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DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

N788529105

FACILITY: RJ Torching, Inc.		**SRN / ID:** N7885
LOCATION: G-5167 N DORT HWY, FLINT		**DISTRICT:** Lansing
CITY: FLINT		**COUNTY:** GENESEE
CONTACT: Jason Roughton , Owner		**ACTIVITY DATE:** 03/04/2015
STAFF: Daniel McGeen	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Self-initiated inspection, for compliance purposes, and to gather information on SPARCS control devices.		
RESOLVED COMPLAINTS:		

On 3/4/2015, the Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted an unannounced, self-initiated inspection of RJ Torching, Inc., for the purpose of determining compliance with Michigan's Air Pollution Control Rules, and for the purpose of gathering data on the operations of the SPARCS units developed by RJ Industrial Manufacturing, to control particulate emissions from torch cutting.

Environmental contacts:

Brian Krasicky, Chief Financial Officer; 810-785--9759; bkrasicky@rjind.com

Jeff Simpson, Yard Manager; 810-785-9759; jsimpson@rjind.com

Facility description:

RJ Torching, Inc.'s Flint site is a full service scrapyard, as indicated on their website. RJ Torching, Inc. is also known as RJ Industrial Recycling (RJIR). RJIR developed the portable SPARCS (Smoke Particulate Air Reduction Cyclone System) filtration system to address opacity issues at their own sites. Torching Solutions, LLC, also known as RJ Industrial Manufacturing (RJIM), designs, builds, markets, and sells SPARCS units worldwide.

Emission units:

Emission unit	Emission unit description	Relevant rules	Operating status
Torch cutting	Torch cutting of scrap metal	285(j)	Operating
SPARCS version 5	Older version of SPARCS control device	285(f)	Not operating
SPARCS version 7	Fairly recent, though not the latest, version of SPARCS control device	285(f), 301	Compliance
Third SPARCS unit	Prototype in maintenance shop, under development	285(f)	Not operating

Regulatory overview:

RJIR is classified as a minor source in the Michigan Air Compliance Enforcement System (MACES) database used by AQD, although a particular pollutant is not specified. A major source has the potential to emit (PTE) of 100 tons per year (TPY) or more, of one of the criteria pollutants. Criteria pollutants are those for which a National Ambient Air Quality Standard exists, and include carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds, lead, particulate matter smaller than 10 microns, and particulate matter smaller than 2.5 microns. It is considered a minor or area source for Hazardous Air Pollutants (HAPs), because it is not considered to have a PTE of 10 TPY or more for a single HAP, nor to have a PTE of 25 TPY or more for combined HAPs.

RJIR does not have any air use permits for the Flint site. Torch cutting is considered to be exempt from the requirement of Michigan Air Pollution Control Rule 201 to obtain a permit to install, under Rule 285 (f). (Note: a workgroup consisting of AQD staff and stakeholders from the metal recycling industry is considering changes to this exemption, which would require production torch cutting to be equipped with particulate control.) The SPARCS control devices may qualify for exemption under Rule 285(j), for

"installation or construction of air pollution control equipment if the control equipment itself does not generate a significant amount of criteria air contaminants as defined in R 336.1119(e)or a meaningful quantity of toxic air contaminants." The SPARCS units are run by electricity, and should not generate any air contaminants themselves.

Fee status:

This facility is not considered fee-subject, for the following reasons. Because it is not a major source for criteria pollutants, it is not classified as Category I. Additionally, because it is not a major source for Hazardous Air Pollutants (HAPs), and is not subject to federal New Source Performance Standards, it is not classified as Category II. Finally, because it is not subject to federal Maximum Achievable Control Technology standards, it is not classified as Category III. The facility is not required to submit an annual air emissions report via the Michigan Air Emissions Reporting System (MAERS).

Location:

This facility is located on the west side of North Dort Highway, east of the CSX Transportation railyard. It is immediately south of Youngs Environmental, and north of a shingle recycling facility and an auto salvage yard. It is in an area that has been heavily industrialized for decades. There is a residential 500 feet west of the site that extends to the south. The next closest residential area is about 1,500 feet to the southwest.

Recent history:

Because of complaints of opacity from uncontrolled torch cutting, AQD has conducted complaint investigations, in recent years. 2008 was the year with the highest number of complaints received (8), but those numbers have declined, and the most recent complaint was a single complaint in 2013. AQD has cited violations of opacity limits, and this led to an enforcement case. This enforcement case was ultimately referred to the U.S. Environmental Protection Agency (EPA). EPA has been developing an Administrative Consent Order (ACO) with the company, to the best of AQD's knowledge.

In 1998, Mr. Jason Roughton, the owner of RJIR, designed and created the first version of SPARCS. Since then, he has been developing this control device, enhancing each subsequent version. Please see the attached *SPARCS Book* by RJIM/Torching Solutions, which is attached to this activity report, for reference. As mentioned under the regulatory overview, the units run on electricity.

Arrival:

AQD was represented by myself, and by Sam Amer of AQD's Detroit office. One of his facilities had recently informed him they were considering purchasing a SPARCS unit, as a possible option for reducing visible emissions from torch cutting. Sam's intention was to evaluate the effectiveness of the control device today.

We arrived unannounced, at 1:32 PM. We entered the yard by driving over the weigh scale, which has a posted speed limit of 3 miles per hour. We checked in at the site office trailer. We briefly observed torch cutting out in the open, in one part of the yard. We were soon met by Mr. Jeff Simpson, Yard Manager, and shortly after that, by Mr. Brian Krasicky, Chief Financial Officer. We presented our identification/credentials, and I provided a copy of the DEQ brochure *Environmental Inspections: Rights and Responsibilities*, per AQD procedures. I explained it had been several years since AQD staff have conducted a regular compliance inspection here, although a number of DEQ staff have visited RJIR sites including this one, as recently as October 2014, to see SPARCS units in operation. Additionally, Sam explained the purpose of his visit to the site today.

Inspection:

This was my first visit to RJ Torching. I was informed that RJIR specializes in torch cutting large industrial dies, which are cast iron or steel, and that other metal recyclers generally avoid such large items, due to the potential for excess opacity. They listed manganese as another material they cut,

noting that it has high potential for opacity. Such materials are apparently placed directly in front of the SPARCS units, so that fans can draw particulate laden air into the devices. They said they have not done torch cutting for the past 3 weeks, because of the plunge in the price of steel on the commodities market. From 1/1 to 3/3/2015, Mr. Krasicky indicated that the price of steel had dropped by 49%. This has resulted in laying off numerous employees.

We were informed that as part of the ACO with EPA, RJIR has written a best management practices document for the metal recycling industry, which EPA will make available to the regulated community. This is expected to help metal recyclers to reduce their particulate emissions.

The SPARCS units are reported to be fabricated at a contract welding facility in Belleville, that specializes in building steel containers. RJIR has recently created a SPARCS unit version 8, which is apparently operates at a site in Illinois. It is described as having an additional bank of filters, and other internal modifications, to reduce opacity further. Opacity from manganese cutting was said to drop to 5-10%, with version 8. The newest SPARCS unit that they have here, in Flint, is the previous design, version 7. Various customized versions of SPARCS have apparently been made, some considerably larger than the units here in Flint.

Sam asked about the torch cutting which we had observed out in the open, upon our arrival. It was explained that for torch cutting of small steel scrap, or for cutting other materials where there is not much opacity, they do not need to use SPARCS.

The overall appearance of the yard was neat, and the part of the yard which was not snow covered appeared to be paved with concrete slabs, which looked clean. In the yard, the SPARCS version 7 was slightly to the north of the SPARCS version 5. A third SPARCS unit was in their maintenance shop to our north, which we did not observe. It is a prototype, still undergoing development. A mobile shear process was onsite. This is used to cut metal, as an alternative to torch cutting.

They were preparing to change the filters in the SPARCS version 7 this afternoon, as evidenced by the three different filter types which a front end loader had carried over to the unit (see attached Photo 1). The filter types included aluminum filters, in the center stack in the photo, hog hair filters, at the top of the left stack, and Permair filters, in the right stack and in the bottom of the left stack. RJIR staff opened the doors on back of the controlled end of the SPARCS version 7, to show us the old filters (see attached Photo 2).

We were soon met by Mr. Jason Roughton, owner of RJIR. We were informed that SPARCS units have been sold in the United States, Thailand, and Brazil, and that they teach their customers how to do torch cutting efficiently, to reduce the particulate loading entering the SPARCS unit in the first place. They also stress proper maintenance for the units. Their patent for the SPARCS unit is reported to have been approved this winter. The final patent was awarded 9 days after this AQD inspection, on 3/17; patent # US 8,979,959 B2.

Hogs hair filters are said to last 5-6 weeks, while Permair filters last about 2-4 weeks, and aluminum filters can last 6-12 months. The life of the filters depends in part on the nature of the materials being torch cut. To clean filters, they remove them from the SPARCS units, and blow them out with compressed air.*

*Note: on 4/6/2015, some weeks after the inspection, Mr. Krasicky and I discussed the blowing out of the particulate filters with compressed air. Rule 370(1) requires, in part, that the collection and disposal of air contaminants be disposed of in such a manner as to minimize the introduction of contaminants to the outer air. Mr. Krasicky explained that the metal powder/particulates typically fall to the ground, and are then picked up with a magnet. There may be additional discussions on this practice in the future, to determine if it complies with Rule 370(1). Water washing the filterrs has been tried at the site, but may not be feasible for all of their customers.

The attached Photo 3 shows a large die in the left foreground, with Sam, at left, and Mr. Simpson, at right, in front of the SPARCS version 7. They did not have any production lined up for the SPARCS units today, but we were given a short demonstration of version 7. A torch cutter began cutting a round steel

or iron column that was 12-18 inches thick, as shown in Photo 4. Opacity was light at first, but got heavier, and I would estimate the smoke being drawn into the SPARCS unit was up to 60% opacity, instantaneously. Weather conditions were partly cloudy, and 32 degrees F, with winds out of the west at 15 miles per hour. We did not conduct certified visible emissions readings, during the demonstration.

There was a small leak along a vertical line, from in between two segments of the SPARCS unit. The opacity from the small leak rose straight up, and appeared to me to be 20-25% opacity. RJ Torching staff indicated that this will promptly be corrected, after the demonstration, and that they would level the unit out, to make sure all the segments are squared, with respect to one another. I took a photograph of the leak, but the opacity does not appear dark enough to be visible in the resulting Photo 5.

I walked around to the end of the SPARCS unit where the exhaust outlets were. The opacity I saw appeared to me to be 10%, up to a maximum of 15%. I took a photo of the nearest exhaust outlet, but the opacity is not visible in the resulting Photo 6. Shortly thereafter, the torch cutting ceased, and the SPARCS unit was turned off. Sam had been watching the exhaust outlets for a longer period of time than I had, and he judged what he had seen to be over 20% opacity. This generated some additional discussion on the subject of opacity. Mr. Roughton indicated that EPA opacity readings, and a year's worth of readings by 6 or 7 of their own staff who have been certified, have found opacity from version 7 to be below 20%. EPA's Ray Cullen has visited the RJ Torching Battle Creek site, we were informed.

Mr. Roughton pointed out that there were particular requirements for conducting Method 9 visible emission (VE-9) readings, and that were not being me today. Plus, we were not actually conducting certified VE-9 readings, today.

RJ Torching staff invited us to return to the site in a couple weeks, when the unit will be operating under normal production scenarios. They will change the filters, as planned, and the new filters will have an opportunity to build up a "dust cake" layer, to help them operate at maximum efficiency. Also, they will adjust the unit so that all the segments of the device are square, with respect to one another. This is expected to eliminate the small leak we observed from in between segments.

While onsite, we also observed baling processes, for compressing non-ferrous metals, such as aluminum, into large, square bales which are then shipped offsite. They also bale a small amount of copper wire. These baling processes did not appear to be sources of air contaminants, and therefore are not subject to the requirement of Rule 201 to obtain a permit to install.

Conclusion:

We left the site at 3:01 PM. I did not observe any instances of noncompliance during the inspection. During the demonstration of the SPARCS unit today, my impressions were that opacity from the exhaust outlets was generally 10%, to no more than 15%. Sam spent a longer time than I observing the exhaust today, and he felt that opacity was over 20%. We were not, however, at the proper distance from the unit to conduct Method 9 visible emission readings. Facility staff arranged for us to see the SPARCS version 7 operate during normal operations on 3/26/2015, documented in a separate activity report.