South Coast
Air Quality Management District
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Via Certified Mail and Return Receipt

October 24, 2013

Mr. John Hogarth
Exide Technologies
2700 Indiana St
Vernon, CA 90058

Subject: Rejection of Rule 1402 Risk Reduction Plan for **Exide Technologies, Vernon** (SCAQMD I.D. No. **124838**)

Dear Mr. Hogarth:

Pursuant to South Coast Air Quality Management District (SCAQMD) Rule 1402, the Exide Technologies, Vernon (Exide, ID# 124838) proposed Risk Reduction Plan (RRP, submitted by Exide to SCAQMD on August 28, 2013) has been reviewed by SCAQMD staff and is hereby rejected. The proposed Exide RRP does not provide sufficient information to demonstrate that facility risks have been or can be reduced permanently below Rule 1402 risk reduction action levels. Based on our detailed review and evaluation of the proposed Exide RRP, SCAQMD staff has prepared the attached comments and recommendations.

The Exide Rule 1402 compliance period began with the submittal of the Exide Risk Reduction Plan on August 28, 2013. All Rule 1402 equipment and/or control studies, permitting, installation, optimization, source testing, and Rule 1402 compliance or demonstration (with another HRA) shall be implemented as quickly as feasible and by the date(s) specified in an approved risk reduction plan **for each risk reduction measure**, but full implementation be no later than August 28, 2016 (three years from the submittal of the initial Exide Risk Reduction Plan). The revised RRP must include an implementation schedule that ensures all measures are implemented as quickly as possible.

Exide must completely and satisfactorily address the attached concerns before the Exide RRP may be approved. The revised RRP may propose alternatives to address the concerns raised, subject to SCAQMD's approval. **Exide shall submit a revised RRP by November 26, 2013.** Pursuant to Rule 1402(g)(1), Exide has the right to appeal this rejection of the Exide RRP to the Hearing Board. This appeal would follow the process provided in Rule 216, Appeals.

Sincerely,

Mohsen Nazemi, P.E.
Deputy Executive Officer
Engineering & Compliance

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Exide Technologies' Proposed Risk Reduction Plan (RRP)

Summary of RRP

In their August 28, 2013 RRP, Exide has indicated that following the March 1, 2013 approval of the HRA by SCAQMD staff, Exide proceeded with the installation of an Isolation Door on the Blast Furnace Feed Hopper/Chute. Exide claims that based on preliminary engineering testing conducted from the stack of the Hard Lead Baghouse in April 2013, Exide has determined that the Isolation Door has been effective in reducing the arsenic emissions and achieving the desired emission reductions in compliance with Rule 1402. However, Exide has indicated that they will conduct additional Confirmatory source tests in August and September 2013. Exide has contended that Confirmatory emission testing along with additional control measures proposed in the RRP, will reduce the health risk well below Rule 1402 action levels.

Proposed RRP Control Measures

Exide has proposed the following control measures in their RRP:

- Installation of an Isolation Door on the Blast Furnace Feed Hopper/Chute
- Installation of secondary High Efficiency Particulate Air (HEPA) filtration downstream of:
    - Hard Lead Baghouse
    - Soft Lead Baghouse
    - Material Handling Baghouse
    - MAC Baghouses
- Installation of a Regenerative Thermal Oxidizer (RTO) on the Reverberatory (Reverb) Furnace Feed Rotary Dryer exhaust

It should be noted that Exide has already installed the Isolation Door on the Blast Furnace Feed Hopper pursuant to a Permit to Construct issued by SCAQMD in April 2013. In addition, due to exceedances of the 0.15 ug/m3 SCAQMD Rule 1420.1 lead ambient standard at the MID Monitor in June 2012 Exide was required to provide additional mitigation measures pursuant to Exide's Rule 1420.1 Compliance Plan. On August 1, 2012, as part of their Lead Mitigation Plan, Exide proposed to install HEPA filtration on the same Material Handling Baghouse (Blast Furnace Feed Room Baghouse) that they are proposing to install HEPA filtration on as part of the RRP. SCAQMD staff conditionally approved the installation of HEPA filtration on the Material Handling Baghouse on November 16, 2012, Exide submitted an application for installation and of HEPA filtration and SCAQMD issued a Permit to Construct to Exide on July 23, 2013. Exide was required to complete the installation of the HEPA filtration on the Material Handling Baghouse by October 21, 2013. In addition, due to exceedances of the 0.1 5 ug/m3 Rule 1420.1 lead ambient standard at the North East and On-Site North monitors in September 2013, Exide was required to provide additional

mitigation measures pursuant to their Rule 1420.1 Compliance Plan. On September 27, 2013 Exide proposed to install HEPA filtration on the same Hard Lead and Soft Lead Baghouses that they are now proposing to install HEPA filtration as part of the RRP. Exide's proposed September 27, 2013 mitigation measure is presently under review.

Proposed RRP Schedule

As part of the RRP, Exide has proposed the following schedule for completion of various elements of their RRP:

TASK	DATE OF COMPLETION
Conduct Isolation Door Confirmatory source tests and report results	October 4, 2013
Submit updated HRA, based on Confirmatory test results	December 1, 2013
Submit Applications for Secondary HEPA filtration on Hard & Soft Lead and MAC Baghouses	December 1, 2013
Submit Application for RTO on Feed Rotary Dryer Exhaust	December 1, 2013
Complete Installation of HEPA on Material Handling Baghouse.	January 21,2014 (SCAQMD required this to be completed by October 21, 2013 in the
Complete Installation of HEPA on Hard & Soft Lead and MAC Baghouses	September 1, 2014
Complete Installation of RTO on Feed Rotary Dryer Exhaust	September 1, 2014

Proposed Contingency Plan

In addition, in their RRP, Exide has proposed a Contingency Plan that Exide will pursue to reduce arsenic emissions if the Confirmatory source tests do not confirm that the currently installed Isolation Door has effectively reduced the facility health risk. The Contingency Plan includes:

- Upgrading the Isolation Door from the current configuration to an airlock system (by the use of either a rotating drum feed mechanism or a double door configuration); and/or
- If the Confirmatory source testing shows that the Isolation Door is working well, but arsenic emissions from the Hard Lead Baghouse are still not reduced enough due to arsenic emissions from arsenic addition to refining kettles, Exide will pursue installation of a separate air pollution control system, such as wet scrubbing system, for up to two (2) refining kettles and limit arsenic emissions to only those two refining kettles.

Comments and Recommendations

Based on SCAQMD staff's review and evaluation of the RRP and other related information and staff's observations of the operations at Exide, as well as consideration of the available source testing information from recent source tests conducted by Exide and SCAQMD, it has been determined that Exide's RRP does not substantiate the risk levels claimed in the RRP and therefore, it is not approvable in its existing form. The main concerns about the RRP's ability to meet the risk levels specified in the plan are listed below. Each item concludes with a recommendation to be considered in the revised RRP.

1. Isolation Door and Blast Furnace Leaking: Although Exide has proposed a number of control measures, it is primarily relying on the installation of the Isolation Door on the Blast Furnace Feed Hopper/Chute to reduce the health risk to levels claimed in the RRP. However, based on our staff's observations of the Blast Furnace operation and review of the pressure measurements from inside the Blast Furnace during various periods of operation, it has been determined that although the Isolation Door on the Blast Furnace Feed Hopper/Chute may help to minimize the magnitude of leaks, the Blast Furnace still leaks when the Isolation Door is opened to add feed material into the Blast Furnace, and leaks even when the Isolation Door is closed and thus it does not fully prevent the release of arsenic containing emissions, which has been identified as the primary driver of the high risk levels.

Recommendation:

The revised RRP should contain measures that eliminate or substantially reduce the leaks from the Isolation Door and Blast Furnace. In order to eliminate emissions when the Isolation Door is opened to charge feed into the Blast Furnace, Exide needs to upgrade the Isolation Door from the current configuration to an airlock system, such as through the use of rotating drum feed mechanism or a double door configuration.

2. Air Flow and Furnace Pressure: Staff believes that arsenic emissions are directly related to the adequacy of the Blast and Reverb Furnaces main Air Pollution Control System's (APCS) air flow rates and the corresponding furnace pressures, particularly the pressure inside the Blast Furnace. When the Blast Furnace pressure is negative, air flow along with the arsenic emissions are drawn through the Blast Furnace main APCS and are thus controlled by the Blast Furnace's main APCS (Thermal Oxidizer/Baghouse/Venturi Scrubber/Neptune Scrubber system). When the Blast Furnace pressure is positive, arsenic and other toxic emissions are released from the Blast Furnace leaks and are directed to the Hard Lead Baghouse and/or the Torit North and South Baghouses ventilation systems. Neither the Hard Lead Baghouse nor the Torit Baghouses, however, are capable of effectively controlling gaseous arsenic emissions. It should also be noted that the results of the source tests conducted by SCAQMD staff shows that the emissions measured during SCAQMD source tests are in some cases an order of magnitude higher

than emission levels measured during Exide's August/September source tests. In addition, data from a pressure gauge mounted near the opening of the Blast Furnace Isolation Door indicates that for significant periods of time the Blast Furnace is operating under positive pressure. This is further evidence that the operation of the Blast Furnace is highly variable and emissions from this furnace fluctuate based on factors such as the amount of air flow into the APCS, pressure inside the furnace, amount and moisture content of the feed material and amount of dilution air pulled into the exhaust air flow to cool the Blast Furnace/Thermal Oxidizer exhaust prior to entering the baghouse.

Recommendation

Exide needs to implement further controls. These should include either increasing the air flow into, as well as increasing the size of, the existing main APCS venting the Blast and Reverb Furnaces, or installation of additional APCS capacity (larger APCS venting both furnaces, or installation of individual APCS for each furnace) to ensure negative pressure is maintained inside both furnaces, particularly the Blast Furnace, at all times. The furnace pressures need to be continuously monitored to ensure full capture by the appropriate APCS. Also Exide will be required to perform simultaneous source testing of all stacks (see item #7).

3. Neptune Scrubber: The Neptune scrubber system utilizes a venturi scrubber (which controls arsenic and other gaseous compounds) and a counter flow tray-type scrubber using a sodium carbonate to remove oxides of sulfur (SOx). Exide could increase the capacity of the main process APCS (i.e., the Neptune scrubber system). To increase the capacity, the motor and blower on the venturi scrubber would have to be increased in size and the cross sectional area of the tray-type scrubber would likewise have to be increased (in order to prevent flooding).

Recommendation

If it is elected to increase scrubber capacity, the additional flow capacity of the scrubbers should be at a level sufficient to fully capture the dross tapping vent emissions (with proper hooding to capture the emissions) for both furnaces, as well as the emissions from the refining kettles where arsenic addition occurs; which are additional sources of arsenic that need to be controlled with the proper APCS.

4. Dilution Air: Exide's APCS venting the Blast Furnace is designed such that after the exhaust from the furnace passes through the Thermal Oxidizer and before entering the Baghouse, the operators are able to open dampers in the duct to add dilution air in order to cool the exhaust stream prior to entering the baghouse. This is done in order to reduce the temperature of the exhaust stream and prevent damage to the bags inside the Baghouse. Although the introduction of dilution air is not done on a continuous basis, this approach also reduces the total air flow from the Blast Furnace into the APCS, resulting in increased pressure inside the Blast Furnace, causing additional emissions from the Blast Furnace.

Recommendation

Exide needs to use a different design, such as heat exchangers or cooling coils, to permanently eliminate any dilution air from being introduced into the system in order to maintain consistent maximum flow from the Blast Furnace to the APCS.

5. Furnace Emissions: Though the Isolation Door on the Blast Furnace Feed Hopper/Chute may, at times, help to minimize the Blast Furnace emissions that are generated from escaping, the door has not completely eliminated the fugitive or even process emissions. The control and optimization of the APCS air flows is complex and requires operators pay close attention to the process at all times. In fact, review of the pressure data inside the Blast Furnace for certain days has shown that there is a significant variation in the data, with the pressure decrease (becoming negative) during the day shift, which is when source testing is typically conducted, and then increased (becoming positive) during the night shifts. In addition, when the pressure was positive in the Reverb Furnace, significant visible emissions (leaks, including process emissions) were observed from the Reverb Furnace. These emissions from the Blast and Reverb Furnaces, as well as dross tapping emissions from the Blast Furnace, are being captured and processed by the Hard and Soft Lead Baghouses and the two Torit Baghouses, which are not designed to control gaseous arsenic emissions.

Recommendation

The revised RRP should contain measures that eliminate or reduce the leaks from Blast and Reverb Furnaces and monitors and maintains negative pressure in the furnaces.

6. Control of Gaseous Arsenic: The Torit North and South Baghouses, although equipped with HEPA filtration, are not designed to control gaseous emissions, such as gaseous forms of arsenic. The Hard and Soft Lead Baghouse (as currently configured or in its future configuration with HEPA filtration) is also not capable of effectively controlling gaseous arsenic emissions.

Recommendation

Exide should consider installing additional APCS on all their baghouses (i.e., Hard Lead, Soft Lead and Torit North and South) to control gaseous arsenic and other gaseous emissions, as well as solid particulate emissions. An additional high pressure venturi type scrubber or equivalent gaseous control technology is needed to effectively scrub all forms of arsenic emissions directed to the Hard Lead, Soft Lead and Torit Baghouses.

7. Simultaneous Source Testing Needed: Although Exide has conducted source tests from exhausts of the Neptune scrubber, and Hard Lead and Soft Lead Baghouses, the full extent of the effectiveness of the Isolation Door on the Blast Furnace Feed Hopper/Chute cannot be assessed until simultaneous source testing is conducted on not only these three stacks, but also the stacks of the Torit North and South Baghouses. That is because any emissions, including arsenic, lead and other toxic

air contaminants, which are released from the operation of the Blast and/or the Reverb Furnaces, are released inside the containment building which is also vented to the Torit North and South Baghouses. Note that even with simultaneous testing, Exide must demonstrate that it can consistently maintain all operating conditions during the source test under normal operations and on an ongoing basis (See Item #8).

Recommendation

The revised RRP should address simultaneous testing of all sources of emission releases into the atmosphere including the Hard Lead and Soft Lead Baghouses, Neptune scrubber and Torit North and South Baghouses.

8. Normal Operating Conditions: The large portion of the reductions that Exide claims to have occurred due to the installation of the Isolation Door on the Blast Furnace Feed Hopper/Chute are based on the premise that the Blast Furnace can consistently and continuously operate as operated during the source tests. Based on the review of the available data, staff has determined that the parameters observed during source testing cannot be maintained consistently during Exide's normal operations. Exide now has several weeks of pressure or differential gauge measurements/readings indicating that the conditions observed during source testing (specifically pressure at the Blast Furnace) do not consistently occur during normal operations when a source test is not being conducted.

Recommendation

The revised RRP should present the pressure or differential range that was achieved during source testing as well as all other times when source testing was not being conducted. The revised RRP should present a pressure or differential range that Exide can attain and maintain at all times during normal operating conditions.

9. HEPA and RTO: Staff supports Exide's proposal to install HEPA filters on the Hard Lead, Soft Lead, Material Handling, and Material Preparation & Reverb Feed Room (MAC) Baghouses, as well as the proposed installation of the RTO on the Reverb Furnace feed rotary dryer exhaust. Recent source tests conducted by SCAQMD staff on the Hard Lead Baghouse exhaust have shown excessive lead emissions in violation of SCAQMD Rule 1420.1 point source limit of 0.01 lb/hr. This is an indication that the Hard Lead Baghouse is not adequately controlling lead emissions and requires addition of HEPA or other types of controls to improve its efficiency for control of lead emissions. However, the proposed control measures do not provide the expected emission reductions required for arsenic because the RTO only reduces emissions of organics and not gaseous arsenic, and the expected additional control efficiency for add-on HEPA filters is based on lead emissions, and not arsenic trioxide emissions which can evaporate and be in the gaseous phase due to its vapor pressure. This form of arsenic is generally not controlled or removed by an RTO or by dry, filter-type baghouses.

Recommendation

The revised RRP should address the effectiveness of HEPA filters and RTO or any other APCS proposed by Exide with respect to gaseous arsenic. (Furthermore, as stated earlier Exide has already proposed to install HEPA filtration on the Material Handling and Hard and Soft Lead Baghouses as part of their mitigation measures required under their Rule 1420.1 Compliance Plan due to exceedances of the 0.15 ug/m3 lead emission standard in June 2012 and September 2013.)

10. WESP for Arsenic Control: Also, in the RRP, Exide has claimed that a wet electrostatic precipitator (WESP) is not feasible, based on their Feasibility Study previously submitted in August 2011 as required pursuant to Rule 1420.1. It should be noted that this study considered the feasibility of installing a WESP to control emissions of lead.

Recommendation

For the purpose of this RRP, Exide should analyze the feasibility of a WESP to control arsenic, as well as other toxic emissions, since arsenic is the primary risk driver and lead and other toxic emissions contribute to the risk levels.