor Control Limits

Good afternoon, Sarah,

Could you please give me a few more details regarding the limitations on the odor control chemicals?

For example, what amount is the current cap, and what amount do you think that you need? Do you have a copy of the accepted permit modification? What date was it requested? What date was it put into effect?

We are working to help find a solution to this conflict.

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Burrell, Monica
To:	Frey, Sarah
Cc:	Osbourne, Margaret; Crawford, Brad
Subject:	RE: Odor Control Limits
Date:	Wednesday, December 07, 2016 11:09:40 AM
Attachments:	GP Crossett AR0001210 mod 2.pdf

Hello Sarah,

I have attached the final NPDES permit for GP Crossett which was modified to incorporate odor control. Part II Number 21 has information regarding chemical addition. This was not added for the Clean Water Act requirements. The Clean Water Act limit what is discharged into water of the US. ADEQ included this requirement in the permit. Consequently, the facility have a point regarding their permit limitations.

Monica Burrell
Environmental Engineer
U.S. EPA Region 6
Water Quality Protection Division
NPDES Permits and TMDLs Branch (6WQ-PT)
1445 Ross Avenue
Dallas, TX 75202
214-665-7530

From: Frey, Sarah
Sent: Wednesday, December 07, 2016 10:08 AM
To: Burrell, Monica <Burrell.Monica@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>; Crawford, Brad <crawford.brad@epa.gov>
Subject: FW: Odor Control Limits

Hi Monica,

We are getting ready to begin our hydrogen sulfide monitoring project in Crossett, AR. As Margaret may have mentioned, during our Nov. 17th meeting with GP, they mentioned that due to odor control limits, they are experiencing a greater frequency of large H2S emissions.

When I requested additional details, I received the response below. Do you have access to the revised NPDES permit that reflects the limiting of H2O2 and iron catalyst addition? Do the explanations provided make sense?

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section

Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Tuesday, December 06, 2016 9:26 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Odor Control Limits

Sarah,

In response to your follow-up questions regarding our odor control chemicals, I have included text from the permit modification fact sheet, which provides relevant background, as well as some more specific information below:

- **Page 3 of Fact Sheet for "2nd Major Modification", dated October 16, 2015, effective October 30, 2015**
  NPDES Permit Number: AR0001210
  AFIN: 02-00013

"In a letter dated June 20, 2014, the permittee requested permission to conduct a pilot study to investigate the use of Hydrogen Peroxide with an Organic Iron Catalyst to reduce the emissions of Hydrogen Sulfide. Permission to conduct the study was granted by the Department in a letter dated July 31, 2014. On February 12, 2015, and February 26, 2015, the permittee requested an extension to the time frame allowed for the pilot study since it was thus far considered to be successful. In a letter from the Department to the permittee dated March 24, 2015, the Department granted a 6 month extension to the pilot study and stated that a permit modification would have to be obtained if the facility wanted to continue the use of the chemicals after the extension is over.

The permittee submitted an application to modify their existing NPDES discharge permit which was received on May 27, 2015, with all additional information received by June 30, 2015, as well as an e-mail received August 7, 2015. The facility is requesting that the permit be modified to allow for the use of chemical treatment (Hydrogen Peroxide and organic Iron catalyst) in the primary clarifier, the P2 sewer, and at the chemical plant to reduce sulfide emissions which will result in reduction of odors.

Based on the application and the August 7th e-mail, it is the Department's understanding that Georgia-Pacific LLC (GP) is requesting permission to add Hydrogen Peroxide and an Iron

Catalyst at three points in the upper areas of the wastewater collection and treatment system. This will require installation of pumps and tanks at each of the points (P2 Sewer at the manufacturing site, just upstream of the Clarifier, and at the Chemical Plant). The purpose of these additions is to control odor, not to provide treatment of the wastewater.

As allowed in Reg. 6.202(C), the Department has determined that the proposed modifications could be "minor revisions" to the treatment system and therefore not require a State Construction Permit. The Department has reviewed the application to modify the NPDES permit and is satisfied that the addition of the tanks and pumps needed to add the Hydrogen Peroxide and Iron Catalyst for odor control are minor revisions to the treatment system and will not require GP to obtain a State Construction Permit for this activity.

The discharge permit is modified for the remainder of the 5-year term in accordance with the regulations promulgated at 40 CFR 122.46(a) to allow for the use of Hydrogen Peroxide and Organic Iron Catalyst to reduce Hydrogen Sulfide emissions."

On Page 18 of Part II of the permit are the usage restrictions:

- **Additional Information**

During the trial period prior to the issuance of the permit modification, we worked with the vendor to adjust the odor chemical feed based on sulfide loading. Actual addition rates on a mass basis were not tracked during this trial period because it was not required and our trial approvals did not include either average or maximum limitations. When ADEQ was preparing the permit modification, they requested addition rates which we provided based on usages over an extended period during the trial, as calculated by the vendor. At the time, we were unaware that these average usage rates from the trial would be the basis for limits in the permit modification. These averages did not consider the need for increased feed rates based on upsets, mill outages, pH swings and other atypical situations and have been insufficient at

times for us to achieve optimal odor control.

Thus, the chemical use restrictions restrict our ability to both manage use to address typical sulfide loadings and increase use to address any upset or unplanned conditions. The usage of these chemicals (hydrogen peroxide and the organic iron catalyst) do not pose any possible impact to the environment. Peroxide functions only as an oxidizer with only byproducts of oxygen and water. It is completely dissociated prior to the exit of the primary clarifier. The amount of organic iron catalyst (AO TECH CW) is very small and only increases the rate of reaction of the peroxide with sulfide.

During the trial period, we found times when it was advantageous to add two or three times the limits outlined above for the clarifier and P2 sewer. Ideally, we request the removal of the limits altogether. Alternately, providing significant more flexibility above the current limits to better manage fluctuating conditions through a modification, addendum, trial or other mechanism would help us to respond better to unusual conditions. As you saw during your visits, our treatment system operation is very dynamic.

Ultimately, for our NPDES permit renewal, we have requested that ADEQ remove the limits from our permit so that we have the flexibility to optimize the use of odor control chemicals. We believe this will allow us to improve odor control and respond to the dynamic wastewater treatment system conditions.

I will request a property line map and I understand from TRC that your access to the database should be coming this week.

Sincerely,
Sarah Ross

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Monday, December 05, 2016 2:26 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: FW: Odor Control Limits

Sent by an external sender

Good afternoon, Ms. Ross,

I am reaching out to you again to obtain specific details regarding the permit limitations for adding odor control chemicals. Please see below.

Additionally, we are preparing our final site map for the upcoming H2S monitoring project. Do you have a map indicating the explicit GP border/fence line?

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section

Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Frey, Sarah
Sent: Monday, November 21, 2016 3:46 PM
To: 'Ross, Sarah M.' <Sarah.Ross@GAPAC.com>
Subject: Odor Control Limits

Good afternoon, Sarah,

Could you please give me a few more details regarding the limitations on the odor control chemicals?

For example, what amount is the current cap, and what amount do you think that you need? Do you have a copy of the accepted permit modification? What date was it requested? What date was it put into effect?

We are working to help find a solution to this conflict.

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Ross, Sarah M.
To: Frey, Sarah
Subject: RE: Photos from 1/11/17
Date: Friday, January 13, 2017 9:07:41 AM

Thank you, Sarah, for the photo log document. I have seen Curtis' pictures, thank you.

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Thursday, January 12, 2017 3:10 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Subject: Photos from 1/11/17

Sent by an external sender

Hello Sarah,

Yesterday during installation, I took 2 photos at each sampling site. Curtis took the same photos. Would you still like me to send you a copy of the photos I took? It would take a few large emails to send them all over. Let me know if you have a Dropbox or other application that would be easier than multiple large emails.

I have attached our photo log document.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Dave Dayton
To: Frey, Sarah
Cc: Osbourne, Margaret
Subject: RE: Proposed Monitoring Sites
Date: Wednesday, November 02, 2016 11:15:46 AM

Sarah,

Thank you for the map. When you all know the more final where and how many of things – please let me know. We (Jason, Paul, Leta, and I) put together an approach to move the QAPP forward quickly. Jason and I worked through the costing for 10, 12, 14, and 20 sites yesterday. He will have it to you soon (if he has not already delivered it) to help you with deciding on what the final approach would be. Just as an FYI – I only have a couple of slots between now and the end of the year, where I could be gone continuously for a duration that would be needed to accomplish installation and training. The one I would like to accomplish is the week of November 14th. This would mean that we would arrive on Monday afternoon on that day, with the idea that we would begin installation the next morning (Tuesday). We will be bringing everything well prepped and as turn-key as we can, so hopefully installation and training will be very efficient. Could you accommodate that week?

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, November 01, 2016 1:35 PM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Proposed Monitoring Sites

Hi Dave,

Attached is a jpg image of our proposed monitoring sites and below is a description of locations. I chose the COM2 location based on where the yellow entrance gate used by the company is located. It may be easier to have it there near the cemetery than using a citizen's backyard.

- COM1 – collocated with current H2S community monitor, north of WWT system
- COM2 – Located near community east of the WWT system (fence line)
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- WABI, EABI – inlet of east and west ash basins, which are alternated on a 5-wk cycle
- WABO, EABO – outlet of west and east ash basins
- SBO – Surge Basin Outlet
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- ASB2 – Aeration Stabilization Basin Zone 2
- OUT – Outfall 001

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From: Frey, Sarah
To: Ross, Sarah M.; Hamilton, Scott; Qazzaz, Bilal
Subject: RE: QAPP Status
Date: Monday, October 31, 2016 3:53:00 PM
Attachments: GMAP QAPP_v3.0_2016-05-13 Final Signed.pdf
R5-ARD-0002-r2.pdf

Sarah,

Please find the Region 5 GMAP QAPP and SOP attached.

Happy Halloween,

Sarah Frey, PhD

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Wednesday, October 26, 2016 9:23 PM
To: Frey, Sarah <frey.sarah@epa.gov>; Hamilton, Scott <hamilton.scott@epa.gov>; Qazzaz, Bilal <qazzaz.bilal@epa.gov>
Cc: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Subject: Fw: QAPP Status

Bilal,
Please find attached the QAPP for the West Crossett, Arkansas monitor.

I plan to meet you all in the morning at 7am in the parking lot at the paper mill.

Thank you,
Sarah Ross

From: Allen, Kara [mailto:Allen.Kara@epa.gov]
Sent: Wednesday, November 12, 2014 8:19 AM
To: Ross, Sarah M.
Cc: Curtis, Michael
Subject: RE: QAPP Status

Thanks Sarah!!

Kara

From: Ross, Sarah M. [mailto:Sarah.Ross@GAPAC.com]
Sent: Monday, November 10, 2014 10:45 AM
To: Allen, Kara
Cc: Curtis, Michael
Subject: RE: QAPP Status

Good morning, Kara.

Please see the attached file. I look forward to seeing you again on November 20, 2014 here in Crossett. Please let me know if you have any questions prior to your visit.

Sincerely,
Sarah Ross
Environmental Team Leader
GP Crossett Paper Operations
Email: Sarah.Ross@gapac.com
Phone: (870) 567-8670
Fax: (870) 364-9076

File Location: GP Crossett QAPP Final.pdf

From: Allen, Kara [mailto:Allen.Kara@epa.gov]
Sent: Friday, November 07, 2014 2:10 PM
To: Ross, Sarah M.
Cc: Curtis, Michael
Subject: RE: QAPP Status

Sarah,

Do you have a pdf version of the revised 10/2/14 QAPP?

Thanks,
Kara

Kara Allen
Environmental Engineer
Air Quality Analysis Section (PD-Q)
USEPA Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733
(p) 214-665-7333

From: Frey, Sarah
To: Haynes, James
Subject: RE: QAPP Summary
Date: Tuesday, January 03, 2017 9:10:33 AM

Happy New Year, James!

I've received confirmation from ERG that the diffusive bodies will be here on time!! Hooray! Have you submitted a TA yet?

I'd be happy to look over the summary, it's definitely something we need to discuss today. I'll shoot Sounjay an email to see if he's given his final signature on the QAPP. The choice to share it either in full or in part will be up to Steve, but I like that we have a summary, just in case.

The other main thing we need is to obtain consent for COM7. Did you track down a contact for Southern Diversified Timber LLC? The parcel number is 001-10297-000, and we would like to place the monitor on Ashely Co Rd 223, approximately 1 mile west of Thurman Rd. I was thinking about calling the Judge's office today, but since it is his first day on the job, do you think I should wait until first thing tomorrow?

We should also attempt to design a label or sticker for the sampler shelter. Something with the EPA seal, the fact that it is an air monitoring device/gov property and a contact phone number. Is that something you'd like to work on?

Sarah

From: Haynes, James
Sent: Tuesday, January 03, 2017 8:53 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Subject: QAPP Summary

Sarah,

I have a summary put together where I tried to cut out some and reword other things. I can still take out more, but I still wanted to maintain some of the pieces. Do you want to look it over? And do you know if this is something we need to talk to Steve about in our meeting this afternoon?

Hope you had a good new year's celebration!

James S. Haynes
Physical Scientist
U.S. Environmental Protection Agency, Region 6
Air Toxics Enforcement Section
1445 Ross Avenue, Suite 1200 (MC: 6EN-AT)
Dallas, TX 75202

From:	Frey, Sarah
To:	Dave Dayton
Cc:	Leta Kent
Subject:	RE: Quick question.
Date:	Wednesday, September 21, 2016 9:37:00 AM
Attachments:	Crossett H2S Trip Details v3.docx GP Mapbook 2016.pdf

---

Hello Dave,

Attached is a PDF of the mapbook we have printed and bound. I have printed a copy for you to have on the trip. I have also attached a draft inspection plan that I distributed to the team.

For the trip, be sure to pack PPE (including boots and hardhat), inspector authorization letters, long pants, and insect repellant. The weather forecast has rain chances around 40% and temperatures in the high eighties. It will be very humid!

If you have additional questions, please let me know!

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Wednesday, September 21, 2016 7:52 AM
To: Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Cc: Leta Kent <leta.kent@erg.com>
Subject: RE: Quick question.

Ok Sarah ,Thanks.

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From: Frey, Sarah [mailto:frey.sarah@usepa.onmicrosoft.com]
Sent: Wednesday, September 21, 2016 8:49 AM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Leta Kent <Leta.Kent@erg.com>
Subject: RE: Quick question.

Good morning, Dave,

Technically, the entire wastewater system is on facility property. We will also be evaluating the internal outfalls on site. We will be bringing our full PPE, however, GP will instruct what items we will need when only along the WWT system.

Looking forward to our call!

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Monday, September 19, 2016 12:53 PM
To: Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Cc: Leta Kent <leta.kent@erg.com>
Subject: Quick question.

Hi Sarah,

Do you anticipate that we will be going onto the facility itself while we are in Crossett? Or will all of our siting be off facility? I am asking mainly to be sure we have the appropriate PPE with us.

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From: Paul Buellesbach
To: Frey, Sarah
Cc: Gairola, Sounjay; Osbourne, Margaret; Jason Sese
Subject: RE: Region 6 H2S Passive Monitoring Project
Date: Thursday, September 01, 2016 9:36:06 AM

Thanks Sarah! Let me check with Dave on the call tomorrow morning; will let you know shortly.

Paul

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Thursday, September 1, 2016 10:08 AM
To: Paul Buellesbach <Paul.Buellesbach@erg.com>
Cc: Gairola, Sounjay <Gairola.Sounjay@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Jason Sese <Jason.Sese@erg.com>; Paul Buellesbach <Paul.Buellesbach@erg.com>
Subject: RE: Region 6 H2S Passive Monitoring Project

Paul,

I have no direct experience, but have researched the details on properly using the Radiello passive samplers. The component that is shipped to lab is a single-use cartridge, but the diffusive bodies, sampling shelters, and triangular support plates can be used multiple times. We would have ERG purchase these items and ship them to us, which will be explicit in the TD, once drafted.

I'd be happy to speak with Dave to discuss in more detail, is 9:30am EDT on Friday okay?

Please let us know about the Jerome's as soon as possible.

Sarah

From: Paul Buellesbach [mailto:Paul.Buellesbach@erg.com]
Sent: Wednesday, August 31, 2016 1:55 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Gairola, Sounjay <Gairola.Sounjay@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>; Jason Sese <Jason.Sese@erg.com>; Paul Buellesbach <paul.buellesbach@erg.com>
Subject: RE: Region 6 H2S Passive Monitoring Project

Sarah:

Our lab is still tracking down costs to rent the Jerome units. We hopefully will have pricing information for you tomorrow. Regarding the H2S analyses – we would need to plan on 10% additional samples for duplicate collections and 10% for field blanks. That would take you up to 144 samples (ten samples every two weeks is 120 samples, 20% additional samples takes us to 144). At a ceiling analytical cost of $70/sample, that takes us to $10,080 for analytical costs. Obviously, if we

can get cheaper lab costs, we would only bill those costs.

Dave Dayton (our lab manager) also asked me if you have experience working with these sampling devices. There are needs for enclosures that are made for the tubes, specific diffusors for the inlet, and proper handling, storage, and shipping. Does the region have all of these elements covered? Let me know if you'd like to talk with Dave. If you would, are you available to talk Friday morning, prior to 10am EDT? Dave is out after that on Friday, and I'm pretty tied up tomorrow. Let me know if you'd like to discuss further.

Also, we will get you the Jerome rental costs as soon as we can.

Thanks!

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, August 30, 2016 11:49 AM
To: Paul Buellesbach <Paul.Buellesbach@erg.com>
Cc: Gairola, Sounjay <Gairola.Sounjay@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Region 6 H2S Passive Monitoring Project

Hello Paul,

We would like to know the cost for ERG to rent three or four Jerome J605 Hydrogen Sulfide Analyzers and send it to us in Region 6. We would use it for one week, then send them back (September 12-16).

Can we have an estimated cost for this equipment cost? Our budget is tight, so we are unsure if having an ERG staffer join us for the site-assessment would be economically feasible.

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Ross, Sarah M.
To:	Frey, Sarah
Cc:	Bowser, Jonathan (JBowser@trcsolutions.com)
Subject:	RE: Update on Meteorological Data Access
Date:	Thursday, December 01, 2016 12:57:37 PM

Hello, Sarah,

I spoke to Jon Bowser of TRC today and copied him here. Jon will contact you early next week about your access to the information similar to Kara Allen's (EPA) account set up in 2014.

Thank you,
Sarah Ros, Manager – Environmental Mill Services
GP Crossett Paper Operations

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Wednesday, November 30, 2016 4:10 PM
To: Ross, Sarah M. <Sarah.Ross@GAPAC.com>
Subject: Update on Meteorological Data Access

Sent by an external sender

Good afternoon, Sarah,

At our meeting on November 17, it was discussed that a log-in and password would be created for me to access the TRC database, especially for meteorological data.

I was wondering if you could provide me a status update on that process.

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Tillman, Tressa
To:	Frey, Sarah; Durant, Jennah
Cc:	Osbourne, Margaret; Haynes, James
Subject:	RE: Updated Factsheet
Date:	Friday, December 09, 2016 7:00:38 AM
Attachments:	Fact Sheet for H2S Participants tat 12-9-16.docx

Hi, Sarah – It looks great! I had two minor tweaks on the attached. Thanks! -- Tressa

_____

Tressa A. Tillman
Environmental Justice Community Liaison for Arkansas
Office of Environmental Justice, Tribal and International Affairs (6RA-DA)
US Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733
214-665-2261 Fax 214-665-2124
tillman.tressa@epa.gov

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From: Frey, Sarah
Sent: Thursday, December 08, 2016 6:06 PM
To: Durant, Jennah <Durant.Jennah@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>; Haynes, James <haynes.james@epa.gov>; Tillman, Tressa <tillman.tressa@epa.gov>
Subject: RE: Updated Factsheet

Hi Jennah,

Thank you so much! Attached is our final version. If you have anything you would like me to change, please let me know by COB Friday, as we are departing very early Monday!

Sarah

From: Durant, Jennah
Sent: Thursday, December 08, 2016 4:54 PM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Updated Factsheet

I had some slightly un-minor edits! I figured we should make the language as clear as possible. Let

me know what you think of this version.

From: Frey, Sarah
Sent: Thursday, December 08, 2016 4:43 PM
To: Durant, Jennah <Durant.Jennah@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: Updated Factsheet

Hi Jennah,

Attached is our most recent factsheet draft . I incorporated minor edits provided by Tressa and Mike McCorkhill (in Superfund).

Thanks!

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Dave Dayton
To:	Frey, Sarah; Osbourne, Margaret
Cc:	Jason Sese; Leta Kent; Paul Buellesbach
Subject:	RE: Well Alrighty Then!!
Date:	Wednesday, January 04, 2017 8:19:36 AM

As it does not really change the technical approach (gives the same data), I would say that a change was not really needed. However, that is up to you/EPA. I know that you have told me this, but again – what time do you expect to get to Crossett on Tuesday? Also, will there be any other EPA Staff with you? I ask because if possible, I would like to do some of the training Tuesday afternoon. This would help you get a good jump on the first deployment.

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Dr., Suite 700
Morrisville, NC 27560
(919)468-7883

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Wednesday, January 4, 2017 9:14 AM
To: Dave Dayton <Dave.Dayton@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Paul Buellesbach <Paul.Buellesbach@erg.com>
Subject: RE: Well Alrighty Then!!

Good morning, Dave,

Using the blue units is fine with me! I just wanted to make sure we were clear on the details, and wasn't sure if that change needed to be made in the QAPP.

Thanks!

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Wednesday, January 04, 2017 6:15 AM
To: Frey, Sarah <frey.sarah@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <leta.kent@erg.com>; Paul Buellesbach <paul.buellesbach@erg.com>
Subject: RE: Well Alrighty Then!!

Morning Sarah and a Happy New Year to you also,

You are correct in that we originally decided that the "White" diffusive bodies would work fine for the

intended application. However, the white units are not going to be available until mid-February (I am pretty sure that we discussed this during one of our calls, but maybe it was one that you could not be on). Considering our desire to get going as soon as possible, we went with the "Blue" diffusive bodies as they were going to be available to us sooner.

The Blue units are intended for use when collecting compounds that that are light sensitive (convert or degrade in certain light). They have the very same diffusion characteristics, and the same quantity of reuses. The only technical difference between the White and Blue units is that the Blue units have had a coloring agent added to them to block direct sunlight from getting to the passive tube located inside. Cost wise, they were $15 / box more expensive (or $45 total more expensive as we bought 3 boxes). For the small difference in cost, we decided to obtain these and get the program going (instead of waiting for the white units to be available in mid.-Feb. Do you know of a reason why we should not use these Blue units?

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Dr., Suite 700
Morrisville, NC 27560
(919)468-7883

From: Frey, Sarah [mailto:frey.sarah@epa.gov]
Sent: Tuesday, January 3, 2017 2:35 PM
To: Dave Dayton <Dave.Dayton@erg.com>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>; Paul Buellesbach <Paul.Buellesbach@erg.com>
Subject: RE: Well Alrighty Then!!

Hi Dave,

This is exciting news! I just have one small question: the forwarded confirmation below indicates that we will receive the Blue diffusive bodies (RAD1201), not the White diffusive bodies (RAD120) as described in the QAPP. Can you confirm which bodies we will be using?

Thanks!
Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Thursday, December 29, 2016 5:54 AM
To: Frey, Sarah <frey.sarah@epa.gov>; Osbourne, Margaret <osbourne.margaret@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <leta.kent@erg.com>; Paul Buellesbach <paul.buellesbach@erg.com>
Subject: Well Alrighty Then!!

Morning All,

I am pleased to present that I received the email below from Sigma this morning. According to the tracking number, the diffusive bodies should be delivered to me today. With this, our approach as planned is viable (I am happy to say). Onward and upward! I hope that you have a safe and Happy New Years holiday.

Dave

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Dr., Suite 700
Morrisville, NC 27560
(919)468-7883

From: Sigma-Aldrich Shipment [mailto:No_Reply@SIAL.COM]
Sent: Thursday, December 29, 2016 1:18 AM
To: Dave Dayton <Dave.Dayton@erg.com>; Kerry Fountain <Kerry.Fountain@erg.com>
Cc: Dave Dayton <Dave.Dayton@erg.com>
Subject: Sigma-Aldrich Shipment for Order# 3017448687

Thank you.

Your shipment from Sigma-Aldrich® is on its way.

Order # 3017448687

- CARRIER SERVICE: FEDEX
- TRACKING NUMBER: 612203717580

Shipment Details

PRODUCT #	DESCRIPTION	UNITS OF MEASURE	QUANTITY ORDERED	QUANTITY IN SHIPMENT
RAD1201	PK20 RADIELLO BLUE DIFFUSIVE BODY &	EA	3.000	3.000

- INVOICE NUMBER: 0540683047
- TOTAL QUANTITY SHIPPED: 3.000
- (all shipments)

If you need further assistance with your order, please contact Customer Service.

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From: Hirtz, James
To: Frey, Sarah; Spence, Kelley
Cc: Osbourne, Margaret
Subject: RE: Wind Roses
Date: Thursday, September 15, 2016 8:55:47 AM
Attachments: image001.png
image002.png
image003.png

Plot 1 indicates an influence just East of the Monitor at 65 – 75 degrees which could be a source unless it is associated with stack emissions coming from the plant itself and not the WWTP. Also on the trip how many mobile Jeromes are you taking, as a recommendation I would collect samples from as many sources at the same time period as you can for example. If you were to do the Aeration Basin and Ash Basin at the same time, start detecting due North and go clock-wise or counter clockwise so the measurements are as well aligned as they can be in regards to prevailing winds/wind speeds. This would help with the characterization.

Field investigations oh so much fun

From: Frey, Sarah
Sent: Thursday, September 15, 2016 9:46 AM
To: Hirtz, James <Hirtz.James@epa.gov>; Spence, Kelley <Spence.Kelley@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Wind Roses

Good morning, Jim,

It is our understanding that the 2 sewer lines from the plant to the primary clarifier are enclosed and buried, however we are planning to physically walk the length of the WWT system in order to confirm that there are no vents or holding areas prior to the primary clarifier. At least two of the excursions reported on the ADEQ website were attributed to biological activity in the ash settling basin, so we will also be sure to focus some attention to that area. I've attached a labeled map that we are using to guide our site visit. Is there any indication that emissions could be coming directly from the plant's internal outfalls (beginning of creek segment 1)?

Sarah

From: Hirtz, James
Sent: Thursday, September 15, 2016 7:20 AM
To: Spence, Kelley <Spence.Kelley@epa.gov>; Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Wind Roses

No stationary monitors around the creek that I know of. R6 is planning on using Jerome monitors (hand-held units), so we can ask if they are going to do any walk bye's around the creek as well, would be a good idea. It looks like a pretty good signature along the Creek (right before you get to the Clarifier) all the way to the Settlement Pond. Is there any holding area's/retention ponds from Coffee Creek prior to entering the Clarifier.

Distance (Monitor to Waste Treatment)

Length of Wastewater System = 4.5 miles

Plant; (2,300 meters)
Creek Segment 1; (1000 meters)
Clarifier; (1000 meters)
Creek Segment 2; (1,500 meters)
Settlement Basin; (2,200 meters)
ASB Basin; (4,000 meters)
Coffee Creek;

From: Spence, Kelley

Sent: Thursday, September 15, 2016 8:02 AM
To: Hirtz, James <Hirtz.James@epa.gov>
Subject: RE: Wind Roses

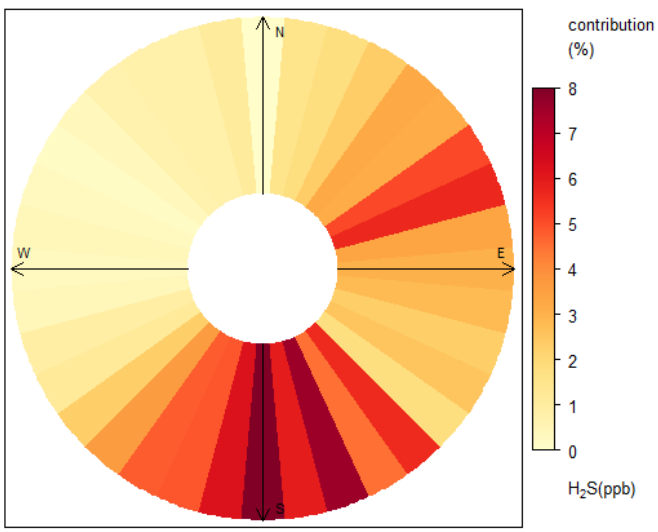
Do we know if they have any monitors around the "creek"? When they do their monitoring, they should look at the creek too. I'd bet that's where the community problem is coming from.

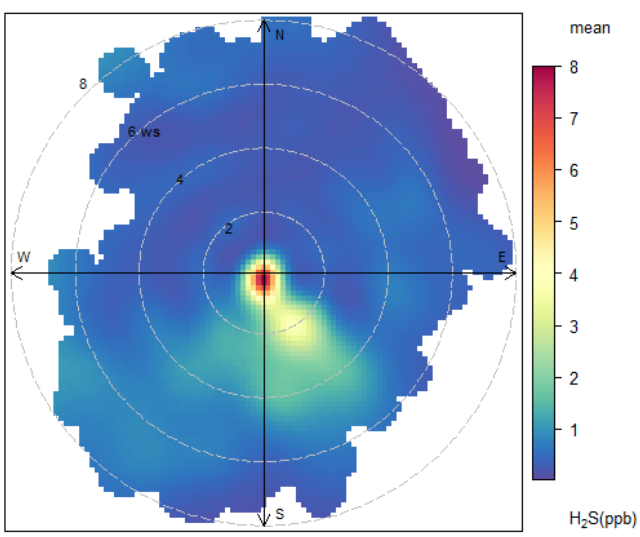
From: Hirtz, James
Sent: Thursday, September 15, 2016 7:48 AM
To: Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>; Spence, Kelley <Spence.Kelley@epa.gov>; Rimer, Kelly <Rimer.Kelly@epa.gov>
Subject: RE: Wind Roses

Thanks Sara here is a snapshot of a couple of pollution roses looking at the H2S data (Oct 2014 – March 2015) incorporated with the windrose, 1. Plot 1 -- the wind-rose is a mean weighted concentration value it basically looks at signal strength as a function (H2S conc, wind direction, and # hrs wind blowing from that direction) and Plot 2 similar to Plot 1 but provides the concentration of H2S as a function of wind direction. So a pretty good influence of H2S from the SE/S of the monitor (settlement pond – strong) with also some influence from the aeration basin. The aeration basin signal is not as strong due to the distance from the monitor about 3-4 km, which when modeling is about a factor of 10 reduction on influence at the monitor. Will do more detailed analysis with modeling runs once I get all the H2S monitoring data thru 2016 from GP.

Give me a call if you have any questions

jim





From: Frey, Sarah
Sent: Wednesday, September 14, 2016 6:36 PM
To: Hirtz, James <Hirtz.James@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: FW: Wind Roses

Hi Jim,

I am forwarding you some wind roses prepared by one of our contractors. I'm not sure if you need them, but I thought it may help! Please note that they are just incorporating data from fall to spring.

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Monday, September 12, 2016 7:53 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>
Subject: Wind Roses

Good Day Sarah,

Please see the attached file. It presents 3 Wind Roses (WR) for use in our site placement efforts in Crossett. These WR have been prepared to reflect conditions during the expected period of monitoring (to the extent possible). Descriptions are as follows:

- The WR titled GP-V Oct-Mar presents wind speed/wind direction (WS/WD) information using the TRC data for the period of Oct 2014 through March 2015. It would have been good to have all of the site WS/WD data to work with rather than just this one 6-month period.
- The WR titled 53919 Monticello presents a historical composite WS/WD data from Monticello, AR (~30 miles North of Crossett) for November through April for the years of 2013 thru 2015.
- The WR titled 53992 Bastrop presents a historical composite WS/WD data from Bastrop, LA (~20 miles South of Crossett) for November through April for the years of 2013 thru 2015.

Please let me know if you have questions.

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From: Frey, Sarah
To: Hirtz, James; Spence, Kelley
Cc: Osbourne, Margaret
Subject: RE: Wind Roses
Date: Thursday, September 15, 2016 9:02:00 AM
Attachments: image001.png
image002.png
image003.png

We will have four Jeromes and are hoping that we will be able to perform simultaneous measurements. Thank you for your suggestion! We will attempt to align the measurements, but due to accessibility and the variety of size of each pond/basin, it may not be exact, but we will try!

Field work is always fun, but I always seem to be sent to the most humid and hot locations! Hopefully one day I'll get to monitor on a southern California beach ☺

From: Hirtz, James
Sent: Thursday, September 15, 2016 8:56 AM
To: Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>; Spence, Kelley <Spence.Kelley@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Wind Roses

Plot 1 indicates an influence just East of the Monitor at 65 – 75 degrees which could be a source unless it is associated with stack emissions coming from the plant itself and not the WWTP. Also on the trip how many mobile Jeromes are you taking, as a recommendation I would collect samples from as many sources at the same time period as you can for example. If you were to do the Aeration Basin and Ash Basin at the same time, start detecting due North and go clock-wise or counter clockwise so the measurements are as well aligned as they can be in regards to prevailing winds/wind speeds. This would help with the characterization.

Field investigations oh so much fun

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ASB Basin; (4,000 meters)
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To: Hirtz, James <Hirtz.James@epa.gov>
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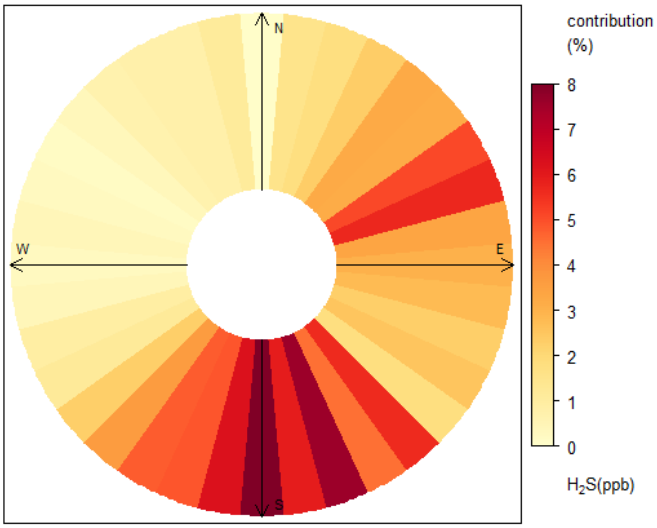

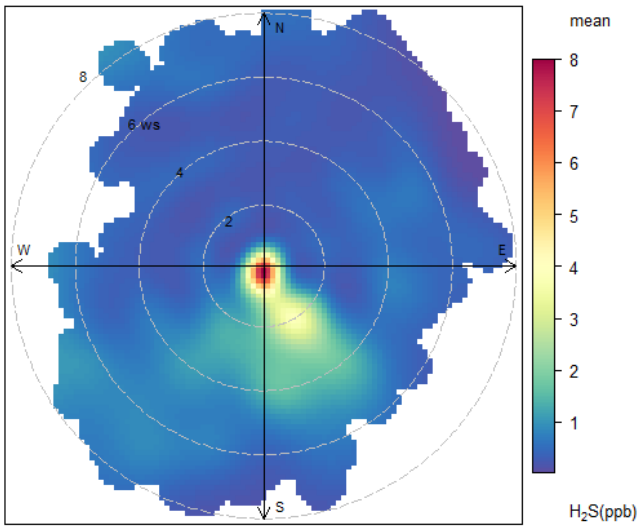

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To: Hirtz, James <Hirtz.James@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
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Sarah

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Sent: Monday, September 12, 2016 7:53 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>
Subject: Wind Roses

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Please let me know if you have questions.

Dave Dayton
Vice President
Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From:	Dave Dayton
To:	Frey, Sarah
Cc:	Leta Kent; Jason Sese
Subject:	RE: Wind Roses
Date:	Thursday, September 15, 2016 9:30:16 AM
Attachments:	image007.png image008.png

Sounds good. In the end, we want to make decisions on where to locate sites on just data that is consistent with the months that monitoring will occur, as there are probably seasonal differences (Fall/Winter vs. Spring/Summer).

Dave

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(919)468-7883

From: Frey, Sarah [mailto:frey.sarah@usepa.onmicrosoft.com]
Sent: Thursday, September 15, 2016 10:26 AM
To: Dave Dayton <Dave.Dayton@erg.com>
Cc: Leta Kent <Leta.Kent@erg.com>; Jason Sese <Jason.Sese@erg.com>
Subject: RE: Wind Roses

These plots were prepared using just the Oct 2014-March 2015 data. The remainder of the data (April 2015-present) has been promised, but not yet received. Once it has, I will pass it along to you as well.

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Thursday, September 15, 2016 9:23 AM
To: Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Cc: Leta Kent <leta.kent@erg.com>; Jason Sese <Jason.Sese@erg.com>
Subject: RE: Wind Roses

These are interesting and will be very useful. When you say that they were prepared using the WWT System in Crossett, were just the October 2014 through March 2015 data used, or did she have access to a more comprehensive data set. What would be great would be to have these apportionment characterizations done using several years' worth of met. Data for the November through April time frame. If they are generated with just one 6-month period of data, there is some doubt as to whether that 6 months was typical.

Dave

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From: Frey, Sarah [mailto:frey.sarah@usepa.onmicrosoft.com]
Sent: Thursday, September 15, 2016 9:49 AM
To: Dave Dayton <Dave.Dayton@erg.com>; Leta Kent <Leta.Kent@erg.com>
Subject: FW: Wind Roses

Good morning, Dave,

This is from one of our modelers at ORD who is also looking at the WWT system in Crossett that I thought you might be interested in viewing.

Sarah

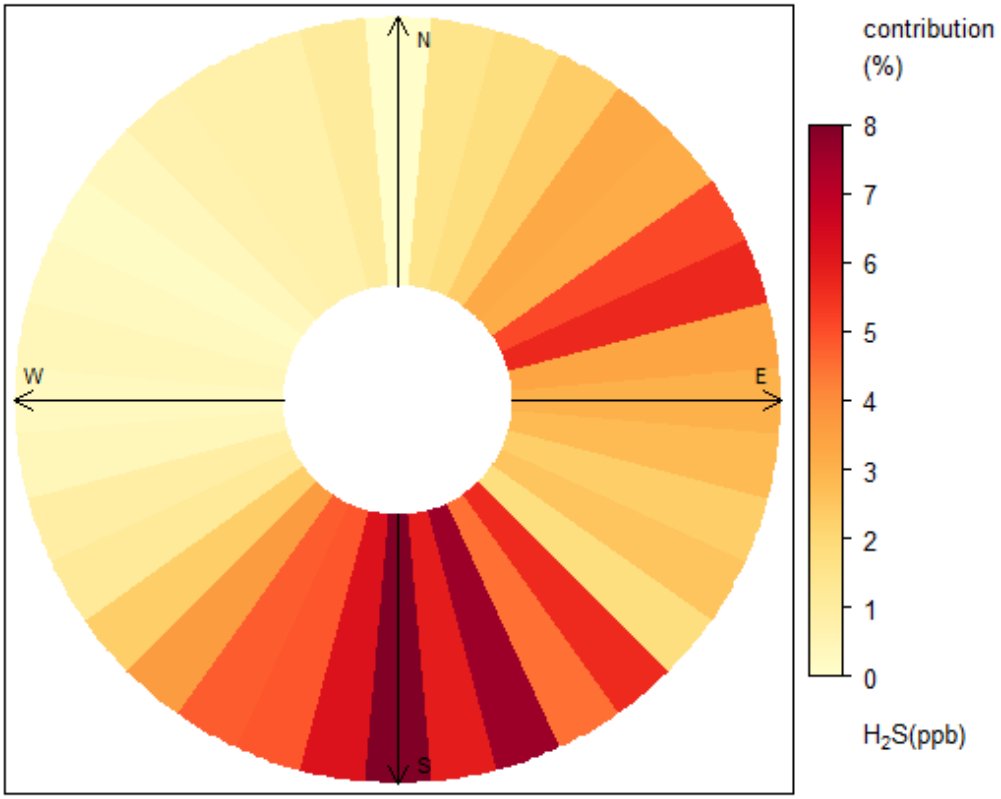
From: Hirtz, James
Sent: Thursday, September 15, 2016 6:48 AM
To: Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>

Subject: RE: Wind Roses

Thanks Sara here is a snapshot of a couple of pollution roses looking at the H2S data (Oct 2014 – March 2015) incorporated with the windrose, 1. Plot 1 -- the wind-rose is a mean weighted concentration value it basically looks at signal strength as a function (H2S conc, wind direction, and # hrs wind blowing from that direction) and Plot 2 similar to Plot 1 but provides the concentration of H2S as a function of wind direction. So a pretty good influence of H2S from the SE/S of the monitor (settlement pond – strong) with also some influence from the aeration basin. The aeration basin signal is not as strong due to the distance from the monitor about 3-4 km, which when modeling is about a factor of 10 reduction on influence at the monitor. Will do more detailed analysis with modeling runs once I get all the H2S monitoring data thru 2016 from GP.

Give me a call if you have any questions

jim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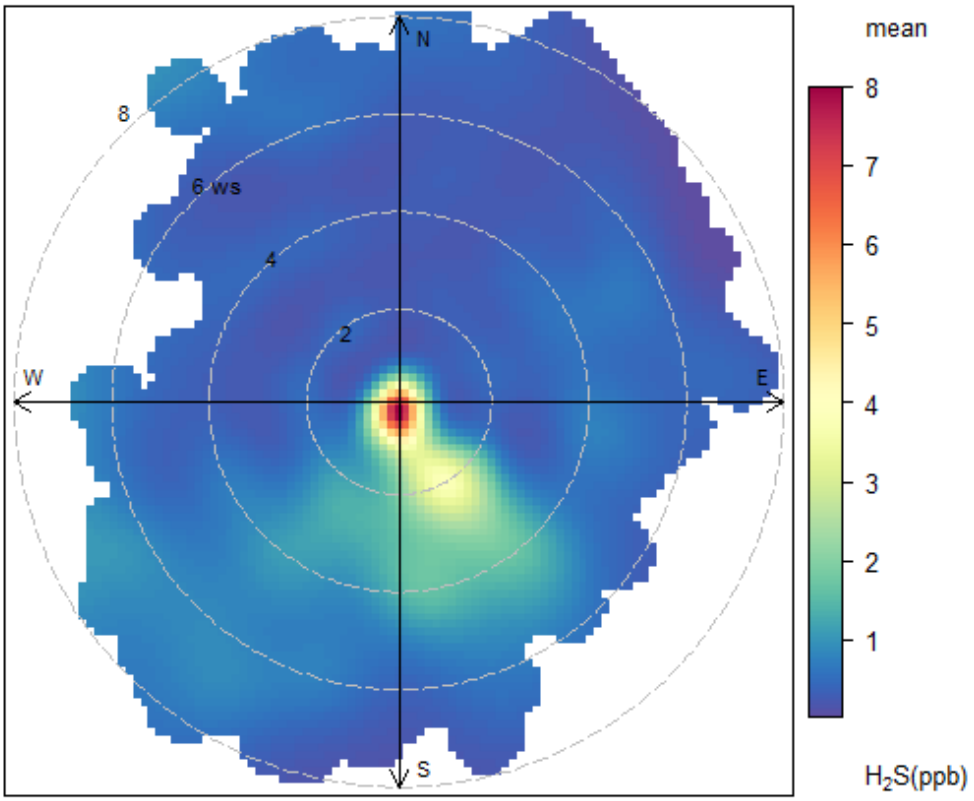
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H2S(ppb)

From: Frey, Sarah
Sent: Wednesday, September 14, 2016 6:36 PM
To: Hirtz, James <Hirtz.James@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: FW: Wind Roses

Hi Jim,

I am forwarding you some wind roses prepared by one of our contractors. I'm not sure if you need them, but I thought it may help! Please note that they are just incorporating data from fall to spring.

Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Monday, September 12, 2016 7:53 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>
Subject: Wind Roses

Good Day Sarah,

Please see the attached file. It presents 3 Wind Roses (WR) for use in our site placement efforts in Crossett. These WR have been prepared to reflect conditions during the expected period of monitoring (to the extent possible). Descriptions are as follows:

- The WR titled GP-V Oct-Mar presents wind speed/wind direction (WS/WD) information using the TRC data for the period of Oct 2014 through March 2015. It would have been good to have all of the site WS/WD data to work with rather than just this one 6-month period.
- The WR titled 53919 Monticello presents a historical composite WS/WD data from Monticello, AR (~30 miles North of Crossett) for November through April for the years of 2013 thru 2015.
- The WR titled 53992 Bastrop presents a historical composite WS/WD data from Bastrop, LA (~20 miles South of Crossett) for November through April for the years of 2013 thru 2015.

Please let me know if you have questions.

Dave Dayton
Vice President
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(919)468-7883

From: Frey, Sarah
To: Hirtz, James; Spence, Kelley
Cc: Osbourne, Margaret
Subject: RE: Wind Roses
Date: Thursday, September 15, 2016 8:46:00 AM
Attachments: image001.png
image002.png
image003.png
GP WWT with all labels.jpg

Good morning, Jim,

It is our understanding that the 2 sewer lines from the plant to the primary clarifier are enclosed and buried, however we are planning to physically walk the length of the WWT system in order to confirm that there are no vents or holding areas prior to the primary clarifier. At least two of the excursions reported on the ADEQ website were attributed to biological activity in the ash settling basin, so we will also be sure to focus some attention to that area. I've attached a labeled map that we are using to guide our site visit. Is there any indication that emissions could be coming directly from the plant's internal outfalls (beginning of creek segment 1)?

Sarah

From: Hirtz, James
Sent: Thursday, September 15, 2016 7:20 AM
To: Spence, Kelley <Spence.Kelley@epa.gov>; Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: RE: Wind Roses

No stationary monitors around the creek that I know of. R6 is planning on using Jerome monitors (hand-held units), so we can ask if they are going to do any walk bye's around the creek as well, would be a good idea. It looks like a pretty good signature along the Creek (right before you get to the Clarifier) all the way to the Settlement Pond. Is there any holding area's/retention ponds from Coffee Creek prior to entering the Clarifier.

Distance (Monitor to Waste Treatment)

Length of Wastewater System = 4.5 miles

Plant; (2,300 meters)
Creek Segment 1; (1000 meters)
Clarifier; (1000 meters)
Creek Segment 2; (1,500 meters)
Settlement Basin; (2,200 meters)
ASB Basin; (4,000 meters)
Coffee Creek;

From: Spence, Kelley
Sent: Thursday, September 15, 2016 8:02 AM
To: Hirtz, James <Hirtz.James@epa.gov>
Subject: RE: Wind Roses

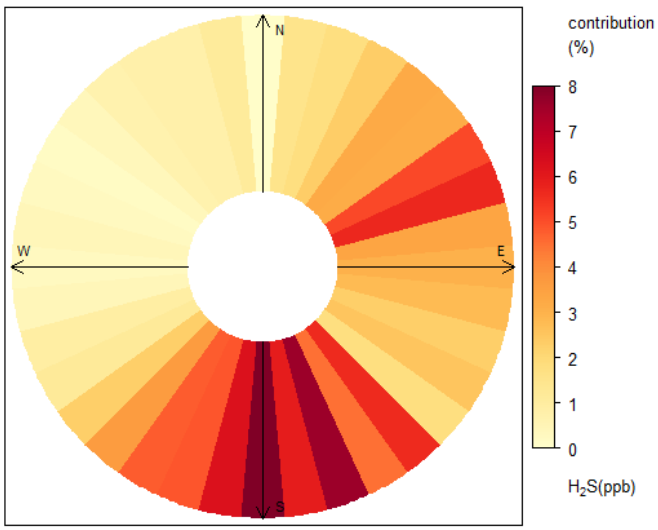
Do we know if they have any monitors around the "creek"? When they do their monitoring, they should look at the creek too. I'd bet that's where the community problem is coming from.

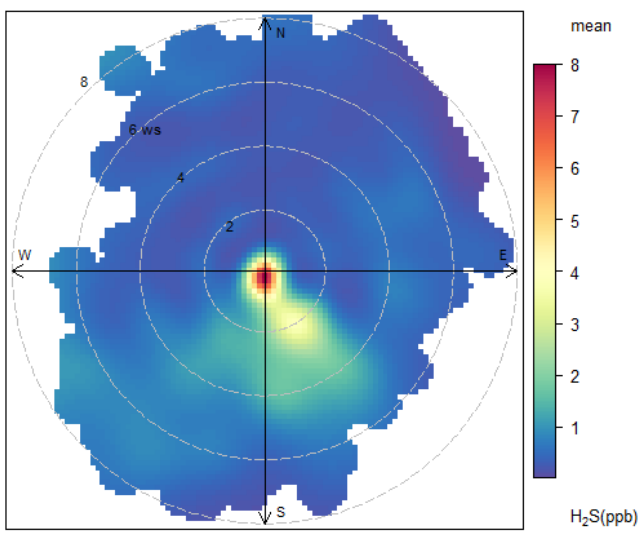
From: Hirtz, James
Sent: Thursday, September 15, 2016 7:48 AM
To: Frey, Sarah <frey.sarah@usepa.onmicrosoft.com>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>; Spence, Kelley <Spence.Kelley@epa.gov>; Rimer, Kelly <Rimer.Kelly@epa.gov>
Subject: RE: Wind Roses

Thanks Sara here is a snapshot of a couple of pollution roses looking at the H2S data (Oct 2014 – March 2015) incorporated with the windrose, 1. Plot 1 -- the wind-rose is a mean weighted concentration value it basically looks at signal strength as a function (H2S conc, wind direction, and # hrs wind blowing from that direction) and Plot 2 similar to Plot 1 but provides the concentration of H2S as a function of wind direction. So a pretty good influence of H2S from the SE/S of the monitor (settlement pond – strong) with also some influence from the aeration basin. The aeration basin signal is not as strong due to the distance from the monitor about 3-4 km, which when modeling is about a factor of 10 reduction on influence at the monitor. Will do more detailed analysis with modeling runs once I get all the H2S monitoring data thru 2016 from GP.

Give me a call if you have any questions

jim





From: Frey, Sarah
Sent: Wednesday, September 14, 2016 6:36 PM
To: Hirtz, James <Hirtz.James@epa.gov>
Cc: Osbourne, Margaret <osbourne.margaret@epa.gov>
Subject: FW: Wind Roses

Hi Jim,

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Sarah

From: Dave Dayton [mailto:Dave.Dayton@erg.com]
Sent: Monday, September 12, 2016 7:53 AM
To: Frey, Sarah <frey.sarah@epa.gov>
Cc: Jason Sese <Jason.Sese@erg.com>; Leta Kent <Leta.Kent@erg.com>
Subject: Wind Roses

Good Day Sarah,

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Please let me know if you have questions.

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Black text is from Traylor Champion Email 12/16. **Blue text is my proposed response**.

After our meeting in Dallas recently and further review of EPAs proposed sampling effort in Crossett, we have a few items I would like to further discuss with you as we consider our participation in this effort. Would you be available for a phone conversation next week or 1st week of January to discuss? Below are a few things I would like to discuss. Just let me know your availability. If we don't connect before the holidays, hope you and family have a great holiday season.

- We continue to question the need to conduct additional ambient monitoring beyond the voluntary monitoring we have been conducting the past 2 years (and continue to conduct) in the community.
    - **The current community monitor is just a single point, and will not help us determine the most prevalent origins of high concentration H2S release. We are also interested in understanding exposure in additional communities.**
    - **In 2015, there were 4 episodes exceeding 70ppb, totaling ~520 minutes**
    - **In 2016, there were 15 episodes exceeding 70ppb, totaling ~2915 minutes**

- We submitted the monitoring information to EPA/ATSDR/ADH for the initial data collection period in June 2015 as agreed to. The resulting Health Consultation has yet to be completed.
    - **It is our understanding that ADH/ATSDR will be releasing 2 Air Health Consultations – the first will detail the monitoring itself and evaluate the first 6 months of data. The second will look at data from 2016. We are unaware of the anticipated release dates.**

- Also, as you know, EPA ORD is in the process of developing a separate CSM for the Crossett site and expect to have those results late Q1 2017.
    - **The conceptual site model evaluates many pathways of a variety of pollutants. ORD is still in the process of identifying data gaps, and our monitoring will not interfere with their work.**

- We think it would be appropriate for EPA to delay the proposed additional monitoring until these two efforts are completed to determine if there is a need for any additional data collection.
    - **We are planning to proceed as planned, installing monitoring stations the second week of January and collecting samples every two weeks for a total of 24 weeks.**

- The SOW states "EPA will work with the contractor to develop a site-specific monitoring plan and a quality assurance project plan that will provide detailed instructions for the placement and retrieval of monitoring devices and the meteorological station.
    - **No meteorological station will be installed, data will be retrieved from the TRC website and an average temperature for the sampling period will be recorded.**
    - **Placement of the monitoring devices will occur the second week of January. General locations have been shared via our site map, exact locations will be determined during installation. GP can help select locations that will be out of the way for workers and daily operations.**
    - **A 7/8-inch diameter galvanized pole will need to be hammered about 2 feet deep into the ground. The sample shelter will be carefully placed at 5 feet above the ground. There is space in our sample shelter for GP collocated samples, if desired.**

- **Samples will be retrieved bi-weekly. Ideally, this will occur around the same time and route each collection. The collection dates are: 1/27/2017, 2/10/2017, 2/24/2017, 3/10/2017, 3/24/2017, 4/7/2017, 4/21/2017, 5/5/2017, 5/19/2017, 6/2/2017, 6/16/2017, and 6/30/2017.**

- At this point we are still unclear on details of how the data collected from the monitors will be compiled and then, what criterion it will be compared to in order to assess what the results mean in terms of potential impacts (if any) to residents in the community. We anticipate this detail will be provided in the forthcoming SSMP/QAPP and we would like an opportunity to review and comment (if not we request that it be included). We feel strongly that it is important to have clarity on this before EPA proceeds.
  - **Our QAPP outlines the questions we seek to answer:**
    - **What are the sources of hydrogen sulfide in the WWT system at the mill?**
    - **Is hydrogen sulfide leaving the facility property?**
    - **Is there a risk of chronic exposure in the community?**
    - **Should more monitors be placed in the community for long term monitoring?**
  - **The resulting data will be used to determine point sources of hydrogen sulfide in the WWT system and if ambient levels of hydrogen sulfide are detected at levels exceeding the ATSDR intermediate MRL of 20 ppbV or the EPA's chronic inhalation reference concentration (RfC) of 1 ppbV.**
  - **All samples are being analyzed by a contracted laboratory. Data will be compiled by EPA, including QC samples. EPA will use the field QC results to determine how the analytical results may be used.**

- If we proceed forward with locating EPA monitoring equipment onsite, our business counsel indicates we need to have the appropriate **access agreements** in place. Need to discuss logistics of this process.
  - **We will have our regional counsel look over the access agreements, once provided.**

- As we indicated in our Dallas meeting, we placed a number of passive monitors onsite around our WWTS and have begun collecting data from these units. Would like to discuss initial results and opportunity to share this information.

From:	Dave Dayton
To:	Frey, Sarah
Cc:	Jason Sese; Leta Kent; Paul Buellesbach
Subject:	Several things.
Date:	Monday, October 03, 2016 8:11:29 AM
Attachments:	Crossett_H2S_10.3.2016.xlsx

Morning Sarah,

I hope that you all had a safe and uneventful trip back. A couple of things:

1. I submitted all of the GPS Coordinates to my GIS Staff today, and they are preparing the map that we spoke of. I hope to have that later this week. I will pass it along as soon as it is done.
2. Please see the attached EXCEL Spreadsheet. When you can, could you enter in all of the air and water measurements information. If you have questions on what is desired as input, let me know. Once we have the completed table and the map (coupled with our observation of the area), we can then make some informed decisions on how many sites and where to locate them. We should have a call on this.
3. I would like to go ahead and purchase the Radiello shelters (1 pk. of 10), the mounting strips (1 pk. of 20), and the support plates (1 pk. of 20) as soon as possible (so let me know if this is okay to go ahead with). We can wait to order the actual passive tubes and the diffusors after we have firmly decided on the number of sites, and the number of dups/blanks.

Just as an FYI for perspective – if 10 sites were deployed, there would be a total 144 samples (comprised of 120 Primary samples, 12 duplicate samples, and 12 field blanks). This would mean that there would be 12 samples shipped to the lab after each2 week duration.

Dave

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Laboratory Facility Manager
Eastern Research Group
601 Keystone Park Drive, Suite 700
Morrisville, NC 27560
(919)468-7883

From:	Frey, Sarah
To:	Osbourne, Margaret
Subject:	Summary for GP meeting today
Date:	Thursday, October 06, 2016 11:39:00 AM
Attachments:	Coordinate Table.docx Overview.jpg

Attached is an overview map of the areas we sampled and a coordinate table with general notes about the locations.

Quick Air Summary

- Multiple samples were taken using four instruments for H2S emissions
  - Jerome handheld monitors measured concentrations as high as 5.68 ppm
  - Personal H2S monitors measured concentrations as high as 8 ppm next to the P2 sampling station
  - Elevated concentrations were observed at the P2 sampling station, primary clarifier, the east ash basin, the exit of the surge basin, and zones 1/2 of the ASB
  - No H2S was detected in the afternoon at Outfall 001, zone 4 of the ASB or in in the morning at the community monitor
- Locations where the WWT stream greatly was agitated had more odor occurrences

Quick Water Summary:

- 36 samples were taken for LDO%, LDO, pH, and temperature
  - Multiple locations had a pH less than 3.0 – making the water acidic
  - Multiple locations had less than 1% of DO in the water
  - Booms where located downstream of clarifier, in the east ash basin, and downstream from outfall 001
  - A schematic of the internal outfalls 101, 102, 103 was not provided and sampling procedures are a concern
- Clarifier was brown, foaming, and the "arm" did not seem to be rotating
  - Flow capacity of clarifier is a concern
- Oil Sheens where observed

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

For meeting with the Mayor/President of Chamber of Commerce:

1. Introductions (Margaret)

2. Community concerns, existing community monitor showing elevated levels of hydrogen sulfide with increasing frequency. (Margaret)

3. Two site visits – end of September and end of October. (Margaret)
    a. September: Walked the wastewater treatment system with handheld monitors and found multiple areas of very elevated hydrogen sulfide levels.
    b. October: GMAP vehicle drove around the treatment system and community roads and found elevated hydrogen sulfide levels.

4. Monitoring Plan presentation (Sarah)
    a. 6-months monitoring study of hydrogen sulfide
    b. 20 monitors, 11 on GP property, 9 in the community
    c. Passive monitors – description
    d. Show them the map with locations
    e. Do they have any suggestions for specific locations in those areas? Is there any available city land where we can place the monitors?

5. We will provide a report with the results of the study in Summer, 2017 to the Mayor, the COC President, Reverend Bouie, and the members of the community with monitors on their property. (Margaret)

6. What will we do with the data? (Margaret)
    a. It really depends on the results.
    b. We'll compare the average concentrations of H2S with the chronic level of 2 ppb.
    c. If the levels are below that, no further action.
    d. If the levels are above that, we'll work with the facility to address the hydrogen sulfide emissions.

7. Schedule for Monitoring (Margaret)
    a. This week: Knock on doors in the neighborhoods and ask for consent to install community monitors
        i. Would a City Worker (such as a policeman) like to accompany us while we approach Crossett citizens?
    b. Week of Jan. 10: Install 20 monitors
    c. Through June 30: Harvest the samples every two weeks on Fridays
    d. July/August: Provide report from monitoring study

For community monitoring:

- Hi, I'm Margaret Osbourne and this is Sarah Frey and James Haynes.
- We're with the Environmental Protection Agency and we're here to ask for your help.
- We're conducting a 6-month air monitoring study here in Crossett.
- We're installing 20 air monitors in Crossett, about half on Georgia-Pacific property and half in the surrounding neighborhoods.
- The air monitors will measure the amount of hydrogen sulfide, the chemical that smells like rotten eggs, in the air around GP's wastewater treatment system.
- We would like to install an air monitor on your property.
- The air monitor is a small aluminum box that will be attached to a 7/8-inch pole about 5 feet off the ground.
- We would install the air monitor during the week of January 10 and would need access to your property every two weeks to change out the canisters.
- The equipment is silent and doesn't require any electricity.
- We will provide the air monitoring data from the air monitor in your yard to you at the end of the 6-month study. A full report will be made available to the public.
- If you agree for us to install this equipment on your property, we'll need for you to sign this consent form.
- Do you have any questions? Are you willing to help us out?

Quality Assurance Project Plan for Georgia-Pacific CAA Investigations Monitoring Activities in EPA Region 6

Prepared for:

U.S. Environmental Protection Agency
Office of Civil Enforcement
1200 Pennsylvania Avenue
Washington, DC 20460

Prepared by:

Eastern Research Group, Inc.
14555 Avion Parkway
Suite 200
Chantilly, VA 20151-1102

Revision No. 0
December 14, 2016

EPA Contract No. EP-W-15-006 (ERG)
Work Assignment ERG 1-1

TITLE AND APPROVAL SHEET

Quality Assurance Project Plan for the
National CAA Investigations Enforcement Support Region 6

12/14/16

Paul Buellesbach, ERG Program Manager Date

12/14/16

Jill Lucy, ERG Project QA Coordinator Date

12/14/16

Jason Sese, ERG Work Assignment Manager Date

01/03/17

Sounjay Gairola, OCE Work Assignment Manager Date

12/15/16

Rich Satterfield, EPA HQ QA Manager Date

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1. INTRODUCTION

The U.S. EPA Office of Civil Enforcement, Air Enforcement Division (OCE/AED) is directing ERG to assist Region 6 of the United States Environmental Protection Agency (EPA) with monitoring efforts at the Georgia-Pacific facility in Crossett, Arkansas. In cooperation with EPA Region 6, the Arkansas Department of Environmental Quality (ADEQ), and the Arkansas Department of Health, Georgia-Pacific has been conducting ambient air monitoring for hydrogen sulfide through a community monitor located near their paper mill in Crossett, Arkansas. The air monitor is about a half mile north of the wastewater treatment (WWT) clarifier. The Agency for Toxic Substance and Disease Registry (ATSDR) has published minimum risk levels (MRLs) and reference concentrations (RfCs) in its *Toxicological Profile for Hydrogen Sulfide and Carbonyl Sulfide*, and the monitor has periodically showed readings above the acute MRL of 70 parts per billion volume (ppbV). Because of these elevated concentrations of hydrogen sulfide, ERG will assist EPA Region 6 with ambient air monitoring through network design and passive sample collection and analysis. The resulting data will be used to determine point sources of hydrogen sulfide in the WWT system and if ambient levels of hydrogen sulfide are detected at levels exceeding the ATSDR intermediate MRL of 20 ppbV or the EPA's chronic inhalation reference concentration (RfC) of 1 ppbV.

2. PROJECT MANAGEMENT ELEMENTS

This section addresses project management, including project objectives, roles and responsibilities, and project goals. In addition, this section discusses the mechanisms ERG will use to ensure that all participants understand the goals and the approach used in the sampling of hydrogen sulfide levels around the Georgia-Pacific Crossett paper mill.

In its *Requirements for Quality Assurance Project Plans QA/R-5* (1), EPA has identified nine elements to be discussed in this section. ERG provided element A1, Title and Approval Sheet, and Element A2, Table of Contents earlier in this document. Table 2-1 presents the remaining elements and corresponding document sections.

Table 2-1. Crosswalk Between Document Sections and EPA Quality Assurance Project Plan Elements

Quality Assurance Project Plan Element		Document Section
A1 and A2	Title and Approval Sheet	Title Page and Approval Sheet
A3 through A9	Distribution List, Project Organization, Problem Definition/Background, Project/Task Description, Quality Objectives and Criteria, Special Training/Certification, Documents and Records	2.0
B1 through B10	Sampling Process Design; Sampling Methods; Sample Handling and Custody; Analytical Methods; Quality Control; Instrument/Equipment Testing, Inspection, Maintenance, and Calibration; Inspection/Acceptance of Supplies and Consumables, Non-Direct Measurements (Not applicable to this project); Data Management	3.0
C1 and C2	Assessments and Response to Actions, Reports to Management	4.0
D1, D2, and D3	Data Review, Verification, and Validation; Verification and Validation Methods; Reconciliation with User Requirements	5.0

2.1 Element A.3: Distribution List

Table 2-2 presents the distribution list for this Quality Assurance Project Plan (QAPP). The ERG Work Assignment Manager or his designee will be responsible for ensuring that the QAPP and any QAPP revisions are distributed to everyone in Table 2-2.

Table 2-2. QAPP Distribution List

Name	Organization	Role
Sounjay Gairola	US EPA/OCE	OCE Work Assignment Manager
Rich Satterfield	US EPA/OCE	EPA HQ QA Manager
Sarah Frey	US EPA/OCE	OCE Technical Lead
Mary Willett	ERG	ERG Corporate QA Manager
Jill Lucy	ERG	ERG Project QA Coordinator
Paul Buellesbach	ERG	ERG Program Manager
Sarah Yates	ERG	ERG Technical Reviewer
Jason Sese	ERG	ERG Work Assignment Manager
Dave Dayton	ERG	ERG Team Leader
Leta Kent	ERG	ERG Team Member

2.2 Element A.4: Project Organization

Figure 2-1 depicts the project organization for ERG and EPA Region 6 to conduct the Georgia-Pacific hydrogen sulfide sampling event. Jason Sese will serve as ERG's Work Assignment Manager (WAM). He will be responsible for all management and administrative aspects of the work performed and for ensuring that the quality of work, schedule, and budget meet the requirements of EPA/OCE. He will provide technical direction to ERG staff and will be responsible for the daily activities on the project. Mr. Sese will be the principal contact for EPA on project issues and schedule. Mr. Sese will maintain the finalized QAPP. He will also keep the ERG Project QA Coordinator and the Program Manager advised of any quality problems that arise.

Jill Lucy will serve as ERG's Project QA Coordinator responsible for ensuring that the requirements of this QAPP are implemented and documented. She is independent from the day-to-day activities on the project. Mary Willett is ERG's Corporate QA Manager. The Corporate QA Manager will interact with the Project QA Coordinator to ensure that project-specific quality assurance/quality control (QA/QC) programs are commensurate with project objectives and with ERG's quality system.

Sarah Yates will provide ERG's technical review, including review of the this QAPP and the sampling plan. She will be available during the execution of the project to provide technical expertise to the project team.

Dave Dayton will lead and direct ERG's team while in the field. He will make decisions in the field that support the goals of the project and will ensure his team follows the health and safety guidelines in the Health & Safety Plan in Appendix B. Leta Kent will provide field support with sample device setup.

ALS Environmental (ALS) located in Cincinnati, OH will provide analytical support for this investigation. Additional details on ERG's project QA organization can be found in ERG's

Enforcement and Technical Support for the Office of Civil Enforcement Contract Quality Management Plan (QMP) (2), Section 1.2 Project Organization and Staff Responsibilities.

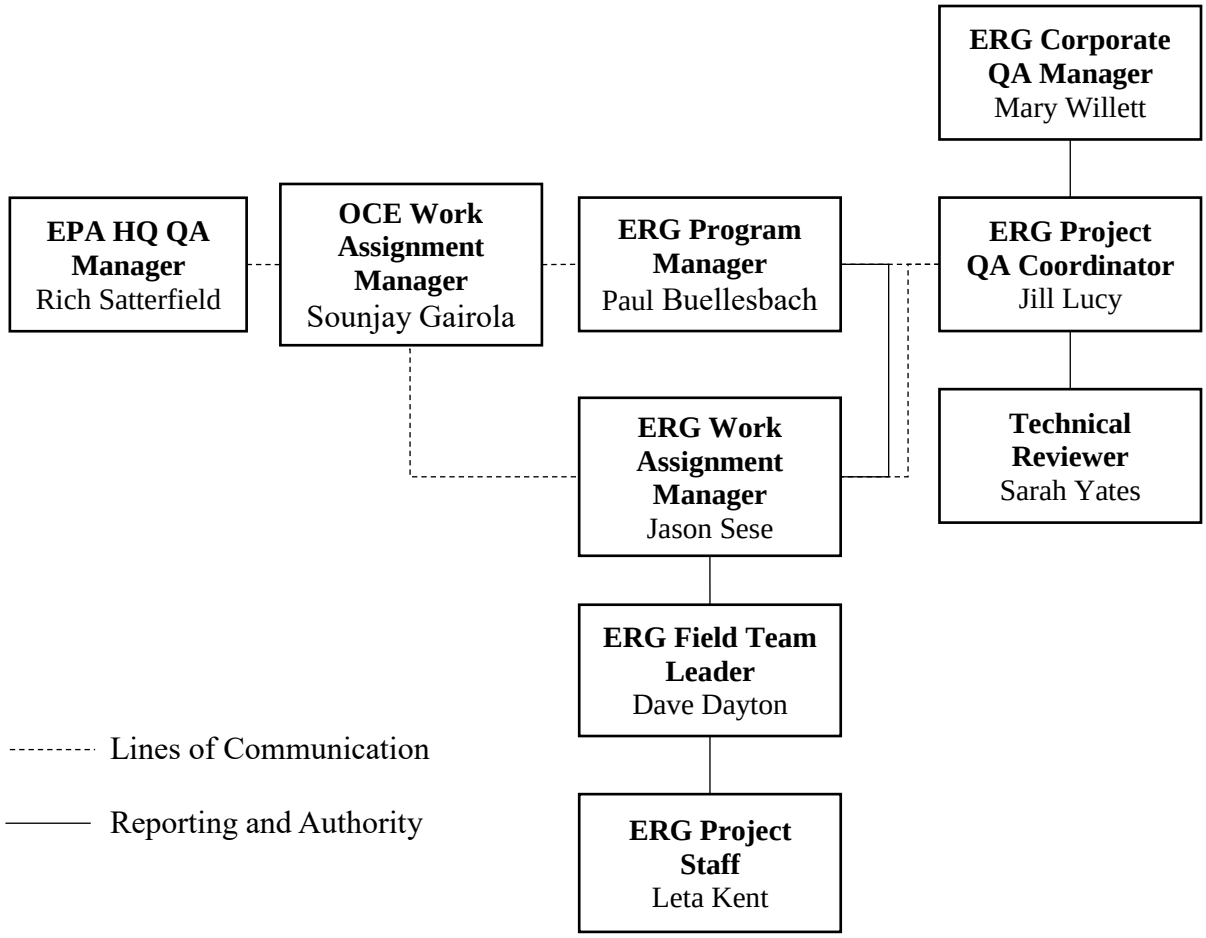

Figure 2-1. ERG Project Level QA Organization for the Georgia-Pacific Sampling Event

2.3 Element A.5: Problem Definition/Background

EPA Region 6 is tasked with determining point sources of hydrogen sulfide in the WWT system at the Georgia-Pacific paper mill in Crossett, Arkansas and if there is the potential for chronic exposure in the community. Georgia-Pacific has been conducting ambient air monitoring for hydrogen sulfide with a community monitor near their paper mill in Crossett, Arkansas. The monitoring results have periodically shown elevated hydrogen sulfide readings and EPA Region 6 has received complaints from the community related to strong smells coming from the direction of the plant. ERG will support EPA in evaluating hydrogen sulfide levels surrounding the WWT system by conducting passive sampling and determining if hydrogen sulfide levels are above the acute or intermediate ATSDR MRLs. Table 2-3 outlines relevant MRLs as well as RfC

Values. ERG will assist in the initial set up of the monitors and training the EPA staff to collect and set up the sample tubes for the duration of the sampling event.

This QAPP specifically addresses set up of the monitoring stations, sample collection and delivery to the laboratory, analytical laboratory selection, and compilation of the results. For this facility, OCE will seek to answer the following questions:

- What are the sources of hydrogen sulfide in the WWT system at the mill?
- Is hydrogen sulfide leaving the facility property?
- Is there a risk of chronic exposure in the community?
- Should more monitors be placed in the community for long term monitoring?

Table 2-3. ATSDR MRL and EPA RfC Values

Substance	Acute Duration Inhalation MRL (ppmV)	Intermediate Duration Inhalation MRL (ppmV)	Chronic Inhalation RfC (ppm)
Hydrogen Sulfide	0.07	0.02	0.001

Values found in *Toxicological Profile for Hydrogen Sulfide and Carbonyl Sulfide*

2.4 Element A.6: Project/Task Description

ERG will support EPA in conducting passive sampling at the Georgia-Pacific Paper Mill in Crossett, Arkansas. The objectives of the investigation are to collect representative measurements of hydrogen sulfide from air samples at 20 locations on-and-around the Georgia-Pacific Paper Mill property once every two weeks for a duration of 24 weeks to determine point sources of hydrogen sulfide from the WWT system and the potential for chronic exposure in the community. In addition to samples collected at each of the 20 locations, two quality control samples will be collected every two weeks. The location of these two samples will change on a rotational basis. This results in 22 samples per each sampling episode, with a sampling episode being defined as one round of sample collection. The passive sampling tube technology being utilized is limited to a collection duration maximum of 15 days. EPA will replace the sampling tubes at each location every 14 days. EPA will use a courier service (i.e., FedEx) to deliver all samples to the designated laboratory for hydrogen sulfide analysis. EPA will also provide the laboratory with temperature data from an on-site station operated by TRC Environmental Corporation. EPA will pull the temperature data from www.TRCAir.com and calculate one average temperature for the sample duration. Table 3-1 summarizes the analytical methods that the laboratory will use. The laboratory will deliver analysis results to EPA within 14 days after receiving the samples and temperature data from EPA. The results from the analysis will be in the form of electronic spreadsheets and the field data sheets will be in PDF form.

To supplement this QAPP, ERG has developed site-specific planning documents to prepare for the sampling activities, including: (1) Investigation Sampling Plan and Shipping Procedures (see Appendix A); and (2) Investigation Health and Safety Plan (see Appendix B).

These documents will be the primary sources of procedural information and a guide for the ERG team. Table 2-4 presents the project schedule.

Table 2-4. Project Schedule

Activity	Date(s)
Submit QAPP and Sampling Plan to EPA for Review and Approval	12/14/2016
Initial placement of passive monitors around G-P Crossett Mill	1/13/2017
EPA Replace Sampling Tubes and Submit Collected Tubes	1/27/2017, 2/10/2017, 2/24/2017, 3/10/2017, 3/24/2017, 4/7/2017, 4/21/2017, 5/5/2017, 5/19/2017, 6/2/2017, and 6/16/2017
EPA Send Average Temperature Data to Laboratory for Analysis	Within 2 Days After the Recovery of Samples from each Episode
Lab Provides Results of Bi-weekly Collections to EPA	Within 14 Days of Receipt of Samples and Temperature Data
EPA Final Collection of Sampling Tubes and Collection of Equipment	6/30/2017

2.5 Element A.7: Quality Objectives and Criteria

This section discusses how ERG and EPA determines that information collected for this project is "fit for use."

Sample Collection and Analysis. This project will involve collection and analysis of air samples. Results of these analyses will be used to quantitatively determine concentrations of hydrogen sulfide in the air. A meteorological station operated on-site by TRC Environmental Corporation will also measure ambient temperature. EPA and ERG will use these data along with the results of the air sample analyses to determine point sources of hydrogen sulfide in the WWT system.

ALS will use appropriate methods to analyze the hydrogen sulfide samples. Analytical methods are summarized in Table 3-1. Along with the sample analysis results, ALS will report the results of concurrent laboratory QC samples, which include blanks and co-located (duplicate) samples. Table 2-5 presents the data quality criteria identified in the test methods. If a sample result does not meet the control limits specified or the field blanks/duplicates do not meet control limits, ALS will notify EPA. In the event a sample result does not meet the quality specifications, the ERG WAM will consult with the EPA WAM and ERG Team Leader to determine the corrective action to be taken.

Table 3-2 identifies the type and frequency of field QC samples that will be prepared for analysis with collected samples. EPA Region 6 will collect duplicate co-located samples and field blanks to meet QC requirements. Requirements for duplicate sample collection will be satisfied by the sampling schedule (see the Sampling Plan in Appendix A). EPA will use the field QC results to determine how the analytical results may be used. In particular, the duplicate samples assess comparability and variability in the sampled air, in EPA's sampling methods, and in the laboratory's analytical techniques. The precision criteria set in Table 2-5 will assist EPA in

understanding the variability of the data generated by this project. It is up to the discretion of EPA whether to use data that does not meet the precision criteria. Variability in the samples may be a result of heterogeneities in the material sampled.

ALS will conduct all sample analyses in accordance with the protocols of the SOP that they have provided. ALS will provide all supporting QA/QC information or persons capable of testifying to the authenticity and quality of the data. ALS will document deviations from the method in its laboratory reports. ALS will provide sufficient documentation to allow an independent validation and verification of the analytical results. ALS will provide electronic files for all data deliverables.

Table 2-5. Data Quality Criteria for Field Investigations

Precision Objectives – Based on Field Co-located Samples	
Analyte	**Air**
Hydrogen Sulfide	±20% RPD [1]
Blank Objectives – Based on Field/Trip Blanks	
Analyte	**Air**
Hydrogen Sulfide	< Method Detection Limit
RPD (Relative Percent Difference), is calculated as follows: RPD (%) = Absolute Value of: [(x1 - x2) / (x1 + x2)/2] * 100% Where: x1 = Concentration Observed in Original Sample and x2 = Concentration Observed in Duplicate Sample	

Sampling Summary Quality Objectives. EPA will use the information and data collected during the Georgia-Pacific sampling to determine point sources of hydrogen sulfide in the WWT system, determine chronic exposures, and open discussions with Georgia-Pacific about hydrogen sulfide in their processes. EPA is responsible for reviewing the completeness and accuracy of field collection procedures and laboratory results.

2.6 Element A.8: Special Training/Certification

ERG staff assisting with the Georgia-Pacific sampling have received appropriate health and safety training per OSHA 29 CFR Part 1910.120. Yearly refresher trainings are held by the ERG Health and Safety Coordinator. ERG's Health and Safety Coordinators maintain the health and safety training records. The ERG WAM will ensure that all team members have received the necessary training and training certificates.

2.7 Element A.9: Documents and Records

ERG has developed and instituted document control methods for the review, revision, and distribution of QAPPs. Each QAPP has a signed approval form, title page, table of contents, and EPA-approved document control format that appears in the upper left-hand corner of each page. Table 2-2 presents the distribution list for this QAPP. The EPA QA Manager will maintain a copy of the approved QAPP. The ERG WAM will circulate any revision to the QAPP to everyone on the distribution list during the project and shall maintain the finalized QAPP.

[1] RPD is based on the average of all the 12 samples sets collected, not for each individual sample set.

ALS will provide EPA with analytical results of bi-weekly collections within 14 days of receipt of the samples and meteorological data. Section 3.6 of this plan provides further discussion of the management of project-related information.

3. DATA GENERATION AND ACQUISITION

This section discusses how ERG will ensure that sample collection methods appropriate for the Georgia-Pacific sampling are employed and documented. ERG will not use existing analytical data as a part of this investigation. Since all data collected will be direct observation and or/measurement, Element B.9 Non-direct Measurements does not apply.

3.1 Elements B.1 Sampling Process Design and B.2 Sampling Methods

Sampling collection will be done at designated sampling sites and will involve collection and analysis of air samples. EPA is currently planning on sampling at 20 sites in the community and the area around the WWT system at Georgia-Pacific. ERG will assist in setting up passive sampling monitors and training EPA team members in proper handling of the monitors. EPA will collect approximately 22 air samples every two weeks (20 primary samples, one co-located sample, and one field blank). Sampling will take place over 24 weeks for a total of 264 air samples. EPA will ensure the sampled material is representative of material from the area of concern. The number of sampling sites may change based on EPA observations after arrival. If the sampling site at the facility or the facility itself becomes inaccessible, EPA will work to gain access to the site or find an alternate sampling location. A meteorological station operated on-site by TRC Environmental Corporation will measure ambient temperature continuously across each collection episode. EPA will pull the temperature data from www.TRCAir.com and calculate one average temperature for the sample duration representing each complete 14-day collection period to provide to the laboratory for analysis within 2-days after each episode shipment. Refer to the Investigation Sampling Plan in Appendix A for further details on the sampling schedule.

The primary equipment to be used by EPA and ERG for this sampling event includes the following:

- Radiello Diffusive Samplers for Hydrogen Sulfide;
  - Blue diffusive body code 1201
  - Supporting plate code 121
  - Chemiadsorbing cartridge code 170
- Radiello shelters
- Support poles
- PVC support heads; and
- All required tools (hand/battery powered/Sledge hammer)

ERG will support EPA in setting up sampling devices at specified sites. Detailed information on the sampling Standard Operating Procedure (SOPs), sampling procedures, decontamination procedures, and sampling equipment and support facilities is in the Sampling Plan in Appendix A. The ERG team will follow the procedures described in Appendix M, Sampling Guidelines, of The EPA NEIC *Multi-Media Investigation Manual*, Revised March 1992 EPA-330/9-89-003-R, or other guidance specified by the ERG project leads and specific to the methods and objectives of the work detailed in this QAPP. The ERG field team leader will ensure that sampling device set up procedures follow the guidelines set forth in the SOPs.

3.2 Element B.3 Sampling Handling and Custody

ERG will provide EPA sampling personnel with the materials and guidance on how to follow standard chain-of-custody procedures to ensure analytical results or other information generated from samples collected on this program may be used in litigation. This includes maintaining the sample integrity at all times, from sample collection through analysis. This also includes an inspection notebook, sample identification labels, and chain-of-custody forms to provide documentation that sample integrity was maintained. ERG will use a consistent set of site names and sample numbers to track all samples for this project.

To maintain a record of sample collection, sample transfer between personnel, and sample receipt by laboratory, the team will complete a chain-of-custody form for each box that is transferred to the laboratory. These chain-of-custody forms will document sample custody transfer from the team to the laboratory and will contain the following information:

- Name and location;
- Sample number for each sample shipment;
- Collection date and time for each sample shipment;
- Number of containers of each sample;
- Sample description (environmental matrix);
- Analyses required for each sample;
- Sample conditions or comments for laboratory instructions; and
- The name of the courier transferring the samples to the laboratory.

EPA personnel collecting the sampling tube from the monitor are responsible for completing the chain-of-custody forms, signing the chain-of-custody forms, and noting the date and time of shipment. These individuals will also inspect the chain-of-custody forms for completeness and accuracy. The original chain-of-custody forms will accompany the sample shipment while EPA/ERG will retain a copy. Appendix C contains a copy of the field chain-of-custody form EPA and ERG will use during this investigation.

When the laboratory receives the samples, the laboratory sample custodian will check all bottles against the chain-of-custody forms, record the condition of the samples, and sign, date, and mark the time of receipt on the chain-of-custody forms. Table 3-1 lists the hold time and analytical method to be used. The laboratory sample custodian will immediately report any discrepancies or problems to the ERG team leader. The laboratory will provide completed chain-of-custody forms with the analytical results delivered to EPA. ERG will retain any paperwork generated in collecting and shipping samples (e.g., air bills) as part of the permanent documentation.

Table 3-1. Laboratory Analytical Methods

Analyte	Method	Maximum Number of Samples Analyzed	Hold Time
H_2S	Supelco Edition H1, H_2S	280	6 months

The laboratory will also follow a written SOP for sample custody. The laboratory will log all samples into a sample receipt logbook or computerized laboratory information system and will document the following information:

- Date and time of sample receipt;
- Project number and name;
- Field sample number;
- Laboratory sample number;
- Sample matrix;
- Analytical parameters;
- Storage location;
- Log-in person's initials; and
- Log-in sample temperature.

Laboratory personnel will secure all information relevant to the samples at the end of each business day. They will store all samples in a designated storage refrigerator with restricted access. The laboratory will properly dispose of the samples once the data quality review of the data is completed.

3.3 Elements B.4 Analytical Methods and B.5 Quality Control

To ensure that analyses of samples collected during the Georgia-Pacific sampling event are of known and documented quality, ERG will:

- Use laboratories that possess appropriate state certification, with appropriate capability and quality assurance performance;

- Specify turnaround times for the laboratory to process the samples and deliver the data package in the statement of work and in the Sampling Plan in Appendix A;

- Use method-specific performance criteria for the sampling in this episode as specified in Section A.7 (and Table 2-5).

- Specify the method, which is identified in Table 3-1

Table 3-2. QC Sample Requirements

MEDIUM	CO-LOCATED SAMPLES	FIELD BLANKS
Air	One per collection episode (12 Total)	One per collection episode (12 Total)

ERG discusses the quality control procedures and corrective actions for exceedances of control limits in Section 4.1. Details about how control actions will be determined and documented, and formulas for calculating applicable QC statistics (e.g., precision objectives for duplicate samples) are discussed in Section 2.5. The ERG team leader will ensure that all corrective actions are taken and the team leader will convey all information to the EPA WAM.

3.4 Elements B.6 and B.7 Instrument/Equipment Testing, Inspection, Maintenance, and Calibration

No instruments will be used during the monitoring. Equipment that the ERG and EPA teams will use during set up of sample sites include nitrile gloves, zip lock bags, and all the materials associated with the passive sampling technology. The Sampling Plan in Appendix B lists the analytical equipment inspection and maintenance requirements. All equipment is inspected before going out into the field. To ensure that the team knows that the passive sampling devices will work properly, the team will read the users manuals and follow any instructions for assembly and setup.

3.5 Element B.8 Inspection/Acceptance of Supplies and Consumables

Section 4 of the ERG QMP (2) details ERG's standard procurement procedures for project-related supplies and consumables, including inspection and acceptance criteria and procedures for tracking, storage, and receiving supplies. Sampling diffusors and tubes and sheltering for the tubes will be purchased by ERG from Supelco. The ERG team leader is responsible for ensuring all materials meet project requirements.

3.6 Element B.10 Data Management

ERG's standard controls for project-related data, documents, and records are presented in Section 5 of the QMP (2). Section 2.7 discusses the document storage, archive, and retrieval process as it relates to the ERG-Chantilly network.

Because EPA is collecting the samples, ERG will coordinate with EPA sampling personnel to ensure that EPA records data acquired in the field, including site and visual information into bound field notebooks. Each sample collection team member will sign their notebook and pertinent information from the team member notebooks will be included in the final report.

4. ASSESSMENT AND OVERSIGHT ELEMENTS

This section describes the methods ERG will use to assess the effectiveness of the air sampling activities implemented at Georgia-Pacific and the associated QA and QC activities.

4.1 Element C.1: Assessments and Response Actions

No final reports or summaries have been requested, so ERG is not generating any work products during the Georgia-Pacific monitoring that require review. Instead, ERG will forward the data provided by the laboratory directly to EPA without review. EPA will conduct all assessments on the data.

Ms. Jill Lucy will serve as the Project QA Coordinator for this project. She is independent from the data generation for this project and the day-to-day activities. Ms. Lucy has the authority to issue a stop work order at any point during her assessment process. She will use the following tools to assess the implementation of QA/QC procedures on this project:

- Review of the QAPP (this document) for completeness and applicability; and
- Audit of project files to ensure project staff are using appropriate checklists and SOPs.

At any time or at the end of the project or work assignment, Ms. Lucy or her designee may inspect the project QA files.

4.2 Element C.2: Reports to Management

ERG is not responsible for data quality review, so no QA reports have been requested.

5. DATA VERIFICATION/VALIDATION AND USABILITY ELEMENTS

This section describes the data validation and usability elements. EPA is responsible for assessing the usability of information collected under the Georgia-Pacific hydrogen sulfide sampling event.

5.1 Element D.1: Data Review

Data review is an in-house data examination, performed to ensure that data have been calculated, recorded, and transmitted correctly; for example, by checking for transcription and calculations errors. Because ERG is transmitting the data from the lab directly to EPA without review, ERG will not be performing data review for this effort.

5.2 Element D.2: Data Verification and Validation

Data verification is the confirmation by examination and review of objective evidence that the data are complete, correct, consistent, and in compliance with technical requirements, established standards, and contractual requirements. Data verification criteria are based upon the measurement quality objectives developed in the project QAPP. Data quality criteria are listed in Table 2-5. EPA is responsible for data verification and validation.

An EPA team member will review laboratory quality control checks, including

- Chain-of-custody;
- Sample Receipt logs and checklists;
- Equipment and instrument calibration;
- Sensitivity (detection limits achieved);
- Laboratory blank contamination; and
- Field blank contamination.

Data validation is an analyte- and sample-specific process that extends the evaluation of data beyond method, procedural, or contractual compliance (i.e. data verification) to determine the analytical quality of a specific data set.[2] An EPA team member will review laboratory data using engineering judgment to verify that the data appear reasonable based on knowledge of the facility's processes and pollutants with the potential to be present in the samples collected. If necessary, ERG will consult with EPA on data validation.

To evaluate the variability in the lab's results, an EPA team member will use the equations listed at the bottom of Table 2-5 to calculate relative percent difference (RPD) for each analyte in each set of duplicate samples, and compare the calculated RPD to control limits.

[2] EPA Guidance for Quality Assurance Project Plans EPA QA/G-5

5.3 Element D.3: Reconciliation with User Requirements

EPA will determine if data generated for this project are of known and documented quality and if they are fit for their intended use.

6. REFERENCES

1. U.S. Department of Health and Human Services, October 2014. *Toxicological Profile for Hydrogen Sulfide and Carbonyl Sulfide*. Agency for Toxic Substances and Disease Registry.

2. U.S. Environmental Protection Agency, 2001 (Reissued 2006). *EPA Requirements for Quality Assurance Project Plans QA/R-5*. EPA/240/B-01/003, Office of Environmental Information.

3. Eastern Research Group, July 2014. Enforcement and Technical Support for the Office of Civil Enforcement Contract Quality Management Plan.

Appendix A Investigation Sampling Plan and Shipping Procedures

The U.S. EPA Office of Civil Enforcement, Air Enforcement Division (OCE/AED) is directing ERG to assist Region 6 of the United States Environmental Protection Agency (EPA) with monitoring efforts at the Georgia-Pacific facility in Crossett, Arkansas. The objectives of the investigation are to collect representative measurements of hydrogen sulfide from air samples at 20 locations on-and-around the Georgia-Pacific Paper Mill property once every two weeks for a duration of 24 weeks to determine point sources of hydrogen sulfide from the WWT system and the potential for chronic exposure in the community. In addition to samples collected at each of the 20 locations, two quality control samples will be collected every two weeks. This plan presents the procedures for collecting Primary, Co-located, and Field/Trip Blank samples, and then shipping the samples to the analytical laboratory, on a collection episode basis. During sample setup, ERG will work to minimize the duration between site efforts and while at each site itself. The same is true during sample recovery. Also, the sites should be visited in the same order for both setup and recovery, within a given collection episode. This will help ensure that, to the largest extent, the same collection duration is accomplished across the network as a whole.

Primary Sample Setup

A primary sample will be collected at every site for every collection episode.

1. Inspect the site area to ensure that nothing has changed that could bias the sample collection. Inspect the shelter and ancillary equipment to ensure that it functional and in good working condition.

2. Don nitrile gloves.

3. Remove the storage/transport container from its zip lock bag. Remove the cap from the storage/transport container.

4. Have a new or clean diffuser body ready. (Note: the diffuser bodies will be cleaned after each 2-week collection duration).

5. Position the opening on the storage/transport container so that it is aligned with the inlet on the diffuser body.

6. Load the passive sampling tube into the body of the diffuser (without touching the tube) by having it slide out of the storage/transport container directly into the diffuser body.

7. Screw the diffuser body (now loaded with the passive sampling tube) onto the triangular support plate. (At this time, sample collection has been initiated, so note the time.)

8. Position the support plate inside of the site shelter and secure it in place by 1) fastening the pinch clip to the rail running along the inside top of the shelter, and 2) pressing the Velcro pad located on the back of the support plate to its corresponding pad located on

the wall of the shelter. Predetermined positions for the support plate will be evident by where the Velcro pad(s) is located on the side wall(s) of the shelter. The position for a primary sample is located on the left inside wall, and the position for co-located sample is located on the right inside wall.

9. Complete all required documentation in the "Field Setup" section of the "Field Data Sheet/COC". Retain the Field Data Sheet/COC for use during sample recovery.

10. Retain the storage/transport container with cap and zip lock bag for use during sample recovery.

11. Repeat this procedure at each monitoring site.

Co-located Sample Setup

A co-located sample will be collected at one site during each collection episode on a rotating basis.

1. Refer to the Sample Collection Schedule to determine which site is slated to collect a co-located sample for a given collection episode.

2. Don nitrile gloves.

3. Remove the storage/transport container from its zip lock bag. Remove the cap from the storage/transport container.

4. Have a new or clean diffuser body ready. (Note: the diffuser bodies will be cleaned after each 2-week collection duration).

5. Position the opening on the storage/transport container so that it is aligned with the inlet on the diffuser body.

6. Load the passive sampling tube into the body of the diffuser (without touching the tube) by having it slide out of the storage/transport container directly into the diffuser body.

7. Screw the diffuser body (now loaded with the passive sampling tube) onto the triangular support plate. (At this time, sample collection has been initiated, so note the time.)

8. Position the support plate inside of the site shelter and secure it in place by 1) fastening the pinch clip to the rail running along the inside top of the shelter, and 2) pressing the Velcro pad located on the back of the support plate to its corresponding pad located on the wall of the shelter. Predetermined positions for the support plate will be evident by where the Velcro pad(s) is located on the side wall(s) of the shelter. The position for a co-located sample is located on the left inside wall, and the position for primary sample is located on the right inside wall. Set up the co-located sample before the primary sample as it will be located further back in the shelter.

9. Complete all required documentation in the "Field Setup" section of the "Field Data Sheet/COC". Retain the Field Data Sheet/COC for use during sample recovery.

10. Retain the storage/transport container with cap and zip lock bag for use during sample recovery.

Field/Trip Blank Sample Setup

A field/trip blank sample will be collected at the same site during each collection episode. Collections will occur at Site 1 (the Community Site) only. The shelter at Site 1 will be outfitted with a specialized tube, mounted to the inside center of the top of the shelter.

1. Remove the storage/transport container from its zip lock bag. Do not open/remove the cap from the storage/transport container.

2. With the passive sampling tube still inside, slide the storage/transport container into the specialized tube (mounted to the inside center of the top of the shelter) until it stops. The cap end of the container should be visible.

3. Complete all required documentation in the "Field Setup" section of the "Field Data Sheet/COC". Retain the Field Data Sheet/COC for use during sample recovery.

4. Retain the zip lock bag for use during sample recovery.

Primary Sample Recovery

1. Inspect the site area to ensure that nothing has changed that could bias the sample collection. Inspect the shelter and ancillary equipment to ensure that it functional and in good working condition.

2. Don nitrile gloves.

3. Remove the cap from the storage/transport container. Attach the adhesive backed Barcode ID tag (with the number corresponding to the Sample ID presented on the Field Data Sheet/COC) to the storage/transport container. The Barcode ID should be in the center of the container with the number running parallel to the length of the container. Place cap and container on top of the shelter.

4. Remove the support plate from the shelter. It is recommended that the primary sample be recovered before the co-located sample as it will be located further forward in the shelter.

5. Unscrew the diffuser body (loaded with the passive sampling tube) from the triangular support plate.

6. Position the opening on the storage/transport container so that it is aligned with the inlet on the diffuser body.

7. Load the passive sampling tube into the storage/transport container (without touching the tube) by having it slide out of the diffuser body directly into the storage/transport container and cap the container. (At this time, sample collection has been terminated, so note the time.)

8. Place the storage/transport container in its zip lock bag.

9. Complete all required documentation in the "Field Recovery" section of the "Field Data Sheet/COC".

10. Repeat this procedure at each monitoring site.

Co-located Sample Recovery

1. Don nitrile gloves.

2. Remove the cap from the storage/transport container. Attach the adhesive backed Barcode ID tag (with the number corresponding to the Sample ID presented on the Field Data Sheet/COC) to the storage/transport container. The Barcode ID should be in the center of the container with the number running parallel to the length of the container. Place cap and container on top of the shelter.

3. Remove the support plate from the shelter.

4. Unscrew the diffuser body (loaded with the passive sampling tube) from the triangular support plate.

5. Position the opening on the storage/transport container so that it is aligned with the inlet on the diffuser body.

6. Load the passive sampling tube into the storage/transport container (without touching the tube) by having it slide out of the diffuser body directly into the storage/transport container and cap the container. (At this time, sample collection has been terminated, so note the time.)

7. Place the storage/transport container in its zip lock bag.

8. Complete all required documentation in the "Field Recovery" section of the "Field Data Sheet/COC".

Field/Trip Blank Sample Recovery

1. Don nitrile gloves.

2. Slide the storage/transport container out of the specialized tube (mounted to the inside center of the top of the shelter).

3. Place the storage/transport container in its zip lock bag.

4. Complete all required documentation in the "Field Recovery" section of the "Field Data Sheet/COC".

Sample Shipping

Each collection episode will result in 22 samples (if all the scheduled collections are determined to be valid).

1. Ensure that the correct total number of samples to be shipped to the analytical laboratory is correct.

2. Ensure that each storage/transport container has a Barcode ID attached to it, and that there is a corresponding field data sheet/COC (with the same Barcode ID as part of the sample ID).

3. Check over the field data sheet/COC to ensure that all the required information is present and correct.

4. Remove the "Pink" copy of the field data sheet/COC and retain it as the field copy.

5. Place the samples (i.e., the exposed passive tubes, inside of their barcode labeled containers, inside of their zip lock bags) and the corresponding field data sheet/COCs into a shipping container. The tubes must be secured within bubble wrap to prevent them from moving inside the shipping container. Also, place the corresponding field data sheet/COCs inside the container.

6. Ship the samples to the analytical laboratory using FedEx "Overnight" service. Be sure to arrange for "Signature Required Upon Receipt" and set up to receive the email alerts for, package pick up, package delivery, and receipt signature obtained. The ship to address is:

   ALS Environmental
   4388 Glendale Milford Road
   "Sample Receiving"
   Cincinnati, OH 45242
   Attn: Chris Amidon / (513)733-5336

ALS Environmental will complete the all information pertaining to receipt of the samples at the laboratory, and will send the "White" copy each COC to EPA as a PDF along with the corresponding H_2S concentration data. The laboratory will retain the "Canary" copy for their records.

Table A-1. Sampling Schedule

Site Name	Site #	Sample Episode Number and Start Date[a]											
		1 01/13/17	2 01/27/17	3 02/10/17	4 02/24/17	5 03/10/17	6 03/24/17	7 04/07/17	8 04/21/17	9 05/05/17	10 05/19/17	11 06/02/17	12 06/16/17
COM1	1	P, F, C	P, F	P, F	P, F	P, F	P, F	P, F	P, F	P, F	P, F	P, F	P, F
COM2	2	P	P, C	P	P	P	P	P	P	P	P	P	P
COM3	3	P	P	P	P	P	P	P	P	P	P	P	P
COM4	4	P	P	P	P	P	P	P	P	P	P	P	P
COM5	5	P	P	P, C	P	P	P	P	P	P	P	P	P
COM6	6	P	P	P	P, C	P	P	P	P	P	P	P	P
COM7	7	P	P	P	P	P	P	P	P	P	P	P	P
COM8	8	P	P	P	P	P, C	P	P	P	P	P	P	P
THUR	9	P	P	P	P	P	P, C	P	P	P	P	P	P
MILL	10	P	P	P	P	P	P	P, C	P	P	P	P	P
PCLR	11	P	P	P	P	P	P	P	P, C	P	P	P	P
CONV	12	P	P	P	P	P	P	P	P	P, C	P	P	P
WABI	13	P	P	P	P	P	P	P	P	P	P, C	P	P
EABI	14	P	P	P	P	P	P	P	P	P	P	P, C	P
WABO	15	P	P	P	P	P	P	P	P	P	P	P	P, C
EABO	16	P	P	P	P	P	P	P	P	P	P	P	P
SBO	17	P	P	P	P	P	P	P	P	P	P	P	P
ASB1	18	P	P	P	P	P	P	P	P	P	P	P	P
ASB2	19	P	P	P	P	P	P	P	P	P	P	P	P
OUT	20	P	P	P	P	P	P	P	P	P	P	P	P
Samples Per Episode		22	22	22	22	22	22	22	22	22	22	22	22
Overall Total Samples		264											

P = Primary Sample Collection
F = Field/Trip Blank Sample Collection
C = Co-located Sample Collection
[a] Sampling tubes for each episode will be collected 14 days after the start date.

Figure A-1. Sample Barcode ID

Site ID – Initiation Date – Barcode ID

Sample ID Segment	Description
Site ID	Number associated with each site.
Initiation Date	Date on which sample collection was initiated. Date will reflect month, day, and year with no spaces in between. Example, January 7, 2017 = 010717.
Barcode ID	Number associated with a barcode label as affixed to each sample upon recovery. (As documented on the sample specific field data sheet.)

Figure A-2. Sample ID Convention

Appendix B Investigation Health and Safety Plan (HASP)

B.1 Purpose

The purpose of this Health and Safety Plan (HASP) is to inform ERG and EPA personnel of known or potential health and safety hazards that may be encountered during ambient air monitoring activities planned in Crossett, Arkansas. Accordingly, this HASP describes the possible hazards and the procedures required to minimize the potential for exposure, accidents, and/or injuries during the scheduled work activities. This HASP has been reviewed by the ERG Laboratory Health and Safety Coordinator.

B.2 Scope

EPA will conduct a sampling investigation to better assess potential human exposure to hydrogen sulfide in the community around the Georgia-Pacific Crossett paper mill. During this sampling investigation, passive sampling monitors will be placed throughout the area surrounding the mill to obtain H_2S concentration data over a 24-week period.

B.3 Physical Hazards Assessment

Possible dangers associated with project activities include physical hazards related to slips, trips, or falls; lifting; and animals, poisonous plants, and poisonous insects. Brief descriptions of these potential physical hazards and measures for preventing, or mitigating the consequences of, the hazards follow:

- Slips, Trips, or Falls - Testing at the site is expected to occur primarily at ground level. ERG personnel will use good safety sense in evaluating walking and working surfaces. It is expected that EPA will select monitoring sites such that neither testing personnel nor the general public will be injured by tripping or falling over test equipment

- Lifting Hazards – When carrying and lifting equipment, ERG field staff should practice good lifting techniques and avoid carrying heavy loads.

- Animals, poisonous plants, and poisonous insects – ERG field staff should be alert for and stay clear of wild and unsupervised animals, poisonous insects, and poisonous plants (e.g. poison ivy). Team members should also be aware of multiple poisonous spiders (e.g. brown recluse, brown widow, and black widow), coyotes, and skunks that are known to live in such areas. Snakes (e.g. rattlesnakes, copperheads, and water moccasins) could particularly be a problem for this area.

  — ERG field staff will wear thick gloves, leather boots, long pants, and long sleeve shirt. ERG field staff will also bring a first aid kit. Be aware of your surroundings; do not just blindly wander in the monitoring locations.

Observation is critical for avoidance. Check around with a sweeping glance for anything that seems out of place, your subconscious may notice a camouflaged animal.

— Tap the monitoring housing before reaching inside for the sample. Snakes and other animals have many sensing devices to warn them of your presence.

— If an ERG field staff is bitten by a snake, rodent, or spider, they should be taken to a medical facility immediately for treatment. Give the medical staff as much detailed information about the animal as possible. Describe the size, shape, and color of the animal.

B.4 Chemical Hazards Assessment

The sites have the potential for high concentrations of H_2S at selected sites. ERG and EPA field staff may be exposed to levels of hydrogen sulfide upwards of 5 ppm, depending on outdoor conditions and proximity to wastewater treatment system. Thus, ERG field staff will use a personal H_2S monitoring system (if provided by EPA) while approaching these sites and during work on these sites. If monitors are not provided, ERG field staff will stay close to EPA field staff, who will be wearing personal monitors. Monitors will be set to alarm at a concentration of 5 ppm. If a monitoring device alarms indicating unsafe levels of H_2S all personnel will leave the site immediately.

While hydrogen sulfide is highly flammable and explosive, risks of flash or explosion are low. Concentrations may be high enough to possibly affect health, but they will not likely be high enough to cause fire or explosion.

B.5 Contacts for Local Emergency Services

Prior to the first field activity, ERG will provide each of its field staff with the pertinent emergency contact information for the study area. This information will include phone numbers and addresses for the following:

Ashley County Medical Center
1015 Unity Road
Crossett, AR 71635
(870) 364-4111

Crossett Police Department
307 Main Street
Crossett, AR 71635
(870) 364-4131

Drew Memorial Hospital
778 Scogin Drive
Monticello, AR 71655
(870) 367-2411

B.6 Staff Concurrences

Prior to working on this air monitoring program, ERG will require all its associated field staff to read and understand this HASP.

ERG STAFF CONCURRENCE SHEET

I have read, understood, and agree to comply with this Project Health and Safety Plan.

_____	_____	_____
Signature	Printed Name	Date
_____	_____	_____
Signature	Printed Name	Date

Appendix C Chain of Custody Form

ERG

Lab ID #

H2S Passive Monitoring Field Data Sheet and Chain of Custody

Field Setup

Site ID: _____

Initiation Date: _____

Sampling Start Time: _____

Barcode ID: _____

Field Operator: _____

(Sample ID = Site ID-Initiation Date - Barcode ID)

Sample ID = _____ - _____ - _____

Notes:

Field Recovery

Recovery Date: _____

Sampling End Time: _____

Field Operator: _____

Total Elapsed Sampling Duration (minutes): _____

Notes:

Laboratory Receipt

Sample Received in proper condition (Y/N): _____ by: _____

Sample ID Verified (Y/N): _____ by: _____

Sample Logged In (Y/N): _____ by: _____

Notes:

Comments: _____

White: Sample Traveler Canary: Lab Copy Pink: Field Copy

Appendix D ALS Standard Operating Procedure

ALS Standard Operating Procedure

DOCUMENT TITLE:	*COLORIMETRIC DETERMINATION OF HYDROGEN SULFIDE (H_2S) IN AIR*
REFERENCED METHOD:	*N/A*
SOP ID:	*IH-007*
REV. NUMBER:	*0*
EFFECTIVE DATE:	*10/21/16*

ALS Environmental

STANDARD OPERATING PROCEDURE APPROVAL SHEET

SOP TITLE: Colorimetric Determination of Hydrogen Sulfide (H2S) in Air

DOCUMENT CONTROL NUMBER: IH-007

EFFECTIVE DATE: 10/21/16

LAB DIRECTOR _____ Date 10/21/16

SECTION MANAGER _____ Date 10/21/2016

QUALITY ASSURANCE MANAGER Tracey Earl Date 10-21-16

RECORD OF MINOR REVISIONS:

DATE	LOCATION OF REVISION	QA APPROVAL

RECORD OF MAJOR REVISIONS:

NEW	1	2	3	4	5	6
0						

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STANDARD OPERATING PROCEDURE

COLORIMETRIC DETERMINATION OF HYDROGEN SULFIDE (H_2S) IN AIR

1.0 SCOPE AND APPLICATION

1.1 This method is applicable to the analysis of Hydrogen Sulfide (H_2S) in air collected on Radiello samplers (passive) which contain a cartridge made of microporous polyethylene impregnated with Zinc Acetate. This SOP follows the Supelco Edition H1 method.

2.0 SAFETY PRECAUTIONS

2.1 The toxicity or carcinogenicity of each compound or reagent used with this method is not precisely known. Each compound, mixture of standards, as well as the samples, should be treated as a potential health hazard. Exposure to each should be reduced to the lowest level possible through the use of gloves and a hood. Reference files of Material Safety Data Sheets (MSDS) are available to all personnel. Current OSHA regulations regarding the safe handling of the compounds specified in this method may be found on the internet (www.OSHA.gov).

2.2 Refer to the Laboratory's Environmental, Health and Safety Manual for safety guidelines. The analyst should employ the safety measures described in the manual. All applicable safety and compliance guidelines set forth by ALS, and by federal, state, and local regulations must be followed during performance of this procedure. All work must be stopped in the event of known or potential compromise to the health or safety of any ALS employee, and must be reported immediately to a laboratory supervisor.

2.3 Sodium Hydroxide (NaOH) is strong, caustic and a severe health and contact hazard. Use nitrile or latex gloves while handling pellets or preparing solutions.

2.4 Sulfuric Acid is extremely corrosive and care must be taken while handling it. At a minimum a lab coat, safety glasses and gloves should always be worn while working with these solutions. A face shield and apron should be used while pouring acids. Secondary containment should be used when dispensing significant quantities of acids (e.g., greater than 500 mL).

2.5 N,N-Dimethyl-p-phenylendiammonium oxalate (p-aminodimethylaniline) is toxic by inhalation, highly toxic by ingestion and toxic by skin absorption. Use all PPE when weighing and handling being careful to avoid formation of dust.

2.6 Pollution Prevention and Waste Management: The smallest quantities of sample and reagents will be prepared and used to minimize the amount of waste solutions. Hazardous materials is prepared and identified for disposal by the appropriate removal companies. Refer to the SOP for Waste Disposal for additional information. Wherever it is technically sound, feasible, and within method requirement, it is the practice of this laboratory to minimize the amount of solvents and reagents used to perform this method.

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Standards are prepared in volumes consistent with laboratory use, and solvents are ordered in small quantities to minimize the volume of disposal for expired standards and solvents.

2.7 ALS Environmental, Cincinnati has a current Radiological License through the Ohio Department of Health. In order to limit exposure to personnel, radiological and/or beryllium containing samples are segregated from non-regulated material at the time of login. All radiological samples are stored in a locked, controlled storage cabinet. Only trained personnel may receive, handle, prepare, store, and dispose of regulated samples as stated in SOPs RAD-003, RAD-004, and RAD-005. Any questions on the handling of radiological samples should be directed to the current RSO.

3.0 SAMPLE HANDLING AND PRESERVATION

3.1 The unaltered Radiello cartridges are stable for 12 months (plastic over wrap will note expiration). The recommended exposure is 1 hour to 15 days making sure to protect the Radiello media from rain.

3.2 The holding time is 6 months after exposure.

3.3 At least 4 unexposed cartridges should be submitted per batch to use for Quality Control samples.

4.0 REPORTING LIMITS

4.1 Refer to LIMS for current routine reporting limits for this analysis.

5.0 INTERFERENCES

5.1 Strong reducing agents may prevent the formation of the blue color in the Methylene blue test.

5.2 Reduced sulfur compounds, such as Sulfite, Thiosulfate and Hydrosulfite, which decompose in acid may yield erratic results. Also, volatile iodine-consuming substances will give high results.

6.0 APPARATUS

6.1 Spectrophotometer capable of reading 665nm

6.2 Vortex Stirrer

6.3 Test Tubes

6.4 Volumetric Pipettes of various volumes

6.5 Class A volumetric flasks with ground-glass stoppers

6.6 Class A graduated cylinders

6.7 Radiello Components (client to use for passive sampling) Ready-to use code 123-6 or White diffusive body code 120, Supporting plate code 121, Vertical adapter code 122 (optional) & Chemiadsorbing cartridge code 170

6.8 Disposable, plastic cuvettes

7.0 REAGENTS

7.1 Deionized (DI) Water

7.2 RAD171 Solution: Purchased Methylene Blue Calibration Standard for H_2S

7.3 Amine Solution: Slowly add 12.5mL of concentrated Sulfuric Acid to 5mL of DI water and allow to cool. Add 3.375g of N,N-dimethyl-p-phenylendiammonium oxalate and dilute to a final volume of 500mL with cooled 1:1 v/v (Sulfuric Acid:DI Water). Store the solution in an airtight amber glass bottle. This solution is stable for 4 weeks.

7.4 Ferric Chloride Solution: Dissolve 100g $FeCl_3 \cdot 6H_2O$ in 40mL of DI water. This solution is stable for 1 year.

7.5 Ferric Chloride – Amine Solution: Mix 10mL of the Ferric Chloride solution with 50mL of the Amine solution. More or less can be prepared as long as the solution is 1:5 Ferric Chloride Solution:Amine Solution. Prepare fresh just prior to coloring samples.

7.6 Sulfuric Acid for dilution: Slowly and carefully add 40mL of concentrated Sulfuric Acid to 900mL of DI water in a 1L volumetric flash. Let the solution cool and then bring to volume.

8.0 CALIBRATIONS

8.1 A minimum of 5 Calibration Standards are prepared by setting up a series of labeled volumetric flasks. Add the RAD171 solution as shown below and dilute to volume with DI water. Please note that these concentration ranges may change.

Calibration Standard	Concentration (ug/L)	RAD 171 Volume (mL)	Final Volume (mL)
1	57.3	0.05	50
2	115	0.10	50
3	229	0.20	50
4	573	0.50	50
5	859	0.75	50
6	1145	1.0	50

8.2 Prepare an Initial Calibration Verification (ICV) by pipetting an appropriate aliquot of the RAD171 solution to yield a concentration near the middle of the curve.

8.2.1 To prepare a 573ug/L ICV solution, dilute 0.5mL of the RAD171 solution to 50mL with DI water.

8.2.2 The ICV, whenever possible, is prepared using a RAD171 solution that contains a different lot number than the RAD171 used to prepare the Calibration Standards.

8.3 Prepare a Continuing Calibration Verification (CCV) by pipetting an appropriate aliquot of the RAD171 solution to yield a concentration near the middle of the calibration curve.

8.3.1 To prepare a 573ug/L CCV solution, dilute 0.5mL of the RAD171 solution to 50mL with DI water.

8.3.2 The CCV, whenever possible, is prepared using the same lot # of RAD171 solution that was used to prepare the Calibration Standards.

8.4 Prepare an Initial Calibration Blank (ICB) and Continuing Calibration Blank (CCB) by filling a 50mL volumetric flask with DI water.

8.5 Calibration linearity is most easily achieved by performing a regression of the instrument response versus the concentration in the standards.

8.5.1 Linear regression will produce the slope and intercept terms for a linear equation in the form: $y=mx+b$ where, y is the instrument response (absorbance), m is the slope of the line (also called the coefficient of x), x is the concentration of the calibration standard and b is the y-intercept.

8.5.2 The regression calculation will generate a correlation coefficient (r) that is a measure of the "goodness of fit" of the regression line to the data. A value of 1.00 indicates a perfect fit. In order to be used for quantitative purposes, r must be greater than or equal to 0.99.

9.0 SAMPLE PREPARATION

9.1. A Media Blank (MBLK), whenever possible, must be prepared for each analytical batch of 20 or fewer field samples. The MBLK must be matrix matched when possible, and it must be carried through the entire preparation procedure at the same time that the field samples are prepared. The MBLK must be an unexposed cartridge and it is recommended that the client supplies 3 MBLKs per batch of samples. Blanks will be prepared and their results will be averaged. This average result will be used to blank correct all QC and field samples.

9.2 A Laboratory Control Sample and Duplicate (LCS/LCSD) pair must be prepare for each analytical batch of 20 or fewer field samples. The LCS/LCSD must be matrix matched when possible, and they must be carried through the entire preparation procedure at the same time that the field samples are prepared.

9.2.1 Add the proper aliquot of the RAD171 solution prior to the addition of any other reagents to two unexposed cartridges. The target for the spike should be near 573ug/L.

9.2.1.1 The RAD171 solution used to spike the LCS/LCSD pair must come from a different lot than the RAD171 that was used to prepare the calibration standards.

9.2.2 Target spikes for the LCS/LCSD samples may change to better suit client's needs, element recovery, or project requirements.

9.3 Add 10mL of DI water to each of the QC and field sample Radiello tubes.

9.4 Cap each vial and vortex to mix.

9.5 Add 0.5mL of the Ferric Chloride – Amine solution, IMMEDIATELY recap, and vortex to mix. The tube must be capped immediately in order to avoid releasing any Hydrogen Sulfide.

9.6 Wait for a minimum of 30 minutes to allow the color to develop.

10.0 DIAGRAMS OR TABLES

10.1 None.

11.0 PROCEDURE

11.1 Turn on the Spectrometer and allow it to warm up for a minimum of 15 minutes.

11.2 Once the color for each sample has fully developed, add a sufficient amount of sample to a clean cuvette and place the cuvette in the Spectrometer.

11.3 Read each sample's absorbance at 665nm.

11.4 If provided, the average of the three MBLK samples will be averaged and subtracted from the sample absorbance readings for the field samples.

11.5 If a dilution of a field sample is necessary (the absorbance is higher than the calibration curve), the samples MUST be diluted with the Sulfuric Acid for dilution solution. NEVER USE WATER TO DILUTE THE SAMPLES.

11.6 Record all sample information and absorbances in a data logbook.

12.0 CALCULATIONS

12.1 Concentrations are calculated from the standard curve. Unknown sample concentrations are calculated by comparison of the background corrected absorbance to known standards using a linear regression fit. The resulting concentration is then multiplied by any dilution

factors to calculate the final result. All standards for QC are referenced where applicable. Any comments involving sample anomalies are noted in the data logbook.

12.2 Percent recovery calculation:

$$\text{Percent Recovery} = 100 * \frac{\text{Measured Value}}{\text{Target Value}}$$

12.3 Precision calculation:

$$\text{Relative Percent difference (RPD)} = 100 * \frac{|V_1 - V_2|}{(V_1 + V_2)/2}$$

where:
V1, V2 = found concentrations

12.4 ng/sample = ug/L (determined from curve) x 0.010L (extraction volume) x 1000 ng/ug

12.5 ppbV H_2S = $\frac{\text{ng}}{[(0.096\text{ng/ppb} \cdot \text{mins}) \times \text{time collected in minutes}]}$.

Note: The sampling rate is 0.096 + 0.005 ng.ppb-1.min-1 at 298 K (25°C) and 1013 hPa

12.6 ug/m3 = $\frac{(\text{ppbV } H_2S) \times 34.09 \text{ (MW of } H_2S)}{24.46 \text{ (gas constant)}}$

12.7 Temperature Conversion: QK= 0.096(K/298)3.8

Where QK = Sampling rate at temperature K ranging from 268 – 313K (from -5 to 40°C)

Where K = temperature at collection

Note: Sampling is invariant with humidity in the range of 10 – 90% wand wind speed between 0.1 and $10 m \cdot s^{-1}$.

13.0 QUALITY ASSURANCE PROVISIONS

13.1 All quality control data must be maintained and readily available for reference and for auditing purposes.

13.2 The correlation coefficient (r) obtained from a least squares fit of the calibration must be ≥0.995. If this criterion is not satisfied, the error must be identified and corrected then the instrument must be recalibrated. If an instrument or calculation error is not found to be the source of the error, all of the applicable batch standards and samples must be reanalyzed.

Control Limits: ≥ 0.99

Corrective Action:

(1) Check for calculation errors, instrument performance
(2) Reanalyze all batch applicable standards, check standards, blanks, and samples.
(3) Flag data

13.3 Following successful calibration, check the instrument standardization and stability by analyzing appropriate check standards as follows:

13.3.1 Verify the calibration using the ICV standard. The result obtained from the analysis of the ICV must be within ± 30% of the true value. If this criterion is not met, terminate the analysis, correct the problem, and recalibrate the instrument. An acceptable ICV must occur prior to the analysis of any field samples.

Control Limits: 70-130% recovery

Corrective Action:

(1) Check for calculation errors, instrument performance
(2) Reanalyze all batch applicable standards, check standards, blanks, and samples.
(3) Flag data

13.3.2 Verify the stability of the initial calibration following every 10 samples and at the end of the sequence, using the CCV standard. The result obtained for the CCV analysis must be within ± 15% of the true value. If this criterion is not met, terminate the analysis, correct the problem, and recalibrate the instrument. Sample results must be bracketed by acceptable initial calibration and/or CCV standard results. If the samples are not bracketed by acceptable standard results, reanalyze all samples following the last passing CCV.

13.3.2.1 If the CCV result is high (beyond the + 15% acceptance limit) and H_2S is not detected in all the corresponding samples, re-analysis is not necessary due to the apparent high bias of the check standard. It may be inferred that all samples reported would also exhibit a high bias, but if H_2S is not detected within the samples, the high bias may be ignored, requiring not further analyses.

Control Limits: 85-115% recovery

Corrective Action:

(1) Check for calculation errors, instrument performance

13.5 All positive results must be bracketed by the concentrations within the calibration range. Dilute and reanalyze any sample results that exceed the highest calibration standard.

13.6 A method detection limit (MDL) study must be performed annually as per the current version of the laboratory procedure "Method Detection Limits". The MDL study verifies the capability of the entire analytical procedure at or near the level of detection. Higher levels may be assumed to respond more consistently than values at or near the detection level.

14.0 REPORTING RESULTS

14.1 Report results in the units and format specified by the client or contract.

15.0 PREVENTIVE MAINTENANCE

15.1 Perform preventative maintenance in accordance with the instrument manufacturer's recommendations.

16.0 REFERENCES

16.1 Hydrogen Sulfide (H_2S, Supelco Edition H1)

17.0 APPENDICES

17.1 None

From:	Frey, Sarah
To:	Timothy.Toler@afbic.com; s.mccormick@cityofcrossett.net; r.ledbetter@cityofcrossett.net
Cc:	Haynes, James; Assunto, Carmen; Durant, Jennah; Osbourne, Margaret
Subject:	Updated map for EPA"s H2S monitoring study
Date:	Monday, January 23, 2017 9:23:29 AM
Attachments:	Final Monitor Sites 1.11.17.jpg

Dear Scott and Tim:

We had a successful installation of our monitoring stations January 11th, and began our hydrogen sulfide monitoring study on January 13th. EPA Region 6 staff will be coming to Crossett every other Friday to check on the stations. Attached is a map of our final hydrogen sulfide monitoring stations. The only difference from the previous map we shared is the location of community monitor #7.

As always, please let us know if you have any additional questions about the study.

Thank you,

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

From:	Frey, Sarah
To:	Osbourne, Margaret
Cc:	Haynes, James
Subject:	Updated Maps
Date:	Monday, December 05, 2016 3:51:00 PM
Attachments:	161117 sample sites.jpg 161205 sample sites.jpg Proposed H2S sites 16.12.05.docx

---

Margaret,

I have attached our original proposal and an updated proposal, trying to use exclusively "fence line" locations. Due to the forested nature of the area, it may be necessary to walk through private property to access GP's fence line (at possibly 4 of the locations). The 8th monitor is now located south of the WWT (instead of being the furthest point north), but I am confident that is a commonly used access gate. The 7th monitor is a complete guess at where the fence line is, but we can refine it once we receive a property map from GP.

The updated map has the community monitors indicated with red markers.

Sarah Frey, PhD
Environmental Scientist, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Ave. (6EN-AT)
Dallas, TX 75202
214-665-6499

Weekly Activity Report for the Week of 9/26/2016
Region 6 Compliance Assurance and Enforcement Division

Hot Topics/Heads Up Items (Prospective):
(Covering Enforcement, Compliance Assurance, Management/Policy Issues and OGC Issues)

1. Enforcement Issues
Confidential items:

Non-Confidential items:

Conference call with Georgia Pacific Crossett to discuss upcoming Hydrogen Sulfide Monitoring. On January 4, 2017, staff and management from EPA Region 6 Air Enforcement held a conference call with staff and management of Georgia-Pacific Paper Mill in Crossett, Arkansas to discuss EPA's upcoming hydrogen sulfide monitoring study which commences on January 13, 2017. The call involved legal authorities, access agreements, and logistics related to the monitoring study. Members of the Crossett community have long asserted that they are experiencing impacts from hydrogen sulfide generated by the Georgia Pacific pulp and paper facility in Crossett. Beginning on January 12, 2016, Region 6 will conduct 24 weeks of passive monitoring at Georgia Pacific and in the community to evaluate the sources and offsite impacts of hydrogen sulfide.

Contacts: Sarah Frey (214-665-6499)

Weekly Activity Report for the Week of 9/26/2016
Region 6 Compliance Assurance and Enforcement Division

Hot Topics/Heads Up Items (Prospective):
(Covering Enforcement, Compliance Assurance, Management/Policy Issues and OGC Issues)

1. Enforcement Issues

Non-Confidential items:

Air Enforcement Trip to Crossett, Arkansas to Meet with Mayor, Chamber of Commerce and Citizens. On December 12, 2016, staff and management from EPA Region 6 Air Enforcement will meet with the Mayor and the president of the Chamber of Commerce in Crossett, Arkansas to discuss the Agency's hydrogen sulfide monitoring plan and proposed community monitor locations. Air Enforcement personnel will then approach citizens living at the proposed monitoring locations to request consent and property access. Members of the Crossett community have long asserted that they are experiencing impacts from hydrogen sulfide generated by the Georgia Pacific pulp and paper facility in Crossett. Beginning on January 12, 2016, Region 6 will conduct 24 weeks of passive monitoring at Georgia Pacific and in the community to evaluate the sources and offsite impacts of hydrogen sulfide.

Contacts: Sarah Frey (214-665-6499)

Weekly Activity Report for the Week of 9/26/2016
Region 6 Compliance Assurance and Enforcement Division

Hot Topics/Heads Up Items (Prospective):
(Covering Enforcement, Compliance Assurance, Management/Policy Issues and OGC Issues)

1. Enforcement Issues

Non-Confidential items:

Confidential items:

Meeting with Georgia-Pacific, Crossett to discuss Hydrogen Sulfide Monitoring. On November 17, 2016, staff and management from EPA Region 6 Air met with Georgia-Pacific Crossett to discuss plans for long-term passive monitoring for hydrogen sulfide (H_2S) at the facility and in the community of Crossett, Arkansas. Members of the Crossett community have long asserted that they are experiencing impacts from H_2S generated by the Georgia Pacific pulp and paper facility in Crossett. The purpose of the monitoring is to determine the locations of the likely sources of H_2S at the facility and along its wastewater treatment system.

Contacts: Sarah Frey (214-665-6499)

From:	Dave Dayton
To:	Frey, Sarah
Cc:	Jason Sese; Leta Kent
Subject:	Wind Roses
Date:	Monday, September 12, 2016 7:52:59 AM
Attachments:	windroses.pdf

Good Day Sarah,

Please see the attached file. It presents 3 Wind Roses (WR) for use in our site placement efforts in Crossett. These WR have been prepared to reflect conditions during the expected period of monitoring (to the extent possible). Descriptions are as follows:

- The WR titled GP-V Oct-Mar presents wind speed/wind direction (WS/WD) information using the TRC data for the period of Oct 2014 through March 2015. It would have been good to have all of the site WS/WD data to work with rather than just this one 6-month period.
- The WR titled 53919 Monticello presents a historical composite WS/WD data from Monticello, AR (~30 miles North of Crossett) for November through April for the years of 2013 thru 2015.
- The WR titled 53992 Bastrop presents a historical composite WS/WD data from Bastrop, LA (~20 miles South of Crossett) for November through April for the years of 2013 thru 2015.

Please let me know if you have questions.

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