



# GIS Solutions for Situational Awareness Man-made & Natural Disaster Events

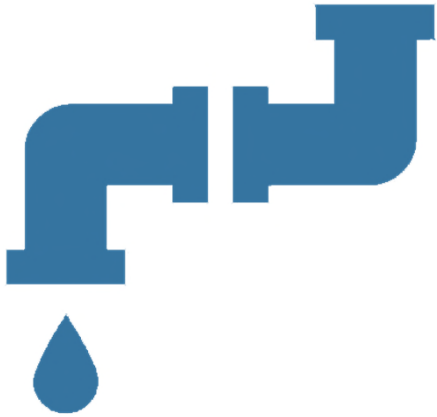
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## ESF 3- Public Works & Engineering

- Provide **SITUATIONAL AWARENESS** and **SUPPORT** for wastewater treatment plants and solid waste management facilities and assist in the restoration of public works systems.



**840+**

**WASTEWATER TREATMENT PLANTS**  
(WWTPs)



**315+**

**SOLID WASTE MANAGEMENT FACILITIES**  
(SWMFs)

# Current Challenges

WWTPs & SWMFs report operational issues through various & multiple communication pathways

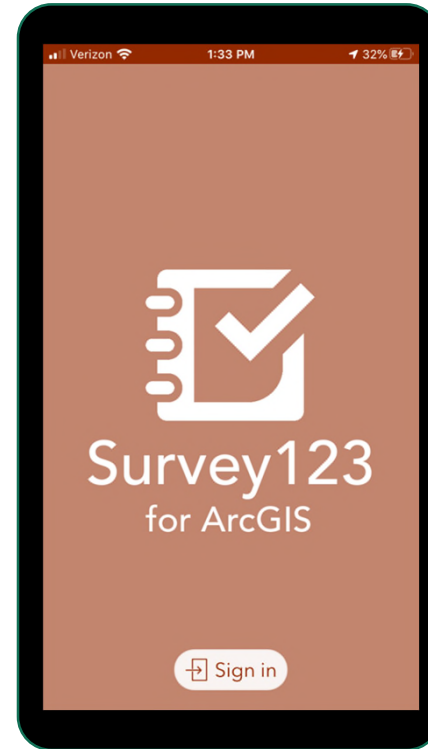


- Reporting is **not standardized**
- Information is **captured in different locations** (Local Situation Reports, Regional VDEM SitReps, ESF #3 Position Log or EEs, or Incident Action Plans)
- Information is **touched by many people**
- **Time intensive effort** to collect info about each facility
- **Need to deconflict** information from different sources

# Optimize Efforts

## Survey 123 for ArcGIS

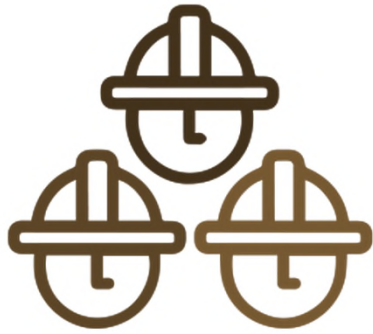
- Make reporting easy for facility
- Collect info in a timely manner
- Obtain overview of affected area
- Standardize info that is reported
- Direct report from facility  
minimizes need to deconflict info



Survey results displayed  
in WebEOC dashboard

# Type of Reporting

The survey collects information about key operational elements that are critical to continuity of operations.



## STAFFING

Staffing resources and strategies



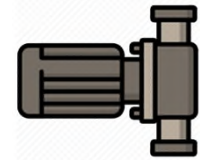
## HOURS OF OPERATION

Reduction or expansion of operating hours depending on type of incident



## FUEL

Fuel inventory for back up power supply (e.g., 1-2 days)



## BACK UP EQUIPMENT

Availability of back up equipment, e.g., rubber-tired vehicles or pumps

# Workflow

Operator downloads app to phone or desktop and completes and submits initial survey.



Non-published survey URL is emailed to facility operators from ESF#3 Position ([pwae@vdem.Virginia.gov](mailto:pwae@vdem.Virginia.gov))

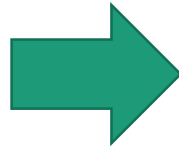


Operator edits initial survey to make subsequent updates during the disaster event.



Survey responses uploaded to VDEM ArcGIS Online account. Aggregated results are password protected and visible to VEST and ESF#3

# Roll Out of Survey & Assistance



**WWTP / SWMF  
OPERATORS**



**LOCAL EMERGENCY  
MANAGERS**



**CHIEF REGIONAL  
COORDINATORS**

DEQ's VEST team members will help develop messaging and will be the point of contact for questions and will provide support for troubleshooting application.

# Updates to Survey Roll Out



The image shows a screenshot of a web-based contact form titled "Solid Waste Management Facility Emergency Contact Form". The form has a teal header with the title in white. Below the header, there is a section titled "Contact Information" with a sub-header "\* Required". A note below the sub-header reads: "Please provide the following contact information for the Primary Emergency Coordinator as listed in your facility's Emergency Contingency Plan (or Post-Closure Care Plan if applicable).". The form contains three numbered fields: "1. First Name \*", "2. Last Name \*", and "3. Job Title \*". Each field has a text input box with the placeholder text "Enter your answer".

**Solid Waste Management Facility Emergency Contact Form**

\* Required

**Contact Information**

Please provide the following contact information for the Primary Emergency Coordinator as listed in your facility's Emergency Contingency Plan (or Post-Closure Care Plan if applicable).

1. **First Name \***

Enter your answer

2. **Last Name \***

Enter your answer

3. **Job Title \***

Enter your answer

- Basic contact form to collect the contact info for the Primary Emergency Coordinator
- Info will be requested annually, but can be updated at any time



# Survey123 One Pager

- Provides an overview of the purpose of the survey and means of access
- Has links for the Contact Form and the Survey123 (QR code and URL)



## Solid Waste Management Facility Survey123: A Tool for the Virginia Emergency Support Team (VEST) Emergency Support Function (ESF) 3 – Public Works and Engineering

### OVERVIEW

The Virginia Department of Emergency Management (VDEM) is responsible for developing and maintaining the Commonwealth of Virginia's Emergency Operations Plan (EOP). In response to natural and manmade disasters, the state expands staffing at the Virginia Emergency Operations Center (VEOC) through the Virginia Emergency Support Team (VEST). The VEST is comprised of more than 300 representatives from state, federal, private, and nonprofit groups that work together to respond to calls for assistance from local governments throughout the Commonwealth.

The VEST is organized by Emergency Support Functions (ESFs), such as ESF #3 - Public Works and Engineering. One of the core capabilities of ESF #3 is to provide technical assistance for the clearance, removal, and disposal of debris from public property and to track the status of, and provide technical assistance to, solid waste management facilities that may experience disaster-related disruptions to operations.



### SURVEY123

In an effort to provide better support to solid waste management facilities across Virginia during a disaster, VDEM and ESF #3 partners have developed a GIS-based survey tool. This tool is used to collect information on the overall status of solid waste management facilities, as well as some operational elements that are critical to the continuity of operations.

Responses to the surveys are collected through VDEM's ArcGIS Online account and help VDEM anticipate potential resource issues in a timely manner. Additionally, this helps VDEM queue up support as needed where local resources and/or capacities are exceeded. Only VDEM has direct access to the collected data.

### HOW IT WORKS

In the event of a disaster, ESF #3 will send out an email to the Emergency Contact on file (Primary Emergency Coordinator listed in the Emergency Contingency Plan) for permitted solid waste management facilities in the disaster area. This email will come from the ESF #3 account which is [pwae@vdem.virginia.gov](mailto:pwae@vdem.virginia.gov).

The email will include the link to the survey, as well as instructions for how frequently to update the survey if the facility experiences operational disruptions.

\*[pwae@vdem.virginia.gov](mailto:pwae@vdem.virginia.gov) is a legitimate shared inbox but may be blocked by your organizations firewall policies.

### NEXT STEPS

In preparation for a potential disaster, please ensure:

- You are able to access the survey by scanning the QR code above or using the URL: <https://arcg.is/zT1Wn>
- The Emergency Contact information for your facility is up to date. This information can be updated for your facility by using the [Solid Waste Management Facility Emergency Contact Form](#).
- Your facility is able to receive emails from [pwae@vdem.virginia.gov](mailto:pwae@vdem.virginia.gov). Please email [pwae@vdem.virginia.gov](mailto:pwae@vdem.virginia.gov) with any questions.

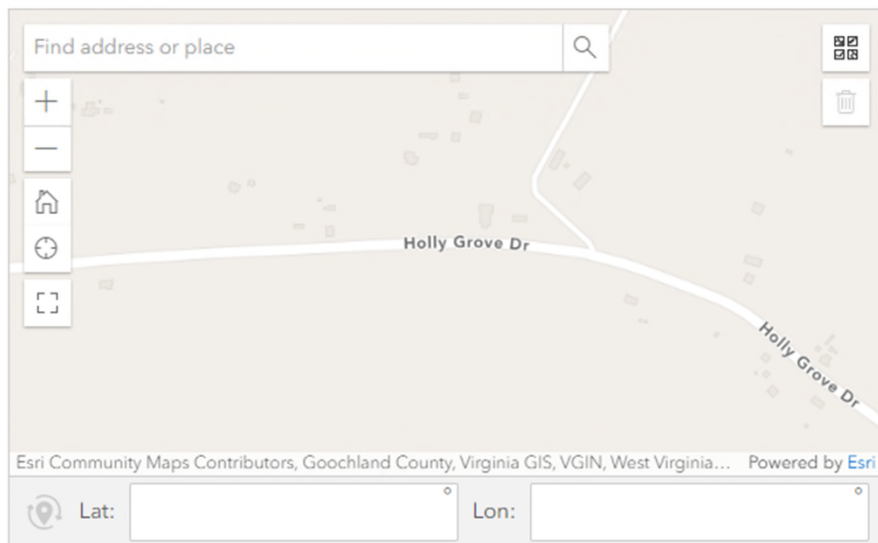
## Solid Waste Management Facility Survey

To provide better support to critical infrastructure operators, the Virginia Emergency Support Team is using this survey to collect information on the overall status of your facility and about operational elements that are critical to the continuity of operations.

### Location\*

Use the map to select your permitted facility location.

Please drop a pin or search for address and drop a pin on map. Once a pin is dropped, hit the checkmark in the bottom right to save the location



Contact [pwae@vdem.virginia.gov](mailto:pwae@vdem.virginia.gov) if you have any questions, or experience issues submitting form data.

Select your permit number / facility. Each permit requires a separate survey response.\*

Select the correct facility by using the drop-down list or typing the permit number.

\*If you CANNOT locate your facility please choose "OTHER" and provide it.

-Please select-

### Facility contact name\*

Please enter your first and last name.

### Facility contact email

Please enter your email address.

Valid inputs have the following format: username@domain.extension

### Facility contact phone

Please enter your phone number including area code using the following format ###-###-####

# Survey (Desktop)

## Overall operational status of facility?\*

If status is minor or major disruptions, please complete appropriate questions that account for status impairment.

☐

Normal operations

☐

Minor disruptions to operations

☐

Major disruptions to operations

## Status of operating hours?

☐

Normal operating hours

☐

Extended operating hours

☐

Reduced operating hours

☐

Facility closed due to emergency

☐

Not applicable

## Status of power supply?

If the status of the power supply is impacting critical operations (management of leachate, gas, groundwater, etc.), please provide additional details in the comments section below.

☐

Normal power supply

☐

Operating on backup power supply

☐

No power

## Status of facility staffing?

☐

Normal staffing

☐

Reduced staffing

☐

Critically low staffing or no available staff

## Status of equipment (pumps, generators, heavy machinery, etc.)

☐

Equipment available to perform normal operations

☐

Reduced equipment to perform critical operations

☐

Inadequate equipment available to perform critical operations

## Status of public services?

☐

Normal services available to the public

☐

Reduction of services to the public

☐

No public services

☐

Not applicable

# Survey (Desktop)

Status of available waste management capacity?

☐ Adequate capacity

☐ At or near capacity

☐ Exceeding capacity

☐ Not applicable

Briefly describe disruptions to operations, unmet needs, or above and beyond preparations to mitigate impacts:

1000

Submit

# Survey (Smartphone)

Verizon 9:14 AM 99%

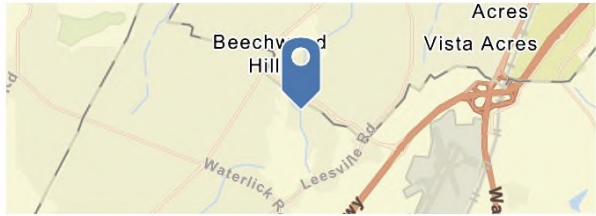
✕ Solid Waste Management Facility Survey

To provide better support to critical infrastructure operators, the Virginia Emergency Support Team is using this survey to collect information on the overall status of your facility and about operational elements that are critical to the continuity of operations.

Location \*

Use the map to select your permitted facility location. Please drop a pin or search for address and drop a pin on map. Once a pin is dropped, hit the checkmark in the bottom right to save the location

37°20'N 79°14'W ± 14.6 m



Contact pwae@vdem.virginia.gov if you have any questions, or experience issues submitting form data.

Select your permit number / facility. Each permit requires a separate survey response \*

Verizon 9:15 AM 99%

○ Not applicable

Status of available waste management capacity?

☒ Adequate capacity ☐ At or near capacity

☐ Exceeding capacity ☐ Not applicable

Briefly describe disruptions to operations, unmet needs, or above and beyond preparations to mitigate impacts:

Facility is currently functioning within normal operations. ✕

941

✓

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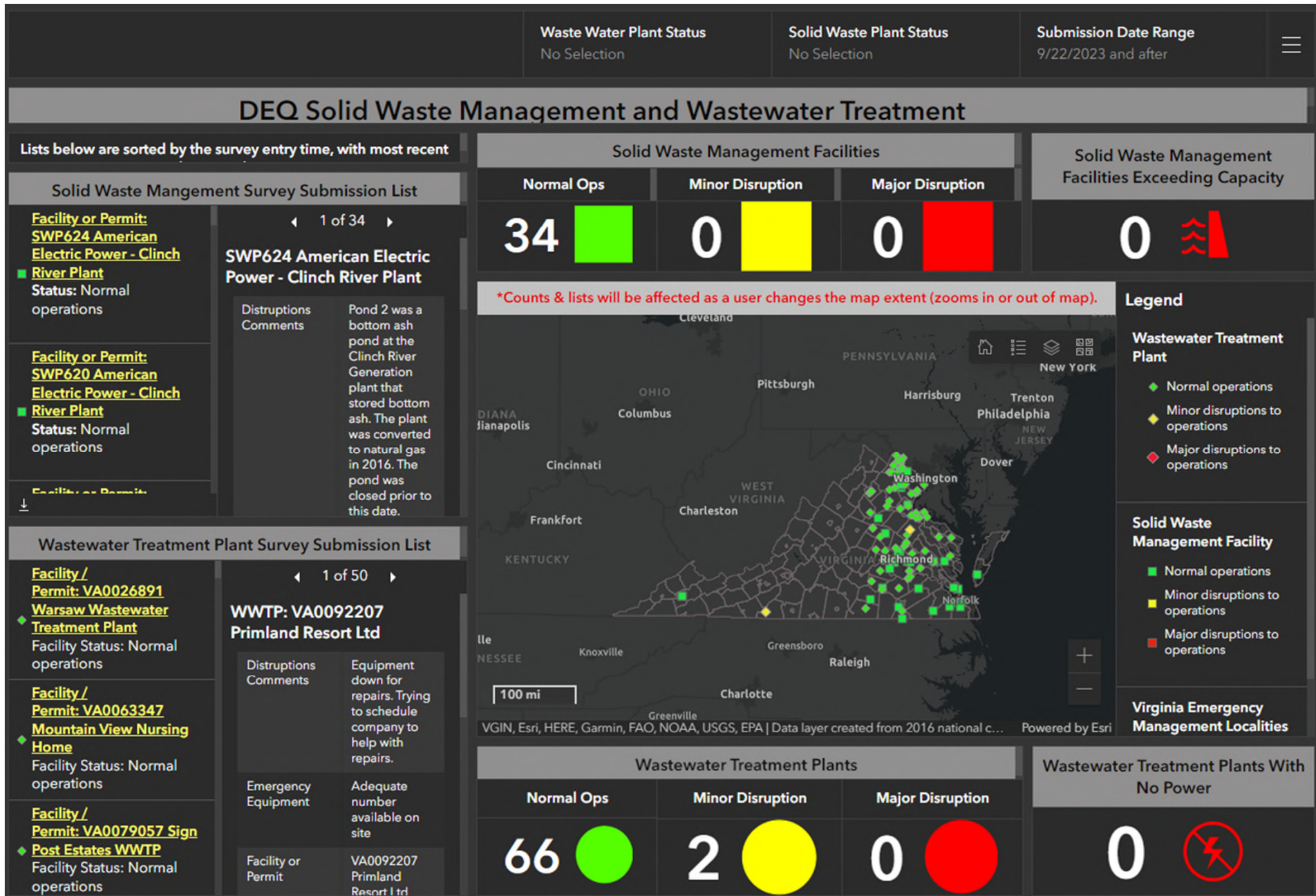
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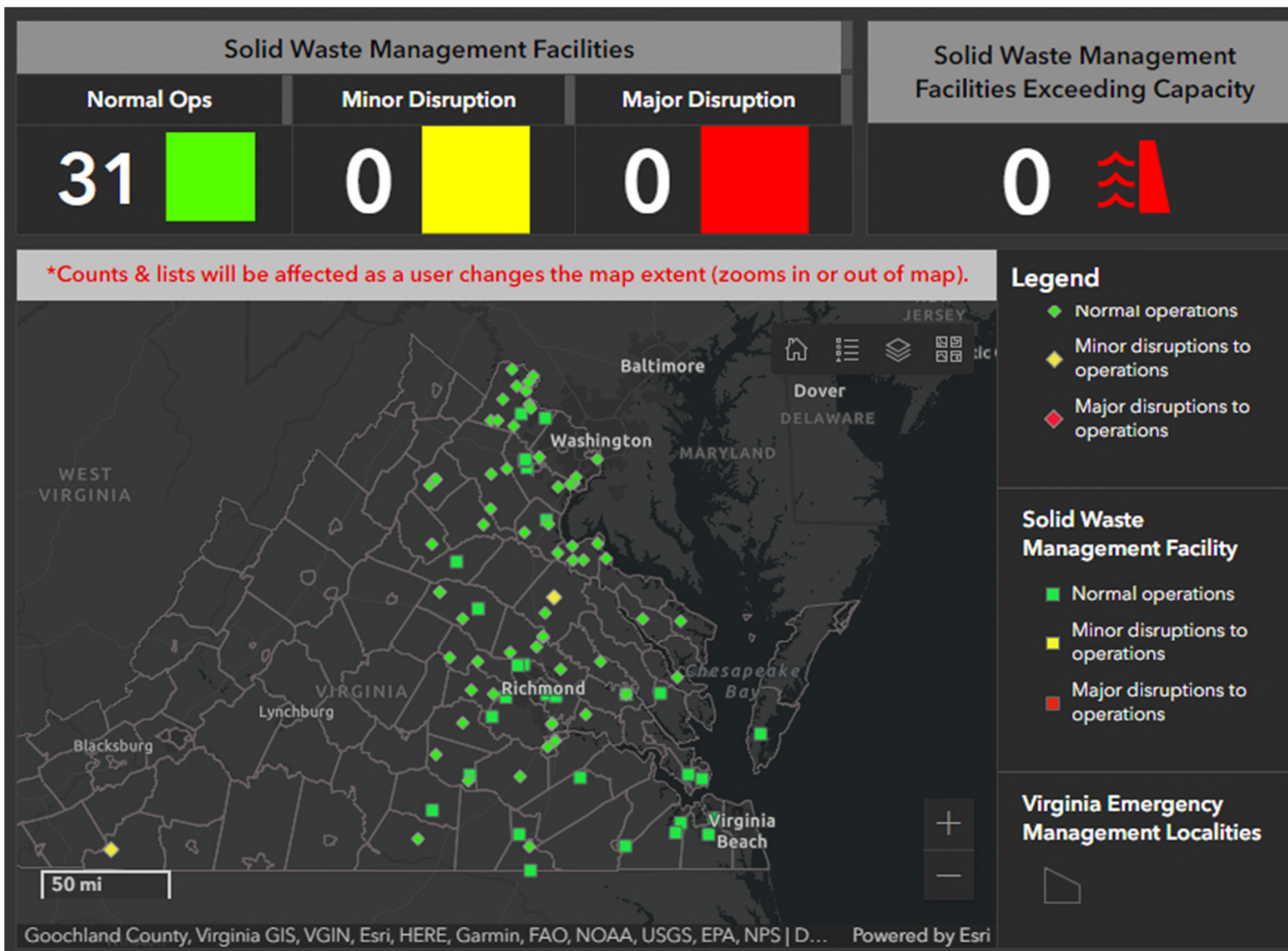
a s d f g h i k l

# Tropical Storm Ophelia



# Dashboard







# Content of Survey Responses

- Overall – no real issues identified
- Limited reported impacts from the storm

## Lessons Learned or Questions to Contemplate

- Event thresholds for when to initiate use of the survey

# Questions?

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