



**An Update On The Reaction Area At
Rumpke Sanitary Landfill**

Presented by
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Tonight's Presentation



- Site Overview
- Landfill Management
- Reaction Area Update
- Summary of Corrective Actions
- Conclusion

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Site Overview

- Landfill opened at this location in 1945.
- The site receives about 2 million tons of non-hazardous trash annually from about a 60 mile radius.
- No long haul waste comes to the site.



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Site Overview

- Modern landfills are built with protective liners under and above the trash.
 - Clay
 - High density plastic
 - Synthetic drainage layer
- Waste water is removed and landfill gas is recovered.

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Neighbor-Friendly Landfill Management

- Paved Road Maintenance
- Dust Control
- Litter Control
- Bird Population
- Odor Control

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Landfill Management

- One to two sweepers operate Monday through Saturday.
- One flush truck is used as needed.
- Two, 8,500 gallon water trucks and one, 8,000 gallon water wagon apply water to unpaved and paved roadways to control dust.
- Wheel wash

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Landfill Management

- Litter Control: Rumpke employs a team to collect any litter on and around our site.
- Bird Control: Rumpke has entered a Cooperative Service Agreement with the U.S. Department of Agriculture to control gulls, starling, crows, vultures and other wildlife.

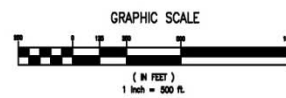
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Landfill Management

Odor Control

- Rumpke uses 6,150 linear feet of high pressure tubing connected to approximately 200 atomizing nozzles to deliver an odor neutralizing agent to the perimeter of the landfill disposal area.
- At the trash disposal area we use one trailer mounted system, one skid mounted system, two truck mounted systems with 30 nozzles each and one tractor mounted orchard sprayer to distribute a topical odor control agent directly onto the trash.

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Normal Operations



- Biological decomposition produces 50% methane and 50% carbon dioxide at 100 to 150 degrees.
- A system of 200 gas wells recovers the gas, on-site plants clean it and it's placed in the pipeline.

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Reaction Area

- August, 2009 – Increasing temperatures and changing gas quality were the first indicators of an abnormal reaction.
- Characteristics of reaction
 - Rapid decomposition and settling
 - High temperatures (200 degrees)
 - Increased liquid production

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Status of Reaction Today

- Testing confirms no risk to human health.
- Elevated well temperatures continue.
- Reaction remains well below the surface (estimated to be nearly 100 feet below the surface).
- No flames, smoke or signs of fire.
- Settlement continues in the area.
- Thorough research of waste records for that area of the landfill indicate no specific cause for the reaction.

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Action Plan

- On August 31, 2009, Rumpke reported elevated temperatures to the Ohio EPA and Hamilton County.
- Team Rumpke was established.
 - Ohio EPA
 - US EPA
 - Hamilton County DOES
 - Hamilton County Public Health
 - Colerain Township Fire Dept.
 - Rumpke

The logo for Rumpke, featuring the word "RUMPKE" in a bold, red, stylized font with a black outline and a slight 3D effect.

Action Plan

Primary objectives of action plan

- Assure no impacts to public health
- Monitor and contain reaction
- Mitigate off-site impacts

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Odor Reduction in Reaction Area

- Added clay cover to minimize oxygen access and reduce emissions.
- Constructed 32,250 feet of deep and shallow horizontal gas collection trenches to assist with gas collection and reduce odors.
- Landfill gas collection wells are also used to remove gases from the reaction area. Two flares combust the gases.

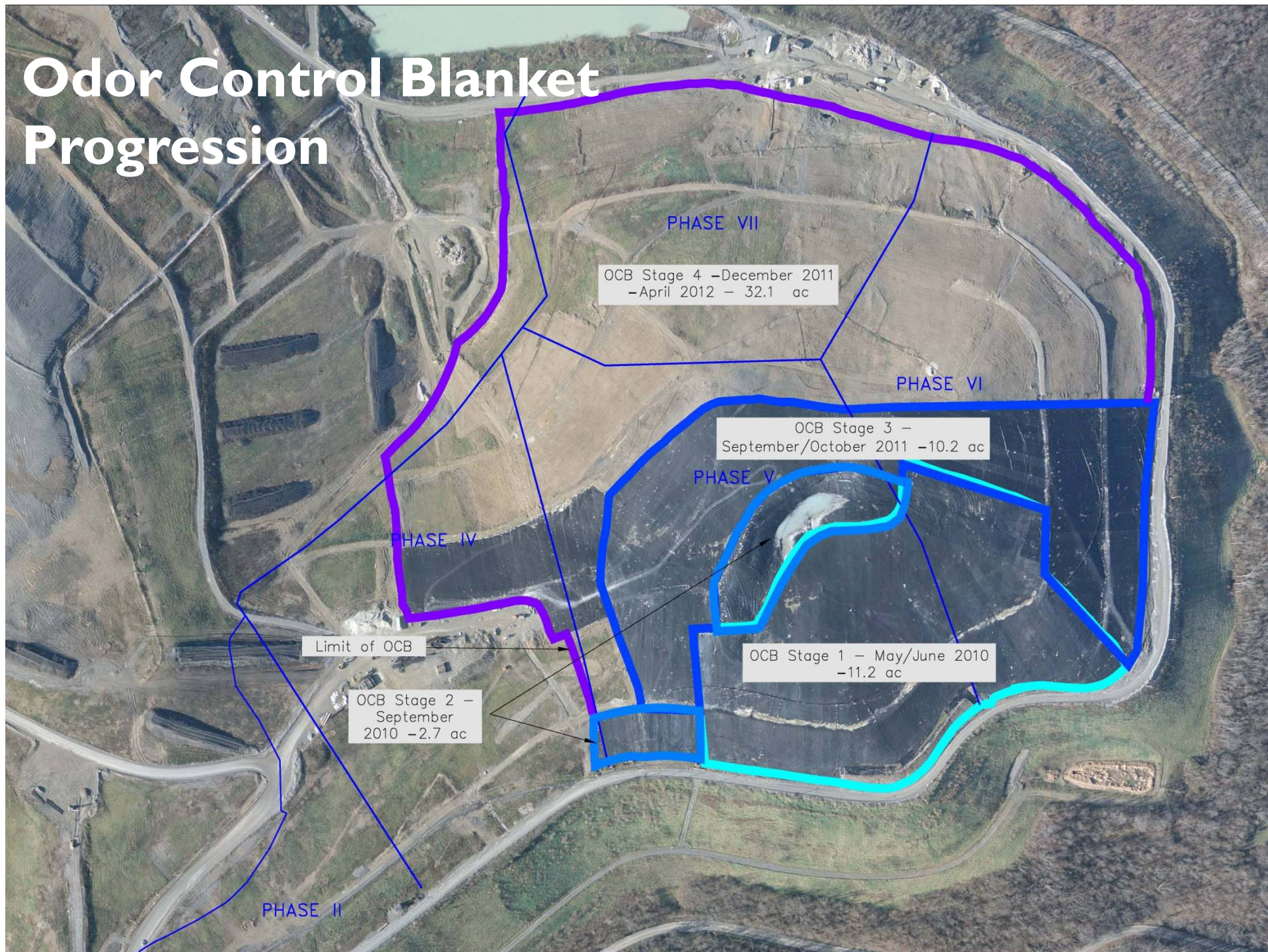
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Odor Reduction in Reaction Area

- Rumpke has installed 56 acres of odor control blanket over and around the reaction area. It is composed of high density poly ethylene liner material.
- Above the odor control blanket, 14 stationary high volume industrial fans distribute odor neutralizer.
- Waste water lift stations were fitted with carbon-based odor scrubbers .
- Twenty-four hour odor control surveillance program was implemented.

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Odor Control Blanket Progression



Aerial Photo of the Reaction Area Today

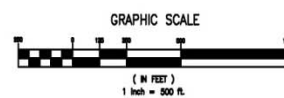
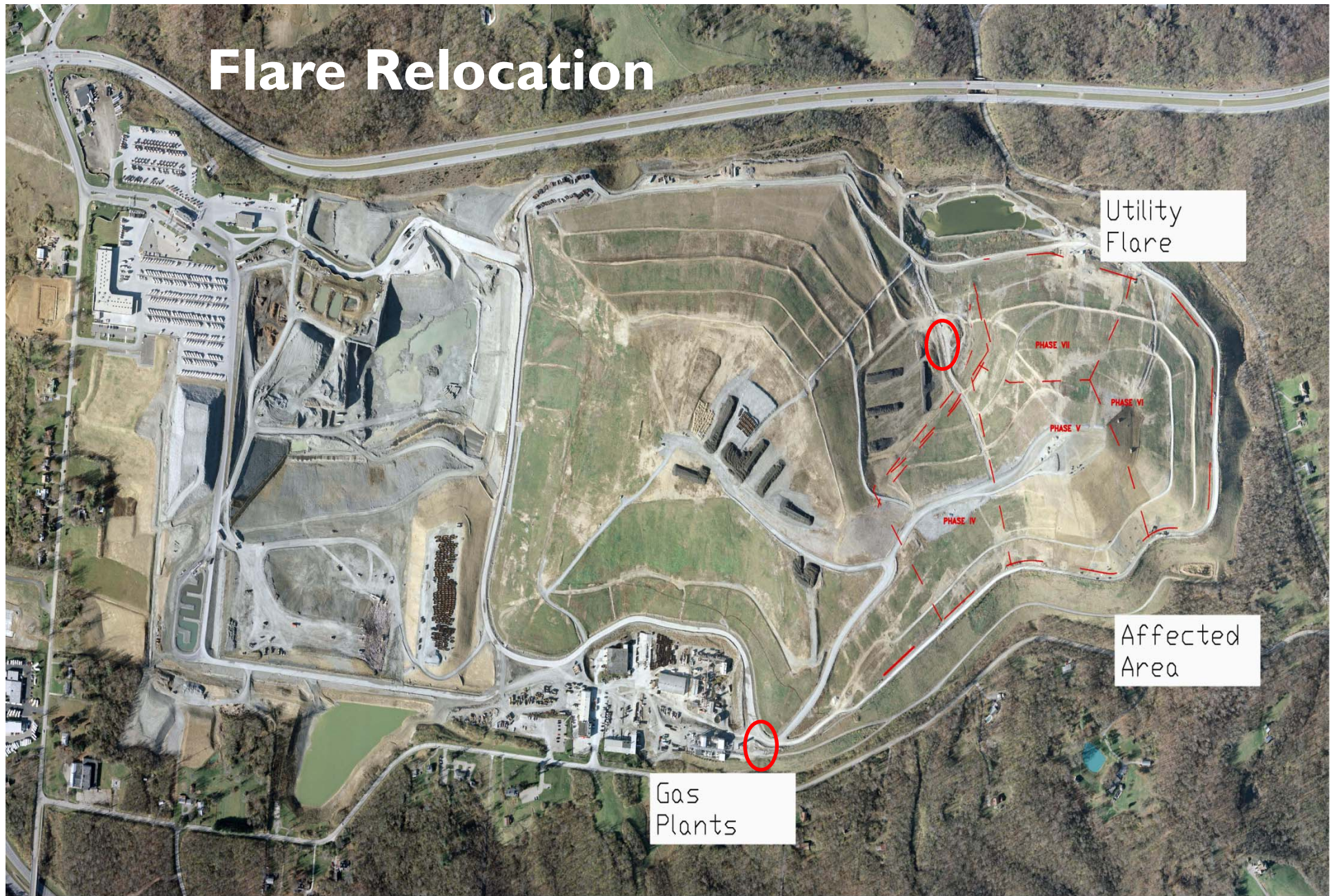


Flare Relocation

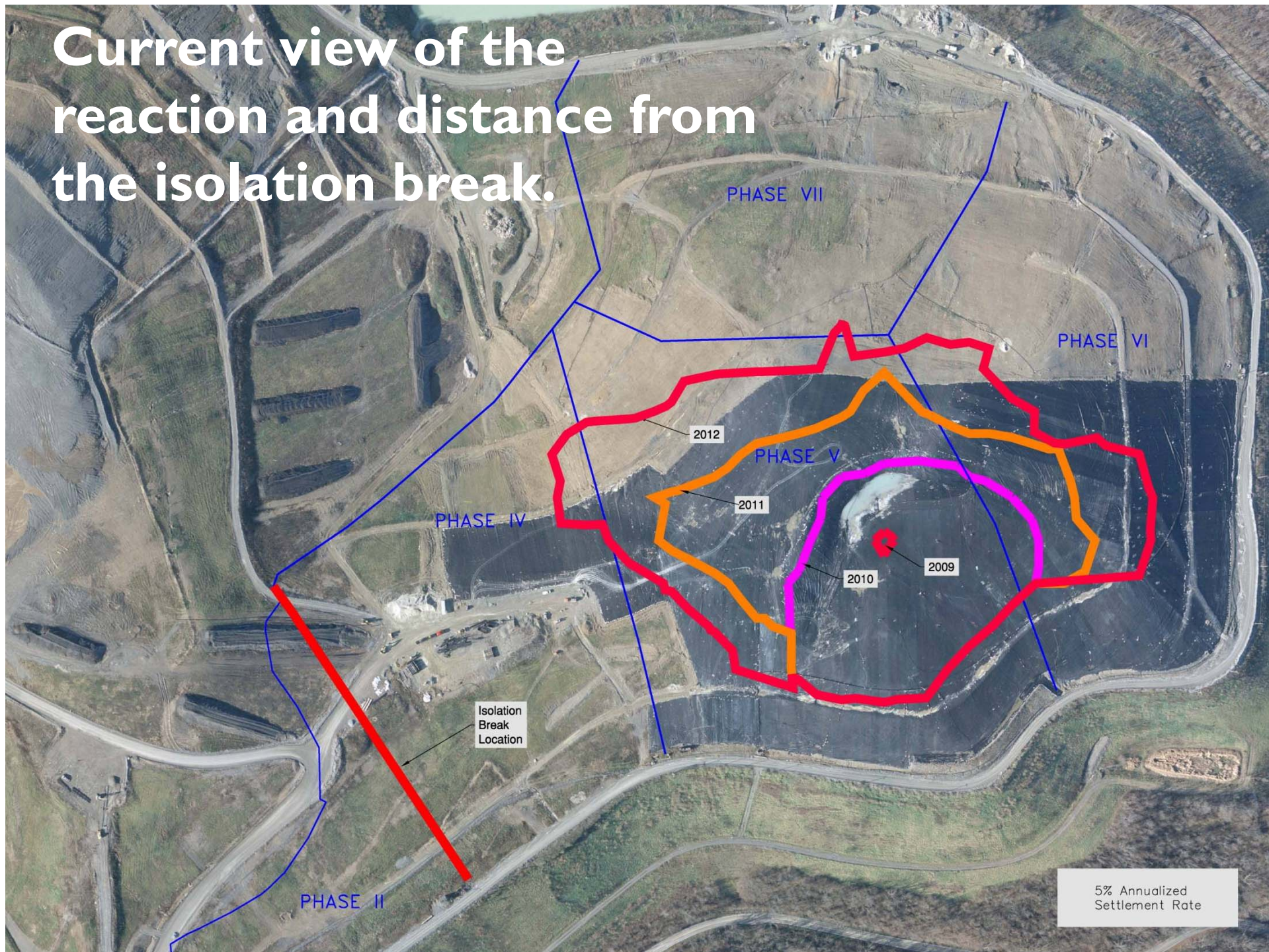
- Reduce liquid in gas
- Ensure more consistent vacuum
- Increase efficiency of flare operations
- Improves gas collection and therefore minimizes the potential for significant odor-causing events
- Relocation will be complete during Quarter I 2013

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Flare Relocation



Current view of the
reaction and distance from
the isolation break.



Isolation Break

- Would be constructed as a last resort.
- Construction will begin if the reaction begins to spread to another section of the landfill.
- Ultimate objective is to prevent further spreading.
- Two options:
 - Excavation (which is already approved)
 - Slurry Wall

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Conclusion

- Ensuring public health is safety remains a primary objective.
- Minimizing the impact of the reaction on our surrounding neighbors continues to be our focus.
- Monitoring will continue.
- New procedures will be added when possible to minimize odors.
- Communication will continue.

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More Information

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Thank you

