Message

From: Burdett, Cheryl [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=E8F84378969242DBA5EB260C1CC89FB8-CBURDETT]
Sent: 7/11/2018 3:15:48 PM
To: Shoven, Heather [shoven.heather@epa.gov]; Wilson, Jennifer [wilson.jenniferA@epa.gov]
Subject: FW: ERG OCE PO No. 035202002 12 _Univ. Neb-Linc
Attachments: W18196.pdf; W18199.pdf; W18205.pdf; W18215.pdf; W18197.pdf; W18200.pdf; W18206.pdf; W18216.pdf; Identifying Sources of Groundwater Nitrates_DSnowNov2014.pdf

The final data on UNL nitrate and isotope data along with a presentation.

Cheryl Burdett

From: Daniel Snow [mailto:dsnow1@unl.edu]
Sent: Monday, July 09, 2018 12:23 PM
To: Bahr, Ryan <bahr.ryan@epa.gov>
Cc: Jessica Gray <Jessica.Gray@erg.com>; Daisy Wang <daisy.wang@erg.com>; Burdett, Cheryl <burdett.cheryl@epa.gov>; Maraldo, Dean <Maraldo.Dean@epa.gov>
Subject: RE: ERG OCE PO No. 035202002 12 _Univ. Neb-Linc

Ryan,

Attached are laboratory analytical reports for each of the batches of nitrate+nitrite-N and stable isotope results. I added a couple of requested details to each type of report, but don't think there will be room to add all definitions and details requested. I've also attached a presentation describing how stable isotope analysis can be used to identify nitrogen sources and where it may indicate denitrification has occurred. It includes some basic information on fractionation and a few references on use of stable isotopes in identification of nitrogen sources.

As I mentioned in the phone call on Friday, highly depleted 15N-NO3 is likely due to incomplete conversion of nitrogen during nitrification. Most fertilizer nitrogen sources range in 15N content between -5 and +5 per mil. Incomplete conversion through nitrification of this nitrogen may lead to highly depleted (-15 per mil) nitrate. I'll start working on the quality assurance report for this work and try to get something to you by the end of July.

Feel free to contact me if you need additional information. Thanks! -Dan

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Nebraska Water Center
Daugherty Water for Food Global Institute

From: Bahr, Ryan <bahr.ryan@epa.gov>
Sent: Friday, July 06, 2018 5:01 PM
To: Daniel Snow <dsnow1@unl.edu>
Cc: Jessica Gray <Jessica.Gray@erg.com>; Daisy Wang <daisy.wang@erg.com>; Burdett, Cheryl <burdett.cheryl@epa.gov>; Maraldo, Dean <Maraldo.Dean@epa.gov>
Subject: RE: ERG OCE PO No. 035202002 12 _Univ. Neb-Linc

Dr. Snow,
Thank you for your efforts in analyzing the samples that we submitted and thank you for your call earlier today.

As we discussed, if you could send finalized pdf reports/documents and a revised excel adding some basic information noted below for each spreadsheet on Monday for the summary results for nitrate-nitrogen and for N15, that would be great. In particular in those documents, we'd like to see:

- Title
- Units (for columns with units)
- Define Acronyms
    - 15N_ NO3N = mg/l of nitrogen 15 isotope portion of nitrate-nitrogen
    - 18O_NO3N =
    - 15N_ NO3N (o/oo) = ratio of mg/L of nitrate 15 isotope in sample relative to mg/L of the nitrogen 15 isotope commonly occurring in the atmosphere (<- I took a stab at this definition but please revise as you see fit)
    - 18O_NO3N (o/oo) =
    - SMOW = standard mean ocean water
    - Mg/L = milligrams per liter
    - Any I missed?
- Include the R values for R standards used
    - R standard for atmospheric nitrogen = xx mg/l)
    - R standard for oxygen relative to oxygen content in standard mean ocean water = xx mg/l)
- Dated
- Finalized Pdf (preferably signed) – in addition to including this type of information into the excel files (it would be best and probably easiest if the table portion of the pdf and corresponding excel file were essentially the same.) Also, the second excel table needs to be formatted for printing. It currently cuts the ratio formula in half when printed.

I also asked about what negative values indicate and how to interpret this data. It's important that we understand that. You mentioned that you have some presentations on that that you could send. Thank you for that offer. We look forward to receiving those.

Finally, we discussed getting the sample worksheets and associated QA information as part of an additional data package. I think that we are interested in getting that additional information and Daisy will follow-up with you on that.

Thanks again for your time and helpful explanations. If you have any questions, do not hesitate to contact me.

Ryan Bahr
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Water Enforcement and Compliance Assurance Branch
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Chicago, IL 60604

Phone: 312-353-4366
bahr.ryan@epa.gov

From: Daisy Wang [mailto:Daisy.Wang@erg.com]
Sent: Monday, June 11, 2018 8:22 PM
To: Burdett, Cheryl <burdett.cheryl@epa.gov>
Cc: Bahr, Ryan <bahr.ryan@epa.gov>; Jessica Gray <Jessica.Gray@erg.com>
Subject: FW: ERG OCE PO No. 035202002 12 _Univ. Neb-Linc

Hi Cheryl,

We've received the N-15 isotope results from UNL (please see attached). Please let me know if you have any questions.

Thank you,

Daisy Wang
703-829-0539

Eastern Research Group (ERG)
14555 Avion Parkway, Suite 200
Chantilly, VA 20151

From: Daniel Snow [mailto:dsnow1@unl.edu]
Sent: Monday, June 11, 2018 7:05 PM
To: Daisy Wang <Daisy.Wang@erg.com>
Subject: RE: ERG OCE PO No. 035202002 12 _Univ. Neb-Linc

Daisy,

Attached is an updated spreadsheet summarizing the nitrate-N concentrations measured and stable isotope results for 71 of the 87 samples received in April and May. Let me know if you need any additional information, or would prefer a different format. Thanks! -Dan

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From: Daisy Wang <Daisy.Wang@erg.com>
Sent: Thursday, May 31, 2018 3:22 PM
To: Daniel Snow <dsnow1@unl.edu>
Subject: RE: ERG OCE PO No. 035202002 12 _Univ. Neb-Linc

Hi Dan,

Just checking in – our SOW specifies that results for the N15 isotope and nitrate-nitrite will be provided in 28-42 days. Will you be able to provide the results for the 87 samples within the next 2 weeks?

Here is a brief summary of the number of samples sent by EPA during the week of 4/30:

University of Nebraska Laboratory: 87 samples sent	4/30/18 = 22
	5/1/18 = 26
	5/2/18 = 28
	5/3/18 = 11

Thank you,
Daisy Wang
703-829-0539

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14555 Avion Parkway, Suite 200
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From: Trinita White
Sent: Monday, April 30, 2018 3:37 PM
To: Daniel Snow <dsnow1@unl.edu>; David Clausen <dclausen2@unl.edu>
Cc: Daisy Wang <Daisy.Wang@erg.com>; Jessica Gray <Jessica.Gray@erg.com>; Daniela Ayala <Daniela.Ayala@erg.com>
Subject: ERG OCE PO No. 035202002 12 _Univ. Neb-Linc
Importance: High

Good afternoon Gentlemen,
Please find attached ERG OCE Purchase Order No. 035202002/12 executed for your records. Also attached is ERG Reps & Certs document for your completion. Please submit the completed Reps & Certs document and return to my attention.

Please feel free to contact me or Daisy Wang (cc'd) should you have any questions or concerns.

Best Regards,

Trinita White
Subcontracts Administrator
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