



Customer-Focused Solutions

**Omya Inc., Florence, VT
Odor Study Work Plan
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BACKGROUND

Residents in the neighborhood of the Omya Florence, VT facility have experienced odor episodes in the past and have claimed that the emissions from the Omya facility are the source of these odor episodes. In response, Omya has conducted numerous investigations to evaluate the potential sources of these odor episodes and has modified plant equipment, including process emission stacks, at its East Plant in an effort to reduce potential odor impact in the community.

In the Fall of 2004, the Environmental and Natural Resources Law Clinic of the Vermont Law School, on behalf of Residents Concerned About Omya (RCO), a newly formed residents group in Florence, submitted an odor complaint in a letter to the State of Vermont, Agency of Natural Resources, Department of Environmental Conservation (DEC), Air Pollution Control Division that, in addition to raising concerns about odors, raised concerns about potential health impacts associated with airborne chemicals that allegedly were causing the odors. As a result of the complaint, DEC met with Omya requesting that a study be conducted to determine whether the Omya facility is the source of the odors and whether potential health effects could result. (Omya previously had provided to the DEC information on both of those issues.)

In responding to the DEC request, Omya has asked TRC Environmental Corporation (TRC) to develop and implement a study to determine the odor sources independent of Omya's earlier findings and, if the Omya facility is determined to be the source of the odors, to recommend an odor abatement strategy to reduce the odor impacts. The work plan that follows sets forth a process to develop a plan to addresses the concerns raised by RCO.



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WORK PLAN

1.0 Preliminary Study

TRC project staff will visit the Omya facility in Florence, VT. Process and operation information from the Omya facility will be gathered through interviews with facility operators and a review of manuals and reports. The information to be reviewed will include but not be limited to: plant layout, process flow diagrams, equipment design, material safety data sheets, pollution control system design, emission source inventory, stack test reports, permits, operation schedule records, and odor complaint records, if any.

For up to six (6) days in the early part of 2005, trained and certified TRC staff will perform several walk-arounds per day in and near the facility as well as downwind from the facility in the surrounding area, including those locations where odor episodes have been reported. TRC will synchronize the walk-arounds with process operation schedules and document system data as appropriate. The walk-arounds will be performed during the day and also will be performed during the evening and early morning hours when potentially worst-case meteorological conditions may be expected to be experienced. On-site meteorological data will be recorded throughout the preliminary study. If odors are perceived, the following information concerning the odors will be documented.

- Type of odor, including intensity and character;
- Time at which the odor is detected;
- Location where the odor is detected;
- Weather conditions, including wind speed and direction and ambient temperature, at the time the odor is detected; and
- Duration and frequency of the odor episodes.

Efforts also will be made to trace the odors upwind to the original source of the odors, and locations downwind to study the extent of the odor impact.

Prior to the on-site preliminary study, Omya and the Vermont DEC Air Pollution Control Division will notify local Florence neighbors via mail and/or phone communication of the TRC study, schedule and contact information. The intent is to encourage neighborhood participation during the study and provide an avenue for communicating and documenting odor episodes.

While TRC staff is in Florence, RCO members or other neighbors will be able to contact TRC by pager or cell phone, so RCO members or other neighbors can relay odor episode information to TRC staff. TRC will respond to investigate and attempt to identify the odor sources.

Based on the information gathered, it is expected that TRC will determine which, if any, of the facility's process/operation emission sources has the potential to be the source of the odor episodes in downwind areas.

A report will be prepared at the conclusion of the preliminary study that summarizes TRC's findings. The report will include a sampling and analysis plan for conducting air sampling of the process/operation odor emission sources and odor testing protocols to be utilized in the subsequent odor testing program. The report will be submitted to DEC for review. RCO will be informed of results after the DEC review. Omya will take public comments after the DEC review.

2.0 Odor Testing and Dispersion Modeling

Based on the preliminary study, TRC will conduct odor testing at the Omya facility in accordance with the DEC-approved sampling and analysis plan at locations approved by DEC, general in accordance with the following.

Up to eight (8) samples will be collected at the facility. Duplicate samples will be collected for the purpose of obtaining sample data over time. All samples will be transported to TRC's Olfactory Laboratory in Windsor CT, where they will be evaluated by a qualified odor panel for odor threshold, odor character, and odor intensity following ASTM procedures. Air flow rate of each emission source also will be estimated or measured using EPA or industry standard procedures. The odor emission rate (OER) of each emission source then will be derived by multiplying the odor threshold value and the air flow rate. (As rule of the thumb, ground level emission sources with an OER of 2 million CFM or greater usually have the potential to cause an odor episode at downwind locations.) The results of the odor emission evaluation will be input to a dispersion model that estimates numeric odor impacts at designated downwind locations as discussed below.

Odor emission rate data and source physical parameters, such as stack height, surrounding buildings, and meteorological conditions, will be input into a dispersion model developed by US EPA to estimate quantitatively odor impacts at downwind locations. The results of the dispersion modeling will establish the source-receptor relationship required to identify the odor emission source based on the odor episodes and the OER for the sources, i.e. modeling will determine which stack contributes most significantly at each receptor points. This information then will be used to determine the type(s) of control, if any, available and required for each emission source that causes an odor above an odor threshold at identified locations.

Up to four (4) of the samples collected will be sent to Mayfly Laboratory in Mystic, CT (860-536-7431) for laboratory odorant identification analysis. Mayfly will identify and quantify odorants, or odorous compounds, in mixture samples, using gas chromatography (GC) with a mass spectrometer (MS) or other suitable

compound specific detectors. The results of the odorant identification will be used in the development of abatement approaches as discussed in the previous paragraph.

3.0 Air Testing and Health Risk Assessment

If the results of the odor testing and dispersion modeling done in step 2.0 indicate that one or more of the Omya facility process is/are the emission source, TRC will conduct further air sampling, to quantify concentrations of the responsible air contaminants being emitted from the emission source. The results of the air sampling will be evaluated for potential health risks of the compounds detected. TRC will develop a sampling and analysis plan along with a plan for evaluating potential health risks. These plans will be submitted to DEC. Upon receiving approval from DEC, the plans will be carried out. Actual emission rates will be compared to respective action levels in the Vermont air pollution control regulations. A report will be submitted to DEC for review. RCO will be informed of results after the DEC review. Based upon the results, Omya will take all appropriate actions as required under applicable air pollution control regulations for any air contaminant determined to exceed an applicable action level.