Message

From: Burdett, Cheryl [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=E8F84378969242DBA5EB260C1CC89FB8-CBURDETT]
Sent: 10/4/2018 1:44:28 PM
To: Holst, Linda [holst.linda@epa.gov]; Dean Maraldo [Maraldo.Dean@epa.gov]; Kuefler, Patrick [kuefler.patrick@epa.gov]; Bahr, Ryan [bahr.ryan@epa.gov]
Subject: FW: Age of the fertilizer applied to fields

Below is the response from Dr. Snow on the question regarding Legacy fertilizer.

From: Daniel Snow [mailto:dsnow1@unl.edu]
Sent: Thursday, October 04, 2018 8:41 AM
To: Burdett, Cheryl <burdett.cheryl@epa.gov>
Subject: RE: Age of the fertilizer applied to fields

Hi Cheryl,

Nitrate isotopes will not differentiate between legacy and modern fertilizer sources. However, it is possible to estimate recharge age of groundwater (up to about 50 years) using helium-3/tritium analysis. Our lab recently started running this method which requires collection of groundwater in sealed copper tubing. I can send you additional information about this approach if you are interested. Deuterium and 18O analysis of groundwater can also be used to characterize recharging timing, but is not actually a dating method. -Dan

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From: Burdett, Cheryl <burdett.cheryl@epa.gov>
Sent: Thursday, October 4, 2018 8:10 AM
To: Daniel Snow <dsnow1@unl.edu>
Subject: Age of the fertilizer applied to fields

Hi Dr. Snow:

Would you know if N15 and O18 isotope analyses that was done on our groundwater samples in May of 2018 or in general if this type of isotope analyses can differentiate between legacy (been there for decades) fertilizer and fertilizer that was applied more recently? Can it tell the difference between the two?

If yes, what would we have to do to get this information?

Sincerely,

Cheryl Burdett
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CAFO Program Manager
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