

**BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

IN THE MATTER OF:)
) PETITION FOR OBJECTION
The Clean Air Act Title V)
Renewal Operating Permit) RENEWAL PERMIT #89460
For the Salt River Project)
Coronado Generating Station)
Apache County, Arizona)

**PETITION FOR OBJECTION TO THE TITLE V RENEWAL PERMIT
FOR SALT RIVER PROJECT’S CORONADO GENERATING
STATION PROPOSED FOR ISSUANCE ON SEPTEMBER 28, 2021
AND FINALIZED ON DECEMBER 1, 2021**

Pursuant to section 505(b)(2) of the Clean Air Act, 42 U.S.C. § 7661d(b)(2), and 40 C.F.R. § 70.8(d), Sierra Club hereby petitions the Administrator of the United States Environmental Protection Agency (“EPA”) to object to the Title V Renewal Operating Permit proposed for issuance by the State of Arizona Department of Environmental Quality (“ADEQ”) for Salt River Project’s (“SRP”) Coronado Generating Station (“CGS”) on September 28, 2021 and issued as final on December 1, 2021 (Renewal Permit #89460 (“Permit”)).¹ Sierra Club described the deficiencies in the draft Permit in detailed written comments filed with ADEQ on October 27, 2021,² and also submitted comments on SRP’s proposed “SCR Split Project” on March 3, 2020 prior to the draft Permit.³

One of the requirements of the 2021 Title V renewal permit for CGS is that SRP must install and operate selective catalytic reduction (“SCR”) on Unit 1 of CGS no later than December 31, 2025 or it must shutdown Unit 1 by that

¹ ADEQ Title V Class I Air Quality Permit No. 89460, Exhibit 1 hereto.

² Sierra Club comment letter on draft Permit dated October 27, 2021, Exhibit 2 hereto.

³ Sierra Club letter of March 3, 2020, Exhibit 3 hereto (which was submitted with Sierra Club’s October 27, 2021 comment letter and is part of the permit record for this proceeding).

date.⁴ This requirement stems from the requirements of best available retrofit technology (“BART”) for NO_x under the Arizona regional haze state implementation plan (SIP).⁵ SRP previously obtained a prevention of significant deterioration (“PSD”) permit to install the SCR at CGS Unit 1 in 2016, and that PSD permit was required to because the addition of SCR was projected to result in significant emission increases of particulate matter (PM₁₀ and PM_{2.5}) and sulfuric acid mist (H₂SO₄).⁶

In late 2019, SRP proposed a novel plan to split the existing CGS Unit 2 SCR to remove NO_x from both CGS Unit 1 and CGS Unit 2 rather than to install a separate SCR system for CGS Unit 1.⁷ On March 3, 2020, Sierra Club submitted a letter to ADEQ raising concerns regarding whether the split SCR could result in increased NO_x emissions from Unit 2, whether the split SCR would be sufficient for both units to meet the applicable BART limits of the Arizona State Implementation Plan (SIP), and whether other pollutants might increase as a result of the split SCR, and Sierra Club requested that ADEQ evaluate certain issues with respect to SRP’s proposal to split the Unit 2 SCR.⁸ ADEQ responded to Sierra Club in a May 22, 2020 letter and stated, among other things, that it would not make a determination of whether any permit revision is required for the split SCR until after the split SCR project is finalized.⁹ In SRP’s application for its Title V renewal permit, the company provided detailed information on the Unit 2 SCR flue gas capacity and also on the flue gas flow rates of CGS Units 1 and 2 which makes clear that the Unit 2 SCR, if split to also cover Unit 1, would not be of sufficient capacity to handle

⁴ Exhibit 1 at p. 119.

⁵ See 82 Fed. Reg. 46,903 (Oct. 10, 2017); 40 C.F.R. § 52.120(d), (e).

⁶ See ADEQ, Coronado Generating Station Permit #64169 (As Amended by Significant Revision #63088 (Dec. 14, 2016)), (attached as Exhibit 8). See also, Exhibit 1 at 119; ADEQ, Technical Support Document of Application for Air Quality Significant Revision No. 63088 to Operating Permit No. 64169 at 1, 4 (Dec. 13, 2016) [hereinafter “TSD for Significant Revision No. 63088”] (attached as Exhibit 7 hereto). CGS’s Permit #64169 (As Amended by Significant Revision #63088) is incorporated into the EPA-approved Arizona State Implementation Plan (SIP) at 40 C.F.R. §52.120(d).

⁷ See, Exhibit 6 to Sierra Club’s October 27, 2021 comment letter.

⁸ Letter from Sandy Bahr, Sierra Club to Daniel Czecholinski, ADEQ (Mar. 3, 2020) (Exhibit 3).

⁹ Letter from Daniel Czecholinski, ADEQ to Sandy Bahr, Sierra Club (May 22, 2020) (Exhibit 5 hereto).

the flue gas flow of either CGS Unit 1 or Unit 2. Sierra Club submitted detailed comments explaining how an undersized SCR system at each CGS unit could adversely impact NO_x emission rates (potentially affecting each CGS unit's ability to meet the NO_x BART limits of the SIP) and could allow increased emissions of H₂SO₄, PM₁₀ and PM_{2.5}, which could allow the CGS units to violate applicable best available control technology (BACT) limits for these pollutants.¹⁰ Sierra Club also commented that a split SCR on each CGS unit would violate requirements of the Title V permit, the regional haze SIP, and the New Source Performance Standards (NSPS) to operate the SCR systems in accordance with technological limitations, manufacturer's specifications, and good engineering and maintenance practices for minimizing emissions.¹¹ Sierra Club thus requested that ADEQ “require in the context of this permit that the use of a Split SCR to meet the NO_x BART requirements must be submitted with specific plans and details as a significant Title V permit revision and must be approved before SRP can implement the project.”¹²

ADEQ essentially made a determination in the context of responding to Sierra Club's comments on the draft the Title V permit that no permit revision was necessary for the split SCR project.¹³ Specifically, ADEQ stated in its response to comments: “The hypothetical relocation of an SCR reactor from Unit 2 to Unit 1 could fulfill the requirement in Condition II.A.1. of Attachment ‘E’ to install SCR on Unit 1.”¹⁴

The basis for this Petition is that the Permit fails to mandate permanent retirement and closure of Unit 1 by December 31, 2025—a date within the five-year term of the Permit. Alternatively, the Permit fails to require a significant permit revision in the event SRP implements a “SCR Split Project”—whereby SRP would employ the existing SCR system at Unit 2 to purportedly also address Round 1 regional haze requirements at Unit 1. Unfortunately, ADEQ refused to make the required revisions to the draft Permit as requested in Sierra

¹⁰ Sierra Club comment letter on draft Permit dated October 27, 2021 at pp. 7-14, Exhibit 2 hereto.

¹¹ *Id.* at pp. 3-4.

¹² Exhibit 2 at p. 15.

¹³ ADEQ Responsiveness Summary at 7, ADEQ Response to Comment 3 (Exhibit 4 to this petition).

¹⁴ *Id.*

Club’s written comment letters.¹⁵ ADEQ also did not address the substantive technical comments that Sierra Club provided to demonstrate that the split SCR project would require a significant permit revision.

Petition Claim 1:

The Administrator Must Object to the CGS Permit Because Retaining the SCR Split Option (“Operating Strategy 1” (“OS-1”)) Is Not in Compliance with the Requirements of Permit #64169, Permit #89460, or the SIP.

Rationale provided by ADEQ as to Why the SCR Split Option Is In Compliance With The SIP and the Clean Air Act: ADEQ responded that “the deadline [for SRP to send notification to ADEQ] ... has not yet passed.”¹⁶

Relevant Conditions in the 2021 Permit: Permit #89460 retains Operating Strategy 1 that allows SRP the option of “Installation and operation of SCR on Unit 1 no later than December 31, 2025.”¹⁷ The previous Title V Permit #64169 issued December 12, 2016 states, “[a]uthority to construct the SCR system on Unit 1 shall terminate if the Permittee does not commence construction within 18 months after of issuance of this proposed final Class I Permit or if, during construction, the Permittee suspends work for more than 18 months.”¹⁸ This same provision is carried forward in Permit #89460.¹⁹ Similar language is also contained in the SIP.²⁰

¹⁵ ADEQ Responsiveness Summary to Public Comments and Questions, dated December 1, 2021, Exhibit 4 hereto. *See also*, letter from Daniel Czecholinski, ADEQ to Sandy Bahr, Sierra Club dated May 22, 2020, Exhibit 5 hereto.

¹⁶ Exhibit 4, p. 6 (ADEQ Responsiveness Summary). ADEQ made this statement in its Responsiveness Summary after the close of public comment. As such, this objection arose after the close of public comment and/or it was impracticable for Sierra Club to raise this objection during the public comment period. Nevertheless, as noted herein, Sierra Club raised this issue with reasonable specificity during the public comment period.

¹⁷ Exhibit 1, p. 119, Attachment E, ¶ II.A.1.

¹⁸ Exhibit 5, ADEQ Permit #64169, p. 105, Attachment E, ¶ II.C.4.

¹⁹ Exhibit 1, p. 120, Attachment E, ¶ II.C.4.

²⁰ A.C.C. R18-2-402-J.

Detailed Demonstration of Permit Deficiency

Sierra Club’s October 27, 2021 comment letter states, “[t]he 2016 permit stated that the authority to construct the SCR [at Unit 1] ‘shall terminate if [SRP] does not commence construction within 18 months after the date of issuance of [the 2016 permit] or if, during construction, [SRP] suspends work for more than 18 months.’”²¹ Sierra Club also commented “the Split SCR project would likely violate existing permit conditions applicable to CGS.”²²

In response, ADEQ acknowledged that Sierra Club was arguing that “[t]he ‘Split SCR Project’ is not allowed under either SRP’s current Air Quality Control Permit (Permit #64169 as revised by Minor Permit Revision #71352) or the Proposed Air Quality Control Renewal Permit #89460.”²³ ADEQ also stated “the deadline [for SRP to send notification to ADEQ] ... has not yet passed.”²⁴

As discussed further below, the date to commence construction of the SCR at Unit 1 has terminated by operation of law and therefore SRP’s only remaining option is Operating Strategy-2 (“OS-2”) which requires “Unit 1 shutdown no later than December 31, 2025.”²⁵

As noted above, Permit #64169 issued December 12, 2016 states, “[a]uthority to construct the SCR system on Unit 1 shall terminate if the Permittee does not commence construction within 18 months after of issuance of this proposed final Class I Permit or if, during construction, the Permittee suspends work for more than 18 months.”²⁶ Nearly identical language is contained in the Arizona SIP.²⁷ Pursuant to Permit #64169 and the Arizona SIP, SRP was required to commence construction of the Unit 1 SCR on or before June 12, 2018. SRP did not commence construction of the Unit 1 SCR on or before June 12, 2018. There is no evidence in the administrative record for Permit #89460 that a timely extension of this construction deadline was issued by ADEQ prior to June 12, 2018 and after following all required procedural requirements. The term “shall” in Permit #64169 and A.C.C. R18-2-402-J is

²¹ Exhibit 2, p. 1.

²² Exhibit 2, p. 3.

²³ Exhibit 4, p. 7 (ADEQ Responsiveness Summary).

²⁴ Exhibit 4, p. 6 (ADEQ Responsiveness Summary).

²⁵ Exhibit 2, p. 119, Attachment E, ¶II.A.2.

²⁶ Exhibit 8, ADEQ Permit #64169, p. 105, Attachment E, ¶ II.C.4.

²⁷ A.C.C. R18-2-402-J.

mandatory. As such, because SRP failed to commence construction of the Unit 1 SCR on or before June 12, 2018, its authority to do so terminated by operation of law on that date.

In summary, the Administrator must object to Permit #89460 and require removal of the language allowing Operating Strategy OS-1 at Unit 1 (SCR installation Option) in Attachment E of Permit #89460.²⁸ The language allowing Operating Strategy OS-1 in Permit #89460 is not in compliance with the requirements of the SIP (A.C.C. R18-2-402-J.) or Permit #64169.

Petition Claim 2:

In the Alternative to Claim 1, the Administrator Must Object to the CGS Permit #89460 Because It Fails to Impose Permitting Requirements for the “SCR Split” Operating Strategy and Thus Is Not in Compliance with the Clean Air Act and/or the SIP.

Rationale provided by ADEQ as to Why it Did Not Impose Permitting Requirements for the SCR Split Operating Strategy in Permit #89460: In its Responsiveness Summary, ADEQ admits that it “is aware that the Permittee has been considering a project wherein the two Selective Catalytic Reduction (SCR) reactors that currently control emissions from the Unit 2 boiler would be split such that one SCR reactor would treat emissions from the Unit 1 Boiler and the other SCR reactor would treat emissions from the Unit 2 Boiler (i.e., what is generally being referred to as the ‘Split SCR Project’).”²⁹ Despite this fact and without much further explanation, ADEQ provided the following rationale for its decision not to impose permitting requirements of the SCR Split Operating Strategy:

- “ADEQ has been given to understand that the SCR may currently have excess capacity.”³⁰
- “nor does ADEQ believe emissions would necessarily increase” as a result of implementation of the “Split SCR Project.”³¹
- “It is far from certain that the Permittee would be unable to meet existing permit conditions that require pollution control equipment, including SCR, to be operated consistent with technological

²⁸ Exhibit 1, p. 120, Attachment E, ¶II.C.4.

²⁹ Exhibit 4, p. 6 (Responsiveness Summary).

³⁰ Exhibit 4, p. 9 (Responsiveness Summary).

³¹ Exhibit 4, p. 7 (Responsiveness Summary).

limitations, manufacturer’s specifications, and good engineering practices for minimizing emissions to the extent practicable.”³²

- “ADEQ does not believe the ‘Split SCR Project’ is a modification” under A.A.C. R18-2-101(80).³³

Relevant Conditions in the 2021 Permit: It is undisputed that ADEQ did not include any permitting requirements for the installation of the Split SCR Operating Strategy in Permit #89460. Thus, there are no relevant permit conditions in Permit #89460.

Detailed Demonstration of Permit Deficiency

The PSD program requires “major modifications” to major stationary sources to obtain a PSD permit prior to construction.³⁴ A “major modification” is “any physical change in or change in method of operation of a major stationary source” that, *inter alia*, would result in a “significant emissions increase.”³⁵ SRP admits that “CGS is an existing major source under the PSD and Title V programs.”³⁶ The proposed addition of an SCR to CGS Unit 1 required a PSD permit because of the projected increases in PM₁₀, PM_{2.5}, and sulfuric acid mist (H₂SO₄).³⁷

SRP’s proposed SCR Split Project is technically and legally different from the project permitted by ADEQ in 2016. Despite previously requiring a preconstruction PSD permit for the 2016 proposal to install a separate SCR on Unit 1, on May 22, 2020 ADEQ stated that “[a]t the time the [SCR Split] project is finalized, ADEQ will review the documents and make a final determination on which, if any, permit revisions are required.”³⁸ It is important to note that Permit #89460 does not contain an enforceable cap, reduction of

³² Exhibit 4, p. 9 (Responsiveness Summary).

³³ Exhibit 4, p. 7 (Responsiveness Summary).

³⁴ 42 U.S.C. § 7475; 40 C.F.R. 52.21; *In re: Tucson Electric Power*, PSD Appeal No. 18-02, Order Denying Review at p. 678-79 (EAB 12/3/2018).

³⁵ *Id.*

³⁶ Exhibit 6, p. 1-2 (SRP Title V Permit Application).

³⁷ *See*, Exhibit 2). *See also*, Exhibit 7. CGS’s Permit #64169 (As Amended by Significant Revision #63088) is incorporated into the EPA-approved Arizona State Implementation Plan (SIP) at 40 C.F.R. §52.120(d).

³⁸ Exhibit 5, p. 4.

emissions from other units, or otherwise prevent an increase in emissions that would avoid triggering PSD requirements.³⁹

ADEQ's position is legally unsupported because PSD permitting requirements mandate that a permit be issued *before* construction is commenced on a project like the SCR Split.⁴⁰ ADEQ's position is also arbitrary and capricious because it is inconsistent with its 2016 position requiring a PSD permit for installation of SCR at Unit 1. ADEQ's failure to impose preconstruction permitting requirements on the SCR Split Project is inconsistent with the Clean Air Act, the SIP, and its prior actions.

In addition, ADEQ's determination that the split SCR project could "fulfill the requirement in Condition II.A.1. of Attachment "E" to install SCR on Unit 1"⁴¹ does not ensure compliance with the requirements of Ariz. Admin. Code § R18-2-317(A) or (B). Arizona Rule R18-2-317(A) allows a permittee to make changes at the permitted source that contravene an express permit term (such as to "install a SCR system on Unit 1" or the requirement to "continuously operate each NOx control...consistent with technological limitations, manufacturer's specifications, and good engineering and maintenance practices for minimizing emissions") without a permit revision **only if** all of the following apply:

1. The changes are not modifications under any provision of Title I of the Act or under A.R.S. § 49-401.01(24);
2. The changes do not exceed the emissions allowable under the permit, whether expressed therein as a rate of emissions or in terms of total emissions;
3. The changes do not violate any applicable requirements or trigger any additional applicable requirements;
4. The changes satisfy all requirements for a minor permit revision under R18-2-319(A);
5. The changes do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements; and

³⁹ Unlike in *In re: Tucson Electric Power*, PSD Appeal No. 18-02, Order Denying Review (EAB 12/3/2018) where the permit contained an emissions cap and also reduced emissions by retirement of other units.

⁴⁰ A.A.C. § R18-2-302(A); A.A.C. §§ R18-2-402(A), (B), (C).

⁴¹ *Id.*

6. The changes do not constitute a minor NSR modification.

In addition, Ariz. Admin. Code § R18-2-317(B) only allows the substitution of an item of pollution control equipment to be made without a permit revision if the substitution is “for an identical or substantially similar item of ...pollution control equipment” and if the substitution meets the requirements of subsections R18-2-317(A)(1) – (6) (listed above), among other requirements.

These limitations on changes allowed without a significant permit revision are applicable requirements of Arizona’s Title V permitting program and are also applicable requirements under the EPA-approved Arizona SIP.⁴²

ADEQ’s determination that the split SCR project could “fulfill the requirement in Condition II.A.1. of Attachment “E” to install SCR on Unit 1” would allow changes that contravene express permit terms and the substitution of an item of pollution control equipment with an item that is not identical or substantially similar and that would not meet the criteria of Ariz. Admin. Code § R18-2-317(A)(1) – (6). ADEQ’s failure to require a significant permit revision for the split SCR project does not ensure compliance with the applicable requirements of the Arizona Title V permitting rules and the SIP.

a) There is no support in the administrative record for ADEQ’s finding that “the SCR may currently have excess capacity”⁴³ to implement the Split SCR Project Operating Strategy.⁴⁴

Under 40 C.F.R. §70.12(a)(2), this petition may raise a claim that “the permit, *permit record*, or permit process is not in compliance with applicable requirements or requirements under this part” (emphasis added). Under 40 C.F.R. §70.13, the administrative record includes, “...all materials available to the permitting authority that are relevant to the permitting decision....”

⁴² 40 C.F.R. §52.120(c).

⁴³ This response argument by ADEQ was raised for the first time in the December 1, 2021 Responsiveness Summary and thus the ground for this objection arose after the public comment period and/or was impracticable to raise during the public comment period. 42 U.S.C. § 7661d.(b)(2).

⁴⁴ Exhibit 4, p. 9 (Responsiveness Summary).

In its Responsiveness Summary, ADEQ makes the finding that it “has been given to understand that the SCR may currently have excess capacity” but fails to specifically refer to any document in the administrative record supporting this statement. Based on our review of the permit record provided by ADEQ, there is no evidence supporting ADEQ’s statement that “the SCR may currently have excess capacity” and/or that any such excess capacity is sufficient to implement the Split SCR Operating Strategy consistent with the terms of the Permit. In fact, SRP’s 2021 Title V Renewal Application provided the information on the flue gas volume capacities of the existing SCR at CGS Unit 2 as well as the gas volumes for each Coronado unit’s hot side electrostatic precipitators (“ESPs”), and this information shows that the Unit 2 SCR is not sufficiently sized to handle the flue gas volume of both Coronado units.⁴⁵ Since there is no supporting evidence and, in fact there is contradictory evidence in the permit record, ADEQ’s finding that the “SCR may currently have excess capacity” to implement the Split SCR Project is arbitrary and capricious. Further, the permit record does not support ADEQ’s finding that the SCR may currently have excess capacity to implement the Split SCR Project “in compliance with applicable requirements...” as mandated by 40 C.F.R. §70.12(a)(2).

b) Emissions would increase as a result of implementation of the Split SCR Project.

In its Responsiveness Summary, ADEQ states “nor does ADEQ believe emissions would necessarily increase” as a result of implementation of the “Split SCR Project.”⁴⁶ For the reasons stated below, ADEQ’s finding is arbitrary, capricious, unsupported by the permit record, and inconsistent with the Clean Air Act and SIP.

As discussed above, the split SCR will not have sufficient capacity for either CGS Unit 1’s or Unit 2’s flue gas volume, negatively impacting emissions, including NO_x emissions from Unit 2 with its existing complete SCR system and PM₁₀, PM_{2.5}, and H₂SO₄ from both units. Sierra Club’s October 27, 2021 comment letter proves such an increase in emissions by stating the following:

⁴⁵ May 2021 Permit Renewal Application at 10-2, 10-3 (Exhibit 6).

⁴⁶ Exhibit 4, p. 7 (Responsiveness Summary).

“By treating the entire flue gas volume of both units in the Unit 2 SCR reactors, formation of increased quantities of sulfur trioxide (SO₃) through catalytic oxidation of SO₂ can be expected due to the increase in the amount of available SO₂. Reaction of SO₃ with moisture in the flue gas and introduced in the FGD quench and absorber produces H₂SO₄ mist which is not collected in the FGD with any degree of efficiency. H₂SO₄ mist contributes to PM₁₀ and PM_{2.5} emissions as well. ADEQ acknowledged the effect of SCR operation on Unit 1 in the “Technical Review and Evaluation of Application for Air Quality Significant Revision no. 63088 to Operating Permit no.52639.” ADEQ predicted an annual increase of 86.8 tons/yr in H₂SO₄, PM₁₀ and PM_{2.5} emissions would result from the installation of the SCR on Unit 1.⁴⁷

If SRP elected to use an additional catalyst bed layer (assuming a spare bed is available in the existing SCR reactors) to accommodate the increased NO_x mass flow, an increase in SO₃ formation can also be expected from catalytic oxidation because of the increase in catalyst sites. From the EPA report “*Identification of (and Responses to) Potential Effects of SCR and Wet Scrubbers on Submicron Particulate Emissions and Plume Characteristics*”:

As a result, a particular charge of catalyst will exhibit a near constant SO₂ oxidation rate over its entire life in the reactor and at a particular operating condition. Only when additional catalyst is added will a step change in SO₂ conversion be noted. Consequently, assuming that all catalyst formulations are identical, SO₂ conversion will be a function of total installed catalyst volume only, irrespective of the age of the catalyst present. For example, an SCR system having a two-bed initial catalyst charge that has a 1% SO₂ conversion rate will experience a 50% increase in SO₂ conversion with the addition of the third catalyst bed, resulting in a SO₂ conversion rate of 1.5%. This conversion rate will then be constant over the remaining life of the installation irrespective of catalyst replacements (assuming that all catalyst formulations are identical and the total catalyst volume remains constant).⁴⁸

⁴⁷ Exhibit 7, TSD for Significant Revision No. 63088 at 4 tbl.2.

⁴⁸ *William Farthing et al., EPA, Identification of (and Responses to) Potential Effects of SCR and Wet Scrubbers on Submicron Particulate Emissions and Plume Characteristics* at 37-38 (Aug. 2004), available at

It can therefore be reasonably concluded that an increase in the amount of SO₃ in the flue gas would result in a corresponding increase in the formation of H₂SO₄ mist. In addition, ammonia slip can react with the SO₃ or H₂SO₄ to form ammonium sulfate and/or ammonium bisulfate which are particulates. Thus, the split SCR system is very likely to result in an increase in H₂SO₄ and PM₁₀ and PM_{2.5} emissions from both CGS Unit 1 and Unit 2. Given that Unit 1 has to achieve a lower NO_x emission rate of 0.065 lb/MMBtu (compared to the 0.08 lb/MMBtu NO_x BART emission limit that applies to CGS Unit 2), Unit 1 may experience a greater increase in H₂SO₄ and PM₁₀/PM_{2.5} emissions, which could possibly allow the units to violate the BACT limits on these pollutants.”

Sierra Club’s October 27, 2021 comment letter also shows that there could be a NO_x emission increase from CGS Unit 2 at loads higher than 55% of full load when it operates with a split SCR compared to its current operation with a full SCR system, due to the split SCR not having capacity for the full load. As Sierra Club explained, the split SCR system would result in a significant increase in the volumetric flue gas flow through each SCR reactor at full capacity (180% greater than the reactors’ flow capacities) which would reduce residence time in the SCR. Specifically, Sierra Club stated: “Because the volumetric gas flow to each SCR reactor will double under the proposed Split SCR Project with each CGS unit operating at full load, residence time will be reduced to 50% of residence time occurring under the current operating scenario with only the Unit 2 gas flow treated by the two SCR reactors. Such a reduction in residence time under the Split SCR project will severely curtail the removal efficiency of the SCR reactors.”⁴⁹ Sierra Club also stated “[t]he reduction in residence time will also reduce the SCR reactor’s capacity to remove NO_x on a mass transfer basis so that a lower percentage of the lb/hr of NO_x entering the reactors will be removed by each reactor because the increased gas velocity will not allow for complete conversion of NO_x to N₂ and H₂O before exiting the reactors.”⁵⁰ Sierra Club’s comments show that, at full load and assuming no increases in ammonia injection or using a spare catalyst layer, a split SCR at Unit 2 would allow for a NO_x emission rate of 944 pounds per hour, compared to a NO_x emission rate at full load with the current

https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NRMRL&dirEntryId=87683.

⁴⁹ Sierra Club’s comment letter to ADEQ at 8, Exhibit 2.

⁵⁰ *Id.*

complete SCR system of 374 pounds per hour.⁵¹ In addition, to show that NOx emissions would likely increase using a split SCR system, Sierra Club provided an analysis using EPA's SCR cost spreadsheet to calculate existing SCR catalyst volume (including a spare layer of catalyst) of the complete Unit 2 SCR and demonstrated that the split SCR (even with use of the spare catalyst layer) would only provide 67% of the catalyst volume needed to achieve the NOx emission limit of 0.080 pounds per million British Thermal Units (lb/MMBtu).⁵² ADEQ's response to these comments was that the 0.080 lb/MMBtu NOx BART limit will still apply,⁵³ but ADEQ ignored that the NOx emissions from CGS Unit 2 could increase as a result of this modification of the unit's NOx pollution controls. CGS Unit 2 has been achieving an annual average NOx emission rate of 0.05 to 0.06 lb/MMBtu in 2015 to 2019 after installation of the SCR.⁵⁴ If CGS Unit 2's NOx emission rate increased from 0.06 lb/MMBtu to 0.08 lb/MMBtu, that could increase annual NOx emissions by 33%. According to NOx emissions data in EPA's Air Markets Program Database for CGS Unit 2, the unit had average NOx emissions over 2019 to 2020 of 473 tons per year.⁵⁵ If emissions increased by 33%, that would result in a 156 ton per year NOx emission increase over 2019-2020 average NOx emissions from the unit. In fact, if the NOx emission rate from the split SCR at CGS Unit 2 just increased by 9% from 0.06 lb/MMBtu to 0.065 lb/MMBtu, it would result in a 43 ton per year increase over the average of 2019 to 2020 NOx emissions, which exceeds the PSD major modification significance level.⁵⁶

⁵¹ *Id.* at 9.

⁵² *Id.* at 10-11. This is based on Sierra Club's calculation of 16,557.07 cubic feet of catalyst in the current CGS Unit 2, compared to the amount of catalyst that would be available for Unit 2 with a split SCR (assuming the SCR's spare layer of catalyst is used) which would be 11,038.04 cubic feet (or 67% of the 16,557.07 cubic feet needed for full load operation to meet Unit 2's 0.080 lb/MMBtu NOx emission limit).

⁵³ Exhibit 4, pp. 7-8 (Responsiveness Summary).

⁵⁴ See Sierra Club's March 3, 2020 letter to ADEQ at 2, (Exhibit 3 to this petition).

⁵⁵ See <https://ampd.epa.gov/ampd/>. CGS Unit 2's NOx emissions were reported as 0.06 lb/MMBtu and 434 tons per year in 2019 and 0.06 lb/MMBtu and 512 tons per year in 2020, averaging to 0.06 lb/MMBtu and 473 tons per year.

⁵⁶ See 40 C.F.R. §52.21(b)(23)(i).

The above comments based on the analyses presented in Sierra Club's October 27, 2021 comment letter reasonably establish that emissions of regulated pollutants will increase as a result of implementation of the SCR Split Project. Despite this record evidence, ADEQ never conducted, or required SRP to conduct, an emissions analysis to support its finding that emissions would *not* increase.

c) Implementation of the Split SCR Project would result in the air pollution control equipment being operated in a manner inconsistent with technological limitations, manufacturer's specifications, and good engineering practices.

Condition II(E)(2) of the CGS Permit states "[t]he Permittee shall continuously operate each NO_x control at all times the unit it serves is in operation consistent with technological limitations, manufacturer's specifications, and good engineering and maintenance practices for minimizing emissions to the extent practicable."⁵⁷ In addition, Condition II(E)(1) of Attachment "E" of the CGS Permit states, if Operating Scenario 1 is selected, "the Permittee shall install a SCR system on Unit 1 no later than December 31, 2025. At all times during the operation of Unit 1 after the SCR commences operation, the Permittee shall operate the SCR in a manner consistent with technological limitations, manufacturer's specifications, and good engineering and maintenance practices for minimizing emissions to the extent practicable."⁵⁸ This requirement also applies under the EPA-approved Arizona SIP.⁵⁹

Further, 40 C.F.R. § 60.11(d) of the federal New Source Performance Standards requires:

At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information

⁵⁷ ADEQ Title V Class I Air Quality Permit No. 89460 at 38 (Exhibit 1).

⁵⁸ *Id.* at 122.

⁵⁹ Exhibit 8, Permit # 64169 (as amended by Significant Revision #63088) at 107-108 § II(E)(2)-(3). *See also* 40 C.F.R. § 51.120(d).

available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

Sierra Club's October 27, 2021 comment letter establishes that the Split SCR Project would result in operating the Unit 2 SCR in a manner inconsistent with its technological limitations, manufacturer's specifications, and good engineering practices for minimizing emissions. As discussed above and in great detail in Sierra Club's October 27, 2021 comment letter to ADEQ, information in SRP's 2021 Title V Renewal Application on the flue gas volume capacity of the existing SCR at CGS Unit 2 shows that the Unit 2 SCR is not sufficiently sized to handle the flue gas volume of both Coronado units.⁶⁰ Sierra Club's comments to ADEQ provide evidence that the use of an SCR reactor at each CGS unit that is not sufficiently sized for the full load flue gas flow will result in reduced flue gas residence time, insufficient space velocity, and inadequate catalyst volume needed to meet the NO_x emission limits applicable to each units with SCR.⁶¹ Operating the Unit 2 SCR as a split SCR with each CGS unit at full load would result in increased quantities of sulfur trioxide (SO₃) and resulting increase in H₂SO₄ emissions.⁶² Further, the split SCR will most likely require an increase in ammonia injection to account for the reduced flue gas residence time and lack of sufficient SCR catalyst volume, which will result in increased ammonia slip and allow for increased formation of ammonium sulfate and ammonium bisulfate which are particulate emissions.⁶³

ADEQ decided as part of this permit action that SRP could use a split SCR to meet the permit and SIP obligation to install an SCR system at CGS Unit 1,⁶⁴ and thus that SRP would be able to meet existing permit obligations. ADEQ's rationale for this finding appears to be that "[i]t is far from certain that the Permittee would be unable to meet existing permit conditions that require pollution control equipment, including SCR, to be operated consistent with technological limitations, manufacturer's specifications, and good engineering

⁶⁰ May 2021 Permit Renewal Application at 10-2, 10-3 (Exhibit 6). Sierra Club's Comment Letter to ADEQ at 6-7, Exhibit 2.

⁶¹ Sierra Club's Comment Letter to ADEQ at 6-7, Exhibit 2.

⁶² *Id.* at 11-12.

⁶³ *Id.* at 12, 14.

⁶⁴ *Id.* at p. 7.

practices for minimizing emissions to the extent practicable.”⁶⁵ Yet, ADEQ’s finding omitted the crux of the necessary analysis: whether there is certainty SRP *would*, in fact, meet its existing permit obligations. There is no basis in the permit record to support a finding that use of a split SCR at CGS Unit 1 or at CGS Unit 2 *would* comply with the permit and SIP requirements to operate air pollution controls in accordance with manufacturers’ specifications and good engineering and maintenance practices for minimizing emissions. To the contrary, the only record evidence on this issue is empirical evidence in SRP’s Title V permit application and highlighted in Sierra Club’s October 27, 2021 comment letter demonstrating that implementation of the Split SCR Project would be inconsistent with the Clean Air Act and SIP requirement to operate the Unit 1 SCR and the Unit 2 SCR consistent with technological limitations, manufacturer’s specifications, and good engineering practices for minimizing emissions found in Permit #89460, as well as in Permit #64169, the SIP, and the NSPS requirements.⁶⁶ Further, by providing a conclusory statement that missed the crux of the issue, ADEQ failed to respond to Sierra Club’s substantive comments on this matter.

In summary, Sierra Club has provided unrebutted factual evidence from SRP’s own Title V application proving that implementation of the Split SCR Project would be inconsistent with the Clean Air Act and SIP requirement to operate the CGS units’ SCRs consistent with technological limitations, manufacturer’s specifications, and good engineering practices for minimizing emissions found in both Permit #89460, as well as in the NSPS requirements.

d) There is no support in the administrative record for ADEQ’s finding that “ADEQ does not believe the ‘Split SCR Project’ is a modification” under A.A.C. R18-2-101(80).⁶⁷

In its Title V permit application, SRP claims “there are no physical changes or changes in method of operation being proposed as part of this permit action.”⁶⁸ This factual misrepresentation is repeated in ADEQ’s Technical Support Document (“TSD”) for Permit #89460 which states, “[t]here are no modifications at the facility associated with this permit renewal. Any increases

⁶⁵ Exhibit 4, p. 9 (Responsiveness Summary).

⁶⁶ Exhibit 1, p. 38 (Permit #89460), Exhibit 8, p. 31(Permit #61469). See also, 40 C.F.R. §§ 52.120(d) and 60.11(d).

⁶⁷ Exhibit 4, p. 7 (Responsiveness Summary).

⁶⁸ Exhibit 6, p. 1-2 (SRP permit application).

in the potential-to-emit associated with this renewal are due to changes in the calculation methodology rather than modifications at the facility.”⁶⁹ These factually incorrect statements ignore that SRP is proposing the SCR Split Project that must occur, if at all, within the 5-year permit term of this renewal Title V permit. Further, ADEQ contradicts SRP and itself by stating that ADEQ “is aware that the Permittee has been considering a project wherein the two Selective Catalytic Reduction (SCR) reactors that currently control emissions from the Unit 2 boiler would be split such that one SCR reactor would treat emissions from the Unit 1 Boiler and the other SCR reactor would treat emissions from the Unit 2 Boiler (i.e., what is generally being referred to as the ‘Split SCR Project’).”⁷⁰

In its Responsiveness Summary, ADEQ admits that it has not yet received a modification application from SRP to implement the Split SCR Project.⁷¹ Further, to date SRP “has not notified ADEQ whether an any increase in emissions [] may be associated with the ‘Split SCR Project.’”⁷² Accordingly, ADEQ has received no data or information from SRP regarding whether the Split SCR Project will result in an increase in emissions triggering “modification” requirements under the Arizona Administrative Code.

In contrast, as noted above in subparagraphs b and c, Sierra Club’s October 27, 2021 comment letter provides empirical evidence that emission increases will result from implementation of the SCR Split Project and/or that implementation will result in operation of the Unit 2 SCR inconsistent with technological limitations, manufacturer’s specifications, and good engineering practices.⁷³

Under 40 C.F.R. §70.12(a)(2), this petition may raise a claim that “the permit, *permit record*, or permit process is not in compliance with applicable requirements or requirements under this part” (emphasis added). Under 40 C.F.R. §70.13, the administrative record includes, “...all materials available to the permitting authority that are relevant to the permitting decision....”

⁶⁹ Exhibit 9, p. 12 (TSD for Permit #89460).

⁷⁰ Exhibit 4, p. 6 (Responsiveness Summary).

⁷¹ Exhibit 4, p. 6 (“ADEQ cannot make alterations to the proposed permit for a project that has not been...addressed in an application from the Permittee...”).

⁷² Exhibit 4, p. 7.

⁷³ Sierra Club’s Comment Letter to ADEQ, Exhibit 2.

There is no evidence in the administrative record for Permit #89460 supporting ADEQ's statement that "ADEQ does not believe the 'Split SCR Project' is a modification" under A.A.C. R18-2-101(80). Since there is no evidence in the permit record and/or administrative record, ADEQ's finding that it "does not believe the 'Split SCR Project is a modification" is arbitrary and capricious. Further, the permit record does not support ADEQ's finding that the 'Split SCR Project' is not a modification" under A.A.C. R18-2-101(80). There is no support in the permit record that implementation of the Split SCR Project would be "in compliance with applicable requirements..." as mandated by 40 C.F.R. §70.12(a)(2). Further, ADEQ did not respond to the significant comments provided by Sierra Club during the public comment period that the split SCR project would be a modification during this 5-year permit term because the SCR project could increase emissions of sulfuric acid mist, PM₁₀, and PM_{2.5} from both units and increase NO_x emissions at CGS Unit 2.

e) EPA Must Object to the Title V Permit for CSG.

In summary, we request that EPA object to ADEQ's CGS Title V permit because: (i) it fails to impose permitting requirements on the SCR Split Project; (ii) ADEQ's finding that the SCR Split Project would not require a permit revision is not supported by the record; and (iii) ADEQ failed to respond to our significant comments submitted during public comment in violation of 40 C.F.R. § 70.7(h)(6).

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EXHIBITS TO PETITION

1. Final Permit #89460
2. Sierra Club comment letter dated 10/27/2021.
3. Sierra Club letter dated 3/3/2020.
4. ASEQ responsiveness summary.
5. ADEQ Czecholinski letter dated 5/22/2020.
6. SRP Title V permit application.
7. TSD for significant permit revision #63088.
8. Permit #64169.
9. TSD for Permit #89460.

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