SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 7	PAGE 1
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ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PROCESSED BY MAP	CHECKED BY

P/C

COMPANY NAME AND ADDRESS

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EQUIPMENT DESCRIPTION

APPLICATION NO. 550925

RECLAIM/TV MINOR FACILITY PERMIT REVISION

APPLICATION NO. 552484 (previous A/N 511852)

CHANGE OF CONDITION TO THE BATTERY WRECKING AND CONVEYING SYSTEM OF A/N 552484.

HISTORY

Application No. 552484 was received as class I on 6-7-2013. A/N 550925 was received on 5-8-2013. The purpose of these applications is to change system condition S53.1 to accommodate changes in the market composition of lead acid battery types.

A/N 552484 is preceded by A/N 511852 received on 6/17/2010, (P/C issued 10-8-2010) to modify the battery crushing system by the replacement of the hammer mill battery crusher in this system. Due to complications, this new hammer mill has not been installed yet. The subject crushing equipment was previously operating under A/N 262165, P/O D49307 issued on 3/2/1992. This equipment was subsequently incorporated into the RECLAIM/TV Facility Permit.

PROCESS DESCRIPTION

Quemetco, Inc. recycles spent lead acid batteries to recover lead metal. Metallic lead is the desired product in this operation. A waste material, lead depleted slag, is shipped offsite for proper disposal. The waste slag by-product consists mainly of metal oxides and sulfates, and silica sand which may occur in this material as metal silicates. The metals present in the waste slag are expected to be mostly unrecoverable lead, calcium, iron, sodium, and trace heavy metals. The waste slag may also contain various alkaline earth metals.

In this operation, lead acid batteries are broken into fragments and the liquid sulfuric acid is washed and/or partially neutralized. The solid fragments include process material consisting of

lead, rubber, and plastic. The bulk of the plastic is separated and washed, and sold to an external buyer. The remainder of feed materials are mixed along with other additives consisting mainly of calcined carbon coke, lime, iron, borax, and/or silica sand. The shredded and treated raw feed material is stored in piles to drain as much liquid out of the feed piles as possible, and then a skip loader is used to charge buckets of this material to a rotary kiln hopper. Most of the moisture is removed in the rotary kiln and the dehydrated feed mix is charged to a reverberatory furnace. The raw mixture is smelted in this furnace and two streams of molten material are produced. The first stream, lead metal, is tapped from the reverberatory furnace and poured into large molds. The second stream, molten slag, is continuously charged to an adjacent electric resistance heated slag reduction furnace.

The reverberatory furnace operates at high temperatures of about 1900 degrees F. Molten slag floats on top of the denser liquid lead metal. The slag layer insulates the molten lead from further oxidation. The reducing agents chemically react with the slag material and reduce the lead content to metallic lead, which sinks to the bottom of the slag layers. Due to the high temperature, long residence time, and oxidizing atmosphere in the reverberatory furnace chamber, most of the organic gases produced in the reverberatory furnace are destroyed. However, both the reverberatory furnace and rotary dryer emit ROG and CO with the majority of these contaminants coming from the rotary dryer. The rotary dryer is direct fired and is not designed to heat the feed to high temperatures. A regenerative thermal oxidizer, in line between the rotary dryer baghouse and the WESP system is used to control ROG, CO, and toxic organic compounds emitted by the rotary dryer furnace.

Raw lead metal from the reverberatory and slag reduction furnaces, previously cast into lead blocks, is subsequently charged to refining pot furnaces. The lead is re-melted and mixed with various reagents to remove impurities and to adjust alloy composition. Reagents include sodium nitrate, elemental sulfur, sodium hydroxide, antimony, arsenic, calcium metal, sodium metal, red phosphorus, and petroleum coke. The chemical fumes and gases produced in the refining process are vented to an air pollution control baghouse, which filters the emissions existing as particulates. The exhaust outlet of this baghouse is vented to the WESP.

The pot furnaces are indirectly fired with natural gas. The burner compartments from the pot furnaces previously vented directly to atmosphere. Previously, each burner compartment had its own dedicated stack. Subsequent to the WESP installation, the individual burner stacks were manifolded into one common stack served by a NOx CEMS, for Rule 2012 compliance. This burner stack is now connected to the WESP intake manifold.

PROPOSED CHANGES

The battery wrecker system has a condition associated with it, system condition S53.1, which defines a performance standard for the separation efficiency of the plastic case material separation system. This system employs a sink/float process for the specific gravity based

separation of crushed plastic case material from the denser lead bearing material in the battery crushing system.

Due to changes in the market supply of lead-acid batteries, Quemetco has been increasingly unable to obtain the normal amount of starting, lighting and ignition (SLI) batteries which contain plastic case material. Instead, Quemetco is now processing more of the large steel cased industrial lead-acid batteries and processing battery raw internal components from pre-processing recyclers which remove the battery plates/internal parts from the case materials by mechanical methods, without smelting operations. As a result, the metal content of the raw material feed stock contains a larger concentration of lead metal and lead bearing inorganic materials, and less plastic case material.

The reduction in plastic content of the feed stock has caused the ratio of plastic separated to total lead produced to become smaller.

In other words, $R = \frac{x}{y}$ goes to zero when x goes to zero where x = plastic and y = lead.

System condition S53.1 requires that R be maintained at a ratio of 0.05 or greater. This requirement becomes increasingly difficult to comply with when "plastic received" approaches zero.

In order to ensure that the current level of plastic separation is enforced, the "metal units" of the variable "y" need to be redefined so that the ratio can still be calculated when the supply of SLI batteries becomes very small. To accomplish this, the definition of "y" is being changed from total raw metal tapped from the furnaces to total elemental lead contained in the SLI batteries processed. To do this, the facility will track and record the total amount of SLI batteries processed and keep the amount of "battery lead" separate from "total lead" which is produced by the furnaces at Quemetco.

The proposed condition contains an additional record keeping requirement to record the ratio of battery lead metal to total lead metal equivalents processed in order to evaluate whether this condition should be reverted back to the original, simpler format that is currently now in place.

Finally, it is important to note that the original plastic separation performance requirement was put in place to ensure proper control of toxic organic emissions from the rotary dryer furnace at the point in time that condition S53.1 was placed in the Facility Permit. Since then, the facility has installed and source tested a permanent regenerative thermal oxidizer (RTO) on the outlet of the rotary dryer furnace baghouse which destroys organic gas emissions from the rotary dryer, including those produced by plastic which cannot be separated by the battery wrecker system. Therefore, any change in final toxic organic emissions will be negligible, and there currently

exists a major net reduction of toxic organic emissions relative to the potential to emit which existed when condition S53.1 was first placed in the permit.

The subject equipment is operated 24 hours/day, 7 days/week, and 52 weeks/year, maximum.

CALCULATIONS

Previous emissions reported under A/N 262165

Ave emissions, lbs/hr:

	R1	R2
PM10:	3.4	0.34
Pb:	0.02	0.002
As:	0.00008	0.000008

Ave emissions, lbs/day:

	R1	R2
PM10:	81.6	8.16
Pb:	0.48	0.048
As:	0.00192	0.000192

Current emissions subsequent to additional control by room ventilation baghouses

Ave emissions, lbs/hr:

	R1	R2
PM10:	3.4	0.0068
Pb:	0.02	0.00004
As:	0.00008	0.00000016

Ave emissions, lbs/day:

	R1	R2
PM10:	81.6	0.1632
Pb:	0.48	0.00096
As:	0.00192	0.00000384

EVALUATION

CEQA

There are no emission increases. Therefore a CEQA evaluation is not required.

RULE 212

There are no emission increases. Therefore, public notice under this rule is not required.

RULES 401, 402, 404, 405, 1401, 1402, 1420, 1420.1, 40CFR 63, Subpart X

Previous evaluations have demonstrated that this equipment can be operated in compliance with all applicable rules and regulations.

REGULATION XIII

PM10, Baseline = 0 lbs/day
PM10, final = 0 lbs/day

Net change = 0 lbs/day

There is no net change in PM10 emissions as a result of this change of condition.

REGULATION XXX

The proposed change to the Facility Permit is not expected to result in an emission increase. The existing New Source Review permit emission limits for the common WESP stack outlet regarding VOC, CO, and PM10 emission rates will not change.

Since there is no emission increase as a result of this project, this change of condition is a minor permit revision and requires an EPA 45 day review period. The Title V application for this minor revision is A/N 550925.

DISCUSSION

The subject equipment has been previously determined to operate in compliance with all applicable Rules and Regulations. The proposed changes will have a negligible effect on the emissions potential for this equipment.

RECOMMENDATION

APPLICATION NO. 550925

Approve RECLAIM/TV minor permit revision.

APPLICATION NO. 552484

Approve revisions to the Facility Permit as indicated below:

Changes to sections H and D

Replace original system condition S53.1 with the modified condition as indicated below:

CHANGES ARE INDICATED IN BOLD AND HIGHLIGHTED

ORIGINAL

S53.1 The following conditions shall apply to the equipment in this system:

The operator shall maintain the level of plastic separation in this system as follows:

For each calendar quarter, the ratio of the total amount of separated plastic shipped offsite in that quarter to the total amount of raw lead metal produced from the reverberatory and lead slag furnaces in that quarter shall be 0.05 or greater.

The daily and daily month-to-date (MTD) total amounts of raw lead metal produced, and plastic shipped offsite, shall be recorded in the COI Plant Activity Report (COI).

The operator shall calculate the plastic to lead metal ratios using the total amounts of plastic and lead produced in the final end of the calendar month COI reports. The plastic to lead metal ratios, for the previous calendar month, and for the previous calendar quarter, shall be reported in both the Daily Production Reports (DPR) and in the COI reports for this facility.

The final end of the calendar month amounts of plastic shall be based on bills of lading and/or other equivalent shipment records or manifests documenting total weight of plastic shipped offsite, and the raw lead metal produced shall be based on the total number and weights of raw lead bullion molds/ingots cast and recorded each work shift each day by the reverberatory/slag furnace operator(s).

[RULE 204, 10-8-1993]

[Systems subject to this condition : Process 1, System 1]

MODIFIED

S53.1 The following conditions shall apply to the equipment in this system:

The operator shall maintain the level of plastic separation in this system as follows:

The daily, month-to-date **(MTD) and quarter-to-date (QTD)** total amounts of raw lead metal produced, **battery metal units (BMU)** processed and plastic shipped offsite shall be recorded in the daily **City of Industry** (COI) Plant Activity Report **(PAR). For the purpose of this condition, BMU shall be defined as the total elemental lead weight contained in starter, lighting, and ignition (SLI) plastic cased batteries processed at this facility.**

The operator shall calculate the plastic to lead metal ratios using the total amounts of plastic **shipped offsite** and **processed BMU** in the final end of the calendar month **PAR** reports. The plastic to lead metal ratios, for the previous calendar month, and for the previous calendar quarter, shall be reported in the **PAR** for this facility.

The final end of the calendar month **and calendar quarter** amounts of plastic **and BMU** shall be based on bills of lading and/or other equivalent shipment records or manifests documenting total weight of plastic shipped offsite and **the total weight of batteries processed at this facility**, and the raw lead metal produced shall be based on the total number and weights of raw lead bullion molds/ingots cast **and recorded in the PAR**.

For each calendar quarter, the **ending** ratio of the total amount of separated plastic shipped offsite in that quarter to the total amount of **BMU processed** in that quarter shall be 0.05 or greater.

For each calendar quarter, the operator shall also calculate the percent by weight of BMU to the raw lead metal produced at this facility according to the following formula:

BMU Percent = (BMU x 100)/L where: L = total weight of raw lead produced in the reverberatory and lead slag furnaces each quarter, and BMU = total weight of elemental lead contained in SLI batteries processed each quarter.

Whenever quarterly BMU Percent is less than 80, the operator shall record in the PAR the pounds of elemental lead metal equivalent from SLI batteries processed that quarter and the pounds of lead metal equivalent from non-SLI batteries (excluding lead scrap) processed that quarter at this facility on an elemental lead weight basis.

[RULE 204, 10-8-1993]

[Systems subject to this condition : Process 1, System 1]