

# COAL MINE METHANE SUCCESS STORY

## VAMOX<sup>®</sup> Project at Walter Energy No. 4 Mine Brookwood, Alabama, United States

### Biothermica

#### OVERVIEW OF COAL MINE METHANE PROJECT:

Based on its proprietary VAMOX<sup>®</sup> technology for the destruction of underground coal mine ventilation air methane (VAM) emissions, Biothermica developed the first VAM destruction project at an active coal mine in North America.

A 30,000 ft<sup>3</sup>/min VAMOX<sup>®</sup> demonstration system was deployed in 2009 at bleeder shaft No. 4-9 of Walter Energy's active No. 4 Mine in Alabama, USA. Over the first four years of operation, the effective availability of the system was 93%. As of March 2013, more than 80,000 MTCO<sub>2</sub>E of GHG emissions had been abated by the project, which is registered with the rigorous U.S. Climate Action Reserve carbon standard.

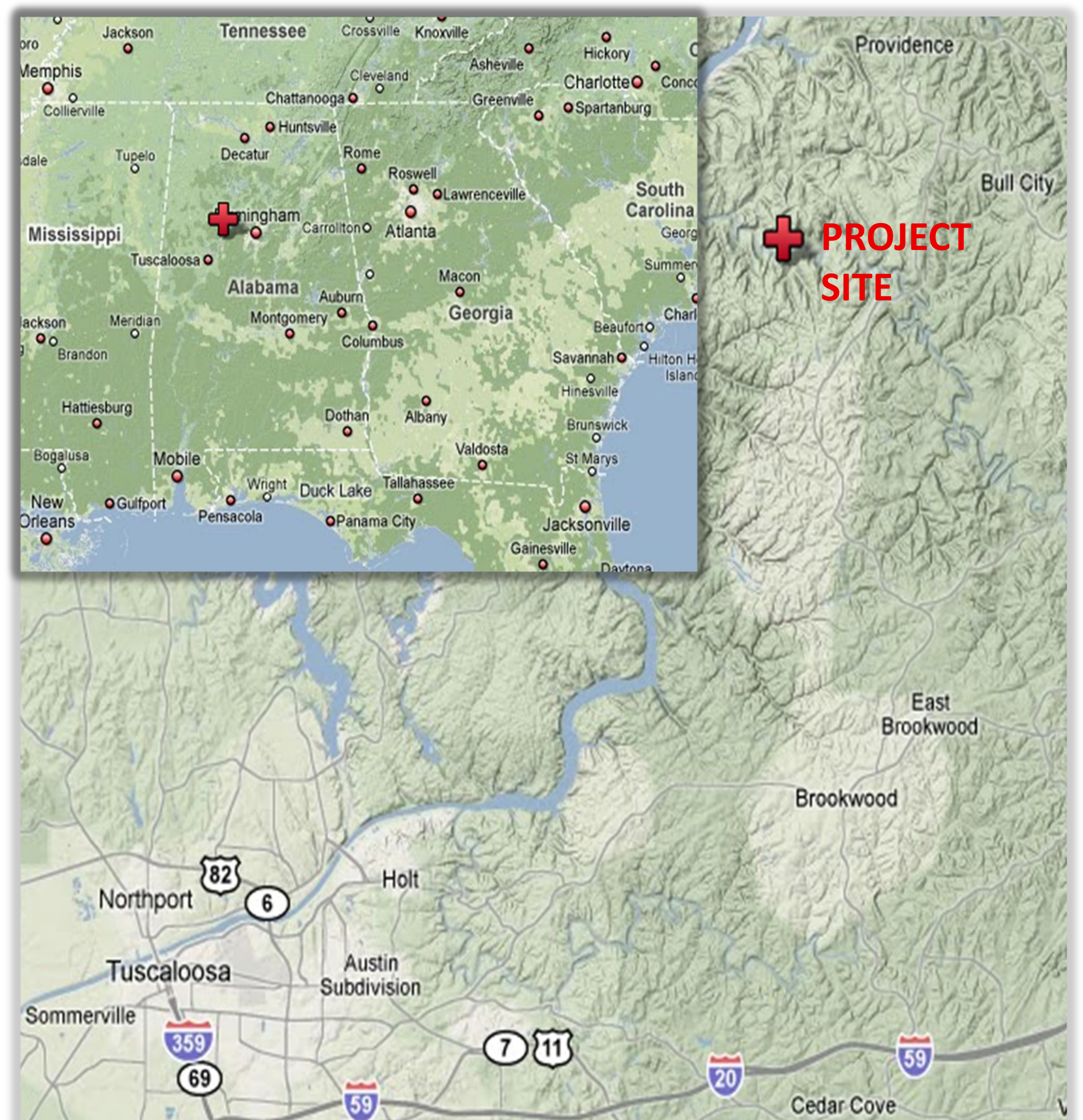
**ACTUAL ANNUAL EMISSION REDUCTIONS: 20,500 MTCO<sub>2</sub>E**

#### PROJECT DETAILS

- Name of Project: **VAMOX<sup>®</sup> PROJECT AT WALTER ENERGY No. 4 MINE**
- Name of Mine: **No. 4 Mine**
- Type of Ownership: **Private**
- Project stakeholder(s) involved in project's design, development, and implementation:
  - **Biothermica: Project Development, Finance & Ownership, Design, Technology, Construction, Operation**
  - **Jim Walter Resources (Walter Energy subsidiary): Mine Operator, Routine Maintenance of Unit**

#### MINE INFORMATION

- Mine owner: **Walter Energy**
- Parent company: **Walter Energy**
- Status and type of mine: **Underground**
- Mining Metho: **Longwall**



## INSTALLED TECHNOLOGIES



## HIGHLIGHTS / LESSONS LEARNED

Fully operational since March 2009, this project has successfully demonstrated that VAM oxidation can be performed in a safe and efficient manner at active underground coal mines. It serves as an example as to how developers, mine owners, permitting organizations and carbon registries can work together to make these projects successful.

Based on the success of the VAMOX<sup>®</sup> demonstration system, Biothermica and Walter Energy have recently partnered to develop VAM abatement projects at all of Walter Energy's economically suitable ventilation shafts. Future full-scale VAMOX<sup>®</sup> systems will have a capacity of about 130,000 ft<sup>3</sup>/min and multiple units will be installed in parallel to process greater air flows.

Biothermica offers coal mines a flexible range of options to unlock the economic value of their VAM, including:

- Joint Venture: project costs and carbon credit revenues are shared between Biothermica and the mine;
- Royalty: no investment is required by the mine, which benefits from royalty payments.

## FOR MORE INFORMATION, CONTACT:

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