

Starting Collaboration for Online Exceptional Events Demo Tool

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WRAP Fire and Smoke Exceptional Events (EE) Working Group Meeting

11/09/2022

Current EE Demo Situation

- Require significant amount of staff time
- Increasing wildfires in Western US -> More reports
- Listened to many WESTAR/WRAP meetings – other agencies also struggling with EE Demos workload

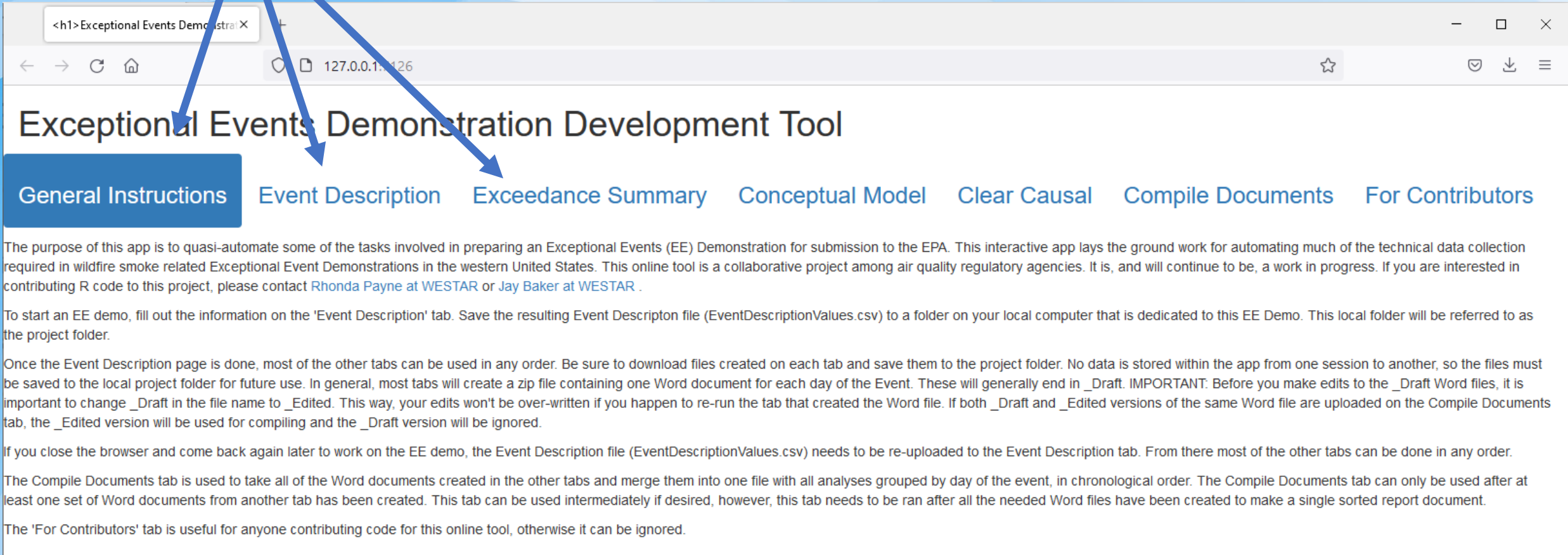


Online EE Demo Tool

- GOALS:
 - Automate portions of EE Demo preparation
 - Online platform -> Other agencies can use tool
 - Common code language (R) -> Other agencies can contribute
 - Lower staff time burden of EE Demos over time
- Partnership with WESTAR/WRAP to facilitate building online tool
- Agencies may use any or all app functions
 - Password protected website
 - Multiple staff can work on different sections of the same demo
- Plan to engage with EPA



Tabs to walk through
creating EE demo



The screenshot shows a web browser window with the title "<h1>Exceptional Events Demonstration Development Tool". The browser address bar shows "127.0.0.1:126". The main heading is "Exceptional Events Demonstration Development Tool". Below the heading is a navigation bar with the following tabs: "General Instructions", "Event Description", "Exceedance Summary", "Conceptual Model", "Clear Causal", "Compile Documents", and "For Contributors". The "General Instructions" tab is highlighted in blue. Below the navigation bar, there is a paragraph of text explaining the purpose of the app, followed by instructions on how to start an EE demo and how to use the other tabs. The text is as follows:

The purpose of this app is to quasi-automate some of the tasks involved in preparing an Exceptional Events (EE) Demonstration for submission to the EPA. This interactive app lays the ground work for automating much of the technical data collection required in wildfire smoke related Exceptional Event Demonstrations in the western United States. This online tool is a collaborative project among air quality regulatory agencies. It is, and will continue to be, a work in progress. If you are interested in contributing R code to this project, please contact [Rhonda Payne at WESTAR](#) or [Jay Baker at WESTAR](#).

To start an EE demo, fill out the information on the 'Event Description' tab. Save the resulting Event Description file (EventDescriptionValues.csv) to a folder on your local computer that is dedicated to this EE Demo. This local folder will be referred to as the project folder.

Once the Event Description page is done, most of the other tabs can be used in any order. Be sure to download files created on each tab and save them to the project folder. No data is stored within the app from one session to another, so the files must be saved to the local project folder for future use. In general, most tabs will create a zip file containing one Word document for each day of the Event. These will generally end in _Draft. IMPORTANT: Before you make edits to the _Draft Word files, it is important to change _Draft in the file name to _Edited. This way, your edits won't be over-written if you happen to re-run the tab that created the Word file. If both _Draft and _Edited versions of the same Word file are uploaded on the Compile Documents tab, the _Edited version will be used for compiling and the _Draft version will be ignored.

If you close the browser and come back again later to work on the EE demo, the Event Description file (EventDescriptionValues.csv) needs to be re-uploaded to the Event Description tab. From there most of the other tabs can be done in any order.

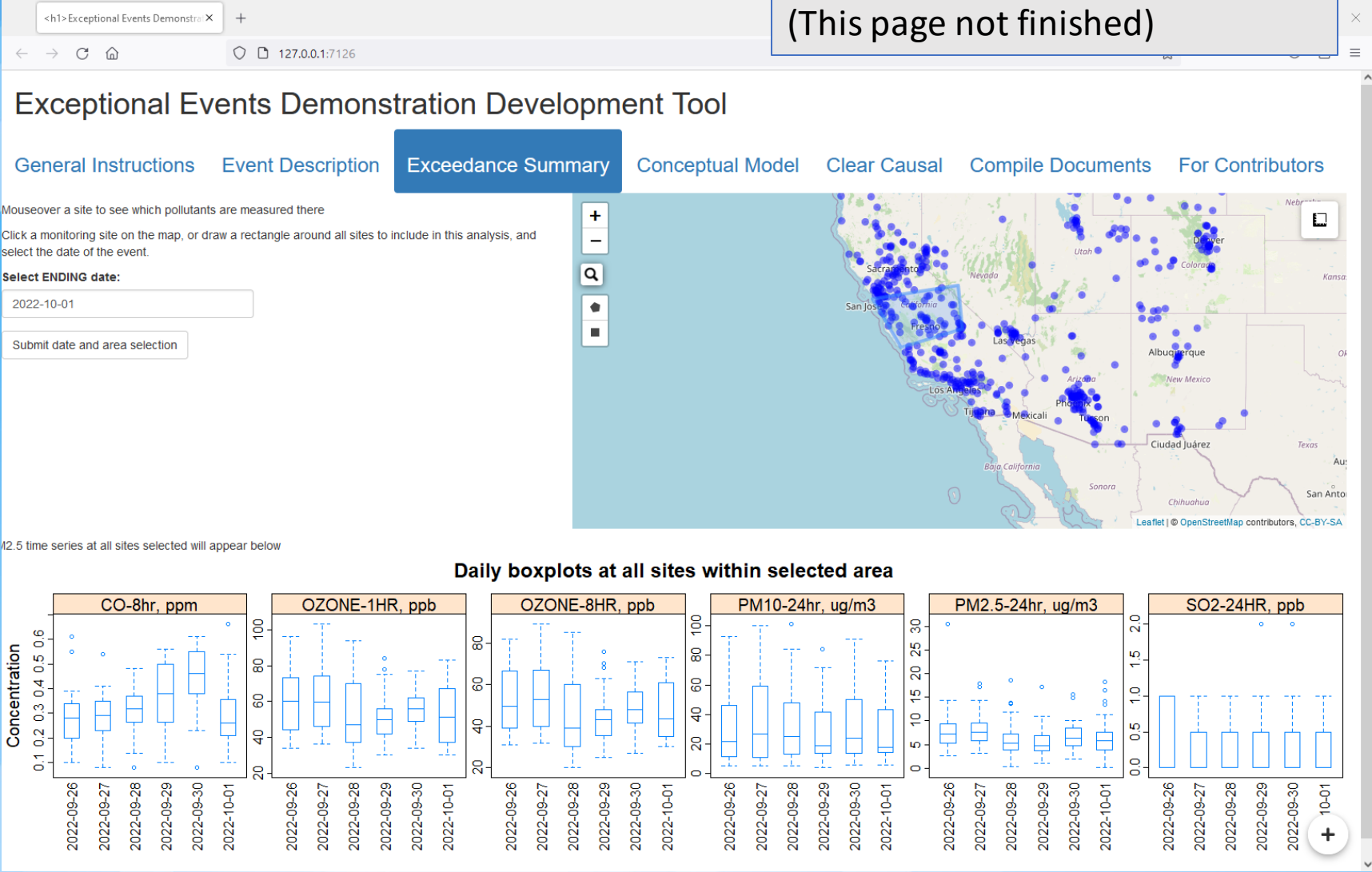
The Compile Documents tab is used to take all of the Word documents created in the other tabs and merge them into one file with all analyses grouped by day of the event, in chronological order. The Compile Documents tab can only be used after at least one set of Word documents from another tab has been created. This tab can be used intermediately if desired, however, this tab needs to be ran after all the needed Word files have been created to make a single sorted report document.

The 'For Contributors' tab is useful for anyone contributing code for this online tool, otherwise it can be ignored.

Tabs create many small
Word files

Word files are merged to
create report

Get summary data about event
(This page not finished)



- Use tool for analyses
- Make figures and tables that the tool will put into Word files

A Graphical User Interface for Exceptional Event Demonstrations

<h1>Exceptional Events Demonstrat... X +

← → ↻ 🏠 127.0.0.1:4385

Exceptional Events Demonstrat...

General Instructions **Event Description**

Instructions:

--If this is a new Demo: Fill in the event description choices below and then

--If this is a partially done demo: Click on the 'Browse' button for 'Identify Event Description File from local computer'. Press 'Click to Load Event Description File from local computer'.

New or Partially Done Demo (in this app)?

New

Partially Done

Identify Event Description File from local computer

Browse... No file selected

Click to Load Event Description File from local computer

Agency Name (full)

My Agency's Name (full)

Agency Name (short)

My Agency's Name (short)

Name of Area, e.g., 'South Coast Air Basin' or 'Coachella Valley'

My Basin's Name

Select Event START Date:

2022-10-07

Select Event ENDING date:

2022-10-02

Event information filled in on "Event Description" tab

<h1>Exceptional Events Demonstrat... X +

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Exceptional Events Demonstration Development Tool

General Instructions **Event Description** **Exceedance Summary** **Conceptual Model** **Clear Causal** **Compile Documents** **For Contrib...**

Historical **Transport** **Effect**

Daily Concentrations **Diurnal** **Smoke Pollutants** **Spatial Temporal** **Photographic Evidence** **NWS Discussions** **Visibility** **News**

The purpose of this page is to output one Word file for each day of the event for news articles. Screenshots of news articles demonstrating smoke impacts are to be put in these output Word documents, which will be stitched into the larger report documents' Tab.

Page Author: By Melissa Maestas (South Coast AQMD), October 2022.

Status of Work on This Tab

To-Do

Click to Output Current Status File for this Tab

Generate Word Reports for each day (zipped)

Event information is carried to the other tabs for creating Word files

Generate Word Reports for each day (zipped)

A Graphical User Interface for Exceptional Event Demonstrations

News Tab Report for 2022-07-15

The **Big Fire** [caused] ground-level smoke in the **South Coast Air Basin** on **2022-07-15**. Figures [X]-[Z] below show news articles about the [smoke from the] **Big Fire** on **2022-07-15**.

[Insert screenshots of relevant news article 1 for **2022-07-15**]

Figure X: Screenshots of news article by [NAME of NEWSPAPER1] on **2022-07-15** regarding ground-level smoke from the **Big Fire**.

- Word file is filled in with information provided
- Plan to do analyses and input figures and tables the same way

Wording of file is set in *.RMD file with fields to be replaced by information from app.

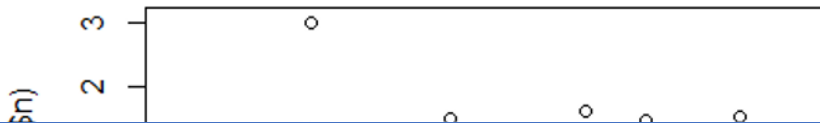
```
Template_tab_report.Rmd x
---
title: "Template Tab Report for `r params$this_date`"
output: word_document
params:
  n: NA
  TemplateRadioButtonLabel: NA
  TemplateTextInputLabel: "TemplateTextInputLabel"
  TemplateDateInputLabel: "TemplateDateInputLabel"
  TemplateDropDownLabel: "TemplateDropDownLabel"
  TemplateNumericInputLabel: "TemplateNumericInputLabel"
  EventName: NA
  GeographicDescriptor: NA
  AgencyNameLong: NA
  AgencyNameShort: NA
  start_DT: NA
  end_DT: NA
  n_days: NA
  Ref_DT: NA
  DataStatus: NA
  EventType: NA
  StandardUsed: NA
  this_date: NA
---
25 The `r params$EventName` occurred during `r params$start_DT` through `r
  params$end_DT` ( $r params$n_days$  days) in the `r params$GeographicDescriptor`
  within the jurisdiction of the `r params$AgencyNameLong` ( $r
  params$AgencyNameShort$ ). The analyses use `r params$Ref_DT` as a non-event
  reference day for comparison. This analysis uses `r params$DataStatus` data. This
  document is part of a `r params$EventType` exceptional events demonstration for the
  `r params$StandardUsed` National Ambient Air Quality Standard (NAAQS).
26
27 My "Example Radio Button for making selections" choice is: `r
  params$TemplateRadioButtonLabel`. My "Example text input box" value is `r
  params$TemplateTextInputLabel`. My "Example Select Date" selection is `r
  params$TemplateDateInputLabel`. My "Example Drop-down menu" selection is `r
  params$TemplateDropDownLabel`. My "Example Numeric Input" value is `r
  params$TemplateNumericInputLabel`.
```

Template Tab Report for 2022-07-16

The Big Fire occurred during 2022-07-15 through 2022-07-16 (2 days) in the South Coast Air Basin within the jurisdiction of the South Coast Air Quality Management District (South Coast AQMD). The analyses use 2022-07-14 as a non-event reference day for comparison. This analysis uses Preliminary data. This document is part of a PM2.5 Wildfire exceptional events demonstration for the PM2.5 24-hour (2006) National Ambient Air Quality Standard (NAAQS).

My "Example Radio Button for making selections" choice is: Option 2. My "Example text input box" value is My example text here. My "Example Select Date" selection is 2022-09-21. My "Example Drop-down menu" selection is Choice 3. My "Example Numeric Input" value is 3.14.

Figure X shows TEMPLATE for 2022-07-16. <Add Interpretation of Figure X in "Edited" version of Word file.> [Need to make example plot using pollution data]



Many Hats to Wear



Creating Tool

Architect (SCAQMD)

Tab Owners

Tab Content Owners

Tab Code Owners

Code Gatekeepers

WESTAR/WRAP

Using/Giving

Feedback

about Tool

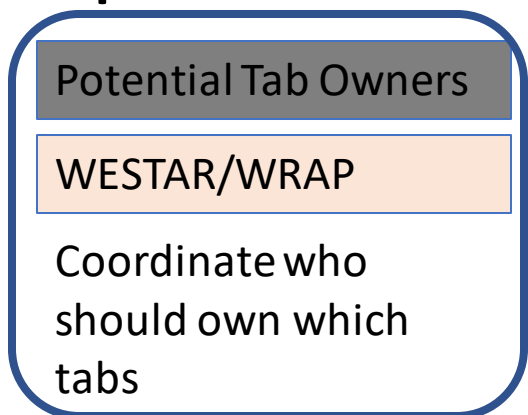
Output

EPA

Demo Authors

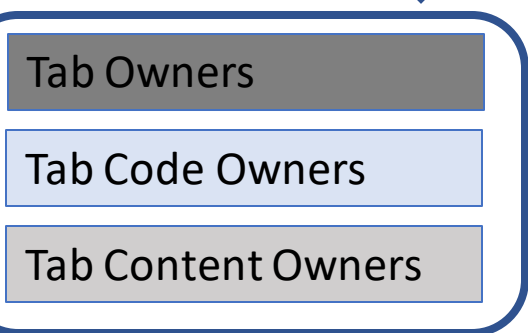
Proposed EE Demo Workflow

Steps: 1



Architect (SCAQMD)

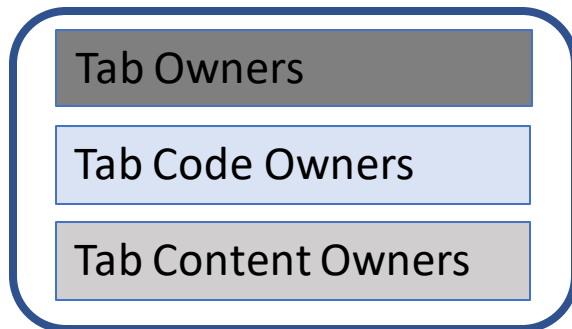
Provide skeleton tab files and Training



2

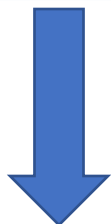
WESTAR/WRAP

Training on Tab Functionality



Test/Debug Code

Code Gatekeepers



3

WESTAR/WRAP

Training



Demo Authors

Write EE Demo



4

Demo Authors

WESTAR/WRAP

EPA

Conversations about EE demo content/analyses/requirements

WESTAR/WRAP

Tab Owners

Tab Code Owners

Tab Content Owners

Discuss changes to tabs -> Step 2

Resources to make project happen

Hosted in the cloud (shinyapps.io)

- WESTAR/WRAP has graciously agreed to cover website cost
- "Basic" package (\$440/ yr) allows 500 hrs usage/ month.
 - More than enough for standard work week for whole month across western time zones
- Multiple people using app at same time for 1 hour counts as 1 hour
- WESTAR- owned account with 1 or 2 publishers.

Collaborator Involvement

- Hope to recruit several volunteers
 - Both coders and non-coders welcome
- Each can develop one tab
 - ~40 hours initial work
- Modest continued commitment after initial deployment
 - Modifications based on EPA/WESTAR feedback
 - Train others how to use your tab
 - Occasional troubleshooting or bug fixes
 - Train others about your code before retiring/leaving position (Transfer tab 'ownership')

Interested in Contributing and/or using Online EE Demo Tool?

- Coders and Non-Coders Welcome
- WESTAR/WRAP Coordination Hub:
 - Rhonda Payne
 - rpayne@westar.org
 - Jay Baker
 - jbaker@westar.org

The background is a vibrant blue with a complex pattern of overlapping, semi-transparent curved lines that create a sense of depth and movement. A large, white, stylized number '5' is faintly visible in the background, positioned behind the main text.

Backup Slides

Many Hats to Wear

