

## **Enclosure 3**

# **Appendix C from the Proposed Indiana 2017 Ambient Air Monitoring Plan**

**June 2016**

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## **Appendix C**

### **SO<sub>2</sub> DRR – Data Requirements Rule**

#### **Introduction**

The SO<sub>2</sub> primary NAAQS was strengthened June 22, 2010. The 1-hour standard is 75 ppb. After U.S. EPA establishes or revises a primary and/or secondary NAAQS, the Clean Air Act requires U.S. EPA to designate areas as "attainment" (meeting), "nonattainment" (not meeting), or "unclassifiable" (insufficient data) after monitoring data is collected by state, local and tribal governments. Once SO<sub>2</sub> nonattainment area designations take effect, state and local governments have 18 months to develop State Implementation Plans, (SIPs) outlining how areas will attain and maintain the standards by reducing air pollutant emissions contributing to SO<sub>2</sub> concentrations.

#### **Overview**

In the initial round (Round 1) of nonattainment designations in 2010 parts of five Indiana counties were deemed nonattainment for SO<sub>2</sub> (see Figure 11, page 57 of the 2017 ANP).

In response to court-order, the U.S. EPA must complete remaining designations in three additional rounds: Round 2 by July 2, 2016, Round 3 by December 31, 2017, and Round 4 by December 31, 2020. U.S. EPA will complete these designations by designating areas as either nonattainment, attainment, or unclassifiable.

The court-order directs U.S. EPA to designate two groups of areas under Round 2 air quality designations for the 2010 primary 1-hour SO<sub>2</sub> NAAQS: (1) areas that have current monitored design values in violation of the NAAQS not previously designated during Round 1, and (2) areas containing stationary sources that had not been announced as of March 2, 2015 for retirement and that according to the U.S. EPA's Air Markets Database emitted in 2012 either more than 16,000 tons of SO<sub>2</sub>, or more than 2,600 tons of SO<sub>2</sub> with an annual average emission rate of at least 0.45 pounds of SO<sub>2</sub> per one million British thermal units (lbs SO<sub>2</sub>/mmBTU).

On August 10, 2015 U.S. EPA established a timetable and other requirements for state, local and tribal air agencies to: (1) characterize current air quality in areas with large sources of sulfur dioxide (SO<sub>2</sub>) emissions through monitoring or modeling techniques and (2) provide such air quality data to the U.S. EPA. At a minimum, air agencies must characterize air quality around sources that emit 2,000 tons per year (tpy) or more of SO<sub>2</sub>. These data will be used in designations in Round 3 and Round 4.

This rule gives air agencies the flexibility to characterize air quality using either modeling of actual source emissions or using appropriately sited ambient air quality monitors. Indiana's SO<sub>2</sub> sources have been allowed to determine whether they will use modeling or monitoring to demonstrate compliance with the SO<sub>2</sub> Data Requirements Rule (DRR).

An air agency may avoid the requirement for air quality characterization near a source by adopting enforceable emission limits that ensure that the source will not emit more than 2,000 tpy of SO<sub>2</sub>. These limits must be adopted and effective by January 13, 2017.

#### **Indiana SO<sub>2</sub> Sources**

Table 1 lists the major emission sources of SO<sub>2</sub> in Indiana and how the air quality characterization plan will be handled by the DRR. The colored highlighted sources have already been accounted and are not subject to the DRR. In Round 1, Townships in five counties have been designated nonattainment. In Round 2, five additional counties or portions of counties are Intended Nonattainment Areas or Intended Unclassifiable/Attainment Areas. The U.S. EPA will make the determination by July 2, 2016.

Two sources initially reported 2014 SO<sub>2</sub> emissions above 2,000 tpy making them subject to the DRR. After further analysis it was determined their 2014 SO<sub>2</sub> emissions were calculated incorrectly placing their 2014 emissions below the 2,000 tpy threshold. ESSROC Cement Corp. in Cass County and Tate & Lyle in Tippecanoe County corrected their 2014 emissions and provided the necessary documentation to support their claims.

ALCOA – Warrick Operations announced January 7, 2016 they would close their smelting operations in Warrick County by March 31, 2016. They missed the announced retirement deadline of March 2, 2015 and are subject to the DRR.

Isolatek International in Huntington has been added to the DRR list by the U.S. EPA due to an unresolved enforcement action.

**Table 1 - Indiana Major SO<sub>2</sub> Sources & Air Quality Characterization Plans**

County	Facility Name	2014 TPY	Approach																	
Cass	ESSROC Cement Corp	270																		
Cass	Logansport Municipal Utilities	1,715																		
Dearborn	Tanners Creek Generating Station	18,109																		
Floyd	Gallagher Generating Station	3,524	Modeling																	
Gibson	Gibson Generating Station	22,055																		
Huntington	Isolatek International	164	Modeling																	
Jasper	Schahfer Generating Station	8,412	Modeling																	
Jefferson	Clifty Creek Generating Station	3,731																		
Lake	Coke Engery LLC	4,952	Modeling																	
Lake	U.S. Steel - Gary Works	3,285	Modeling																	
Lake	Arcelomittal USA	2,163	Modeling																	
Lake	Indiana Harbor Coke	1,838																		
Lake	Arcelomittal Indiana Harbor	1,587																		
LaPorte	Michigan City Generating Station	15,991																		
Marion	Harding Street Generating Station	29,855																		
Monroe	Indiana University	1,740																		
Morgan	Eagle Valley Generating Station	7,959																		
Pike	Petersburg Generating Station	66,252																		
Pike	Ratts Generating Station	8,550																		
Porter	Arcelomittal Burns Harbor LLC	12,189	Monitoring																	
Porter	Bailey Generating Station	1,117																		
Posey	AB Brown Generating Station	8,404																		
Posey	SABIC Innovative Plastics	4,030	Modeling																	
Spencer	Rockport Generating Station	54,979																		
Sullivan	Merom Generating Station	3,318	Modeling																	
Tippecanoe	Tate & Lyle	1,612																		
Tippecanoe	Purdue University	1,118																		
Vermillion	Cayuga Generating Station	3,448	Modeling																	
Vermillion	Eli Lilly - Clinton Labs	1,851																		
Vigo	Wabash River Generating Station	26,828																		
Warrick	ALCOA - Warrick Power Plant	4,993	Modeling																	
Warrick	ALCOA - Warrick Operations	3,500	Modeling																	
Warrick	Culley Generating Station	1,896																		
Wayne	IMPA (RPL) Generating Station	1,158																		

By January 15, 2016, the DRR requires each air agency to submit to the relevant U.S. EPA Regional Administrator a final list identifying the sources in the state around which SO<sub>2</sub> air quality is to be characterized. This characterization will be performed for sources that exceeded 2,000 tpy of SO<sub>2</sub> emissions during the most recent year for which emissions data for the applicable sources are available. In addition, SO<sub>2</sub> characterization must be performed for areas identified by the air agency or by U.S. EPA as also warranting air quality characterization, such as clusters of sources where no single source emits greater than 2,000 tpy of SO<sub>2</sub>. This is considered a permanent list of sources that excludes sources in areas designated as nonattainment before January 2016 and shall not be altered by designations after January 2016. Table 2 is taken from Table 1 and is a listing of the 12 sources of SO<sub>2</sub> in Indiana subject to the DRR.

**Table 2:  
Indiana SO<sub>2</sub> Sources Subject to Air Quality Characterization for the Round 3 Designation Process**

<b>County</b>	<b>Facility Name</b>	<b>2014 SO<sub>2</sub> Emissions (tons)</b>
Floyd	Gallagher Generating Station	3,524
Huntington	Isolatek International	164
Jasper	Schahfer Generating Station	8,412
Lake	Coke Energy LLC	4,952
Lake	U.S. Steel – Gary Works	3,285
Lake	Arcelormittal USA	2,163
Porter	Arcelormittal Burns Harbor LLC	12,189
Posey	SABIC Innovative Plastics	4,030
Sullivan	Merom Generating Station	3,318
Vermillion	Cayuga Generating Station	3,448
Warrick	ALCOA – Warrick Power Plant	4,993
Warrick	ALCOA – Warrick Operations	3,500

Note that this table represents those sources around which SO<sub>2</sub> air quality will be characterized. Additional sources of SO<sub>2</sub> emissions in close proximity to the listed source will be included in the characterization.

Only ArcelorMittal - Burns Harbor LLC will operate SO<sub>2</sub> air quality monitoring. The remaining sources will model to meet the DRR.

**ArcelorMittal - Burns Harbor LLC SO<sub>2</sub> Air Quality Monitoring.**

ArcelorMittal - Burns Harbor LLC will establish one SO<sub>2</sub> air quality monitoring site at the Port of Indiana Fishing Area; Lat. 41.641466, Long. -87.1510663. Address: Ship Dr., Portage, IN 46368. The placement of this site was determined through modeling. ArcelorMittal will be its own PQA responsible for their data's accuracy and collecting their data under approved methods and standards as stated in their individual monitoring plan, the State Quality Assurance Manual, and U.S. EPA requirements. Clean Air Engineering, Palatine, Illinois will provide program and project management. The QAPP has been submitted to IDEM for review and approval. The site will be collecting SO<sub>2</sub> data by January 1, 2017.

Meteorological data will be supplied by NIPSCO Bailly's Dunes Acres (181270011) monitoring site.

**Modeling**

ArcelorMittal - Burns Harbor is located at 250 West US Highway 12, Burns Harbor, in Westchester Township, Porter County, Indiana. Burns Harbor is an integrated steel mill consisting of two blast furnaces, three hot strip mill furnaces, plate mill furnaces, two coke batteries, three basic oxygen furnaces (BOF) hot metal desulfurization steel making processes, five power station boilers, and a sinter plant. There are also two blast furnace gas flares and a clean coke oven gas flare which emit a small amount of SO<sub>2</sub>. The northern end of the Burns Harbor plant borders the southern shoreline of Lake Michigan. The mill borders Lake Michigan and Indiana Dunes National Lakeshore to the north and east respectively, with woodlands, residential, and lighter industry to the south. The terrain is mostly flat to slightly rolling. Several additional SO<sub>2</sub> sources were modeled, including the NIPSCO - Bailly and NIPSCO – Michigan City Generating Stations to appropriately characterize air quality in the area.

The modeling results indicate that maximum modeled 1-hour SO<sub>2</sub> concentrations fall directly west and northwest of the Burns Harbor facility. Locating an SO<sub>2</sub> monitor in this general area would capture the maximum concentrations from the source. Based on the modeling results, the most culpable emission sources at Burns Harbor contributing to the maximum 1-hour SO<sub>2</sub> concentrations are the Power Station

boilers and C & D furnaces. These emission sources are located directly east of the proposed SO<sub>2</sub> monitoring site. Figure 1 provides an overview of the Burns Harbor facility and the surrounding area.

**Figure 1**  
**ArcelorMittal - Burns Harbor – Overview of Site**

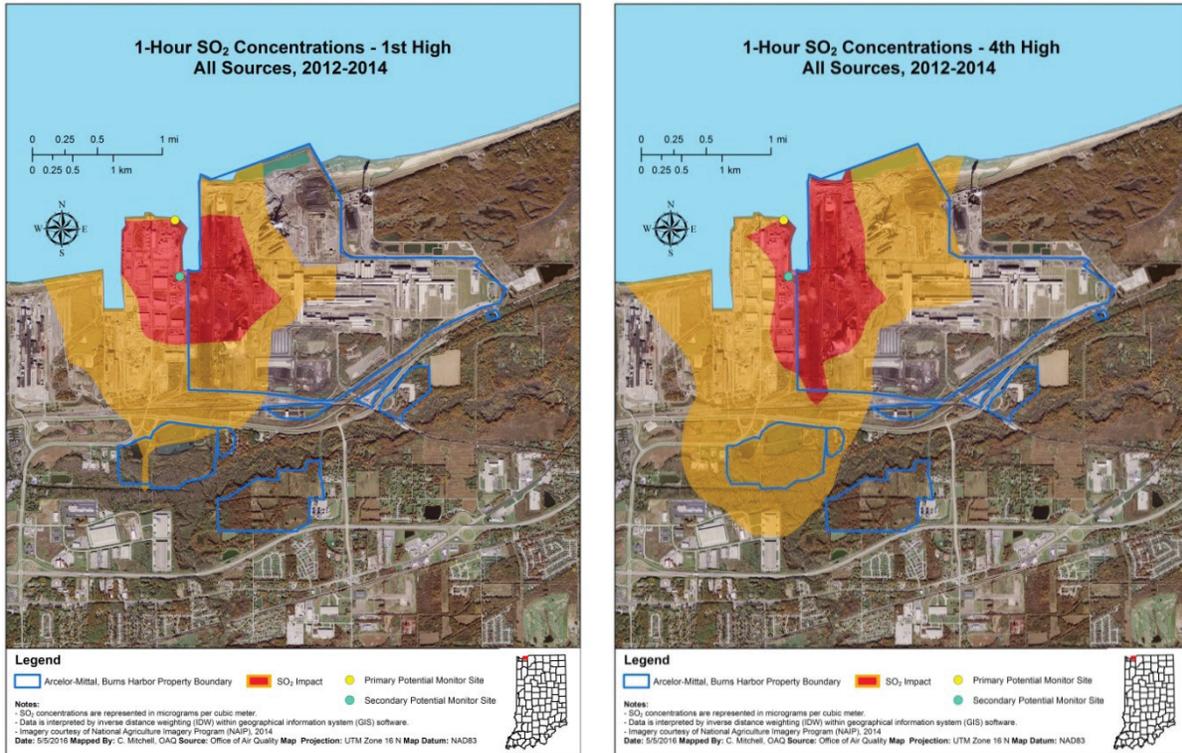


### **Meteorology/Wind Rose**

The Gary - IITRI surface meteorological data and the Lincoln, Illinois upper air meteorological data, taken from 2012 through 2014, was used to determine the meteorological conditions surrounding Burns Harbor in AERMOD. The Gary - IITRI surface meteorological data will be used to more accurately include the influence of Lake Michigan on the meteorological conditions at and in the area immediately surrounding the ArcelorMittal - Burns Harbor facility. The Gary - IITRI and Dune Acres wind roses for the 3-year modeled period 2012 - 2014 are shown as Figure 2. Both wind rose depicts the north and northeast wind direction associated with the lake breeze influence and the predominate wind from the southerly direction.



**Figure 3:**  
**Map of ArcelorMittal - Burns Harbor and Surrounding Area for Potential SO<sub>2</sub> Monitoring Sites**



IDEM feels that the modeling results for both the maximum 1<sup>st</sup> and 4<sup>th</sup> high concentrations over the 3-year period of 2012 through 2014 match well with each other and represents the impact from all SO<sub>2</sub> sources in the area to best characterize the air quality in the area surrounding the identified Data Requirements Rule source.