TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 92956

I. INTRODUCTION

This Class II Renewal permit is for the continued operation of PFFJ, LLC DBA Smithfield Hog Production's PFFJ LLC - Snowflake CAFO. Permit No. 92956 renews and supersedes Permit No. 65643. Permit No. 65643 had an expiration date of July 30, 2022, and the application for this permit renewal was submitted on January 27, 2022. This submission satisfied the permit condition requiring that a complete and timely application be submitted by the Permittee at least six (6) months, but no earlier than eighteen (18) months, prior to the expiration date of the current permit.

A. Company Information

Facility Name:	PFFJ LLC - Snowflake CAFO
Mailing Address:	61 W. Center Street, Snowflake, AZ 85937
Facility Location:	11 (farm) and 14 (feed mill) miles north of Snowflake, AZ off Highway 77, Snowflake, Navajo County, Arizona 85937

B. Attainment Classification

This facility is located in Navajo County which is designated as attainment or unclassified for all criteria pollutants

II. PROCESS DESCRIPTION

A. Process Description

The PFFJ LLC- Snowflake CAFO facility (PFFJ) consists of a Concentrated Animal Feeding Operating (swine farm, SIC: 0213) with an adjacent feed mill (SIC: 2048). The facility includes haul roads, barns and effluent handling systems, three emergency generators, two gasoline storage tanks, and supplemental in-barn propane heaters.

The farm is a farrow-to-finish facility. Animals are born and reared at this facility through market weight. All of the facilities are designed for the comfort and safety of the pigs. All of the barns contain enclosed feed transfer systems and all feed rations have oil added to minimize dust. To maintain the ideal temperature for the pigs, all of the barns employ computerized ventilation and heating controls. When necessary, supplemental heat is provided in the barns via propane gas heaters. Each set of barns share a lagoon where process wastewater and excrement are treated and stored. The treated water from the lagoons is recycled back into the barns for use as "flush" water to remove excrement from the barns.

The feed mill, which would not exist without the swine farm, uses raw ingredients (whole corn, soybean meal, and dried distillers grain) and mixes them with vitamins, minerals, and fats to manufacture feed rations for the farm. The mill is adjacent to a 54-car rail spur and

the main ingredients are delivered by rail car. Supplemental ingredients are delivered on trucks. Feed trucks are loaded at the feed mill under a roofed area then delivered into small feed bins located on the exterior of each barn via an enclosed auger arm with a flexible discharge spout. Feed is milled and delivered on a daily basis. Where possible, emission units and material transfer points are sealed to minimize material loss and dust.

The facility has three emergency back-up generators for water supply: Well No. 7, Well No. 1-4, and the Booster Station. Each generator is exercised 15 minutes each week.

1. Farm Process

a. Barn Operations

The farm is a multiple-site layout with sow, nursery, nursery-finisher and finisher sites segregated and isolated from one another. This type of layout enables better health control procedures. There is a total of 144 buildings housing pigs. Each barn has computerized ventilation and heating controls to maintain the ideal temperature for the pigs. Propane heaters are used inside of the barns to warm the rooms. Pigs are raised to market-weight in these sites and shipped live to processing off-site.

All buildings have computerized climate control technologies, to provide an environment to meet the specific needs of each phase of the pig's life cycle. These same systems are also designed to prevent ingress of dusts from outside the operations. When necessary, supplemental heat is provided through in-barn propane gas heaters. All buildings have slotted floors to allow solid and liquid materials to fall through the floor and away from the pigs. The sow, nursery, and finishing barns have recycle-water flush systems. The gilt development and wean-to-finish barns are a recycle-water pull-plug system. Each set of buildings has a lagoon. Both of these systems are designed for maximum animal health and water conservation. The flush systems have a water tank at one end of the building that is filled with recycled water from the lagoon. The water is released into the shallow pits of the building, "flushing" the effluent to the other end where it is caught and transferred via pipe into the lagoon. These buildings are flushed about 10 times per day. The pull plug buildings have gravity drains in the shallow pits under the buildings. Recycled water from the lagoon is added to the pit. The plugs are then "pulled" and the effluent flows down the drains through piping into the lagoons. All of the buildings contain enclosed feed transfer systems and all feed rations have oil added to minimize dust.

b. Lagoon Operations

There are 29 individual lagoons on the farm adjacent to the various sites. All lagoons are lined - seven (7) with an engineered layer of clay; the rest with 40mm synthetic liners to protect ground and surface water. Effluent from the barns are stored in lagoons. Solids settle to the bottom of the lagoon where they are broken down through natural biological processes.

Liquids remain on the top, providing a natural "cover" over the lagoons. Recycle-water is drawn from just below the water surface via pumps then transferred to the flush tanks at the end of each building. This helps to conserve fresh water use at the farm.

c. Emergency Generators

Water outages of over 24 hours in duration would be detrimental to the health of the pigs on the farm. Consequently, the farm has three (3) emergency back-up generators for water supply: Well 7, Well 1-4, and the booster-pump station. Each generator is exercised 15 minutes each week.

d. Maintenance

There is a maintenance shop in the center of the farm where regular preventative maintenance is performed and repairs are made. The maintenance team is responsible for routine preventative maintenance and repairs to buildings and equipment throughout the farm and the feed mill. Two above-ground gasoline tanks are located at this site. One at the shop and one at the truck wash.

2. Feed Mill Process

The main ingredients are corn, soybean meal (SBM), and dried distillers grains (DDG) which are delivered to the facility by railcar and truck. The corn is transferred into one of two 3,000-ton storage bins (CS-1 and CS-2) where it is temporarily held before transfer into additive bin B-2. The corn in bin B-2 is then transferred to one of two hammer mills (HM-1 and HM-2) where the corn is milled to the correct size. The milled corn then flows to additive bin B-1, where it is stored prior to product mixing. From delivery, the SBM and DDG go directly to their respective additive bins (B-11 & 12 for SBM and B-13 & 14 for DDG), where they are stored prior to product mixing.

Raw material additives are used in the preparation of the swine feed. These additives include limestone, salt, and dical, which are delivered in bulk to the facility by trucks. These bulk additives are transferred by bucket elevator to the additive bins (B-3 to B-10). Whey and other additives are delivered to the facility in bags. Bagged materials are transferred by bucket elevator to Mixer 1 or are added through an enclosed micro skid system into Mixer 2.

The raw materials and additives stored in bins B-1 and B-3 through B-14 are mixed together to form animal feed in two mixing systems. Both mixing systems are comprised of a mixing scale, a mixer, and a surge chamber that feeds a bucket elevator. The bucket elevators from each mixing system discharge the finished product to eight storage and load-out bins (B-15 to B-22). Finished product is loaded into trucks for direct delivery to the swine production barns.

In 2011, the PFFJ feed mill added one, 5,700 cubic foot divided commodity storage bin for the storage of dried DDG, a feed ingredient. The addition of this bin did not change the emissions of regulated air pollutants from the feed mill.

B. Control Devices

No add-on control devices are in use at PFFJ. The following emission controls are employed at PFFJ:

1. At the feed mill, when possible, emission units and material transfer points are sealed, resulting in the prevention of particulate from becoming airborne.

2. At the feed mill, when possible, fat/moisture is added to the feed rations to bind small particles together.

3. The haul roads at PFFJ have road speed limits to reduce PM emissions.

4. The haul roads at PFFJ are maintained (watered) to reduce PM emissions.

5. A 12-month rolling limit of 1,000,000 gallons of liquid propane, cumulative for all propane barn heaters at the facility.

6. A maximum gasoline throughput of 10,000 gallons per month.

III. LEARNING SITE EVALUATION

In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department is required to conduct an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

The Department did not identify any learning sites within two miles of this facility.

IV. COMPLIANCE HISTORY

A. Physical Inspections and Compliance Certification Review

During the five-year permit term that PFFJ operated under Permit No. 65643, this facility had three (3) physical inspections and five (5) compliance certification reviews. No deficiencies were noted during these inspections or compliance certification report reviews.

B. Excess Emissions and Permit Deviation Report Review

During the five-year permit term that PFFJ operated under Permit No. 65643, one (1) deviation and no excess emissions has been reported.

1. Deviations

a. Inspection ID: 310816

This deviation reported that the annual compliance certification was submitted late due to that PFFJ was expecting a letter from ADEQ to indicate the compliance certification was due. An annual reminder was established in their "Smithfield Work Order System" to generate a reminder prior to the submission deadline to prevent this deviation from occurring for future compliance certifications. This deviation did not result in any enforcement actions.

V. EMISSIONS

The potential-to-emit (PTE) was calculated based on EPA's Compilation of Air Pollution Emission Factors (AP-42 Section 1.5 and Section 3.3), EPA Tier 3 engine emissions factors, and EPA WebFIRE emission factors database.

PFFJ is not a source listed in A.A.C. R18-2-101.23 (non-categorical source) so the PTE only includes non-fugitive emissions. The facility has a potential-to-emit (PTE) more than the significant thresholds of NO_X. The facility's PTE is provided in Table 1 below. The emissions changes from the last permit renewal are due to the change of the way to calculate the PTE, and not due to any physical changes or changes in operations.

Table 1: Potential to Emit (tpy)

Pollutant	Emissions from LTF # 65643	Change in Emissions	Emissions	Permitting Exemption Threshold	Significant Thresholds	Minor NSR Triggered?
NO_X	80.24	– 0.82	79.42	20	40	No
PM_{10}	8.99	– 3.68	5.31	7.5	15	No
$PM_{2.5}$	8.99	– 3.68	5.31	5	10	No
CO	28.16	– 0.08	28.08	50	100	No
SO_2	8.8	0	8.80	20	40	No
VOC	10.62	0.52	11.14	20	40	No
HAPs	0.18	– 0.02	0.16	N/A	10 (single)/ 25 (combined)	N/A

VI. MINOR NEW SOURCE REVIEW (NSR)

Minor new source review is required if the emissions of any physical change or change in the method of an operation of an emission unit or stationary source that results in an increase in emissions of any regulated minor NSR pollutant by an amount equal to or greater than the permitting exemption threshold (PET). As shown in Table 1 above, the emission increases resulting from this renewal permit are all below the permitting exemption thresholds, so minor NSR is not triggered at this time.

VII. TITLE V PROGRAM AND MAJOR NEW SOURCE REVIEW

In December 2021, ADEQ issued a Significant Permit Revision (SPR) No. 90637 to incorporate the facility wide emissions from the proposed Align RNG Arizona - Snowflake, LLC (Align) renewable natural gas (RNG) to be constructed and collocated with PFFJ. In the SPR No. 90637, PFFJ is required to evaluate all changes at the collocated Align facility and apply for any necessary permit revisions. PFFJ is also required to consider the emissions from both PFFJ and Align for major source, major new source review (NSR), and PSD applicability for future permitting actions or air dispersion modeling. For this renewal permit, the PTE for PFFJ and Align is provided in Table 2 below:

Table 2: PTE (tpy) for PFFJ and Align

Pollutant	PFFJ	Align	PFFJ and Align	Title V Thresholds	Major NSR Thresholds
NO_X	79.42	6.41	85.82	100	250
PM_{10}	5.31	0.20	5.51	100	250
$PM_{2.5}$	5.31	0.20	5.51	100	250
CO	28.14	2.95	31.09	100	250
SO_2	8.80	77.26	86.05	100	250
VOC	11.14	0.21	11.35	100	250
H_2S	0	0.84	0.84	100	250
HAPs	0.16	0.03	0.18	25 (combined)	N/A

A facility is subject to Title V program if this facility has a PTE equal to or greater than 100 tpy of any air pollutant subject to regulation. Major new source review is required if a facility has a PTE equal to or greater than 250 tpy of any regulated NSR pollutant if it is a non-categorical source. For both programs, fugitive emissions are not considered if the facility is a non-categorical source. As shown in Table 2, the PTE from PFFJ or the total PTE from PFFJ and Align is both below the Title V thresholds and major new source review thresholds. Therefore, PFFJ is not subject to Title V or major new source review program; or if PFFJ and Align together is considered to be a single source, this source does not trigger Title V or major new source review.

VIII. VOLUNTARILY ACCEPTED EMISSION LIMITATIONS AND STANDARDS

The permit contains the following voluntary emission limitations and standards:

A. Heaters

The facility has accepted a voluntary throughput limit of 1,000,000 gallons of liquid propane in any rolling 12-month period, cumulative for all heaters at the facility to avoid triggering major new source review. This limit was incorporated into the Significant Permit Revision No. 47339 issued in 2010.

B. Gasoline Storage Tanks at Gasoline Dispensing Facilities

The facility has voluntarily accepted to limit the monthly gasoline throughput to less than 10,000 gallons. This limit was incorporated into this renewal permit.

IX. APPLICABLE REGULATIONS

Table 3 identifies applicable regulations and verification as to why that standard applies. The table also contains a discussion of any regulations the emission unit is exempt from.

Table 3: Applicable Regulations

Unit & year	Control Device	Rule	Discussion
Feed Mill and Concentrated Animal Feeding Operation	None	A.A.C. R18-2-730	Standards of Performance for Unclassified Sources is applicable to the Feed Mill and Concentrated Animal Feeding Operation.
		National Emission Standards for Hazardous Air Pollutants (NESHAP) for Prepared feed Manufacturing, 40 CFR 63, Subpart DDDDDDD	NESHAP Subpart DDDDDDD is not applicable since PFFJ prepares feed only for consumption at its facility with no feed exported from the facility, and is not considered a prepared feed manufacturing facility per 40 CFR 63.11627.
Internal Combustion Engines (ICEs)	None	A.A.C. R18-2-719	ICEs manufactured in the year 1992 are subject to A.A.C. R18-2-719 (Standards of Performance for the Existing Stationary Rotating Machinery).
		New Source Performance Standards (NSPS) Subpart IIII	ICEs manufactured in the year 2006 are subject to NSPS Subpart IIII.
		National Emission Standards for Hazardous Air Pollutants (NESHAP), Subpart ZZZZ	NESHAP Subpart ZZZZ is applicable to all the ICEs.
Heaters	None	A.A.C. R18-2-730	Standards of Performance for Unclassified Sources is applicable to the heaters.
Gasoline Storage Tanks, Gasoline Dispensing Facility (GDF)	None	A.A.C. R18-2-710	This standard applies to all petroleum liquid storage tanks.
		40 CFR Part 63 Subpart CCCCCC	This is applicable to Gasoline Dispensing Facilities.

Unit & year	Control Device	Rule	Discussion
Fugitive dust sources	Water Trucks, Dust Suppressants	A.A.C. R18-2 Article 6 A.A.C. R18-2-702	These standards are applicable to all fugitive dust sources at the facility.
Abrasive Blasting	Wet blasting; Dust collecting equipment; Other approved methods	A.A.C. R-18-2-702 A.A.C. R-18-2-726	These standards are applicable to any abrasive blasting operation.
Spray Painting	Enclosures	A.A.C. R18-2-702 A.A.C. R-18-2-727	These standards are applicable to any spray painting operation.
Demolition/renovation Operations	N/A	A.A.C. R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.

X. PREVIOUS PERMIT REVISIONS AND CONDITIONS

A. Previous Permit Revisions

Table 4 provides a description of the permit revisions made to Permit No. 65643 during the previous permit term.

Table 4: Permit Revisions to Permit No. 65643

Permit Revision No.	Permit Revision Type	Brief Description
90637	Significant Revision	This revision incorporated the facility wide emissions from the Align RNG Arizona - Snowflake, LLC (Align) renewable natural gas (RNG) to be constructed and collocated with PFFJ.

B. Changes to Current Renewal

Table 5 addresses the changes made to the sections and conditions from Permit No. 65643:

Table 5: Previous Permit Conditions

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "A"		X		General Provisions: Revised to represent the most recent template language
Att. "B" Section I		X		Facility Wide Requirements: Revised to represent the most recent template language

Section No.	Determination			Comments
	Added	Revised	Deleted	
Att. "B" Section I.C.1	X			Reporting Requirements: Added permit conditions, and deviations from these conditions need to be promptly reported in accordance with Condition XII.B.2 of Attachment "A".
Att. "B" Section II.B.1		X		Feed Mill and Concentrated Animal Feeding Operation Requirements – Particulate Matter (PM) Emission Limitations/Standards: Revised to reflect most recent AAC language.
Att. "B" Section III		X		Internal Combustion Engines: Revised to reflect most recent NSPS Subpart IIII and NESHAP Subpart ZZZZ language.
Att. "B" Section VI		X		Fugitive Dust Requirements: Revised to represent the most recent template language
Att. "B" Section VII			X	Mobile Source Requirements: Deleted.
Att. "B" Section VIII		X		Other Periodic Activities: Revised to represent the most recent template language
Att. "C"		X		Odor and Dust Control Plans: Revised to reflect the most recent version from PFFJ.
Att. "D"		X		Equipment List: Revised to reflect the most recent equipment operating at the facility and to include equipment information provided.

XI. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 6 contains an inclusive but not an exhaustive list of the monitoring, recordkeeping and reporting requirements prescribed by the air quality permit. The table below is intended to provide insight to the public for how the Permittee is required to demonstrate compliance with the emission limits in the permit. Records are required be kept for a minimum of 5 years as outlined in Section XIII of Attachment "A" of the permit.

Table 6: Permit No. 92956

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Feed Mill and Concentrated Animal Feeding Operation	PM	For process sources with a process weight rate ≤ 60,000 lbs/hr (30 tons/hr): $E = 4.10P^{0.67}$ For process weight rate > 60,000 lbs/hr (30 tons/hr): $E = 55.0P^{0.11} - 40$ E = the maximum allowable particulate emissions rate in pounds-mass per hour; P = the process weight rate in tons-mass per hour.	None	None	None
	Opacity	20%	Conduct monthly survey of visible emissions	Keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation shows a Method 9 opacity	None

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
				reading in excess of the standard, initiate appropriate corrective action to reduce the opacity below the standard and keep a record of the corrective action performed.	
ICEs (Subject to A.A.C. R18-2-719)	PM	$E = 1.02Q^{0.769}$ $E =$ the maximum allowable particulate emissions rate in pounds-mass per hour; $Q =$ the heat input in MMBtu per hour.	None	Maintain a record of the daily lower heating value of the fuel fired in the ICEs.	None
	Opacity	40%	Conduct monthly survey of visible emissions.		None
	SO_2	1.0 lb/MMBtu	None	Keep records of fuel supplier certification	None
ICEs (Subject to NSPS Subpart IIII)	PM	0.40 grams/hp-hr	Conduct performance tests according to 40 CFR 60.4212	Keep records of performance test results, engine manufacturer data, control device vendor	None
	NO_x	6.9 grams/hp-hr			
	CO	8.5 grams/hp-hr			

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
	HCs	1.0 grams/hp-hr		data, fuel supplier specifications, and a copy of engine certifications.	
ICEs (NESHAP Subpart ZZZZ, applicable to all engines)	None	None	None	Keep records of the maintenance conducted and oil analysis results (if any)	Submit all reports required with the annual compliance certification
Heaters	PM	For process sources with a process weight rate $\leq$ 30 tons/hr: $E = 4.10P^{0.67}$ For process weight rate $>$ 30 tons/hr: $E = 55.0P^{0.11} - 40$ E = the maximum allowable particulate emissions rate in pounds-mass per hour; P = the process weight rate in tons-mass per hour.	Each month, calculate and record the 12-month rolling total of propane used to show compliance with Condition IV.C.1.b.	Maintain a record of all heaters at the facility, keep records of fuel supplier certifications, and make the records available to ADEQ upon request.	None
Gasoline Storage and Dispensing	Opacity	20%	None	Maintain a file of the typical Reid vapor pressure of gasoline stored and of dates of storage. If the gasoline is stored in a storage	None

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
				vessel other than one equipped with a vapor recovery system or its equivalent and the true vapor pressure is > 470 mm Hg (9.1 psia), record the average monthly temperature, and true vapor pressure of gasoline at such temperature.	
Fugitive Dust	PM	40% Opacity	A Method 9 observer is required to conduct a monthly survey of visible emissions.	Record of the dates and types of dust control measures employed, and if applicable, the results of any Method 9 observations, and any corrective action taken to lower the opacity of any excess emissions.	None
Abrasive Blasting	PM	20% Opacity	None	Record the date, duration and pollution control measures of any abrasive blasting project.	None
Spray Painting	VOC	20% Opacity	None	Maintain records of the date, duration, quantity of paint used, any applicable MSDS, and	None

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
		Control 96% of the overspray		pollution control measures of any spray painting project.	
Demolition/ Renovation	Asbestos	None	None	Maintain records of all asbestos related demolition or renovation projects including the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents	None

XII. ENVIRONMENTAL JUSTICE ANALYSIS

The United States Environmental Protection Agency (EPA) defines Environmental Justice (EJ) to include the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income. The goal of evaluating EJ in permitting is to provide an opportunity for meaningful participation in the permitting process for overburdened populations or communities to allow for meaningful participation in the permitting process. Overburdened is used to describe the minority, low-income, tribal and indigenous populations or communities that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards. This renewal permit has emission increases significantly below the permitting exemption thresholds and will not result in any additional impacts from the time of the initial permitting of the operation.

XIII. AMBIENT AIR IMPACT ANALYSIS

The emission increases resulting from this renewal permit are significantly below the permitting exemption thresholds, therefore an ambient air impact analysis is not required for this renewal permit.

XIV. LIST OF ABBREVIATIONS

A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
BACT ..... Best Available Control Technology
CFR ..... Code of Federal Regulations
CO ..... Carbon Monoxide
DDG ..... Dried Distillers Grains
EJ ..... Environmental Justice
EPA ..... Environmental Protection Agency
GDF ..... Gasoline Dispensing Facility
HAPs ..... Hazardous Air Pollutants
HCs ..... Hydrocarbons
hp ..... Horsepower
hr ..... Hour
ICE ..... Internal Combustion Engine
lbs ..... Pounds
MMBtu ..... Metric Million British Thermal Unit
MSDS ..... Material Safety Data Sheet
NESHAP ..... National Emission Standards for Hazardous Air Pollutants
NO_X ..... Nitrogen Oxides
NSPS ..... New Source Performance Standards
NSR ..... New Source Review
PET ..... Permitting Exemption Threshold
PM ..... Particulate Matter
PM_{10} ..... Particulate Matter no larger than 10 µm nominal aerodynamic diameter
$PM_{2.5}$ ..... Particulate Matter no larger than 2.5 µm nominal aerodynamic diameter
PSD ..... Prevention of Significant Deterioration
psia ..... Pounds per square Inch (absolute)
PTE ..... Potential to Emit
SBM ..... Soybean meal

SO_2 ..... Sulfur Dioxide Significant Impact Levels
SPR ..... Significant Permit Revision
TPY ..... Tons per Year
VOC ..... Volatile Organic Compound
yr ..... Year