

CASE STUDY

CLEARING THE AIR

# How South Wake Landfill navigated a decade of rapid urbanization





## **What does urban growth mean for waste operators?**

New arrivals to the city fringes come chasing open spaces and liveability, but their moves are bringing them in closer contact with waste management sites, and this is increasingly a cause of community conflict.

Environmental impact from waste management sites affects urban liveability. It's the reason for a large number of complaints made to environmental authorities and "ill will" in communities, with landfills often listed as the top source.

Even one complaint directed at a site can lead to significant issues for operators, however sites with odor issues can generate hundreds of complaints a month. These complaints are often supported by a range of external data, from odor diaries and sniff tests to formal air quality monitoring systems set up by investigators.

Communities are increasingly impatient about slow and indecisive responses to odor complaints, so it is more important than ever that operators can minimize uncertainty, and reduce the time between a problem occurring and a solution being actioned.

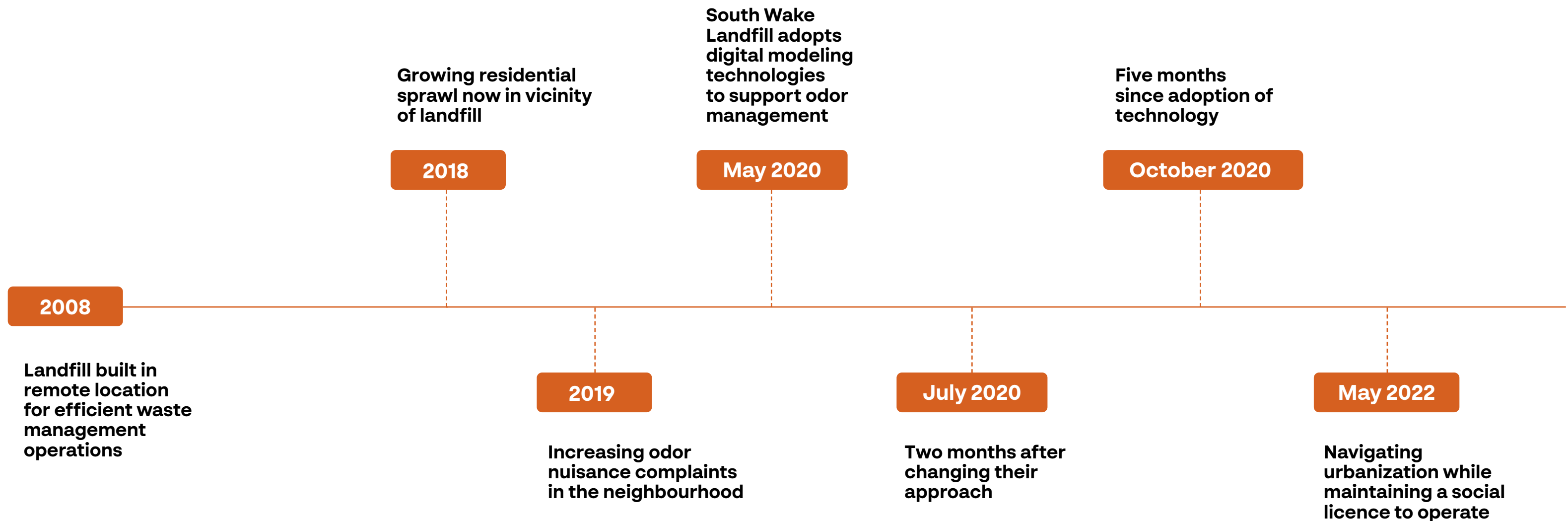
## What is South Wake Landfill?

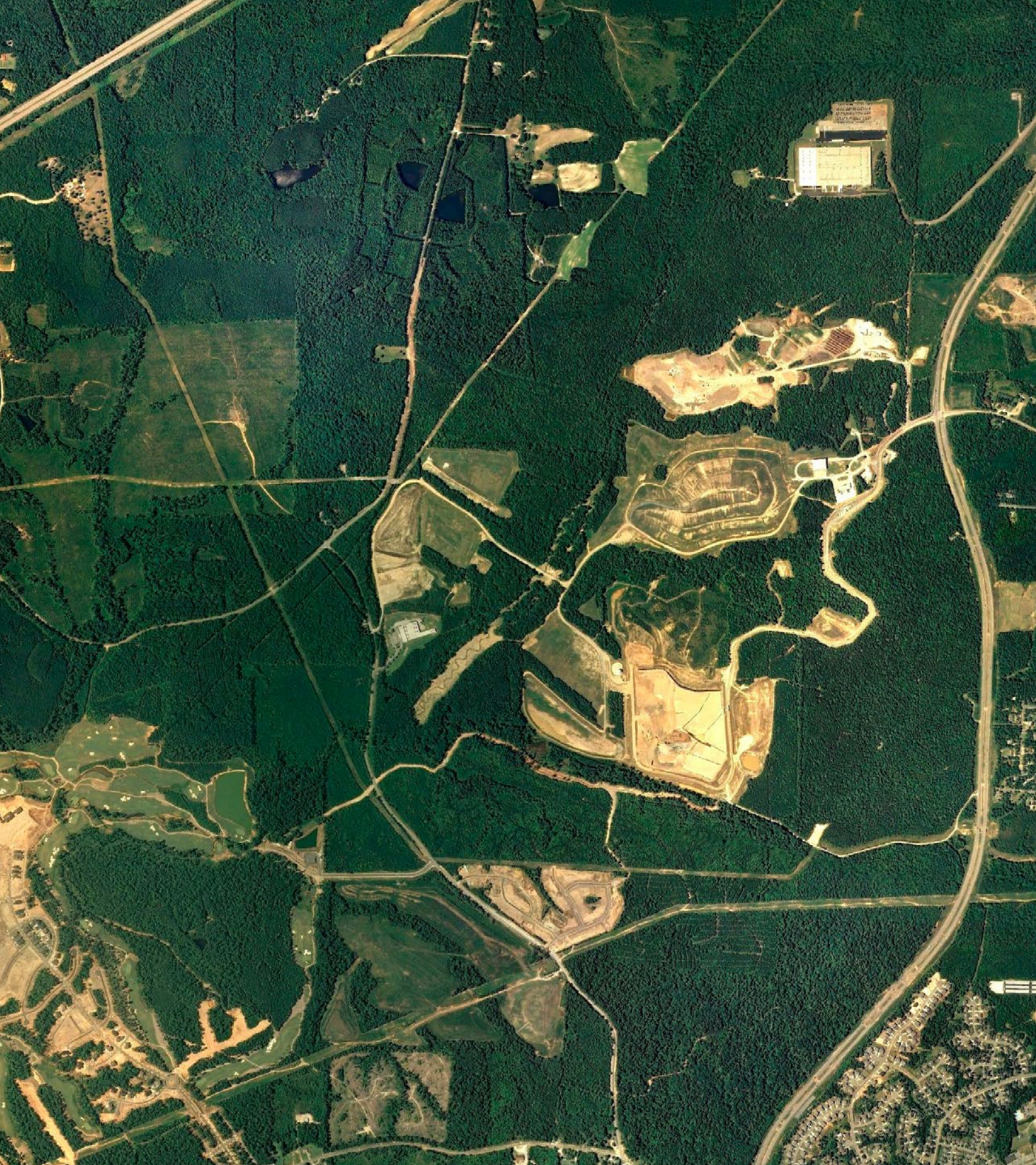
Commencing operations in 2008, South Wake Landfill - located in North Carolina - is a municipal solid waste management facility that holds a geographical footprint of 179 acres with a gross capacity of 31 million cubic yards of waste.





# Timeline of South Wake Landfill's urbanization journey





2008

### **Landfill built in remote location for efficient waste management operations**

South Wake Landfill was originally built in an isolated location, away from residential community for well-planned and systematic waste management operations.

### **Modern waste dispersion strategies deployed to limit environmental impact**

The facility is equipped with state-of-the-art machinery and follows strict odor control protocols to ensure that nearby communities are not impacted by everyday operations at the waste facility.

2018

### **Growing residential sprawl now in vicinity of landfill**

A growing residential sprawl has resulted in increased odor complaints and challenging conditions for operators.





2019

## Increasing odor nuisance complaints in the neighbourhood



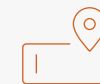
### 10+ unidentified odor complaints per day

In 2019, the landfill received approximately 324 complaints a month on average with little-to-no understanding of their origin and validity.



### Challenges containing odor emissions

South Wake Landfill set odor abatement measures including installation of odor-dilution system around the facility and sealing waste with a posi-shell solution, odor emissions continued to leave the site due to constantly changing weather conditions.



### An online complaint form deployed

The landfill created an online form to gather odor complaints from the community. The landfill still needs to investigate every complaint in person with a limited understanding of their origin.

May 2020

## South Wake Landfill adopts digital modeling technologies to support odor management



### A comprehensive odor monitoring network is deployed

Air quality monitors are installed at strategic locations around the landfill to monitor odorous parameters such as H<sub>2</sub>S.



### Odor generating activities are scheduled at low risk times

South Wake Landfill opted to schedule high-emission activities based on the 72-hour weather forecasting models in Omnis software.



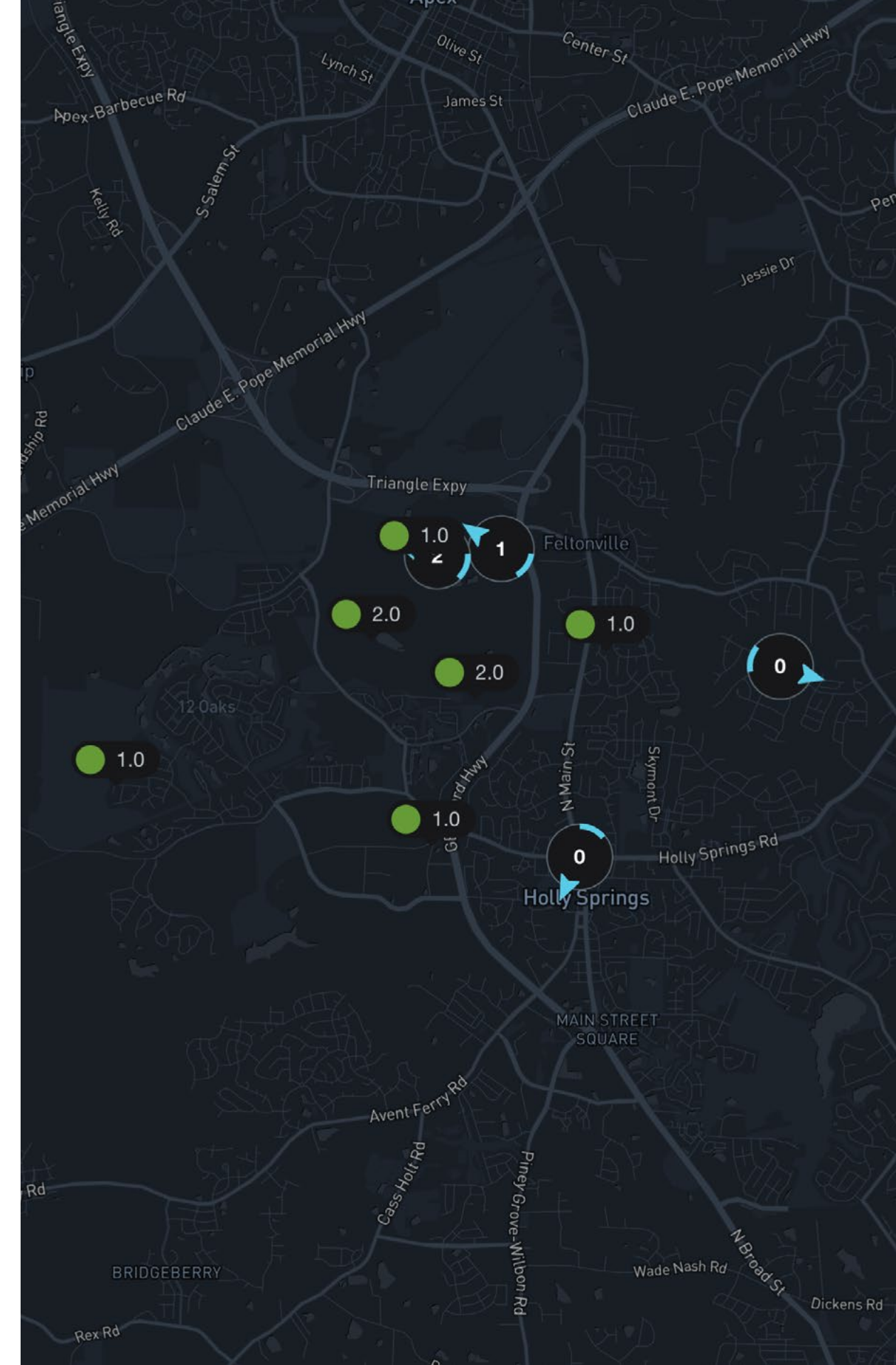
### Environmental intelligence platform is implemented

In May 2020, South Wake Landfill implemented Omnis, Envirosuite's environmental intelligence software.



### The odor complaint process is centralized

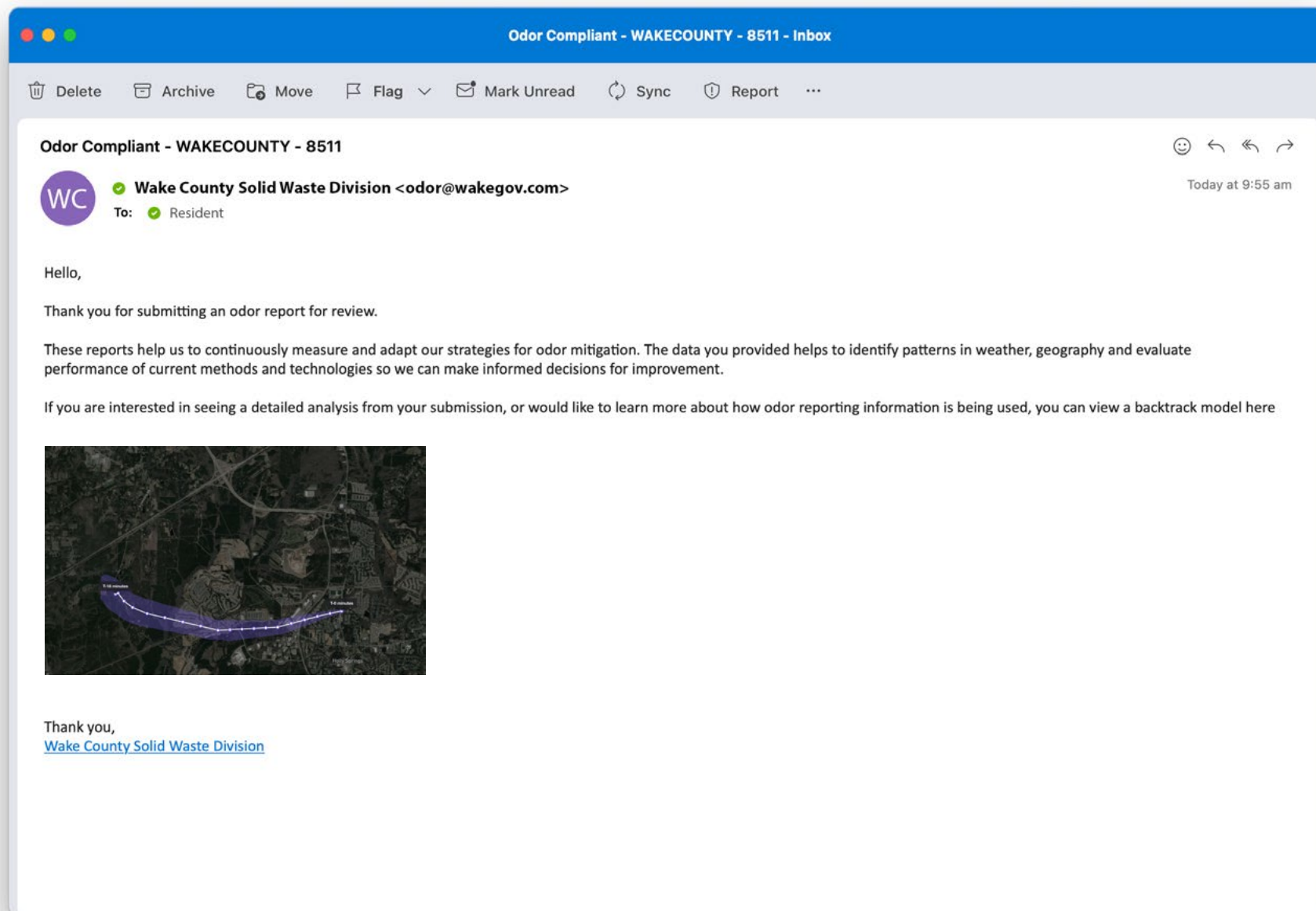
A centralized process for managing odor complaints is implemented via a communication channel between the landfill and its neighbors.





July 2020

## Two months after changing their approach



### Odor nuisance complaints surge to 800 a month

South Wake Landfill faces unverified odor complaints as county residents find an effective channel to communicate with the landfill instead of reporting odor nuisances with the local authorities.



### Automated odor complaint verification

All incoming odor complaints generate an automated response along with reverse trajectory modeling to identify if the landfill was the source of the complaint.



### Evidence of complaint source

In the event of invalid odor complaints, the Envirosuite software returns automated response to complainant with the evidence of backtrack model, confirming or refuting responsibility.

## Five months since adoption of technology



### Valid odor complaints drop to 100 a month

South Wake Landfill was able to demonstrate to concerned county residents that its operations are not responsible for a large amount of odor nuisance complaints previously directed at the facility.



### Resource optimization for odor mitigation

Disregarding invalid complaints directed at the facility, South Wake Landfill is able to focus investigation and optimize resources for odor incident mitigation for valid events.

#### WAKECOUNTY - 8511

Created time:  
09:55:00 • 20 Aug 2020

Created by:  
Anonymous user

Observation time:  
09:52:00 • 20 Aug 2020

Trajectory:  
Backtrack

Location:  
35.66355, - 78.83545

Status:  
 Invalid





May 2022

## Navigating urbanization while maintaining a social licence to operate



### Odor complaints plunge from 400 to 65 a month

Over the period of two years, valid odor complaints recorded by South Wake Landfill drop from 400 to 65 a month.



### Maintaining a social license to operate

South Wake Landfill continues to build stronger relationships with county residents while transparently demonstrating operational compliance.



### South Wake Landfill navigates rapid urbanization with proactive management of odor complaints

South Wake Landfill continues to deploy precise odor mitigation strategies using insights from Omnis software to identify problematic sources of emissions. Landfill staff can verify complaints with evidence-based data, and work with communities to resolve issues transparently.

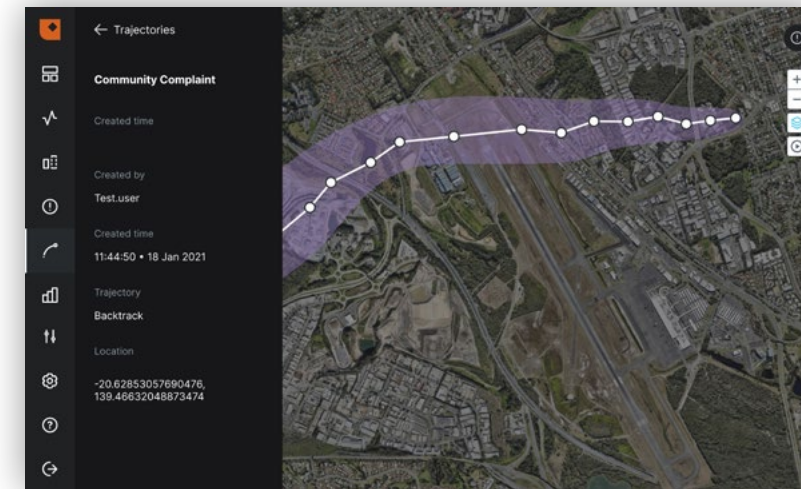


## Envirosuite is proud to have supported South Wake Landfill their journey in navigating urbanisation.

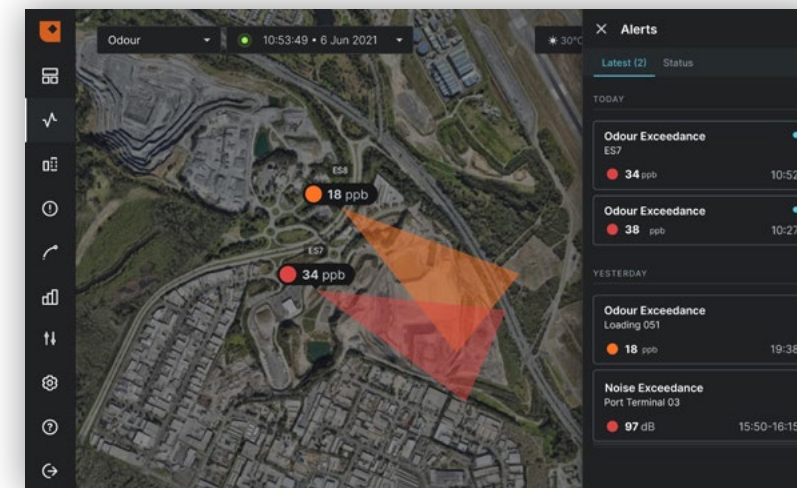
Built with real-time insights for waste management operators, Envirosuite's proprietary algorithms helped South Wake County landfill identify problematic odor and H<sub>2</sub>S emissions events in real-time. Moreover, South Wake County landfill is now able to confirm or deny responsibility for odor nuisance complaints directed at its facility.

The landfill operator uses Envirosuite's reverse trajectory modeling for a better alternative to previously slow and expensive environmental investigations that previously led to inconclusive results. The adoption of Omnis platform empowered the landfill to strengthen its odor management plan and maintain its social license to operate with nearby communities.

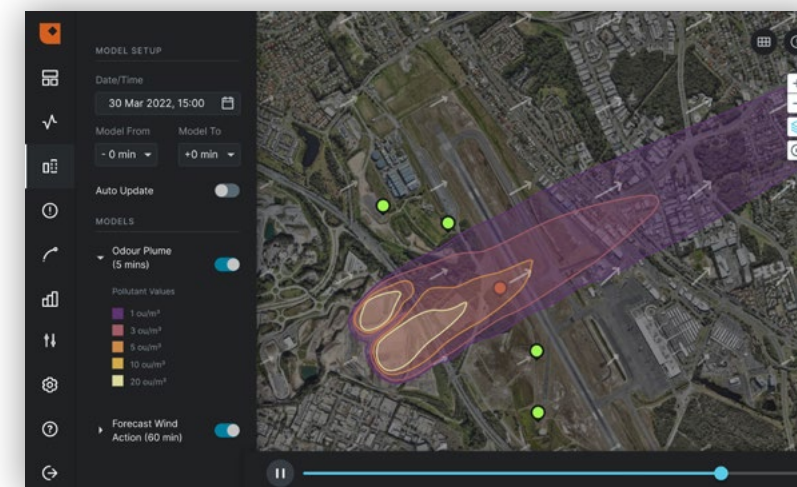
**Get in touch with an Envirosuite expert today to find out how Omnis can help your landfill:**



**Respond to odor nuisance complaints directed at your facility**



**Identify the source of problematic odor and LFG emissions**



**Validate and improve odor management plans**

# Serving clients across the waste industry



## Our customers are realising their full potential with environmental intelligence



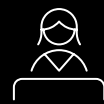
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providing situational  
awareness to  
operations



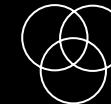
**45+**

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& sustainable  
industries



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scientists & engineers  
at your fingertips



**30+**

years  
experience

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Colombia

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the next step.

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