



**SOLVAY**

Solvay Chemicals, Inc.  
PO Box 1167  
Green River, WY 82935

## **Comments on Behalf of Solvay Chemicals, Inc. Regarding Waste Mine Methane Released as a Consequence of Underground Trona Mining and the Coal Mine Methane Protocol**

### **California Air Resources Board Greenhouse Gas Cap-and-Trade Program**

**April 21, 2013**

#### **Introduction**

The Solvay Group ( [www.solvay.com](http://www.solvay.com) ) is one of the world leaders in the manufacture of high-performance specialty polymers and specialty chemicals. Solvay is the world leader in soda ash and hydrogen peroxide production. Among the top ten global chemical companies, Solvay is a leader in sustainable business practices and supports the global fight against climate change. Solvay embraces public and industrial initiatives in this area, including operating greenhouse gas (GHG) emission reduction projects on a number of our facilities around the world.

Solvay Chemicals, Inc. (SCI) is part of the Solvay group and operates several small and large chemical manufacturing facilities in the U.S., including the Green River Trona Mine and Refinery near Green River, Wyoming, where trona is mined and processed into soda ash, a key ingredient used in such everyday products as glass and baking soda.

We are proud to be a pioneer in the U.S. mining industry as one of the first operators to deploy a system to reduce GHG emissions through the beneficial use of waste mine methane released from an active underground mine.

#### **Purpose**

Solvay supports the California Air Resources Board's Cap-and-Trade program. We appreciate the opportunity to provide our comments concerning the potential inclusion of waste mine methane<sup>1</sup> from trona mines in the coal mine methane (CMM) protocol. This document provides background on the GHG emission reduction project at our trona mine in Green River, Wyoming and information that supports the inclusion of trona mine methane in the coal mine methane protocol under consideration by CARB.

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<sup>1</sup> The US Bureau of Land Management has termed the methane released during mining as "Waste Mine Methane" (WMM).

## **Project Background**

SCI operates an active, underground trona mine in Southwest Wyoming, 26 miles west of Green River. In order to improve and ensure safety of mine personnel, SCI utilizes gob<sup>2</sup> wells to drain waste mine methane released from strata above and below the trona seam, which would otherwise migrate from the gob to the working areas of the mine where it would be diluted with air and ventilated to the surface atmosphere. Normally, waste mine methane extracted using gob vent boreholes (“GVBs”) would also be vented directly to the atmosphere. However, to reduce emissions of GHGs, SCI built and commissioned a system in May 2010 to collect and combust waste mine methane drained from GVBs in an enclosed incinerator. As a second phase of this project, SCI commissioned a collection system to transport the waste mine methane from the GVBs to be utilized on-site in the trona processing plant in July 2012. This effort is known as the Green River Trona Mine Methane Destruction and Utilization Project.

This project was listed with CAR on April 19, 2010 with an official start date of August 13, 2010. It has gone through two successful verifications on September 1, 2011 and July 12, 2012 generating 91,486 and 77,081 CRTs respectively. Under the CAR listing, SCI estimates that it will generate over 1.0 million credits over a ten year crediting period. Depending upon future developments in the California offset market, SCI has plans to invest additional funds to potentially double the Project’s capacity and further reduce GHG emissions. Future offset generation could reach 200,000 tCO<sub>2</sub>e per year. SCI intends to apply for Early Action Offset Credits if ARB approves the CMM protocol and includes waste mine methane from trona mines.

## **Methane Liberated from Trona and Coal Mining**

Although methane released during mining is most often associated with coal mines, there are a number of “nonmetal” mines in the U.S. that produce significant quantities of methane. Of these, the underground trona mines located in southwest Wyoming are undoubtedly the gassiest. In fact, all the trona mines in the Green River Basin are classified by the U.S. Mine Safety and Health Administration (MSHA) as “Class-III gassy - nonmetal underground mines”. That is, they all release significant quantities of methane gas that must be removed from underground areas to provide a safe working environment for the miners.

Although the trona mines employ the same mining techniques that are often utilized in coal mines, there is one difference in terms of the origins of the methane gas liberated as a result of the mining process. Whereas methane released in underground coal mines is desorbed from both the primary coal seam and surrounding strata (including other coal seams in the zone of mining influence), methane released in trona mines typically originates in carboniferous shales above and below the trona seam, not from the trona itself. Nevertheless, whether the methane is liberated from the coal and the surrounding strata (i.e., coal mines), or just the strata surrounding the mineral (i.e., trona mines), large quantities of methane must be drained and ventilated from the mine to the surface. Thus, the distinction between mine methane from coal mines and mine methane from trona and other non-metal mines is actually one of semantics. The end result is collectively recognized as waste mine methane liberated into the atmosphere with identical greenhouse gas impacts.

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<sup>2</sup> Some mining techniques (e.g., “the long wall miner”) enable a process where it is possible to vent the waste mine methane directly to the surface via one or more boreholes connecting the caved area behind the mining face, (known as the “gob”) to the surface above. The waste gas that exits the mine in this fashion is often termed “gob vent gas” or “gob gas” and is also a subset of WMM.

For these reasons, trona mines are deemed eligible under the Climate Action Reserve's (CAR) Coal Mine Methane Project Protocol Version 1.1. SCI believes that including trona in the ARB's proposed CMM protocol would provide the following benefits:

- Provide incentives for trona mines to make investments that (i) could improve the safety of underground miners and (ii) significantly reduce greenhouse gas emissions and, (iii) in some cases, reduce the need for industry's use of commercial natural gas as a fuel.
- Generate several hundred thousand offset credits annually from multiple high-quality projects in the trona industry.
- Provide waste mine methane projects located in Western states such as Wyoming, with a regional proximity that most coal mines cannot offer.
- Allow ARB to rename its protocol as the "Waste Mine Methane" protocol, clearly demonstrating the desire to encourage mine methane related GHG reduction projects from all mines that release methane not just coal mines and thereby open the protocol to a wider sphere of potential projects.

### **Trona Mineral Ownership**

Like most of the mining operations in the western United States the trona reserves in Wyoming are located on large tracts of public lands managed by the Bureau of Land Management (BLM). In the specific case of the trona operations, the trona ownership is distributed by approximately 50% federal, 47% private, and 3% state. The trona operators all possess lease agreements with these owners that allow the operators access to mine the mineral. Typically, the operators are likely to have several separate tracts leased with a particular owner since the tracts, usually at least one square mile in area, are put up for sale at different times. SCI holds several leases among the various owners that total over seventy (70) square miles of trona reserve.

SCI has operated the Green River Mine for over 30 years. In that time, we have renewed some of our individual leases with the BLM as they have come due for renewal. This is typically a simple process on an "evergreen" basis provided that we maintain ongoing mining operations. Even if the mine is idled for some unforeseen reason the leases can be put into an inactive state and held for several years. SCI does not foresee any issue that might jeopardize our ability to maintain mining operations for several decades. Today's mining plans include sufficient resource for SCI to continue trona extraction for well over 100 years.

### **Waste Gas Ownership and the Creation of Offset Credits**

Methane released as a result of the mining process is a waste material, and as such is not a mineral as defined under the Mineral Leasing Act of 1920 as amended. This position was affirmed by the Interior Board of Appeals decision in the Vessels case, IBLA 2007 – 213, June 26, 2008, which determined that mine methane liberated as a result of the mining process is a singular entity not subject to the Mineral Leasing Act. SCI believes that the mine operator has the obligation and the right to deal responsibly with waste mine methane in any manner the operator may chose within the confines of law, to include exhausting the waste methane directly into the atmosphere.

SCI further reasons that in order to convert waste mine methane into substances with less GHG impact, and at the same time protect the safety and wellbeing of personnel and the

public, the methane must be put through some sort of well designed, constructed, and operated process. A suitable process to convert methane into carbon dioxide and water vapor requires a significant investment of both time and money. Therefore, SCI believes that the organization that owns, operates, and maintains the capital equipment necessary to treat the waste mine methane also owns any carbon reduction offsets that might result. In other words, it is the process of destroying the methane that enables the creation of a carbon offset, not the methane itself. Furthermore, US mining laws clearly place the responsibility and the liability, both criminal and civil, for managing methane liberated during mining squarely upon the shoulders of the mine operator. Based upon the foregoing, SCI at its sole discretion has invested in equipment to responsibly destroy waste mine methane released as a consequence of trona mining activities in federal and private lands and claims full right and title to any and all carbon reduction offset credits that might be created by doing so.

### **Summary**

- Solvay Chemicals, Inc., (SCI) operates a trona mine that releases waste methane gas as a consequence of mining.
- Methane released during trona mining is fundamentally equivalent to methane released during coal mining.
- SCI has invested in the design, construction, operation and maintenance of a facility to destroy the waste methane and reduce its greenhouse gas impact.
- SCI has registered carbon reduction credits with CAR under the coal mine methane protocol.
- SCI has attested to ownership of the CAR CRT's.
- SCI conducts mining operations on federal, state, and private lands under the authority of mineral lease agreements with the land owners.
- The lease agreements have renewal provisions and SCI has renewed several leases under these provisions and will continue to do so.
- SCI operates its mining facility in compliance with all applicable federal, state and local laws.
- SCI encourages CARB to include trona mine methane in the CMM protocol.
- SCI encourages CARB to consider renaming the CMM protocol to the Waste Mine Methane protocol and broaden the scope to include all suitable waste mine methane projects.