

Illinois Environmental Protection Agency  
Bureau of Air, Permit Section  
Springfield, Illinois

Project Summary for  
Revisions to  
Construction Permit 03090020  
for Boiler 10 at  
Ingredion, Incorporated, in  
Bedford Park, Illinois

Site Identification No.: 031012ABI  
Permit No.: 03090020  
Date Request Received: August 1, 2014

Schedule:

Public Comment Period Begins: September 17, 2014  
Public Comment Period Closes: October 17, 2014

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## I. Introduction

Ingredion, Inc. (Ingredion), has requested a revision to Construction Permit 03090020 to no longer rely on decreases in emissions from reduced operation of an existing natural gas-fired boiler (Boiler 5). Ingredion has determined that this is needed to be able to reliably meet the steam demands of its Bedford Park plant.

This construction permit addressed a new coal-fired boiler that replaced three existing coal-fired boilers at Ingredion's plant in Bedford Park. As part of the project, Ingredion also identified a reduction in the operation and emissions of Boiler 5.

The Illinois EPA has reviewed Ingredion's request for revision of Permit 03090020 and made a preliminary determination that it meets applicable requirements for revisions to the permit. The Illinois EPA has prepared a draft of the revised permit that it would propose to issue. Before issuing a revised permit, the Illinois EPA is holding a public comment period to receive comments on the proposed issuance of a revised permit and on the proposed changes to the permit, as set forth in the draft of the revised permit.

## II. Background

Construction Permit 03090020, which was first issued in 2004, addressed the construction of a circulating fluidized bed (CFB) coal boiler to supply steam to the plant. The project also included the construction of associated coal, limestone, lime, and ash handling systems and other ancillary operations. The new CFB boiler replaced three coal-fired boilers (Boilers 1, 2, and 3) and one natural gas-fired boiler, Boiler 4. Ingredion also included a second, further curtailment in the operation of another existing natural gas-fired boiler, Boiler 5.

For the permitting of this project, Ingredion relied on "netting" to show that the project would not be a major modification for purposes of the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, and Illinois's rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203, for any regulated pollutants except carbon monoxide (CO). With netting, a source relies on certain contemporaneous decreases in emissions to show that the net increase in emissions from a project will not be significant, that is, equal to or greater than the applicable "significant emission rates" established by PSD and MSSCAM for different pollutants.

For this project, Ingredion's original application relied upon the emission decrease from the shutdown of existing Boilers 1, 2 and 3. It also included other smaller decreases that were not critical to the netting analysis. The overall result was that the net increases in emissions of all PSD regulated pollutants except CO from the project were not significant and the project was not a major modification for those pollutants. The PSD rules were applicable for CO and Boiler 10 was required to use Best Available Control Technology (BACT) for CO. In addition to addressing the new emission units that were part of the project, Construction Permit 03090020 also required Ingredion to

implement the actions that it had identified to provide contemporaneous emissions decreases to accompany the project.

### III. Current Request

Ingredion has requested a revision to Construction Permit 03090020 to restore the previously permitted operation of Boiler 5 under Construction Permit 02020023 which limited emissions from Boiler 4 and from Boiler 5 (first curtailment). Construction Permit 02020023 addressed construction of a new gas-fired boiler, Boiler 7.

The requested changes would address the operation of Boiler 5 at times when the CFB Boiler is out of service. Outages of the CFB Boiler beyond routine or programmed repairs were not contemplated by the original permit. The limits in Construction Permit 03090020 for the operation of Boiler 5 (second curtailment) were developed to reasonably accommodate routine outages of the CFB Boiler for inspection and maintenance. Accordingly, it is appropriate for Condition 4.0(c)(ii) of Permit 03090020 to be revised to provide for more operation of Boiler 5. Ingredion has concluded that the ability to use Boiler 5 consistent with previously and independently established limits in the permit for Boiler 7 would provide it with the operational flexibility that is needed to reliably meet the plant's steam demands during outages of the CFB boiler.

In its application for a revised permit, Ingredion observes that the permit for the CFB boiler, Construction Permit 03090020, did not need to include any further emissions decreases from existing natural gas Boilers 4 or 5. This is apparent from the actual terms of the permit, which show that the project would still not have been a major modification if Ingredion had not included any further emission decreases from Boilers 4 or 5. In particular, the "constraining pollutant" was VOM for purposes of MSSCAM, for which the permit only relied upon a decrease in VOM emissions of 1.3 tons/year. Even without this decrease, the project would not have been a major modification for VOM emissions. The net increase in VOM emissions would still have been less than the applicable significant emission rate, 25 tons/year.

Accordingly, Ingredion has requested that Construction Permit 03090020 be revised to remove the second Boiler 5 curtailment. As a result, the operation of Boiler 5 would be constrained by the limits set by Permit 02020023 (first curtailment). For clarity, Ingredion has also requested the decrease from the shutdown of natural gas Boiler 4 also be removed, even though this unit has been removed and dismantled. The practical result of the requested change would be to support the operation of the plant using natural gas boilers when the CFB boiler is otherwise unavailable.

### IV. Discussion

As observed by Ingredion, Construction Permit 03090020 did not need to include further emission decreases from the second curtailment of Boiler 5. Even without these additional decreases, the net increases in emissions accompanying the project addressed by this permit would not have been significant for pollutants other than carbon monoxide (CO),

as described in the table below. The project would still only be a major modification for CO without those additional decreases in emissions from Boiler 5. Accordingly, Construction Permit 03090020 is being revised as requested by Ingredion to no longer require the second curtailment of this boiler. The operation of Boiler 5 will continue to be limited by the earlier Construction Permit for Boiler 7, Permit 02020023.

Changes in the "Net Changes in Emissions" from the Project  
with Proposed Ingredion Changes

Scenario	Emissions			
	NOx	PM	SO <sub>2</sub>	VOM
Revised	-1780.2	-392.6	-7634.2	22.5
Current	-1844.3	-394.4	-7634.2	21.2
Significant Rate	40	25	40	25

V. Draft of the Revised Construction Permit

The Illinois EPA has prepared a draft of the revised version of construction Permit 03090020 that it would propose to issue in response to Ingredion's request. This permit would not rely on the emission decreases associated with the shutdown of Boiler 4 and curtailment of Boiler 5. The revised permit would also include appropriate changes to the tables in the permit that set forth the netting analysis for the project and remove conditions limiting Boiler 5.

The revised construction permit will not include limitations on the operation of Boiler 5 because the operation of this boiler will now be addressed by limitations in Construction Permit 02020023.

VI. Request for Comments

It is the Illinois EPA's preliminary determination that Ingredion's application for revision of Construction Permit 03090020 meets applicable state and federal air pollution control requirements, subject to the conditions in the draft of the revised construction permit. The Illinois EPA is therefore proposing to issue a revised permit.

Comments are requested on this proposed action and the proposed revisions to this permit, as set forth in the draft of the revised permit and as further described in this Project Summary.