BOARD MEETING DATE: January 10, 2014 AGENDA NO. 19A

PROPOSAL: Present Feasibility Studies of Lowering Lead Point Source Emissions Limit in Rule 1420.1 - Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities

SYNOPSIS: Pursuant to the adoption resolution for Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities, staff will present the findings of the studies that address the technical, economic and physical feasibility of achieving a total facility mass lead emission rate of 0.003 pounds per hour from all lead point sources and seek Board guidance on whether to amend Rule 1420.1 to lower the total facility lead point source emission rate.

COMMITTEE: Stationary Source, November 15, 2013, Reviewed

RECOMMENDED ACTION: Receive, file, and provide guidance.

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Executive Officer

EC:LT:SN:EE:TK

Background

On November 5, 2010, the South Coast Air Quality Management District (SCAQMD) adopted Rule 1420.1 – Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities. There are two large lead-acid battery recycling facilities in the Basin, Exide Technologies located in Vernon and Quemetco Inc. located in the City of Industry. The purpose of Rule 1420.1 is to protect public health and establish requirements that will help ensure that the Basin meets the 2008 National Ambient Air Quality Standards (NAAQS) for lead of 0.15 ug/m3 averaged over a rolling 3-month period. The Rule 1420.1 ambient air concentration limit for lead is 0.15 ug/m3 averaged over any 30 consecutive days, making it more stringent than the lead NAAQS due to the shorter averaging time. The ambient air concentration takes into account point source and fugitive emissions at the facility.

Rule 1420.1 established a total facility mass lead emission rate limit of 0.045 lb/hour. During the 2010 rulemaking process for Rule 1420.1, a key issue was a request from one of the affected facilities to lower the total facility lead mass emission rate limit from point sources to 0.003 lb/hr. Based on air dispersion modeling, SCAQMD staff believed that the affected facilities would be capable of achieving the ambient air lead concentration limit of 0.15 ug/m^3 by controlling lead point source emissions to 0.01 lb/hr or less for each point source and to 0.045 lb/hr or less for total point sources, and strict adherence to the housekeeping provisions of Rule 1420.1.

To further address this issue, Rule 1420.1 subdivision (o) included a provision that requires large lead-acid battery recycling facilities to submit a study addressing the technical, economic, and physical feasibility of achieving a total facility mass lead emission rate of 0.003 lb/hour from all lead point sources if the facility exceeded an ambient lead concentration of 0.12 µg/m^3 averaged over any 30 consecutive days. In addition, an Errata to the Resolution (Agenda No. 34) was adopted which required that, if a facility is required to submit a study pursuant to subdivision (o), the SCAQMD staff would present the findings to the Board and seek guidance on whether to amend Rule 1420.1 to lower the total facility lead point source emission rate. Both large lead-acid battery recycling facilities have exceeded the 0.12 ug/m3 ambient lead concentration and have submitted lead emission rate feasibility studies pursuant to subdivision (o). The purpose of this Board Letter is to present the findings of these studies, staff's analysis, and seek guidance from the Board regarding the total facility lead point source emission rate.

Lead Emission Rate Feasibility Studies

In July and November 2011, Exide and Quemetco's ambient lead monitors detected lead concentrations exceeding 0.12 µg/m^3. Both facilities submitted Feasibility Studies, which outlined their findings with regard to achieving the total facility mass lead emission rate of 0.003 lb/hr. Exide submitted the required feasibility study and also submitted a Compliance Plan as required by Rule 1420.1 in August 2011. Quemetco submitted their feasibility study and Rule 1420.1 Compliance Plan in December 2011. A summary of the feasibility studies is provided below.

Quemetco's Lead Emission Rate Feasibility Study

Quemetco submitted their lead emission rate feasibility study in December 2011. The study included source tests from 2011 indicating that a total facility mass lead emission rate of 0.003 lb/hr was already being met with their existing air pollution control systems, including 10 room ventilator control systems utilizing High Efficiency Particulate Air (HEPA) filtration and a Wet Electrostatic Precipitator (WESP) control system venting multiple processes.

SCAQMD Staff's Evaluation. SCAQMD staff concurred that these controls, which were installed at Quemetco as part of the facility's risk reduction plan to reduce arsenic and other air toxics to comply with Rule 1402 risk reduction limits, had reduced total facility mass lead emission rates from all point sources to below 0.003 lb/hour.

Exide's Lead Emission Rate Feasibility Study[1]

Exide submitted their lead emission rate feasibility study in August 2011. The study indicated that additional air pollution control equipment, namely secondary HEPA filtration on all baghouses and a WESP, would be required in order to achieve the target emission rate and that such control equipment would not be technically, economically, or physically feasible.

Exide's Feasibility Study stated that existing controls represented greater than 99% reductions in point source lead emissions and that further emission reduction measures should be focused on fugitive emission reductions, such as those initiated as part of their Rule 1420.1 Compliance Plan (i.e., enclosure of air pollution control system area, installing HEPA filtration on Rotary Dryer/North Torit/South Torit baghouses). Additionally, the study stated that ambient air quality modeling indicated that "additional stack emissions reductions are not expected to further reduce ambient lead concentrations." Exide's study concluded that the addition of secondary HEPA filtration to room ventilator control systems and a WESP for process emission control would not be feasible for the following reasons: Exide was unable to secure performance guarantees from vendors indicating that a facility mass lead emission rate of 0.003 lb/hr was achievable; without vendor performance guarantees, it was economically infeasible to install the necessary control equipment at a cost of approximately $30 million; Exide estimated the cost-effectiveness of the proposed control equipment to be approximately $6.9 million per ton of lead removed; and there was insufficient physical space to accommodate additional air pollution control equipment.

SCAQMD Staff's Evaluation. Exide's study asserts that the installation of a WESP for process emission control was not feasible because control equipment vendors could not provide performance guarantees indicating that the 0.003 lb/hr facility mass lead emission rate was achievable. Review of the study found that the WESP vendor provided a performance guarantee; however, the guarantee was conditional upon an assumed particulate emission rate based on the proposed installation of additional HEPA filtration devices. Although the vendor of the HEPA filtration equipment was unable to provide a performance guarantee certifying the particulate emission rate used in the WESP vendor's proposal, it would have been a more accurate characterization to identify that the WESP vendor did provide a performance guarantee based on specific conditions.

Regarding insufficient physical space, Exide's study only looked at "inactive" land areas throughout their facility. The SCAQMD staff believes that one option not discussed in the study is to locate the WESP at the footprint of the storm water surface impoundment. This would require closing the storm water surface impoundment and using an alternate storage scenario. Regarding the control equipment cost, Exide's

[1] The Exide Feasibility study is included as Appendix C within the Exide Draft Risk Reduction Plan document, which may be viewed at the following web address: http://www.aqmd.gov/prdas/AB2588/Exide/ExideRiskReductionPlan.pdf

study assumed a capital recovery factor of 10 years. The SCAQMD staff would recommend 20 years for a WESP which would result in a lower annualized capital cost. SCAQMD staff did not make any further determination regarding economic feasibility.

After reviewing Exide's feasibility study, SCAQMD staff focused its efforts on reviewing and requiring additional control measures as part of the approval of Exide's Rule 1420.1 Compliance Plan as a means to implement other further control measures to reduce both fugitives and point source emissions of lead. These efforts and the requirements imposed by SCAQMD staff as part of the Compliance Plan resulted in the modification/ installation of HEPA filtration on the control systems serving two furnace feed room areas and upcoming installations of HEPA filtration on two control systems serving lead refining kettles.

Recommendations

The point source emission limit for lead was established to achieve the National Ambient Air Quality Standard (NAAQS) for lead of 0.15 $\mu g/m^3$. The existing Rule 1420.1 total facility mass lead emission rate of 0.045 lb/hr was based on meeting the lead NAAQS. Although there have been some exceedances of the more stringent Rule 1420.1 lead ambient concentration of 0.15 $\mu g/m^3$ averaged over any consecutive 30 days, the ambient air data for both facilities shows that due to implementation of the existing Rule 1420.1 and the Compliance Plans, there have not been any exceedances of the NAAQS for lead. This is a good indication that the point source emission limit of 0.045 lb/hr is appropriate to meet the NAAQS for lead.

Rule 1420.1 is proposed to be amended at the January 2014 Board Hearing to reduce arsenic, benzene and 1,3-butadiene emissions produced by large lead-acid battery recycling facilities. It is expected that implementation of Proposed Amended Rule 1420.1 will result in concurrent lead emission reductions. At the Stationary Source Committee Meeting on November 15, 2013, staff had recommended to retain the total facility mass lead emission rate of 0.045 lbs/hr and to report back to the Stationary Source Committee in July 2014 on the implementation status of Rule 1420.1 and lead emission reductions. However, based on recent Department of Toxic Substances Control letters to Exide in December 2013 regarding the elevated levels of lead found in surface dust and soil samples, the SCAQMD staff is concerned that lead contained in surface dust and soil can be re-entrained into the air impacting people that live and work near the Exide facility. DTSC indicated that the observed concentrations of lead constitute an immediate threat to human health. Lowering the lead point source emission rate would reduce the further accumulation of lead dust in the communities surrounding Exide. As a result, the SCAQMD staff has modified its recommendation to begin rulemaking immediately to consider lowering the lead point source emission rate and possibly other revisions to reduce the further accumulation of lead dust to the surrounding communities. During the rulemaking process, a determination will be made regarding any appropriate adjustment to the current 0.045 lb/hr total facility mass lead emission rate.