San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JUN 0 8 2016

Roger Hoffdahl
Ingredion Incorporated
P O Box 6129
Stockton, CA 95206-6129

RE: Notice of Final Action - Authority to Construct
Facility Number: N-238
Project Number: N-1160542

Dear Mr. Hoffdahl:

The Air Pollution Control Officer has issued the Authority to Construct permits to Ingredion Incorporated for the installation of a new 7.3 MW combined heat and power (CHP) system consisting of a gas turbine and duct burner, and to establish Specific Limiting Conditions for the new CHP system and the existing boilers under permits N-238-41, '-42, '-44 and '-45, at 1021 Industrial Dr, Stockton, California.

Enclosed are the Authority to Construct permits, a copy of revised application review, and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the Authority to Construct permits was published on March 24, 2016. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on March 21, 2016. All comments received following the District's preliminary decision on this project were considered. The District response to these comments is attached to this letter.

Comments received by the District during the public notice period resulted in minor changes to the application review. These changes were minor and did not trigger additional public notification requirements, nor did they have any impact upon the Best Available Control Technology determination or on the amount of offsets required for project approval.

Also enclosed is an invoice for the engineering evaluation fees pursuant to District Rule 3010. Please remit the amount owed, along with a copy of the attached invoice, within 60 days.

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
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Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Nick Peirce at (209) 557-6400.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:JK

Enclosures

cc: Tung Le, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

District's Response to EPA's Comments

On April 14, 2016, the District received comments from EPA Region 9. The District response to these comments is provided in this section.

Comment 1:
EPA notes that the evaluation does not include any analysis for PM2.5 emissions, as required by Rule 2201. We assume this is because the District is assuming that all of the PM10 emissions consist of PM2.5 emissions, but the evaluation does not state this assumption. The evaluation must clearly state this assumption to ensure PM2.5 emissions are evaluated properly. Please revise the evaluation, as necessary to address the evaluation of PM2.5 emissions.

District's Response:
The application review has been revised (see copy attached). For conservative calculations, all PM10 emissions are assumed to be PM2.5 emissions since PM2.5 is a subset of PM10. This facility is not a Major Source under Rule 2201 or Rule 2410 for PM10 emissions; therefore, the proposed project did not trigger any additional requirements.

Comment 2:
As part of the District's compliance with Rule 2201 BACT requirements, the District states on page 26, under paragraph a of the BACT evaluation for the proposed CHP system that "Note that the District does not evaluate BACT for emissions [from] control device. Therefore, BACT for NH3 slip emissions from an SCR system will not be evaluated." EPA could not find any specific exclusion for exempting the emissions from control equipment from the BACT requirements in Rule 2201. Section 4.2.3 provides an exemption applicable to the *addition* of new control equipment at an existing facility from the requirement (See 4.1.1) to apply, but this exemption is limited to *existing* facilities which are adding required controls, not new emission units such as the CHP unit proposed for this project.

In addition, while BACT is required to be applied on an emission unit by emission unit basis, the definition of emission unit includes not only emissions emitted directly by the emission unit but also if the emission unit "...results in the emissions of any affected pollutant directly or as fugitive emissions." This seems to fit the case of ammonia emissions from the use of a SCR control device. Therefore it appears BACT should also be applied to the ammonia slip emissions. EPA recently requested data from the SCAQMD regarding any BACT determinations they have made for ammonia slip emissions, and found that they have been limiting ammonia emissions to 5.0 ppmvd @ 15% O2, over a 1-hr average. (See data summarized in tables provided below.) Please revise the permit evaluation to include an appropriate BACT analysis for the ammonia emissions from this project.

Data provided by South Coast AQMD:

The BACT/LAER emission limits are as follows in year 2001:

	NOx	CO	VOC	PM10/SOx	NH3
Simple Cycle Gas Turbine	5.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	6.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	2.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	PUC quality natural gas* with sulfur ≤ 1 grain/100 scf	5.0 ppmvd @ 15% O2, 1-hr average

The most recent permitting of gas turbines and the use of the most recent BACT/LAER emissions limits are listed below.

	NOx	CO	VOC	PM10/SOx	NH3
Simple Cycle Gas Turbine ≥ 50 MW	2.5 ppmvd @ 15% O2, 1-hr average, without and with duct burner	4.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	2.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	PUC quality natural gas* with sulfur ≤ 1 grain/100 scf	5.0 ppmvd @ 15% O2, 1-hr average

Note: El Segundo Power LLC, December 2013; LADWP Scattergood, April 2013

District's Response:
According to District Rule 2201, BACT is applicable to an "emissions unit". The SCR system itself is control equipment and is not an emissions unit. As defined in District Rule 2201, section 3.17, an emissions unit is *"an identifiable operation or piece of process equipment such as a source operation which emits, may emit, or results in the emissions of any affected pollutant directly or as fugitive emissions"*. The SCR system is not a piece of process equipment nor is it a source operation (per the definition of "source operation" in District Rule 1020) and therefore, the SCR system cannot be an emissions unit. Ammonia emissions are not directly emitted by the boiler but rather are emitted by an SCR system. Since the SCR is not an emissions unit, District BACT requirements are not applicable to the ammonia emissions resulting from the application of SCR. This is not the same as saying that we allow excess ammonia emissions from SCR – in fact, we do require very low ammonia slip, but we do it in a way that does not interfere with the lowest possible NOx emissions operation of the equipment.

As EPA is well aware, minimizing NOx emissions in the San Joaquin Valley Air Basin is paramount for the District's attainment of ozone and $PM_{2.5}$ National Ambient Air Quality Standards (standards). In its 2012 and 2015 $PM_{2.5}$ attainment plans for the 1997 and 2006 $PM_{2.5}$ standards, the District provides a detailed analysis of the formation of $PM_{2.5}$ emissions that exceed the standards in the Valley. In the analyses, the District identifies that ammonium nitrate, formed from nitric acid (NOx) and ammonia, is the predominant secondary $PM_{2.5}$ species. The plan demonstrations identify there is an

abundance of ammonia compared to NOx in the Valley and thus, NOx is the limiting factor in forming ammonium nitrate. Since NOx is the limiting factor, the District's attainment plans focus on effective and thorough control of NOx emissions in the Valley and no opportunity for NOx reductions is overlooked for compliance with both ozone and $PM_{2.5}$ standards.

So, in conjunction with its sharp focus on NOx reductions, the District does require low-emitting controls. The 10 ppmv ammonia emissions limit represents a very low ammonia limit that has no adverse impacts. When compared to 5 ppmv, the limit of 10 ppmv has no adverse effect on the District's attainment of compliance with $PM_{2.5}$ standards due to the ammonia-saturated nature of the San Joaquin Valley. In addition, the District has assessed the increased risk to the surrounding population due to the 10 ppm ammonia slip, and has found that no significant risk will be created. Lower ammonia slip limits, such as those EPA is suggesting, make it much more difficult for operators to achieve very low NOx limits. Operating the same piece of equipment at 5 ppm ammonia slip versus 10 ppm will almost always result in an increase in NOx. Since NOx reductions are so critical in the Valley, allowing a still low ammonia slip limit of 10 ppmv vs 5 ppmv provides the operator more flexibility in meeting a very low NOx limit. We have found this flexibility to result in decreased NOx emissions as the higher ammonia slip allows a greater margin of compliance with the NOx limit. As a hypothetical example for illustration purposes, an operator that operates at 5 ppm ammonia slip may JUST be able to achieve the 2.5 ppm NOx BACT on an ongoing basis, while the same operation at 10 ppm ammonia slip may be able to operate at 2.1 ppm NOx.

In addition to resulting in lower NOx emissions on an ongoing basis, allowing the higher ammonia slip has the added benefit of allowing the District, over time, to demonstrate lower achieved-in-practice NOx emission rates for future BACT determinations.

In conclusion, even if the District did require BACT on control device emissions in contradiction to the District's SIP approved Rule 2201, it would come to the same conclusion in consideration of the NOx/ammonia trade-off inherent in SCR systems. The District's dependence on NOx reduction to meet its attainment goals would drive our BACT determinations towards lower NOx at the expense of higher ammonia.

San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review

Facility Name:	Ingredion Incorporated	Date:	June 1, 2016
Mailing Address:	P O Box 6129 Stockton, CA 95206-0129	Engineer:	Jagmeet Kahlon
		Lead Engineer:	Nick Peirce
Contact Person:	Roger Hoffdahl		
Telephone:	(209) 982-1920 ext. 322		
Application #(s):	N-238-41-4, '-42-3, '-44-2, '-45-2 and '-46-1		
Project #:	N-1160542		
Deemed Complete:	February 26, 2016		

I. PROPOSAL

Under project N-1150704, Ingredion was issued Authority to Construct (ATC) permit N-238-46-0 for a new 7.3 MW combined heat and power (CHP) system, and modified boiler permits N-238-41-3, '-42-2, '-44-1 and '-45-1 to establish total daily and annual mass emission limits for the CHP system and boiler permits. During that project, Ingredion was not aware that the duct burner manufacturer needs tuning/commissioning activities that must be performed without the use of emission control equipment. Therefore, no tuning/commissioning activities were included in the CHP system permit N-238-46-0.

Ingredion is requesting a new ATC permit for the CHP system with tuning/commission activities for the duct burner, and is proposing to conduct initial source testing in two phases that requires changes to the language of the source testing conditions. The District is also re-issuing permits for the boilers N-238-41, '-42, '-44 and '-45 since the CHP system's daily and annual emissions were used to establish the total daily and annual mass emission limits in the boiler permits. The details of the previous and new proposals are as follows:

N-238-41-4: 185 MMBtu/hr natural gas-fired boiler
N-238-42-3: 28.8 MMBtu/hr natural gas-fired boiler
N-238-44-2: 99.9 MMBtu/hr natural gas-fired boiler
N-238-45-2: 99.9 MMBtu/hr natural gas-fired boiler

Ingredion Incorporated has proposed to establish total daily and annual mass emission limits for units N-238-41, '-42, '-44, '-45 and '-46. The limits are proposed to be set equal to the daily and annual potential emissions from permit unit N-238-46 (see below). This set of ATCs will cancel and replace the previously issued permits N-238-41-3, '-42-2, '-44-1 and '-45-1.

N-238-46-1: 7.3 MW combined heat and power generation system
Ingredion Incorporated has proposed to install a 7.3 MW, ISO rating, natural gas-fired, CHP system. This system will consist of an 87.5 MMBtu/hr natural gas-fired Solar Turbines Taurus 70 combustion turbine generator (CTG) equipped with dry-low NOx burner system, a 190 MMBtu/hr natural gas fired Cleaver Brooks duct burner equipped with low-NOx burners, and an unfired heat recovery steam generator (HRSG). The discharge from the CHP system will be vented through a selective catalytic reduction (SCR) system to reduce nitrogen oxide (NOx) emissions, and through an oxidation catalyst to reduce carbon monoxide (CO) emissions. In addition, Ingredion Incorporated has proposed to establish total daily and annual mass emission limits for units N-238-41, '-42, '-44, '-45 and '-46. The limits are proposed to be set equal to the daily and annual potential emissions from permit N-238-46.

Due to the damage to the facility infrastructure caused by a recent incident, Ingredion is unable to start-up the new CHP system with both the turbine and duct burner at the same time. Therefore, Ingredion proposes to conduct the CHP system start-up in two phases, with a lag time between startups of at least 6 months. The first phase will be the tuning and start-up of the duct burner, which will then operate without the turbine for the first 6 month or so, while the facility is re-building the infrastructure to accommodate electricity generated from the turbine operation. During the tuning of the duct burner, there will be required operational activities that must be performed without the use of emission control equipment (i.e., SCR and oxidation catalyst). These activities will be a one-time event and will not be repeated during second phase, when the turbine starts up. In addition, due to the extended lag time between the start-up phases and different startup dates for the turbine and duct burner, Ingredion proposes to conduct separate initial start-up source tests for each part of the CHP system. The duct burner will have a separate initial source test, which will be conducted as part of phase 1, while the turbine is still non-operational. The CHP as a system will then have another initial source test, as part of phase 2, when both the turbine and the duct burner are operating together. This proposal will require changes to the previously issued permit by including the emissions during the duct burner tuning activities and changes to the language of source testing conditions; therefore, a new ATC permit is required. The new ATC will cancel and replace the previously issued ATC N-238-46-0. Note that the CHP system will be evaluated similar to a new emission unit since the previously issued cannot be implemented into Permit to Operate (PTO).

This facility is a Major Source for NO_x, CO, and VOC emissions. The facility is operating under Title V permit. This project triggers a public notice since the project is a Federal Major Modification under District Rule 2201, and is also a "Significant Modification" under District Rule 2520. Therefore, this project will be published in the local newspaper, Stockton Record, for public review and comments. The public comment period will last 30 days from the date of

publication. The facility has also proposed to obtain Authority to Construct (ATC) permits with Certificate of Conformity (COC), which is EPA's 45-day review before the issuance of final ATCs. Both COC and public notice will run concurrently.

EPA's comments and District's response to those comments are included in Appendix VII of this document.

II. APPLICABLE RULES

Rule 2201	New and Modified Stationary Source Review Rule (2/18/16)
Rule 2410	Prevention of Significant Deterioration (11/26/12)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emission Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (02/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4304	Equipment Tuning Procedure for Boilers, Steam Generators and Process Heaters (10/19/95)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase 2 (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase 3 (3/17/05)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters greater than 5.0 MMBtu/hr (10/16/08)
Rule 4351	Boilers, Steam Generators and Process Heaters – Phase 1 (8/21/03)
Rule 4703	Stationary Gas Turbines (9/20/07)
Rule 4801	Sulfur Compounds (12/17/92)

California Health & Safety Code 41700 (Public Nuisance)
California Health & Safety Code 42301.6 (School Notice)
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. PROJECT LOCATION

This facility is located at 1021 Industrial Drive, Stockton, California. This location is not within 1,000 feet of any K-12 school. Therefore, the project will not trigger the school and public noticing requirements under California Health & Safety Code 42301.6.

IV. PROCESS DESCRIPTION

N-238-41-4: 185 MMBtu/hr natural gas-fired boiler
N-238-42-2: 28.8 MMBtu/hr natural gas-fired boiler
N-238-44-2: 99.9 MMBtu/hr natural gas-fired boiler
N-238-45-2: 99.9 MMBtu/hr natural gas-fired boiler
The boilers provide steam to various processes in the wet corn milling plant.

N-238-46-0: 7.3 MW combined heat and power generation system
This system will provide electricity and steam to the wet corn milling plant.

CTG combustion air will flow through the inlet air filters, evaporative cooler and associated air inlet ductwork, will be compressed in the CTG compressor section, and then enter the CTG combustion section. Natural gas fuel will be injected into the compressed air in the combustion section and the mixture is ignited. The hot combustion gases will expand through the power turbine section of the CTG, causing the shaft to rotate that drives both the electrical generator and CTG compressor. The hot combustion gases will exit the turbine section and enter the duct burner where more heat will be added to heat the water pumped through the HRSG. The water will convert into superheated steam that will be used to carry out various processes inside the plant.

V. EQUIPMENT LISTING

Pre-Project Equipment Description

Permit #	Equipment Description
N-238-41-2	185 MMBTU/HR ZURN MODEL 22M KEYSTONE AUXILIARY BOILER WITH A TODD MODEL RMB ULTRA LOW NOX BURNER AND A FLUE GAS RECIRCULATION (FGR) SYSTEM
N-238-42-1	28.8 MMBTU/HR HURST MODEL S2X-G-650-250 (OR EQUIVALENT MANUFACTURER AND MODEL) BOILER WITH ALZETA MODEL CSB 22-2SO-30/30 (OR EQUIVALENT MANUFACTURER OR MODEL) BURNER SYSTEM
N-238-44-0	99.9 MMBTU/HR NEBRASKA MODEL NOS-2A/S-64 (OR EQUIVALENT MANUFACTURER AND MODEL) BOILER WITH TODD OR JOHN ZINK VARIFLAME (OR EQUIVALENT MANUFACTURER AND MODEL) LOW-NOX BURNER SYSTEM WITH A CADASTACK (OR EQUIVALENT MANUFACTURER) SELECTIVE CATALYTIC REDUCTION SYSTEM
N-238-45-0	99.9 MMBTU/HR NEBRASKA MODEL NOS-2A/S-64 (OR EQUIVALENT MANUFACTURER AND MODEL) BOILER WITH TODD OR JOHN ZINK VARIFLAME (OR EQUIVALENT MANUFACTURER AND MODEL) LOW-NOX BURNER SYSTEM WITH A CADASTACK (OR EQUIVALENT MANUFACTURER) SELECTIVE CATALYTIC REDUCTION SYSTEM

Post-Project Equipment Description

Permit #	Equipment Description
N-238-41-4	185 MMBTU/HR ZURN MODEL 22M KEYSTONE AUXILIARY BOILER WITH A TODD MODEL RMB ULTRA LOW NOX BURNER AND A FLUE GAS RECIRCULATION (FGR) SYSTEM
N-238-42-3	28.8 MMBTU/HR HURST MODEL S2X-G-650-250 (OR EQUIVALENT MANUFACTURER AND MODEL) BOILER WITH ALZETA MODEL CSB 22-2SO-30/30 (OR EQUIVALENT MANUFACTURER OR MODEL) BURNER SYSTEM
N-238-44-2	99.9 MMBTU/HR NEBRASKA MODEL NOS-2A/S-64 (OR EQUIVALENT MANUFACTURER AND MODEL) BOILER WITH TODD OR JOHN ZINK VARIFLAME (OR EQUIVALENT MANUFACTURER AND MODEL) LOW-NOX BURNER SYSTEM WITH A CADASTACK (OR EQUIVALENT MANUFACTURER) SELECTIVE CATALYTIC REDUCTION SYSTEM
N-238-45-2	99.9 MMBTU/HR NEBRASKA MODEL NOS-2A/S-64 (OR EQUIVALENT MANUFACTURER AND MODEL) BOILER WITH TODD OR JOHN ZINK VARIFLAME (OR EQUIVALENT MANUFACTURER AND MODEL) LOW-NOX BURNER SYSTEM WITH A CADASTACK (OR EQUIVALENT MANUFACTURER) SELECTIVE CATALYTIC REDUCTION SYSTEM
N-238-46-1	7.3 MW (ISO RATING) COMBINED HEAT AND POWER (CHP) GENERATION PLANT CONSISTING OF A SOLAR TURBINES TAURUS 70 NATURAL GAS-FIRED TURBINE ENGINE WITH 87.5 MMBTU/HR DRY LOW-NO_X COMBUSTORS, A CLEAVER BROOKS DUCT BURNER EQUIPPED WITH 190 MMBTU/HOUR NATURAL GAS-FIRED NATCOM DB-209-G-5 LOW-NO_X BURNER, AND AN UNFIRED HEAT RECOVERY STEAM GENERATOR, ALL SERVED BY A SELECTIVE CATALYTIC REDUCTION WITH AMMONIA INJECTION AND AN OXIDIZATION CATALYST

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

N-238-41-4 and '-42-3

The burners reduce formation of NO_X by producing lower flame temperatures (and longer flames) than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NO_X burners delay the mixing of fuel and air by introducing the fuel (or sometimes the air) in multiple stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with nitrogen to produce thermal NO_X. In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.

In addition, the use of flue gas re-circulation (FGR) on unit N-238-41 can reduce NO_X emissions by 60% to 70%. In an FGR system, a portion of the flue gas is re-circulated back to the inlet air. As flue gas is composed mainly of nitrogen and the products of combustion, it is much lower in oxygen than the inlet air and contains virtually no combustible hydrocarbons to burn. Thus, flue gas is practically inert. The addition of an inert mass of gas to the combustion reaction serves to absorb heat without producing heat, thereby lowering the flame temperature. Since high flame temperatures form thermal NO_X, the lower flame temperatures produced by FGR serve to reduce thermal NO_X.

N-238-44-2 and '-45-2

In addition to the burner technology (explained under N-238-41 and '-42), the boilers under N-238-44 and '-45 will be equipped with an SCR system. An SCR system operates as an external control device where flue gases and a reagent, in this case ammonia, are passed through an appropriate catalyst. Ammonia will be injected upstream of the catalyst where it reacts and reduces NO_x, over the catalyst bed, to form elemental nitrogen and other by-products. The use of a catalyst typically reduces the NO_x emissions by up to 90%.

N-238-46-1

NO_X is the major pollutant of concern when combusting natural gas. Virtually all gas turbine NO_X emissions originate as NO. This NO is further oxidized in the exhaust system or later in the atmosphere to form the more stable NO_2 molecule. There are two mechanisms by which NO_X is formed in turbine combustors: 1) the oxidation of atmospheric nitrogen found in the combustion air (thermal NO_X and prompt NO_X), and 2) the conversion of nitrogen chemically bound in the fuel (fuel NO_X).

Thermal NO_X is formed by a series of chemical reactions in which oxygen and nitrogen present in the combustion air dissociate and subsequently react to form oxides of nitrogen. Prompt NO_X, a form of thermal NO_X, is formed in the proximity of the flame front as intermediate combustion products such as HCN, H, and NH are oxidized to form NO_X. Prompt NO_X is formed in both fuel-rich flame zones and dry low NO_X DLN combustion zones. The contribution of prompt NO_X to overall NO_X emissions is relatively small in conventional near-stoichiometric combustors, but this contribution is significant of overall thermal NO_X emissions in DLN combustors. For this reason prompt NO_X becomes an important consideration for DLN combustor designs, and establishes a minimum NO_X level attainable in lean mixtures.

Fuel NO_X is formed when fuels containing nitrogen are burned. Molecular nitrogen, present as N_2 in some natural gas, does not contribute significantly to fuel NO_X formation. With excess air, the degree of fuel NO_X formation is primarily a function of the nitrogen content in the fuel. When compared to thermal NO_X, fuel NO_X is not currently a major contributor to overall NO_X emissions from stationary gas turbines firing natural gas.

The level of NO_X formation in a gas turbine, and hence the NO_X emissions, is unique (by design factors) to each gas turbine model and operating mode. The primary factors that determine the amount of NO_X generated are the combustor design, the types of fuel being burned, ambient conditions, operating cycles, and the power output of the turbine.

The design of the combustor is the most important factor influencing the formation of NO_X. Design parameters controlling air/fuel ratio and the introduction of cooling air into the combustor strongly influence thermal NO_X formation. Thermal NO_X formation is primarily a function of flame temperature and residence time. The extent of fuel/air mixing prior to combustion also affects NO_X formation. Simultaneous mixing and combustion results in localized fuel-rich zones that yield high flame temperatures in which substantial thermal NO_X production takes place. Injecting water or steam into a conventional combustor provides a heat sink that effectively reduces peak flame temperature, thereby reducing thermal NO_X formation. Premixing air and fuel at a lean ratio approaching the lean flammability limit (approximately 50% excess air) significantly reduces peak flame temperature, resulting in minimum NO_X formation during combustion. This is known as DLN combustion.

SCR systems selectively reduce NO_X emissions by injecting ammonia (NH_3) into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, NH_3, and O_2 react on the surface of the catalyst to form molecular nitrogen (N_2) and H_2O. SCR is capable of over 90 percent NO_X reduction. Titanium oxide is the SCR catalyst material most commonly used, though vanadium pentoxide, noble metals, or zeolites are also used. The ideal operating temperature for a conventional SCR catalyst is 600 to 750°F. Exhaust gas temperatures greater than the upper limit (750°F) will cause NO_X and NH_3 to pass through the catalyst un-reacted. Ammonia slip will be limited to 10 ppmvd @ 15% O_2.

CO is formed during the combustion process due to incomplete oxidation of the carbon contained in the fuel. Carbon monoxide formation can be limited by ensuring complete and efficient combustion of the fuel. High combustion temperatures, adequate excess air and good air/fuel mixing during combustion minimize CO emissions. Therefore, lowering combustion temperatures and staging combustion to limit NO_X formation can result in increased CO emissions.

Oxidation catalyst uses a precious metal catalyst bed to convert CO to CO_2. No reagents are used upstream of the catalyst.

The inlet air filters will remove particulate matter from the combustion air stream, reducing the amount of particulate matter emitted into the atmosphere.

Inlet air temperature and density directly affect turbine performance. Hot and dry inlet air reduces the efficiency of the turbine. Conversely, colder air improves the

efficiency and reduces emissions by reducing the amount of fuel required to achieve the required turbine output. The reduction in fuel consumption will result in lower combustion contaminant emissions.

VII. CALCULATIONS

A. Assumptions

- Higher heating value of natural gas is 1,000 Btu/scf.
- F-Factor of natural gas combustion is 8,578 dscf/MMBtu @ 60°F.
- Molar specific volume of any gas is 379.5 dscf/lb-mol @ 60°F.
- For conservative calculations, all PM_{10} emissions are assumed to be $PM_{2.5}$ emissions since $PM_{2.5}$ is a subset of PM_{10}.
- Other assumptions will be stated as they are made during the evaluation.

B. Emission Factors (EF)

1. Pre-Project Emission Factors (EF1)

N-238-41-3

Pollutant	EF1		Source
	lb/MMBtu	ppmvd @ 3% O_2	
NO_x	0.008	7.0	N-238-41-1
SO_x	0.0029	--	
PM_{10}	0.0076	--	
CO	0.037	50	
VOC	0.004	10	

N-238-42-2

Pollutant	EF1		Source
	lb/MMBtu	ppmvd @ 3% O_2	
NO_x	0.008	7	N-238-42-1
SO_x	0.00285	--	
PM_{10}	0.0076	--	
CO	0.037	50	
VOC	0.004	10	

N-238-44-1 or '-45-1

Pollutant	Emission Factors (EF1)		Source
	lb/MMBtu	ppmvd @ 3% O_2	
$NO_{x\ Startup/shutdown}$	0.030	25	N-238-44-0 or '-45-0
$NO_{x\ Steady\text{-}state}$	0.0062	5	
SO_x	0.00285	--	
PM_{10}	0.0076	--	
CO	0.037	50	
VOC	0.004	10	
NH_3	0.004	10	

2. Post-Project Emission Factors (EF2)

N-238-41-4, '-42-3, '-44-2, '-45-2
For each permit unit, EF2 will be same as EF1.

N-238-46-1
Tuning/commissioning period emissions:
During the tuning/commissioning period, only the duct burner will be in operation. The emissions during refractory cure, boil out, initial duct burner set up and duct burner tuning are summarized in the following table.

Pollutant	$EF2_{Uncontrolled}$ (lb/MMBtu)	Source
NOx	0.15	Manufacturer's data
SOx	0.00285	District Policy APR-1720
PM_{10}	0.01	Manufacturer's data
CO	0.2	Manufacturer's data
VOC	0.03	Manufacturer's data

During the final tuning of the duct burner, the emission control equipment will be in operation but the controls may not be operating at optimum level. For conservative emission factors, 75% control efficiency is presumed for the SCR and oxidation catalyst for NOx, CO and VOC emissions. The emissions during the final turning of the duct burner are summarized in the following table.

$EF2_{Controlled} = EF2_{uncontrolled} \times (1\text{-}0.75)$

Pollutant	$EF2_{Controlled}$ (lb/MMBtu)	Source
NOx	0.0375	Manufacturer's data
SOx	0.00285	District Policy APR-1720
PM_{10}	0.01	Manufacturer's data
CO	0.05	Manufacturer's data
VOC	0.0075	Manufacturer's data
NH_3	0.0136	See EF calculations on next page

Startup emissions:
The following startup and shutdown emissions rates are proposed by the applicant.

Pollutant	Gas turbine (lb/event)	Duct burner (lb/event)
NOx	7.6	21.525
CO	410.3	17.22
VOC	24.2	0.574

Shutdown emissions:
The following startup and shutdown emissions rates are proposed by the applicant.

Pollutant	Gas turbine (lb/event)	Duct burner (lb/event)
NOx	3.3	10.763
CO	223	8.61
VOC	13	0.287

Steady state emissions:
The proposed steady state concentrations for NOx, CO and VOC will be converted into pounds per MMBtu using the following equation.

$$EF2 = \frac{(C, ppmvd)\left(8{,}578\ \frac{dscf}{MMBtu}\right)\left(MW\ \frac{lb}{lb-mol}\right)\left(\frac{20.95}{20.95\ -15}\right)}{\left(379.5\ \frac{dscf}{lb-mol}\right)(10^6)}$$

Where,
C = Pollutant concentration, ppmvd
MW = Molecular weight of the pollutant

46.00 lb/lb-mol for NOx as NO_2
28.01 lb/lb-mol for CO
16.04 lb/lb-mol for VOC as CH_4
17.03 lb/lb-mol for NH_3

Pollutant	EF2 (ppmvd @ 15% O_2)	EF2 (lb/MMBtu)
NO_x	2.5	0.0092
CO	6.0	0.0134
VOC	2.0	0.0026
NH_3	10	0.0136

Note that the emissions in the above table include both the gas turbine and duct burner emissions, which are vented through an SCR system and oxidation catalyst.

Startup/shutdown/steady emissions:
The emissions from startup/shutdown/steady modes from gas turbine and duct burner are summarized in the following table:

Pollutant	EF2 (lb/MMBtu)	Source
SOx	0.00285	District Policy APR-1720
PM_{10}	0.01	Applicant's proposal

C. Potential to Emit

1. Pre-Project Potential to Emit (PE1)

N-238-41-2
Per project N-1143155,

Pollutant	PE1 (lb/day)	PE1 (lb/yr)
NO_x	34.2	12,474
SO_x	12.4	4,522
PM_{10}	32.5	11,851
CO	158.1	57,693
VOC	17.1	6,237

N-238-42-1
Per project N-1143155,

Pollutant	PE1 (lb/day)	PE1 (lb/yr)
NO_x	5.5	2,018
SO_x	2.0	732
PM_{10}	5.3	1,917
CO	25.6	9,335
VOC	2.8	1,009

N-238-44-0 or '-45-0
Per project N-1143155,

Pollutant	PE2 (lb/day)	PE2 (lb/yr)
$NO_{x\ Startup/shutdown}$	9.0	899
$NO_{x\ Steady-state}$	13.0	5,240
NOx (Total)	22.0	6,139
SO_x	6.8	2,494
PM_{10}	18.2	6,651
CO	88.7	32,380
VOC	9.6	3,500
NH_3	9.6	3,500

N-238-41-2, '-42-1, '-44-0 and '-45-0 (Combined)

Pollutant	EF1 (lb/MMBtu)	PE1 (lb/day)	PE1 (lb/yr)
NO_x	--	47.4	12,474
*SO_x	--	12.4	4,522
PM_{10}	0.0076	32.5	11,851
CO	0.037	158.1	57,693
VOC	0.004	17.1	6,237
NH_3	0.004	17.1	6,237

*Worst-case emissions from unit N-238-41-2

2. Post-Project Potential to Emit (PE2)

N-238-41-4, '-42-3, '-44-2and '-45-2
For each unit, PE2 will be same as PE1.

N-238-46-1

Tuning/commissioning period emissions:

As stated previously, during tuning/commissioning period, only duct burner will be in operation. During this time there is a one-time manufacturer required sequential tuning/commissioning activity that will need to be conducted without emission control equipment. These activities are summarized in the table below:

Tuning activities	Time (hours)	Average load	Estimated control efficiency of SCR & Oxidation catalyst	Heat input MMBtu*
Refractory cure	24	1%	0	45.6
Boil out	24	10%	0	456
Initial duct burner set-up	10	10%	0	190
Duct burner tuning	10	50%	0	950
Final burner tuning	10	50%	75%	950

*Average load x 190 MMBtu/hr x Time hr; 190 MMBtu/hr is the maximum capacity of the duct burner.

Except for the final burner tuning, emissions will be estimated using the following equations:

PE2 (lb/hr) = $EF2_{Uncontrolled}$ lb/MMBtu × 190 MMBtu/hr × 50%
PE2 (lb/day) = $EF2_{Uncontrolled}$ lb/MMBtu × [950+190+(456×4/24)] MMBtu/day
PE2 (lb, total) = $EF2_{Uncontrolled}$ lb/MMBtu × (45.6 +456+190+950) MMBtu

Pollutant	$EF2_{Uncontrolled}$ (lb/MMBtu)	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb, total)
NOx	0.15	14.3	182.4	246
SOx	0.00285	0.3	3.5	5
PM_{10}	0.01	1	12.2	16
CO	0.2	19	243.2	328
VOC	0.03	2.9	36.5	49

The emissions during final tuning period will be estimated using the following equations:

PE2 (lb/hr) = $EF2_{Controlled}$ lb/MMBtu × 190 MMBtu/hr × 50%
PE2 (lb/day) = $EF2_{Controlled}$ lb/MMBtu × 950 MMBtu/day
PE2 (lb, total) = $EF2_{Controlled}$ lb/MMBtu × 950 MMBtu

Pollutant	EF2 Controlled (lb/MMBtu)	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb, total)
NOx	0.0375	3.6	35.6	36
SOx	0.00285	0.3	2.7	3
PM_{10}	0.01	1	9.5	10
CO	0.05	4.8	47.5	48
VOC	0.0075	0.7	7.1	7
NH_3	0.0136	1.3	12.9	13

The following table summarizes worst-case hourly and daily emissions and total one-time annual emissions from the duct burner tuning activities.

Pollutant	PE2 Worst-case (lb/hr)	PE2 Worst-case (lb/day)	PE2 (lb, total)
NOx	14.3	182.4	282
SOx	0.3	3.5	8
PM_{10}	1	12.2	26
CO	19	243.2	376
VOC	2.9	36.5	56
NH_3	1.3	12.9	13

Startup emissions:
The applicant has proposed the following startup durations: 1 hr/event, 2 events/day, 50 hr/yr

PE2 (lb/hr) = EF2 lb/event × event/1 hr
PE2 (lb/day) = EF2 lb/event × 2 events/day
PE2 (lb/yr) = EF2 lb/event × event/ 1 hr × 50 hr/yr

Gas turbine:

Pollutant	EF2 (lb/event)	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
NOx	7.6	7.6	15.2	380
CO	410.3	410.3	820.6	20,515
VOC	24.2	24.2	48.4	1,210

Duct burner:

Pollutant	EF2 (lb/event)	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
NOx	21.525	21.525	43.1	1,076
CO	17.22	17.22	34.4	861
VOC	0.574	0.574	1.1	29

The total startup emissions are summarized in the following table:

Pollutant	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
NOx	29.125	58.3	1,456
CO	427.52	855.0	21,376
VOC	24.774	49.5	1,239

Shutdown emissions:
The applicant has proposed the following shutdown durations: 0.5 hr/event, 2 events/day, 25 hr/yr
PE2 (lb/hr) = EF2 lb/event × event/0.5 hr
PE2 (lb/day) = EF2 lb/event × 2 events/day
PE2 (lb/yr) = EF2 lb/event × event/ 0.5 hr × 25 hr/yr

Gas turbine:

Pollutant	EF2 (lb/event)	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
NOx	3.3	6.6	6.6	165
CO	223	446.0	446.0	11,150
VOC	13	26.0	26.0	650

Duct burner:

Pollutant	EF2 (lb/event)	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
NOx	10.763	21.526	21.5	538
CO	8.61	17.220	17.2	431
VOC	0.287	0.574	0.6	14

The total shutdown emissions are summarized in the following table:

Pollutant	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
NOx	28.126	28.1	703
CO	463.22	463.2	11,581
VOC	26.574	26.6	664

Steady state:
Per applicant, the maximum heat input to both gas turbine and the duct burner would be 231 MMBtu/hr.

NOx, CO and VOC:
PE2 (lb/hr) = EF2 lb/MMBtu × 231 MMBtu/hr
PE2 (lb/day) = EF2 lb/MMBtu × 231 MMBtu/hr × (24 – 3) hr/day

PE (lb/yr) = EF2 lb/MMBtu × 231 MMBtu/hr × (8,760 – 75) hr/yr

Pollutant	EF2 (lb/MMBtu)	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
NOx	0.0092	2.125	44.6	18,457
CO	0.0134	3.095	65.0	26,884
VOC	0.0026	0.601	12.6	5,216

Startup/shutdown/steady state:
SO_x, PM_{10}, NH_3:
PE2 (lb/day) = EF2 lb/MMBtu × 231 MMBtu/hr × 24 hr/day
PE (lb/yr) = EF2 lb/MMBtu × 231 MMBtu/hr × 8,760 hr/yr

Pollutant	EF2 (lb/MMBtu)	PE2 (lb/hr)	PE2 (lb/day)	PE2 (lb/yr)
SO_x	0.00285	0.658	15.8	5,767
PM_{10}	0.01	2.310	55.4	20,236
NH_3	0.0136	3.142	75.4	27,520

Summary:
Tuning period emissions:
The following table summarizes worst-case hourly and daily emissions and total one-time annual emissions from the duct burner tuning activities.

Pollutant	PE2 Worst-case (lb/hr)	PE2 Worst-case (lb/day)	PE2 Total (lb/yr)
NOx	14.3	142.5	282
SOx	0.3	2.7	8
PM_{10}	1	9.5	26
CO	19	190	376
VOC	2.9	28.5	56
NH_3	1.3	12.9	13

Startup/shutdown/steady state emissions:
The hourly emissions shown in the table below are the maximum hourly emissions out of the hourly startup, steady state and shutdown emissions.

The daily and annual emissions shown in the table below are the sum of startup, shutdown and steady state emissions.

Pollutant	Total		
	lb/hr	lb/day	lb/yr
NOx	29.125	131.0	20,616
SO_x	0.658	15.8	5,767
PM_{10}	2.31	55.4	20,236
CO	463.22	1,383.2	59,841
VOC	26.574	88.7	7,119
NH_3	3.142	75.4	27,520

N-238-41-4, '-42-3, '-44-2, '-45-2 and '-46-1 (Combined)
The applicant has proposed to limit daily and annual mass emissions equal to the potential emissions from permit unit N-238-46. These emissions also include one-time tuning/commissioning activities of the duct burner. The limits in the following table will be established.

Pollutant	Total PE2		
	lb/hr	lb/day	lb/yr
NOx	29.125	131.0	20,616
SO_x	0.658	15.8	5,767
PM_{10}	2.31	55.4	20,236
CO	463.22	1383.2	59,841
VOC	26.574	88.7	7,119
NH_3	3.142	75.4	27,520

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid ATCs or PTOs at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Except for permit unit N-238-40, the potential emissions for each permit unit are taken from the application review under project N-1150704. The potential emissions from permit unit N-238-40 are taken from the application review under project N-1133778.

SSPE1 (lb/yr)					
Permit #	NO_x	SO_x	PM_{10}	CO	VOC
N-238-1-5	0	0	17,047	0	0
N-238-2-3	0	0	2,118	0	0
N-238-8-2	0	0	315	0	0
N-238-9-5	0	0	219	0	0
N-238-10-7	8,833	511	28,032	52,597	7,300
N-238-11-3	0	0	359	0	0
N-238-12-2	0	0	359	0	0
N-238-13-6	0	4,840	5,431	0	16,644
N-238-14-2	0	0	377	0	0
N-238-15-2	0	0	858	0	0
N-238-16-2	0	0	88	0	0
N-238-17-2	0	0	88	0	0
N-238-18-6	24,565	1,095	2,519	102,273	803
N-238-19-6	0	0	2	0	0
N-238-24-6 and N-238-33-3	0	10,950	9,125	0	2,884
N-238-25-4	0	1,284	0	0	24,791
N-238-29-3	0	767	0	0	0
N-238-30-2	0	0	37	0	0
N-238-36-0	0	0	0	0	0
N-238-40-0	0	0	0	0	194
N-238-41-2, '-42-1, '-44-0 & '-45-0	**12,474**	**4,522**	**11,851**	**57,693**	**6,237**
N-238-43-0	0	0	0	0	0
SSPE1 (lb/yr)	45,872	23,969	73,000*	212,563	58,853

*Per facility-wide PTO N-238-0-3, PM_{10} emissions from the entire facility are limited to 200 lb/day. This limit equates to 73,000 lb/yr of PM_{10} emissions. All PM_{10} emissions are conservatively assumed to be $PM_{2.5}$.

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid ATCs or PTOs, except for emissions units proposed to be shut down as part of the Stationary Project, at the Stationary Source and the quantity of Emission Reduction Credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. The

applicant wants to retain the daily facility-wide PM_{10} emission limit to 200 lb/day. This limit equates to 73,000 lb-PM_{10}/yr.

SSPE2 (lb/yr)					
Permit #	NO_x	SO_x	PM_{10}	CO	VOC
N-238-1-5	0	0	17,047	0	0
N-238-2-3	0	0	2,118	0	0
N-238-8-2	0	0	315	0	0
N-238-9-5	0	0	219	0	0
N-238-10-7	8,833	511	28,032	52,597	7,300
N-238-11-3	0	0	359	0	0
N-238-12-2	0	0	359	0	0
N-238-13-6	0	4,840	5,431	0	16,644
N-238-14-2	0	0	377	0	0
N-238-15-2	0	0	858	0	0
N-238-16-2	0	0	88	0	0
N-238-17-2	0	0	88	0	0
N-238-18-6	24,565	1,095	2,519	102,273	803
N-238-19-6	0	0	2	0	0
N-238-24-6 and N-238-33-3	0	10,950	9,125	0	2,884
N-238-25-4	0	1,284	0	0	24,791
N-238-29-3	0	767	0	0	0
N-238-30-2	0	0	37	0	0
N-238-36-0	0	0	0	0	0
N-238-40-0	0	0	0	0	194
N-238-41-4, '-42-3, '-44-2, '-45-2 and '-46-1	**20,616**	**5,767**	**20,236**	**59,841**	**7,119**
N-238-43-0	0	0	0	0	0
N-238-44-0	0	0	0	0	0
SSPE2 (lb/yr)	54,014	25,214	73,000	214,711	59,735

5. Major Source Determination

Rule 2201 Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- Any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165.

Rule 2201 Major Source Determination (lb/year)					
Category	NO_X	SO_X	$PM_{10}/PM_{2.5}$	CO	VOC
SSPE1	45,872	23,969	73,000*	212,563	58,853
SSPE2	54,014	25,214	73,000	214,711	59,735
Major Source Thresholds	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	Yes	Yes

From the above table, the facility is a Major Source for NOx, CO and VOC emissions.

Rule 2410 Major Source Determination
The facility or the equipment evaluated under this project is listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore, the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)						
Category	NO_2	VOC	SO_2	CO	PM	PM_{10}
Estimated Facility PE before Project Increase	22.9	29.4	12.0	106.3	36.5	36.5
PSD Major Source Thresholds	100	100	100	100	100	100
PSD Major Source ?	No	No	No	Yes	No	No

From the above table, the facility is an existing Major Source for CO under PSD.

6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed on a pollutant-by-pollutant basis for each unit within the project to calculate the quarterly net emissions change, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE is equal to pre-project Potential to Emit (PE1) for:

- Any unit located at a non-Major Source,

- Any Highly-Utilized Emissions Unit, located at a Major Source, provided that if the unit has a Specific Limiting Condition (SLC), all units combined under the SLC have an average combined annual Actual Emissions during the two consecutive years immediately prior to filing of an application for an Authority to Construct equal to or greater than 80% of the units' pre-project SLC limit,

- Any Fully-Offset Emissions Unit, located at a Major Source, provided that if the unit has a SLC, all units under the SLC also qualify as Fully Offset Emissions Units, or

- Any Clean Emissions Unit, located at a Major Source, provided that if the unit has a SLC, all units under the SLC also qualify as Clean Emissions Units.

Otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

N-238-41-2, '-42-1, '-44-0, '-45-0

The total heat input rate to these units is limited to 4,272 MMBtu/day and 1,559,280 MMBtu/yr. Furthermore, the combined NOx emissions from these units are limited to 12,474 lb/yr. Under these limits, the potential emissions, per section VII.C.2 above, were:

Pollutant	PE1 (lb/yr)
NOx	12,474
SOx	4,522
PM_{10}	11,851
CO	57,693
VOC	6,237

The facility is a major source for NOx, CO and VOC emissions. PE1 can only be set equal to BE should these units qualify as Highly Utilized, Fully-offset, or Clean Emission Unit.

For NOx, CO and VOC, these units are found to be Clean Emission Units as each unit complies with achieved-in-practice BACT standard accepted by the District during the five years immediately prior to the date this application was deemed complete. Therefore, BE is set equal to PE1 for these pollutants.

This facility is not a non-Major source for SOx and PM_{10} emissions; therefore, BE is set equal to PE1.

7. SB-288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Per section VII.C.5 of this document, this facility is a Major Source for NO_x, CO and VOC emissions. Thus, analysis is required to determine if this project triggers an SB-288 Major Modification. Note that the San Joaquin Valley air basin is in attainment for CO; therefore, no CO significance threshold value is listed in Rule 2201. This analysis will be limited to NO_x and VOC emissions.

To determine if the proposed project triggers an SB-288 major modification, net emission increase (NEI) is calculated by determining the sum of the difference of PE2 and historical emissions (HE) of all the units involved in the project. This NEI value is then compared with the SB 288 major modification thresholds of 50,000 lb-NO_x/yr and 50,000 lb-VOC/yr.

$NEI = \sum(PE2 - HE)$

NEI would be highest if HE is set equal zero. Thus,

$NEI_{NOx} = \sum PE2$
$= PE2_{N\text{-}238\text{-}41} + PE2_{N\text{-}238\text{-}42} + PE2_{N\text{-}238\text{-}44} + PE2_{N\text{-}238\text{-}45} + PE2_{N\text{-}238\text{-}46}$
$= 20{,}616$ lb-NO_x/yr $< 50{,}000$ lb-NOx/yr

$NEI_{VOC} = \sum PE2$
$= PE2_{N\text{-}238\text{-}41} + PE2_{N\text{-}238\text{-}42} + PE2_{N\text{-}238\text{-}44} + PE2_{N\text{-}238\text{-}45} + PE2_{N\text{-}238\text{-}46}$
$= 7{,}119$ lb-VOC/yr $< 50{,}000$ lb-VOC/yr

NEI for NO_x and VOC emissions is less than the SB 288 major modification thresholds. Therefore, this project is not an SB 288 Major Modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Per section VII.C.5 of this document, this facility is a Major Source for NO_x, CO and VOC emissions. Thus, analysis is required to determine if this project is a Federal Major Modification. Note that the San Joaquin Valley air basin is in attainment for CO; therefore, no CO significance threshold value is listed in Rule 2201. This analysis will be limited to NO_x and VOC emissions.

N-238-46-1 (New Unit)
Emissions Increase = 20,616 lb-NOx/yr >0 lb-NOx/yr
= 7,119 lb-VOC/yr > 0 lb-VOC/yr

N-238-41-4, '-42-3, '-44-2 and '-45-2 (Existing Units)
The proposed project does not result in an increase in boilers' design capacity or potential to emit, and it does not impact the boilers' ability to operate at a higher utilization rate. Therefore, the emission increase is presumed to be zero for each of these units.

The project's emission increase exceeds 0 lb/yr threshold for Federal Major Modification for NOx and VOC emissions. Therefore, this project is a Federal Major Modification. Federal Offset quantities are calculated below:

Federal Offset Quantities:
The Federal offset quantity is calculated only for the pollutants for which the project is a Federal Major Modification. The Federal offset quantity is the sum of the annual emission changes for all new and modified emission units in a project calculated as the potential to emit after the modification (PE2) minus the actual emissions (AE) during the baseline period for each emission unit times the applicable federal offset ratio. There are no special calculations performed for units covered by an SLC. Note that only units with emissions increase are included in the table below:

NOx:
Federal Offset Ratio: 1.5

Permit #	Actual Emissions (lb/yr)	Potential Emissions (lb/yr)	Emissions change (lb/yr)
N-238-46-1	0	20,616	20,616
		Net emission change (NEC, lb/yr):	20,616
		Federal Offset Quantity (NEC x 1.5, lb/yr):	30,924

VOC:
Federal Offset Ratio: 1.5

Permit #	Actual Emissions (lb/yr)	Potential Emissions (lb/yr)	Emissions change (lb/yr)
N-238-46-1	0	7,119	7,119
		Net emission change (NEC, lb/yr):	7,119
		Federal Offset Quantity (NEC x 1.5, lb/yr):	10,679

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM, PM_{10}

I. Project Location Relative to Class 1 Area

As demonstrated in the "Rule 2410 Major Source Determination", section VII.C.5 of this document, the facility was determined to be an existing PSD Major Source.

Because the project is not located within 10 km (6.2 miles) of a Class 1 area, modeling of the emissions will not be required to determine if the project is subject to the requirements of Rule 2410.

II. Project Emission Increase – Significance Determination

a. Evaluation of Calculated Post-project Potential to Emit for New or Modified Emissions Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the post-project potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if the total potentials to emit from all new and modified units are below the applicable thresholds, no futher PSD analysis is needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
Category	NO_2	SO_2	CO	PM	PM_{10}
Total PE from N-238-41-4, '-42-3, '-44-2, '-45-2 and '-46-1	10.3	2.9	29.9	10.1	10.1
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	No	No	No	No	No

As demonstrated above, because the post-project total potentials to emit from all new and modified emission units are below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix V.

VIII. COMPLIANCE

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements shall be triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless exempted pursuant to Section 4.2, BACT shall be required for the following actions[1]:

[1]Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year

a. Any new emissions unit or relocation from one Stationary Source to another of an existing emissions unit with a Potential to Emit (PE2) exceeding 2.0 pounds in any one day;

b. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding 2.0 pounds in any one day;

c. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined in this rule.

The BACT evaluation for each unit is presented in the following section:

a. New emissions unit/Relocation of emission unit – PE2 > 2.0 lb/day

N-238-46-1
The proposed CHP system is a new emissions unit.

Per section VII.C.2 of this document, the potential emissions are greater than 2.0 lb/day for each pollutant. Thus, BACT is triggered for each pollutant.

b. Modification of emission units – AIPE > 2.0 lb/day

AIPE is used to determine if BACT is required for emission units that are being modified. AIPE is calculated using the equations mentioned in Section 4.3 and 4.4 of Rule 2201.

$$AIPE = PE2 - \left(\frac{EF2}{EF1}\right)(PE1)$$

N-238-41-4, '-42-3, '-44-2 and '-45-2
For each unit, PE2 = PE1 and EF2 = EF1, therefore, AIPE is equal to zero for each pollutant.

N-238-46-1
This is a new emissions unit; therefore, its BACT is evaluated on a PE2 basis.

c. SB-288/Federal Major Modification

Per sections VII.C.8 above, this project is a Federal Major Modification. Therefore, BACT evaluation is required.

N-238-41-4, '-42-3, '-44-2 and '-45-2
Per section VII.C.8 of this document, emissions increase for NOx and VOC emissions is zero. Thus, BACT is not triggered for NOx or VOC emissions.

N-238-46-1
This is a new emissions unit; therefore, its BACT is evaluated on a PE2 basis (see above).

2. BACT Guideline

N-238-46-1
BACT guideline 3.4.3, gas turbine with heat recovery (≥ 3MW and ≤ 10 MW), lists the following requirements:

Achieved-in-Practice:

NO_x:	2.5 ppmv @ 15% O_2, based on a 3-hour average
SO_x:	PUC-regulated natural gas, LPG, or non PUC-regulated natural gas with <0.75 gr-S/100 dscf, or equal
PM_{10}:	Air inlet cooler, lube oil vent coalescer, and natural gas fuel
CO:	6.0 ppmv @ 15 % O_2, based on a 3-hour average
VOC:	2.0 ppmv @ 15% O_2, based on a 3-hour average

Technologically Feasible: None

Alternative Basic Equipment: None

3. Top-Down BACT Analysis

N-238-46-1
The applicant has proposed to meet achieved-in-practice BACT standard for NOx, CO and VOC emissions.

The gas turbine will be equipped with air inlet cooler, lube oil vent coalescer. Furthermore, the unit will be fired on PUC regulated natural gas. Therefore, this proposal will also comply with achieved-in-practice BACT standards for SOx and PM_{10} emissions.

Note that the proposed CHP system will be equipped with an SCR system integrated with ammonia injection skid to reduce NOx emissions. Unreacted ammonia is expected to slip from the SCR system through the discharge stack into the atmosphere. The ammonia slip will be limited to 10 ppmvd @ 15% O_2. This limit is typical for similar units in the San Joaquin Valley.

NOx reductions are very critical to attain ozone standards for the Valley. The District allows slight flexibility in ammonia slip to help achieve the best performance of NOx reduction technology. Furthermore, District performed the health risk analysis for ammonia emissions and has determined that there is no significant health risk to the nearest receptors from these emissions. Moreover, the District's attainments plan indicate that ammonia is not has demonstrated that ammonia emissions are not significant contributor to the to the formation of $PM_{2.5}$ emissions that exceed modeling conducted during the attainments indicates that reduction in ammonia emissions does not play significant role in reducing ozone For these reasons, the District has decided not to lower the proposed ammonia slip.

Detailed Top-Down BACT analysis is included in Appendix II of this document.

B. Offsets

Offsets are examined on pollutant-by-pollutant basis. The following table summarizes SSPE2, offset thresholds, and whether or not offsets are triggered.

Category	NO_x	SO_x	PM_{10}	CO	VOC
SSPE2 (lb/yr)	54,014	25,214	73,000	214,711	59,735
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	Yes	No	Yes	Yes	Yes

Section 4.7.1 of Rule 2201 states that for pollutants with SSPE1 greater than the emission offset threshold levels, emission offsets shall be provided for all increases in Stationary Source emissions, calculated as the differences of post-project Potential to Emit (PE2) and the Baseline Emissions (BE) of all new and modified emissions units, plus all increases in Cargo Carrier emissions. Thus,

EOQ = Σ(PE2 – BE) + ICCE, where

PE2 = Post-Project Potential to Emit (lb/yr)
BE = Baseline Emissions (lb/yr)
ICCE = Increase in Cargo Carrier emissions (lb/yr)

There is no increase in Cargo Carrier emissions from this project. Thus,

$EOQ = \Sigma(PE2 - BE)$

$\underline{NO_x}$:
$EOQ = \Sigma(PE2 - BE)$

Per section VII.C.6 of this document, BE is equal to PE1. Thus,

$EOQ = (PE2 - PE1)_{N\text{-}238\text{-}41} + (PE2 - PE1)_{N\text{-}238\text{-}42} + (PE2 - PE1)_{N\text{-}238\text{-}44} + (PE2 - PE1)_{N\text{-}238\text{-}45} + (PE2 - PE1)_{N\text{-}238\text{-}46}$

Re-arranging the above equation,

$EOQ = (PE2_{N\text{-}238\text{-}41} + PE2_{N\text{-}238\text{-}42} + PE2_{N\text{-}238\text{-}44} + PE2_{N\text{-}238\text{-}45} + PE_{N\text{-}238\text{-}46}) - (PE1_{N\text{-}238\text{-}41} + PE1_{N\text{-}238\text{-}42} + PE1_{N\text{-}238\text{-}44} + PE1_{N\text{-}238\text{-}45})$

$PE2_{N\text{-}238\text{-}41} + PE2_{N\text{-}238\text{-}42} + PE2_{N\text{-}238\text{-}44} + PE2_{N\text{-}238\text{-}45} + PE2_{N\text{-}238\text{-}46} = 20{,}616$ lb-NO_x/yr
$PE1_{N\text{-}238\text{-}41} + PE1_{N\text{-}238\text{-}42} + PE1_{N\text{-}238\text{-}44} + PE1_{N\text{-}238\text{-}45} + PE1_{N\text{-}238\text{-}46} = 12{,}474$ lb-NO_x/yr

$EOQ = 20{,}616$ lb-NO_x/yr $- 12{,}474$ lb-NO_x/yr
$= 8{,}142$ lb-NO_x/yr

Per section 4.8.1 of Rule 2201, distance offset ratio is 1.5 for NOx and VOC offsets for new major sources and federal major modifications. Therefore, the total emission offset quantity would be 12,213 lb-NOx/year (1.5 x 8,142).

The applicant has proposed to use ERC certificate N-1278-2 to offset the emissions increase. This certificate contains sufficient credits in each quarter to offset these emissions.

The following condition will be included in permit N-238-46-0:

- Prior to operating under ATC N-238-46-1, the owner or operator shall mitigate the following quantities of NOx: 1st quarter: 3,053 lb, 2nd quarter: 3,053 lb, 3rd quarter: 3,053 lb, and 4th quarter: 3,054 lb. The quarterly amounts already include the applicable distance offset ratio per section 4.8.1 of Rule 2201 (4/21/11). [District Rule 2201]

- ERC N-1278-2 (or a certificate split from this certificate) shall be used to supply the required NOx offsets, unless a revised offsetting proposal is

received and approved by the District. Following the revisions, this Authority to Construct permit shall be re-issued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to re-issuance of this Authority to Construct permit. [District Rule 2201]

PM_{10}:
The facility has a facility-wide PM_{10} emission limit of 200 lb/day, which equates to 73,000 lb/yr. The applicant has proposed to retain this facility-wide limit.

The facility is not a major source for PM_{10}. Therefore, BE is set equal to PE1.

EOQ $= \Sigma(PE2 - BE)$
$= PE2_{SLC} - PE1_{SLC}$
$= 73{,}000$ lb/yr $- 73{,}000$ lb/yr
$= 0$ lb/yr

CO:
Section 4.6 provides exemption for CO emissions increase in attainment areas if the applicant demonstrates to the satisfaction of APCO that the Ambient Air Quality Standards are not violated in the areas to be affected and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of AAQS.

San Joaquin Valley is in attainment for CO emissions. Based on the results of Ambient Air Quality Analysis (AAQA), Ambient Air Quality Standard (AAQS) for CO is not violated in the affected area. Therefore, offsets are not required for CO emissions increase. Please refer to Appendix III of this document for AAQA.

VOC:
EOQ $= \Sigma(PE2 - BE)$

Per section VII.C.6 of this document, BE is equal to PE1. Thus,

EOQ $= (PE2 - PE1)_{N\text{-}238\text{-}41} + (PE2 - PE1)_{N\text{-}238\text{-}42} + (PE2 - PE1)_{N\text{-}238\text{-}44} + (PE2 - PE1)_{N\text{-}238\text{-}45} + (PE2 - PE1)_{N\text{-}238\text{-}46}$

Re-arranging the above equation,

EOQ $= (PE2_{N\text{-}238\text{-}41} + PE2_{N\text{-}238\text{-}42} + PE2_{N\text{-}238\text{-}44} + PE2_{N\text{-}238\text{-}45} + PE_{N\text{-}238\text{-}46}) - (PE1_{N\text{-}238\text{-}41} + PE1_{N\text{-}238\text{-}42} + PE1_{N\text{-}238\text{-}44} + PE1_{N\text{-}238\text{-}45})$
$PE2_{N\text{-}238\text{-}41} + PE2_{N\text{-}238\text{-}42} + PE2_{N\text{-}238\text{-}44} + PE2_{N\text{-}238\text{-}45} + PE2_{N\text{-}238\text{-}46} = 7{,}119$ lb-VOC/yr
$PE1_{N\text{-}238\text{-}41} + PE1_{N\text{-}238\text{-}42} + PE1_{N\text{-}238\text{-}44} + PE1_{N\text{-}238\text{-}45} + PE1_{N\text{-}238\text{-}46} = 6{,}237$ lb-VOC/yr

EOQ = 7,119 lb-VOC/yr – 6,237 lb-VOC/yr
= 882 lb-VOC/yr

Per section 4.8.1 of Rule 2201, distance offset ratio is 1.5 for NOx and VOC offsets for new major sources and federal major modifications. Therefore, the total emission offset quantity would be 1,323 lb-VOC/year (1.5 x 882).

The applicant has proposed to use ERC certificate S-4428-1 to offset the emissions increase. This certificate contains sufficient credits in each quarter to offset these emissions.

- Prior to operating under ATC N-238-46-1, the owner or operator shall mitigate the following quantities of VOC: 1st quarter: 330 lb, 2nd quarter: 331 lb, 3rd quarter: 331 lb, and 4th quarter: 331 lb. The quarterly amounts already include the applicable distance offset ratio per section 4.8.1 of Rule 2201 (4/21/11). [District Rule 2201]

- ERC S-4428-1 (or a certificate split from this certificate) shall be used to supply the required VOC offsets, unless a revised offsetting proposal is received and approved by the District. Following the revisions, this Authority to Construct permit shall be re-issued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to re-issuance of this Authority to Construct permit. [District Rule 2201]

C. Public Notification

District Rule 2201, section 5.4, requires a public notification for the affected pollutants from the following types of projects:

- New Major Sources
- Major Modifications (SB-288 or Federal)
- New emission units with a PE>100 lb/day of any one pollutant
- Modifications with SSPE1 below an Offset threshold and SSPE2 above an Offset threshold on a pollutant-by-pollutant basis
- New stationary sources with SSPE2 exceeding Offset thresholds
- Any permitting action with a SSIPE exceeding 20,000 lb/yr for any one pollutant

Per section VII.C.8 of this document, this project is a Federal Major Modification. Thus, 30-day public notice is required for this project.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.17 to restrict a unit's maximum daily emissions. The following DELs will be included in the permits:

N-238-41-4:

- NO_x emissions shall not exceed 7 ppmvd @ 3% O2 (0.008 lb/MMBtu) referenced as NO2. [District Rules 2201, 4301, 4305, 4306 and 4320]
- SO_x emissions shall not exceed 0.0029 lb/MMBtu. [District Rule 2201]
- PM_{10} emissions shall not exceed 0.0076 lb/MMBtu. [District Rule 2201]
- CO emissions shall not exceed 50 ppmvd @ 3% O2 (0.037 lb/MMBtu). [District Rule 2201]
- VOC emissions shall not exceed 10 ppmvd @ 3% O2 (0.004 lb/MMBtu) referenced as methane. [District Rule 2201]
- The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO_2): 131.0 lb/day, SO_x: 15.8 lb/day, PM_{10}: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH_3: 75.4 lb/day. [District Rule 2201]

N-238-42-3:

- NO_x emissions shall not exceed 7 ppmvd @ 3% O2 (0.008 lb/MMBtu) referenced as NO2. [District Rules 2201, 4301, 4305, 4306 and 4320]
- SO_x emissions shall not exceed 0.0029 lb/MMBtu. [District Rule 2201]
- PM_{10} emissions shall not exceed 0.0076 lb/MMBtu. [District Rule 2201]
- CO emissions shall not exceed 50 ppmvd @ 3% O2 (0.037 lb/MMBtu). [District Rule 2201]
- VOC emissions shall not exceed 10 ppmvd @ 3% O2 (0.004 lb/MMBtu) referenced as methane. [District Rule 2201]
- The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO_2): 131.0 lb/day, SO_x: 15.8 lb/day, PM_{10}: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH_3: 75.4 lb/day. [District Rule 2201]

N-238-44-2 or '-45-2:
Startup/shutdown:

- Startup/shutdown shall not exceed any of the following items: startup - 2.0 hours/event, 2.0 hours/day and 200 hours/year; shutdown - 1.0 hour/event, 1.0 hour/day and 100 hours/year. [District Rules 2201, 4306 and 4320]

- During startup and shutdown, NOx emissions shall not exceed 25 ppmvd @ 3% O_2 or 0.030 lb/MMBtu. [District Rule 2201]

Steady state:

- Except during startup and shutdown, NO_x emissions shall not exceed 5 ppmvd @ 3% O_2 or 0.0062 lb/MMBtu, referenced as NO2. [District Rules 2201, 4305, 4306 and 4320]

Startup/shutdown/steady state:

- SO_x emissions shall not exceed 0.00285 lb/MMBtu. [District Rule 2201]

- PM_{10} emissions shall not exceed 0.0076 lb/MMBtu. [District Rule 2201]

- CO emissions shall not exceed 50 ppmvd @ 3% O2 or 0.037 lb/MMBtu. [District Rules 2201, 4305, 4306 and 4320]
- VOC emissions shall not exceed 10 ppmvd @ 3% O2 (0.004 lb/MMBtu) referenced as methane. [District Rule 2201]

- NH_3 emissions from the SCR system shall not exceed 10 ppmvd @ 3% O2. [District Rule 2201]

- The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO_2): 131.0 lb/day, SO_x: 15.8 lb/day, PM_{10}: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH_3: 75.4 lb/day. [District Rule 2201]

N-238-46-1:
Tuning/commissioning:

- Tuning/commissioning activities of the duct burner may include, but are not limited to, refractory cure, boil out, initial duct burner set-up, duct burner tuning, final duct burner tuning etc., as recommended by the equipment manufacturer and the construction contractor to ensure safe and reliable steady state operation of the duct burner. The owner or operator shall use emission control equipment during final duct burner tuning activity to the maximum extent possible. [District Rule 2201]

- The emissions during tuning/commissioning of the duct burner shall not exceed any of the following limits: NOx (as NO2): 14.3 lb/hr, 182.4 lb/day and 282 lb (total); SOx: 0.3 lb/hr, 3.5 lb/day and 8 lb (total); PM10: 1.0 lb/hr, 12.2 lb/day and 26 lb (total); CO: 19.0 lb/hr, 243.2 lb/day and 376 lb (total); VOC: 2.9 lb/hr, 36.5 lb/day and 56 lb (total); and NH3: 1.3 lb/hr, 12.9 lb/day, 13 lb (total). The hourly, daily and total emissions shall be determined using the manufacturer supplied emission factors, or District supplied emission factors, heat input rate (MMBtu/hr, MMBtu/hr, MMBtu (total)). [District Rule 2201]

- The total mass emissions emitted during tuning/commissioning of the duct burner shall be counted toward the total daily and annual emissions limits. [District Rule 2201]

Startup:

- The startup for the CHP system shall not exceed 1.0 hour/event, 2 events/day and 50 hours/year. [District Rules 2201 and 4703]

- The total startup emissions from the CHP system shall not exceed any of the following limits: NOx (as NO2): 29.125 lb/hr, SOx: 0.658 lb/hr, PM_{10}: 2.31 lb/hr, CO: 427.52 lb/hr, and VOC: 24.774 lb/hr. and NH_3: 3.142 lb/hr. [District Rule 2201]

Shutdown:

- The shutdown for the CHP system shall not exceed 0.5 hour/event, 2 events/day and 25 hours/year. [District Rules 2201 and 4703]

- The total shutdown emissions from the CHP system shall not exceed any of the following limits: NOx (as NO2): 28.126 lb/hr, SOx: 0.658 lb/hr, PM_{10}: 2.31 lb/hr, CO: 463.22 lb/hr, VOC: 26.574 lb/hr and NH_3: 3.142 lb/hr. [District Rule 2201]

Steady state:

- Except during tuning/commissioning of the duct burner, startup and shutdown, emissions from the CHP system shall not exceed any of the following limits: NOx (as NO_2): 2.125 lb/hr and 2.5 ppmvd @ 15% O_2, SOx: 0.658 lb/hr, PM_{10}: 2.310 lb/hr, CO: 3.095 lb/hr and 6.0 ppmvd @ 15% O_2, VOC: 0.601 lb/hr and 2.0 ppmvd @ 15% O_2, and NH_3: 3.142 lb/hr and 10.0 ppmvd @ 15% O_2. All emission limits are based on 3-hour rolling averaging period. [District Rules 2201 and 4703 and 40 CFR Part 60.4320(a)]

Tuning/commissioning/Startup/shutdown/steady state:

- Heat input rate to the CHP system (gas turbine and duct burner) shall not exceed 231 MMBtu/hr. [District Rule 2201 and 4102]

- The CHP system shall be fired on PUC quality natural gas with a sulfur content no greater than 1.0 grain of sulfur compounds (as S) per 100 dscf of natural gas. [District Rule 2201 and 40 CFR 60.4330(a)(2)]

- The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO_2): 131.0 lb/day, SO_x: 15.8 lb/day, PM_{10}: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH_3: 75.4 lb/day. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

N-238-41-4:
NOx, SOx, PM_{10}, CO, VOC
Ingredion is not proposing any changes to the existing emission factors. Therefore, initial source testing is not required. Note that annual testing is required for NOx and CO emissions to comply with the requirements in District rules 4305, 4306 and 4320.

N-238-42-3:
NOx, SOx, PM_{10}, CO, VOC
Ingredion is not proposing any changes to the existing emission factors. Therefore, initial testing is not required. Note that annual testing is required for NOx and CO emissions to comply with the requirements in District rules 4305, 4306 and 4320.

N-238-44-2 and '-45-2:
To verify the proposed NOx, VOC, CO and NH_3 emissions, Ingredion will be required to conduct initial source testing within 60-days of startup of the unit. However, any testing performed under ATCs N-237-44-0 and '-45-0 can be substituted to fulfill the initial source testing required under this permit.

Source testing to measure NOx, CO and NH_3 emissions is required to be conducted at least once every twelve months. Successful compliance demonstration on two consecutive twelve-month periodic tests may defer the following source test up to thirty-six months. This testing frequency is consistent with the requirements in the boiler rules 4305, 4306 and 4320 and other permitted boilers equipped with SCR systems.

N-238-46-1

Tuning/commissioning emissions:
Source testing is not required for determining the emissions during the tuning or commissioning period.

Note that manufacturer recommended emissions factors are used to estimate the emissions, and the tuning/commissioning is a one-time event that will be performed without the use of the emission control equipment.

Startup emissions:
Ingredion will be required to conduct a source test to measure hourly mass emission rates of NOx, CO and VOC emissions during startup period. The testing is required to be completed within 60-days of initial startup of the duct burner after completing the tuning/commissioning activities during phase 1, and within 60-days of initial startup of both gas turbine and duct burner during phase 2, and at least once every seven years thereafter. The testing will verify initial and on-going compliance with the proposed emission rates.

Shutdown emissions:
Ingredion will be required to conduct a source test to measure hourly mass emission rates of NOx, CO and VOC emissions during shutdown period. The testing is required to be completed within 60-days of initial startup of the duct burner after completing the tuning/commissioning activities during phase 1, and within 60-days of initial startup of both gas turbine and duct burner during phase 2, and at least once every seven years thereafter. The testing will verify initial and on-going compliance with the proposed emission rates.

Steady state emissions:
NOx, CO, VOC, PM_{10} and NH_3
Pursuant to District Policy APR-1705 (10/9/97), emission units equipped with catalysts must be tested for NOx, CO and VOC (only pollutants controlled by the catalyst) upon initial start-up and annually thereafter. Furthermore, Rule 4703 (Section 6.3.1 and 6.3.3) also requires that similar gas turbines must be tested on annual basis for NOx and CO emissions.

The proposed CHP system consists of a gas turbine engine and a duct burner. This system will be equipped with an SCR system and an oxidation catalyst. This add-on control equipment minimizes NOx, CO and VOC emissions. For an SCR system, NH_3 slip is an indicator of an SCR performance. Therefore, the proposed CHP system is required to

be tested within 60 days of initial startup of the duct burner after completing the tuning/commissioning activities during phase 1, and within 60-days of initial startup of both gas turbine and duct burner during phase 2, and at least annually thereafter for NOx, CO, VOC and NH_3 emissions.

Ingredion will also be required to source testing to verify compliance with the proposed PM_{10} emissions factor for the CHP system. This testing is required to be completed within 60 days of initial startup of the duct burner after completing the tuning/commissioning activities during phase 1, and within 60-days of initial startup of both gas turbine and duct burner during phase 2.

2. Monitoring

N-238-41-4, '-42-3, '-44-2 and '-45-2:
The applicant is not proposing any changes to the existing monitoring requirements. Therefore, the existing requirements will be replicated in the ATC being issued under this project.

N-238-46-1:
Ingredion has proposed to monitor ammonia injection rate into the SCR system, and NOx, CO and O_2 concentration using portable analyzer that meet District specifications.
NOx:
Ingredion is required to provide minimum SCR catalyst face temperature at which ammonia injection will occur during the final design phase of the project at least 30 days prior to the commencement of construction. This information will be included in the Permit to Operate.

Ingredion is required to establish minimum ammonia injection rate into the SCR system during each test run of the initial source test while demonstrating compliance the NOx limit in the permit. The established minimum ammonia injection rate will be included in the Permit to Operate.

The ammonia injection rate (lb/hr) is required to be monitored and recorded at least once every 15-minute period to obtain an average ammonia injection rate over an hour period. The hourly readings are required to be used to determine average ammonia injection rate on a 3-hour rolling basis. This value is required to be compared with the minimum ammonia injection rate established in the permit.

CO, VOC:
Minimum oxidation catalyst temperature is required to be established during each test run of the initial source test while demonstrating compliance the CO and VOC limits in the permit. The established minimum temperature reading will be included in the Permit to Operate.

The oxidation catalyst temperature is required to be monitored and recorded at least once every 15-minute period to obtain an average temperature over an hour period. These readings will be used to determine average temperature on a 3-hour rolling basis. This value is required to be compared with the minimum temperature established in the permit while demonstrating compliance with the CO and VOC limits.

Additionally, Ingredion will also be required to determine NOx, CO and O_2 concentrations using portable analyzer that meets District specification on a weekly basis. Upon completion of 8 consecutive weeks, the monitoring will be monthly. If any two consecutive month tests indicate deviation from any permitted limit, then monitoring will revert to weekly unless eight consecutive weeks shows compliance with permitted NOx and CO emissions. Note that NH_3 emissions are also required to be monitored during each portable analyzer reading.

SO_x:
Ingredion has proposed to use PUC quality natural gas that may contain up to 1.0 grain-S/100 scf (0.00285 lb/MMBtu). Primarily, the natural gas suppliers are able to provide a purchase contract, tariff sheet or transportation contract for the fuel that demonstrates compliance with this natural gas sulfur content limit. If the sulfur content information is not available from the gas supplier, then the company is required to test fuel sulfur content on weekly basis. Upon successful compliance demonstration on 8 week consecutive tests, the test frequency shall be reduced to every six months. If any six-month test shows non-compliance with the sulfur content requirement, weekly testing will resume until eight consecutive weeks show compliance.

PM_{10}:
No monitoring is required for PM_{10} emissions.

3. Recordkeeping

N-238-41-4, '-42-3, '-44-2, '-45-2 and '-46-1:
Ingredion will be required to maintain all records to verify compliance with the permitted limits. The records are required to be kept for a period of at least 5 years from the date such record is entered in a logbook.

4. Reporting

N-238-41-4, '-42-3, '-44-2, '-45-2 and '-46-1:
Ingredion will be required to submit source test reports within 60 days after completing each source test. For unit N-238-46-1, Ingredion is also required to submit reports of monitoring data on a semi-annual basis.

F. Ambient Air Quality Analysis (AAQA)

Pursuant to Section 4.14 of Rule 2201, an AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. The following table shows the summary of AAQA in Appendix III of this document:

Pollutant	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	Pass[1]	X	X	X	Pass
SO_x	Pass	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[2]	Pass[2]
$PM_{2.5}$	X	X	X	Pass[2]	Pass[2]

[1]The project was compared to the 1-hour NO2 National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.
[2]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165(b)(2).

The criteria modeling runs for the proposed new units indicate that the emissions will not cause or contribute significantly to a violation of the State and National Ambient Air Quality Standards.

G. Compliance Certification

Per Section 4.15 of Rule 2201, "Compliance Certification" and "Alternative Siting Analysis" is required for any project, which constitutes a New Major Source or a Federal Major Modification.

Compliance Certification
The owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. The compliance certification from the facility is included in Appendix IV of this document.

Alternative Siting Analysis
The current project occurs at an existing facility. This site is expected to result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact on the environment.

Compliance is expected with this Rule.

Rule 2410 Prevention of Significant Deterioration

As discussed in section VII.C.9 of this document, this project is not subject to the requirements of this rule.

Rule 2520 Federally Mandated Operating Permits

This facility is a Major Source for NO_x, CO and VOC emissions. Therefore, this facility is subject to the requirements of this rule. The proposed project is a "Significant Modification" to the Title V permit since the project is a Federal Major Modification per section VII.C.8 of this document. The applicant has proposed to process this project with COC. The following conditions will be included in the permits:

- This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201]
- Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4]

In accordance with Rule 2520, the application meets the procedural requirements of section 11.4 by including:

- A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs and
- The source's suggested draft permit (Appendix I of this document) and
- Certification by a responsible official that the proposed modification meets the criteria for use of major permit modification procedures and a request that such procedures be used (Appendix IV of this document).

Section 5.3.4 of this rule requires the permittee shall file an application for administrative permit amendments prior to implementing the requested change except when allowed by the operational flexibility provisions of section 6.4 of this rule. The facility is expected to notify the District by filing TV Form-008 upon implementing the ATCs. The District Compliance Division is expected to submit a change order to implement the ATCs into Permits to Operate (PTOs).

Compliance is expected with this Rule.

Rule 4001 New Source Performance Standards

40 CFR Part 60, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
The requirements of the Code of Federal Regulations, Chapter 40 (40 CFR), Part 60, Subpart Db applies to any steam generating unit with a maximum heat input of greater than 100 MMBtu/hr that has commenced construction, modification, or reconstruction after June 19, 1984.

N-238-41-4:
The applicant is not proposing any increase in fuel use; therefore, the proposed changes are not expected to result in an increase in hazardous air pollutants from this unit. Therefore, no further evaluation is required.

N-238-42-3, '-44-2 and '-45-2:
The heat input rate to each unit is not greater than 100 MMBtu/hr. Therefore, none of these units is subject to the requirements of this subpart.

40 CFR Part 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
This subpart applies to steam generating units that are constructed, reconstructed, or modified after 6/9/89 and have a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. Subpart Dc has standards for SO_X and PM_{10} emissions. This subpart applies to the boilers under permits N-238-42-3, '-44-2 and '-45-2.

60.42c – Standards for Sulfur Dioxide

Since coal is not combusted in the proposed boilers, the requirements of this section are not applicable.

60.43c – Standards for Particulate Matter

The boilers are not fired on coal, combusts mixtures of coal with other fuels, combusts wood, combusts mixtured of wood with other fuels, or oil; therefore they will not be subject to the requirements of this section.

60.44c – Compliance and Performance Tests Methods and Procedures for Sulfur Dioxide

The proposed boilers are not subject to the sulfur dioxide requirements of this subpart. Therefore, this section is not applicable to these units.

60.45c – Compliance and Performance Test Methods and Procedures for Particulate Matter

The proposed boilers are not subject to the particulate matter requirements of this subpart. Therefore, this section is not applicable to these units.

60.46c – Emission Monitoring for Sulfur Dioxide

The proposed boilers are not subject to the sulfur dioxide requirements of this subpart. Therefore, this section is not applicable to these units.

60.47c – Emission Monitoring for Particulate Matter

The proposed boilers are not subject to the particulate matter requirements of this subpart. Therefore, this section is not applicable to these units.

60.48c – Reporting and Recordingkeeping Requirements

Section 60.48c (a) states that the owner or operator of each affected facility shall submit notification of the date of construction or reconstruction, anticipated startup, and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

The design heat input capacity and type of fuel combusted will be listed on the permit. No conditions are required to show compliance with this requirement.

(2) If applicable, a copy of any Federally enforceable requirement that limits the annual capacity factor for any fuel mixture of fuels under §60.42c or §40.43c.
This requirement is not applicable since the units are not subject to §60.42c or §60.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

The facility is not proposing to establish an annual capacity factor for any unit under this project.

(4) Notification if an emerging technology will be used for controlling SO_2 emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator

This requirement is not applicable since the units will not be equipped with emerging technology used to control SO_2 emissions.

Section 60.48c(g) states that the owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each day. The following conditions will be listed in permits N-238-42-2, '-44-1 and '-45-1 to assure compliance with this section.

- A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c(g)]

- The owner or operator shall maintain daily and monthly records of the type and quantity of the fuel combusted by the boiler. [District Rules 2201 and 4351, and 40 CFR 60.48c(g)]

Section 60.48c(i) states that all records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record. The following condition will ensure compliance with this section:

- All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306 and 4320, and 40 CFR 60.48c(i)]

Compliance is expected with this regulation.

40 CFR Part 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

Introduction

This subpart establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005.

Applicability

§60.4305 Does this subpart apply to my stationary combustion turbine?

(a) If you are the owner or operator of a stationary combustion turbine with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005, your turbine is subject to this subpart. Only heat input to the combustion turbine should be included when determining whether or not this subpart is applicable to your turbine. Any additional heat input to associated heat recovery steam generators (HRSG) or duct burners should not be included when determining your peak heat input. However, this subpart does apply to emissions from any associated HRSG and duct burners.

(b) Stationary combustion turbines regulated under this subpart are exempt from the requirements of subpart GG of this part. Heat recovery steam generators and duct burners regulated under this subpart are exempted from the requirements of subparts Da, Db, and Dc of this part.

The heat input rate to the proposed gas turbine is 87.5 MMBtu/hr. This turbine is expected to be installed sometime this year. Therefore, this unit is subject to the requirements of this subpart.

Emission Limits

§60.4320 What emission limits must I meet for nitrogen oxides (NO_X)?

(a) You must meet the emission limits for NO_x specified in Table 1 to this subpart.

(b) If you have two or more turbines that are connected to a single generator, each turbine must meet the emission limits for NO_x.

Per Table 1 of this subpart, new turbine firing on natural gas with a heat input at peak load between 50 MMBtu/hr and 850 MMBtu/hr, shall meet NO_x emissions limit of 25 ppmvd @ 15% O_2 or 150 ng/J of useful output (1.2 lb/MWh).

Ingredion has proposed to achieve 2.5 ppmvd NO_x @ 15% O_2 or less. Therefore, compliance is expected with this section. The following condition(s) will be included in the permit:

- Except during tuning/commissioning of the duct burner, startup and shutdown, emissions from the CHP system shall not exceed any of the following limits: NOx (as NO_2): 2.125 lb/hr and 2.5 ppmvd @ 15% O_2, SOx: 0.658 lb/hr, PM_{10}: 2.310 lb/hr, CO: 3.095 lb/hr and 6.0 ppmvd @ 15% O_2, VOC: 0.601 lb/hr and 2.0 ppmvd @ 15% O_2, and NH_3: 3.142 lb/hr and 10.0 ppmvd @ 15% O_2. All emission limits are based on 3-hour rolling averaging period. [District Rules 2201 and 40 CFR Part 60.4320(a)]

§60.4325 What emission limits must I meet for NO_x if my turbine burns both natural gas and distillate oil (or some other combination of fuels)?

The proposed turbine will solely be fired on PUC quality natural gas. Therefore, this section does not apply.

§60.4330 What emission limits must I meet for sulfur dioxide (SO_2)?

(a) If your turbine is located in a continental area, you must comply with either paragraph (a)(1), (a)(2), or (a)(3) of this section. If your turbine is located in Alaska, you do not have to comply with the requirements in paragraph (a) of this section until January 1, 2008.

(1) You must not cause to be discharged into the atmosphere from the subject stationary combustion turbine any gases which contain SO2 in excess of 110 nanograms per Joule (ng/J) (0.90 pounds per megawatt-hour (lb/MWh)) gross output;

(2) You must not burn in the subject stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO2/J (0.060 lb SO2/MMBtu) heat input. If your turbine simultaneously fires multiple fuels, each fuel must meet this requirement; or

(3) For each stationary combustion turbine burning at least 50 percent biogas on a calendar month basis, as determined based on total heat input, you must not cause to be discharged into the atmosphere from the affected source any gases that contain SO2 in excess of 65 ng SO2/J (0.15 lb SO2/MMBtu) heat input.

Ingredion has proposed to use PUC quality natural gas with a sulfur content of 1.0 grain/ 100 scf or less. The following condition(s) will be included in the permit:

- The CHP system shall be fired on PUC quality natural gas with a sulfur content no greater than 1.0 grain of sulfur compounds (as S) per 100 dscf of natural gas. [District Rule 2201 and 40 CFR 60.4330(a)(2)]

General Compliance Requirements
§60.4333 What are my general requirements for complying with this subpart?

(a) You must operate and maintain your stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.

The following condition will be included in the permit:

- The owner or operator shall operate and maintain stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction (except during the tuning/commissioning activities, unless the use of control equipment is required for any tuning activity). [40 CFR 60.4333(a)]

(b) When an affected unit with heat recovery utilizes a common steam header with one or more combustion turbines, the owner or operator shall either:

(1) Determine compliance with the applicable NOx emissions limits by measuring the emissions combined with the emissions from the other unit(s) utilizing the common heat recovery unit; or

(2) Develop, demonstrate, and provide information satisfactory to the Administrator on methods for apportioning the combined gross energy output from the heat recovery unit for each of the affected combustion turbines. The Administrator may approve such demonstrated substitute methods for apportioning the combined gross energy output measured at the steam turbine whenever the demonstration ensures accurate estimation of emissions related under this part.

The proposed unit will have its own HRSG and associated equipment including steam header. Therefore, no further discussion is required.

§60.4335 How do I demonstrate compliance for NO_x if I use water or steam injection?

The turbine is equipped with dry low-NOx burner and an SCR system to reduce NOx emissions. The system will not utilize water or steam injection technique to reduce NOx emissions. Therefore, no further discussion is necessary.

§60.4340 How do I demonstrate continuous compliance for NO_X if I do not use water or steam injection?

(a) If you are not using water or steam injection to control NO_x emissions, you must perform annual performance tests in accordance with §60.4400 to demonstrate continuous compliance. If the NO_x emission result from the performance test is less than or equal to 75 percent of the NO_x emission limit for the turbine, you may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75 percent of the NO_x emission limit for the turbine, you must resume annual performance tests.

(b) As an alternative, you may install, calibrate, maintain and operate one of the following continuous monitoring systems:

(1) Continuous emission monitoring as described in §§60.4335(b) and 60.4345, or

(2) Continuous parameter monitoring as follows:

(i) For a diffusion flame turbine without add-on selective catalytic reduction (SCR) controls, you must define parameters indicative of the unit's NOX formation characteristics, and you must monitor these parameters continuously.

(ii) For any lean premix stationary combustion turbine, you must continuously monitor the appropriate parameters to determine whether the unit is operating in low-NOX mode.

(iii) For any turbine that uses SCR to reduce NO_x emissions, you must continuously monitor appropriate parameters to verify the proper operation of the emission controls.

(iv) For affected units that are also regulated under part 75 of this chapter, with state approval you can monitor the NO_x emission rate using the methodology in appendix E to part 75 of this chapter, or the low mass emissions methodology in §75.19, the requirements of this paragraph (b) may be met by performing the parametric monitoring described in section 2.3 of part 75 appendix E or in §75.19(c)(1)(iv)(H).

Ingredion has proposed to conduct annual performance test to determine NOx, CO and O_2 concentration using EPA/CARB approved methods. Therefore, compliance is expected with this section.

§60.4345 What are the requirements for the continuous emission monitoring system equipment, if I choose to use this option?

Ingredion is not proposing to install NOx CEMS. Therefore, this section does not apply. Note that Ingredion has proposed to conduct annual performance test to demonstrate on-going compliance with this section.

§60.4350 How do I use data from the continuous emission monitoring equipment to identify excess emissions?

This section discusses how CEMS data can be used to identify excess emissions. Ingredion is not proposing to install NOx CEMS. Therefore, no further discussion is necessary.

§60.4355 How do I establish and document a proper parameter monitoring plan?

(a) The steam or water to fuel ratio or other parameters that are continuously monitored as described in §§60.4335 and 60.4340 must be monitored during the performance test required under §60.8, to establish acceptable values and ranges. You may supplement the performance test data with engineering analyses, design specifications, manufacturer's recommendations and other relevant information to define the acceptable parametric ranges more precisely. You must develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NO_X emission controls. The plan must:

(1) Include the indicators to be monitored and show there is a significant relationship to emissions and proper operation of the NOX emission controls,
(2) Pick ranges (or designated conditions) of the indicators, or describe the process by which such range (or designated condition) will be established,

(3) Explain the process you will use to make certain that you obtain data that are representative of the emissions or parameters being monitored (such as detector location, installation specification if applicable),

(4) Describe quality assurance and control practices that are adequate to ensure the continuing validity of the data,

(5) Describe the frequency of monitoring and the data collection procedures which you will use (e.g., you are using a computerized data acquisition over a number of discrete data points with the average (or maximum value) being used for purposes of determining whether an exceedance has occurred), and

(6) Submit justification for the proposed elements of the monitoring. If a proposed performance specification differs from manufacturer recommendation, you must explain the reasons for the differences. You must submit the data supporting the justification, but you may refer to generally available sources of information used to support the justification. You may rely on engineering assessments and other data, provided you demonstrate factors which assure compliance or explain why performance testing is unnecessary to establish indicator ranges. When establishing indicator ranges, you may choose to simplify the process by treating the parameters as if they were correlated. Using this assumption, testing can be divided into two cases:

(i) All indicators are significant only on one end of range (e.g., for a thermal incinerator controlling volatile organic compounds (VOC) it is only important to insure a minimum temperature, not a maximum). In this case, you may conduct your study so that each parameter is at the significant limit of its range while you conduct your emissions testing. If the emissions tests show that the source is in compliance at the significant limit of each parameter, then as long as each parameter is within its limit, you are presumed to be in compliance.

(ii) Some or all indicators are significant on both ends of the range. In this case, you may conduct your study so that each parameter that is significant at both ends of its range assumes its extreme values in all possible combinations of the extreme values (either single or double) of all of the other parameters. For example, if there were only two parameters, A and B, and A had a range of values while B had only a minimum value, the combinations would be A high with B minimum and A low with B minimum. If both A and B had a range, the combinations would be A high and B high, A low and B low, A high and B low, A low and B high. For the case of four parameters all having a range, there are 16 possible combinations.

(b) For affected units that are also subject to part 75 of this chapter and that have state approval to use the low mass emissions methodology in §75.19 or the NO_X emission measurement methodology in appendix E to part 75, you may meet the requirements of this paragraph by developing and keeping on-site (or at a central location for unmanned facilities) a QA plan, as described in §75.19(e)(5) or in section 2.3 of appendix E to part 75 of this chapter and section 1.3.6 of appendix B to part 75 of this chapter.

Ingredion has proposed to conduct annual performance test to demonstrate on-going compliance with this section. Therefore, no further discussion is required.

§60.4360 How do I determine the total sulfur content of the turbine's combustion fuel?

You must monitor the total sulfur content of the fuel being fired in the turbine, except as provided in §60.4365. The sulfur content of the fuel must be determined using total sulfur methods described in §60.4415. Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than half the applicable limit, ASTM D4084, D4810, D5504, or D6228, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see §60.17), which measure the major sulfur compounds, may be used.

The following condition will be included in the permit:

- When valid purchase contracts, tariff sheets or transportation contracts showing the fuel sulfur content are not available, fuel sulfur content shall be monitored using one of the following methods: ASTM Methods D1072, D3246, D4084, D4468, D4810, D6228, D6667 or Gas Processors Association Standard 2377. [40 CFR 60.4415(a)(1)(i)]

§60.4365 How can I be exempted from monitoring the total sulfur content of the fuel?

You may elect not to monitor the total sulfur content of the fuel combusted in the turbine, if the fuel is demonstrated not to exceed potential sulfur emissions of 26 ng SO2/J (0.060 lb SO2/MMBtu) heat input for units located in continental areas and 180 ng SO2/J (0.42 lb SO2/MMBtu) heat input for units located in non-continental areas or a continental area that the Administrator determines does not have access to natural gas and that the removal of sulfur compounds would cause more environmental harm than benefit. You must use one of the following sources of information to make the required demonstration:

(a) The fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total sulfur content for oil use in continental areas is 0.05 weight percent (500 ppmw) or less and 0.4 weight percent (4,000 ppmw) or less for noncontinental areas, the total sulfur content for natural gas use in continental areas is 20 grains of sulfur or less per 100 standard cubic feet and 140 grains of sulfur or less per 100 standard cubic feet for noncontinental areas, has potential sulfur emissions of less than less than 26 ng SO2/J (0.060 lb SO2/MMBtu) heat input for continental areas and has potential sulfur emissions of less than less than 180 ng SO2/J (0.42 lb SO2/MMBtu) heat input for noncontinental areas; or

(b) Representative fuel sampling data which show that the sulfur content of the fuel does not exceed 26 ng SO2/J (0.060 lb SO2/MMBtu) heat input for continental areas or 180 ng SO2/J (0.42 lb SO2/MMBtu) heat input for noncontinental areas. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 of this chapter is required.

Ingredion has proposed to use PUC quality natural gas that may contain up to 1.0 grain-S/100 scf (0.00285 lb/MMBtu). Primarily, the natural gas suppliers are able to provide a purchase contract, tariff sheet or transportation contract for the fuel that demonstrates compliance with this natural gas sulfur content limit. If the sulfur content information is not available from the gas supplier, then the company is required to test fuel sulfur content on weekly basis. Upon successful compliance demonstration on 8 week consecutive tests, the test frequency shall be reduced to every six months. If any six-month test shows non-compliance with the sulfur content requirement, weekly testing will resume until eight consecutive weeks show compliance. Please refer to the condition stated in section 60.4370 that will ensure compliance with this section.

§60.4370 How often must I determine the sulfur content of the fuel?

The frequency of determining the sulfur content of the fuel must be as follows:

(a) Fuel oil. For fuel oil, use one of the total sulfur sampling options and the associated sampling frequency described in sections 2.2.3, 2.2.4.1, 2.2.4.2, and 2.2.4.3 of appendix D to part 75 of this chapter (i.e., flow proportional sampling, daily sampling, sampling from the unit's storage tank after each addition of fuel to the tank, or sampling each delivery prior to combining it with fuel oil already in the intended storage tank).

(b) Gaseous fuel. If you elect not to demonstrate sulfur content using options in §60.4365, and the fuel is supplied without intermediate bulk storage, the sulfur content value of the gaseous fuel must be determined and recorded once per unit operating day.

(c) Custom schedules. Notwithstanding the requirements of paragraph (b) of this section, operators or fuel vendors may develop custom schedules for determination of the total sulfur content of gaseous fuels, based on the design and operation of the affected facility and the characteristics of the fuel supply. Except as provided in paragraphs (c)(1) and (c)(2) of this section, custom schedules shall be substantiated with data and shall be approved by the Administrator before they can be used to comply with the standard in §60.4330.

The District and EPA have previously approved a custom monitoring schedule of at least once per week. Then, if compliance with the fuel sulfur content limit is demonstrated for eight consecutive weeks, the monitoring frequency shall be at least once every six months. If any six month monitoring period shows an exceedance, weekly monitoring shall resume. The following condition will be included in the permit:

- The sulfur content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract, or (ii) monitored within 60 days of initial startup and weekly thereafter. If the sulfur content is less than or equal to 1.0 gr/100 dscf for eight consecutive weeks, then the monitoring frequency shall be every six months. If the result of any six month monitoring demonstrates that the fuel does not meet the fuel sulfur content limit, weekly monitoring shall resume until compliance is demonstrated for eight consecutive weeks. [District Rule 2201 and 40 CFR 60.4360, 60.4365(a) and 60.4370(c)]

Reporting
§60.4375 What reports must I submit?

(a) For each affected unit required to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content under this subpart, you must submit reports of excess emissions and monitor downtime, in accordance with §60.7(c). Excess emissions must be reported for all periods of unit operation, including start-up, shutdown, and malfunction.

(b) For each affected unit that performs annual performance tests in accordance with §60.4340(a), you must submit a written report of the results of each performance test before the close of business on the 60th day following the completion of the performance test.

Ingredion will be required to submit annual performance test reports within 60 days of completing the test. The following condition will be included in the permit:

- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60.4375(b)]

§60.4380 How are excess emissions and monitor downtime defined for NO_x?

For the purpose of reports required under §60.7(c), periods of excess emissions and monitor downtime that must be reported are defined as follows:

(c) For turbines required to monitor combustion parameters or parameters that document proper operation of the NOx emission controls:

(1) An excess emission is a 4-hour rolling unit operating hour average in which any monitored parameter does not achieve the target value or is outside the acceptable range defined in the parameter monitoring plan for the unit.

(2) A period of monitor downtime is a unit operating hour in which any of the required parametric data are either not recorded or are invalid.

Ingredion has chosen to perform annual performance rather than conducting operating a continuous monitoring under this subpart. Therefore, no further discussion is necessary.

§60.4385 How are excess emissions and monitoring downtime defined for SO2?

If you choose the option to monitor the sulfur content of the fuel, excess emissions and monitoring downtime are defined as follows:

(a) For samples of gaseous fuel and for oil samples obtained using daily sampling, flow proportional sampling, or sampling from the unit's storage tank, an excess emission occurs each unit operating hour included in the period beginning on the date and hour of any sample for which the sulfur content of the fuel being fired in the combustion turbine exceeds the applicable limit and ending on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit.

(b) If the option to sample each delivery of fuel oil has been selected, you must immediately switch to one of the other oil sampling options (i.e., daily sampling, flow proportional sampling, or sampling from the unit's storage tank) if the sulfur content of a delivery exceeds 0.05 weight percent. You must continue to use one of the other sampling options until all of the oil from the delivery has been combusted, and you must evaluate excess emissions according to paragraph (a) of this section. When all of the fuel from the delivery has been burned, you may resume using the as-delivered sampling option.

(c) A period of monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime ends on the date and hour of the next valid sample.

The following conditions will be included in the permit:

- SOx excess shall be defined as each unit operating hour included in the period beginning on the date and hour of any sample for which the sulfur

content of the fuel being fired in the gas turbine exceeds the sulfur limit specified in this permit, and ends on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit. [40 CFR 60.4385(a)]

- SOx monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime shall include only unit operating hours, and ends on the date and hour of the next valid sample. [40 CFR 60.4385(b)]

§60.4390 What are my reporting requirements if I operate an emergency combustion turbine or a research and development turbine?

The proposed gas turbine is not an emergency combustion turbine or a research and development turbine. Therefore, this section does not apply.

§60.4395 When must I submit my reports?

All reports required under §60.7(c) must be postmarked by the 30th day following the end of each 6-month period.

§60.7(c) state that each owner or operator required to install a continuous monitoring device shall submit excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and-or summary report form (see paragraph (d) of this section) to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each six-month period. Written reports of excess emissions shall include the following information:

(1) The magnitude of excess emissions computed in accordance with §60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

Ingredion is not required to install a continuous emissions monitor under this subpart since have proposed to conduct annual performance test under section 60.4340 for periodically monitoring of NOx, CO and O2 concentrations. The annual testing reports are required to be submitted within 60-days after completing the performance test. Therefore, no additional reporting is required under this subpart.

Performance Tests

§60.4400 How do I conduct the initial and subsequent performance tests, regarding NO_x?

(a) You must conduct an initial performance test, as required in §60.8. Subsequent NO_X performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test).

(b) The performance test must be done at any load condition within plus or minus 25 percent of 100 percent of peak load. You may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. You must conduct three separate test runs for each performance test. The minimum time per run is 20 minutes.

Ingredion will be required to source within 60-days of initial startup, and annually thereafter. They will be required to source test in accordance with the methods and procedures specified in paragraphs (a)(1) [i.e., measure NOx concentration using EPA Method 7E or EPA Method 20], (a)(2) [i.e., sampling traverse points are to be selected using EPA Method 20], and (a)(3) [i.e., may test at fewer points than specified in EPA Method 1 or Method 20 provided condition of this section are met). The following conditions will ensure compliance with the requirements of this section:

- Source testing to determine compliance with the steady state NOx, CO, NH3 (lb/hr and ppmvd @ 15% O2) and PM10 (lb/hr) shall be conducted within 60-days of initial startup of the turbine and annually thereafter both with the duct burner ON and OFF. [District Rules 2201 and 4703, 40 CFR 60.4400(a)]

- The following test methods shall be used: NO_X - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O_2 - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703 and 40 CFR 60.4400(a)]

§60.4405 How do I perform the initial performance test if I have chosen to install a NO_x-diluent CEMS?

Ingredion has not chosen to install a NOx diluent CEMS. Therefore, no further discussion is necessary.

§60.4410 How do I establish a valid parameter range if I have chosen to continuously monitor parameters?

If you have chosen to monitor combustion parameters or parameters indicative of proper operation of NO_X emission controls in accordance with §60.4340, the appropriate parameters must be continuously monitored and recorded during each run of the initial performance test, to establish acceptable operating ranges, for purposes of the parameter monitoring plan for the affected unit, as specified in §60.4355.

The applicant has chosen to perform an annual performance test under section 60.4340, rather than establishing continuously monitoring parameters under this section. Therefore, no further discussion is required.

§60.4415 How do I conduct the initial and subsequent performance tests for sulfur?

(a) You must conduct an initial performance test, as required in §60.8. Subsequent SO2 performance tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). There are three methodologies that you may use to conduct the performance tests.

(1) If you choose to periodically determine the sulfur content of the fuel combusted in the turbine, a representative fuel sample would be collected following ASTM D5287 (incorporated by reference, see §60.17) for natural gas or ASTM D4177 (incorporated by reference, see §60.17) for oil. Alternatively, for oil, you may follow the procedures for manual pipeline sampling in section 14 of ASTM D4057 (incorporated by reference, see

§60.17). The fuel analyses of this section may be performed either by you, a service contractor retained by you, the fuel vendor, or any other qualified agency. Analyze the samples for the total sulfur content of the fuel using:

(i) For liquid fuels, ASTM D129, or alternatively D1266, D1552, D2622, D4294, or D5453 (all of which are incorporated by reference, see §60.17); or

(ii) For gaseous fuels, ASTM D1072, or alternatively D3246, D4084, D4468, D4810, D6228, D6667, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see §60.17).

Ingredion is expected to periodically determine the sulfur content of the fuel combusted in the turbine when valid purchase contracts, tariff sheets or transportation contract are not available. The sulfur content will be determined using the methods specified above. The following condition will be included in the permit:

- When valid purchase contracts, tariff sheets or transportation contracts showing the fuel sulfur content are not available, fuel sulfur content shall be monitored using one of the following methods: ASTM Methods D1072, D3246, D4084, D4468, D4810, D6228, D6667 or Gas Processors Association Standard 2377. [40 CFR 60.4415(a)(1)(i)]

Methodologies (2) and (3) are applicable to operators that elect to measure the SO2 concentration in the exhaust stream. Ingredion is not proposing to measure the SO2 in the exhaust stream of the turbine. Therefore, the requirements of these methodologies are not applicable and no further discussion is required.

Compliance is expected with this Subpart.

Rule 4002 National Emission Standards for Hazardous Air Pollutants

40 CFR Part 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
This subpart is applicable to boilers and process heaters located at Major Sources of HAP emissions.

Per HAP calculation in Appendix VI of this document, this facility is an Area Source of HAP emissions. Therefore, the requirements of Subpart DDDDD are not applicable to the proposed boiler.

40 CFR Part 63 Subpart JJJJJJ National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources
Pursuant to Section 63.1195(e) a gas-fired boiler, as defined in Subpart JJJJJ, is not subject to any requirement of this Subpart. Pursuant to the definition in the subpart, a gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel.

The boilers under this project meet the definition of a "gas-fired boiler" as they are required to use natural gas fuel. Therefore, Subpart JJJJJJ requirements are not applicable.

40 CFR Part 63 Subpart YYYY National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

§63.6085 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary combustion turbine located at a major source of HAP emissions.

(a) Stationary combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle stationary combustion turbine, any regenerative/recuperative cycle stationary combustion turbine, the combustion turbine portion of any stationary cogeneration cycle combustion system, or the combustion turbine portion of any stationary combined cycle steam/electric generating system. Stationary means that the combustion turbine is not self propelled or intended to be propelled while performing its function, although it may be mounted on a vehicle for portability or transportability. Stationary combustion turbines covered by this subpart include simple cycle stationary combustion turbines, regenerative/recuperative cycle stationary combustion turbines, cogeneration cycle stationary combustion turbines, and combined cycle stationary combustion turbines. Stationary combustion turbines subject to this subpart do not include turbines located at a research or laboratory facility, if research is conducted on the turbine itself and the turbine is not being used to power other applications at the research or laboratory facility.

(b) A major source of HAP emissions is a contiguous site under common control that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

Per HAP calculation in Appendix VI of this document, this facility is not a major source of HAP emissions. Therefore, the requirements of this subpart do not apply.

Rule 4101 Visible Emissions

Section 5.0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringlemann 1 or equivalent to 20% opacity. The following condition will be included in each permit:

- No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Compliance is expected with this Rule.

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. The following condition will be included in each permit:

- No air contaminant shall be released into the atmosphere, which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700 - Health Risk Assessment

District Policy APR 1905 - Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District performs an analysis to determine the possible impact to the nearest resident or worksite.
N-238-41-4, '-42-3, '-44-2 and '-45-2:
These units do not result in an increase in emissions; therefore, risk management review (RMR) analysis is not required for these units.

N-238-46-1:
RMR results from this unit are summarized in the following table.

Categories	Turbine/Duct burner (Units 46-1)	Project Totals	Facility Totals
Prioritization Score	1.46	1.46	>1.0
Acute Hazard Index	0.00	0.00	0.12
Chronic Hazard Index	0.02	0.02	0.02
Maximum Individual Cancer Risk	5.52E-07	5.52E-07	5.52E-07
T-BACT Required?	No		
Special Permit Conditions?	Yes		

The acute and chronic indices are below 1.0, and the cancer risk is less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).

To ensure that the human health risks will not exceed District allowable levels, the following requirements shall be included in permit N-238-46-1:

- The exhaust sack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

Compliance is expected with this Rule.

Rule 4201 Particulate Matter Concentration

Section 3.0 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

N-238-41-4, '-42-3, '-44-2 and '-45-2:
The proposed modifications will not result in an increase in particulate matter emissions; therefore, continued compliance is expected.

N-238-46-1:

PM_{10} emissions	= 2.31 lb-PM_{10}/hr (Section VII.C.2 of this document)
Fraction (lb-PM_{10}/lb-PM)	= 100 %
Exhaust Temperature	= 947°F
Exhaust flow rate	= 132,497acfm
Moisture in exhaust	= 7% (assumed)

$$PM\left(\frac{gr}{dscf}\right) = \frac{\left(2.31\frac{lb-PM}{hr}\right)\left(7{,}000\frac{gr-PM}{lb-PM}\right)\left(\frac{hr}{60\ min}\right)}{\left(132{,}497\frac{ft^3}{min}\right)\left(\frac{459.67+60}{459.67+947}\right)(1-0.07)} = 0.006\frac{gr-PM}{dscf}$$

The following condition will be listed in the permit:

- Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

Compliance is expected with this Rule.

Rule 4301 Fuel Burning Equipment

The requirements of section 5.0 are as follows:

- Combustion contaminates (TSP) - Not to exceed 0.1 gr/dscf @ 12% CO_2 and 10 lb/hr.
- SO_x emissions - Not to exceed 200 lb/hr
- NO_x emissions - Not to exceed 140 lb/hr

N-238-41-4, '-42-3, '-44-2 and '-45-2:
The proposed modifications will not result in an increase in NO_x, SO_x or particulate matter emissions; therefore, continued compliance is expected.

N-238-46-1:
NO_x (lb/hr) = 29.125 lb/hr
SO_x (lb/hr) = 0.658 lb/hr

$$PM\left(\frac{gr}{dscf}\right) = \frac{PM\ Emissions\left(\frac{lb-PM}{MMBtu}\right)\times 7{,}000\ \frac{gr-PM}{lb-PM}}{F_{factor\ CO_2}\left(\frac{dscf}{MMBtu}\right)\times\left(\frac{100\%}{12\%}\right)}$$

$$= \frac{\left(0.01\frac{lb-PM}{MMBtu}\right)\left(7{,}000\ \frac{gr-PM}{lb-PM}\right)}{\left(1{,}024.2\ \frac{dscf}{MMBtu}\right)\left(\frac{100\%}{12\%}\right)}$$

$$= 0.008\ \frac{gr-PM}{dscf}$$

The proposed emissions are below the limits of this Rule; therefore, compliance is expected.

Rule 4304 Equipment Tuning Procedure for Boilers, Steam Generators and Process Heaters

Pursuant to District Rules 4305 and 4306, Section 6.3.1, boilers are required to be tested at least once every 12-months. Gaseous fuel fired units demonstrating compliance on two consecutive 12-month source tests may defer the following source test for up to 36 months. During 36-month source testing interval, the operator shall tune the boiler according to section 5.2.1 (tune up at least once each calendar year by qualified technician in accordance with Rule 4304). Tune-ups required by Sections 5.2.1 and 6.3.1 do not need to be performed for units that operate and maintain an APCO approved CEMS or an APCO approved Alternate Monitoring System where the applicable emission limits are periodically monitored.

N-238-41-4:
The existing permit to operate includes the requirements of this rule. These requirements will be replicated into the permit being issued under this project. Therefore, continued compliance is expected.

N-238-42-3, '-44-2 and '-45-2:
NOx, CO and O_2 concentrations from the boiler will be measured using a portable analyzer monitor on a monthly basis. This monitoring scheme was previously approved under District Policy SSP-1105; therefore, boiler tune-ups are not required.

Rule 4305 Boilers, Steam Generators and Process Heaters – Phase 2

Since the emission limits of District Rule 4306 and all other requirements are equivalent or more stringent than District Rule 4305 requirements, compliance with District Rule 4306 requirements will satisfy requirements of District Rule 4305.

Rule 4306 Boilers, Steam Generators and Process Heaters – Phase 3

This rule applies to any gaseous fuel or liquid fuel fired boiler, steam generator, or process heater with a total rated heat input greater than 5 million Btu per hour.

The heat input rate to each boiler is greater than 5 MMBtu/hr. Therefore, these units are subject to the requirements of this rule.

Note that permits N-238-41-2, '-42-1, '-44-0 and '-45-0 includes all applicable requirements from this rule. These requirements will be replicated into the

permits being issued under this project. Therefore, no further discussion is required.

Compliance is expected with this Rule.

Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters greater than 5.0 MMBtu/hr

Section 2.0 states that this rule applies to any gaseous fuel or liquid fuel fired boiler, steam generator, or process heater with a total rated heat input greater than 5 million Btu per hour.

The heat input rate to each boiler is greater than 5 MMBtu/hr. Therefore, these units are subject to the requirements of this rule.

Note that permits N-238-41-2, '-42-1, '-44-0 and '-45-0 includes all applicable requirements from this rule. These requirements will be replicated into the permits being issued under this project. Therefore, no further discussion is required.

Compliance is expected with this Rule.

Rule 4351 Boilers, Steam Generators, and Process Heaters – Phase 1

Except for the recordkeeping requirement in Section 6.1.1 of Rule 4351 (described below), the emission limits of District Rule 4306 and 4320 and all other requirements are equivalent or more stringent than this Rule; therefore, compliance with District Rule 4306 and 4320 requirements will satisfy requirements of District Rule 4351.

Permits N-238-41-2, '-42-1, '-44-0 and '-45-0 includes all applicable requirements from this rule. These requirements will be replicated into the permits being issued under this project. Therefore, no further discussion is required.

Compliance is expected with this Rule.

Rule 4307 Stationary Gas Turbines

Section 2.0 – Applicability

The provisions of this rule apply to all stationary gas turbine systems, which are subject to District permitting requirements, and with ratings equal to or greater than 0.3 megawatt (MW) or a maximum heat input rating of more than 3,000,000 Btu per hour, except as provided in Section 4.0.

The proposed gas turbine is rated at 7.3 MW. Therefore, this unit is subject to the requirements of this rule.

Section 5.0 – Requirements

Section 5.1 list NOx emission limits including Tier 1, Tier 2 and Tier 3 requirements for various gas turbine systems.

Tier 3 NOx emission limit of 5 ppmvd @ 15% O_2 is found to be most stringent NOx standard for the proposed unit. The applicant has proposed to achieve 2.5 ppmvd NOx @ 15% O2 (or less). Therefore, compliance is expected with this section.

Section 5.2 limits CO emissions to 200 ppmvd @ 15% O2 for the proposed gas turbine. The applicant has proposed to achieve 6 ppmvd CO @ 15% O2 (or less). Therefore, compliance is expected with this section.

The following condition(s) will be included in permit N-238-46-1:

- Except during tuning/commissioning of the duct burner, startup and shutdown, emissions from the CHP system shall not exceed any of the following limits: NOx (as NO_2): 2.125 lb/hr and 2.5 ppmvd @ 15% O_2, SOx: 0.658 lb/hr, PM_{10}: 2.310 lb/hr, CO: 3.095 lb/hr and 6.0 ppmvd @ 15% O_2, VOC: 0.601 lb/hr and 2.0 ppmvd @ 15% O_2, and NH_3: 3.142 lb/hr and 10.0 ppmvd @ 15% O_2. All emission limits are based on 3-hour rolling averaging period. [District Rules 2201 and 4703 and 40 CFR Part 60.4320(a)]

Section 5.3 states NOx and CO emission limit of this rule shall not apply during transitional operation period provided the operator complies with the applicable requirements in section 5.3.1 and 5.3.2.

Section 5.3.1 states that except as provided in section 5.3.3, the operator shall meet the following conditions:

- The duration of each startup or each shutdown shall not exceed two hours.
- For each bypass transition period, the requirements specified in Section 3.2 shall be met.
- For each primary re-ignition period, the requirements specified in Section 3.20 shall be met.
- Each reduced load period shall not exceed one hour.

The duration of each startup is 1.0 hour/event and each shutdown is 0.5 hour/event. The proposed configuration does not have any bypass stack; therefore, bypass transition period does not apply. The applicant has not

requested to explicitly include time duration and NOx or CO concentrations during re-ignition period; therefore, one will not be established. Similarly, no explicit request to establish NOx or CO emissions during reduced load period; therefore, no such period will be established in the permit.

The following condition(s) will be included in permit N-238-46-1:

- The startup for the CHP system shall not exceed 1.0 hour/event, 2 events/day and 50 hours/year. [District Rules 2201 and 4703]

- The shutdown for the CHP system shall not exceed 0.5 hour/event, 2 events/day and 25 hours/year. [District Rules 2201 and 4703]

Section 5.3.2 states the emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during each transitional operation period.

The applicant has proposed to use SCR system and oxidation catalyst during startup and shutdown emissions to minimize NOx and CO emissions. Therefore, compliance is expected with this section.

The following condition(s) will be included in permit N-238-46-1:

- The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown period (except during the tuning/commissioning activities, unless the use of control equipment is required for any tuning activity). [District Rule 4703]

Section 5.4 states for existing facilities, a replacement unit installed for the sole purpose of complying with the requirements of this rule shall be considered to be an emission control technique and may be exempt from the BACT and Offsets requirements of Rule 2201 provided that all other requirements of Rule 2201 are met.

The proposed gas turbine will not replace the existing unit; therefore, this section does not apply.

Section 6.0 – Administrative Requirements

Section 6.1 discusses emission control plan. In general, emission control is required for existing units that are becoming subject to the requirements in the rule.

The proposed gas turbine system is a new emission unit and it is not subject to the emission control plan requirements at this time.

Section 6.2 includes monitoring and recordkeeping requirements.

Section 6.2.1 states that except for units subject to Section 6.2.3, for turbines with exhaust gas NOx control devices, the owner or operator shall either install, operate, and maintain continuous emissions monitoring equipment for NOx and oxygen, as identified in Rule 1080 (Stack Monitoring), or install and maintain APCO-approved alternate monitoring consisting of one or more of the following:

- Periodic NOx emission concentrations,
- Turbine exhaust oxygen concentration,
- Air-to-fuel ratio,
- Flow rate of reducing agents added to turbine exhaust,
- Catalyst inlet and exhaust temperature,
- Catalyst inlet and exhaust oxygen concentration,
- Other operational characteristics.

NOx:
Ingredion is required to provide minimum SCR catalyst face temperature at which ammonia injection will occur during the final design phase of the project at least 30 days prior to the commencement of construction. This information will be included in the Permit to Operate.

Ingredion is required to establish minimum ammonia injection rate into the SCR system during each test run of the initial source test while demonstrating compliance the NOx limit in the permit. The established minimum ammonia injection rate will be included in the Permit to Operate.
The ammonia injection rate (lb/hr) is required to be monitored and recorded at least once every 15-minute period to obtain an average ammonia injection rate over an hour period. The hourly readings are required to be used to determine average ammonia injection rate on a 3-hour rolling basis. This value is required to be compared with the minimum ammonia injection rate established in the permit.

The following condition(s) will be included in permit N-238-46-1:

- The owner or operator shall establish minimum ammonia injection rate (pounds per hour) into the SCR system during each test run of the initial source test while demonstrating compliance with the NOx limit in this permit. The established minimum ammonia injection rate will be included in the Permit to Operate. The ammonia injection rate may be administrative revised should source testing determines that another value is more appropriate than the previously established ammonia injection rate. [District Rules 2201 and 4703]

- The owner or operator shall monitor and record ammonia injection rate (pounds per hour) into the SCR system at least once every 15-minute period. This data shall be used to determine average ammonia injection rate over 1-hour period. The hourly data shall be averaged over 3-hour period on a rolling basis. The obtained value shall be compared with the minimum ammonia injection rate established in the permit to determine compliance with the NOx emission limit in this permit. [District Rules 2201 and 4703]

- If the ammonia injection rate is less than the minimum ammonia injection rate specified in the permit, the owner or operator shall return the ammonia injection rate above the minimum ammonia injection rate established as soon as possible, but no longer than eight hours after detection. If the ammonia injection rate is not returned above the minimum ammonia injection rate established during compliance testing within eight hours, the owner or operator shall notify the District within the following one hour and conduct a source test within 60 days of the first exceedance to demonstrate compliance with the applicable emission limits at the reduced ammonia injection rate. In lieu of conducting a source test, the owner or operator may stipulate a violation has occurred, subject to enforcement action. The owner or operator must correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the owner or operator may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4703]

CO:
Minimum oxidation catalyst temperature is required to be established during each test run of the initial source test while demonstrating compliance the CO and VOC limits in the permit. The established minimum temperature reading will be included in the Permit to Operate.

The oxidation catalyst temperature is required to be monitored and recorded at least once every 15-minute period to obtain an average temperature over an hour period. These readings will be used to determine average temperature on a 3-hour rolling basis. This value is required to be compared with the minimum temperature established in the permit while demonstrating compliance with the CO and VOC limits.

The following condition(s) will be included in permit N-238-46-1:

- The owner or operator shall establish minimum temperature (ºF) of the oxidation catalyst during each test run of the initial source test while demonstrating compliance the CO and VOC limits in this permit. The

established minimum temperature will be included in the Permit to Operate. The minimum temperature may be administrative revised should source testing determines that another value is more appropriate that the previously established minimum temperature. [District Rules 2201 and 4703]

- The owner or operator shall monitor and record temperature (ºF) of the oxidation catalyst at least once every 15-minute period. This data shall be used to determine the average temperature of the oxidation catalyst over a 1-hour period. The hourly data shall be averaged over 3-hour period on a rolling basis. The obtained value shall be compared with the minimum temperature established in the permit to determine compliance with the CO and VOC emission limits in this permit. [District Rules 2201 and 4703]

- If the temperature of the oxidation catalyst is below the minimum temperature specified in the permit, the owner or operator shall adjust CHP system controls to maintain the minimum temperature as soon as possible, but no longer than eight hours after detection. If the oxidation catalyst temperature is not returned above the minimum temperature established during compliance testing within eight hours, the owner or operator shall notify the District within the following one hour and conduct a source test within 60 days of the first exceedance to demonstrate compliance with the applicable emission limits at the reduced oxidation catalyst temperature. In lieu of conducting a source test, the owner or operator may stipulate a violation has occurred, subject to enforcement action. The owner or operator must correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the owner or operator may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4703]

NOx, CO and NH_3:
The following condition(s) will be included in permit N-238-46-1:

- NOx (as NO2), CO, O2 and NH_3 emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NOx, CO and O2 analyzer as well as the NH3 emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201 and 4703]

- The owner or operator shall monitor and record the stack concentration of NOx (as NO2), CO, NH3 and O2 on a weekly basis. NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing gas detection tubes (Draeger brand or District approved equivalent). If compliance with the NOx, CO and NH3 emissions is demonstrated for eight consecutive weeks, then the monitoring frequency will be reduced to monthly. If deviations are observed in two consecutive months, monitoring shall revert to weekly until eight consecutive weeks show no deviations. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within one day of restarting the unit unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the week if on a weekly monitoring schedule. Weekly or monthly monitoring is not required for the week or month in which source testing is performed. [District Rules 2201 and 4703]

- If either the NOx (as NO2), CO or NH3 concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the owner or operator shall return the emissions to compliant levels as soon as possible, but no longer than eight hours of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after eight hours of operation following detection, the owner or operator shall notify the District within the following one hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the owner or operator may stipulate a violation that is subject to enforcement action has occurred. The owner or operator must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the owner or operator may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201 and 4703]

Section 6.2.2 states that except for units subject to Section 6.2.3, for turbines without exhaust-gas NOx control devices and without continuous emissions monitoring equipment, the owner or operator shall monitor operational characteristics recommended by the turbine manufacturer or emission control system supplier, and approved by the APCO.

The proposed gas turbine is equipped with an SCR system and oxidation catalyst. Therefore, this section does not apply.

Section 6.2.3 states that for units 10 MW and greater that operated an average of more than 4,000 hours per year over the last three years before August 18, 1994, the owner or operator shall monitor the exhaust gas NOx emissions. The NOx monitoring system shall meet EPA requirements as specified in 40 CFR Part 60 App. B, Spec. 2, 40 CFR Part 60 App. F, and 40 CFR Part 60.7 (c), 60.7 (d), and 60.13, or other systems that are acceptable to the EPA. The owner or operator shall submit to the APCO information demonstrating that the emission monitoring system has data gathering and retrieval capability.

The proposed gas turbine system is rated at 7.3 MW. Therefore, this section does not apply.

Section 6.2.4 states that the owner or operator shall maintain all records for a period of five years from the date of data entry and shall make such records available to the APCO upon request. The following condition(s) will be included in permit N-238-46-1:

- The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703]

Section 6.2.5 states that the owner or operator shall submit to the APCO, before issuance of the Permit to Operate, information correlating the control system operating parameters to the associated measured NOx output. This information may be used by the APCO to determine compliance when there is no continuous emission monitoring system for NOx available or when the continuous emission monitoring system is not operating properly.

The applicant has proposed to determine minimum ammonia injection rate while demonstrating compliance with NOx emissions. Therefore, compliance is expected with this section. Note that Ingredion is not proposing CEMS system for the proposed gas turbine system.

Section 6.2.6 states that the owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up time and stop time, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used (liquid/gas).

Section 6.2.7 states that the owner or operator shall maintain a stationary gas turbine system operating log for units exempt under Section 4.2 that includes, on a daily basis, the actual local start-up time and stop time, total hours of operation, and cumulative hours of operation to date for the calendar year.

Section 6.2.8 states that the operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown. The following condition(s) will be included in permit N-238-46-1:

- The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of start-up, and duration of shutdown. [District Rule 4703]

Section 6.2.9 applies to units greater than 10 MW, simple cycle, and permit condition for no greater than 200 hr/yr operation unless Cal ISO declare stage 1, 2 or 3 emergency, or a transmission emergency, or TID declared alert level 1, 2 or 3 energy emergency.

The proposed gas turbine is rated at 7.3 MW and is not limited to 200 hr/yr of operation. Therefore, this turbine is not subject to the requirements of this section.

Section 6.2.10 requires that the operator of a unit subject to Section 6.5.2 (a public service unit operating during state of emergency) shall identify in the stationary gas turbine system operating log the date and start time and end time that the unit was operated pursuant to Section 6.5.2 and keep a copy of the emergency declaration.

The proposed gas turbine will be supply electric needs for the facility and will not be operated as public service unit. Therefore, no further discussion is necessary.

Section 6.2.11 states that the operator of a unit shall keep records of the date, time and duration of each bypass transition period and each primary re-ignition period.

The proposed gas turbine will not have intermediate bypass exhaust between the gas turbine system and HRSG. Further, no separate primary re-ignition periods are being established. Therefore, no records are required under this section.

Section 6.2.12 states that the operator of a unit subject to subsection (b) of Table 5-3 (i.e., 3 MW to 10 MW pipeline gas turbine) shall keep records of the date, time and duration of each steady state period and non-steady state period and the quantity of fuel used during each period.

The proposed gas turbine system is not used to transport gases or liquids in a pipeline. Therefore, no further discussion is necessary.

Section 6.3.1 states that the owner or operator of any stationary gas turbine systems subject to the provisions of Section 5.0 of this rule shall provide source test information annually regarding the exhaust gas NOx and CO concentrations, and, if used as a basis for Tier 1 emission limit calculations, the demonstrated percent efficiency (EFF) of the stationary gas turbine, or, for turbines complying with Section 5.1.2.2 or Section 5.1.3.2, the control efficiency of the emission control device.

Ingredion will be required to perform a source test on an annual basis to verify compliance with NOx and CO emission limit.

Section 6.3.2 states that the owner or operator of any stationary gas turbine system operating less than 877 hours per year shall provide source test information biennially regarding the exhaust gas NOx concentrations at standard conditions and if used as a basis for Tier 1 emission limit calculations, the percent efficiency (EFF) of the stationary gas turbine.

The proposed turbine system will be operated more than 877 hours per year. Therefore, no further discussion is necessary.

Section 6.3.3 requires that the owner or operator of any unit with an intermittently operated auxiliary burner shall demonstrate compliance with the auxiliary burner both on and off. The following condition(s) will be included in permit N-238-46-1:

- Source testing to determine compliance with the steady state NOx, CO, NH3 (lb/hr and ppmvd @ 15% O2) and PM10 (lb/hr) shall be conducted within 60-days of initial startup of the turbine and annually thereafter both with the duct burner ON and OFF. [District Rules 2201 and 4703, 40 CFR 60.4400(a)]

Section 6.4 lists various test methods for measuring NOx, CO, O2, HHV and LHV. The following condition(s) will be included in permit N-238-46-1:

- The following test methods shall be used: NO_X - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O_2 - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703 and 40 CFR 60.4400(a)]

Section 7.0 – Compliance Schedule

This section list compliance dates for units subject to Tier 1, Tier2 or Tier 3 NOx limits. The proposed new gas turbine system is expected to operate in compliance after its installation.

Compliance is expected with this rule.

Rule 4801 Sulfur Compounds

Section 3.1 states that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding a concentration of two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO_2) at the point of discharge on a dry basis averaged over 15 consecutive minutes.

N-238-41-4, '-42-3, '-44-2, '-45-2 and '-46-1:
For the proposed gaseous fuel combustion at a reference state of 60 °F, the Rule 4801 limit of 2,000 ppmvd is equivalent to:

$$\frac{(2000\ \text{ppmvd})\left(8{,}578\frac{\text{dscf}}{\text{MMBtu}}\right)\left(64\frac{\text{lb}-SO_x}{\text{lb}-\text{mol}}\right)}{\left(379.5\frac{\text{dscf}}{\text{lb}-\text{mol}}\right)(10^6)} \cong 2.9\frac{\text{lb}-SO_x}{\text{MMBtu}}$$

SO_x emissions from each unit are based on 1.0 gr-S/100 scf, equivalent to 0.0029 lb/MMBtu. Since these emissions are less than 2.9 lb/MMBtu, it is expected that these units will operate in compliance with this Rule.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.

- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has prepared or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

On December 17, 2009, the District's Governing Board adopted a policy, APR 2005, Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency, for addressing GHG emission impacts when the District is Lead Agency under CEQA and approved the District's guidance document for use by other agencies when addressing GHG impacts as lead agencies under CEQA. Under this policy, the District's determination of significance of project-specific GHG emissions is founded on the principal that projects with GHG emission reductions consistent with AB 32 emission reduction targets are considered to have a less than significant impact on global climate change. Consistent with District Policy 2005, projects complying with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, would be determined to have a less than significant individual and cumulative impact for GHG emission.

The California Air Resources Board (ARB) adopted a Cap-and-Trade regulation as part one of the strategies identified for AB 32. This Cap-and-Trade regulation is a statewide plan, supported by a CEQA compliant environmental review document, aimed at reducing or mitigating GHG emissions from targeted industries. Facilities subject to the Cap-and-Trade regulation are subject to an industry-wide cap on overall GHG emissions. Any growth in emissions must be accounted for under that cap such that a corresponding and equivalent reduction in emissions must occur to allow any increase. Further, the cap decreases over time, resulting in an overall decrease in GHG emissions.

Under District policy APR 2025, CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation, the District finds that the Cap-and-Trade is a regulation plan approved by ARB, consistent with AB32 emission reduction targets, and supported by a CEQA compliant environmental review document. As such, consistent with District Policy 2005, projects complying project complying with Cap-and-Trade requirements are determined to have a less than significant individual and cumulative impact for GHG emissions.

The GHG emissions increases associated with this project result from the combustion of fossil fuel(s), other than jet fuel, delivered from suppliers subject to the Cap-and-Trade regulation. Therefore, as discussed above, consistent with District Policies APR 2005 and APR 2025, the District concludes that the GHG emissions increases associated with this project would have a less than significant individual and cumulative impact on global climate change.

District CEQA Findings

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the project will occur at an existing facility and the project involves negligible or no expansion of the existing use. Furthermore, the District determined that the project will not have a significant effect on the environment. The District finds that the project is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline §15301 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The criteria pollutant emissions and toxic air contaminant emissions associated with the proposed project are not significant, and there is minimal potential for public concern for this particular type of facility/operation. Therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. RECOMMENDATION

Issue the ATC upon addressing comments from the EPA, CARB, the public and the applicant.

X. BILLING INFORMATION

Permit #	Fee Schedule	Fee Description	Previous Fee Schedule
N-238-41-4	3020-02 H	185 MMBtu/hr	3020-02 H
N-238-42-3	3020-02 H	28.8 MMBtu/hr	3020-02 H
N-238-44-2	3020-02 H	99.9 MMBtu/hr	3020-02 H
N-238-45-2	3020-02 H	99.9 MMBtu/hr	3020-02 H
N-238-46-1	3020-08A D	7,300 kW electric generation	None

APPENDICES

Appendix I: Draft Authority to Construct Permits
Appendix II: Top-Down BACT Analysis
Appendix III: RMR and AAQA Summary
Appendix IV: Compliance Certification
Appendix V: Quarterly Emissions Change
Appendix VI: Hazardous Air Pollutant Calculations
Appendix VII: District's Response to EPA's Comments

Appendix I
Draft Authority to Construct Permits

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-238-41-4

ISSUANCE DATE: DRAFT

DRAFT

LEGAL OWNER OR OPERATOR: INGREDION INCORPORATED
MAILING ADDRESS: PO BOX 6129
STOCKTON, CA 95206-6129

LOCATION: 1021 INDUSTRIAL DR
STOCKTON, CA 95206

EQUIPMENT DESCRIPTION:
MODIFICATION OF 185 MMBTU/HR ZURN MODEL 22M KEYSTONE AUXILIARY BOILER WITH A TODD MODEL RMB ULTRA LOW NOX BURNER AND A FLUE GAS RECIRCULATION (FGR) SYSTEM: ESTABLISH COMBINED DAILY AND ANNUAL EMISSION LIMITS FOR UNITS N-238-41, '-42, '-44, '-45 AND '-46

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
5. Particulate matter emissions shall not exceed 0.1 grain/dscf at operating conditions, or 0.1 grain/dscf calculated to 12% CO2 or 10 lb/hr. [District Rules 4201 and 4301] Federally Enforceable Through Title V Permit
6. All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this permit shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services
N-238-41-4 Mar 2 2010 8:17AM – KAHLONJ Joint Inspection NOT Required

7. A fuel flow meter dedicated to this boiler shall be utilized to monitor the quantity of natural gas fuel burned by the boiler on an hourly basis whenever the boiler is operating. Monitoring shall not be required if the unit is not in operation. [District Rule 2201] Federally Enforceable Through Title V Permit

8. This boiler shall be fired exclusively on PUC-regulated natural gas fuel. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

9. The heat input rate to this unit shall not exceed 178 MMBtu during any one-hour period. [District Rule 2201] Federally Enforceable Through Title V Permit

10. NOx emissions shall not exceed 7 ppmvd @ 3% O2 (0.008 lb/MMBtu) referenced as NO2. [District Rules 2201, 4301, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

11. CO emissions shall not exceed 50 ppmvd @ 3% O2 (0.037 lb/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit

12. VOC emissions shall not exceed 10 ppmvd @ 3% O2 (0.004 lb/MMBtu) referenced as methane. [District Rule 2201] Federally Enforceable Through Title V Permit

13. PM10 emissions shall not exceed 0.0076 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

14. SOx emissions shall not exceed 0.0029 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

15. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 131.0 lb/day, SOx: 15.8 lb/day, PM10: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH3: 75.4 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

16. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 20,616 lb/yr, SOx: 5,767 lb/yr, PM10: 20,236 lb/yr, CO: 59,841 lb/yr, VOC: 7,119 lb/yr and NH3: 27,520 lb/yr. The annual limits are on 12 consecutive month rolling period basis. [District Rule 2201] Federally Enforceable Through Title V Permit

17. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

18. All emission measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. [District Rules 4305, 4306, 4320 and 4351] Federally Enforceable Through Title V Permit

19. Operator shall ensure that all required source testing conforms with the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit

20. Source testing to measure NOx and CO emissions during steady state operation shall be conducted at least once every 12 months. After demonstrating compliance on 2 consecutive annual source tests, the unit shall be tested not less than once every 36 months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every 12 months. [District Rules 4305, 4306, 4320 and 4351] Federally Enforceable Through Title V Permit

21. During the 36-month source testing interval, the owner or operator shall have this unit tuned at least twice each calendar year, from four to eight months apart, in which it operates, by a technician that is qualified, to the satisfaction of the APCO, in accordance with the procedure described in Rule 4304 (Equipment Tuning Procedure for Boilers, Steam Generators, and Process Heaters). [District Rules 4306 and 4320] Federally Enforceable Through Title V Permit

22. If the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year. This unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown. [District Rules 4306 and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

23. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

24. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

25. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

26. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

27. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

28. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

29. The permittee shall either: a.) perform fuel analysis to determine the following parameters: methane content (%), heating value (Btu/dscf), and sulfur content (gr-S/100 dscf); or b.) obtain and maintain a copy of valid purchase contracts, supplier certifications, tariff sheets, or transportation contacts that contains methane content (%), heating value (Btu/dscf), and sulfur content (gr-S/100 dscf) to verify compliance with the SOx emission limits in this permit. If the permittee decide to conduct fuel analysis, the fuel sample shall be collected within 60 days of startup under this permit and weekly thereafter. Upon successful compliance demonstration on eight consecutive weeks testing, the monitoring frequency shall be every quarter. If the result of any quarterly monitoring fails to demonstrate compliance with SOx emissions, weekly monitoring shall resume until compliance is demonstrated for eight consecutive weeks. [District Rules 2201 and 4320, 40 CFR 60.45b] Federally Enforceable Through Title V Permit

30. The flue gas recirculation rate shall be determined at least on an hourly basis by measuring the stack O2% by volume (Os), and windbox O2% by volume (Ow) using the following equation: FGR rate = {Ow - 20.9)/(Os - 20.9)} x 100%. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 4305, 4306 and 4320 and 40 CFR 64] Federally Enforceable Through Title V Permit

31. The minimum flue gas recirculation rate shall be established by source testing this unit or other representative units per Rule 4305 and as approved by the District. The normal range/level shall be no lower than the minimum flue gas recirculation rate with which compliance with applicable NOx and CO emission limits has been demonstrated through source testing at a similar firing rate. [District Rules 4305, 4306 and 4320 and 40 CFR 64] Federally Enforceable Through Title V Permit

32. If the flue gas recirculation rate is less than the normal range/level, the permittee shall return the flue gas recirculation rate to the normal range/level as soon as possible, but no longer than 1 hour of operation after detection. If the flue gas recirculation rate is not returned to the normal range/level within 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a source test within 60 days of the first exceedance, to demonstrate compliance with the applicable emission limits at the new flue gas recirculation rate. A District-approved portable analyzer may be used in lieu of a source test to demonstrate compliance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 4306 and 4320 and 40 CFR 64] Federally Enforceable Through Title V Permit

33. The permittee shall maintain records of the date and time of oxygen concentration measurements, the measured oxygen concentrations, the calculated flue gas recirculation rate, and the firing rate at the time of the oxygen concentration measurements. The records shall also include a description of any corrective action taken to maintain the flue gas recirculation rate within the acceptable range. [District Rules 4305, 4306 and 4320 and 40 CFR 64] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

34. The FGR rate shall be maintained at a level equal to or greater than 0.1% FGR. [District Rule 2520, 9.3.2 and 40 CFR 64] Federally Enforceable Through Title V Permit

35. The permittee shall comply with the compliance assurance monitoring operation and maintenance requirements of 40 CFR Part 64.7. [40 CFR 64] Federally Enforceable Through Title V Permit

36. The permittee shall comply with the recordkeeping and reporting requirements of 40 CFR part 64.9. [40 CFR 64] Federally Enforceable Through Title V Permit

37. If the District or EPA determine that a Quality Improvement Plan is required under 40 CFR 64.7(d)(2), the permittee shall develop and implement the Quality Improvement Plan in accordance with 40 CFR part 64.8. [40 CFR 64] Federally Enforceable Through Title V Permit

38. The owner or operator shall keep records of hourly heat input rate (MMBtu) to this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

39. The owner or operator shall monitor and record the higher heating value (HHV) of the fuel combusted in this unit. The HHV shall be certified by thirty party fuel supplier or determined annually using ASTM D 1826-88 or D 1945-81 in conjunction with ASTM D 3588-89 for gaseous fuels. [District Rule 4351] Federally Enforceable Through Title V Permit

40. The owner or operator shall keep daily and monthly records of the natural gas usage for this unit. [District Rules 2201, 4305, 4306, 2520, 9.4.2 and 4351] Federally Enforceable Through Title V Permit

41. The owner or operator shall keep daily records of total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. [District Rule 2201] Federally Enforceable Through Title V Permit

42. The owner or operator shall maintain records of the cumulative annual use of the fuel combusted in this unit. [District Rule 4351] Federally Enforceable Through Title V Permit

43. The owner or operator shall keep monthly records of the total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. These records shall be used to determine the total emissions for each pollutant during 12 consecutive month period on a rolling basis. [District Rule 2201] Federally Enforceable Through Title V Permit

44. All records shall be maintained and retained on-site for a minimum of five years, and shall be made available for District inspection upon request. [District Rules 1070; 2520, 9.4.2; 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

45. This boiler shall be in compliance with Title 40, Code of Federal Regulations, Part 60, Subparts A and Db. The owner or operator shall comply with the terms of the plan submitted under the provisions of section 60.48b(g)(2); specifically: i.) The owner or operator shall demonstrate compliance with the applicable standard for nitrogen oxides by hourly monitoring the flue gas recirculation rate as established by this unit's source test, and ii.) The owner or operator shall maintain records of the auxiliary boiler's fuel usage for at least five years and make these records available to EPA upon request. [40 CFR Part 60, Subpart Db] Federally Enforceable Through Title V Permit

46. Authority to Construct (ATC) N-238-41-2 shall be implemented prior to, or concurrently with the implementation of this permit. [District Rule 2201] Federally Enforceable Through Title V Permit

47. This ATC permit cancels and replaces the ATC permit N-238-41-3. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: N-238-42-3

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: INGREDION INCORPORATED
MAILING ADDRESS: PO BOX 6129
STOCKTON, CA 95206-6129

LOCATION: 1021 INDUSTRIAL DR
STOCKTON, CA 95206

EQUIPMENT DESCRIPTION:
MODIFICATION OF: 28.8 MMBTU/HR HURST MODEL S2X-G-650-250 BOILER WITH ALZETA MODEL CSB 22-2SO-30/30 BURNER SYSTEM: ESTABLISH COMBINED DAILY AND ANNUAL EMISSION LIMITS FOR UNITS N-238-41, '-42, '-44, '-45 AND '-46

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
6. The unit shall only be fired on PUC-quality natural gas. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
7. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of natural gas combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services
N-238-42-3 Mar 2 2016 @ 12AM – KAHLONG Joint Inspection NOT Required

8. NOx emissions shall not exceed 7 ppmvd @ 3% O2 (0.008 lb/MMBtu) referenced as NO2. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

9. CO emissions shall not exceed 50 ppmvd @ 3% O2 (0.037 lb/MMBtu). [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

10. SOx emissions shall not exceed 0.00285 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

11. PM10 emissions shall not exceed 0.0076 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

12. VOC emissions shall not exceed 10 ppmvd @ 3% O2 (0.004 lb/MMBtu) referenced as methane. [District Rule 2201] Federally Enforceable Through Title V Permit

13. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

14. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 131.0 lb/day, SOx: 15.8 lb/day, PM10: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH3: 75.4 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

15. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 20,616 lb/yr, SOx: 5,767 lb/yr, PM10: 20,236 lb/yr, CO: 59,841 lb/yr, VOC: 7,119 lb/yr and NH3: 27,520 lb/yr. The annual limits are on 12 consecutive month rolling period basis. [District Rule 2201] Federally Enforceable Through Title V Permit

16. Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. The results of the initial test conducted under permit N-238-42-1 may be substituted instead of conducting a separate initial source test. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

17. Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

18. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

19. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

20. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

21. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

22. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

23. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

25. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

26. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

27. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

28. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

29. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit

31. The owner or operator shall maintain daily and monthly records of the type and quantity of the fuel combusted by the boiler. [District Rules 2201 and 4351, and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

32. The owner or operator shall monitor and record the higher heating value (HHV) of the fuel combusted in this unit. The HHV shall be certified by thirty party fuel supplier or determined annually using ASTM D 1826-88 or D 1945-81 in conjunction with ASTM D 3588-89 for gaseous fuels. [District Rule 4351] Federally Enforceable Through Title V Permit

33. The owner or operator shall keep daily records of total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. [District Rule 2201] Federally Enforceable Through Title V Permit

34. The owner or operator shall keep monthly records of the total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. These records shall be used to determine the total emissions for each pollutant during 12 consecutive month period on a rolling basis. [District Rule 2201] Federally Enforceable Through Title V Permit

35. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306 and 4320, and 40 CFR 60.48c(i)] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

36. Authority to Construct N-238-42-1 shall be implemented prior to, or concurrently with the implementation of this permit. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This ATC permit cancels and replaces the ATC permit N-238-42-2. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-238-44-2

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: INGREDION INCORPORATED
MAILING ADDRESS: PO BOX 6129
STOCKTON, CA 95206-6129

LOCATION: 1021 INDUSTRIAL DR
STOCKTON, CA 95206

EQUIPMENT DESCRIPTION:
MODIFICATION OF: 99.9 MMBTU/HR NEBRASKA MODEL NOS-2A/S-64 (OR EQUIVALENT MANUFACTURER AND MODEL) BOILER WITH TODD OR JOHN ZINK VARIFLAME (OR EQUIVALENT MANUFACTURER AND MODEL) LOW-NOX BURNER SYSTEM WITH A CADASTACK (OR EQUIVALENT MANUFACTURER) SELECTIVE CATALYTIC REDUCTION SYSTEM: ESTABLISH COMBINED DAILY AND ANNUAL EMISSION LIMITS FOR UNITS N-238-41, '-42, '-44, '-45 AND '-46

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
6. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

N-238-44-2 Mar 2 2016 8:12AM – KAHLONJ Joint Inspection NOT Required

7. The unit shall only be fired on PUC-quality natural gas. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

8. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

9. During start-up or shutdown, the emissions control systems shall be in operation, and emissions shall be minimized insofar as technologically possible. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

10. Startup/shutdown shall not exceed any of the following items: startup - 2.0 hours/event, 2.0 hours/day and 200 hours/year; shutdown - 1.0 hour/event, 1.0 hour/day and 100 hours/year. [District Rules 2201, 4306 and 4320] Federally Enforceable Through Title V Permit

11. During startup and shutdown, NOx emissions shall not exceed 25 ppmvd @ 3% O2 or 0.030 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Except during startup and shutdown, NOx emissions shall not exceed 5 ppmvd @ 3% O2 or 0.0062 lb/MMBtu, referenced as NO2 [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

13. CO emissions shall not exceed 50 ppmvd @ 3% O2 (0.037 lb/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

14. SOx emissions shall not exceed 0.00285 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

15. PM10 emissions shall not exceed 0.0076 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

16. VOC emissions shall not exceed 10 ppmvd @ 3% O2 (0.004 lb/MMBtu) referenced as methane. [District Rule 2201] Federally Enforceable Through Title V Permit

17. NH3 emissions from the SCR shall not exceed 10.0 ppmvd @ 3% O2. [District Rule 2201] Federally Enforceable Through Title V Permit

18. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 131.0 lb/day, SOx: 15.8 lb/day, PM10: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH3: 75.4 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

19. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 20,616 lb/yr, SOx: 5,767 lb/yr, PM10: 20,236 lb/yr, CO: 59,841 lb/yr, VOC: 7,119 lb/yr and NH3: 27,520 lb/yr. The annual limits are on 12 consecutive month rolling period basis. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

21. Source testing to measure steady state NOx, CO, VOC and NH3 emissions shall be conducted within 60-days of the initial startup.The results of the initial test conducted under permit N-238-44-0 may be substituted instead of conducting a separate initial source test. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

22. Source testing to measure NOx, CO and NH3 emissions during steady state operation shall be conducted at least once every 12 months. After demonstrating compliance on 2 consecutive annual source tests, the unit shall be tested not less than once every 36 months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every 12 months. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

23. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

25. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

26. VOC emissions for source test purpose shall be determined using EPA Method 18, 25A, or other District approved alternative method. [District Rule 2201] Federally Enforceable Through Title V Permit

27. Source testing for ammonia slip shall be conducted utilizing BAAQMD Method ST-1B. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

29. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

31. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

32. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

33. The permittee shall monitor and record the stack concentration of NOx, CO, NH3 and O2 at least once during each month in which source testing is not performed. NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing gas detection tubes (Draeger brand or District approved equivalent). Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless it has been performed within the last month. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

34. If either the NOx, CO or NH3 concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

35. All NOx, CO, O2 and ammonia emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NOx, CO and O2 analyzer as well as the NH3 emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

36. Ammonia emissions readings shall be conducted at the time the NOx, CO and O2 readings are taken. The readings shall be converted to ppmvd @ 3% O2. [District Rules 2201, 4305 and 4306] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

37. The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3 and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOx, CO and NH3 concentrations corrected to 3% O2, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH3 emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

38. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit

39. The owner or operator shall maintain daily and monthly records of the type and quantity of the fuel combusted by the boiler. [District Rules 2201 and 4351, and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

40. The owner or operator shall monitor and record the higher heating value (HHV) of the fuel combusted in this unit. The HHV shall be certified by thirty party fuel supplier or determined annually using ASTM D 1826-88 or D 1945-81 in conjunction with ASTM D 3588-89 for gaseous fuels. [District Rule 4351] Federally Enforceable Through Title V Permit

41. The owner or operator shall keep daily records of total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. [District Rule 2201] Federally Enforceable Through Title V Permit

42. The owner or operator shall keep monthly records of the total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. These records shall be used to determine the total emissions for each pollutant during 12 consecutive month period on a rolling basis. [District Rule 2201] Federally Enforceable Through Title V Permit

43. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306 and 4320, and 40 CFR 60.48c(i)] Federally Enforceable Through Title V Permit

44. The permittee shall obtain APCO approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of an equivalent equipment equipment shall only be made after the APCO's determination that the submitted design and performance data for the proposed alternate equipment are equivalent to the approved equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

45. The permittee's request for approval of an equivalent equipment shall include, at minimum, the following information: burner manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NOx and CO emission concentrations. [District Rule 2201] Federally Enforceable Through Title V Permit

46. The permittee's request for approval of an equivalent equipment shall be submitted to the District at least 30 days prior to the planned installation date. The permittee shall also notify the District at least 15 days prior to the actual installation of the District approved equivalent equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

47. This Authority to Construct (ATC) permit cancels and replaces the ATC permit N-238-44-1. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: N-238-45-2

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: INGREDION INCORPORATED
MAILING ADDRESS: PO BOX 6129
STOCKTON, CA 95206-6129

LOCATION: 1021 INDUSTRIAL DR
STOCKTON, CA 95206

EQUIPMENT DESCRIPTION:
MODIFICATION OF 99.9 MMBTU/HR NEBRASKA MODEL NOS-2A/S-64 (OR EQUIVALENT MANUFACTURER AND MODEL) BOILER WITH TODD OR JOHN ZINK VARIFLAME (OR EQUIVALENT MANUFACTURER AND MODEL) LOW-NOX BURNER SYSTEM WITH A CADASTACK (OR EQUIVALENT MANUFACTURER) SELECTIVE CATALYTIC REDUCTION SYSTEM: ESTABLISH COMBINED DAILY AND ANNUAL EMISSION LIMITS FOR UNITS N-238-41, '-42, '-44, '-45 AND '-46

CONDITIONS

1. {1829} The facility shall submit an application to modify the Title V permit in accordance with the timeframes and procedures of District Rule 2520. [District Rule 2520] Federally Enforceable Through Title V Permit
2. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
6. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

N-238-45-2 Mar 2 2016 8:17AM – KAHLONJ Joint Inspection NOT Required

7. The unit shall only be fired on PUC-quality natural gas. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

8. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

9. During start-up or shutdown, the emissions control systems shall be in operation, and emissions shall be minimized insofar as technologically possible. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

10. Startup/shutdown shall not exceed any of the following items: startup - 2.0 hours/event, 2.0 hours/day and 200 hours/year; shutdown - 1.0 hour/event, 1.0 hour/day and 100 hours/year. [District Rules 2201, 4306 and 4320] Federally Enforceable Through Title V Permit

11. During startup and shutdown, NOx emissions shall not exceed 25 ppmvd @ 3% O2 or 0.030 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

12. Except during startup and shutdown, NOx emissions shall not exceed 5 ppmvd @ 3% O2 or 0.0062 lb/MMBtu, referenced as NO2 [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

13. CO emissions shall not exceed 50 ppmvd @ 3% O2 (0.037 lb/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

14. SOx emissions shall not exceed 0.00285 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

15. PM10 emissions shall not exceed 0.0076 lb/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

16. VOC emissions shall not exceed 10 ppmvd @ 3% O2 (0.004 lb/MMBtu) referenced as methane. [District Rule 2201] Federally Enforceable Through Title V Permit

17. NH3 emissions from the SCR shall not exceed 10.0 ppmvd @ 3% O2. [District Rule 2201] Federally Enforceable Through Title V Permit

18. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 131.0 lb/day, SOx: 15.8 lb/day, PM10: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH3: 75.4 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

19. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 20,616 lb/yr, SOx: 5,767 lb/yr, PM10: 20,236 lb/yr, CO: 59,841 lb/yr, VOC: 7,119 lb/yr and NH3: 27,520 lb/yr. The annual limits are on 12 consecutive month rolling period basis. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

21. Source testing to measure steady state NOx, CO, VOC and NH3 emissions shall be conducted within 60-days of the initial startup.The results of the initial test conducted under permit N-238-44-0 may be substituted instead of conducting a separate initial source test. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

22. Source testing to measure NOx, CO and NH3 emissions during steady state operation shall be conducted at least once every 12 months. After demonstrating compliance on 2 consecutive annual source tests, the unit shall be tested not less than once every 36 months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every 12 months. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

23. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

25. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

26. VOC emissions for source test purpose shall be determined using EPA Method 18, 25A, or other District approved alternative method. [District Rule 2201] Federally Enforceable Through Title V Permit

27. Source testing for ammonia slip shall be conducted utilizing BAAQMD Method ST-1B. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

29. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

31. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

32. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

33. The permittee shall monitor and record the stack concentration of NOx, CO, NH3 and O2 at least once during each month in which source testing is not performed. NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing gas detection tubes (Draeger brand or District approved equivalent). Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless it has been performed within the last month. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

34. If either the NOx, CO or NH3 concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the permittee shall return the emissions to compliant levels as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation that is subject to enforcement action has occurred. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

35. All NOx, CO, O2 and ammonia emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NOx, CO and O2 analyzer as well as the NH3 emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

36. Ammonia emissions readings shall be conducted at the time the NOx, CO and O2 readings are taken. The readings shall be converted to ppmvd @ 3% O2. [District Rules 2201, 4305 and 4306] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

37. The permittee shall maintain records of: (1) the date and time of NOx, CO, NH3 and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOx, CO and NH3 concentrations corrected to 3% O2, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH3 emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

38. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit

39. The owner or operator shall maintain daily and monthly records of the type and quantity of the fuel combusted by the boiler. [District Rules 2201 and 4351, and 40 CFR 60.48c(g)] Federally Enforceable Through Title V Permit

40. The owner or operator shall monitor and record the higher heating value (HHV) of the fuel combusted in this unit. The HHV shall be certified by thirty party fuel supplier or determined annually using ASTM D 1826-88 or D 1945-81 in conjunction with ASTM D 3588-89 for gaseous fuels. [District Rule 4351] Federally Enforceable Through Title V Permit

41. The owner or operator shall keep daily records of total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. [District Rule 2201] Federally Enforceable Through Title V Permit

42. The owner or operator shall keep monthly records of the total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. These records shall be used to determine the total emissions for each pollutant during 12 consecutive month period on a rolling basis. [District Rule 2201] Federally Enforceable Through Title V Permit

43. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306 and 4320, and 40 CFR 60.48c(i)] Federally Enforceable Through Title V Permit

44. The permittee shall obtain APCO approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of an equivalent equipment equipment shall only be made after the APCO's determination that the submitted design and performance data for the proposed alternate equipment are equivalent to the approved equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

45. The permittee's request for approval of an equivalent equipment shall include, at minimum, the following information: burner manufacturer and model number, maximum heat input rating, and manufacturer's guaranteed NOx and CO emission concentrations. [District Rule 2201] Federally Enforceable Through Title V Permit

46. The permittee's request for approval of an equivalent equipment shall be submitted to the District at least 30 days prior to the planned installation date. The permittee shall also notify the District at least 15 days prior to the actual installation of the District approved equivalent equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

47. This Authority to Construct (ATC) permit cancels and replaces the ATC permit N-238-45-1. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: N-238-46-1

ISSUANCE DATE: DRAFT

DRAFT

LEGAL OWNER OR OPERATOR: INGREDION INCORPORATED
MAILING ADDRESS: PO BOX 6129
STOCKTON, CA 95206-6129

LOCATION: 1021 INDUSTRIAL DR
STOCKTON, CA 95206

EQUIPMENT DESCRIPTION:
7.3 MW (ISO RATING) COMBINED HEAT AND POWER (CHP) GENERATION PLANT CONSISTING OF A SOLAR TURBINES TAURUS 70 NATURAL GAS-FIRED TURBINE ENGINE WITH 87.5 MMBTU/HR DRY LOW-NOX COMBUSTORS, A CLEAVER BROOKS DUCT BURNER EQUIPPED WITH 190 MMBTU/HOUR NATURAL GAS-FIRED NATCOM DB-209-G-5 LOW-NOX BURNER, AND AN UNFIRED HEAT RECOVERY STEAM GENERATOR, ALL SERVED BY A SELECTIVE CATALYTIC REDUCTION WITH AMMONIA INJECTION AND AN OXIDIZATION CATALYST

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating under ATC N-238-46-1, the owner or operator shall mitigate the following quantities of NOx: 1st quarter: 3,053 lb, 2nd quarter: 3,053 lb, 3rd quarter: 3,053 lb, and 4th quarter: 3,054 lb. The quarterly amounts already include the applicable distance offset ratio per section 4.8.1 of Rule 2201 (4/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC N-1278-2 (or a certificate split from this certificate) shall be used to supply the required NOx offsets, unless a revised offsetting proposal is received and approved by the District. Following the revisions, this Authority to Construct permit shall be re-issued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to re-issuance of this Authority to Construct permit. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (209) 557-6400 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services
N-238-46-1 Mar 3 2016 9:25AM – KAHLONJ Joint Inspection NOT Required

5. Prior to operating under ATC N-238-46-1, the owner or operator shall mitigate the following quantities of VOC: 1st quarter: 330 lb, 2nd quarter: 331 lb, 3rd quarter: 331 lb, and 4th quarter: 331 lb. The quarterly amounts already include the applicable distance offset ratio per section 4.8.1 of Rule 2201 (4/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit

6. ERC S-4428-1 (or a certificate split from this certificate) shall be used to supply the required VOC offsets, unless a revised offsetting proposal is received and approved by the District. Following the revisions, this Authority to Construct permit shall be re-issued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to re-issuance of this Authority to Construct permit. [District Rule 2201] Federally Enforceable Through Title V Permit

7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

8. The exhaust sack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

9. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

10. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit

11. The owner or operator shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]

12. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

13. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown period (except during the tuning/commissioning activities, unless the use of control equipment is required for any tuning activity). [District Rule 4703] Federally Enforceable Through Title V Permit

14. The owner or operator shall operate and maintain stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction (except during the tuning/commissioning activities, unless the use of control equipment is required for any tuning activity). [40 CFR 60.4333(a)] Federally Enforceable Through Title V Permit

15. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of natural gas combusted in the CHP system shall be installed, utilized and maintained. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

16. The CHP system shall be fired on PUC quality natural gas with a sulfur content no greater than 1.0 grain of sulfur compounds (as S) per 100 dscf of natural gas. [District Rule 2201 and 40 CFR 60.4330(a)(2)] Federally Enforceable Through Title V Permit

17. Tuning/commissioning activities of the duct burner may include, but are not limited to, refractory cure, boil out, initial duct burner set-up, duct burner tuning, final duct burner tuning etc., as recommended by the equipment manufacturer and the construction contractor to ensure safe and reliable steady state operation of the duct burner. The owner or operator shall use emission control equipment during final duct burner tuning activity to the maximum extent possible. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. The emissions during tuning/commissioning of the duct burner shall not exceed any of the following limits: NOx (as NO2): 14.3 lb/hr, 182.4 lb/day and 282 lb (total); SOx: 0.3 lb/hr, 3.5 lb/day and 8 lb (total); PM10: 1.0 lb/hr, 12.2 lb/day and 26 lb (total); CO: 19.0 lb/hr, 243.2 lb/day and 376 lb (total); VOC: 2.9 lb/hr, 36.5 lb/day and 56 lb (total); and NH3: 1.3 lb/hr, 12.9 lb/day, 13 lb (total). The hourly, daily and total emissions shall be determined using the manufacturer supplied emission factors, or District supplied emission factors, heat input rate (MMBtu/hr, MMBtu/hr, MMBtu (total)). [District Rule 2201] Federally Enforceable Through Title V Permit

19. The total mass emissions emitted during tuning/commissioning of the duct burner shall be counted toward the total daily and annual emissions limits. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Tuning/commissioning period shall terminate when the equipment manufacturer and the construction contractor completed the final tuning of the burner and the burner is ready to produce steam for the corn processing plant. [District Rule 2201] Federally Enforceable Through Title V Permit

21. The startup, shutdown and steady state limits in this permit (i.e., conditions #22, 23, 25, 26 and 28) become effective upon completion of tuning/commissioning activities of the duct burner. [District Rule 2201] Federally Enforceable Through Title V Permit

22. The owner or operator shall keep the date, name of the tuning/commissioning activity, time to complete the activity, control equipment status (i.e, operational or non-operational), fuel usage to estimate heat input rate (MMBtu/hr, MMBtu/day, MMBtu (total), and mass emissions rate (lb/hr, lb/day, lb (total)) for each pollutant. [District Rule 2201] Federally Enforceable Through Title V Permit

23. The startup for the CHP system shall not exceed 1.0 hour/event, 2 events/day and 50 hours/year. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

24. The total startup emissions from the CHP system shall not exceed any of the following limits: NOx (as NO2): 29.125 lb/hr, SOx: 0.658 lb/hr, PM10: 2.31 lb/hr, CO: 427.52 lb/hr, and VOC: 24.774 lb/hr. and NH3: 3.142 lb/hr. [District Rule 2201] Federally Enforceable Through Title V Permit

25. Startup is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. [District Rule 4703] Federally Enforceable Through Title V Permit

26. The shutdown for the CHP system shall not exceed 0.5 hour/event, 2 events/day and 25 hours/year. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

27. The total shutdown emissions from the CHP system shall not exceed any of the following limits: NOx (as NO2): 28.126 lb/hr, SOx: 0.658 lb/hr, PM10: 2.31 lb/hr, CO: 463.22 lb/hr, VOC: 26.574 lb/hr and NH3: 3.142 lb/hr. [District Rule 2201] Federally Enforceable Through Title V Permit

28. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703] Federally Enforceable Through Title V Permit

29. Except during tuning/commissioning of the duct burner, startup and shutdown, emissions from the CHP system shall not exceed any of the following limits: NOx (as NO2): 2.125 lb/hr and 2.5 ppmvd @ 15% O2, SOx: 0.658 lb/hr, PM10: 2.310 lb/hr, CO: 3.095 lb/hr and 6.0 ppmvd @ 15% O2, VOC: 0.601 lb/hr and 2.0 ppmvd @ 15% O2, and NH3: 3.142 lb/hr and 10.0 ppmvd @ 15% O2. All emission limits are based on 3-hour rolling averaging period. [District Rules 2201 and 4703 and 40 CFR Part 60.4320(a)] Federally Enforceable Through Title V Permit

30. Heat input rate to the CHP system (gas turbine and duct burner) shall not exceed 231 MMBtu per hour. [District Rule 2201 and 4102] Federally Enforceable Through Title V Permit

31. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 131.0 lb/day, SOx: 15.8 lb/day, PM10: 55.4 lb/day, CO: 1,383.2 lb/day, VOC: 88.7 lb/day and NH3: 75.4 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

32. The total emissions from permit units N-238-41, '-42, '-44, '-45 and '-46 shall not exceed any of the following limits: NOx (as NO2): 20,616 lb/yr, SOx: 5,767 lb/yr, PM10: 20,236 lb/yr, CO: 59,841 lb/yr, VOC: 7,119 lb/yr and NH3: 27,520 lb/yr. The annual limits are on 12 consecutive month rolling period basis. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

33. The gas turbine system shall be equipped with an air inlet cooler and lube oil vent coalescer or equivalent technology sufficient to limit the visible emissions from the lube oil vents to not exceed 5% opacity, except for a period not exceeding three minutes in any one hour. [District Rule 2201] Federally Enforceable Through Title V Permit

34. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

35. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit

36. Source testing to measure startup and shutdown NOx, CO, and VOC mass emission rates shall be conducted within 60-days of initial startup of the duct burner, while the turbine is non-operational. [District Rule 2201] Federally Enforceable Through Title V Permit

37. Source testing to measure startup and shutdown NOx, CO, and VOC mass emission rates of the CHP system shall be conducted within 60-days of initial startup of the turbine and at least once every seven years thereafter. [District Rule 2201] Federally Enforceable Through Title V Permit

38. Source testing to determine compliance with the steady state NOx, CO, NH3 (lb/hr and ppmvd @ 15% O2) and PM10 (lb/hr) shall be conducted within 60-days of initial startup of the duct burner, while the turbine is non-operational. [District Rule 2201] Federally Enforceable Through Title V Permit

39. Source testing to determine compliance with the steady state NOx, CO, NH3 (lb/hr and ppmvd @ 15% O2) and PM10 (lb/hr) shall be conducted within 60-days of initial startup of the turbine and annually thereafter both with the duct burner ON and OFF. [District Rules 2201 and 4703, 40 CFR 60.4400(a)] Federally Enforceable Through Title V Permit

40. The following test methods shall be used: NOx - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O2 - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703 and 40 CFR 60.4400(a)] Federally Enforceable Through Title V Permit

41. When valid purchase contracts, tariff sheets or transportation contracts showing the fuel sulfur content are not available, fuel sulfur content shall be monitored using one of the following methods: ASTM Methods D1072, D3246, D4084, D4468, D4810, D6228, D6667 or Gas Processors Association Standard 2377. [40 CFR 60.4415(a)(1)(i)] Federally Enforceable Through Title V Permit

42. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60.4375(b)] Federally Enforceable Through Title V Permit

43. During all types of operations, including startup and shutdown periods (except during the tuning/commissioning activities, unless the use of control equipment is specifically required for any tuning activity), ammonia injection into the SCR system shall occur once the minimum temperature at the catalyst face has been reached to ensure NOx emission reductions can occur with a reasonable level of ammonia slip. The minimum catalyst face temperature shall be determined during final design phase of the project and shall be submitted to the District at least 30 days prior to commencement of construction. [District Rule 2201] Federally Enforceable Through Title V Permit

44. The District shall administratively add the minimum temperature limitation established pursuant to the above condition in the final Permit to Operate. [District Rule 2201] Federally Enforceable Through Title V Permit

45. The SCR system shall be equipped with a continuous temperature monitoring system to measure and record the temperature at the catalyst face. [District Rule 2201] Federally Enforceable Through Title V Permit

46. The owner or operator shall establish minimum ammonia injection rate (pounds per hour) into the SCR system during each test run of the initial source test while demonstrating compliance with the NOx limit in this permit. The established minimum ammonia injection rate will be included in the Permit to Operate. The ammonia injection rate may be administrative revised should source testing determines that another value is more appropriate than the previously established ammonia injection rate. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

47. The owner or operator shall monitor and record ammonia injection rate (pounds per hour) into the SCR system at least once every 15-minute period. This data shall be used to determine average ammonia injection rate over 1-hour period. The hourly data shall be averaged over 3-hour period on a rolling basis. The obtained value shall be compared with the minimum ammonia injection rate established in the permit to determine compliance with the NOx emission limit in this permit. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

48. If the ammonia injection rate is less than the minimum ammonia injection rate specified in the permit, the owner or operator shall return the ammonia injection rate above the minimum ammonia injection rate established as soon as possible, but no longer than eight hours after detection. If the ammonia injection rate is not returned above the minimum ammonia injection rate established during compliance testing within eight hours, the owner or operator shall notify the District within the following one hour and conduct a source test within 60 days of the first exceedance to demonstrate compliance with the applicable emission limits at the reduced ammonia injection rate. In lieu of conducting a source test, the owner or operator may stipulate a violation has occurred, subject to enforcement action. The owner or operator must correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the owner or operator may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

49. The oxidation catalyst system shall be equipped with a continuous temperature monitoring system to measure the temperature at the catalyst face. [District Rule 2201] Federally Enforceable Through Title V Permit

50. The owner or operator shall establish minimum temperature (°F) of the oxidation catalyst during each test run of the initial source test while demonstrating compliance the CO and VOC limits in this permit. The established minimum temperature will be included in the Permit to Operate. The minimum temperature may be administrative revised should source testing determines that another value is more appropriate that the previously established minimum temperature. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

51. The owner or operator shall monitor and record temperature (°F) of the oxidation catalyst at least once every 15-minute period. This data shall be used to determine the average temperature of the oxidation catalyst over a 1-hour period. The hourly data shall be averaged over 3-hour period on a rolling basis. The obtained value shall be compared with the minimum temperature established in the permit to determine compliance with the CO and VOC emission limits in this permit. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

52. If the temperature of the oxidation catalyst is below the minimum temperature specified in the permit, the owner or operator shall adjust CHP system controls to maintain the minimum temperature as soon as possible, but no longer than eight hours after detection. If the oxidation catalyst temperature is not returned above the minimum temperature established during compliance testing within eight hours, the owner or operator shall notify the District within the following one hour and conduct a source test within 60 days of the first exceedance to demonstrate compliance with the applicable emission limits at the reduced oxidation catalyst temperature. In lieu of conducting a source test, the owner or operator may stipulate a violation has occurred, subject to enforcement action. The owner or operator must correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the owner or operator may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

53. NOx (as NO2), CO, O2 and NH3 emission readings shall be taken with the unit operating at conditions representative of normal operation or under the conditions specified in the Permit to Operate. The NOx, CO and O2 analyzer as well as the NH3 emission monitoring equipment shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Analyzer readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

54. The owner or operator shall monitor and record the stack concentration of NOx (as NO2), CO, NH3 and O2 on a weekly basis. NOx, CO and O2 monitoring shall be conducted utilizing a portable analyzer that meets District specifications. NH3 monitoring shall be conducted utilizing gas detection tubes (Draeger brand or District approved equivalent). If compliance with the NOx, CO and NH3 emissions is demonstrated for eight consecutive weeks, then the monitoring frequency will be reduced to monthly. If deviations are observed in two consecutive months, monitoring shall revert to weekly until eight consecutive weeks show no deviations. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within one day of restarting the unit unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the week if on a weekly monitoring schedule. Weekly or monthly monitoring is not required for the week or month in which source testing is performed. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

55. If either the NOx (as NO2), CO or NH3 concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels the owner or operator shall return the emissions to compliant levels as soon as possible, but no longer than eight hours of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after eight hours of operation following detection, the owner or operator shall notify the District within the following one hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the owner or operator may stipulate a violation that is subject to enforcement action has occurred. The owner or operator must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the owner or operator may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

56. The sulfur content of each fuel source shall be: (i) documented in a valid purchase contract, a supplier certification, a tariff sheet or transportation contract, or (ii) monitored within 60 days of initial startup and weekly thereafter. If the sulfur content is less than or equal to 1.0 gr/100 dscf for eight consecutive weeks, then the monitoring frequency shall be every six months. If the result of any six month monitoring demonstrates that the fuel does not meet the fuel sulfur content limit, weekly monitoring shall resume until compliance is demonstrated for eight consecutive weeks. [District Rule 2201 and 40 CFR 60.4360, 60.4365(a) and 60.4370(c)] Federally Enforceable Through Title V Permit

57. The owner or operator shall keep hourly records of total heat input (MMBtu/hr) to the CHP system. [District Rule 2201] Federally Enforceable Through Title V Permit

58. The owner or operator shall keep daily records of total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. [District Rule 2201] Federally Enforceable Through Title V Permit

59. The owner or operator shall keep monthly records of the total emissions for each pollutant from permit units N-238-41, '-42, '-44, '-45 and '-46. These records shall be used to determine the total emissions for each pollutant during 12 consecutive month period on a rolling basis. [District Rule 2201] Federally Enforceable Through Title V Permit

60. The owner or operator shall keep records of the following items: (1) SCR system monitor: the date, time, catalyst face temperature and ammonia injection rate, (2) Oxidation catalyst system monitor: the date, time, catalyst face temperature. These records shall be used demonstrate compliance with the minimum SCR catalyst face temperature, minimum ammonia injection rate, and minimum oxidation catalyst face temperature in this permit. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

61. The owner or operator shall keep records of the following items: (1) the date and time of NOx, CO, NH3 and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOx, CO and NH3 concentrations corrected to 15% O2, (3) make and model of the portable analyzer, (4) portable analyzer calibration records, (5) the method of determining the NH3 emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

62. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced-load periods, total hours of operation, the type and quantity of fuel used, duration of start-up, and duration of shutdown. [District Rule 4703] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

63. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

64. SOx excess emissions shall be defined as each unit operating hour included in the period beginning on the date and hour of any sample for which the sulfur content of the fuel being fired in the gas turbine exceeds the sulfur limit specified in this permit, and ends on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit. [40 CFR 60.4385(a)] Federally Enforceable Through Title V Permit

65. SOx monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime shall include only unit operating hours, and ends on the date and hour of the next valid sample. [40 CFR 60.4385(b)] Federally Enforceable Through Title V Permit

66. NOx excess emissions shall be defined as any 3-hour rolling average ammonia injection rate (pounds per hour) falls below the minimum ammonia injection rate (lb/hr) specified in this permit, except during startup and shutdown. [District Rule 2201] Federally Enforceable Through Title V Permit

67. NOx monitor downtime shall be defined as any operating hour during which the ammonia injection rate is either not recorded or is invalid. [District Rule 2201] Federally Enforceable Through Title V Permit

68. The owner or operator shall submit a written report of unit's operation for 6-month period. The report is due on the 30th day following the end of the six-month period and shall include the following: Date, time intervals, data and magnitude of excess emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the monitoring system(s) was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 2201] Federally Enforceable Through Title V Permit

69. This Authority to Construct (ATC) permit cancels and replaces the ATC permit N-238-46-0. [District Rule 2201] Federally Enforceable Through Title V Permit

Appendix II
Top-Down BACT Analysis

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.4.3*

Last Update: 1/18/2005

Gas Turbine with Heat Recovery (= > 3 MW and = < 10 MW)

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	2.0 ppmv @ 15% O2, based on a three-hour average (catalytic oxidation or equal)		
SOx	PUC-regulated natural gas, LPG, or non-PUC-regulated natural gas with < 0.75 grains-S/100 dscf, or equal		
PM10	air inlet cooler, lube oil vent coalescer, and natural gas fuel		
NOx	2.5 ppmv @ 15% O2, based on a three-hour average (selective catalytic reduction or equal)		
CO	6.0 ppmv @ 15% O2, based on a three-hour average (catalytic oxidation or equal)		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

Top-Down BACT Analysis

Unit N-238-46-1:

NOx emissions:

Step 1: Identify All Possible Control Technologies

The District considers the following BACT standard to reduce NOx emissions:

Achieved-in-Practice:
NOx: 2.5 ppmvd @ 15% O_2, based on 3-hour average (SCR or equal)

Technologically Feasible:
None

Alternative Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. 2.5 ppmvd NOx @ 15% O_2 – achieved-in-practice

Step 4: Cost Effectiveness Analysis

There is no technologically feasible option in Step 3 for which cost-effectiveness analysis is required.

Step 5: Select BACT

BACT requirement is achieve 2.5 ppmvd NOx @ 15% O2 (or less) emissions. The applicant has proposed to comply with this standard; therefore, BACT requirement is satisfied.

SOx emissions:

Step 1: Identify All Possible Control Technologies

The District considers the following BACT standards to reduce SOx emissions:

Achieved-in-Practice:
PUC-regulated natural gas, LPG, or non-PUC regulated natural gas with <0.75 gr-S/100 dscf, or equal

Technologically Feasible:
None

Alternate Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. PUC-regulated natural gas, LPG, or non-PUC regulated natural gas with <0.75 gr-S/100 dscf, or equal (achieved-in-practice)

Step 4: Cost Effectiveness Analysis

There is no technologically feasible option in Step 3 for which cost-effectiveness analysis is required.

Step 5: Select BACT

BACT requirement is to use PUC-regulated natural gas, LPG, or non-PUC regulated natural gas with <0.75 gr-S/100 dscf, or equal. The applicant has proposed to use PUC quality natural gas which contain 1.0 gr-S/100 dscf, and is considered to be of same quality as PUC-regulated natural gas. Thus, the BACT requirements are satisfied.

PM10 emissions:

Step 1: Identify All Possible Control Technologies

The District considers the following BACT standards to reduce PM10 emissions:

Achieved-in-Practice:
Air inlet cooler, lube oil vent coalescer, and natural gas fuel

Technologically Feasible:
None

Alternate Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. Air inlet cooler, lube oil vent coalescer, and natural gas fuel (achieved-in-practice)

Step 4: Cost Effectiveness Analysis

There is no technologically feasible option in Step 3 for which cost-effectiveness analysis is required.

Step 5: Select BACT

BACT requirement is to use air inlet cooler, lube oil vent coalescer, and natural gas fuel. The applicant has proposed to operate the gas turbine on natural gas fuel, and the gas turbine will be equipped with air inlet cooler and lube oil vent coalescer. Thus, BACT requirements are satisfied.

CO emissions:

Step 1: Identify All Possible Control Technologies

The District considers the following BACT standard to reduce CO emissions:

Achieved-in-Practice:
CO: 6.0 ppmvd @ 15% O_2, based on 3-hour average (catalytic oxidation or equal)

Technologically Feasible:
None

Alternative Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. 6.0 ppmvd CO @ 15% O_2 – achieved-in-practice

Step 4: Cost Effectiveness Analysis

There is no technologically feasible option in Step 3 for which cost-effectiveness analysis is required.

Step 5: Select BACT

BACT requirement is achieve 6.0 ppmvd CO @ 15% O2 (or less) emissions. The applicant has proposed to comply with this standard; therefore, BACT requirement is satisfied.

VOC emissions:

Step 1: Identify All Possible Control Technologies

The District considers the following BACT standard to reduce VOC emissions:

Achieved-in-Practice:
VOC: 2.0 ppmvd @ 15% O_2, based on 3-hour average (catalytic oxidation or equal)

Technologically Feasible:
None

Alternative Basic Equipment:
None

Step 2: Eliminate Technologically Infeasible Options

All control options listed in step 1 are technologically feasible.

Step 3: Rank Remaining Control Technologies by Control Effectiveness

1. 2.0 ppmvd VOC @ 15% O_2 – achieved-in-practice

Step 4: Cost Effectiveness Analysis

There is no technologically feasible option in Step 3 for which cost-effectiveness analysis is required.

Step 5: Select BACT

BACT requirement is achieve 2.0 ppmvd VOC @ 15% O2 (or less) emissions. The applicant has proposed to comply with this standard; therefore, BACT requirement is satisfied.

Appendix III
RMR and AAQA Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Jag Kahlon – Permit Services
From:	Tadeh Issakhanian – Technical Services
Date:	February 29, 2016
Facility Name:	Ingredion Inc.
Location:	1021 Industrial Dr. Stockton, CA
Application #(s):	N-238-41-4, 42-3, 44-2, 45-2 & 46-1
Project #:	N-1160510

A. RMR SUMMARY

RMR Summary			
Categories	**Turbine/Duct Burner (Unit 46-1)**	**Project Totals**	**Facility Totals**
Prioritization Score	1.46	1.46	>1.0
Acute Hazard Index	0.00	0.00	0.12
Chronic Hazard Index	0.02	0.02	0.02
Maximum Individual Cancer Risk	5.52E-07	5.52E-07	5.52E-07
T-BACT Required?	**No**		
Special Permit Conditions?	**Yes**		

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 46-1

1. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction.

B. RMR REPORT

I. Project Description

Technical Services received a request on February 26, 2016, to perform an Ambient Air Quality Analysis and a Risk Management Review for a 7.3 MW combined heat and power NG Turbine rated at 87.5 MMBTU/Hr and a 190 MMBTU/hr Natural gas fired duct burner. Units 41-3, 42-2, 44-1, 45-2 have not increase in emissions and are not being evaluated.

II. Analysis

Toxic emissions for this proposed unit were calculated using 2001 Ventura County's Air Pollution Control District's emission factors for Natural Gas Fired external combustion, Toxic emissions for this proposed unit were calculated using Natural Gas Fired Tubrine emission factors based on *AP-42 Chapter 3.1 Stationary Gas Turbines* and input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed unit was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required. The AERMOD model was used, with the parameters outlined below and meteorological data for 2010-2014 from Stockton to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project

Analysis Parameters Unit 46-1			
Source Type	Point	**Location Type**	Urban
Stack Height (m)	12.192	**Closest Receptor (m)**	189
Stack Diameter. (m)	1.524	**Type of Receptor**	Business
Stack Exit Velocity (m/s)	34.28	**Max Hours per Year**	8760
Stack Exit Temp. (°K)	781.483	**Fuel Type**	NG
Burner Rating (MMBtu/hr) Turbine	87.5	**Burner Rating (MMBtu/hr) Duct Burner**	190

Technical Services performed modeling for criteria pollutants CO, NO_x, SO_x, and PM10 with the emission rates below:

Unit #	**NO_x (Lbs.)**		**SO_x (Lbs.)**		**CO (Lbs.)**		**PM_{10} (Lbs.)**	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.
46-1	29	20616	0.66	5767	463	59841	2.31	20236

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	Pass[1]	X	X	X	Pass
SO_x	Pass	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[2]	Pass[2]
$PM_{2.5}$	X	X	X	Pass[2]	Pass[2]

*Results were taken from the attached PSD spreadsheet.
[1]The project was compared to the 1-hour NO2 National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. [2]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit requirements listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

IV. Attachments

A. RMR request from the project engineer
B. Additional information from the applicant/project engineer
C. Toxic emissions summary
D. Prioritization score
E. Facility Summary

Appendix IV
Compliance Certification

Ingredion Incorporated
5 Westbrook Corporate Center
Westchester, Illinois 60514
United States
t: (708) 551-2600
w: ingredion.com

February 23, 2016

Mr. Nick Peirce
Permit Service Manager
San Joaquin Valley Air Pollution Control District
4800 Enterprise Way
Modesto CA 95356-8718

Subject: Compliance Statement for Ingredion Incorporated

Dear Mr. Peirce:

In accordance with Rule 2201, Section 4.15, "Additional Requirements for New Major Sources and Federal Major Modifications," Ingredion Incorporated is pleased to provide this compliance statement regarding its proposed new project under project number N-1150704.

All major stationary sources in California owned or operated by Ingredion Incorporated, or by any entity controlling, controlled by, or under common control with Ingredion Incorporated, and which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards. These sources include one or more of the following facilities:

Facility #1: Ingredion Incorporated, 1021 Industrial Drive, Stockton, CA (N-238)

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Please contact me if you have any questions regarding this certification.

Sincerely,

Juan Carlos Casillas
Stockton Plant Manager
Ingredion Incorporated

San Joaquin Valley
Unified Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

[ ] SIGNIFICANT PERMIT MODIFICATION
[X] MINOR PERMIT MODIFICATION
[ ] ADMINISTRATIVE AMENDMENT

COMPANY NAME: Ingredion Incorporated	FACILITY ID: N-238
1. Type of Organization:[X] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility	
2. Owner's Name:	
3. Agent to the Owner:	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial all circles for confirmation):

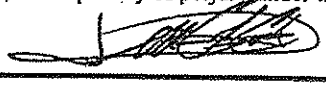
Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).

Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:



Signature of Responsible Official

Feb. 25, 2016

Date

Juan Carlos Casillas

Name of Responsible Official (please print)

Stockton Plant Manager

Title of Responsible Official (please print)

Appendix V
Quarterly Emissions Change

Quarterly Emissions Change

This project involves combined emissions limits for multiple units for each pollutant. Therefore, quarterly emissions change is determined as follows:

$QEC = (PE2_{Total} - PE1_{Total})/4$, where

$PE2_{Total} = PE2_{N\text{-}238\text{-}41} + PE2_{N\text{-}238\text{-}42} + PE2_{N\text{-}238\text{-}44} + PE2_{N\text{-}238\text{-}45} + PE2_{N\text{-}238\text{-}46}$
$PE1_{Total} = PE1_{N\text{-}238\text{-}41} + PE1_{N\text{-}238\text{-}42} + PE1_{N\text{-}238\text{-}44} + PE1_{N\text{-}238\text{-}45}$

Note that the entire increase in quarterly emissions will be counted toward the new unit under permit N-238-46-1.

Pollutant	$PE2_{Total}$ (lb/yr)	$PE1_{Total}$ (lb/yr)	QEC (lb/qtr)
NO_X	20,616	12,474	2035.50
SO_X	5,767	4,522	311.25
PM_{10}	20,236	11,851	2096.25
CO	59,841	57,693	537.00
VOC	7,119	6,237	220.50

Appendix VI
Hazardous Air Pollutant Calculations

Summary of HAP Emissions

[1, 2]Permit #	Description	HAPs (lb/yr)
N-238-10-7	21 MMBtu/hr natural gas-fired starch flash dryer	11
N-238-18-6	43.403 MMBtu/hr natural gas-fired gas turbine	495
N-238-41-3	185 Mmbtu/hr natural gas-fired boiler	38
N-238-42-2	28.8 MMBtu/hr natural gas-fired boiler	16
N238-44-1	99.9 MMBtu/hr natural gas-fired boiler	55
N-238-45-1	99.9 MMBtu/hr natural gas-fired boiler	55
N-238-46-0	7.3 MW combined heat & power system	2555
	Total (lb/yr):	3224
	Total (tons/yr):	**1.61**

Note:

1. This sheet shows maximum HAP emissions from each unit. For conservative estimate, HAP emissions from units N-238-41, '-42, '-44, '-45 are added to the HAP emissions from N-238-46. Note that permit unit N-238-46.238-41, '-42, '-44, '-45 and '-46 have total combined heat input rate equal to the heat input rate to unit N-238-46; therefore, total HAP emissions are expected to be less 3,224 lb/yr.

2. Wet corn milling processes generally emits SOx, VOC or PM emissions. Several websites and CATEF database (http://www.arb.ca.gov/app/emsinv/catef_form.html data) were searched to determine any HAPs associated with wet corn milling process; no data was found during this search.

Potential HAP Emissions from "N-238-10-7"

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr)[2]	Maximum Annual Emissions (lb/yr)[3]	Maximum Annual Emissions (tpy)
Acetaldehyde	3.10E-06	6.51E-05	1	0.0
Acrolein	2.70E-06	5.67E-05	0	0.0
Benzene	5.80E-06	1.22E-04	1	0.0
1,3-Butadiene	n/a	--	--	--
Ethyl benzene	6.90E-06	1.45E-04	1	0.0
Formaldehyde	1.23E-05	2.58E-04	2	0.0
Hexane	4.60E-06	9.66E-05	1	0.0
Naphthalene	3.00E-07	6.30E-06	0	0.0
PAHs	1.00E-07	2.10E-06	0	0.0
Propylene Oxide	n/a	--	--	--
Toluene	2.65E-05	5.57E-04	5	0.0
Xylene	6.40E-08	1.34E-06	0	0.0
Total			**11**	**0.0**

Notes:

1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
2. Hourly emissions = EF (lb/MMBtu) x 21 (MMBtu/hr)
3. Annual emissions = EF (lb/MMBtu) x 21 (MMBtu/hr) x 8,760 (hr/yr)

Potential HAP Emissions from "N-238-18-6"

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]	Maximum Annual Emissions (tpy)
Acetaldehyde	4.00E-05	1.74E-03	15	0.0
Acrolein	6.40E-06	2.78E-04	2	0.0
Benzene	1.20E-05	5.21E-04	5	0.0
1,3-Butadiene	4.30E-07	1.87E-05	0	0.0
Ethyl benzene	3.20E-05	1.39E-03	12	0.0
Formaldehyde	7.10E-04	3.08E-02	270	0.1
Hexane	2.58E-04	1.12E-02	98	0.0
Naphthalene	1.30E-06	5.64E-05	0	0.0
PAHs excluding naphthalene	3.14E-07	1.36E-05	0	0.0
Propylene Oxide	4.76E-05	2.07E-03	18	0.0
Toluene	1.30E-04	5.64E-03	49	0.0
Xylene	6.40E-05	2.78E-03	24	0.0
Total			**495**	**0.1**

Notes:
1. These emission factors are obtained from AP-42 and CATEF databases
2. Hourly emissions = EF (lb/MMBtu) x 43.403 (MMBtu/hr)
3. Annual emissions = EF (lb/MMBtu) x 43.403 (MMBtu/hr) x 8,760 (hr/yr)

Potential HAP Emissions from "N-238-41-4"

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr)[2]	Maximum Annual Emissions (lb/yr)[3]	Maximum Annual Emissions (tpy)
Acetaldehyde	9.00E-07	1.60E-04	1	0.0
Acrolein	8.00E-07	1.42E-04	1	0.0
Benzene	1.70E-06	3.03E-04	3	0.0
1,3-Butadiene	n/a	--	--	--
Ethyl benzene	2.00E-06	3.56E-04	3	0.0
Formaldehyde	3.60E-06	6.41E-04	6	0.0
Hexane	1.30E-06	2.31E-04	2	0.0
Naphthalene	3.00E-07	5.34E-05	0	0.0
PAHs excluding naphthalene	1.00E-07	1.78E-05	0	0.0
Propylene Oxide	n/a	--	--	--
Toluene	7.80E-06	1.39E-03	12	0.0
Xylene	5.80E-06	1.03E-03	9	0.0
Total			**38**	**0.0**

Notes:

1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment greater than 100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
2. Hourly emissions = EF (lb/MMBtu) x 178 (MMBtu/hr)
3. Annual emissions = EF (lb/MMBtu) x 178 (MMBtu/yr) x 8,760 (hr/yr)

Potential HAP Emissions from "N-238-42-2"

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]	Maximum Annual Emissions (tpy)
Acetaldehyde	3.10E-06	8.93E-05	1	0.0
Acrolein	2.70E-06	7.78E-05	1	0.0
Benzene	5.80E-06	1.67E-04	1	0.0
1,3-Butadiene	n/a	--	--	--
Ethyl benzene	6.90E-06	1.99E-04	2	0.0
Formaldehyde	1.23E-05	3.54E-04	3	0.0
Hexane	4.60E-06	1.32E-04	1	0.0
Naphthalene	3.00E-07	8.64E-06	0	0.0
PAHs	1.00E-07	2.88E-06	0	0.0
Propylene Oxide	n/a	--	--	--
Toluene	2.65E-05	7.63E-04	7	0.0
Xylene	6.40E-08	1.84E-06	0	0.0
Total			**16**	**0.0**

Notes:

1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
2. Hourly emissions = EF (lb/MMBtu) x 28.8 (MMBtu/hr)
3. Annual emissions = EF (lb/MMBtu) x 28.8 (MMBtu/hr) x 8,760 (hr/yr)

Potential HAP Emissions from "N-238-44-2"

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr)[2]	Maximum Annual Emissions (lb/yr)[3]	Maximum Annual Emissions (tpy)
Acetaldehyde	3.10E-06	3.10E-04	3	0.0
Acrolein	2.70E-06	2.70E-04	2	0.0
Benzene	5.80E-06	5.79E-04	5	0.0
1,3-Butadiene	n/a	--	--	--
Ethyl benzene	6.90E-06	6.89E-04	6	0.0
Formaldehyde	1.23E-05	1.23E-03	11	0.0
Hexane	4.60E-06	4.60E-04	4	0.0
Naphthalene	3.00E-07	3.00E-05	0	0.0
PAHs	1.00E-07	9.99E-06	0	0.0
Propylene Oxide	n/a	--	--	--
Toluene	2.65E-05	2.65E-03	23	0.0
Xylene	6.40E-08	6.39E-06	0	0.0
Total			**55**	**0.0**

Notes:

1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
2. Hourly emissions = EF (lb/MMBtu) x 99.9 (MMBtu/hr)
3. Annual emissions = EF (lb/MMBtu) x 99.9 (MMBtu/hr) x 8,760 (hr/yr)

Potential HAP Emissions from "N-238-45-2"

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]	Maximum Annual Emissions (tpy)
Acetaldehyde	3.10E-06	3.10E-04	3	0.0
Acrolein	2.70E-06	2.70E-04	2	0.0
Benzene	5.80E-06	5.79E-04	5	0.0
1,3-Butadiene	n/a	--	--	--
Ethyl benzene	6.90E-06	6.89E-04	6	0.0
Formaldehyde	1.23E-05	1.23E-03	11	0.0
Hexane	4.60E-06	4.60E-04	4	0.0
Naphthalene	3.00E-07	3.00E-05	0	0.0
PAHs	1.00E-07	9.99E-06	0	0.0
Propylene Oxide	n/a	--	--	--
Toluene	2.65E-05	2.65E-03	23	0.0
Xylene	6.40E-08	6.39E-06	0	0.0
Total			**55**	**0.0**

Notes:

1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
2. Hourly emissions = EF (lb/MMBtu) x 99.9 (MMBtu/hr)
3. Annual emissions = EF (lb/MMBtu) x 99.9 (MMBtu/hr) x 8,760 (hr/yr)

Potential HAP Emissions from "N-238-46-1"

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]
Acrolein	6.40E-06	1.48E-03	13
Benzene	1.20E-05	2.77E-03	24
1,3-Butadiene	4.30E-07	9.93E-05	1
Ethyl benzene	3.20E-05	7.39E-03	65
Formaldehyde	7.10E-04	1.64E-01	1437
Hexane	2.58E-04	5.96E-02	522
Naphthalene	1.30E-06	3.00E-04	3
PAHs (excluding Naphthalene)	3.14E-07	7.25E-05	1
Propylene Oxide	4.76E-05	1.10E-02	96
Toluene	1.30E-04	3.00E-02	263
Xylene	6.40E-05	1.48E-02	130
Total			**2555**

Notes:

1. EF taken from the application review under project N-1183490.
2. Hourly emissions = EF (lb/MMBtu) x 231 (MMBtu/hr)
3. Annual emissions = EF (lb/MMBtu) x 231 (MMBtu/hr) x 8,760 (hr/yr)

Appendix VII
District's Response to EPA's Comments

District's Response to EPA's Comments

On April 14, 2016, the District received comments from EPA Region 9. The District response to these comments is provided in this section.

Comment 1:
EPA notes that the evaluation does not include any analysis for PM2.5 emissions, as required by Rule 2201. We assume this is because the District is assuming that all of the PM10 emissions consist of PM2.5 emissions, but the evaluation does not state this assumption. The evaluation must clearly state this assumption to ensure PM2.5 emissions are evaluated properly. Please revise the evaluation, as necessary to address the evaluation of PM2.5 emissions.

District's Response:
The application review has been revised (see copy attached). For conservative calculations, all PM10 emissions are assumed to be PM2.5 emissions since PM2.5 is a subset of PM10. This facility is not a Major Source under Rule 2201 or Rule 2410 for PM10 emissions; therefore, the proposed project did not trigger any additional requirements.

Comment 2:
As part of the District's compliance with Rule 2201 BACT requirements, the District states on page 26, under paragraph a of the BACT evaluation for the proposed CHP system that "Note that the District does not evaluate BACT for emissions [from] control device. Therefore, BACT for NH3 slip emissions from an SCR system will not be evaluated." EPA could not find any specific exclusion for exempting the emissions from control equipment from the BACT requirements in Rule 2201. Section 4.2.3 provides an exemption applicable to the *addition* of new control equipment at an existing facility from the requirement (See 4.1.1) to apply, but this exemption is limited to *existing* facilities which are adding required controls, not new emission units such as the CHP unit proposed for this project.

In addition, while BACT is required to be applied on an emission unit by emission unit basis, the definition of emission unit includes not only emissions emitted directly by the emission unit but also if the emission unit "...results in the emissions of any affected pollutant directly or as fugitive emissions." This seems to fit the case of ammonia emissions from the use of a SCR control device. Therefore it appears BACT should also be applied to the ammonia slip emissions. EPA recently requested data from the SCAQMD regarding any BACT determinations they have made for ammonia slip emissions, and found that they have been limiting ammonia emissions to 5.0 ppmvd @ 15% O2, over a 1-hr average. (See data summarized in tables provided below.) Please revise the permit evaluation to include an appropriate BACT analysis for the ammonia emissions from this project.

Data provided by South Coast AQMD:

The BACT/LAER emission limits are as follows in year 2001:

	NOx	CO	VOC	PM10/SOx	NH3
Simple Cycle Gas Turbine	5.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	6.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	2.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	PUC quality natural gas* with sulfur ≤ 1 grain/100 scf	5.0 ppmvd @ 15% O2, 1-hr average

The most recent permitting of gas turbines and the use of the most recent BACT/LAER emissions limits are listed below.

	NOx	CO	VOC	PM10/SOx	NH3
Simple Cycle Gas Turbine ≥ 50 MW	2.5 ppmvd @ 15% O2, 1-hr average, without and with duct burner	4.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	2.0 ppmvd @ 15% O2, 1-hr average, without and with duct burner	PUC quality natural gas* with sulfur ≤ 1 grain/100 scf	5.0 ppmvd @ 15% O2, 1-hr average

Note: El Segundo Power LLC, December 2013; LADWP Scattergood, April 2013

District's Response:
According to District Rule 2201, BACT is applicable to an "emissions unit". The SCR system itself is control equipment and is not an emissions unit. As defined in District Rule 2201, section 3.17, an emissions unit is *"an identifiable operation or piece of process equipment such as a source operation which emits, may emit, or results in the emissions of any affected pollutant directly or as fugitive emissions"*. The SCR system is not a piece of process equipment nor is it a source operation (per the definition of "source operation" in District Rule 1020) and therefore, the SCR system cannot be an emissions unit. Ammonia emissions are not directly emitted by the unit but rather are emitted by an SCR system. Since the SCR is not an emissions unit, District BACT requirements are not applicable to the ammonia emissions resulting from the application of SCR. This is not the same as saying that we allow excess ammonia emissions from SCR – in fact, we do require very low ammonia slip, but we do it in a way that does not interfere with the lowest possible NOx emissions operation of the equipment.

As EPA is well aware, minimizing NOx emissions in the San Joaquin Valley Air Basin is paramount for the District's attainment of ozone and $PM_{2.5}$ National Ambient Air Quality Standards (standards). In its 2012 and 2015 $PM_{2.5}$ attainment plans for the 1997 and 2006 $PM_{2.5}$ standards, the District provides a detailed analysis of the formation of $PM_{2.5}$ emissions that exceed the standards in the Valley. In the analyses, the District identifies that ammonium nitrate, formed from nitric acid (NOx) and ammonia, is the predominant secondary $PM_{2.5}$ species. The plan demonstrations identify there is an abundance of ammonia compared to NOx in the Valley and thus, NOx is the limiting factor in forming ammonium nitrate. Since NOx is the limiting factor, the District's attainment plans focus

on effective and thorough control of NOx emissions in the Valley and no opportunity for NOx reductions is overlooked for compliance with both ozone and $PM_{2.5}$ standards.

So, in conjunction with its sharp focus on NOx reductions, the District does require low-emitting controls. The 10 ppmv ammonia emissions limit represents a very low ammonia limit that has no adverse impacts. When compared to 5 ppmv, the limit of 10 ppmv has no adverse effect on the District's attainment of compliance with $PM_{2.5}$ standards due to the ammonia-saturated nature of the San Joaquin Valley. In addition, the District has assessed the increased risk to the surrounding population due to the 10 ppm ammonia slip, and has found that no significant risk will be created. Lower ammonia slip limits, such as those EPA is suggesting, make it much more difficult for operators to achieve very low NOx limits. Operating the same piece of equipment at 5 ppm ammonia slip versus 10 ppm will almost always result in an increase in NOx. Since NOx reductions are so critical in the Valley, allowing a still low ammonia slip limit of 10 ppmv vs 5 ppmv provides the operator more flexibility in meeting a very low NOx limit. We have found this flexibility to result in decreased NOx emissions as the higher ammonia slip allows a greater margin of compliance with the NOx limit. As a hypothetical example for illustration purposes, an operator that operates at 5 ppm ammonia slip may JUST be able to achieve the 2.5 ppm NOx BACT on an ongoing basis, while the same operation at 10 ppm ammonia slip may be able to operate at 2.1 ppm NOx.

In addition to resulting in lower NOx emissions on an ongoing basis, allowing the higher ammonia slip has the added benefit of allowing the District, over time, to demonstrate lower achieved-in-practice NOx emission rates for future BACT determinations.

In conclusion, even if the District did require BACT on control device emissions in contradiction to the District's SIP approved Rule 2201, it would come to the same conclusion in consideration of the NOx/ammonia trade-off inherent in SCR systems. The District's dependence on NOx reduction to meet its attainment goals would drive our BACT determinations towards lower NOx at the expense of higher ammonia.