

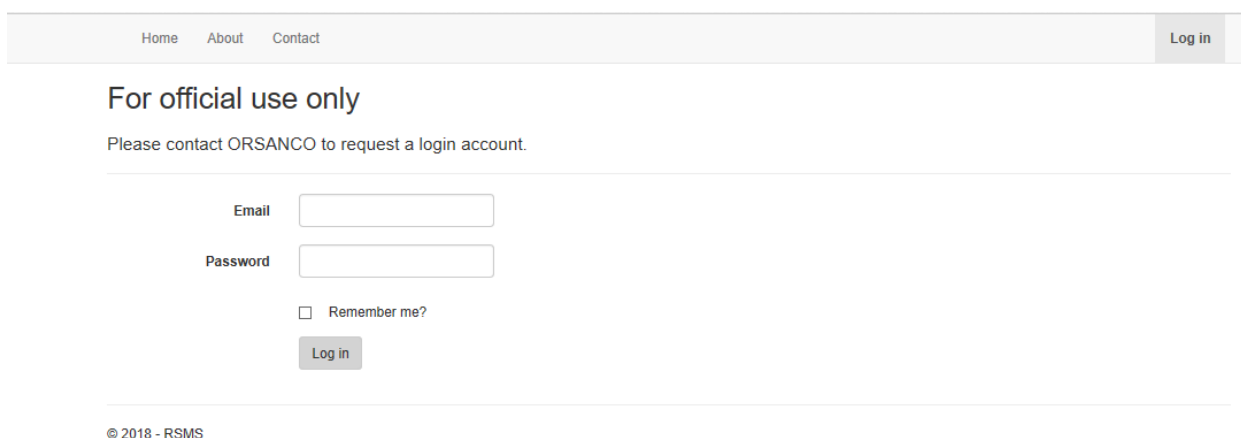
RSMS Quickstart Guide

Disclaimer

The U.S. Environmental Protection Agency (EPA) through its Office of Research and Development funded and managed the research described herein under contract EP-C-12-014 with APTIM and their subcontractor Global Quality Corporation. It has been subjected to the Agency's review and has been approved for publication. Note that approval does not signify that the contents necessarily reflect the views of the Agency. Any mention of trade names, products, or services does not imply an endorsement by the U.S. Government or EPA. The EPA does not endorse any commercial products, services, or enterprises.

Guide

1. Open <http://rsmstest.eastus.cloudapp.azure.com/> in any browser and log in (Figure 1).



Home About Contact Log in

For official use only

Please contact ORSANCO to request a login account.

Email

Password

☐ Remember me?

Log in

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Figure 1

2. **Home** will be the default page after the user has logged in (Figure 2).

[Home](#) [About](#) [Contact](#) [Spills](#) [Parameters](#) [Results](#) [Flows](#) [Barges](#) [Log off](#)

Description

xxx River Spill on yyyy

River

Ohio River

River Mile

475

Quantity (lb)

100000

Start

4/5/2021 3:46:07 PM

TimeZone

EST

Spill Duration (hrs)

5

Create

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Figure 4

To view the details of a spill, click on that row and then click on the **View** action link to go to the **View** page for the selected spill (Figure 5).

[Home](#) [About](#) [Contact](#) [Spills](#) [Parameters](#) [Results](#) [Flows](#) [Barges](#) [Log off](#)

Spill ID 83

Quantity (lb) 100000

Description xxx River Spill on yyyy

Start 4/5/2021 3:46:07 PM

River Ohio River

TimeZone EST

River Mile 475

Duration (hrs) 5

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Figure 5

To edit a spill, click on that row and then click on the **Edit** action link to go to the **Edit** page and use the form as shown in (Figure 6)

Home About Contact Spills Parameters Results Flows Barges Log off

Description xxx River Spill on yyyy

River Ohio River

River Mile 475

Quantity (lb) 100000

Start 4/5/2021 3:46:07 PM

TimeZone EST

Duration (hrs) 5

Save

Back

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Figure 6

To delete a spill, click on that row and then click on the **Delete** action link. A confirmation pop up box will appear. Click ok to delete a spill (Figure 7).

Home About Contact Spills Parameters Results Flows Barges Log off

View Edit Delete Create Simulate

rsmstest.eastus.cloudapp.azure.com says
Are you sure you want to delete the entry with ID 83?
OK Cancel

Spill ID	Description	River	River Mile	Quantity (lb)	Start	Time Zone	Duration (hrs)
83	xxx River Spill on yyyy	Ohio River	475	100000	4/5/2021 3:46:07 PM	EST	5

View Edit Delete Create Simulate with Parameter ID 1

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Figure 7

4. Click on the **Parameters** Page

The active parameter will be shown highlighted (Figure 8).

Home	About	Contact	Spills	Parameters	Results	Flows	Delete Login					Register	Role	Log off
View Edit Delete Create														
Parameter ID	Description	River Stations	Dispersion Factor	Decay rate (/day)	Simulation Duration (days)	Simulation Time step (hours)	Flow Tolerance (cfs)	Concentration Tolerance (mg/l)	Minimum Velocity (ft/s)	Flow Multiplier	Dead Zone Mainstem Average Velocity (cfs)	Dead Zone Exchange Rate	Dead Zone Flow Area Fraction	
1	Default Simulation Parameters	49	0	0.00000	3	1	10	1	0.1	1	1	0.0000045	0.1	
35	Simulation Parameters	50	0	0.00000	2	1	10	0.001	0.1	1	1	0.0000045	0.1	
34	Test Simulation Parameters	150	0	0.00000	7	1	10	0.001	0.1	1	1	0.0000045	0.1	
33	Simulation Parameters	80	0	0.00000	7	1	10	0.001	0.1	1	1	0.0000045	0.1	

Figure 8

To create a Parameter, click on the **Create** action link to go to the **Create** page and use the form as shown in (Figure 9).

Home	About	Contact	Spills	Parameters	Results	Flows	Delete Login	Register	Role	Log off
------	-------	---------	--------	------------	---------	-------	--------------	----------	------	---------

Description

Simulation Parameters

River Stations

50

Dispersion Factor

0

Decay rate (/day)

0.00000

Simulation Duration (days)

3

Hide Advanced Settings

Simulation Time step (hours)

1

Flow Tolerance (cfs)

10

Concentration Tolerance (mg/l)

0.001

Minimum Velocity (ft/s)

0.1

Flow Multiplier

1

Dead Zone

Mainstem Average Velocity (cfs)

1

Exchange Rate

0.0000045

Flow Area Fraction

0.1

Create

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Figure 9

To view the details of a parameter, click on that row and then click on the **View** action link to go to the **View** page for the selected parameter (Figure 10).

Home About Contact Spills Parameters Results Flows				Delete Login Register Role Log off			
Sim Params ID	1	Concentration	1				
Description	Default Simulation Parameters	Tolerance (mg/l)					
River Stations	49	Minimum Velocity (ft/s)	0.1				
Dispersion Factor	0	Flow Multiplier	1				
Decay rate (/day)	0.00000	DeadZone					
Simulation Duration (days)	3	Mainstem Average Velocity (cfs)	1				
Simulation Time step (hours)	1	Exchange Rate	0.0000045				
Flow Tolerance (cfs)	10	Flow Area Fraction	0.1				

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Figure 10

To edit a parameter, click on that row and then click on the **Edit** action link to go to the **Edit** page and use the form as shown in (Figure 11).

Home About Contact Spills Parameters Results Flows				Delete Login Register Role Log off			
Description	Default Simulation Parametr						
River Stations	49						
Dispersion Factor	0						
Decay rate (/day)	0.00000						
Simulation Duration (days)	3						
Hide Advanced Settings							
Simulation Time step (hours)	1						
Flow Tolerance (cfs)	10						
Concentration Tolerance (mg/l)	1						
Minimum Velocity (ft/s)	0.1						
Flow Multiplier	1						
Dead Zone							
Mainstem Average Velocity (cfs)	1						
Exchange Rate	0.0000045						
Flow Area Fraction	0.1						
Save							

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Figure 11

To delete a parameter, click on that row and then click on the **Delete** action link. A confirmation pop up box will appear. Click ok to delete a parameter (Figure 12).

The screenshot shows the 'Parameters' page with a table of simulation parameters. A confirmation dialog is open, asking 'Are you sure you want to delete the entry with ID 37?'. The dialog has 'OK' and 'Cancel' buttons. The table below has the following data:

Parameter ID	Description	River Stations	Dispersion Factor	Rate (/day)	Duration (days)	Time Step (hours)	Flow (cfs)	Concentration (mg/l)	Velocity (ft/s)	Flow Multiplier	Dead Zone Mainstem Average Velocity (cfs)	Dead Zone Exchange Rate	Dead Zone Flow Area Fraction
1	Default Simulation Parameters	49	0	0.00000	3	1	10	1	0.1	1	1	0.0000045	0.1
37	Simulation Parameters	50	0	0.00000	3	1	10	0.001	0.1	1	1	0.0000045	0.1
35	Simulation Parameters	50	0	0.00000	2	1	10	0.001	0.1	1	1	0.0000045	0.1
34	Test Simulation Parameters	150	0	0.00000	7	1	10	0.001	0.1	1	1	0.0000045	0.1

Figure 12

5. Click on the **Spills** Page

To run a simulation, click on that row and then click on the Simulate button. The simulation will run a spill alongside a parameter the *set of values* inside a parameter can be set up on the **Parameters** Page. When the simulation is complete a pop up box will be shown and the results from the run can be seen on the **Results** Page (Figure 13).

The screenshot shows the 'Spills' page with a table of spill events. A confirmation dialog is open, stating 'Simulation complete! Select the "Charts" link to view results.' The table below has the following data:

Spill ID	Description	River	Flow (cfs)	Concentration (mg/l)	Start Time	Time Zone	Duration (hrs)
80	test River Spill on 3/17	Ohio River	475	100000	3/17/2021 7:19:44 AM	EST	5
56	BOSC Kanawha River Spill	Kanawha River	15	1000000	12/7/2018 9:23:04 AM	EST	5
55	Louisville Christmas Spill	Ohio River	478	4000000	12/20/2017 12:00:00 PM	EST	5
50	Test Marathon Refinery Spill	Ohio River	318	100000	3/1/2017 1:53:48 PM	EST	5
10	Microcystis Bloom - Aug-Sept 2015	Ohio River	341	10000	9/28/2015 4:00:00 AM	EST	5
1	Elk Spill	Kanawha River	54	80000	1/9/2014 8:00:00 AM	EST	24

Figure 13

6. Click on the **Results** Page

The active result will be shown highlighted (Figure 14).

Home	About	Contact	Spills	Parameters	Results	Flows	Barges	Delete Login	Register	Role	Log off
View Delete Charts Map Downloads: C vs X C vs T Flow											

Results ID	Run Date Time	Spill ID	Spill Description	River	Parameters ID	Parameters Description
315	4/5/2021 7:50:55 PM	80	test River Spill on 3/17	Ohio River	1	High Decay Rate Simulation Parameters
314	4/5/2021 7:45:52 PM	10	Microcystis Bloom - Aug-Sept 2015	Ohio River	1	High Decay Rate Simulation Parameters
313	3/15/2021 7:58:01 PM	56	BOSC Kanawha River Spill	Kanawha River	1	High Decay Rate Simulation Parameters
312	3/15/2021 7:53:31 PM	56	BOSC Kanawha River Spill	Kanawha River	1	High Decay Rate Simulation Parameters
239	1/6/2020 9:02:33 PM	55	Louisville Christmas Spill	Ohio River	1	High Decay Rate Simulation Parameters

Figure 14

To view the details of a result, click on that row and then click on the **View** action link to go to the **View** page for the selected result (Figure 15).

Home	About	Contact	Spills	Parameters	Results	Flows	Barges	Delete Login	Register	Role	Log off
<hr/>											
Scenario ID	315	Trailing Edge	0								
Run Date Time	4/5/2021 7:50:55 PM	Parameter									
Spill ID	80	Global Flow Multiplier	1								
Spill Description	test River Spill on 3/17	Time Step Length	1								
River	Ohio River	Reporting Timestep	1								
River Mile	475	Length									
Quantity (lb)	100000	Decay Rate	0								
Spill Start Date Time	3/17/2021 7:19:44 AM	Simulation Duration	5								
Duration (hrs)	5	(day)									
Spill Time Zone	EST	Dead Zone Average	1								
Parameter ID	1	Velocity									
Parameter Description	High Decay Rate Simulation Parameters	Dead Zone Exchange	4.5E-06								
Segments	50	Rate									
Flow Tolerance	10	Dead Zone Flow Area	0.1								
Concentration	0.001	Multiplier									
Tolerance		First Time Step	0								
Minimum Velocity	0.1	Last Time Step	119								
Dispersion	0	Last Mile	253.6								
Leading Edge	0	Max Concentration	0.7468								
Parameter		Spill Location Main	506.8								
		Stem									
		Spill Location Tributary	0								
<hr/>											
Back											
<hr/>											
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Figure 15

To delete a result, click on that row and then click on the **Delete** action link. A confirmation pop up box will appear. Click ok to delete a result (Figure 16).

Home About Contact Spills Parameters					Delete Login Register Role Log off	
View Delete Charts Map Downloads: C					rsmstest.eastus.cloudapp.azure.com says Are you sure you want to delete ResultsID 315? <input type="button" value="OK"/> <input type="button" value="Cancel"/>	
Results ID	Run Date Time	Spill ID	Spill Description	River	Parameters ID	Parameters Description
315	4/5/2021 7:50:55 PM	80	test River Spill on 3/17	Ohio River	1	High Decay Rate Simulation Parameters
314	4/5/2021 7:45:52 PM	10	Microcystis Bloom - Aug-Sept 2015	Ohio River	1	High Decay Rate Simulation Parameters
313	3/15/2021 7:58:01 PM	56	BOSC Kanawha River Spill	Kanawha River	1	High Decay Rate Simulation Parameters
312	3/15/2021 7:53:31 PM	56	BOSC Kanawha River Spill	Kanawha River	1	High Decay Rate Simulation Parameters
239	1/6/2020 9:02:33 PM	55	Louisville Christmas Spill	Ohio River	1	High Decay Rate Simulation Parameters
238	1/6/2020 9:00:56 PM	55	Louisville Christmas Spill	Ohio River	1	High Decay Rate Simulation Parameters

Figure 16

To view the charts of a result, click on that row and then click on the **Charts** action link to go to the **Charts** page for the selected result. There are four different charts on this page.

1. CXPLT results (Figure 17)

- The CXPLT chart shows the spill concentration at a certain distance from the spill location.
- The user can use the slider bar below the graph to change what hour of the spill the graph represents.
- There's also a checkbox titled *Autoscale*, which will enable or disable auto-scaling of the Y-axis.

2. CTPLT results (Figure 18)

- The CTPLT chart shows the spill concentration at a certain hour after the spill start time.
- The user can use the slider bar below the graph to change what mile past the spill location the graph represents.
- There's also a checkbox titled *Autoscale*, which will enable or disable auto-scaling of the Y-axis.

3. Leading, Trailing, and Peak Concentration results (Figure 19)

This graph has four lines that show how long it takes for each part of the plume to reach a certain distance from the initial spill.

- Trailing Edge.
- Peak Arrival.
- Leading Edge.
- Peak Concentration.

4. Mass Balance results (Figure 20)

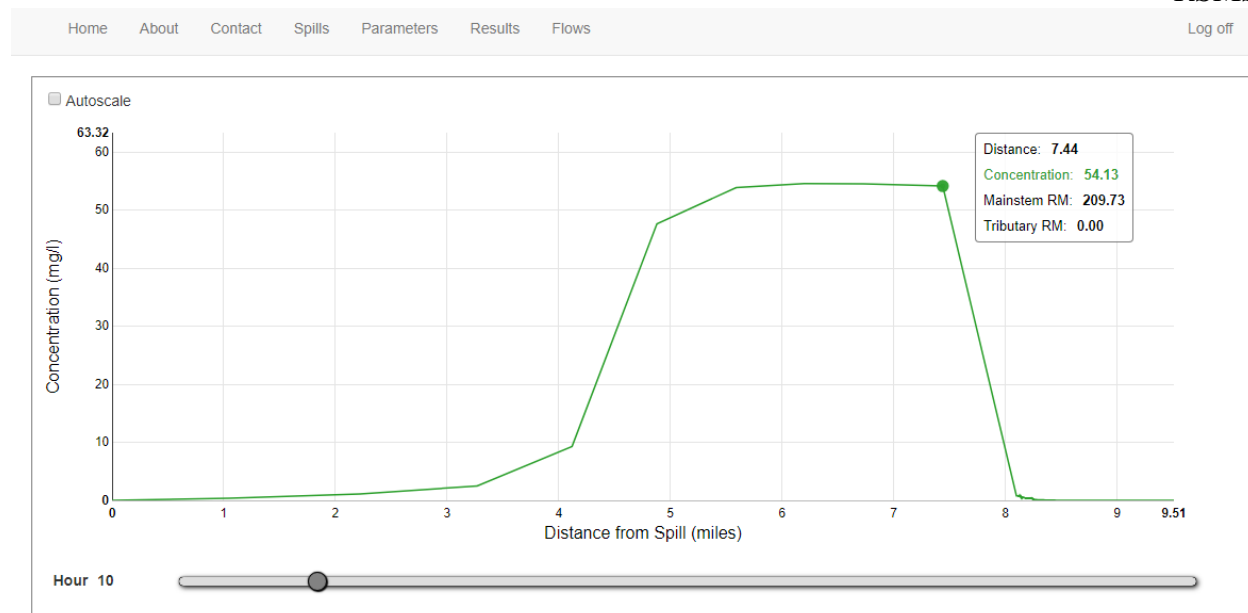


Figure 17 – Spill Plume at a particular time (hours since spill)

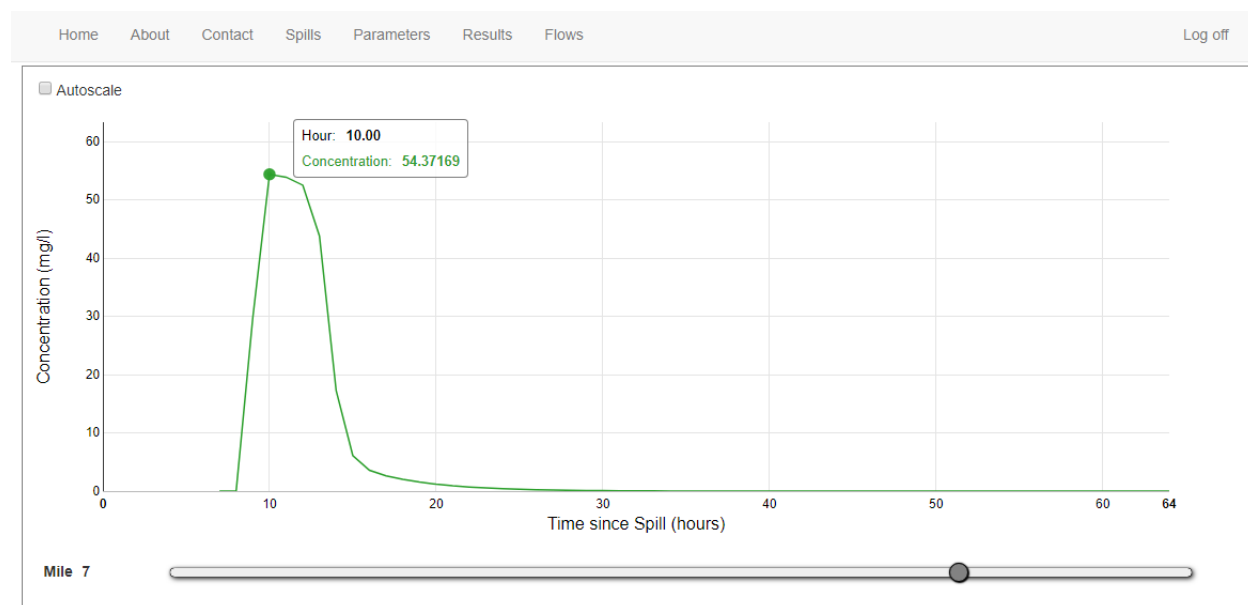


Figure 18 – Spill Plume at a particular distance (miles from spill location)

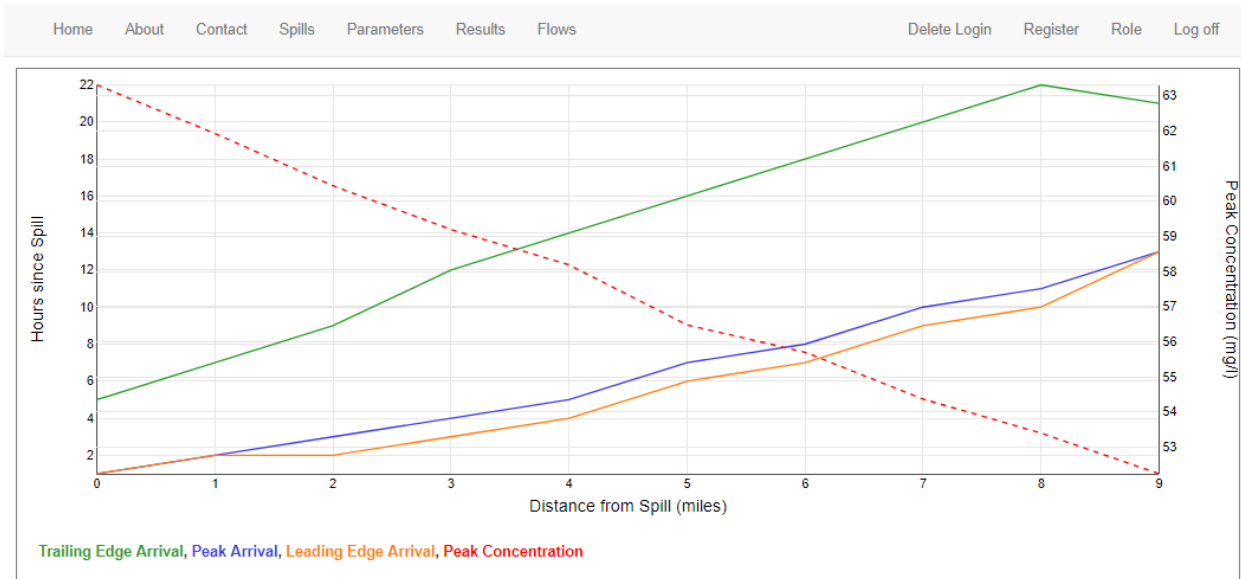
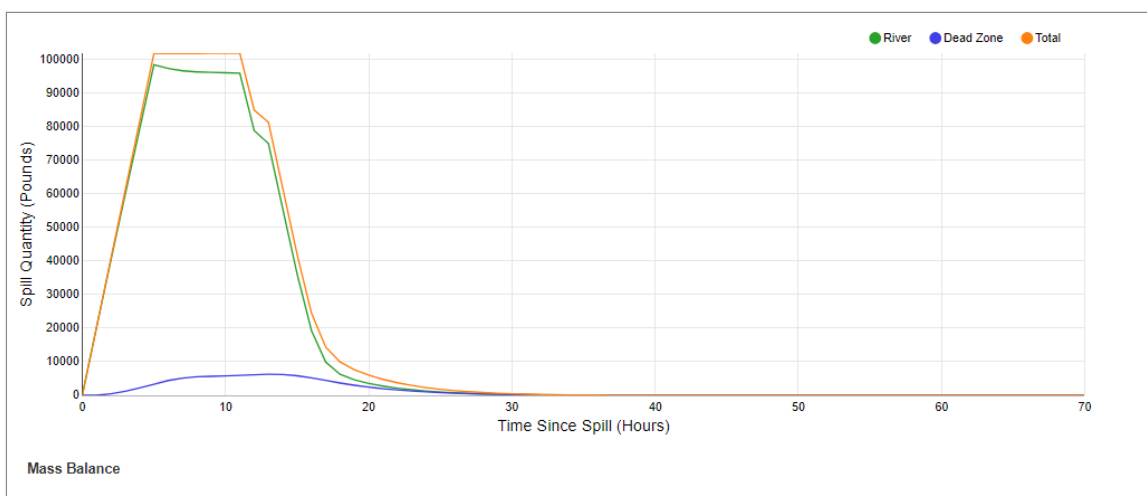


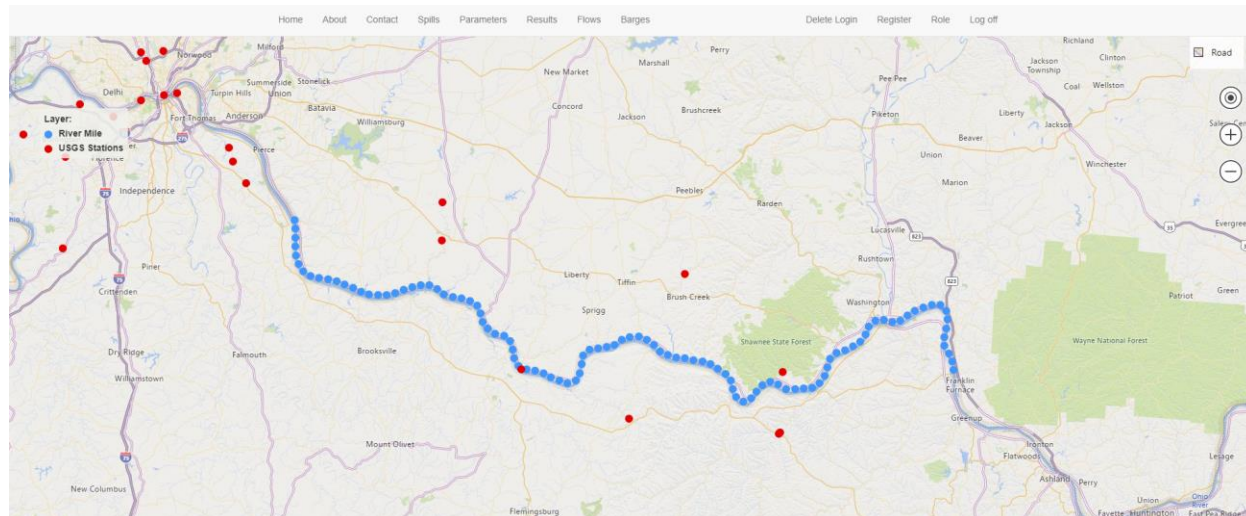
Figure 19

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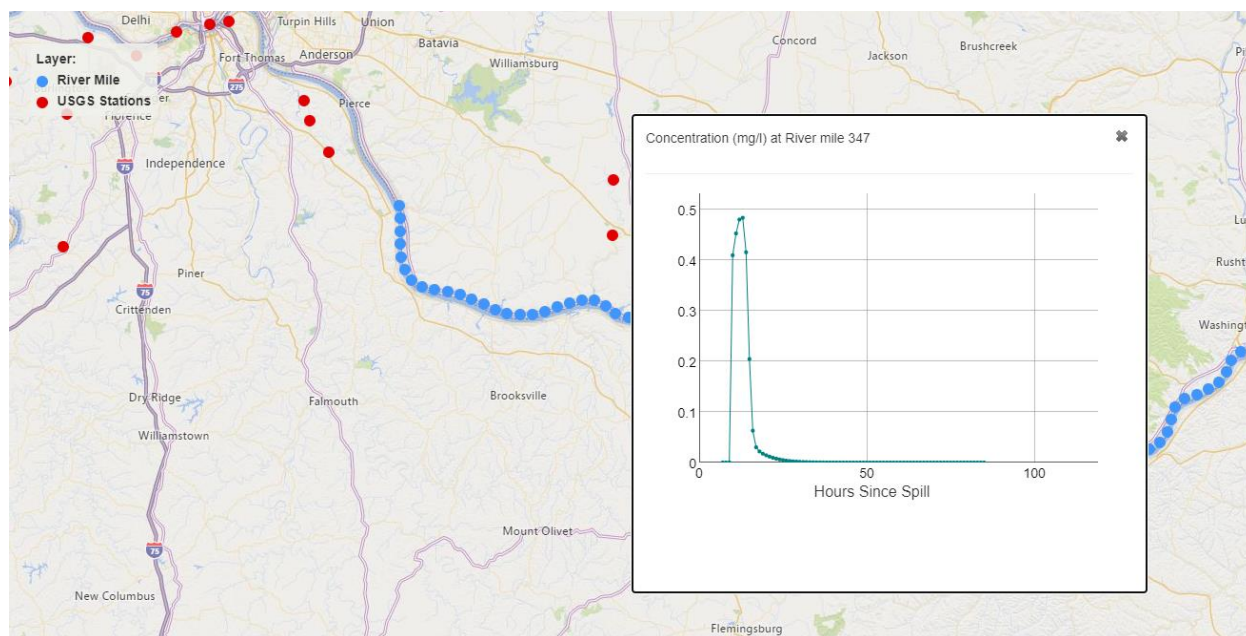
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Figure 20

To view the results of a scenario on a map, click on that row and then click on the **Map** action link to go to the **Map** page for the selected result. (Figure 21).

*Figure 21*

Clicking on a blue pushpin will show a graph of the Spill plume at that river mile (Figure 22).

*Figure 22*

Red pushpins represent USGS stations on the rivers affected by the spill (Figure 23 and 24). Clicking on a red pushpin shows for Flow and Stage data graphs for that USGS station.

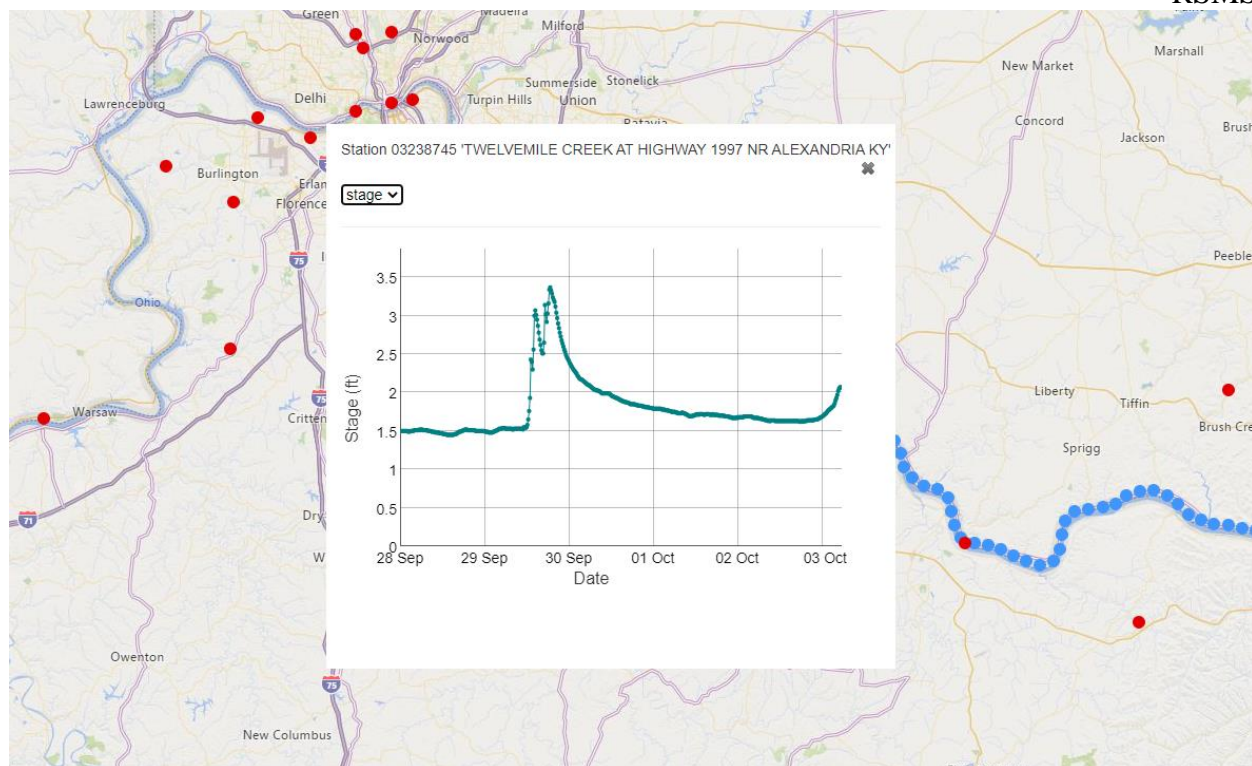


Figure 23

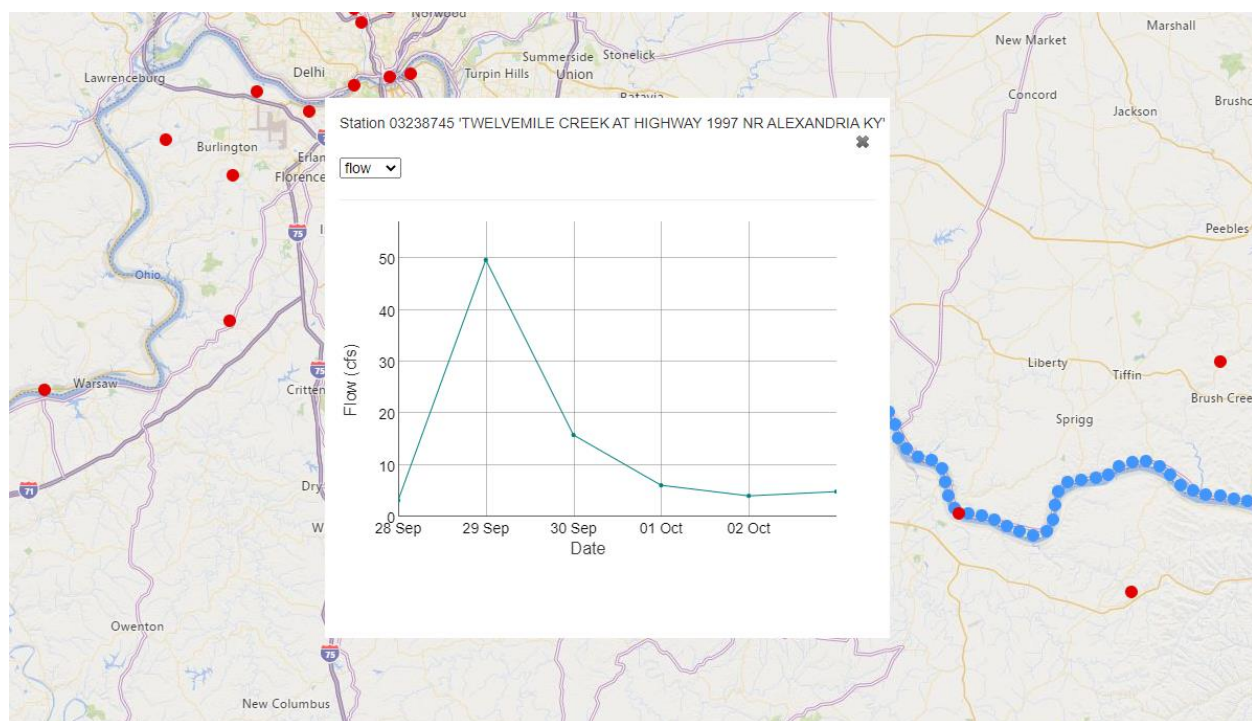


Figure 24

To download the results of a scenario in a concentration vs. distance view click on that row and then click on the **C vs X** action link for the excel file to download.

To download the results of a scenario in a concentration vs. time view click on that row and then click on the **C vs T** action link for the excel file to download.

To download the .nfq flow file of a scenario click on that row and then click on the **Flow** action link for the .nfq file to download.

Click on the **Flow** Page

Choose your river to view the flow charts (Figure 25 and 26).

The user can use the slider bar below the graph to change what River mile or day the graphs represent.

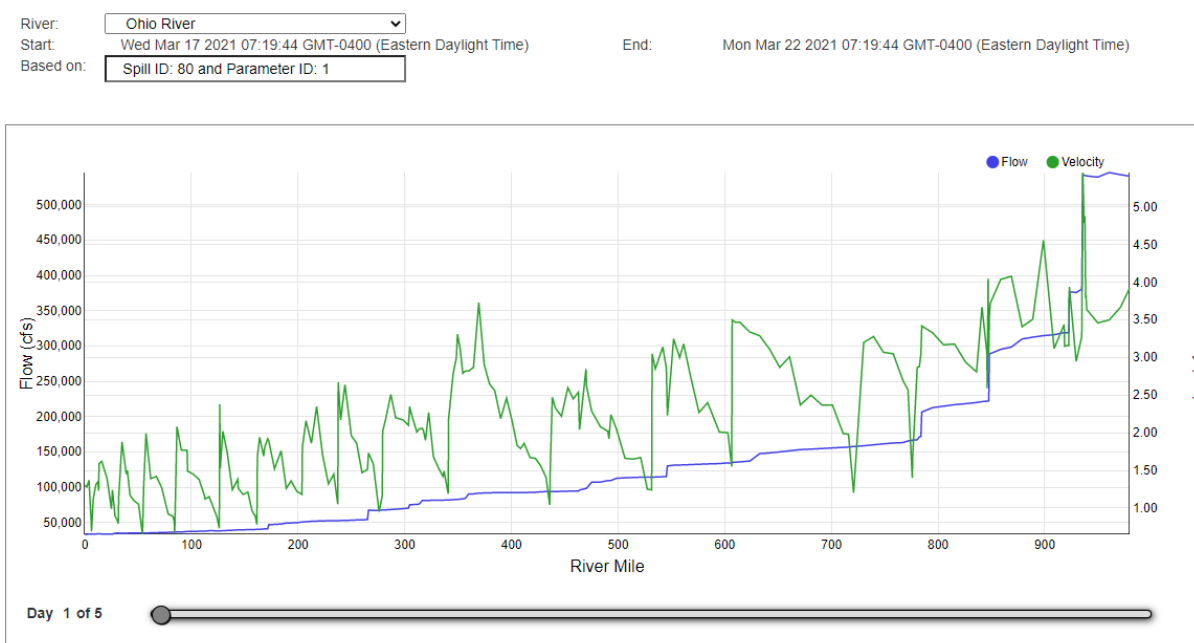
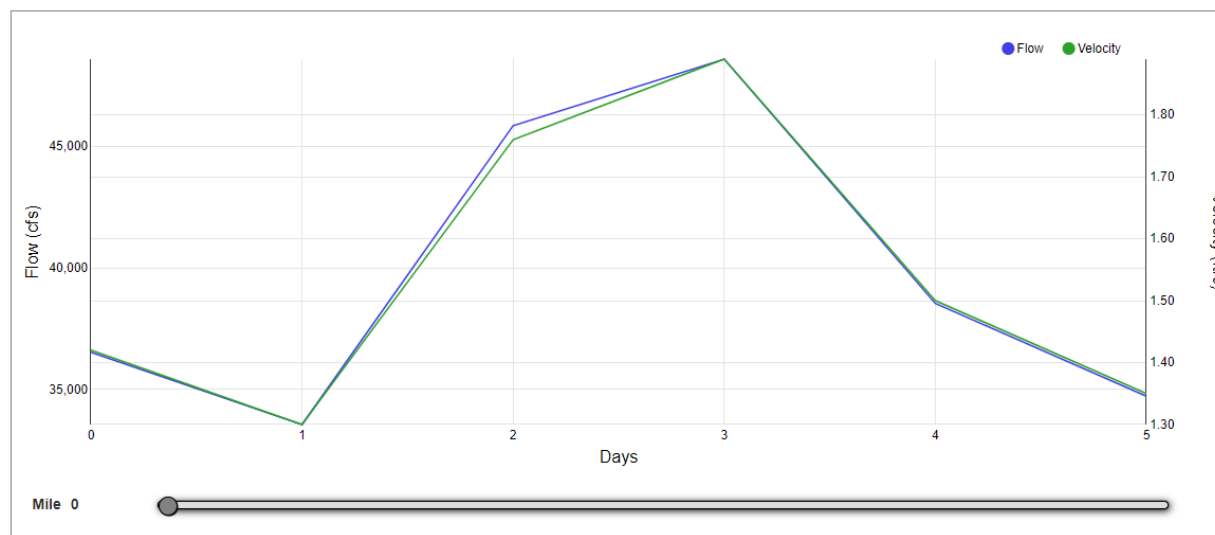


Figure 25



Upload Flow File

 No file chosen

Last HEC_RAS file processed on Mon Apr 05 2021 16:30:54 GMT-0400 (Eastern Daylight Time)

Figure 26

- Click on the **About** tab (on mobile devices activate the dropdown first) (Figures 27, 28 and 29).

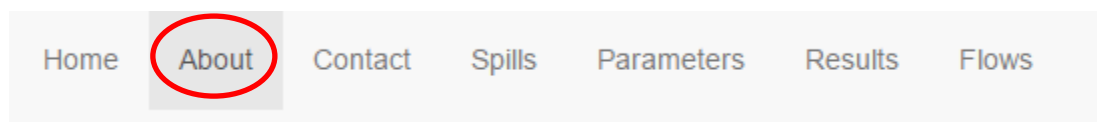


Figure 27

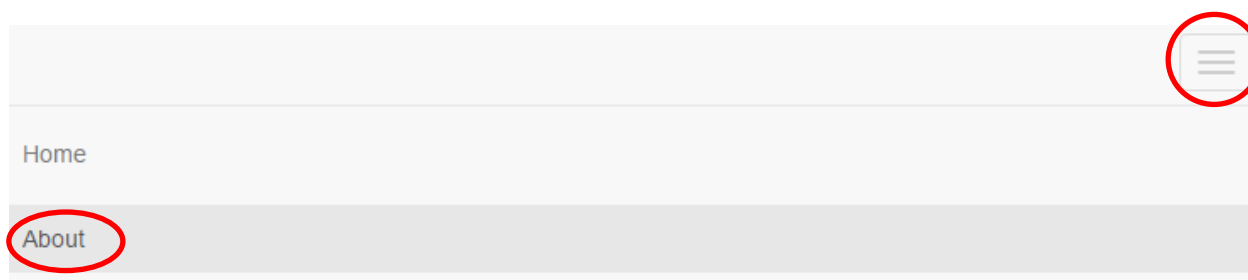


Figure 28

Home	About	Contact	Spills	Parameters	Results	Flows	Delete Login	Register	Role	Log off
------	-------	---------	--------	------------	---------	-------	--------------	----------	------	---------

About RSMS

- Main stem spills only (now can model tributaries)
- Spill location as river mile and can view results as river miles (with the mile markers ascending downstream)
- "Initialization" option to set concentration at different river miles
- Uses the USGS developed Branched Lagrangian Transport Model (BLTM) for Simulations (<http://water.usgs.gov/software/BLTM/>)
- Result Plots for Time, Location, Edge, Peak, and Mass
- Exportable results

Figure 29

8. Click on the **Contact** tab (Figure 30).

Home	About	Contact	Log in
------	-------	---------	--------

Contacts

ORSANCO: Sam Dinkins sdinkins@orsanco.org
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Cincinnati, Ohio 45230
P: 513.231.7719.108

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Figure 30