EIS and the Making of the NEI

2017 International Emissions Inventory Conference

Baltimore, MD

August 14, 2017

Outline

- 8:30 – 8:35 Introduction on NEI and EIS & Communication to submitters
- 8:35 – 9:45 The Emissions Inventory System (EIS)
  - New EIS Features
  - New EIS Reports
- 9:45 – 10:05 HAP Augmentation and Chromium Speciation
- 10:05 – 10:20 Break
- 10:20 – 10:35 PM Augmentation + PM2.5 Speciation
- 10:35 – 10:40 Other non-SLT Datasets
- 10:40 – 10:55 NEI Selection Process
- 10:55 – 11:20 2017 NEI Plan
- 11:20 – 12:00 Viewing NEI Data and Q&A
- Optional (time-depending at end of class): How to Use SharePoint

What is the EIS and NEI?

- Emission Inventory System (EIS)
  - Data repository for air emissions data used to create the NEI
  - Contains State, Local, Tribal (SLT) and EPA-submitted data
  - Can be multiple emissions values for the same unit/process or SCC/county
  - Annual, monthly, daily data
  - Data available via a password-protected web site
    - EIS Gateway https://eis.epa.gov/eis-system-web/welcome.html
- National Emission Inventory (NEI)
  - Snapshot in time from EIS
  - Inventory version shared with the public every 3 years, 2014 most-recent
  - One emissions value per process or SCC/county selected
  - Annual emissions values

S/L/T Reporting Requirements

- Air Emissions Reporting Requirement (AERR)

https://www.epa.gov/air-emissions-inventories/air-emissions-reporting-requirements-aerr

  - Complete criteria pollutant inventory every 3 years
    - All point sources (100 tpy potential to emit threshold)
    - Nonpoint sources
    - Onroad and Nonroad sources
    - Events (wildfires and prescribed fires)
    - 2017 Emissions due 12/31/2018, EIS window opens 6/1/2018
  - Annual reporting for Type A point source facilities
      - SO2, NOx, CO with potential to emit ≥ 2,500 tpy
      - VOC, PM, NH3 with potential to emit ≥ 250 tpy
      - Pb with potential to emit ≥ 5 tpy (amended to agree with Lead NAAQS level of ≥ 0.5 tpy)
  - HAPs are submitted voluntarily by many SLTs and are encouraged as part of an integrated report

Uses for the NEI

- The NEI is one of the key inputs for :
  - Modeling of national rules – NAAQS reviews, CSAPR, etc
  - Non-attainment designations
  - NATA Review – toxics risk modeling
  - Trends reports and analyses

Communication with data submitters (1)

1) General NEI/EIS Email Listserv

- Updates roughly every 2-4 weeks
- Imminent NEI-related overall and detailed milestones and planning
- Recent EIS updates or near-term EIS needs
- Points to SharePoint site, public NEI websites
- Other useful information such as conferences, guidance, ongoing analysis
- Summary of Nonpoint Method Advisory (NOMAD) committee developments

Communication with data submitters (2)

2) NOMAD Committees

- By-definition, covers only the nonpoint data category
- Hosted by EPA with some committees led via joint EPA/SLT
- Overall NOMAD team calls are monthly
- More-specific teams meet as-needed for "priority" sector(s) such as: Dust, Agricultural NH3, Residential Wood Combustion (RWC), Industrial and Commercial/Institutional (ICI) fuel combustion, Solvents, others
- Calls open to all SLT data submitters, RO and RPO staff, and others involved in EPA Tool development or use in NEI

3) Oil and Gas Committee

- National, monthly calls to discuss latest oil and gas tool developments
- Led by EPA, SLTs and Regional Office staff

Communication with data submitters (3)

4) EIS Gateway Announcements

5) SharePoint sites

- Main NEI Site open to all "data submitters and collaborators"
  - Calendar, list of tasks, schedule, announcements, newsfeed
  - Much of this is a work in progress -yet to be updated for 2014v2 NEI or 2017 NEI
- "Shared with SLTs" folder for all other NEI work
- NOMAD Sub-site for Nonpoint data category work:
  - Latest and archived EPA Tools
  - NOMAD meeting minutes

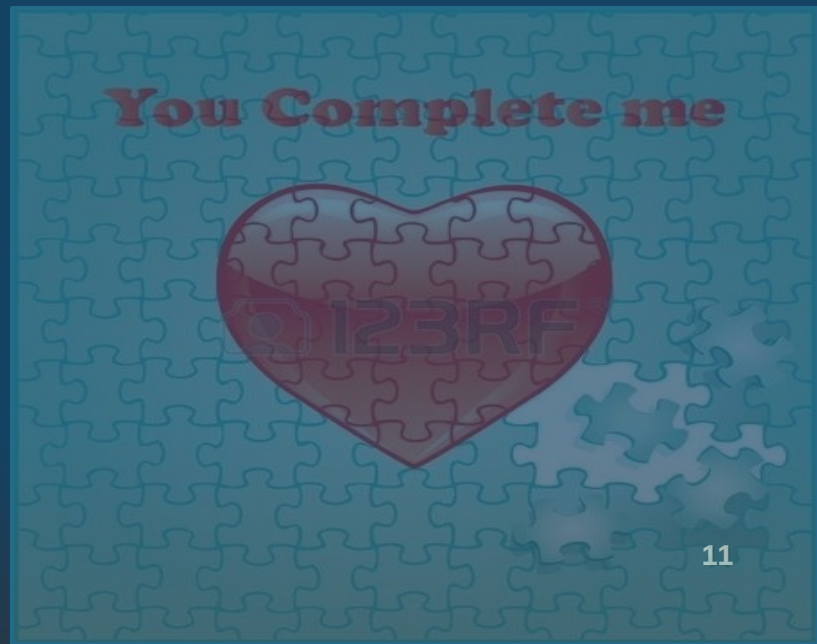
The Emissions Inventory System (EIS)

- Move to EIS PowerPoint

HAP Augmentation & Chromium Speciation
Is it 9:45?

Why Augment (include additional data sets)?

- In addition to SLT-submitted data, EPA uses augmentation and additional EPA datasets in order to have the most complete inventory for our end users.
  - National Scale Air Toxics Assessment (NATA)
  - Air quality modeling
  - Criteria Modeling Platform – National Rule Assessments
  - EPA Public Affairs
  - International reporting
  - EPA's "Report on the Environment"



Why Augment (cont.)?

- Augmenting, or the addition of EPA datasets, is to include additional data not already received from SLTs
  - Augmentation does not change a submitted SLT value in EIS
  - PM, HAP and Chrome augmentation is calculated on SLT submitted data (VOC, PM, Total Chromium)
  - Filling Gaps via independent sources like TRI (Toxics Release Inventory) and EPA EGU estimates

HAP Aug and Cr Speciation: Overview

- HAP Augmentation: works on SLT-reported CAPs
- Chromium Speciation: Allocates total Chromium to hexavalent and trivalent components.
- Underlying factors, profiles, and assignments for both HAP Augmentation and Chromium Speciation are stored in the same EIS tables
- HAP aug factors are generally based on measured emission factors and/or peer-reviewed literature
- The resulted augmented data is created in EIS as an EPA dataset

Process-level Report of NEI Selection:

See what processes are Augmented or derived from Cr Speciation

eis_facility_site_id	program_system_cd	alt_agency_id	eis_emissions_unit_id	agency_unit_id	unit_type_cd	eis_emission s_process_id	agency_process_id	scc	facility_site_name	emissions_comment	data_set_short_name	pollutant_cd	description	total_emissions	uom
16323811	AZDEQ	6081	103915513	2	999	149324914	1	20100201	GRIFFITH ENEI	Emission mul	2014EPA_HAPAug	100414	Ethyl Ben:	59.1238	LB
16323811	AZDEQ	6081	103915413	1	999	149324814	1	20100201	GRIFFITH ENEI	Emission mul	2014EPA_HAPAug	100414	Ethyl Ben:	37.7904	LB
16323811	AZDEQ	6081	103915413	1	999	149324814	1	20100201	GRIFFITH ENEI	Emission mul	2014EPA_HAPAug	107028	Acrolein	7.55804	LB
16323811	AZDEQ	6081	103915513	2	999	149324914	1	20100201	GRIFFITH ENEI	Emission mul	2014EPA_HAPAug	107028	Acrolein	11.82468	LB
16323811	AZDEQ	6081	103915413	1	999	149324814	1	20100201	GRIFFITH ENEI	Emission mul	2014EPA_HAPAug	108883	Toluene	153.524	LB
16323811	AZDEQ	6081	103915513	2	999	149324914	1	20100201	GRIFFITH ENEI	Emission mul	2014EPA_HAPAug	108883	Toluene	240.19	LB
16323811	AZDEQ	6081	103915513	2	999	149324914	1	20100201	GRIFFITH ENERGY LLC		2014AZDEQ	120127	Anthracer	0.0024	LB
16323811	AZDEQ	6081	103915613	3	999	149325014	1	10300602	GRIFFITH ENERGY LLC		2014AZDEQ	120127	Anthracer	0.000036	LB
16323811	AZDEQ	6081	103916013	7	999	147210614	1	20200102	GRIFFITH ENERGY LLC		2014AZDEQ	120127	Anthracer	0	LB
16323811	AZDEQ	6081	103915413	1	999	149324814	1	20100201	GRIFFITH ENERGY LLC		2014AZDEQ	120127	Anthracer	0.0056	LB
16323811	AZDEQ	6081	103915413	1	999	149324814	1	20100201	GRIFFITH ENERGY LLC		2014AZDEQ	129000	Pyrene	0.0116	LB
16323811	AZDEQ	6081	103915613	3	999	149325014	1	10300602	GRIFFITH ENERGY LLC		2014AZDEQ	129000	Pyrene	0.000074	LB
16323811	AZDEQ	6081	103915513	2	999	149324914	1	20100201	GRIFFITH ENERGY LLC		2014AZDEQ	129000	Pyrene	0.005	LB
16323811	AZDEQ	6081	103916013	7	999	147210614	1	20200102	GRIFFITH ENERGY LLC		2014AZDEQ	129000	Pyrene	0.000118	LB
16323811	AZDEQ	6081	103915513	2	999	149324914	1	20100201	GRIFFITH ENEI	Emission mul	2014EPA_HAPAug	1330207	Xylenes (M	118.2476	LB
16323811	AZDEQ	6081	103915413	1	999	149324814	1	20100201	GRIFFITH ENEI	Emission mul	2014EPA_HAPAug	1330207	Xylenes (M	75.581	LB
16323811	AZDEQ	6081	106460413	8	999	150732714	8	38500110	GRIFFITH ENEI	Emission mul	2014EPA_Cr_Aug	16065831	Chromium	0	LB
16323811	AZDEQ	6081	106460413	8	999	150732714	8	38500110	GRIFFITH ENEI	Emission mul	2014EPA_Cr_Aug	18540299	Chromium	0.028	LB
16323811	AZDEQ	6081	103915413	1	999	149324814	1	20100201	GRIFFITH ENERGY LLC		2014AZDEQ	206440	Fluoranthe	0.007	LB

Note: there are separate data sets for the HAP aug records, chromium speciation records, TRI augmented records, etc.

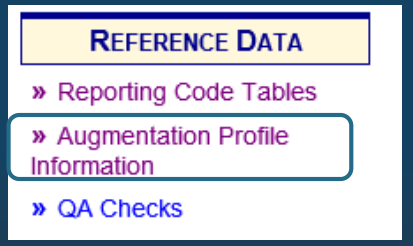
HAP Aug & Cr Speciation: General Approach

$$\textbf{\textit{Augmented Emissions}}_{\textit{Output pollutant}} = \textbf{\textit{SLT\_Reported Emissions}}_{\textit{Input Pollutant}} \times \textbf{\textit{Factor}}$$

Factor is a value from a speciation profile or emissions factor ratio and is based on the emissions source (i.e., SCC, NAICS, specific facility or process)

Input Pollutant is chromium for chromium augmentation, or a criteria air pollutant (CAP) for HAP augmentation

- EIS performs this computation & creates separate augmented datasets in EIS
- Factors and their mapping to sources are provided in EIS: "REFERENCE DATA" Section



About HAP and Chromium Factors

- The Factors are grouped into “profiles” that reflect a type of source
  - Profile assignments depend on source attributes -primarily SCC, but could be facility or process-specific
  - If multiple SCCs share the same set of factors, then could be a named group
  - HAP Aug factors for point sources primarily from WebFire
    - Factor is a HAP to CAP ratio, was computed outside of EIS

Example profile– computed based on WebFIRE EFs: "combust-natgas"

HAP	HAP EF Lbs/million cubic feet gas (WebFIRE)	VOC EF Lbs/million cubic feet gas (WebFIRE)	HAP Aug Factor (this is the value in EIS)
toluene	0.0034	5.5	0.0006182
hexane	1.8	5.5	0.3272727
formaldehyde	0.075	5.5	0.0136364
benzene	0.0021	5.5	0.0003818
naphthalene	0.0061	5.5	0.001109

Chromium Speciation: Why?

- We allow several chromium compounds to be reported in EIS

Pollutant Code	Description
1333820	Chromium Trioxide
7738945	Chromic Acid (VI)
18540299	Chromium (VI)
16065831	Chromium III
7440473	Chromium

Focus here is on yellow- highlighted pollutants

unspeciated

- Chromium OR Chromium VI and/or Chromium III can be reported (EIS will reject the submittal if you submit Chromium with Chromium VI or with Chromium III)
- Chromium VI and Chromium III are preferred over Chromium
- If Chromium is provided, then we need to speciate it to get Chromium VI and Chromium III
- Need Chromium VI (hexavalent Chromium) for NATA/risk /toxicity weighting
  - Hexavalent Chromium has health benchmark for cancer and noncancer impacts; trivalent does not

Chromium Speciation: How it works

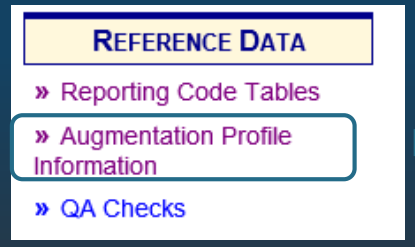
- Assign source record that contains chromium to a "profile"
  - E.g. "fuel combustion natural gas, process gas, liquid propellant"
  - Mapping uses hierarchy of source attributes (e.g., SCC, NAICS) but could also be mapped to a specific process id or facility id. EIS provides assignment file.
- Get factor for each output pollutant (Cr-VI & Cr-III) from profile
  - E.g.: "fuel combustion natural gas, process gas, liquid propellant": 0.04 hex; 0.96 tri
- Multiply SLT Chromium emissions by each factor for each output pollutant
  - E.g. for "fuel combustion natural gas, process gas, liquid propellant"

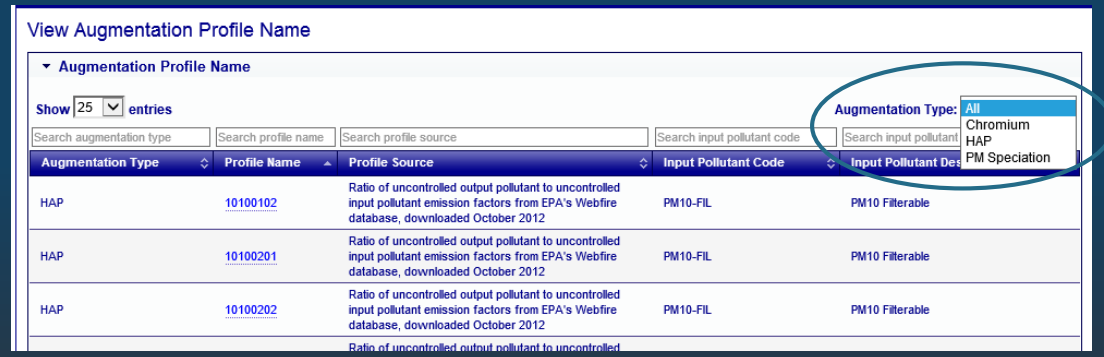
$$\boldsymbol{Emissions}_{\boldsymbol{hex}} = \boldsymbol{Reported\ Emissions}_{\boldsymbol{chromium}} \times \mathbf{0.04}$$
$$\boldsymbol{Emissions}_{\boldsymbol{tri}} = \boldsymbol{Reported\ Emissions}_{\boldsymbol{chromium}} \times \mathbf{0.96}$$

- Put output pollutants/emissions into the EPA Chromium Augmentation dataset for that source

Chromium Speciation: How it works (cont.)

- Every chromium record must be speciated
  - You will not find pollutant code 7440473 (Chromium) in the NEI!
- Overall default (for processes not assigned to profiles) is 0.34 (34%) Cr-VI & 0.66 (66%) Cr-III
- Underlying data for mapping and profiles are at: Augmentation Profile Information in EIS (under Reference data), filter on Augmentation Type=Chromium





HAP Augmentation

- Compute HAPs based on HAP to CAP ratios applied to S/L/T-submitted CAP emissions
  - E.g., compute formaldehyde from VOC for natural gas combustion SCC
- Key differences from chromium speciation:
  - Input pollutant is an S/L/T-submitted CAP – we are using VOC, PM10-FIL, PM10-PRI, PM25-PRI, SO2
  - Could result in a single output pollutant or a full suite of output pollutants
  - Not every source that has a CAP is augmented (i.e., there is no overall default)
  - Sum of the factors for a particular profile/input pollutant does not need to equal 1 (or 100%)
  - If output pollutants are all HAP VOC and input pollutant is VOC, then the sum of the factors should be less than 1 (or 100%)

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HAP Augmentation 2014 NEI Business Rules

- If a S/L/T-reported data or TRI data exists for a HAP at any process within a facility, the HAP aug value is not used for that particular HAP anywhere at the facility
  - It is created, but it is tagged (so not used in the selection)
- Augmented values that exceed the maximum S/L/T reported value across all facilities for the same HAP/SCC are not used at any facility
  - E.g., if the max S/L/T-reported selenium value for SCC 10200601 is 100 lbs then a HAP aug value of 101 lbs at SCC 10200601 will be tagged

HAP Augmentation: Important!

- Example for Fuel Combustion, Natural Gas
- Scenario where SLT submits Point VOC but no VOC HAPs:
  - HAP Augmentation creates VOC HAPs for Point
  - SLT reports all VOC HAPs to NP, but does PT subtraction for VOC
  - Results in NP VOC HAPs > NP VOC
- SLT reconciling (NP-PT) CAPs but not HAPs: EPA will tag-out SLT HAPs and use HAP augmentation consistently

Augmentation Profile Information in EIS

General Information

Assignment hierarchy

Augmentation Data
- Profiles
- Factors
- Profile Assignments
- Composite Table (all of it expanded)

About Augmentation

The term "augmentation" from an EIS point of view describes a method of taking data from a source data set, usually from a State, Local, or Tribal (S/L/T) organization, and creating a resulting data set that "gap fills" any needed pollutants that may be missing from the source data set. The resulting data set is used in National Emissions Inventory selections to provide a more comprehensive set of data.

Types of Augmentation

Of the various augmentation processes done by EPA, only HAP and Chromium are currently available within EIS. HAP augmentation creates emission estimates for HAPs based on CAP emissions from an existing EIS data set (usually S/L/T). For example, toluene from a wood combustion process can be created by multiplying the VOC emissions by 0.05, which is the ratio of the toluene emission factor to the VOC emission factor. Chromium augmentation speciates "total" chromium (i.e., emissions from pollutant 7440473) into hexavalent and trivalent forms. For example, hexavalent chromium emissions from natural gas combustion is obtained from multiplying chromium by 0.04, since the natural gas combustion emissions have been estimated to be comprised of 4% hexavalent chromium and 96% trivalent chromium.

Augmentation Approach

Augmentation is performed by applying a "best available" multiplication factor to generate a set of pollutants (i.e., "output" pollutants) based on the value of the "input" pollutant from a source data record. The output pollutant multiplication factors are based on characteristics of the source emissions records. These factors are grouped together for a specific source type and input pollutant into an augmentation profile. An augmentation profile is assigned to sources based on at least one of the following criteria (shown in priority order):

1. EIS Emissions Process ID (Point Only)
2. EIS Facility Site ID (Point Only)
3. County
4. State
5. Emissions type Code (Non-Point, On-Road, and Non-Road only)
6. Source Classification Code (SCC)
7. Regulatory Code
8. NAICS Code (Point Only)
9. Default if none of the other characteristics apply (used for chromium augmentation only)

A default augmentation profile is used for chromium augmentation in order that every chromium emission record is speciated to hexavalent and trivalent chromium.

Each augmentation profile consists of a set of factors for each output pollutant (i.e., each HAP, for HAP augmentation or Chromium in hexavalent and trivalent forms for Chromium augmentation)

The formulas used to compute emissions for HAP augmented records is:
Emissions (From Input Pollutant) * FACTOR = Emissions (For the Output Pollutant)

Where:
Emissions (From Input Pollutant) is the emissions of the input pollutant from the source dataset;
FACTOR is the multiplicative factor specific to the source (e.g., specific process, facility, SCC, etc.) and output pollutant from the augmentation profile assigned to the source;
Emissions (For the Output Pollutant) is the emissions of the output pollutant from the source dataset.

For chromium, the input pollutant is always chromium (7440473) and the output pollutant is either hexavalent chromium or trivalent chromium, and the hexavalent and trivalent factor from the same augmentation "profile" sum to 1.

Links to Augmentation Factors

Augmentation factor information may be found in EIS via the following links:

Augmentation Profile Names and Input Pollutants - Displays general information about the profile and source of the profile names and factors.

Augmentation Multiplication Factors - Displays all the output pollutants and multiplication factors associated with a given Augmentation Profile and input pollutant.

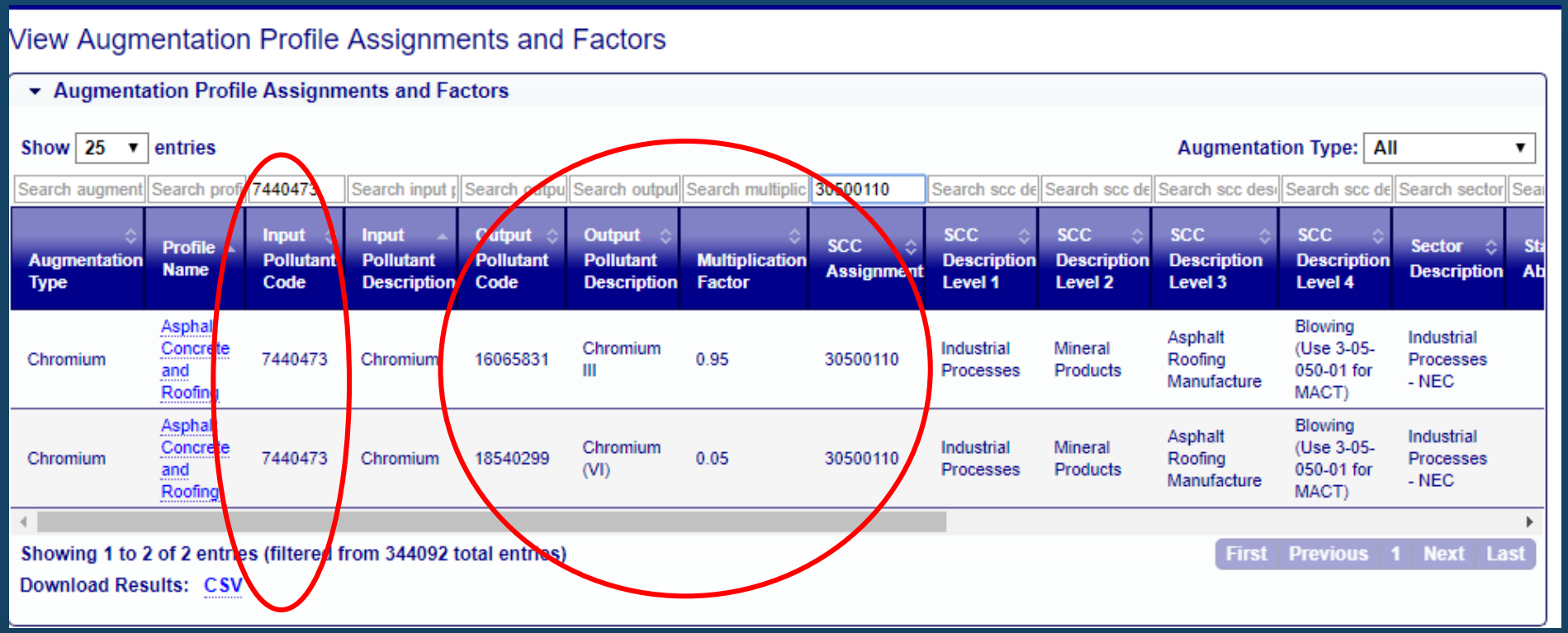
Augmentation Assignments - Displays the characteristics of the data record for which the profile is based (the list of 9 items above).

Augmentation Multiplication Factors and Assignments - A composite table that provides a comprehensive view of all the combinations of output pollutants and assignment information associated with a given profile. Each of these views of the factors has the following capabilities:

Each of these views of the factors has the following capabilities:

1. Filtering by Augmentation Type
2. Filtering by entries in each column
3. Sorting results by column
4. Creating a CSV download of the data
5. Provides a link from the profile name to a detail view for that profile showing all the profile information about that profile name in a single view.

Chromium Speciation Screenshots: SCC-level assignment



View Augmentation Profile Assignments and Factors

Augmentation Profile Assignments and Factors

Show 25 entries

Augmentation Type: All

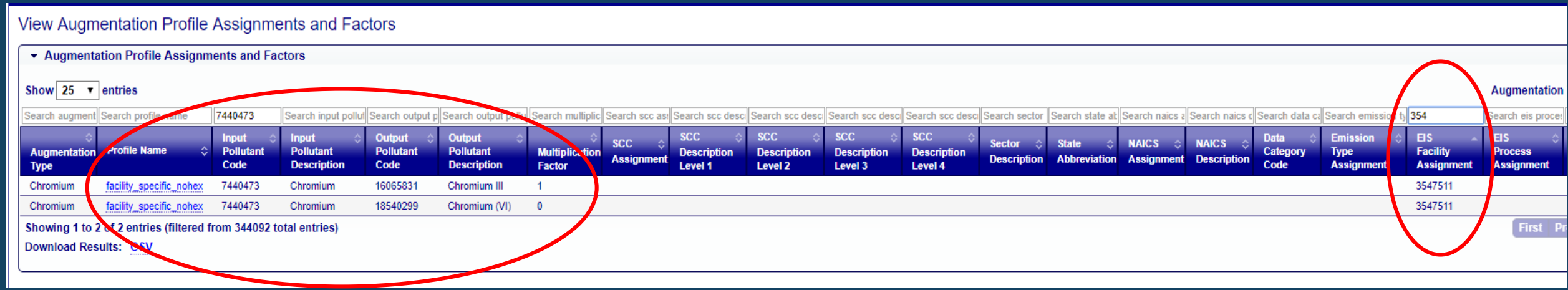
Augmentation Type	Profile Name	Input Pollutant Code	Input Pollutant Description	Output Pollutant Code	Output Pollutant Description	Multiplication Factor	SCC Assignment	SCC Description Level 1	SCC Description Level 2	SCC Description Level 3	SCC Description Level 4	Sector Description
Chromium	Asphalt Concrete and Roofing	7440473	Chromium	16065831	Chromium III	0.95	30500110	Industrial Processes	Mineral Products	Asphalt Roofing Manufacture	Blowing (Use 3-05-050-01 for MACT)	Industrial Processes - NEC
Chromium	Asphalt Concrete and Roofing	7440473	Chromium	18540299	Chromium (VI)	0.05	30500110	Industrial Processes	Mineral Products	Asphalt Roofing Manufacture	Blowing (Use 3-05-050-01 for MACT)	Industrial Processes - NEC

Showing 1 to 2 of 2 entries (filtered from 344092 total entries)

First Previous 1 Next Last

Download Results: CSV

Chromium Speciation Screenshots: Facility-level assignment



View Augmentation Profile Assignments and Factors

Augmentation Profile Assignments and Factors

Show 25 entries

Augmentation

Search augment	Search profile name	7440473	Search input pollut	Search output p	Search output pollu	Search multiplic	Search scc as	Search scc desc	Search scc desc	Search scc desc	Search scc desc	Search sector	Search state at	Search naics a	Search naics c	Search data ca	Search emissio ty	354	Search eis proces

Augmentation Type	Profile Name	Input Pollutant Code	Input Pollutant Description	Output Pollutant Code	Output Pollutant Description	Multiplication Factor	SCC Assignment	SCC Description Level 1	SCC Description Level 2	SCC Description Level 3	SCC Description Level 4	Sector Description	State Abbreviation	NAICS Assignment	NAICS Description	Data Category Code	Emission Type Assignment	EIS Facility Assignment	EIS Process Assignment
Chromium	facility_specific_nohex	7440473	Chromium	16065831	Chromium III	1												3547511	
Chromium	facility_specific_nohex	7440473	Chromium	18540299	Chromium (VI)	0												3547511	

Showing 1 to 2 of 2 entries (filtered from 344092 total entries)

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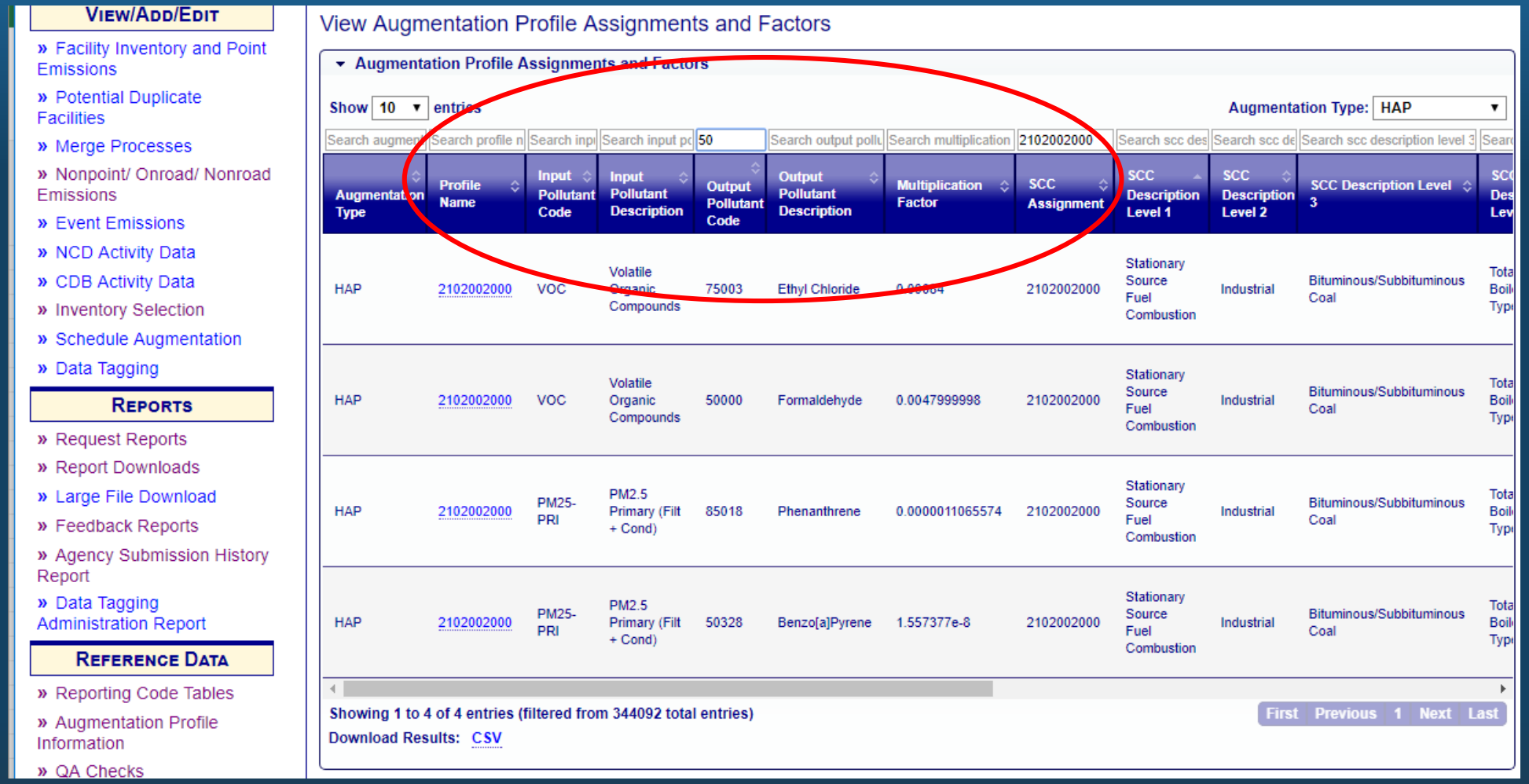
Download Results: CSV

HAP Augmentation Screenshot: SCC-level



View/Add/Edit

- » Facility Inventory and Point Emissions
- » Potential Duplicate Facilities
- » Merge Processes
- » Nonpoint/ Onroad/ Nonroad Emissions
- » Event Emissions
- » NCD Activity Data
- » CDB Activity Data
- » Inventory Selection
- » Schedule Augmentation
- » Data Tagging

Reports

- » Request Reports
- » Report Downloads
- » Large File Download
- » Feedback Reports
- » Agency Submission History Report
- » Data Tagging Administration Report

Reference Data

- » Reporting Code Tables
- » Augmentation Profile Information
- » QA Checks

View Augmentation Profile Assignments and Factors

Augmentation Profile Assignments and Factors

Show 10 entries

Augmentation Type: HAP

Augmentation Type	Profile Name	Input Pollutant Code	Input Pollutant Description	Output Pollutant Code	Output Pollutant Description	Multiplication Factor	SCC Assignment	SCC Description Level 1	SCC Description Level 2	SCC Description Level 3	SCC Des Lev
HAP	2102002000	VOC	Volatile Organic Compounds	75003	Ethyl Chloride	[illegible]	2102002000	Stationary Source Fuel Combustion	Industrial	Bituminous/Subbituminous Coal	Tota Boil Type
HAP	2102002000	VOC	Volatile Organic Compounds	50000	Formaldehyde	0.0047999998	2102002000	Stationary Source Fuel Combustion	Industrial	Bituminous/Subbituminous Coal	Tota Boil Type
HAP	2102002000	PM25-PRI	PM2.5 Primary (Filt + Cond)	85018	Phenanthrene	0.0000011065574	2102002000	Stationary Source Fuel Combustion	Industrial	Bituminous/Subbituminous Coal	Tota Boil Type
HAP	2102002000	PM25-PRI	PM2.5 Primary (Filt + Cond)	50328	Benzo[a]Pyrene	1.557377e-8	2102002000	Stationary Source Fuel Combustion	Industrial	Bituminous/Subbituminous Coal	Tota Boil Type

Showing 1 to 4 of 4 entries (filtered from 344092 total entries)

First Previous 1 Next Last

Download Results: CSV

HAP Augmentation Screenshot: Facility-specific

View Augmentation Profile Assignments and Factors

Augmentation Profile Assignments and Factors

Show 25 entries

Augmentation Type: HAP

Augmentation Type	Profile Name	Input Pollutant Code	Input Pollutant Description	Output Pollutant Code	Output Pollutant Description	Multiplication Factor	SCC Assignment	SCC Description Level 1	SCC Description Level 2	SCC Description Level 3	SCC Description Level 4	Sector Description	State Abbreviation	NAICS Assignment	NAICS Description	Data Category Code	Emission Type Assignment	EIS Facility Assignment	EIS Process Assignment	County Description	Default?
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	100414	Ethyl Benzene	0.0003364	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	106990	1,3-Butadiene	0.0022627	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	107028	Acrolein	0.008852	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	108883	Toluene	0.0034576	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	108952	Phenol	0.0002034	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	50000	Formaldehyde	0.002127	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	127184	Tetrachloroethylene	0.000021	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	75070	Acetaldehyde	0.0144	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	67561	Methanol	0.0211864	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	71432	Benzene	0.0007578	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	75014	Vinyl Chloride	0.0001263	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	75092	Methylene Chloride	0.0001695	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no
HAP	facility15080211_scc20200254	VOC	Volatile Organic Compounds	540841	2,2,4-Trimethylpentane	0.0021186	20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	Fuel Comb - Industrial Boilers, ICEs - Natural Gas				P		15080211			no

Break!

PM Augmentation + PM2.5 Speciation

- Time check: 10:20

PM Augmentation: What PM Pollutants are needed in the NEI?

- Air quality models use primary PM10 and PM2.5 (PM10-PRI and PM25-PRI)
  - Derive PM-coarse by subtraction of PM25-PRI from PM10-PRI
  - While filterable and condensable components are required….
  - Black Carbon (EC), Organic Carbon (OC), PM-nitrate (NO3), PM-sulfate (SO4) and "Other PM" (PMFINE) are derived from PM25-PRI
- HAP Augmentation currently uses PM10-FIL for all point sources and primarily* PM25-PRI for nonpoint sources as an input (SLT-reported) pollutant to derive HAPs by ratio

* exception is PM10-PRI for some oil and gas, commercial marine vessel and rail sources

What PM Pollutants are Allowed in EIS?

- AERR: Any combination of PM10-PRI, PM25-PRI, PM-CON, PM10-FIL, PM25-FIL
- Filterable PM components* (PM10-FIL, PM25-FIL) refer to particulate matter that may be physically captured on a filter during sampling
- Condensable PM (PM-CON) is gas-phase at stack conditions but condenses to sub-micron liquids or particles after exiting the stack and cooling to ambient conditions
- A few consistency QA checks in the EIS will reject all emissions:
  - PM10-PRI must be >= each of these individual components: PM10-FIL, PM25-PRI and PM-CON
  - PM25-PRI must be >= each of these individual components: PM25-FIL and PM-CON
  - PM10-FIL must be >= PM25-FIL

The PM Augmentation Tool

- Current PM Augmentation process goal is to create all five PM pollutants, consistent with each other
- Another goal is to also preserve SLT PM-PRI estimates, and add missing PM-CON and PM-FIL components only
  - For 2014 NEI: Short-term: Cleaned up (v1.2) and posted at: https://www.epa.gov/air-emissions-inventories/pm-augmentation
  - Longer-term (2017 NEI): Simplify tool, update ratios (emission factors), incorporate into the EIS that also generates specific "Emissions Method Code"

What does the PM Augmentation Tool do?

- Uses SLT-reported PM values and control devices for SCCs
- Uses large set of look-up tables of ratios of PM species by SCC and up to 2 control devices
- Ratios are largely based on AP-42 EFs and size distribution graphs, with some mapping to similar SCCs and controls
- Sequence of math steps and ratios to be used depends upon which PM species have been reported by SLT
  - 31 possible permutations. Common ones are both PM-PRIs reported; both PM-FILs reported; All 5 reported; Only PM10-PRI reported
  - See link to 2013 CMAS paper within PM Aug "Tool Description" for all conditional logic steps

PM Aug Tool: How to Look at Calculations

- Generate EIS process level report
- See Module 1 "Overview" webinar for more details on this report
- Provides dataset name for each process (county/SCC for nonpoint sources)
- PM Aug Tool-generated data reflected as "2014EPA_NonPt_PM-Aug" for nonpoint sources
- In this example, PM-CON, PM10-FIL and PM25-FIL are output from PM Augmentation via state-provided (AZ) PM10-PRI and PM25-PRI data.

EIS Facility ID	PSC	State Facility ID	EIS Unit ID	State Unit ID	EIS Process ID	State Process ID	SCC	data_set_short_name	Pollutant Code	Description	Total Emissions	UOM
1013311	AZDEQ	492	48095013	1	61072414	1	20300203	2011AZDEQ	PM10-PRI	PM10 Primary (Filt + Cond)	2.74543	TON
1013311	AZDEQ	492	48095013	1	61072414	1	20300203	2011AZDEQ	PM25-PRI	PM2.5 Primary (Filt + Cond)	2.74543	TON
1013311	AZDEQ	492	48095013	1	61072414	1	20300203	2011EPA_PM-Aug	PM-CON	PM Condensible	1.23544	TON
1013311	AZDEQ	492	48095013	1	61072414	1	20300203	2011EPA_PM-Aug	PM10-FIL	PM10 Filterable	1.50999	TON
1013311	AZDEQ	492	48095013	1	61072414	1	20300203	2011EPA_PM-Aug	PM25-FIL	PM2.5 Filterable	1.50999	TON

PM Augmentation Tool Results

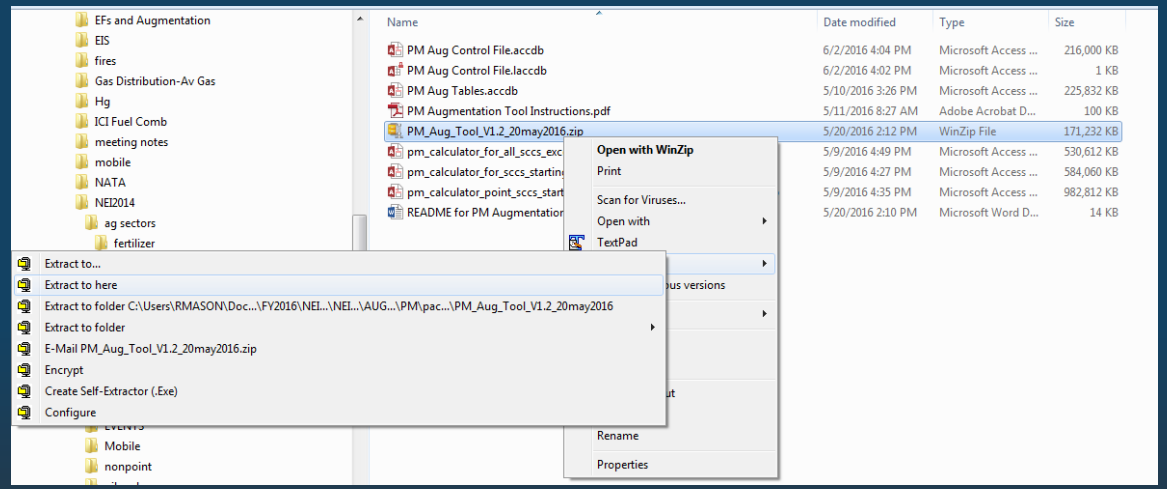
- Two Output tables : Adds and Overwrites
- Adds are new PM species that didn't appear in the SLT-reported set, which gap-fill where one or more of the five PM pollutants were not reported
- Overwrites are for PM species that are in the SLT dataset, but where the logic sequence of the PM Augmentation routines found inconsistencies that are corrected by supplying a value that will be used preferentially over the SLT value
- The Overwrites are why EPA PM Aug dataset is above SLT data in the selection hierarchy

PM Augmentation Tool: Caveats

- While EPA provides the PM Augmentation Tool, we discourage using it as-is for several reasons, as documented in the README Word file in the zip package:
  - For technical reasons, no augmentation was performed on several sectors such as railways, commercial marine vessels and agricultural field burning
  - Overall, do not want to replace (Overwrite) SLT PM estimates with those from the PM Aug tool unless these overrides were "significant" (e.g., 0.01 ton) –particularly when primary PM species were reported and sensible.
  - Do not include zero-emissions "adds"; however, this had some undesirable results in 2014v1 NEI -EPA tool non-zero PM gap-filled! Oops!
- NOTE: Because of these caveats, we stripped out the "Input PM Data – Nonpoint" in the PM Aug Control File –this is contrary to Step 4 in the "PM Augmentation Tool Instructions" PDF

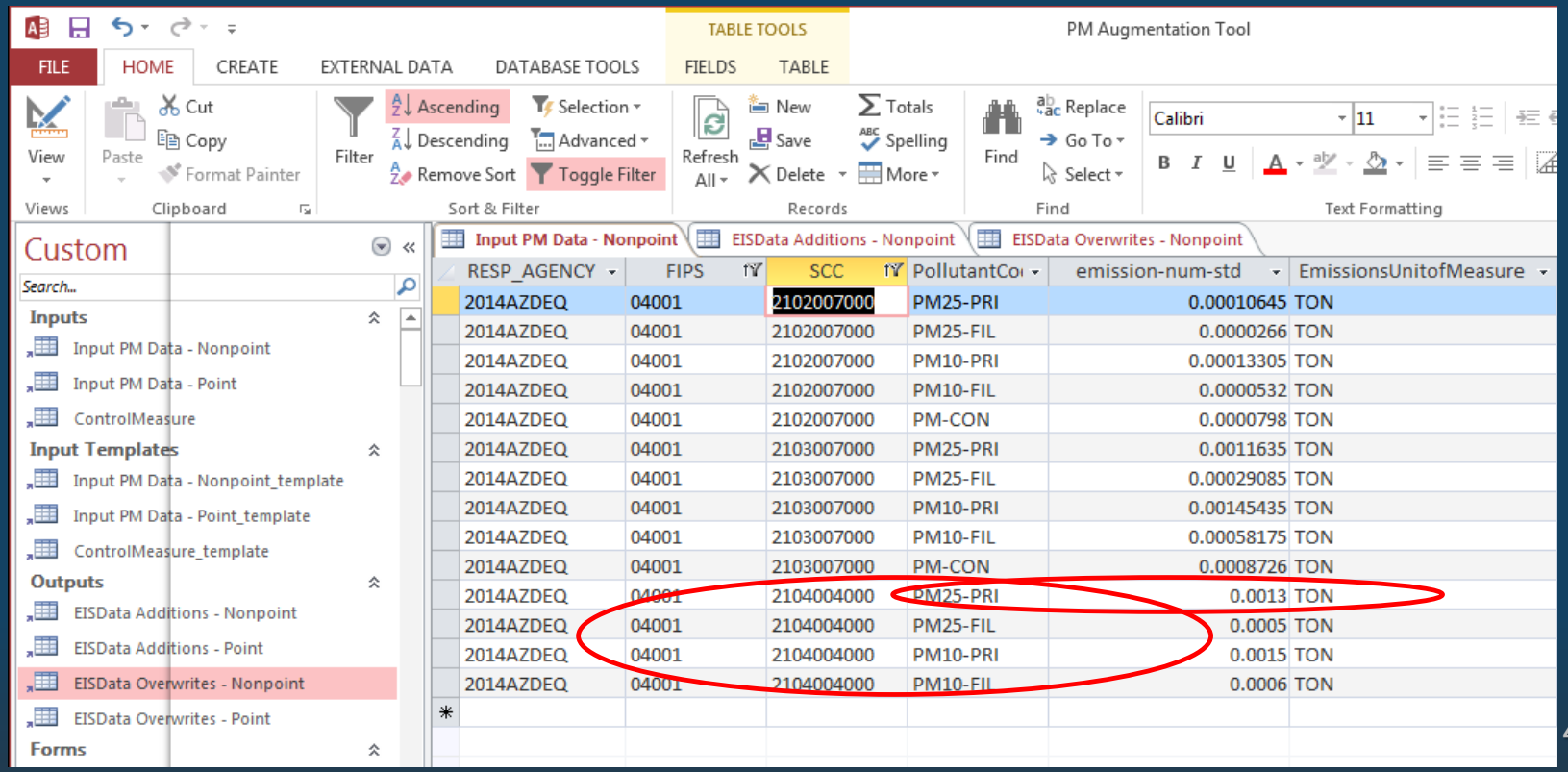
PM Augmentation Tool: Nonpoint Screenshots Demo

- Download tool, extract all files to common directory, open README (Word) and Instructions (PDF)
- Open "PM Aug Control File"
- Continue following PDF Instructions steps 5 through 7, with care taken to load (or append) only PM data and sources that you wish to augment.



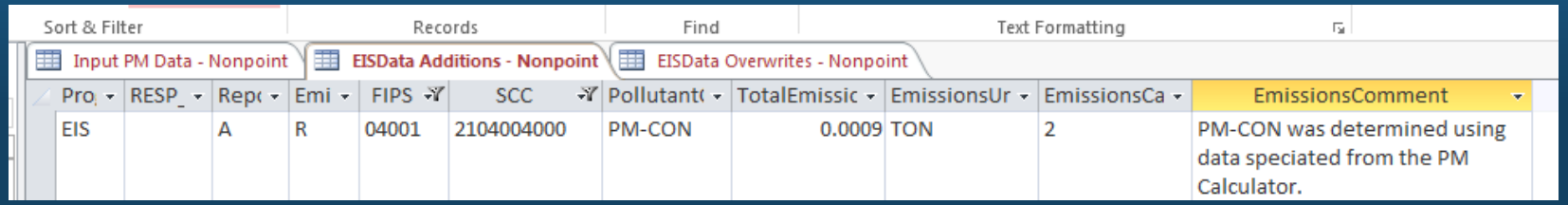
PM Aug Tool Screenshots (cont.)

- Example of PM Aug Overwrite data we decided NOT to use:
- Only PM-CON missing, computed as PM10-PRI – PM10-FIL (0.0009) –see Trivial Update step 3.
- However, PM25-PRI – PM25-FIL = 0.0008…



PM Aug Tool Screenshots (cont.)

- Only PM-CON missing, computed (Additions output table) as PM10-PRI – PM10-FIL (0.0009)

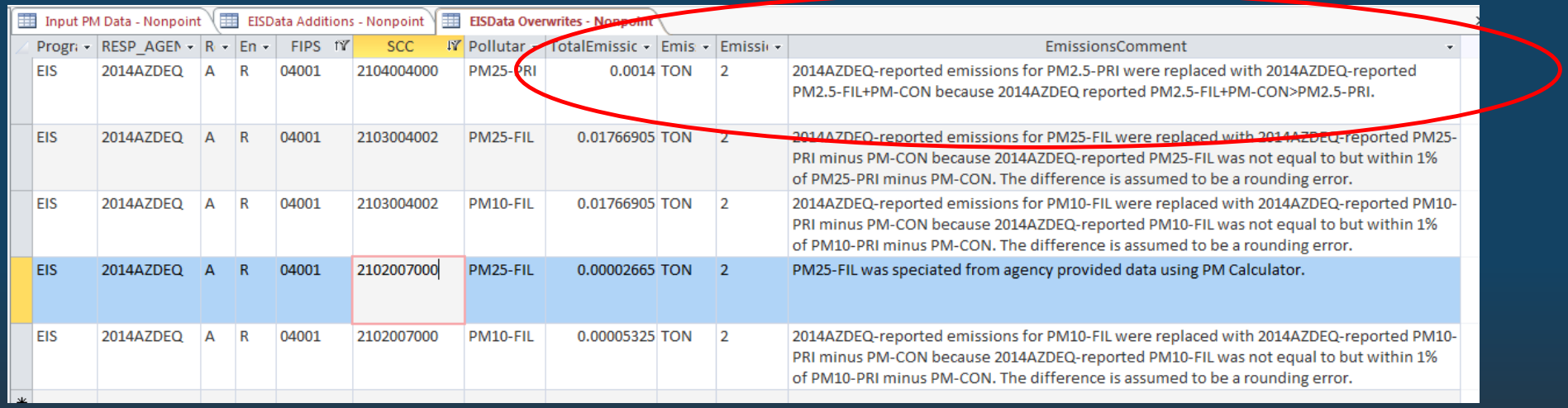


Sort & Filter | Records | Find | Text Formatting

Input PM Data - Nonpoint | EISData Additions - Nonpoint | EISData Overwrites - Nonpoint

Pro	RESP_	Rep	Emi	FIPS	SCC	Pollutant	TotalEmissic	EmissionsUr	EmissionsCa	EmissionsComment
EIS		A	R	04001	2104004000	PM-CON	0.0009	TON	2	PM-CON was determined using data speciated from the PM Calculator.

- However, PM25-PRI – PM25-FIL = 0.0008, but PM25-FIL + PM-CON now does not equal PM25-PRI, so, PM Aug Tool generates an OVERWRITE! We deemed PM25-PRI difference of 0.0001 insignificant



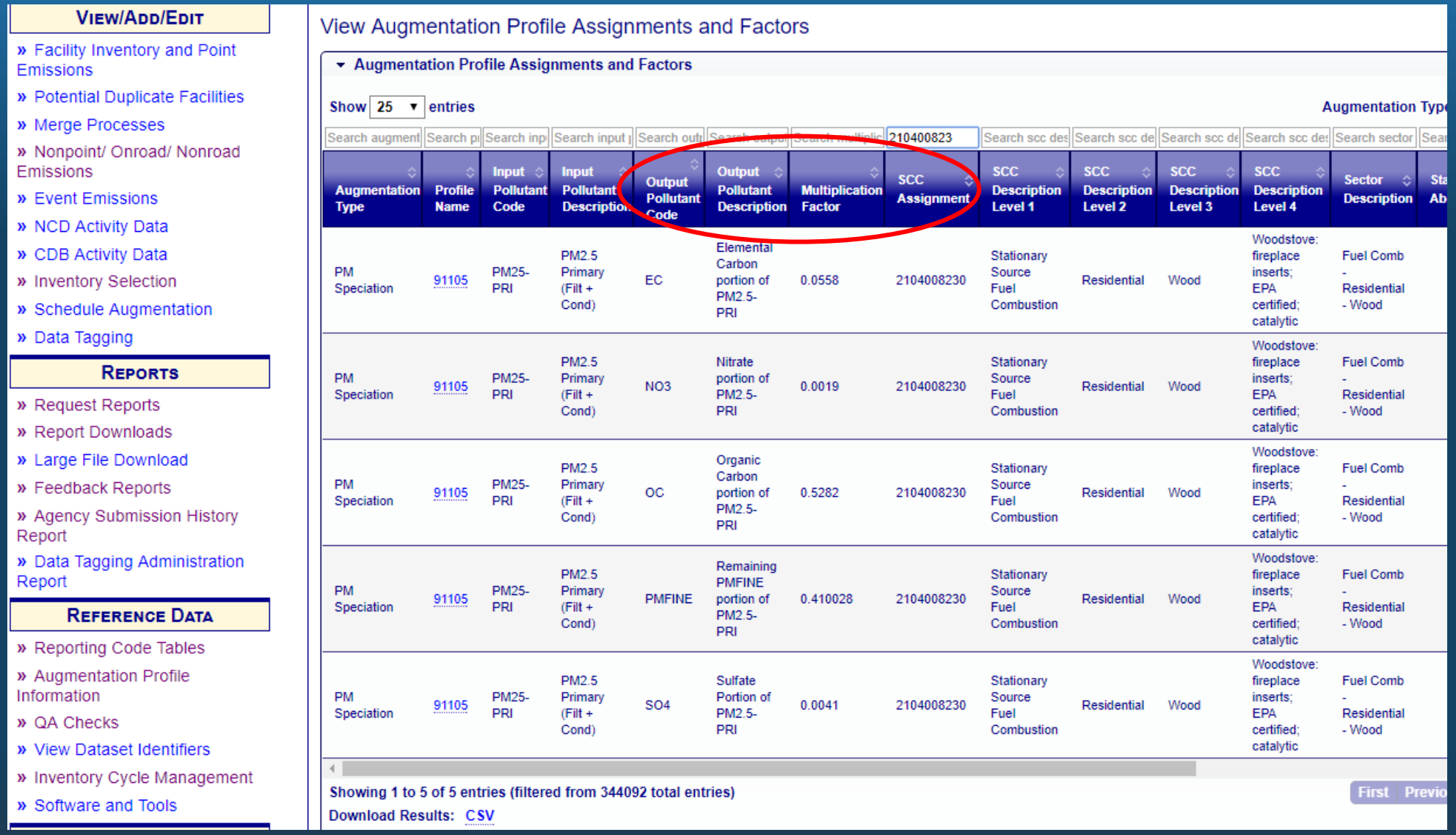
Input PM Data - Nonpoint | EISData Additions - Nonpoint | EISData Overwrites - Nonpoint

Progr	RESP_AGEN	R	En	FIPS	SCC	Pollutar	TotalEmissic	Emis	Emissi	EmissionsComment
EIS	2014AZDEQ	A	R	04001	2104004000	PM25-PRI	0.0014	TON	2	2014AZDEQ-reported emissions for PM2.5-PRI were replaced with 2014AZDEQ-reported PM2.5-FIL+PM-CON because 2014AZDEQ reported PM2.5-FIL+PM-CON>PM2.5-PRI.
EIS	2014AZDEQ	A	R	04001	2103004002	PM25-FIL	0.01766905	TON	2	2014AZDEQ-reported emissions for PM25-FIL were replaced with 2014AZDEQ-reported PM25-PRI minus PM-CON because 2014AZDEQ-reported PM25-FIL was not equal to but within 1% of PM25-PRI minus PM-CON. The difference is assumed to be a rounding error.
EIS	2014AZDEQ	A	R	04001	2103004002	PM10-FIL	0.01766905	TON	2	2014AZDEQ-reported emissions for PM10-FIL were replaced with 2014AZDEQ-reported PM10-PRI minus PM-CON because 2014AZDEQ-reported PM10-FIL was not equal to but within 1% of PM10-PRI minus PM-CON. The difference is assumed to be a rounding error.
EIS	2014AZDEQ	A	R	04001	2102007000	PM25-FIL	0.00002665	TON	2	PM25-FIL was speciated from agency provided data using PM Calculator.
EIS	2014AZDEQ	A	R	04001	2102007000	PM10-FIL	0.00005325	TON	2	2014AZDEQ-reported emissions for PM10-FIL were replaced with 2014AZDEQ-reported PM10-PRI minus PM-CON because 2014AZDEQ-reported PM10-FIL was not equal to but within 1% of PM10-PRI minus PM-CON. The difference is assumed to be a rounding error.

PM2.5 Speciation

- Starting with the 2014 NEI, EPA provides 5 PM species based on PM2.5 from a "penultimate" NEI selection:
  - Elemental/black carbon (EC), organic carbon (OC), nitrate (NO3), sulfate (SO4), and the remainder of PM25-PRI called PMFINE (a.k.a. "crustal" or "other PM")
- Also provide a copy of PM25-PRI and PM10-PRI from diesel engines, labeled as DIESEL-PM25 and DIESEL-PM10
- For 2014 NEI, all 7 "pollutants" reside in stand-alone EPA dataset "2014EPA_PMspecies"
- None of these pollutants are reportable to NEI by SLT submitters

PM Speciation EIS Screenshot



VIEW/ADD/EDIT

- » Facility Inventory and Point Emissions
- » Potential Duplicate Facilities
- » Merge Processes
- » Nonpoint/ Onroad/ Nonroad Emissions
- » Event Emissions
- » NCD Activity Data
- » CDB Activity Data
- » Inventory Selection
- » Schedule Augmentation
- » Data Tagging

REPORTS

- » Request Reports
- » Report Downloads
- » Large File Download
- » Feedback Reports
- » Agency Submission History Report
- » Data Tagging Administration Report

REFERENCE DATA

- » Reporting Code Tables
- » Augmentation Profile Information
- » QA Checks
- » View Dataset Identifiers
- » Inventory Cycle Management
- » Software and Tools

View Augmentation Profile Assignments and Factors

Augmentation Profile Assignments and Factors

Show 25 entries

Augmentation Type

Augmentation Type	Profile Name	Input Pollutant Code	Input Pollutant Description	Output Pollutant Code	Output Pollutant Description	Multiplication Factor	SCC Assignment	SCC Description Level 1	SCC Description Level 2	SCC Description Level 3	SCC Description Level 4	Sector Description
PM Speciation	91105	PM25-PRI	PM2.5 Primary (Filt + Cond)	EC	Elemental Carbon portion of PM2.5-PRI	0.0558	2104008230	Stationary Source Fuel Combustion	Residential	Wood	Woodstove: fireplace inserts; EPA certified; catalytic	Fuel Comb - Residential - Wood
PM Speciation	91105	PM25-PRI	PM2.5 Primary (Filt + Cond)	NO3	Nitrate portion of PM2.5-PRI	0.0019	2104008230	Stationary Source Fuel Combustion	Residential	Wood	Woodstove: fireplace inserts; EPA certified; catalytic	Fuel Comb - Residential - Wood
PM Speciation	91105	PM25-PRI	PM2.5 Primary (Filt + Cond)	OC	Organic Carbon portion of PM2.5-PRI	0.5282	2104008230	Stationary Source Fuel Combustion	Residential	Wood	Woodstove: fireplace inserts; EPA certified; catalytic	Fuel Comb - Residential - Wood
PM Speciation	91105	PM25-PRI	PM2.5 Primary (Filt + Cond)	PMFINE	Remaining PMFINE portion of PM2.5-PRI	0.410028	2104008230	Stationary Source Fuel Combustion	Residential	Wood	Woodstove: fireplace inserts; EPA certified; catalytic	Fuel Comb - Residential - Wood
PM Speciation	91105	PM25-PRI	PM2.5 Primary (Filt + Cond)	SO4	Sulfate Portion of PM2.5-PRI	0.0041	2104008230	Stationary Source Fuel Combustion	Residential	Wood	Woodstove: fireplace inserts; EPA certified; catalytic	Fuel Comb - Residential - Wood

Showing 1 to 5 of 5 entries (filtered from 344092 total entries)

Download Results: CSV

PM Speciation: References

- Section 2.2.5 in the 2014v1 NEI TSD:

  https://www.epa.gov/sites/production/files/2016-12/documents/nei2014v1_tsd.pdf

- Section 3.3.2 in the 2011v6.3 Emissions Modeling Platform TSD:

  https://www.epa.gov/sites/production/files/2016-09/documents/2011v6_3_2017_emismod_tsd_aug2016_final.pdf

Other non-SLT Datasets

- Toxics Release Inventory (TRI)
- EPA EGUs, Landfills, Nonpoint Mercury
- Airports, Rail, Commercial Marine Vessels
- Bureau of Ocean Energy Management (BOEM): Offshore oil platforms
- "Carry Forward": Sources carried forward from 2011v2 NEI –EPA did not estimate for 2014

TRI Dataset

- Why do we add Toxics Release Inventory (TRI) data to the NEI?
  - To have a more complete inventory for HAPs, where SLT data not available
  - Needed for presumably more-accurate risk modeling (e.g., NATA)
- How do we add the data?
  - TRI reports for Air emissions are a single total per facility for Stack emissions, and a single total per facility for Fugitive emissions, per pollutant
  - EIS contains two Emission Processes for each EIS facility that has been matched to a TRI facility, one for Stack, one for Fugitive
  - TRI data is Tagged and not used in the NEI if the SLT has reported that HAP (or one of its related HAPs) anywhere within the EIS Facility –goal is to avoid potential double-counting of TRI with other sources of data (primarily SLT)

TRI dataset (cont.)

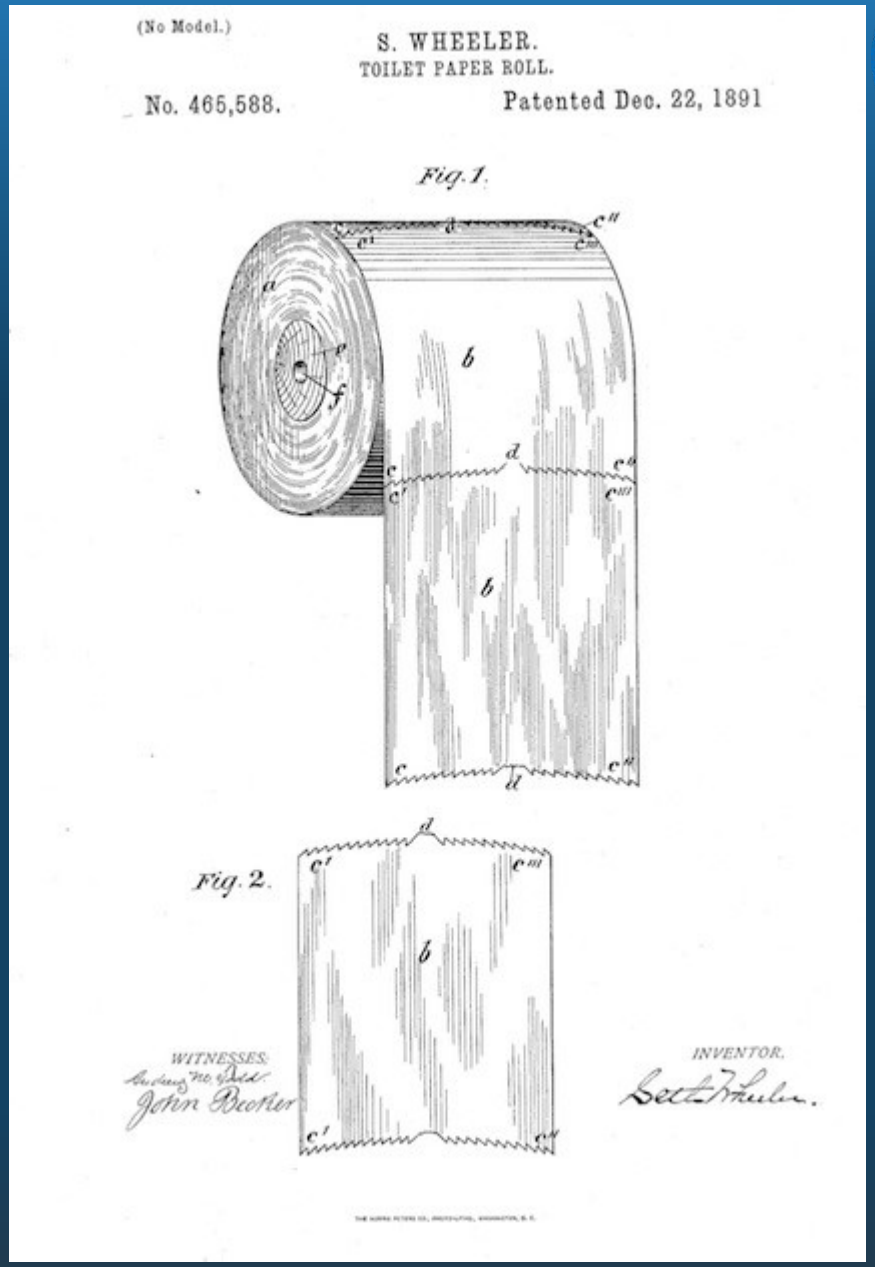
- TRI data for 2014 Inventory Year were added to EIS March 15, 2016
- The TRI data proposed to be added to EIS for 2014 was posted on the 2014 NEI website in October 2015
- The TRI facility IDs that have been matched to EIS facilities are stored in EIS as an Alternate Facility ID, and are available at any time from EIS
- There is no adjustment done at EPA to nonpoint estimates (either SLTs or EPAs) due to use of TRI at a facility
- The EIS Operating Status of a facility does not impact the TRI use

NEI Selection Process

- Time Check: 10:40am

In a perfect world…

- Global warming would be halted
- World Peace would prevail
- Everyone would put the toilet paper on the roll the right way round
- Every agency would submit a complete nonpoint inventory


(No Model.)

S. WHEELER.

TOILET PAPER ROLL.

No. 465,588. Patented Dec. 22, 1891

Fig. 1.

Fig. 2.

WITNESSES:

INVENTOR.

But since we can't always get what we want…

- EPA assists states by developing its own estimates
- A merge of data needs to happen, selecting the best pieces of data to go in the final NEI.
- We call this the Selection Process

What happens after SLTs submit their data?

- EPA does quality analysis on the SLT data
- EPA contacts the SLT to start a conversation about any findings
- If SLT provides adequate response, then SLT data remains
- If not, SLT data is “tagged,” which means it won’t be used in the final selection (which ultimately becomes the NEI)

QA: Outlier Check

- Create comparison file—2011v2, RAS, & EPA datasets. Compare by ratio and difference.
- Graph total (main criteria pollutant?) by state comparing 2011 to 2014. Look for trends and anomalies.
- Mark records with emissions values more than 10 times higher than EPA estimates (if greater than 10 tons?)
- Mark HAPs that are 10 times higher than EPA estimates (if greater than 100 lb?)
- Sort high to low on pollutants

QA: Missing Data

- Look for missing states, missing pollutants, missing counties. Maps are helpful for this for geographical issues.
- Look for Bedford City VA—there shouldn't be one.
- Check for Puerto Rico and Virgin Islands, Hawaii & Alaska
- Make sure that the state did what they reported they'd do on the NP survey.
- Look for zeroes that probably shouldn't be zeroes.

QA: Nonsensical Data

- Look for HAPs in odd places (commercial cooking lead, for example)
- Look for criteria pollutants in odd places (VOC in dust showed up in 2011)
- Check that HAP VOC sum less than VOC

QA: Sector Level

- Look at point and nonpoint contributions both, if point is small or vice versa.
- Look for holes
- Sum up all VOC or NOx or key pollutant for sector, see if it's what we expect
- Group by pollutant/sector for whole RAS. See if there are pollutants where there shouldn't be.

Tagging Data

Used to prevent data from being part of a selection

- Mistake submissions from SLTs (bad data) –used to modify the selection hierarchy
- To prevent EPA data from backfilling, inappropriately
  - SLT covers the category all in point
  - SLT doesn't have that **SCC/pollutant/county** combination in their state
  - SLT uses a different SCC for that source (either a more general or several more specific)

Nonpoint Survey

- Tagging for 2014 relied heavily on the nonpoint survey
  - 2017 NP survey will be greatly simplified, only asking a few simple questions to help EPA know whether or not to backfill with EPA data
    - Is this emission source covered solely in your point source inventory?
    - Do you not have this emission source in your area?
  - Eliminate overlapping SCC issue by using Option Group/Option Set

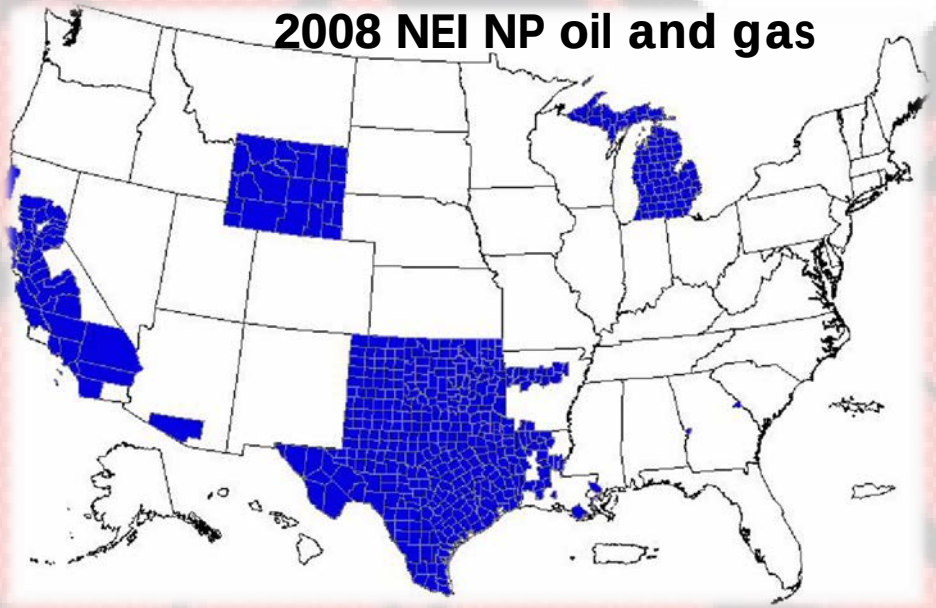
Option Group/Option Set Example

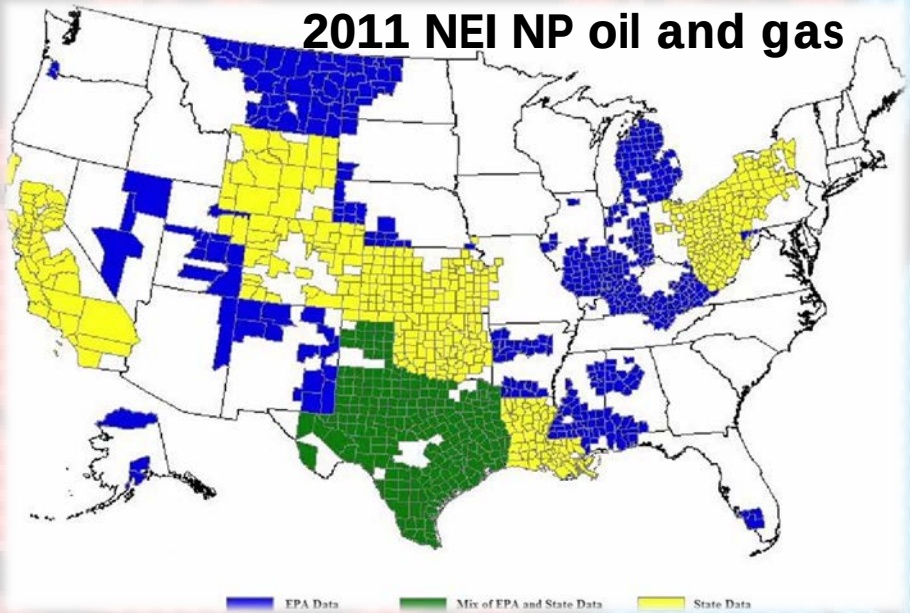
- EPA calculates
  - Onshore gas production; fugitives: connectors
  - Onshore gas production; fugitives: flanges
  - Onshore gas production; fugitives, open ended lines
  - Onshore gas production; fugitives: valves
  - Onshore gas production; fugitives: other

- State submits
  - Onshore gas production; fugitives: all processes

Role of SLTs vs. EPA

- States are responsible for the emissions estimates
- SLTs can choose to accept EPA estimates; however, states choose method to apply
  - EPA methods are assumptions about activity and emissions rates that can be improved with local understanding
- In the absence of SLT data, EPA still has to create a complete inventory.





Selection Hierarchy

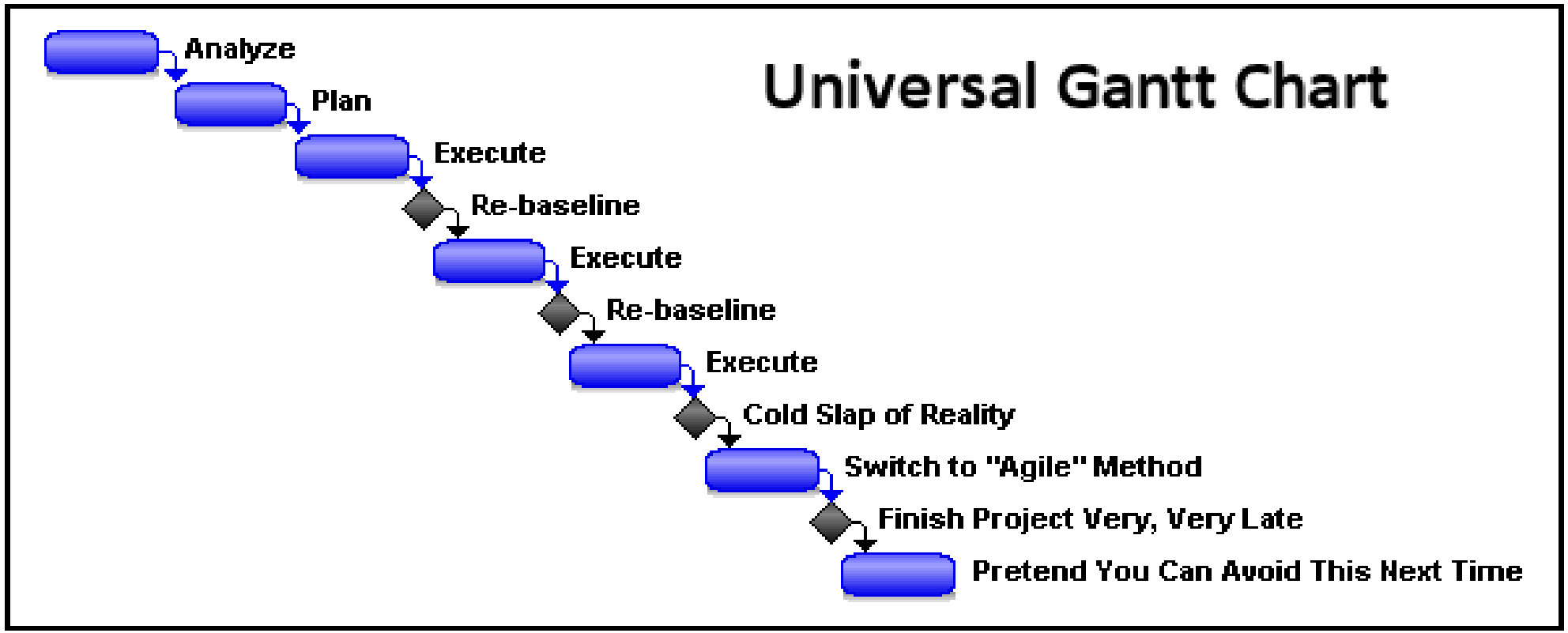
- Much like natural selection, only the best data will prevail
- SLT data gets a leg up, since EPA's policy is to give it precedence
- PM Augmentation actually takes first priority, because it correct minor errors

The Selection Hierarchy: Nonpoint Example

Dataset Name	Description and Rationale	Rank
PM Speciation	Calculated by offline method splitting into 5 PM species: elemental carbon, organic carbon, nitrate, sulfate, and PM fine	1
PM Augmentation	Fills in missing or inconsistent SLT PM	2
SLT Data	Also called Responsible Agency Selection, merged into one dataset	3
Chromium Augmentation	Hexavalent and Trivalent Chromium speciated from SLT reported chromium	4
HAP Augmentation	Hazardous Air Pollutants speciated from SLT reported VOC and PM	5
EPA CMV & Rail	Commercial Marine Vehicle and Locomotive data generated by EPA	6
EPA Nonpoint	EPA's nonpoint datasets, generated with vetting by SLTs in NOMAD Committee	7
Other miscellaneous	ICI PM, NP mercury, 2011 data (when we're really desperate), MOVES	8

2017 NEI Plan

time check 10:55am



2017 NEI Plan

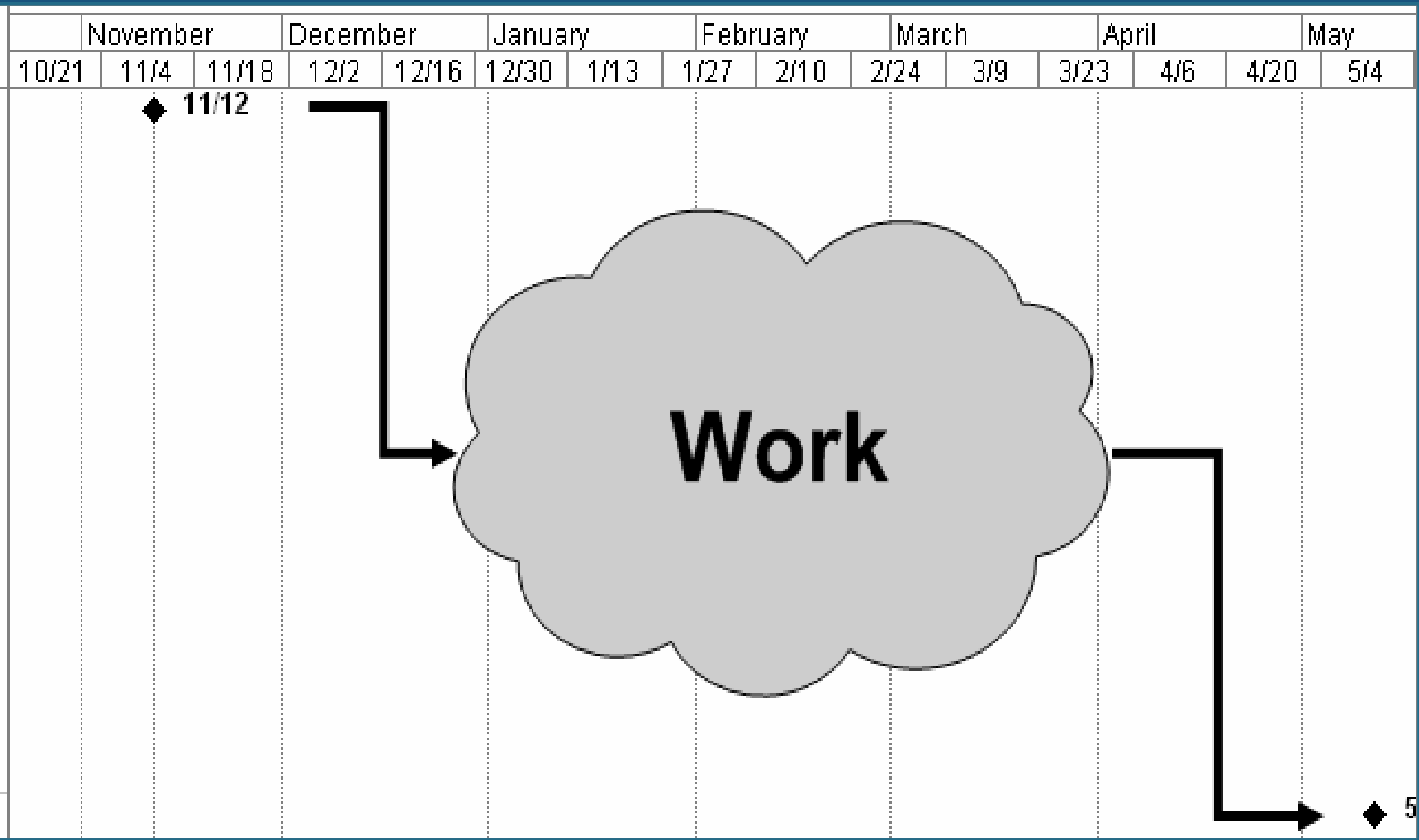
- Available on 2017 NEI Documentation site: https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-documentation
- As of August 2017: includes PDF Plan document and 4 appendices
- Draft Plan released June 30th
- Comments due September 1, 2017

2017 NEI Plan: High-level

- Schedule and timelines for 2017 NEI development
- Leverages AERR for most deadlines and expectations
- Released at least 12/18 months before EIS submittal window opens/closes*
- Goal: Ensure that all proposed changes to business processes, NEI/EIS codes, QA checks are provided prior to 2017 NEI development –allows SLTs enough time to implement associated changes into their data systems

2017 NEI Schedule: General

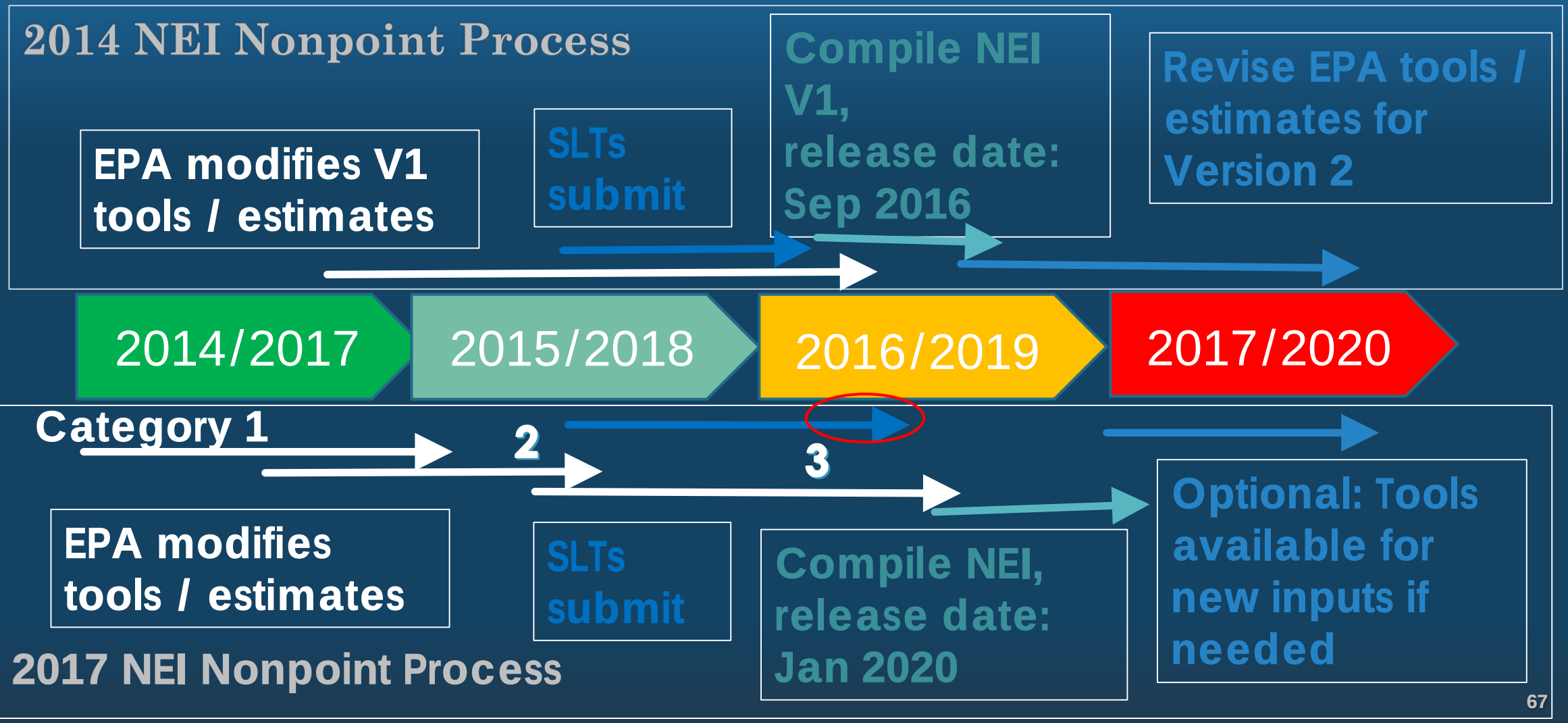
ID		Task Name	Duration
1		Kickoff Meeting	1 day?
2		Delivery	1 day?



2017 NEI Schedule: OK, details

- Similar to 2014 NEI schedule overall: exception Nonpoint
- Key dates
  - June 15, 2018: EIS submittal window opens
  - January 9 - 15, 2019 (Extended AERR deadline): EIS submittal window closes for all except Nonpoint data category. Facility window closes Jan 9th
  - March 31, 2019: Nonpoint survey and emissions due
  - May 15 – June 15, 2019: Draft NEI release in EIS, excluding some nonpoint data
  - May 15 – July 31, 2019: EPA solicits corrections to draft NEI
  - September 15, 2019: NEI release in EIS for all except nonpoint data
  - December 31, 2019: NEI release in EIS for nonpoint data
  - January 31, 2020: 2017 NEI Version 1 public release
- See Appendix 1 for Suggested SLT Timeline and QA Checks

2017 NEI Nonpoint: Current 2014 vs Proposed 2017 Timeline



EIS Reporting Code Changes (Appendix 2)

- Control Measure Codes: imminent
- Unit Type Codes: Provided and new codes coming soon for Printing, Refineries and Waste Disposal
- SCCs
  - Nonpoint: new, proposed retirements
  - Point: none yet, see Appendix 3 for potential changes via Risk and Technology Review (RTR) rules
  - Nonroad: new SCCs for MOVES expected but timing unknown
  - Events: new SCC possible for pile burns
  - Onroad: no expected changes
- Pollutants: no retirements expected, but new pollutants possible, some reclassifications, continued PM speciation + diesel PM
- NAICS: retirements and additions and EIS announcement of 4-digit minimum

Expected Pollutants

- Provided by EPA, at SLT request, for point and nonpoint
  - By SCC
  - Impacts how pollutants added to, or removed from, NEI selection
- Onroad and nonroad mobile generated by MOVES
- Events from EPA methods
- First provided for 2014 NEI, refer to TSD

Expected Pollutants: Point Criteria

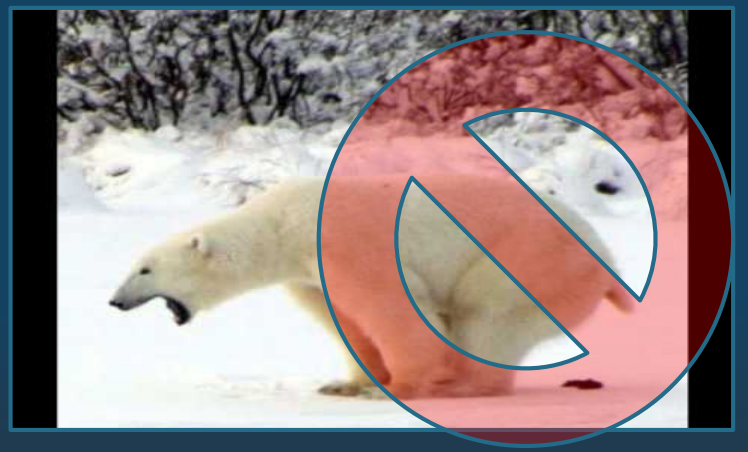
- SCC contributes at least 0.1% of total national emissions for that pollutant and includes an existing emissions factor (e.g. AP-42), OR
- SCC contributes at least 0.01% of total national emissions for pollutant (min. of 3 processes nationally), and SCC does not include a generic description “Other” or “Miscellaneous….NEC”
- For fuel combustion SCCs, same pollutants for all SCCs for same fuel

Expected Pollutants: Point cont.

- Generally, SLT pollutants not in expected pollutants list (unexpected pollutants) will be in NEI
- However, EPA may tag out (remove) nonsensical pollutants (e.g., VOC or NOX from rock crushing SCCs)
- TRI data is first source of HAPs for missing expected pollutants, followed by HAP augmentation
- We plan to post this list for use in the 2017 NEI by the end of October 2017

Expected Pollutants List: Nonpoint

- List plays a more active role in NEI selection, compared to the Point list, to satisfy these goals:
  - A consistent representation of pollutants
  - Less state-to-state variability in pollutant coverage and magnitudes
- Will include 2014v2 statistical-based thresholds by SCC and county: meaningful expected maximum values
- Only provided for source types EPA estimates



Nonpoint Expected Pollutants Business Rules

Item	If an agency submits…	EPA will…	Unless…
1	Emissions > EPA-expected checks	Use EPA in lieu	Agency provides "supporting info" –TBD
2	Pollutants not in list	Remove pollutants	Agency provides "supporting info" -TBD
3	VOC but no HAPs	Run HAP Aug, not use EPA tool data	VOC > EPA-expected
4	Total VOC-HAPs > VOC	Replace all agency VOC-HAPs with HAP aug	
5	VOC + different VOC-HAPs	Use HAP aug to gap-fill	Total VOC-HAPs > VOC
6	Incomplete expected CAPs	Supplement w/ EPA tool data	Agency directs EPA not to
7	VOC but missing VOC-HAPs for non-EPA-estimated SCC	Use HAP aug	Agency also submits HAPs

EIS QA Checks: Changes since 2014 NEI

- Additional critical QA checks:
  - "heat values" for events
  - The only pollutant that you can report in "curies" is radionuclides
- Clarification on acceptable ranges for stack parameters -deleted several duplicate QA checks for stacks
- New event critical errors for checks on presence and validity of staging codes, and valid emission calculation method code
- Ag fires (nonpoint) numerous activity values required if submitting data

EPA Completeness Feedback

- Back by popular demand for 2017 NEI!
- Available via EIS Gateway to SLT agency staff + EPA Regional Offices –can run yourself
- Viewable only to your own agency
- Letters to local air directors after 2017 NEI release –based on final completeness reports by data category

EPA Completeness Check Criteria

- Point: All facilities with operating status OP (operating) reported, with % completeness based on SCC/expected CAPs, voluntary HAPs noted but no impact to %
- Nonpoint: Completion of simplified NP Survey, w/ similar % completeness criteria and caveats as PT
- Onroad/Nonroad: Based on agency submitting inputs or accepting EPA data
- Events: Similar to mobile, but if submit emissions, completeness based on ALL pollutants EPA estimates: CAPs, HAPs and GHGs.

Example Feedback Report

Data Category	Status	Percent Complete[1]	Voluntary HAP level[2]	What to do
Point sources	75% of facilities reported	60%	Modest	Report remaining facilities or indicate facility shutdowns. Reporting all expected criteria pollutants for reported SCCs or correct SCCs.
Nonpoint sources	Survey submitted, Data partly complete	80%	High	Report remaining expected criteria pollutants for SCCs reported.
Onroad mobile sources	Inputs not provided	0%	No data	Submit model inputs or accept EPA inputs/emissions.
Nonroad equipment sources	Inputs not provided	0%	No data	Submit model inputs or accept EPA inputs/emissions.
Events	Inputs provided EPA data accepted	200%	High	

2017 NEI Plan: Point

- Submit edits/adds to facility inventory and then point emissions inventory
  - NOT necessary to resubmit entire facility inventory each cycle
  - If release point coordinates, types, or site coordinates aren't changing, or do not have unit type in your system, leave EIS as-is
- Inclusion of GHG (CO2, CH4, N20, SF6) from GHG Reporting Program (GHGRP)
  - SLT data for same GHG pollutants not in GHGRP, but GHGRP takes precedence
  - Mostly facility-level, perhaps unit-level CO2 where EPA Clean Air Markets Division estimates
  - Using actual mass via CO2-equivalent conversions where necessary
- New fugitive source characterization –based on NATA TSD
- Refer to 2017 Draft NEI Plan for best practices

2017 NEI Plan: Nonpoint

- New staggered 3-category schedule (earliest first) for EPA tools
  1) No PT subtraction, minimal changes to existing methodology
  2) No PT subtraction, more resources to methodology
  3) PT reconciliation required, leverage 2017 PT data in final version
- Full list of all tools/EPA estimates in plan
- Early engagement on Cat 1 and 2 tools
- See Mason et al. presentation in "Point and Nonpoint" Session 3 for more

2017 NEI Plan: Nonpoint Success

- Early and engaged review of NEMOs –NOMAD meetings
- Focus limited resources on tools/sectors requiring PT reconciliation
- Accurate and on-time NP survey
- Submit accurate and correctly-formatted inputs for EPA tools where desired
- Understand how Option Group/Option Set will be used in NEI Selection –see Appendix 4

Option Group/Option Set -Background

- Using SCC Group rules for Nonpoint Data Category Selection
- Purpose: prevent potential overlap/overestimate of NEI emissions intra-dataset and between EPA and SLT submittals
- Option Group (OG): General category name for grouping of SCCs
- Option Set (OS): With OG, defines how SCC relates to others in same OG, values are <XnY> where,
  - X = "Level-1" category, mandatory when OG is populated. Expected values of "A", "B", "C", etc., with "A" being highest in hierarchy
  - n = "Level-2" identifier, an optional subgroup of Level-1 category (X). Expected values of "1", ,"2", "3", etc.
  - Y = "Level-2 ranking", optional hierarchal values if Level-2 identifier assigned. Expected values of "A", "B", "C", etc., with "A" being highest in hierarchy

Option Group/Option Set –Gritty Details

- Any Level-1 Category “A” grouping will outrank any Level-1 Category “B” grouping, regardless of the length
- Within a given Level-1 Category, those with only 1 character will outrank any grouping that has more than 1 character
- All Level-2 identifiers within the same Level-1 Category will be have equal ranking
- Within a Level-2 Identifier set, the Level-2 Ranking will be based alphabetically, with “A” being the highest value and “Z” being the lowest value
- Only the highest ranking values within the set is chosen for the selection. Multiple SCCs may have the same ranking values, and all values with the same ranking will be selected

Option Group/Option Set –Example 1

Option Group	Option Set	SCC	Description
Ind_Dist_ICI	A	2102004000	Total: Boilers and IC Engines
Ind_Dist_ICI	B	2102004001	All Boiler Types
Ind_Dist_ICI	B	2102004002	All IC Engine Types

- If agency reports all 3 SCCs, only emissions from Option Set "A" will be selected (in NEI)
- If agency reports both "B" SCCs, but no "A" SCC, then both "B" SCCs selected
- Can and do flip assignments to make "specific" SCCs "A" and more general SCCs "B"
- See 2017 Draft NEI Plan Appendix 4 for full "draft" OG/OS assignments

Option Group/Option Set –Example 2

Data Set Name	Data Set Priority
SLT Data Set	1
EPA Data Set	2

- Typical NEI Selection: SLT data has hierarchy over EPA data
- Sample data supplied by SLT and EPA for various SCCs within same Option Group
- Done by-pollutant: Highest-ranking data set in hierarchy takes precedence over highest Level-1 Option Set assignment –subject to NEI/NOMAD review

SCC	Option Group	Option Set	SLT Data Set Reported?	EPA Data Set Reported?	Selected?
2610000100	Open Burning Leaf	A		Y	No
2610000110	Open Burning Leaf	B	Y		Yes
2610000120	Open Burning Leaf	B		Y	No
2610000130	Open Burning Leaf	B	Y		Yes

Option Group/Option Set –Example 3

SCC	Option Group	Option Set	SLT Data Set Reported?	Selected?
2294000000	Paved Roads	A		
2294000002	Paved Roads	B		
2294005000	Paved Roads	B1A	Y	Yes
2294005001	Paved Roads	B1B	Y	No
2294010002	Paved Roads	B2B		
2294015000	Paved Roads	B3A		
2294015001	Paved Roads	B3B	Y	Yes

- Simplified data hierarchy but more complicated Option Set assignments

2017 NEI Plan: Revised Nonpoint Survey

- Original survey developed for 2014v1 NEI had numerous questions and ASCII answers
- With use of Option Set/Option Group, new survey basically limited to:
  - ***Do you want to use EPA estimates for this SCC?***
  - If no, because of any of the following:
    - You have this source and are submitting data,
    - You do not have this source, or,
    - You have this source but it is completely covered in the Point inventory
- New NP survey will default to "Yes" except for Industrial and Commercial/Institutional Fuel Combustion, which will default to "no"

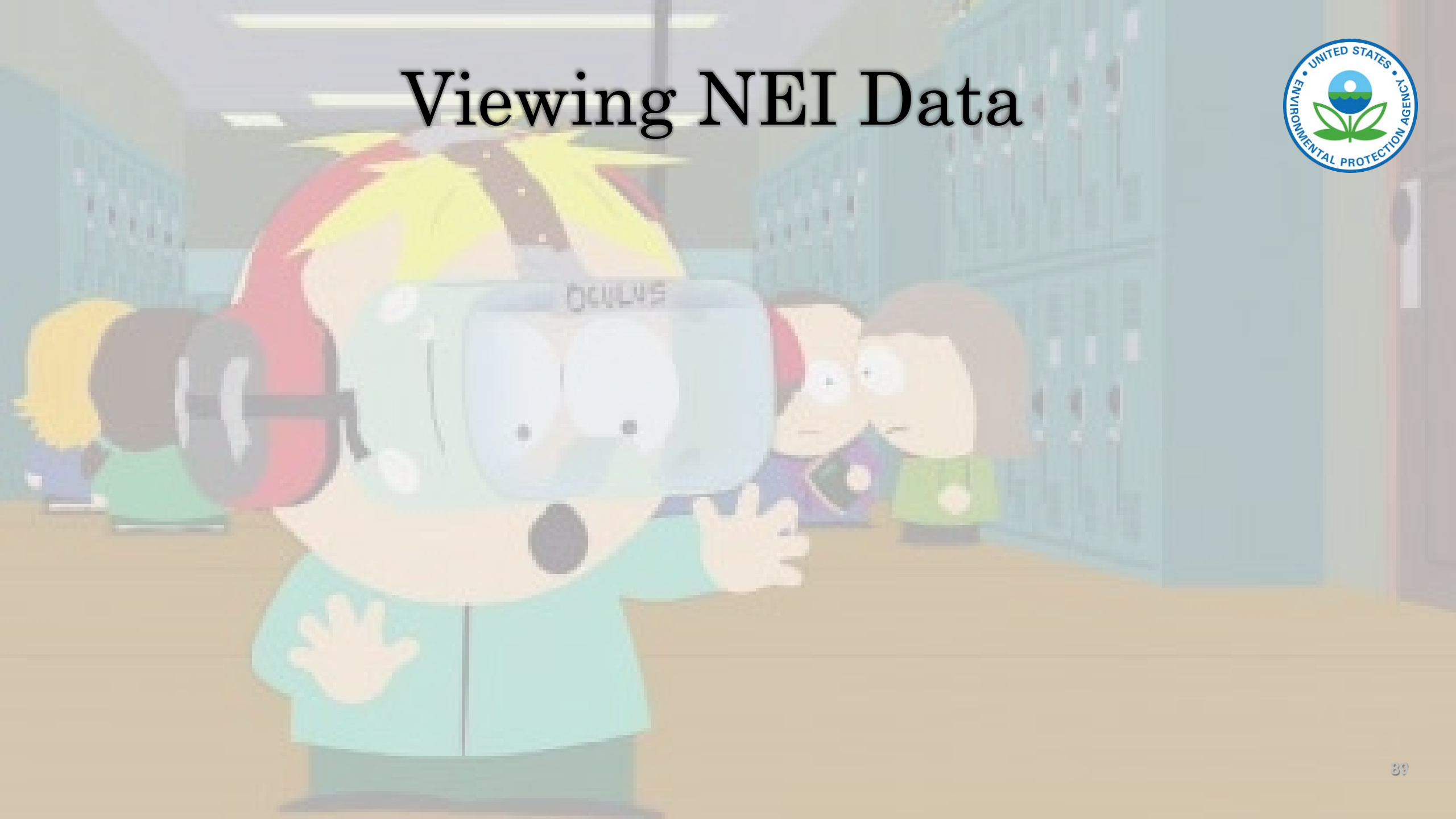
2017 NEI Plan: Nonpoint Survey Caveats

- Default if SLTs do not submit NP Survey: EPA estimates used if SLTs do not submit emissions in Option Group. No more (ideally) manual EPA tags!
- If you indicate "no" then do not properly fill out remaining option, EPA estimates likely to be used –essentially, will reset to "yes"
- ICI defaults to "no" because:
  - We expect/need PT SLT subtraction, **and**,
  - We expect nonpoint emissions for virtually every county

Comments on 2017 NEI Plan

- EIS Feedback report: Provide max/threshold EPA value in outlier check
- Nuances in Option Set/Option Group –e.g., Pb mines vs EPA total
- Clarification on emissions vs inputs submission for NP schedule
- PM components requirements in NEI: PM-CON vs PM25-PRI/PM10-PRI
- Show how to EIS-access sub-annual emissions where available
- Lots of typos
- Others?

Viewing NEI Data



Viewing NEI Data

- Public and Internal/SLTs -for inventory developers
- SLTs: Use EIS for intermediate products/resources –before draft selection available (e.g., EPA datasets, TRI IDs, tagged emissions values, HAP aug ratios/data, Option Set/Option Group assignments, etc…)
- Public: NEI Homepage

https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

  - Data and Documentation sites for each triennial NEI: 2008, 2011, 2014, 2017
  - Data includes:
    - EIS sector (60) query tool: individual CAPs and HAPs at national, state or county-level
    - Tier 1 (14) tool: CAPs only at national, state or county-level
    - SCC summaries for each data category (e.g., Point, Onroad, Nonroad, Nonpoint)
    - Tribal Lands summaries by sector and Tier 1
    - Other summaries: fires by county/SCC, facility/pollutant-level, others

DOCUMENTATION

- NEI Documentation
  - Technical Support Documentation (TSD) + supporting data
  - NEI Report
  - NEI Plan + Appendices
  - Various resources for SLTs:
    - Submittal instructions and resources for inventory developers
    - Expected pollutants list
    - Draft and interim products and analyses
  - EPA likely shifting away from using Documentation site as repository in 2017 NEI –relying more on NEI SharePoint (e.g., NOMAD subsite)

AIN'T NOBODY GOT TIME FOR THAT!

Viewing NEI Data: Inventory Developers

- The EIS (discussed earlier)
  - Reports
  - Viewing Data
- NEI SharePoint site (also discussed earlier)
  - Most-desirable place to share intermediate NEI analyses, meeting notes, etc.
  - Draft and current version of Nonpoint tools
  - NOMAD subsite
  - Links to NATA products
  - Links to EIS and NEI website

EIS on Envirofacts

- Available on the current 2014 NEI website
  - https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
  - Similar to what exists now. Queries pulled from Envirofacts.
- Available (September) on Envirofacts
  - https://www3.epa.gov/enviro/
  - Multisystem search function available at https://www3.epa.gov/enviro/facts/multisystem.html

Contact Information: Phone (919) 541-xxxx

- Point
  - Ron Ryan, ryan.ron@epa.gov, x4330
  - Laurel Driver, driver.laurel@epa.gov, x2859
    - Airports
- Mobile Sources
  - Laurel Driver, driver.laurel@epa.gov, x2859
    - On-road, Non-road
    - In Nonpoint: CMV, Rail
- Fires/Events + Ag Fires (in Nonpoint)
  - Tesh Rao, rao.venkatesh@epa.gov, x1173
- NATA and HAP Augmentation
  - Madeleine Strum, strum.madeleine@epa.gov, x2383
- EIS Support
  - Sally Dombrowski, dombrowski.sally@epa.gov, x3269
- Nonpoint
  - Jennifer Snyder, snyder.jennifer@epa.gov, x3003
    - Oil and Gas, Solvents, Gas Distribution, Commercial Cooking, Open Burning, others
  - Rich Mason, mason.rich@epa.gov, x3405
    - Residential Wood & Other Residential and ICI Fuel Combustion, Mercury, others
  - Rhonda Thompson, thompson.rhonda@epa.gov, x5538
    - Ag Fertilizer/Pesticides/Tilling
    - All dust categories
  - Lee Tooly, tooly.lee@epa.gov, x5292
    - Asphalt Paving
  - Tesh Rao, rao.venkatesh@epa.gov, x1173
    - Ag Livestock Waste

Open Q&A

Appendix: SharePoint Training

Collaboration with EPA - SharePoint

- What is SharePoint?
  - Collaboration and Document Management Tool
    - Central location for team documents and information by means of web portals
    - Centralized repository for shared documents
  - Cloud-based service
  - Available through desktop or mobile devices
  - Allows for simultaneous editing of a single document, saving previous versions and tracking updates.

Getting started

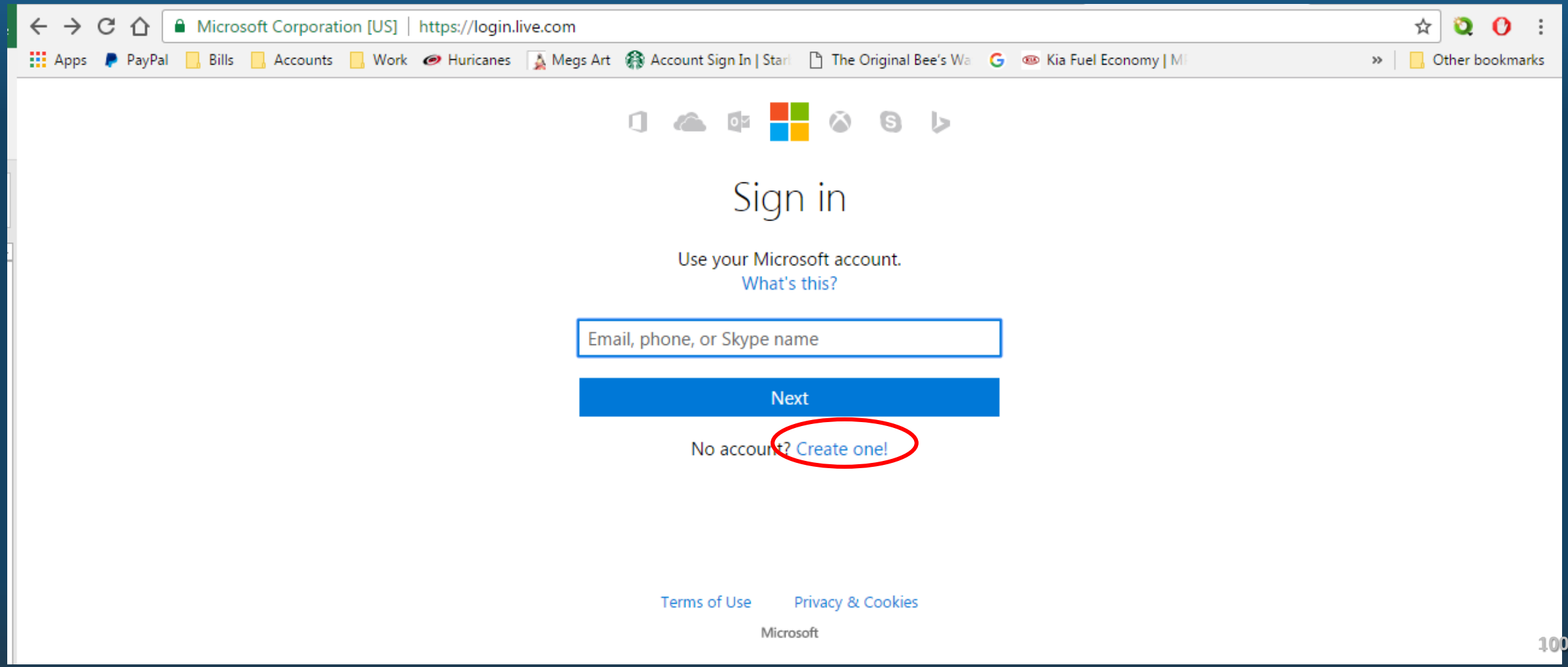
- You must first setup a “Microsoft account”
- Receive an invitation email
  - Sent from owner of SharePoint site
  - **Click link** contained in the email
  - Do not attempt to login to SharePoint
- If you have SharePoint where you work:
  - Sign out of your SharePoint account from your browser
  - In your browser cut and paste
    - https://usepa.sharepoint.com/sites/oar_Work/NEI
    - Click on link “**Sign in with a Microsoft account**” at the bottom
    - Enter your Microsoft login and password
- Book mark the SharePoint website!

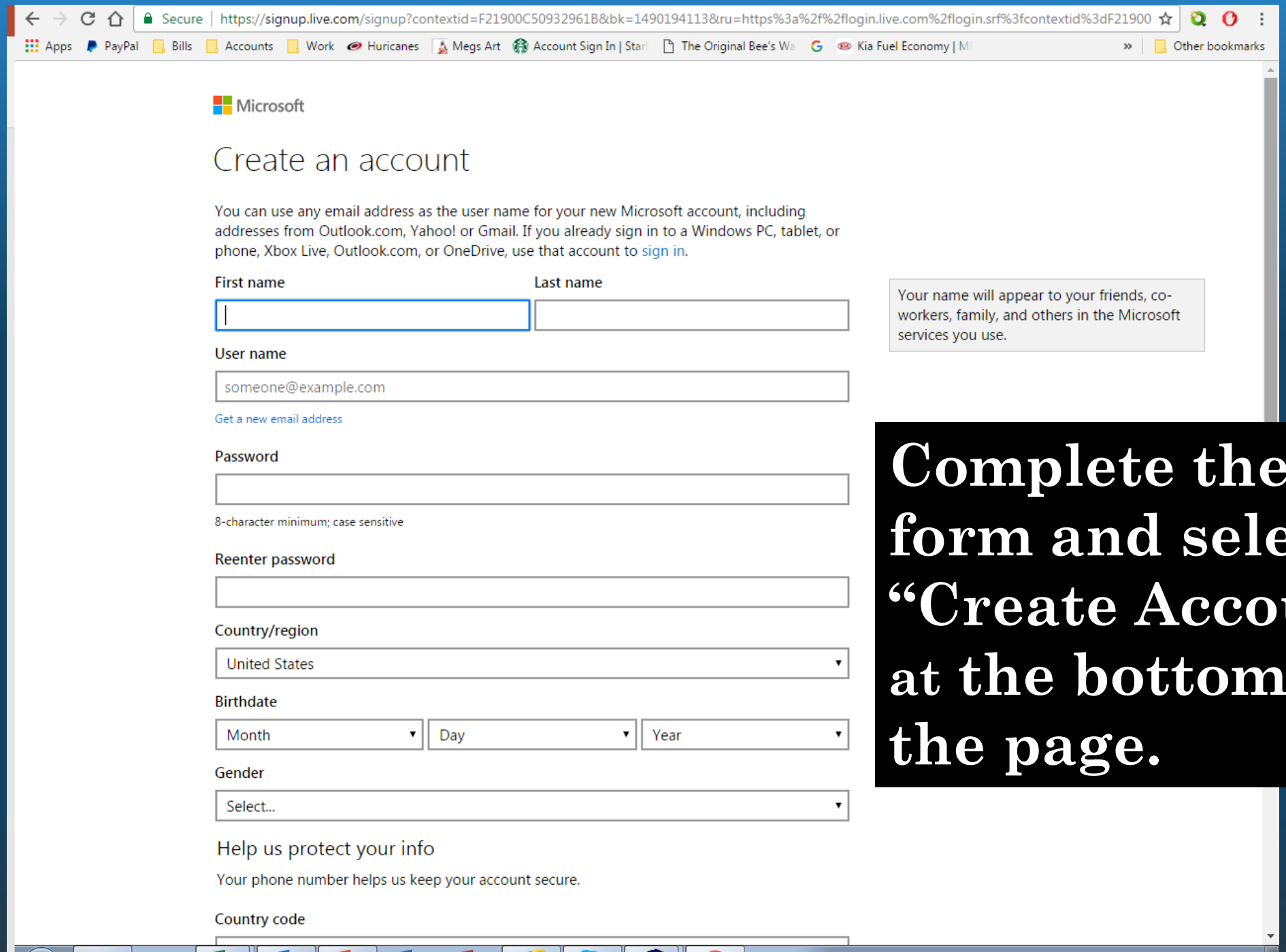
What is a Microsoft Account?

- A Microsoft Account is any login/password that you use to sign into Skype, Outlook, or OneDrive.

- If you do not have a Microsoft account:
  - In your browser go to https://login.live.com/ and select **Create one!**

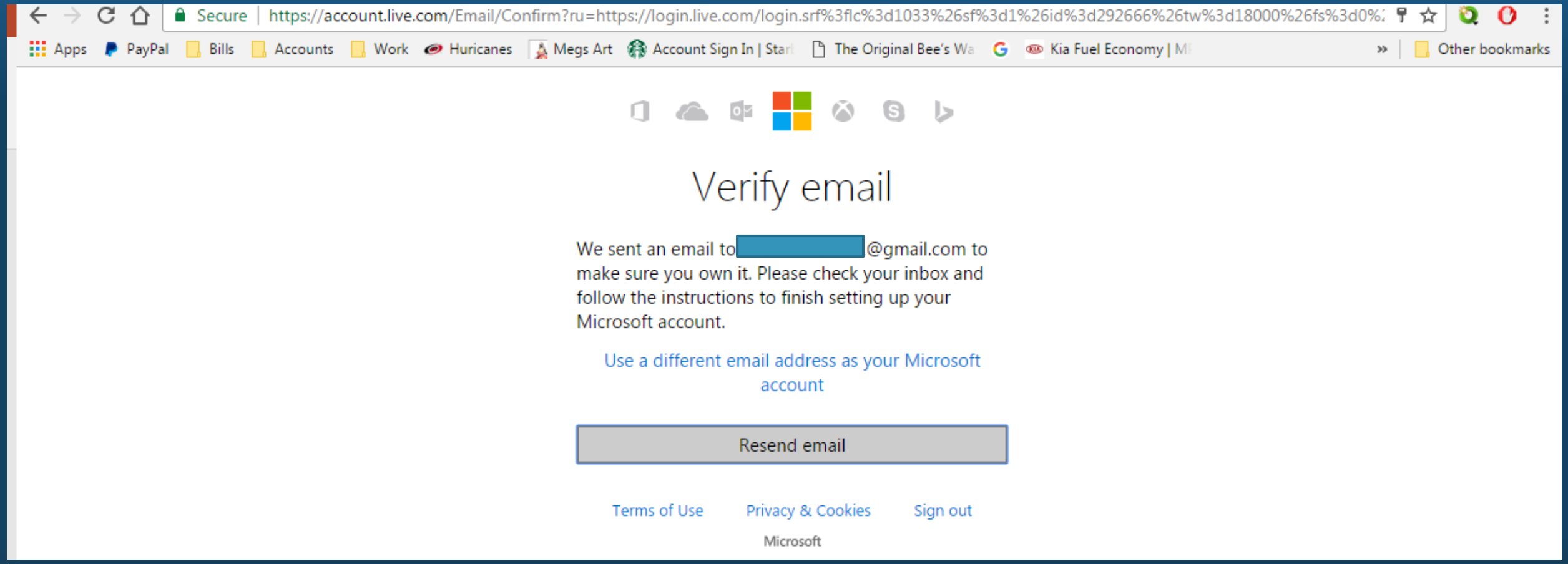
Don’t have a Microsoft account?
https://login.live.com/



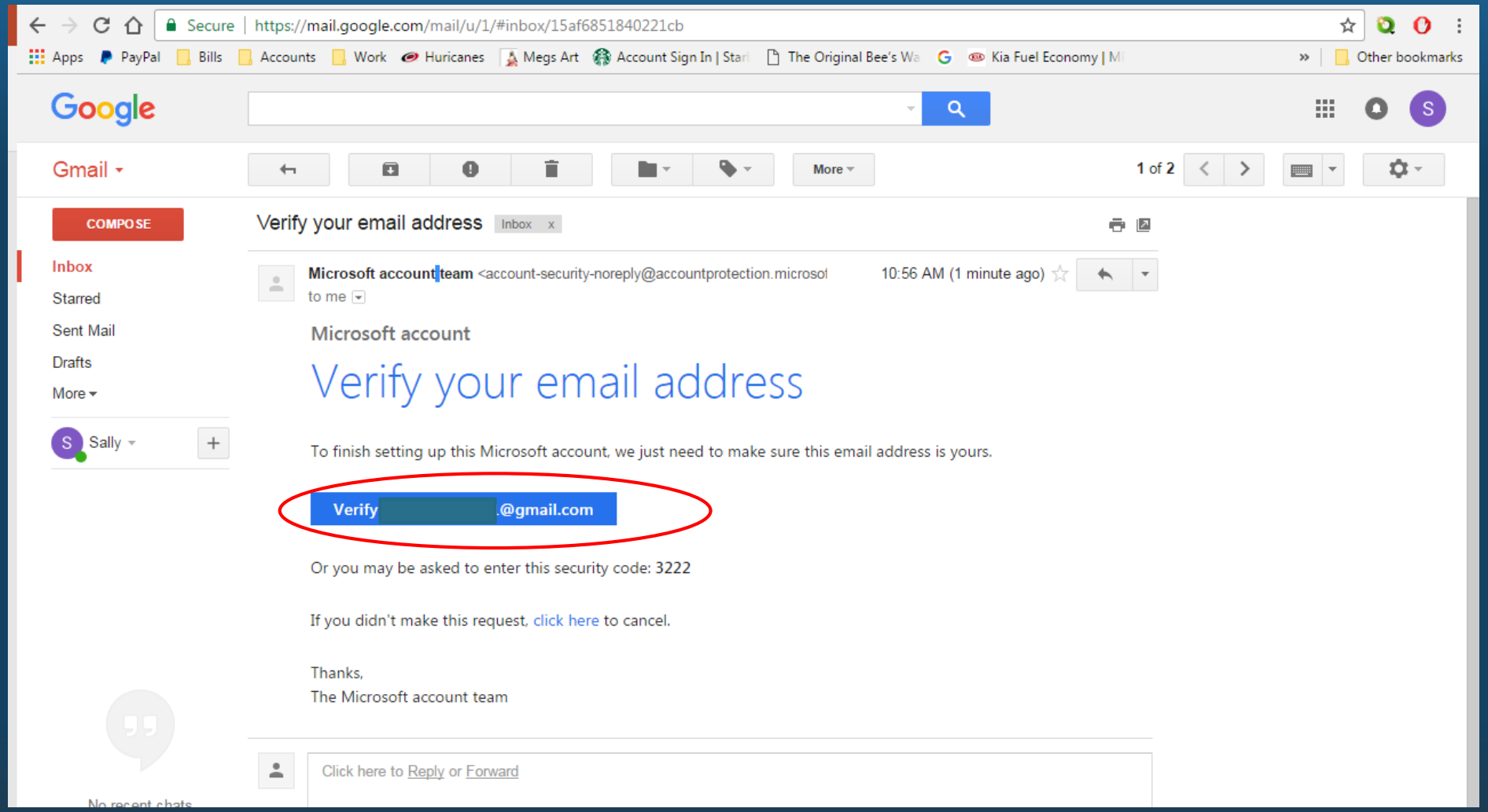


Complete the form and select "Create Account" at the bottom of the page.

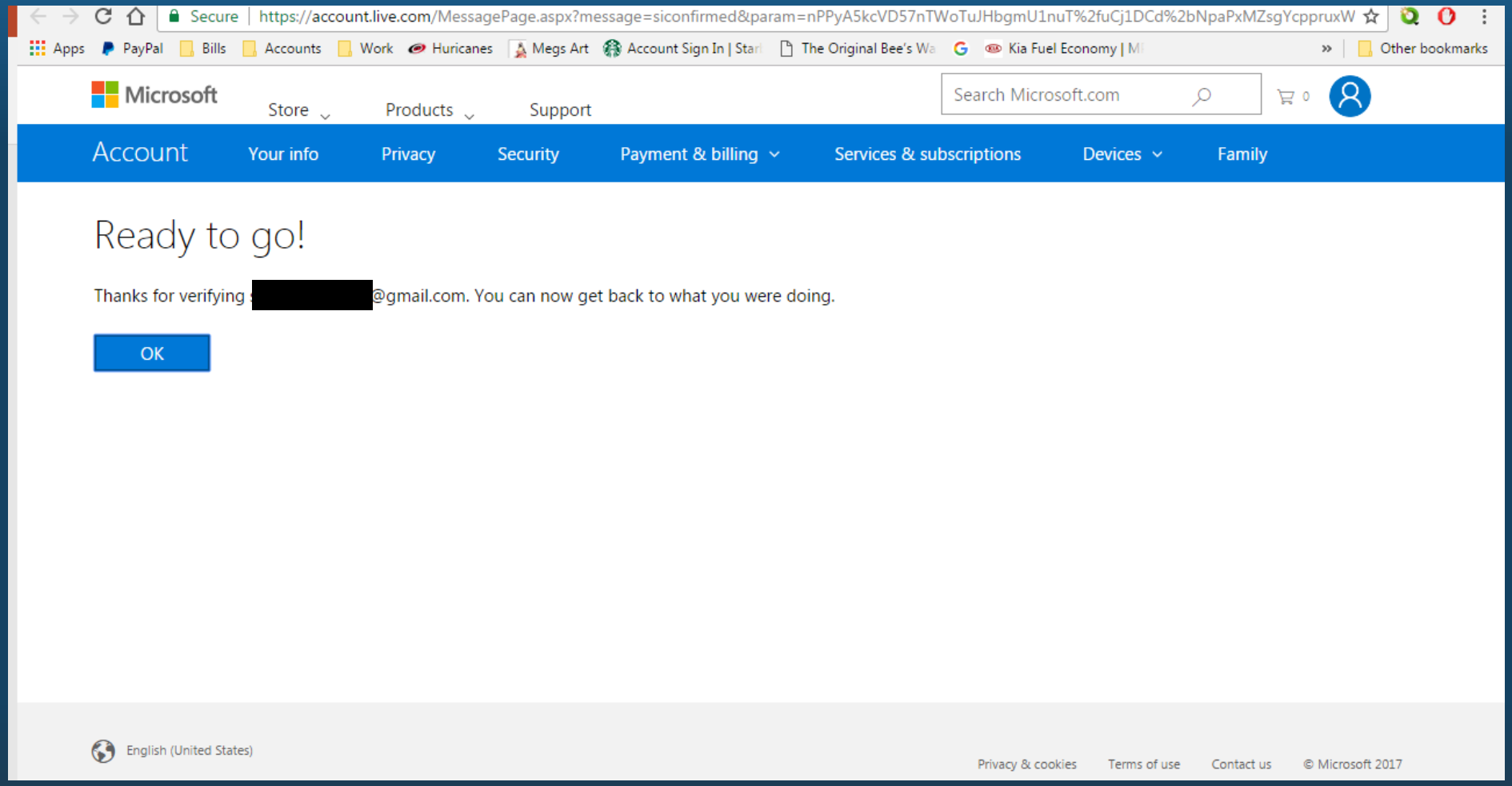
You will receive an email with instructions to verify your email



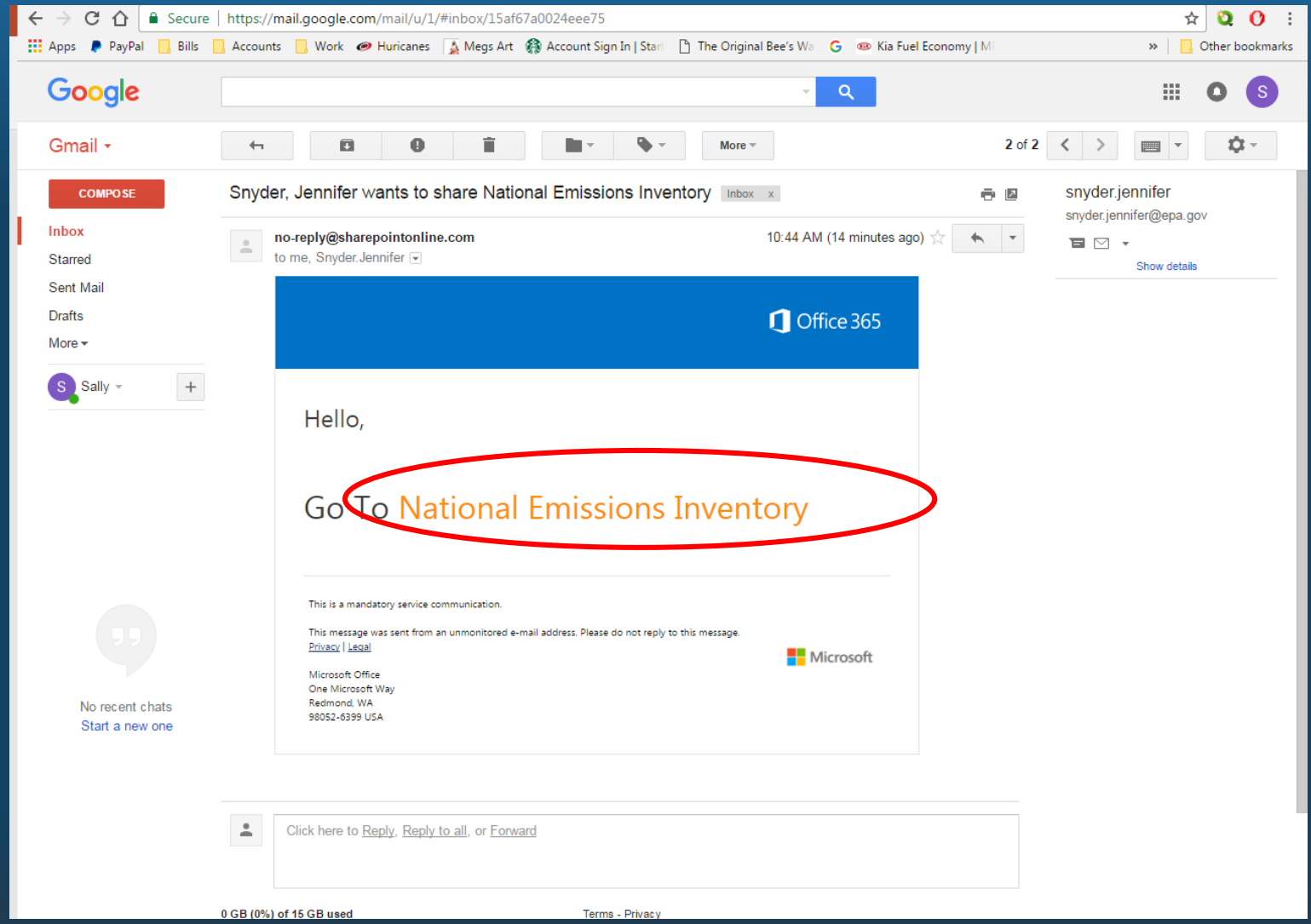
Select Link to Verify



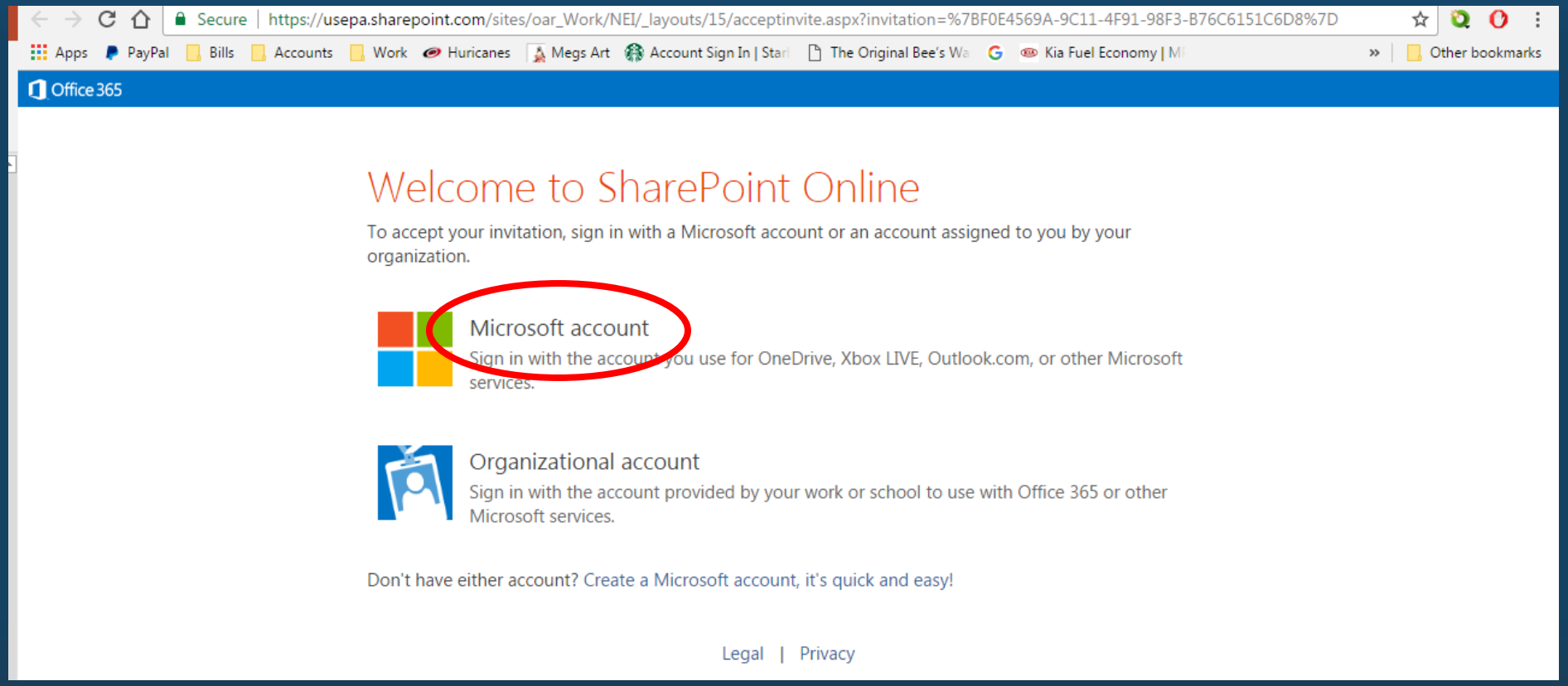
Select OK and return to original invitation email



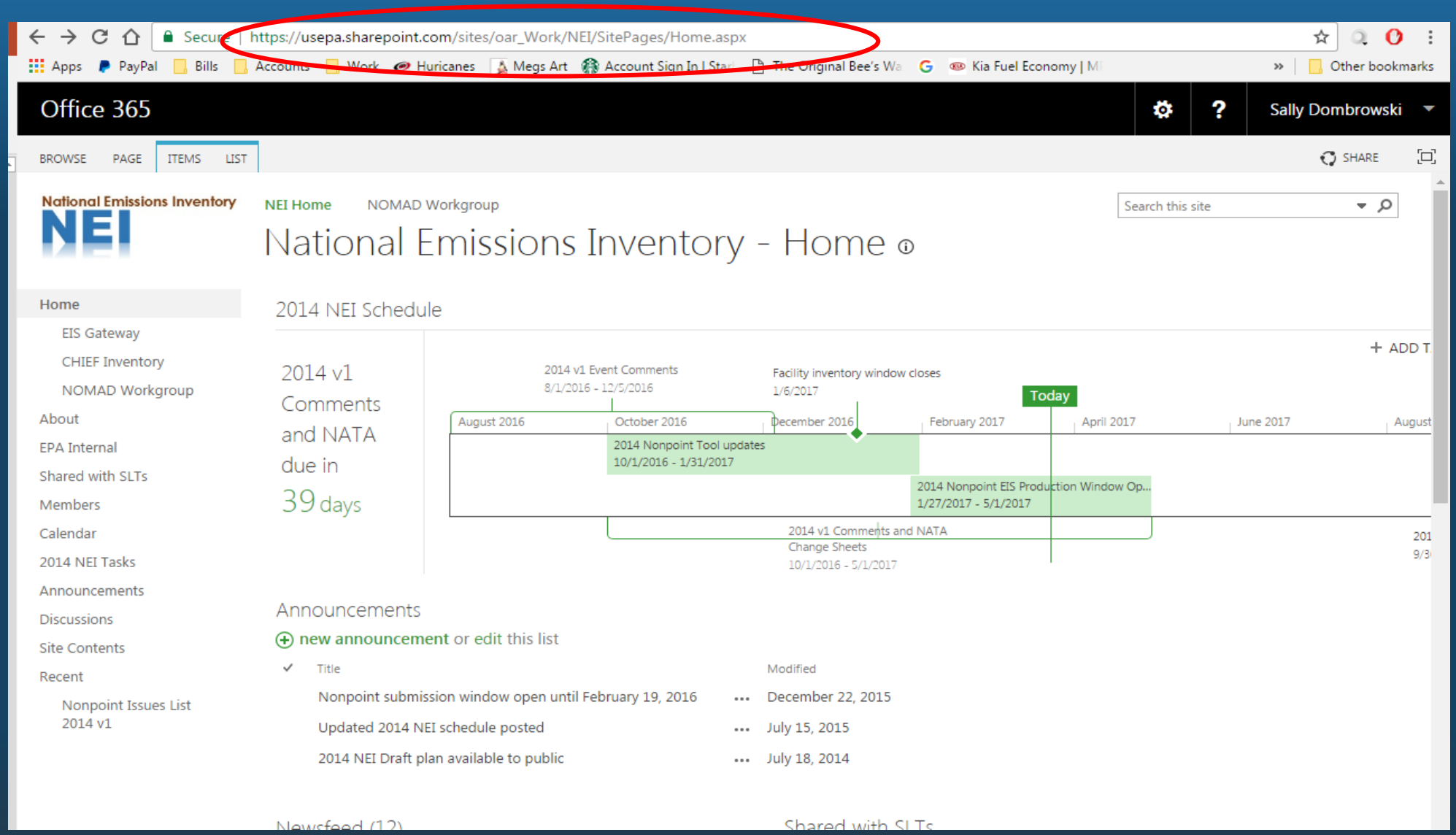
Invitation Email: select link provided



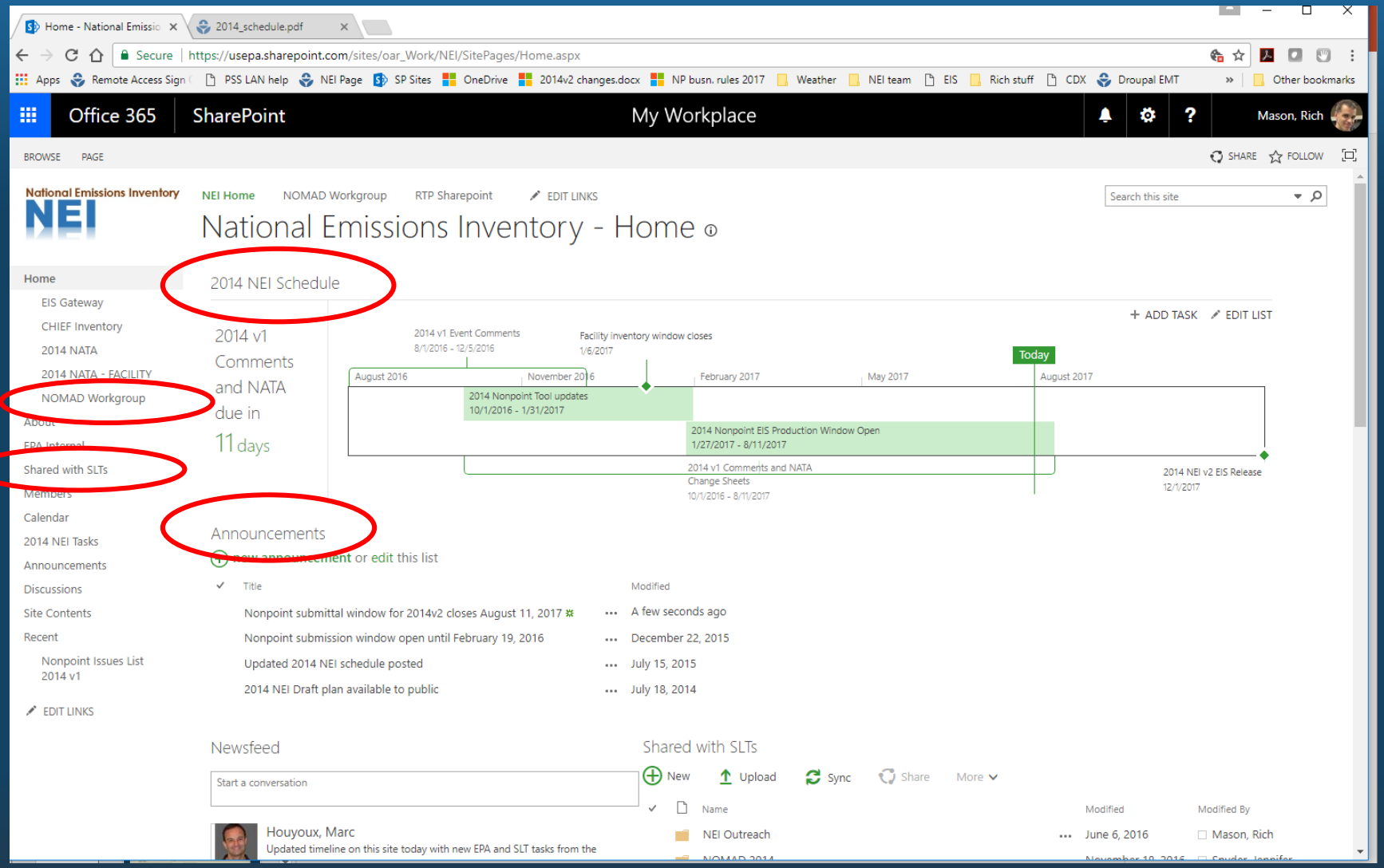
Select Microsoft Account

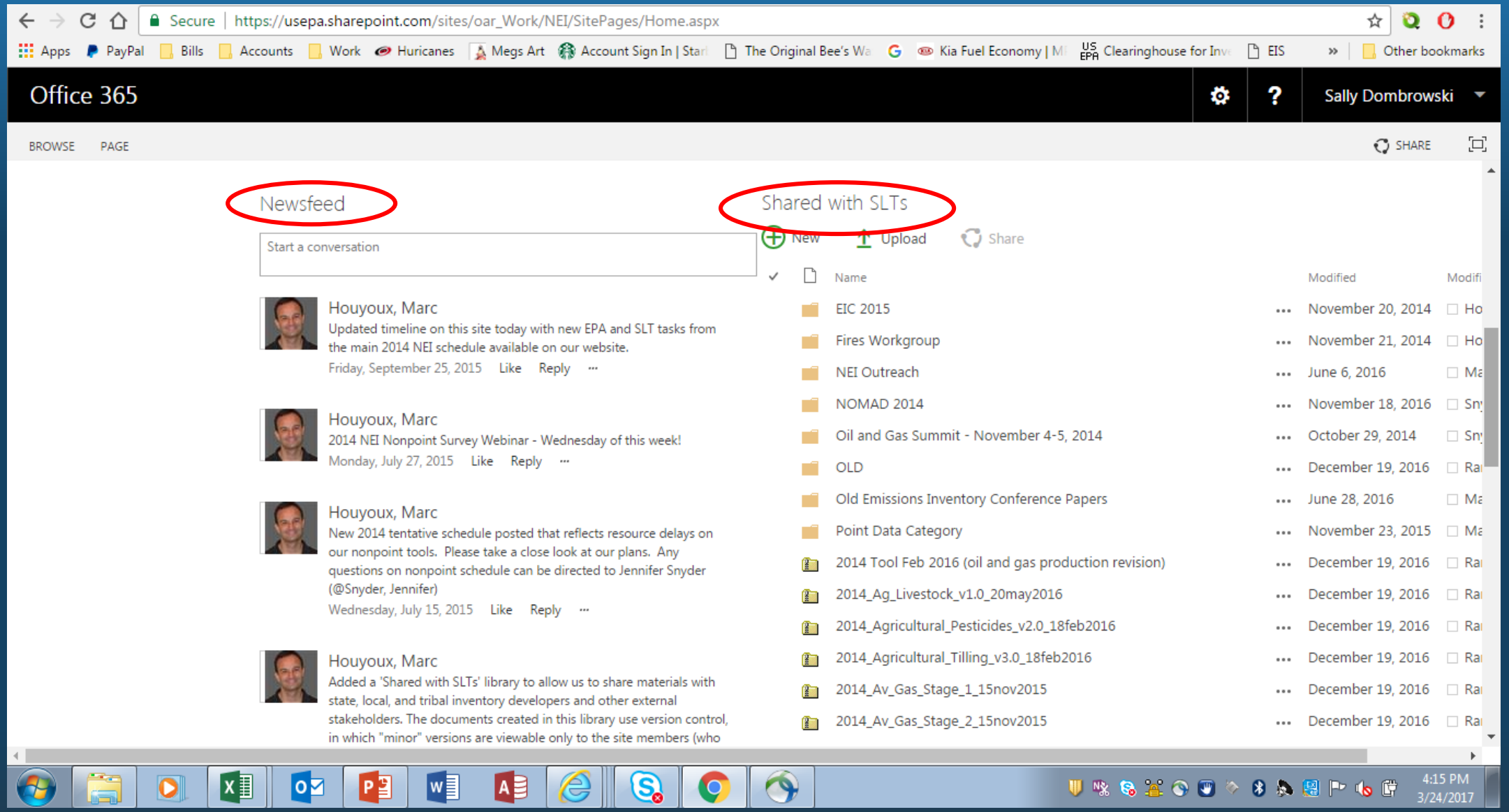


Create a Bookmark!

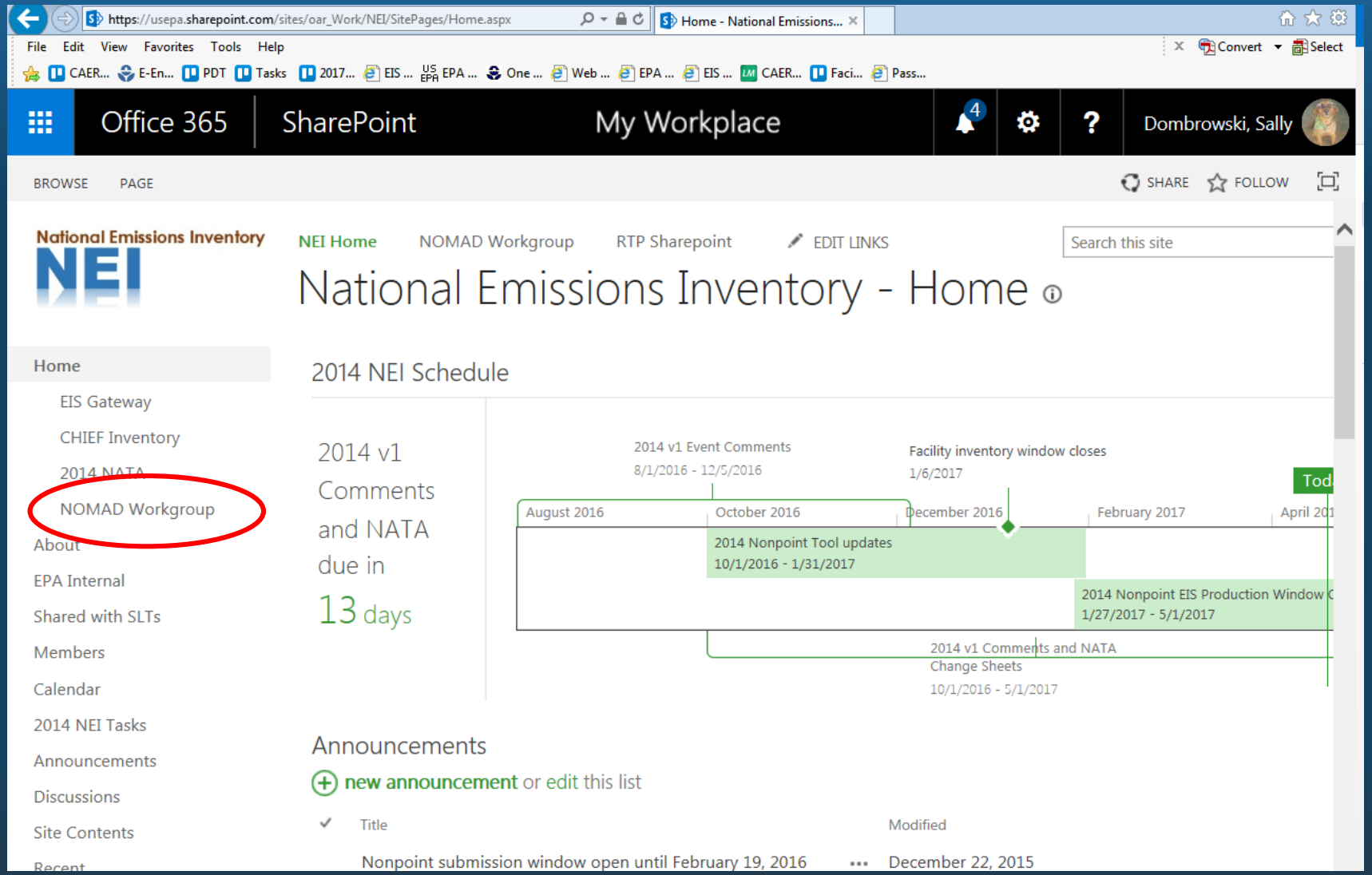


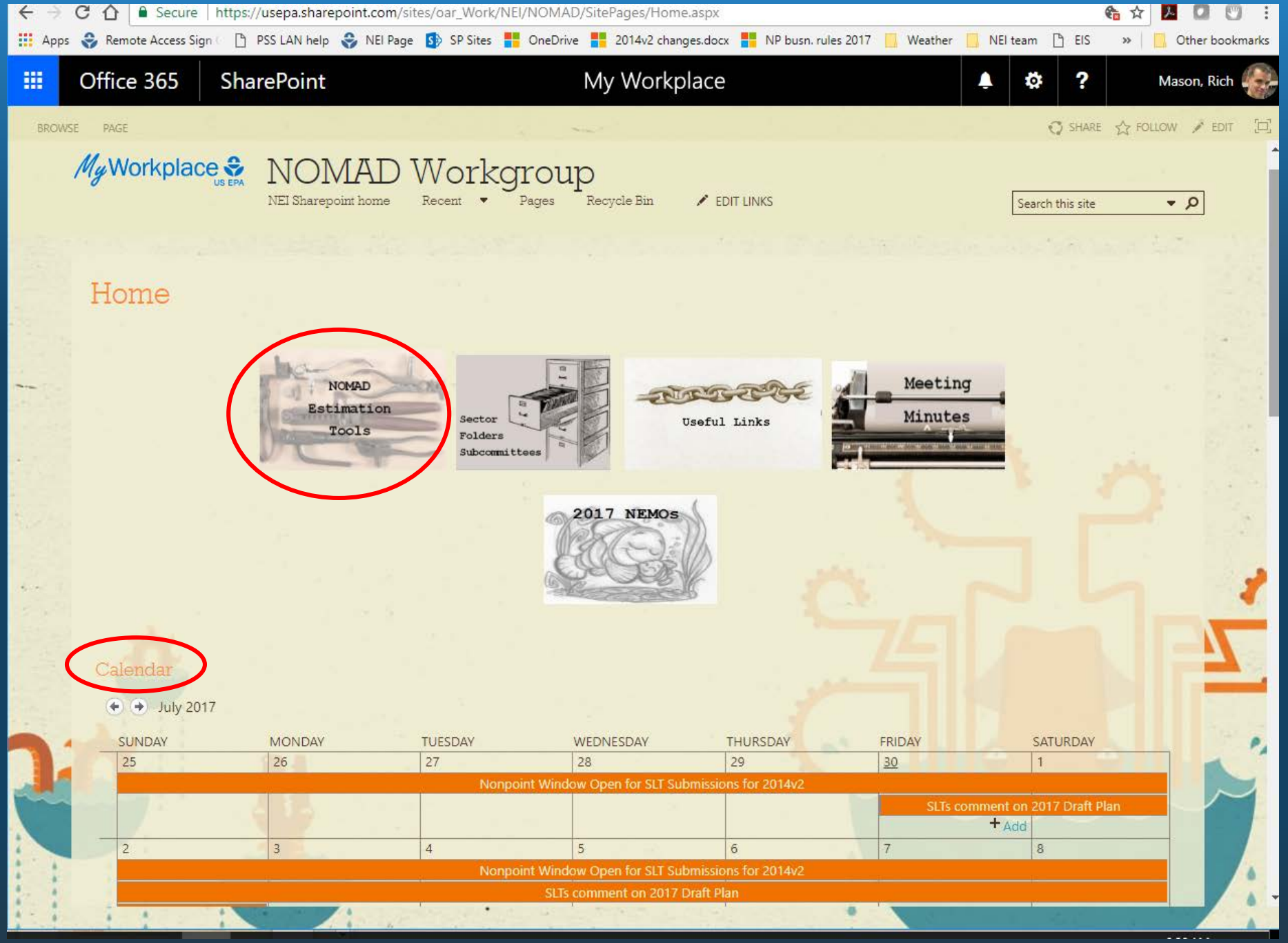
NEI SharePoint Homepage




Secure | https://usepa.sharepoint.com/sites/oar_Work/NEI/SitePages/Home.aspx
Apps PayPal Bills Accounts Work Hurricanes Megs Art Account Sign In | Star The Original Bee's Wa Kia Fuel Economy | M US EPA Clearinghouse for Inv EIS Other bookmarks
Office 365
Sally Dombrowski
BROWSE PAGE
SHARE
Newsfeed
Start a conversation
Houyoux, Marc
Updated timeline on this site today with new EPA and SLT tasks from the main 2014 NEI schedule available on our website.
Friday, September 25, 2015 Like Reply
Houyoux, Marc
2014 NEI Nonpoint Survey Webinar - Wednesday of this week!
Monday, July 27, 2015 Like Reply
Houyoux, Marc
New 2014 tentative schedule posted that reflects resource delays on our nonpoint tools. Please take a close look at our plans. Any questions on nonpoint schedule can be directed to Jennifer Snyder (@Snyder, Jennifer)
Wednesday, July 15, 2015 Like Reply
Houyoux, Marc
Added a 'Shared with SLTs' library to allow us to share materials with state, local, and tribal inventory developers and other external stakeholders. The documents created in this library use version control, in which "minor" versions are viewable only to the site members (who
Shared with SLTs
New Upload Share
Name Modified
EIC 2015 November 20, 2014
Fires Workgroup November 21, 2014
NEI Outreach June 6, 2016
NOMAD 2014 November 18, 2016
Oil and Gas Summit - November 4-5, 2014 October 29, 2014
OLD December 19, 2016
Old Emissions Inventory Conference Papers June 28, 2016
Point Data Category November 23, 2015
2014 Tool Feb 2016 (oil and gas production revision) December 19, 2016
2014_Ag_Livestock_v1.0_20may2016 December 19, 2016
2014_Agricultural_Pesticides_v2.0_18feb2016 December 19, 2016
2014_Agricultural_Tilling_v3.0_18feb2016 December 19, 2016
2014_Av_Gas_Stage_1_15nov2015 December 19, 2016
2014_Av_Gas_Stage_2_15nov2015 December 19, 2016
4:15 PM
3/24/2017

A Walk Through the NOMAD Sub-Site

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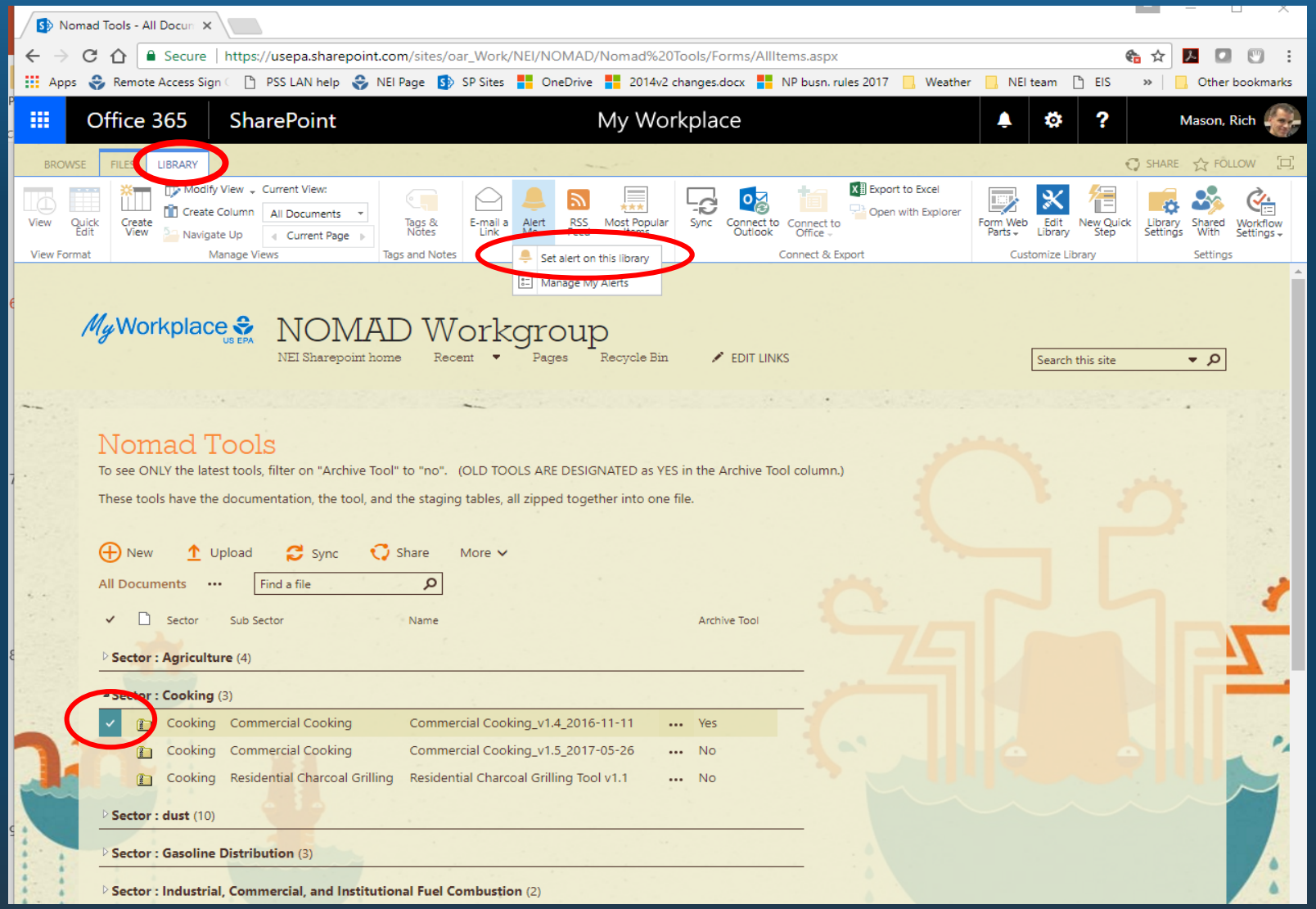
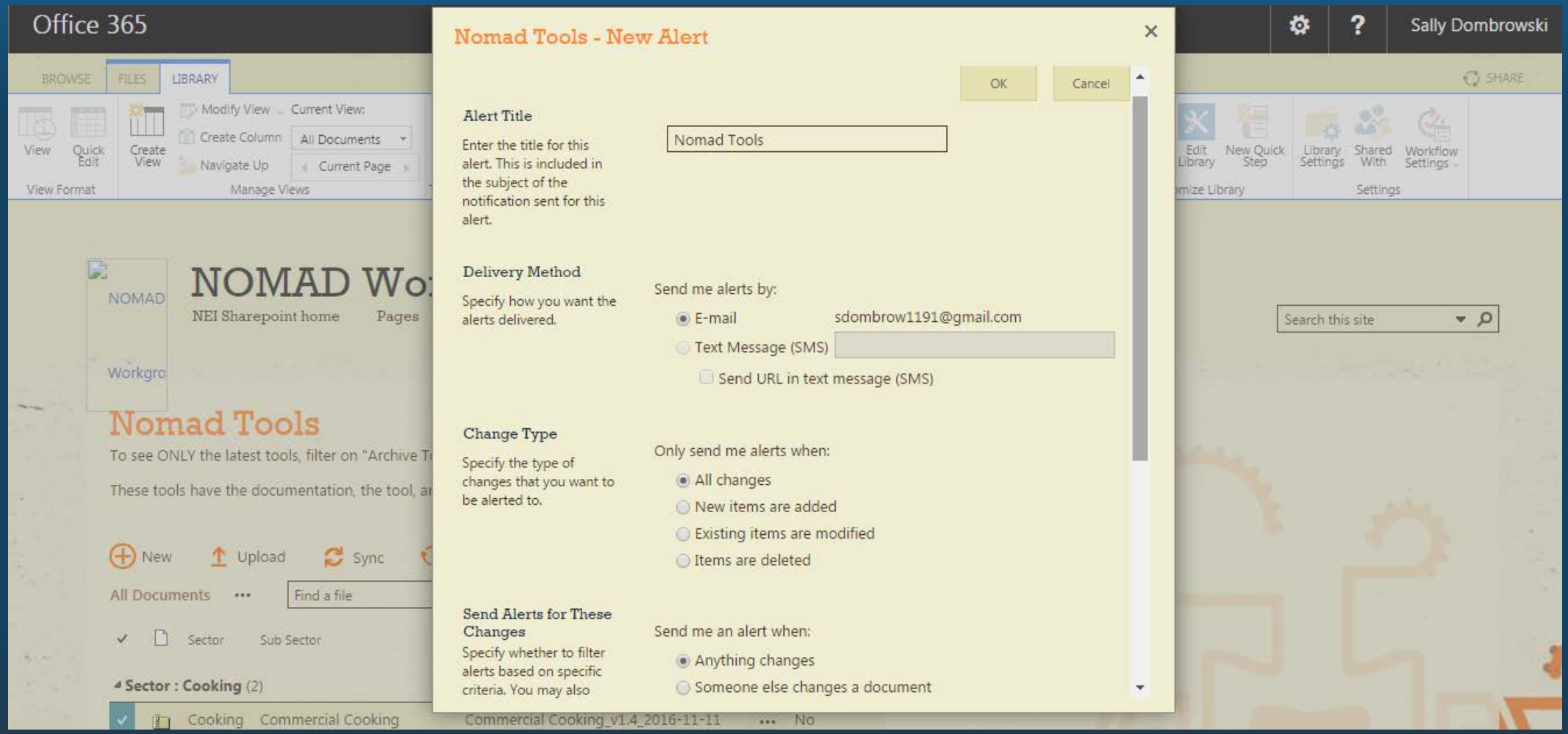
Office 365 SharePoint My Workplace Mason, Rich
BROWSE PAGE SHARE FOLLOW EDIT
My Workplace US EPA
NOMAD Workgroup
NEI Sharepoint home Recent Pages Recycle Bin EDIT LINKS
Search this site
Home
NOMAD Estimation Tools
Sector Folders Subcommittees
Useful Links
Meeting Minutes
2017 NEMOs
Calendar
July 2017
SUNDAY MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY SATURDAY
25 26 27 28 29 30 1
Nonpoint Window Open for SLT Submissions for 2014v2
SLTs comment on 2017 Draft Plan
Add
2 3 4 5 6 7 8
Nonpoint Window Open for SLT Submissions for 2014v2
SLTs comment on 2017 Draft Plan

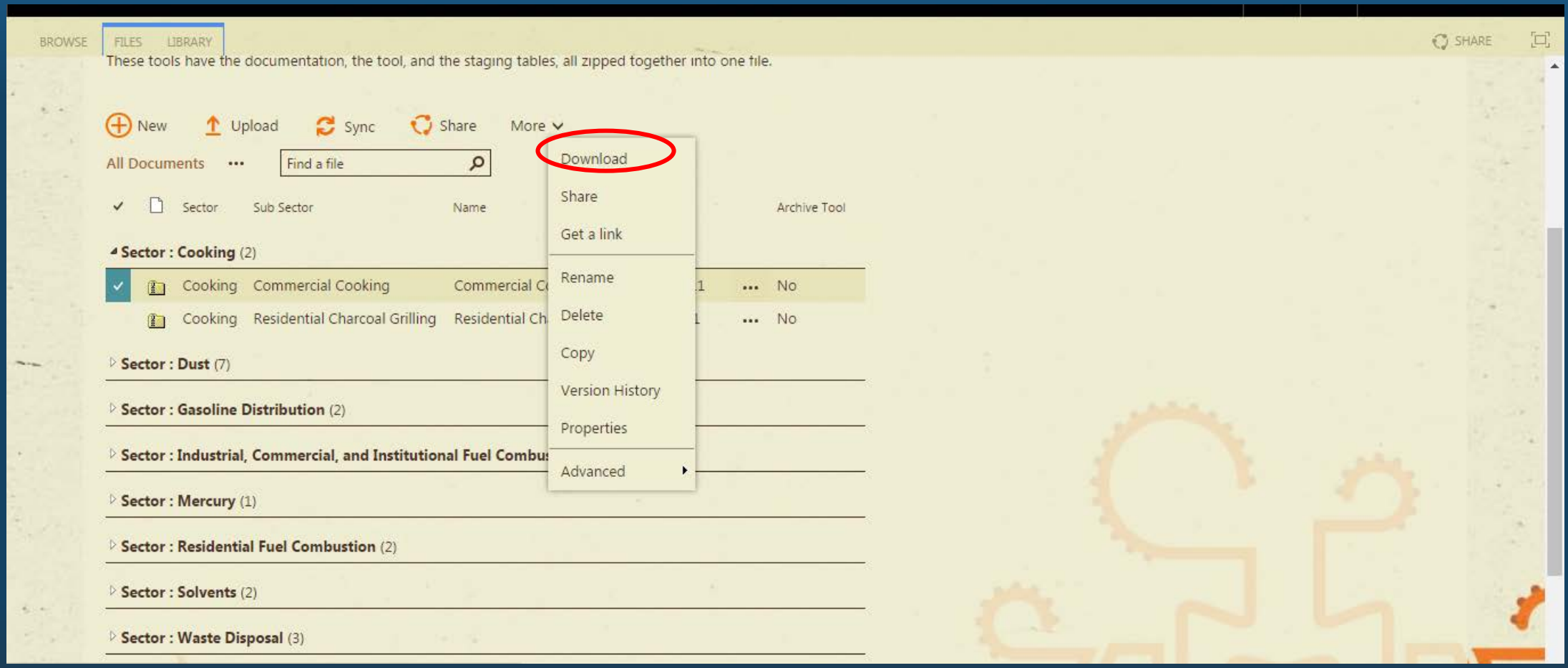
Set up Alerts on your favorite Nonpoint Tools!



SharePoint Alert Options

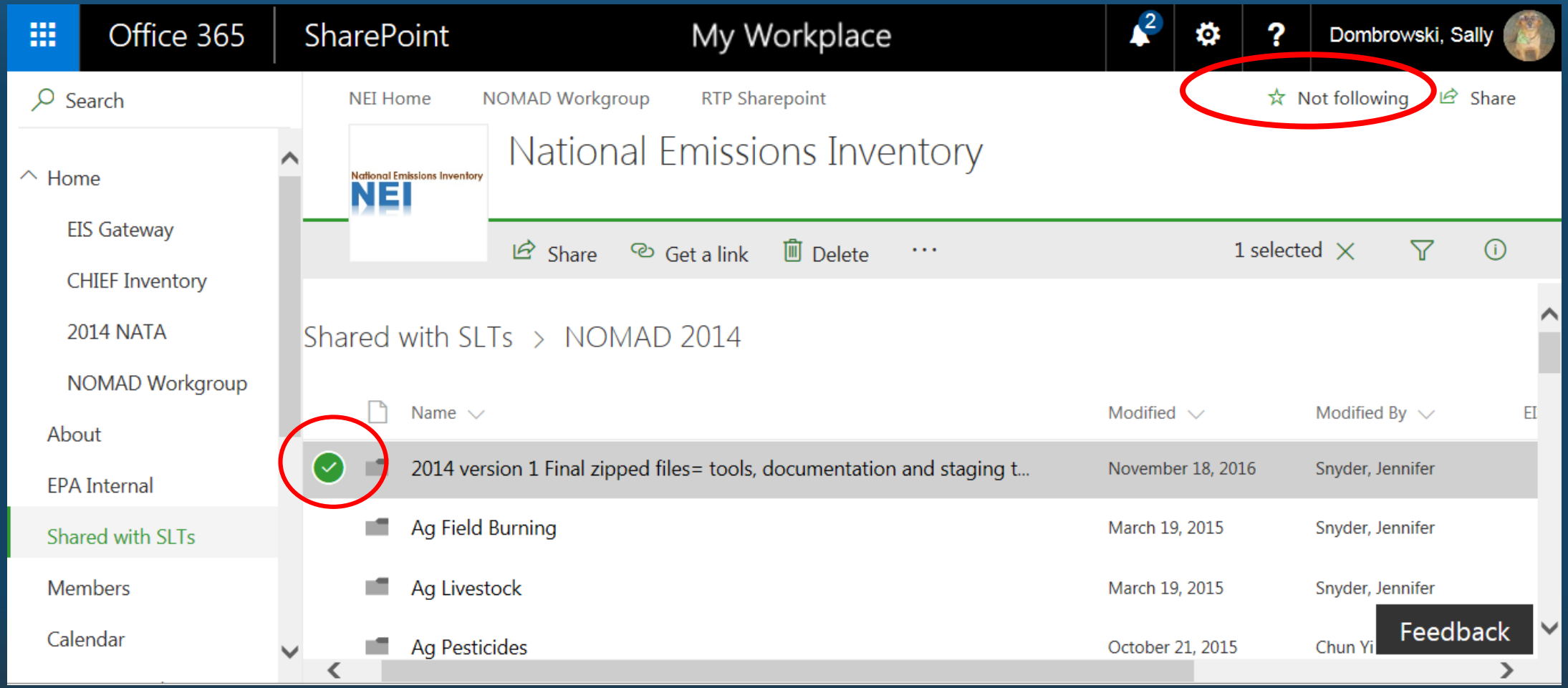


Multiple Ways to Download NOMAD Tools

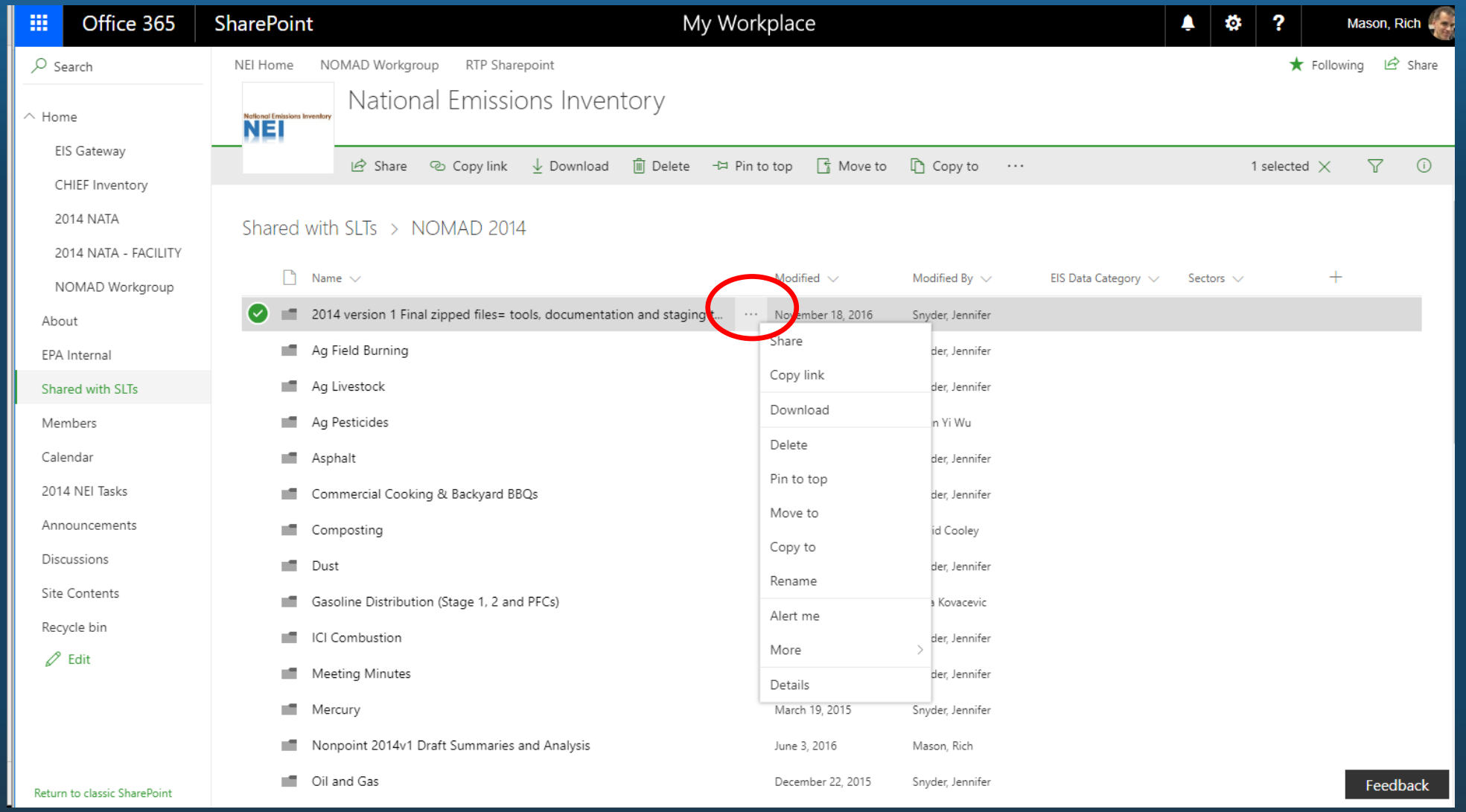


Shared Link to “Shared with SLTs”

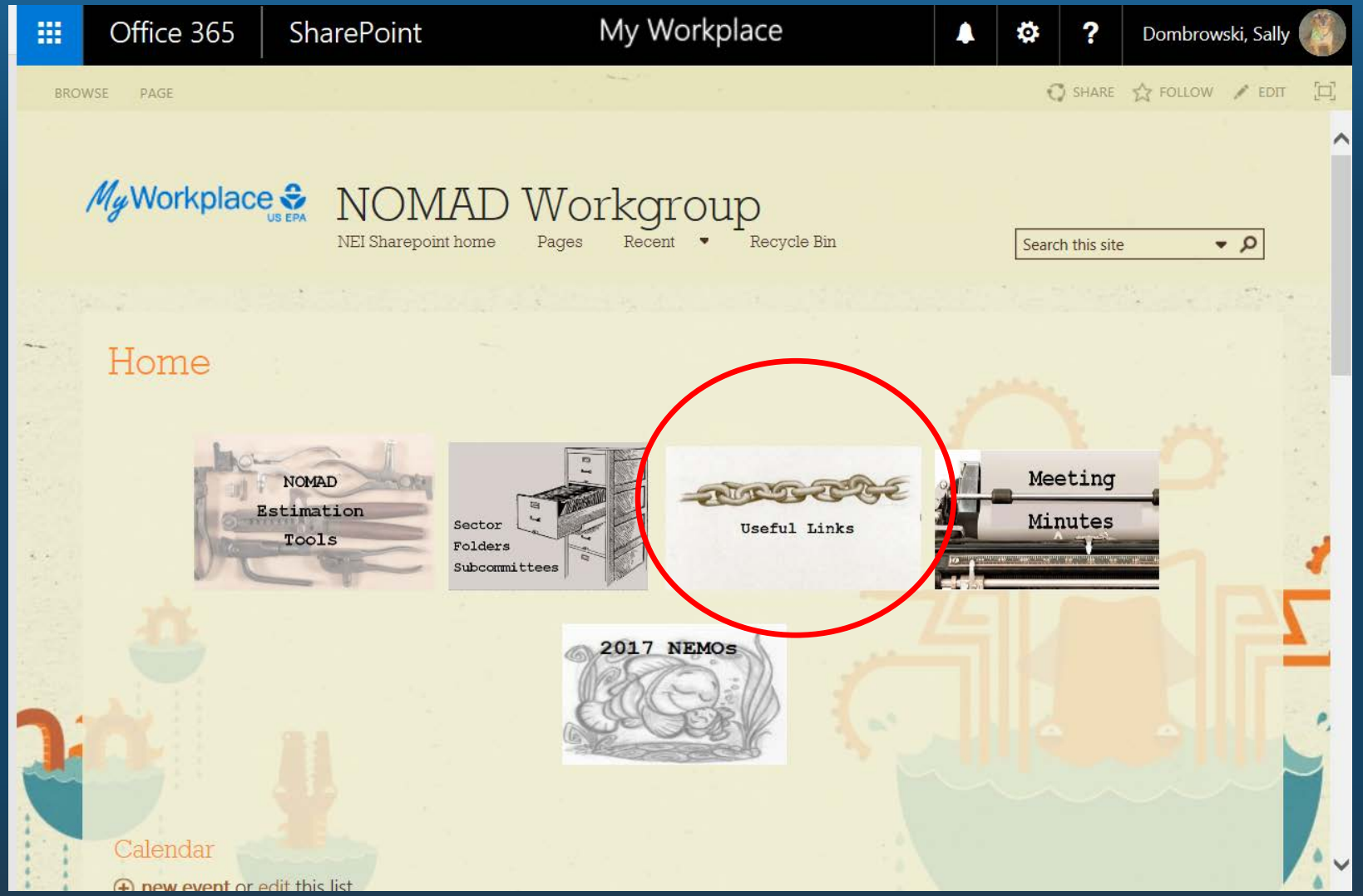
How to Follow SharePoint Pages



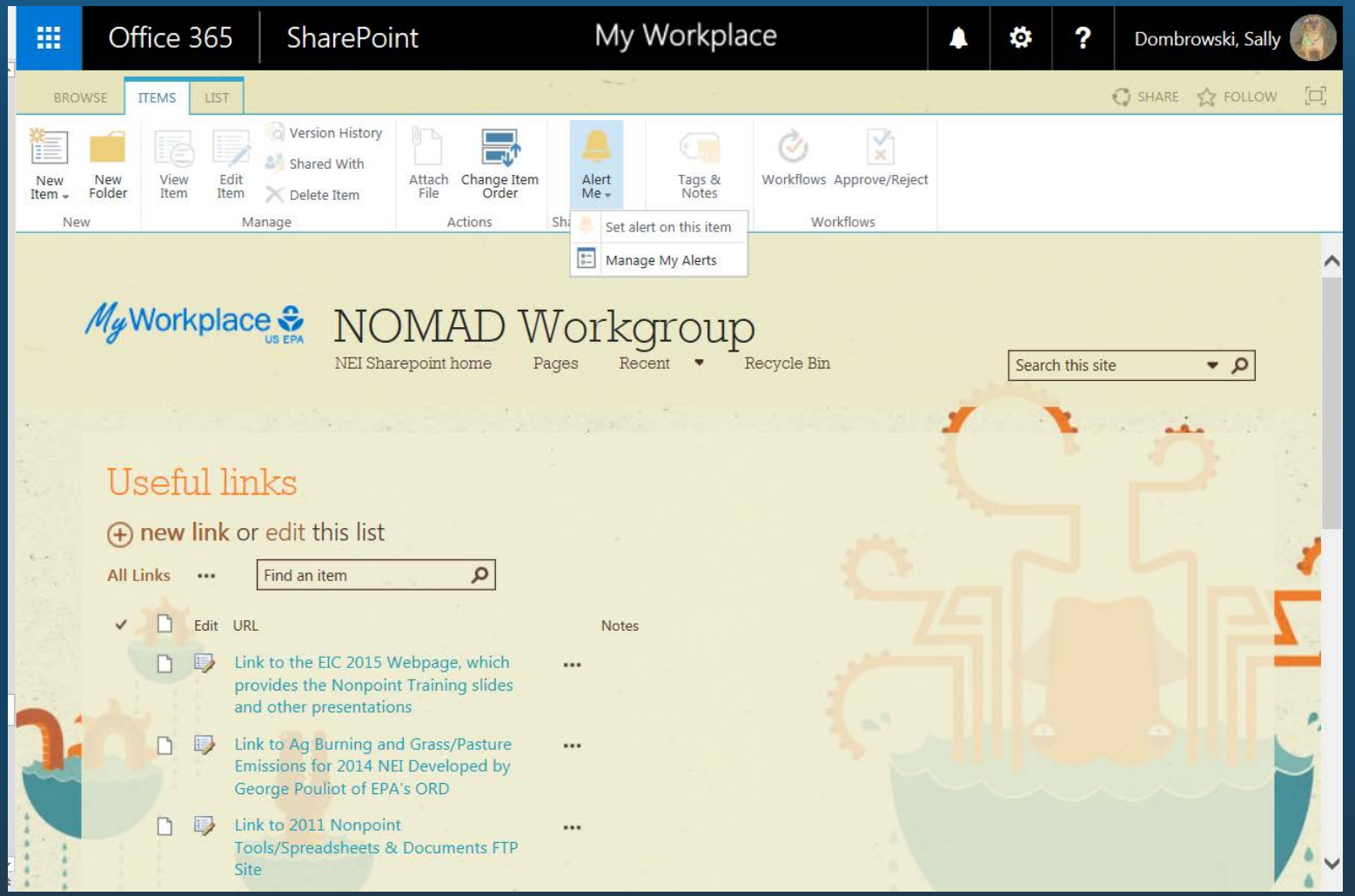
Do-it-all Button



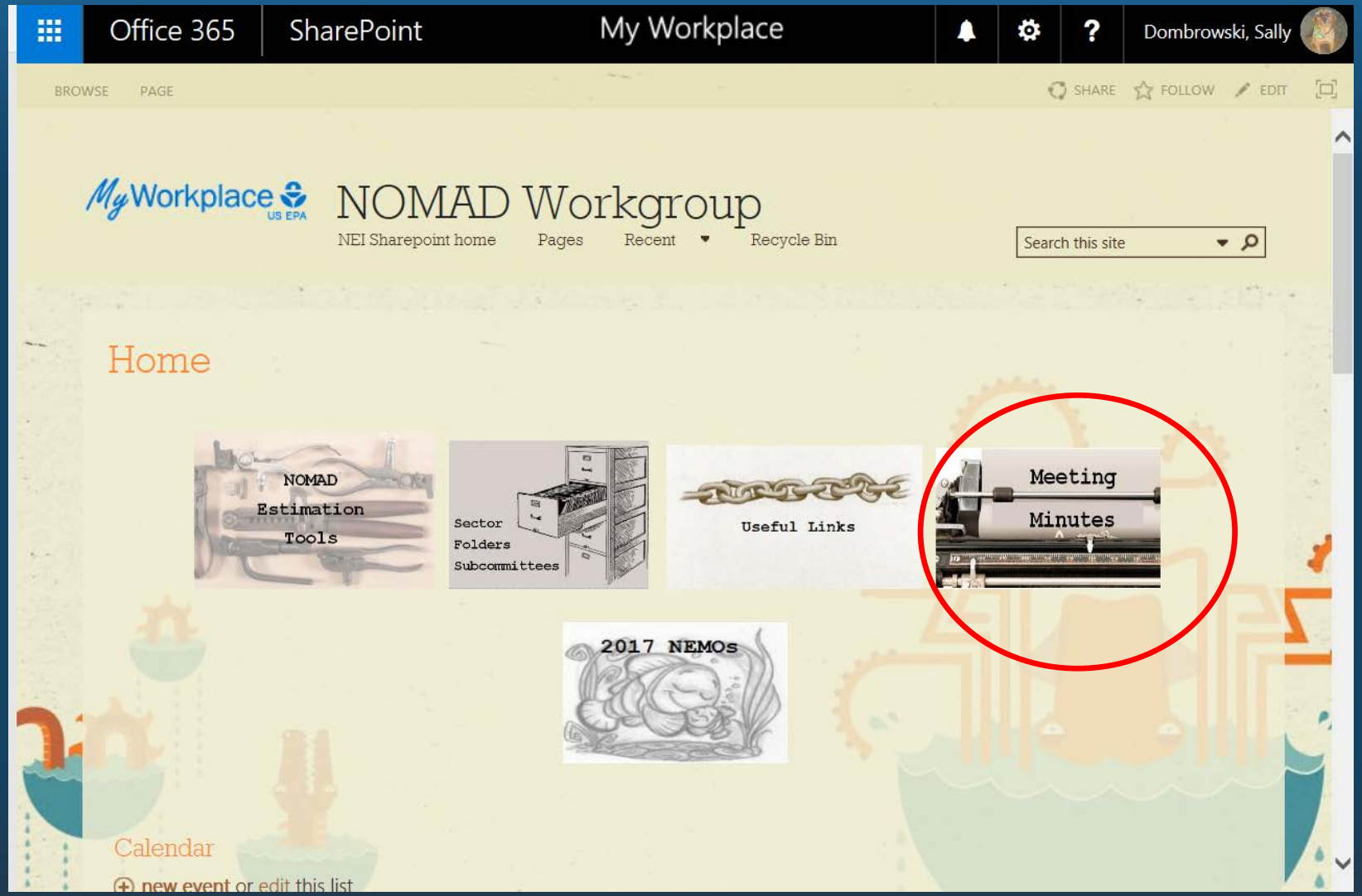
Useful Links



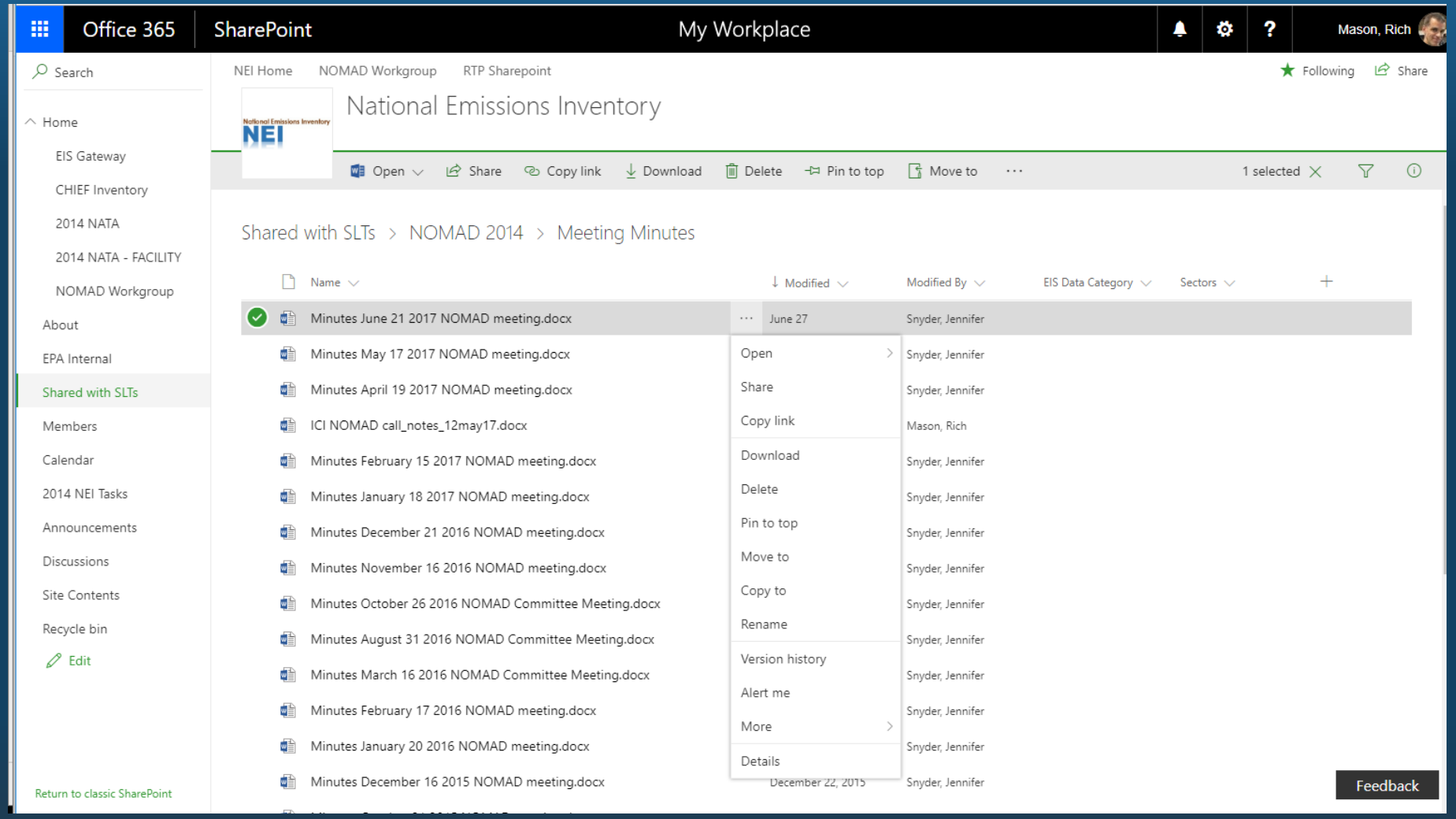
Useful Links: Analyses and Supporting Info



Meeting Minutes



Meeting Minutes: Do-it all button



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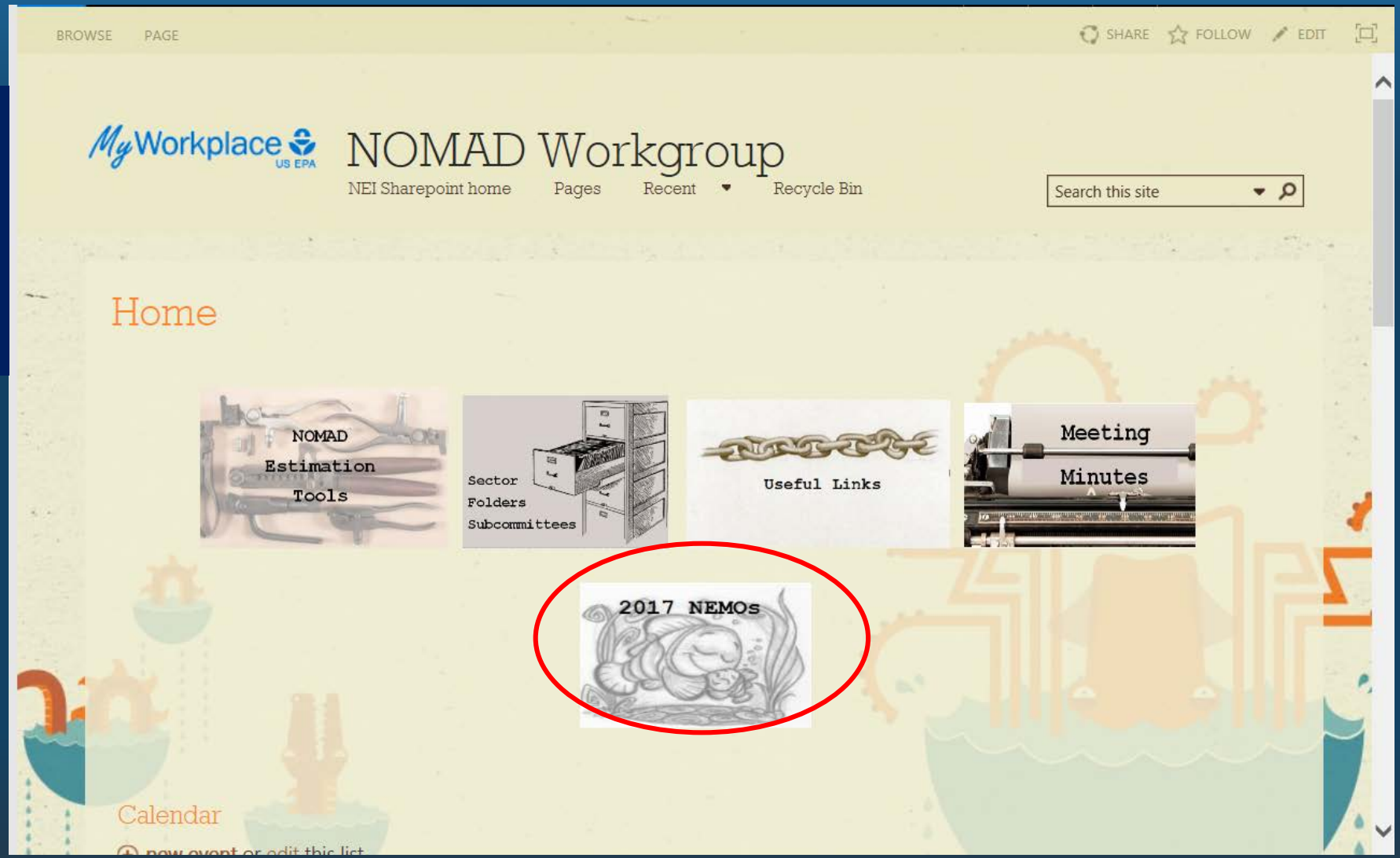
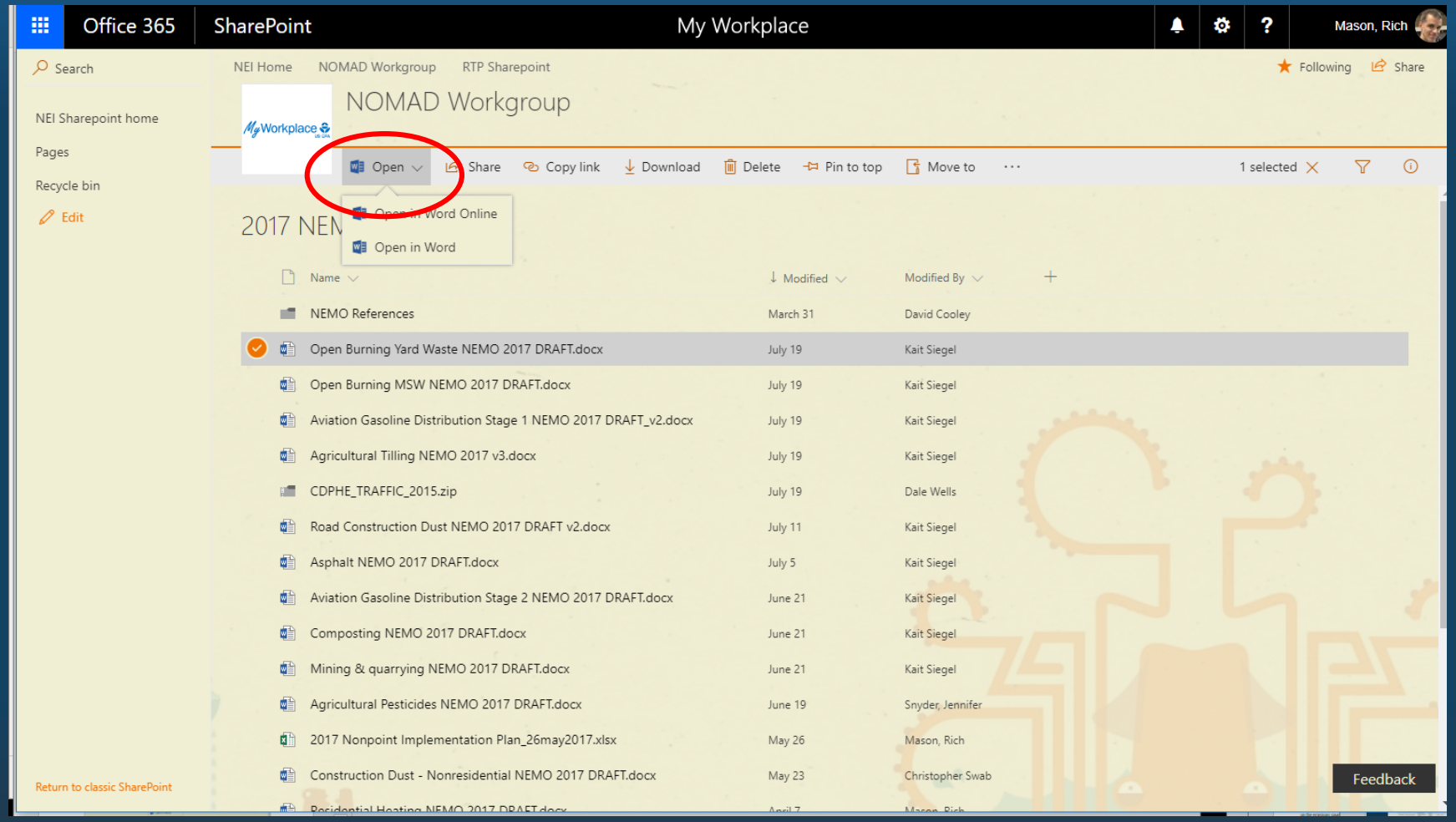
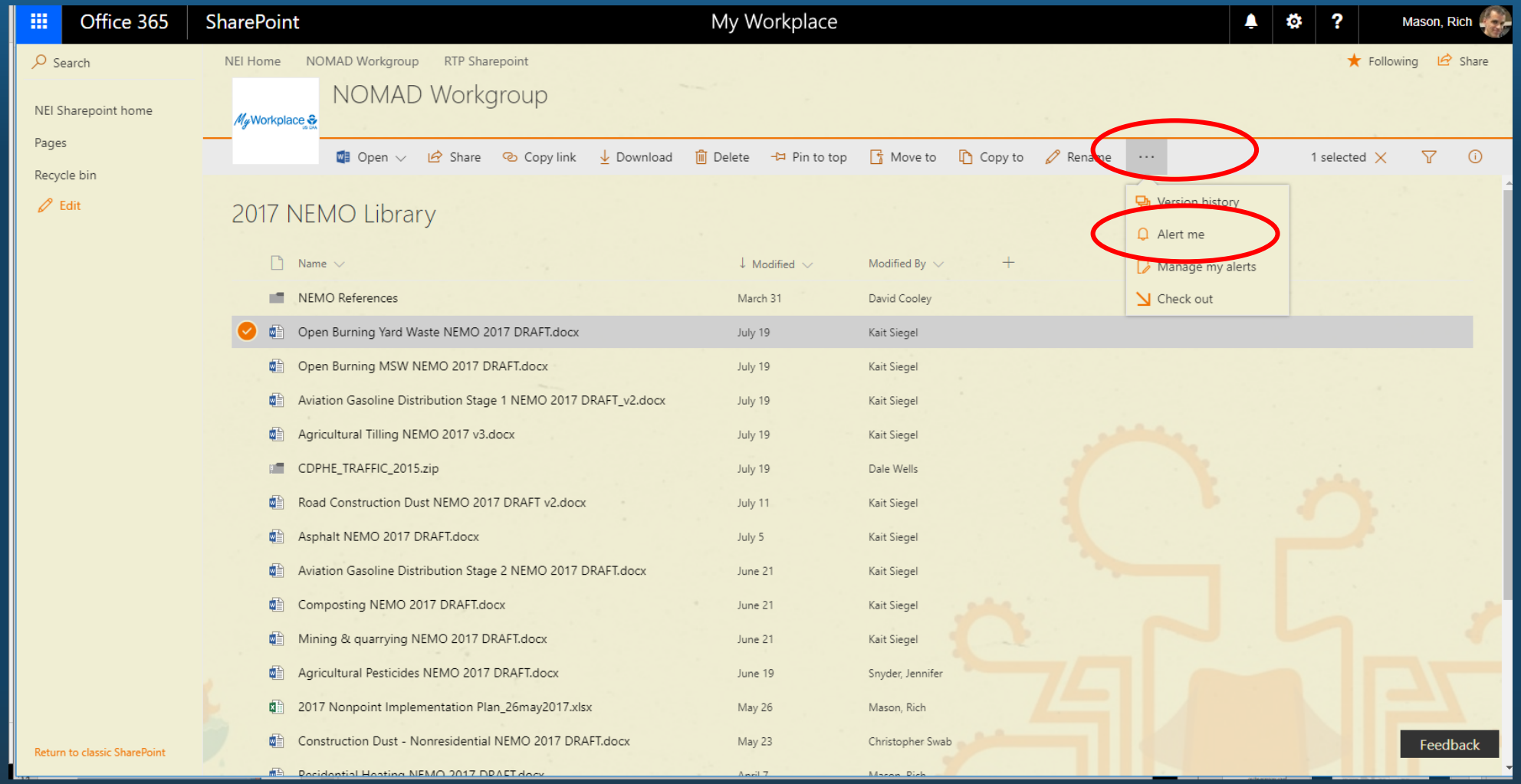
Nonpoint
Emissions
Methodology &
Operating
Instructions
(the "I" is implied)



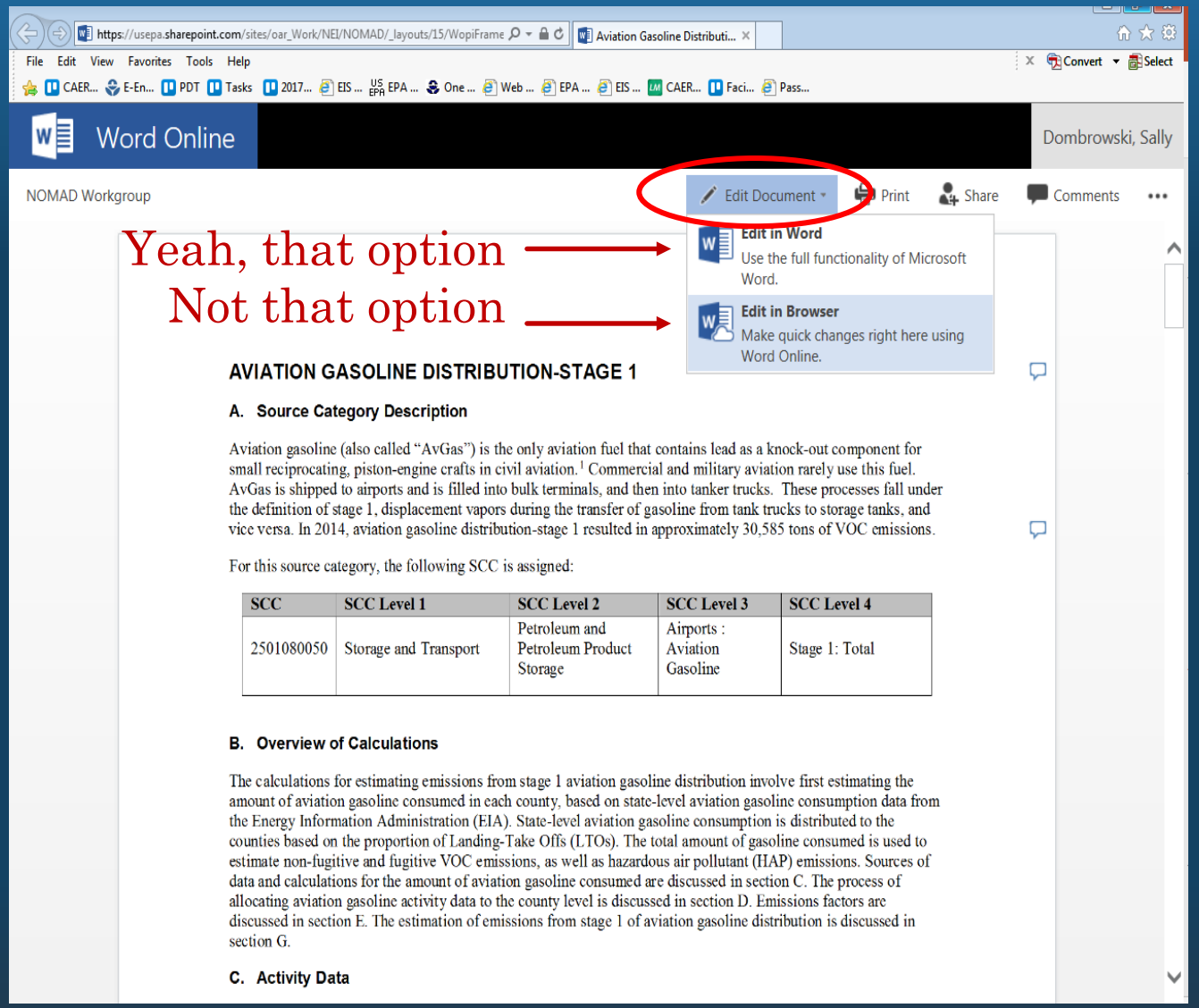
2 Options for Viewing, 1 good option for editing



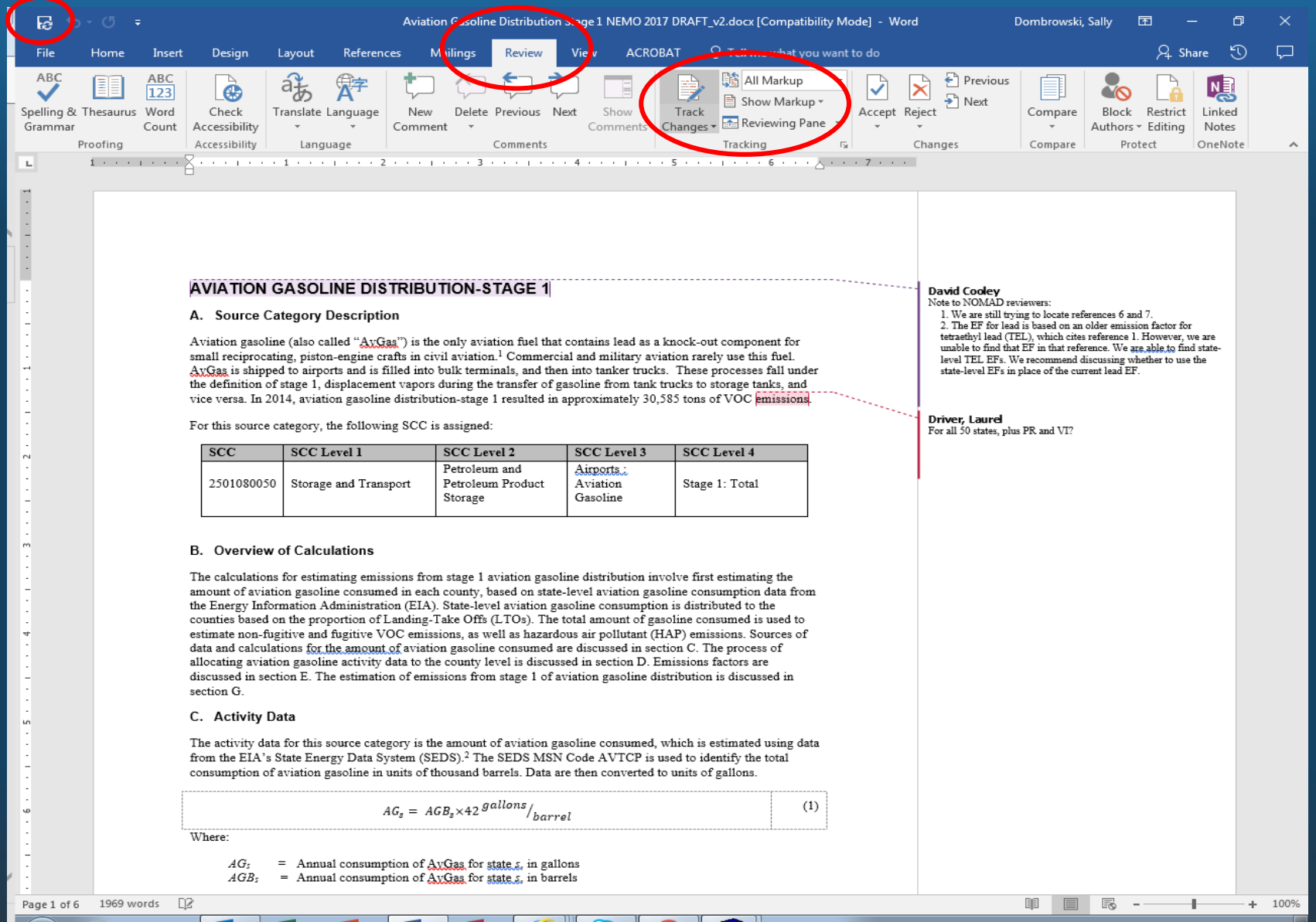
Button options with on top, or in drop down



2 options for Editing: 1 good option



Save to Same SharePoint File with Track Changes



List All Comments Button