State of Utah

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Kimberly D. Shelley
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DIVISION OF AIR QUALITY
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Director

DAQP-049-21

June 16, 2021

Regina Harris
PacifiCorp
1407 West North Temple
Salt Lake City, Utah 84116

RE: PacifiCorp's Four Factor Analyses for the Hunter and Huntington Power Plants

Dear Ms. Harris:

We received your four factor analyses for the Hunter and Huntington Power Plants prepared for the second planning period of Utah's Regional Haze State Implementation Plan. Enclosed is an engineering review of each analysis outlining some issues we have identified for you to be aware of in preparation for our upcoming meeting on June 23, 2021. If you have any questions, please feel free to contact John Jenks at jjenks@utah.gov or (385) 306-6510.

Sincerely,

Chelsea Cancino
Chelsea Cancino (Jun 16, 2021 13:11 MDT)

Chelsea Cancino
Environmental Scientist

DM:CC:jf

CC: James Owen, PacifiCorp
Jim Doak, PacifiCorp

Enclosure: Utah Division of Air Quality Engineering Review

Regional Haze – Second Planning Period
SIP Evaluation Report:

PacifiCorp Hunter Power Plant

Utah Division of Air Quality

May 31, 2021

SIP EVALUATION REPORT

PacifiCorp Hunter Power Plant

1.0 Introduction

The following is part of the Technical Support Documentation for the Second Planning Period of the Reginal Haze SIP (aka the Visibility SIP). This document specifically serves as an evaluation of the PacifiCorp Hunter Power Plant facility.

1.1 Facility Identification

Name: Hunter Power Plant
Address: P.O. Box 569, Castle Dale, UT 84513
Owner/Operator: PacifiCorp
UTM coordinates: 497,800 m Easting, 4,335,800 m Northing, UTM Zone 12

1.2 Facility Process Summary

The Hunter Power Plant is located near Castle Dale in Emery County. The plant is classified as a PSD source and is a Phase II Acid Rain source. The source is PSD major for SO2, NOx, PM10, and CO and also major for VOC and HAPs. The source is subject to the provisions of 40 CFR 52.21(aa); 40 CFR 60 Subparts A, D, Da, Y, and HHHH; and 40 CFR 63 Subparts A, ZZZZ, and UUUUU.

1.3 Facility Criteria Air Pollutant Emissions Sources

The source consists of the following emission units:

- Steam Generating Unit #1 - Nominal 480 MW gross capacity dry bottom, tangentially-fired boiler fired on subbituminous & bituminous coal using distillate fuel oil during start-up & flame stabilization. System is equipped with a low-NOx burner/overfire air system (OFA), baghouse, and SO2 Wet FGD (WFGD) scrubber with no scrubber bypass.
- Steam Generating Unit #2 - Nominal 480 MW gross capacity dry bottom, tangentially-fired boiler fired on subbituminous & bituminous coal using distillate fuel oil during start-up & flame stabilization. System is equipped with a low-NOx burner/OFA, baghouse, and SO2 WFGD scrubber with no scrubber bypass.
- Steam Generating Unit #3 - Nominal 495 MW gross capacity dry bottom, wall-fired boiler fired on subbituminous & bituminous coal using distillate fuel oil during start-up & flame stabilization. System is equipped with baghouse, a low NOx burner/OFA, and SO2 FGD scrubber.

1.4 Facility Current Potential to Emit

The current PTE values for the Hunter Power Plant, as established by the most recent NSR permit issued to the source (DAQE-AN102370028-18) are as follows:

Table 2: Current Potential to Emit

Pollutant	Potential to Emit (Tons/Year)
SO_2	5,537.5

NO_x	15,095

2.0 Four Factor Review Methodology

Each source reviewed in this second planning period submitted a report on the available control technologies for SO2 and NOx emission reductions and the application of each technology to that facility. The information on available controls should consider the following four factors when analyzing the possible emission reductions:

1. Factor 1 – The Costs of Compliance
2. Factor 2 – Time Necessary for Compliance
3. Factor 3 – Energy and Non-Air Quality Environmental Impacts of Compliance
4. Factor 4 – Remaining Useful Life of the Source

Although not specifically required, the recommended approach was to follow a step-wise review of possible emission reduction options in a "top-down" fashion similar to U.S. EPA's guidelines for review of BART or Best Available Retrofit Technology (as found in 40 CFR 51, Section 308 amendments, pub. July 5, 2005). The steps involved are as follows:

Step 1. Identify all available retrofit control technologies
Step 2. Eliminate technically infeasible control technologies
Step 3. Evaluate the control effectiveness of remaining control technologies
Step 4. Evaluate impacts and document results

The process is inherently similar to that used in selecting BACT (Best Available Control Technology) under the NSR/PSD (Title I) permitting program. UDAQ evaluated the submissions from each source following the methodology outlined above. Where a particular submission may have differed from the recommended process, UDAQ will make note, and provide additional information as necessary.

3.0 PacifiCorp's Analysis for Emission Reductions

PacifiCorp's reasonable progress analysis for the emissions limit addresses NOx and SO2 control measures. PacifiCorp's proposal will also have impacts on PM/PM10 emissions, although these were not required under UDAQ's request.

As part of Hunter's four-factor reasonable progress analysis, PacifiCorp proposed and provided an analysis of a combined NOx and SO2 emission limit as a control measure, which PacifiCorp asserts will provide reasonable progress for the second planning period. Specifically, PacifiCorp proposed a plantwide combined NOx + SO2 emission limit of 17,000 tons/year that would be implemented at Hunter as a control measure to achieve reasonable progress for NOx emissions. This limit will be referred to herein as the Hunter Reasonable Progress Emission Limit or RPEL.

SO2 reductions have been shown to produce greater visibility benefits than NOx for Class I areas on the Colorado plateau. The SO2 reductions proposed as part of the RPEL are new and surplus reductions that are not included in nor relied upon by the first planning period SO2 backstop trading program; and if needed as a substitute for NOx emission reductions, they can be included in and validated by the state and regional modeling that will take place for the second planning period.

Because each of the Hunter units already have the specific, effective control technologies in place for controlling SO2 emissions that EPA identified in its 2019 Guidance, PacifiCorp has not provided an analysis for additional equipment or retrofits to further control SO2. As anticipated by EPA's 2019 Guidance, effective controls are already in place. PacifiCorp believes it is reasonable no additional SO2 controls are needed for the upcoming implementation period.

PacifiCorp derived the Hunter RPEL through a multi-step process:
First, PacifiCorp identified the plant's most restrictive permit limit. This was done to set a benchmark and ensure that the RPEL was lower (more stringent) than the facility's most restrictive current permit limit. In this case, Hunter's most restrictive limits are its NOx and SO2 PALs. Hunter's current NOx PAL is 15,095 tons/year and its SO2 PAL is 5,537.5 tons/year, providing a combined annual NOx+SO2 PAL of 20,632.5 tons/year.
Second, PacifiCorp re-calculated the PALs, theoretically assuming SNCR were installed on all three units. In this theoretical SNCR case, the Hunter plant's NOx+SO2 PAL would be 17,773 tons/year.
Third, PacifiCorp rounded the number down to the nearest thousand tons for simplification and to ensure that emissions under the RPEL were lower than the theoretical SNCR-installation scenario, which resulted in a RPEL NOx+SO2 limit of 17,000 tons/year.
Fourth, and finally, PacifiCorp evaluated whether the RPEL was plausible for the plant to maintain, considering PacifiCorp's operation plans and projected dispatch expectations for the Hunter plant.

Once the Hunter RPEL was established, it was compared against equipment installation using the statutory four-factor reasonable progress analysis. The Hunter four-factor analysis therefore compares three scenarios for implementing control measures:
(1) Current NOx, SO2, and PM control measures +SNCR
(2) Current NOx, SO2, and PM control measures +SCR
(3) Current NOx, SO2, and PM control measures +RPEL

For this analysis, PacifiCorp analyzed the four statutory factors listed in Section 169A(g)(1) of the Clean Air Act: (1) the cost of compliance; (2) the time necessary to achieve compliance; (3) the energy and non-air quality related environmental impact of compliance; and (4) the remaining useful life of any existing source subject to the requirements.

3.1 Cost of Compliance

Cost analyses for SNCR and SCR installation at Hunter were completed by Sargent & Lundy in March 2020.

The 2019 Guidance states that when choosing a baseline control scenario for the analysis, "[t]he projected 2028 (or the current) scenario can be a reasonable and convenient choice for use as the baseline control scenario for measuring the incremental effects of potential reasonable progress control measures on emissions, costs …" 2019 Guidance at 29. For the cost-effectiveness evaluation of SNCR and SCR, the average baseline NOx emissions and the average baseline heat input for Units 1, 2, and 3 were calculated based on the average of the most recent five years (2015-2019), which PacifiCorp considers a reasonable "current" scenario. The average values were used to provide a cost-effectiveness evaluation that was not overly conservative.

The 2019 Guidance also explains that "[a] state may choose a different emission control scenario as the analytical baseline scenario". Id at 29. PacifiCorp completed a cost analysis for the Hunter RPEL using the facility's current PAL as the baseline because it is a compatible control measure to the RPEL, and it is an already implemented restriction that has been agreed upon by PacifiCorp and the State. Using the PAL as the baseline for the RPEL, which is lower, allows the State to consider a viable alternative which tightens a current emission restriction. Considering the RPEL is proper as the 2019 Guidance specifically includes "operating restrictions … to reduce emissions" as an example of an emission control measure that states may consider. 2019 Guidance at 29-30. The costs associated with the RPEL are the estimated amounts of capital upgrades and operating and maintenance (O&M) costs that would be required to meet the limit. Specifically, PacifiCorp assumed it would incur some costs associated with additional scrubbing of SO2 to ensure the RPEL is met.

Hunter Unit 1 has a lowest achievable NOx emission rate of 0.20 lb/MMBtu (with the existing LNB/SOFA control equipment), and an SO2 emission limit of 0.12 lb/MMBtu. Based on these rates, the achievable NOx+SO2 emissions would be 6,658 tons/year without additional scrubbing. If 4,824 tons/year of the Hunter RPEL's 17,000 tons/year of NOx+SO2 was attributed to Unit 1, the Unit would need to scrub to an SO2 emission rate of 0.032 lb/MMBtu to achieve the RPEL. Scrubbing to an SO2 emission rate of 0.032 lb/MMBtu on Unit 1 would require $301,000/year in O&M costs for a total annualized cost of $301,000/year. The dollar-per-ton cost effectiveness of SNCR installed on Hunter Unit 1 is $8,816/ton, with the SCR cost effectiveness at $6,364/ton and the RPEL cost effectiveness at $198/ton.

Hunter Unit 2 also has a lowest achievable NOx emission rate of 0.20 lb/MMBtu (with the existing LNB/SOFA control equipment), and an SO2 emission limit of 0.12 lb/MMBtu. Based on these rates, the achievable NOx+SO2 emissions would be 6,658 tons/year without additional scrubbing. If 4,824 tons/year of the Hunter RPEL's 17,000 tons/year of NOx+SO2 was attributed to Unit 2, the Unit would need to scrub to an SO2 emission rate of 0.032 lb/MMBtu to achieve the RPEL. Scrubbing to an SO2 emission rate of 0.032 lb/MMBtu on Unit 2 would require would require $301,000/year in O&M costs for a total annualized cost of $301,000/year. The dollar-per-ton cost effectiveness of SNCR installed on Hunter Unit 2 is $10,913/ton, with the SCR cost effectiveness at $6,322/ton and the RPEL cost effectiveness at $198/ton.

Hunter Unit 3 has a lowest achievable NOx emission rate of 0.31 lb/MMBtu (with the existing LNB/SOFA control equipment), and an SO2 emission limit of 0.12 lb/MMBtu. Based on these rates, the achievable NOx+SO2 emissions would be 9,247 tons/year without additional scrubbing. If 7,352 tons/year of the Hunter RPEL's 17,000 tons/year of NOx+SO2 was attributed to Unit 3, the Unit would need to scrub to an SO2 emission rate of 0.032 lb/MMBtu to achieve the RPEL. Scrubbing to an SO2 emission rate of 0.032 lb/MMBtu on Unit 3 would require $311,000/year in O&M costs for a total annualized cost of $311,000/year. The dollar-per-ton cost effectiveness of SNCR installed on Hunter Unit 3 is $7,646/ton, with the SCR cost effectiveness at $4,290/ton and the RPEL cost effectiveness at $529/ton.

3.2 Time Necessary for Compliance

The second factor of the statutory four-factor reasonable progress analysis is the timeframe for compliance. The installation of either SNCR or SCR at Hunter Unit 1, 2 or 3 would require PacifiCorp to permit the installation of new pollution control equipment through the UDAQ New Source Review permitting process. The installation of SNCR on the units would be less intensive than would SCR, but both would require significant permitting, engineering, and procurement lead times for installation. It is anticipated that SNCR or SCR NOX control technologies, if required, could be installed at Hunter Units 1, 2, and 3 by the end of the second planning period in 2028.

Implementation of the Hunter RPEL would also require permitting through UDAQ. However, the RPEL could be implemented as soon as the State's implementation plan is finalized and achieves federal approval. This means the RPEL would result in much earlier implementation of regional haze emission limits than the imposition of SNCR or SCR.

3.3 Energy and Non-Air Environmental Impacts

The third factor of the statutory four-factor reasonable progress analysis requires that the energy and non-air quality environmental impacts be considered. The 2019 Guidance explains that as part of analyzing energy impacts, "states consider energy impacts by accounting for any increase or decrease in energy use at the source as part of the costs of compliance." 2019 Guidance at 41. The following sub-sections provide analyses of the energy and environmental impacts for this factor, including comparisons of energy use; environmental impacts; consumption of natural resources; GHG emissions; CCR impacts (including fly ash and bottom ash disposal); and additional benefits that would result from implementing the RPEL as compared to either the installation of SNCR or SCR.

3.3.1 Energy Impacts

The installation of SCR on Hunter Units 1, 2, and 3 would require significant electrical energy to operate, with the three SCRs having a total electric power requirement of approximately 12.5 MW. Adoption of either SNCR or the Hunter RPEL would avoid the significant auxiliary load demand of the three SCR installations, allowing the electrical energy which would have been required by the SCRs to instead be directed to the power grid. The 12.5 MW is enough energy to power approximately 9,971 average homes.

3.3.2 Non-Air Environmental Impacts

The 2019 Guidance indicates that "non-air impacts can include the generation of wastes for disposal," and that States may consider "water usage or waste disposal of spent catalyst or reagent." 2019 Guidance at 33, 42. Overall, the Hunter RPEL would result in fewer non-air environmental impacts than either SNCR or SCR.

First, the SCR "parasitic load" of 12.5 MW means a greater consumption of natural resources, increases in GHGs, and the creation and disposal of more CCR than either the Hunter RPEL or SNCR. To quantify these impacts, 47,309,999 gallons of water are required just to produce the electricity needed for the SCR parasitic load; 115,687 more tons of CO2 would be emitted; and 5,487 more tons of CCR would be generated and disposed of to produce the electricity needed for the SCR.

It should also be noted that the installation of SCR would result in the storage and use of ammonia (a hazardous substance) and a periodic requirement to dispose of SCR catalyst. Likewise, the installation of SNCR at Hunter would require the storage and use of urea (also a hazardous substance). All calculations for non-air environmental impacts can be found in Attachment 6. An analysis of the energy and environmental impacts favors the RPEL as the best choice of reasonable progress control, with both SNCR and SCR having distinct, negative impacts.

3.3.3 Consumption of Natural Resources

In addition to SCR’s parasitic load impacts on natural resources, if either SCR or SNCR are installed on Hunter Units 1, 2, and 3, the facility has a potential to combust 4,443,880 tons of coal per year based on operating up to its most restrictive limit (the current PALs).With implementation of the Hunter RPEL, the facility would have the potential to combust a maximum of 3,661,503 tons of coal per year, providing a potential annual coal combustion decrease of 782,377 tons per year.

The Hunter plant utilizes raw water supplied by Cottonwood Creek and Ferron Creek in its plant processes. This water is primarily used for equipment cooling as well as to provide make-up for losses through evaporative cooling from the cooling towers. Hunter has a design make-up water requirement of approximately 10,088 gallons per minute. If either SCR or SNCR are installed on Hunter Units 1, 2, and 3, the facility would maintain a water make-up demand of 4,256,020,039 gallons per year (13,061) acre-feet/year) based on operating up to its most restrictive limit (the current PALs). With implementation of the Hunter RPEL, the facility would have a potential water make-up demand of 3,506,717,105 gallons per year (10,762 acre-feet/year). Thus, the RPEL provides a potential decrease in water make-up of 749,302,934 gallons per year (2,300 acre-feet/year).

3.3.4 Greenhouse Gas Emissions

A byproduct of the coal combustion process is the generation of carbon dioxide (CO2) which is a greenhouse gas. If either SCR or SNCR are installed on Hunter Units 1, 2, and 3, the facility has a potential to emit 10,407,223 tons of CO2 per year based on operating up to its most restrictive limit (the current PALs).[31] With implementation of the Hunter RPEL, the facility would have the potential to emit a maximum of 8,574,957 tons of CO2 per year. Thus, the RPEL provides a potential annual CO2 emission decrease of 1,832,266 tons per year compared with SCR and SNCR.

3.3.5 CCR Impacts

As a coal-fired plant with fabric filter baghouses and scrubber pollution control equipment, the Hunter coal combustion process and pollution control equipment generate waste materials which the EPA has classified as CCR. At Hunter, CCR consists of fly ash, bottom ash and spent scrubber reagent. Fly ash, bottom ash and scrubber waste are coal combustion byproducts which are collected in the boilers, fabric filter baghouses and scrubbers and disposed at the facility’s ash disposal site. At Hunter, coal ash is categorized as fly ash (approximately 75 percent of total ash production) and bottom ash (approximately 25 percent of total ash production). Hunter’s current and projected coal ash content is 11.1 percent. Under the Hunter RPEL, due to reduced coal combustion and the resultant reduced generation of CCR waste materials, the generation of CCR would be reduced as compared to operation with SCR or SNCR.[32] If either SCR or SNCR are installed on Hunter Units 1, 2, and 3, the facility has a potential to generate 493,657 tons of CCR per year based on operating up to its most restrictive limit (the current PALs). With implementation of the Hunter RPEL, the facility would have the potential to generate a maximum of 406,745 tons of CCR per year, providing a potential annual CCR generation decrease of 86,912 tons per year.

The Hunter plant is engaged in ongoing efforts to makes its CCR available for beneficial use. However, currently, all of the facility-generated bottom ash and fly ash is transported to the Hunter plant’s CCR landfill for final disposal. The potential for reduced CCR under the RPEL would mean less waste going to the landfill, potentially extending the life of the landfill compared to SCR and SNCR.

In summary, adoption of the Hunter RPEL will provide the following potential CCR-related benefits:
• A reduction in the amount of coal combusted in the three facility boilers;
• A commensurate reduction of the volume of fly ash and bottom ash generated by the boilers;
• A reduction of ash transported to and disposed in the Hunter CCR landfill;
• A potential increase in the operational life of the CCR landfill, lessening the future need for another permitted disposal site, and;
• A reduced coal demand and a corresponding reduction of coal mining activities, raw material usage, and transportation requirements as compared to operation with SCR or SNCR installed on the three Hunter boilers.

3.3.6 Additional Environmental Benefits from RPEL

In addition to the benefits described above, implementing the RPEL as compared to operation with SCR or SNCR also provides reductions in consumables and waste products associated with the coal combustion process. This includes a potential reduction in consumption of the following materials:
• Boiler and circulating water treatment chemicals
• Water treatment acids and bases
• SCR anhydrous ammonia reagent
• SNCR urea reagent
• Mercury control system reagent (powdered activated carbon and halogenated compounds)
• Diesel fuel consumed in heavy equipment used to manage the Hunter coal inventory

Lastly, the installation of SCR at Hunter will adversely affect the units' heat rates – essentially the thermal efficiency of the facility – due to increased boiler draft restrictions created by the installation of SCR equipment in the boiler flue gas streams. Overall, proper analysis of the energy and non-air quality environmental benefits factor favors the RPEL.

3.3.7 Remaining Useful Life

The fourth statutory reasonable progress factor requires consideration of the remaining useful life of the emissions source. The remaining useful life of Hunter Units 1, 2, and 3 is currently planned by PacifiCorp to be 2042. If PacifiCorp were required to install SNCR or SCR on any of the three units, it would need to re-evaluate the expected remaining useful life of the impacted units to determine whether such a requirement would increase or decrease the facility's remaining useful life. It should be noted that the cost-effectiveness estimates cited herein were calculated using the EPA-mandated 20-year depreciable life for SNCR and 30-year depreciable life for SCR, which is obviously much too long and likely causes the true cost-effectiveness numbers to be greatly skewed (meaning the cost-effectiveness numbers should be higher). Implementing the Hunter RPEL is not expected to either increase or decrease the remaining useful life of the facility. Proper analysis of this factor favors the RPEL.

3.4 Balancing the Four Factors

When balanced for Hunter Units 1, 2, and 3 the four factors demonstrate that the RPEL is the best option for making reasonable progress during the second planning period. First, installation of SNCR or SCR are not cost effective (even with the skewed depreciable life assumptions) and would result in hundreds of millions of dollars in costs for PacifiCorp customers, and tens of millions in additional operating costs for PacifiCorp. Implementation of the Hunter RPEL would not result in any significant additional costs for customers and would result in minimal additional operating costs. Second, installation of SNCR or SCR would involve long-lead times for permitting, design, procurement, and installation before reductions and compliance can be achieved. The Hunter RPEL requires negligible time for compliance, and could be implemented as soon as the State's implementation plan is finalized and achieves federal approval. Third, SCR requires more energy to implement, and SNCR and SCR result in additional non-air environmental impacts over the Hunter RPEL. As documented, the Hunter RPEL has less potential consumption of natural resources, less GHG emissions, and less generation of CCR. Fourth and finally, a requirement to install SCR or SNCR on Hunter Units 1, 2, and 3 would create uncertainty about the facility's remaining useful life. Many coal-fired power plants across the country have been forced to shut down due to the increased costs associated with SNCR and SCR. Implementing the Hunter RPEL would not be expected to either increase or decrease the remaining useful life of the facility. Based on this analysis, Utah should determine that the Hunter RPEL is the best option for achieving reasonable progress during the second planning period.

The Utah Division of Air Quality has indicated that photochemical grid modeling and analysis of visibility impacts will be performed by the Western Regional Air Partnership ("WRAP") as part of the state's second planning period analysis. PacifiCorp anticipates that visibility modeling which incorporates the Hunter RPEL (and is compared to modeling of Hunter's current, permitted potential to emit) would assist the state in demonstrating reasonable progress at the Class I Areas impacted by emissions from the Hunter plant, supporting a conclusion that no additional installation of retrofit pollution control equipment is required at Hunter. However, if the State were to determine that the Hunter RPEL, as proposed, would not contribute to reasonable progress, PacifiCorp respectfully requests that the State propose an alternative RPEL (NOx+SO2 limit) for Hunter (allowing time for PacifiCorp to analyze the feasibility of the alternative RPEL proposal) as opposed to pursuing a requirement to install SNCR or SCR retrofits. This reasonable progress analysis demonstrates that implementing a RPEL is a better option than installing SNCR or SCR retrofits under each of the four statutory factors.

4.0 UDAQ's Analysis

Revising PacifiCorp's analysis to address the deficiencies noted would be problematic, as some of these deficiencies may be justified. In fact, only the use of the incorrect interest rate and the inconsistent cost of auxiliary power are easily corrected without additional input from the source. However, even these two adjustments make a noticeable change in the overall cost of the NOx controls. This is shown in the table below:

Recalculation of Cost Effectiveness at 3.25% Interest Rate

Unit #	Cost Effectiveness of SNCR	Cost Effectiveness of SCR
Hunter 1	$4,130	$4,449
Hunter 2	$4,171	$4,425
Hunter 3	$3,148	$3,024

With these revisions, the cost of these controls appears to be more viable. However, this only represents an annual $/ton result, and does not represent the full impact of installing the control options (as was noted in PacifiCorp's own analysis). The source should expand its analysis of mitigating factors, excessive capital costs, alternative solutions, and other costs in order to justify the removal of either SNCR and/or SCR as viable control options.

PacifiCorp's suggested control alternative, the RPEL option is lacking. PacifiCorp has proposed reductions in combined emissions based on the theoretical implementation of SNCR – without actually installing SNCR. This does not represent a reduction in actual emissions. Over the last several years under both the previous PAL and the current PAL levels, PacifiCorp has routinely operated below these maximum emission rates. PacifiCorp has operated below the 80% planning threshold UDAQ used in its calculation methodology for establishment of the PALs during both the initial and renewal 10-year periods. PacifiCorp has provided additional information suggesting that the plant has always had the option to adjust operations to return to permitted levels – and thus the taking of an additional limit beyond the PALs would represent a genuine reduction in emissions.

UDAQ disagrees with this argument, as historical emissions have been trending consistently downward – leading to a reduction of the PAL limits for both NOx and SO2 upon renewal – and have been on this trend for a long enough period that expectations of a sudden increase in emissions to permitted levels seems extremely far-fetched. PacifiCorp itself offers many counter-arguments to this idea in its own analysis when discussing trends in power production in western states.

UDAQ is not opposed to the RPEL conceptually, and believes that the approach of additional limit(s) beyond the PALs offers a unique approach to limiting total emissions in this SIP.

5.0 Conclusion

At this time, UDAQ is unable to proceed with its review and requests additional information as follows:

1. The source needs to resubmit the Four Factor analysis correcting the errors mentioned above.
2. Additional information must be provided regarding the infeasibility of SCR.
   a. This information can include additional details on economics as well as technical limitations.
3. Additional information must be provided regarding the infeasibility of SNCR.
   a. As with SCR, this information can include additional details on economics as well as technical limitations.
4. Supplemental details regarding the RPEL approach, including the selection of allowable limits should be provided. The methodology used for setting the allowable limits should be discussed in detail.
5. Any other pertinent information PacifiCorp feels is warranted should also be provided in order to assist UDAQ in the review process.

Regional Haze – Second Planning Period
SIP Evaluation Report:

PacifiCorp Huntington Power Plant

Utah Division of Air Quality

May 31, 2021

SIP EVALUATION REPORT

PacifiCorp Huntington Power Plant

1.0 Introduction

The following is part of the Technical Support Documentation for the Second Planning Period of the Reginal Haze SIP (aka the Visibility SIP). This document specifically serves as an evaluation of the PacifiCorp Huntington Power Plant facility.

1.1 Facility Identification

Name: Huntington Power Plant
Address: P.O. Box 680, Huntington, UT 84528
Owner/Operator: PacifiCorp
UTM coordinates: 493,130 Easting 4,358,840 Northing, UTM Zone 12

1.2 Facility Process Summary

The PacifiCorp Huntington Power Plant is a coal-fired steam electric generating facility consisting of two (2) boilers. Unit #1 is a 480 MW unit constructed in October 1973; Unit #2 is a 480 MW unit that commenced construction in April 1970. Bituminous and sub-bituminous coal is the primary fuel source for the dry bottom, tangentially-fired boilers. Fuel oil is used to start up the boilers from a cold start and for boiler flame stabilization. The Huntington Power Plant uses low-NOx burners, separated overfire air system, SO2 FGD scrubber system, and pulse jet fabric filters for both units.

1.3 Facility Criteria Air Pollutant Emissions Sources

The source consists of the following emission units:

- Boiler Unit #1 - Nominal 480 MW gross capacity dry bottom, tangentially-fired utility boiler fired on subbituminous and bituminous coal using fuel oil during startup & flame stabilization. Equipped with a fabric filter baghouse, low NOx burners with overfire air system, and an SO2 FGD scrubber. NSPS Subpart D.
- Boiler Unit #2 - Nominal 480 MW gross capacity dry bottom tangentially-fired utility boiler fired on subbituminous and bituminous coal using fuel oil during startup & flame stabilization. Equipped with a fabric filter baghouse, low-NOx burners with overfire air system, and an SO2 FGD scrubber.

1.4 Facility Current Potential to Emit

The current PTE values for the Huntington Power Plant, as established by the most recent NSR permit issued to the source (DAQE-AN102370028-18) are as follows:

Table 2: Current Potential to Emit

Pollutant	Potential to Emit (Tons/Year)
SO_2	3,105

NO_x	7,971

2.0 Four Factor Review Methodology

Each source reviewed in this second planning period submitted a report on the available control technologies for SO2 and NOx emission reductions and the application of each technology to that facility. The information on available controls should consider the following four factors when analyzing the possible emission reductions:

1. Factor 1 – The Costs of Compliance
2. Factor 2 – Time Necessary for Compliance
3. Factor 3 – Energy and Non-Air Quality Environmental Impacts of Compliance
4. Factor 4 – Remaining Useful Life of the Source

Although not specifically required, the recommended approach was to follow a step-wise review of possible emission reduction options in a "top-down" fashion similar to U.S. EPA's guidelines for review of BART or Best Available Retrofit Technology (as found in 40 CFR 51, Section 308 amendments, pub. July 5, 2005). The steps involved are as follows:

Step 1. Identify all available retrofit control technologies
Step 2. Eliminate technically infeasible control technologies
Step 3. Evaluate the control effectiveness of remaining control technologies
Step 4. Evaluate impacts and document results

The process is inherently similar to that used in selecting BACT (Best Available Control Technology) under the NSR/PSD (Title I) permitting program. UDAQ evaluated the submissions from each source following the methodology outlined above. Where a particular submission may have differed from the recommended process, UDAQ will make note, and provide additional information as necessary.

3.0 PacifiCorp's Analysis for Emission Reductions

As part of Huntington's four-factor reasonable progress analysis, PacifiCorp proposes and provides analysis of a NOx and SO2 emission limit as a control measure (that has the additional benefit of lower PM emissions), which PacifiCorp asserts will help satisfy reasonable progress for the second planning period. Specifically, PacifiCorp proposes a plantwide combined NOx + SO2 emission limit of 10,000 tons/year be implemented at Huntington as a control measure to achieve reasonable progress for NOx emissions. This limit will be referred to herein as the Huntington "Reasonable Progress Emission Limit" ("RPEL"). As discussed above, the Huntington Units do not require a four-factor analysis for SO2 and PM. However, the RPEL has the added benefit of reducing both SO2 and PM emissions in comparison with SCR and SNCR.

SO2 reductions have been shown to produce greater visibility benefits than NOx for Class I areas on the Colorado plateau.5 The SO2 reductions proposed as part of the RPEL are new and surplus reductions that are not included in nor relied upon by the first planning period SO2 backstop trading program; and if needed as a substitute for NOx emission reductions, they can be included in and validated by the state and regional modeling that will take place for the second planning period.

The Huntington RPEL was derived through a multi-step process:

- First, PacifiCorp identified the plant's most restrictive permit limit. This was done to set a benchmark and ensure that the RPEL was lower (more stringent) than the facility's most restrictive current permit limit. In this case, Huntington's most restrictive limits are its NOx and SO2 plantwide applicability limits (PAL). Huntington's current NOx PAL is 7,971 tons/year and its SO2 PAL is 3,105 tons/year, providing a combined annual NOx+SO2 PAL of 11,076 tons/year.
- Second, PacifiCorp re-calculated the PALs, theoretically assuming SNCR were installed on both units. In this theoretical SNCR case, the Huntington plant's NOx+SO2 PAL would be 10,491 tons/year.
- Third, PacifiCorp rounded the number down to the nearest thousand tons for simplification and to ensure that emissions under the RPEL were lower than the theoretical SNCR-installation scenario, which resulted in a RPEL NOx+SO2 limit of 10,000 tons/year.
- Fourth, and finally, PacifiCorp evaluated whether the RPEL was plausible for the plant to maintain, considering PacifiCorp's operation plans and projected dispatch expectations for the Huntington plant.

Once the Huntington RPEL was established, it was compared against current equipment installation using the statutory four factor reasonable progress analysis. The Huntington four-factor analysis therefore compares three scenarios for implementing control measures:

(1) Current NOx, SO2, and PM control measures +SNCR
(2) Current NOx, SO2, and PM control measures +SCR
(3) Current NOx, SO2, and PM control measures +RPEL

For this analysis, PacifiCorp analyzed the four statutory factors listed in Section 169A(g)(1) of the Clean Air Act: (1) the cost of compliance; (2) the time necessary to achieve compliance; (3) the energy and non-air quality related environmental impacts of compliance; and (4) the remaining useful life of any existing source subject to the requirements. See 42 U.S.C. 7491(g)(1). PacifiCorp understands that Utah will be analyzing visibility impacts for the second planning period through visibility modeling, including at the regional level. PacifiCorp anticipates that if the reductions from the RPEL are included in state and regional modeling they will help the state in demonstrating reasonable progress by reducing the Huntington plant's permitted potential to emit.

3.1 Cost of Compliance

The 2019 Guidance states that when choosing a baseline control scenario for the analysis, "[t]he projected 2028 (or the current) scenario can be a reasonable and convenient choice for use as the baseline control scenario for measuring the incremental effects of potential reasonable progress control measures on emissions, costs . . . ." 2019 Guidance at 29. For the cost-effectiveness evaluation of SNCR and SCR, the average baseline NOx emissions and the average baseline heat input for Units 1-2 were calculated based on the average of the most recent five years (2015-2019), which PacifiCorp considers a reasonable "current" scenario. The average values were used to provide a cost-effectiveness evaluation that was not overly conservative.

The 2019 Guidance also explains that "[a] state may choose a different emission control scenario as the analytical baseline scenario". Id at 29. PacifiCorp completed a cost analysis for the Huntington RPEL using the facility's current PAL as the baseline because it is a compatible control measure to the RPEL, and it is an already implemented restriction that has been agreed upon by PacifiCorp and the State. Using the PAL as the baseline for the RPEL, which is lower, allows the State to consider a viable alternative which tightens a current emission restriction. Considering the RPEL is proper as the 2019 Guidance specifically includes "operating restrictions … to reduce emissions" as an example of an emission control measure that states may consider. 2019 Guidance at 29-30. The costs associated with the Huntington RPEL are the estimated amounts of capital upgrades and operating and maintenance (O&M) costs that would be required to meet the limit. Specifically, PacifiCorp assumed it would incur some costs associated with additional scrubbing of SO2 to ensure the RPEL is met.

Huntington Unit 1 has a lowest achievable NOx emission rate of 0.20 lb/MMBtu (with the existing LNB/SOFA control equipment), and an SO2 emission limit of 0.12 lb/MMBtu. Based on these rates, the achievable NOx+SO2 emissions would be 6,952 tons/year without additional scrubbing. If 5,000 tons/year of the Huntington RPEL's 10,000 tons/year of NOx+SO2 was attributed to Unit 1, the Unit would need to scrub to an SO2 emission rate of 0.030 lb/MMBtu to achieve the RPEL. Scrubbing to an SO2 emission rate of 0.030 lb/MMBtu on Unit 1 would require $207,000/year in capital upgrades and $253,000/year in O&M costs for a total annualized cost of $460,000/year.

Huntington Unit 2 also has a lowest achievable NOx emission rate of 0.20 lb/MMBtu (with the existing LNB/SOFA control equipment), and an SO2 emission limit of 0.12 lb/MMBtu. Based on these rates, the achievable NOx+SO2 emissions would be 6,952 tons/year without additional scrubbing. If 5,000 tons/year of the Huntington RPEL's 10,000 tons/year of NOx+SO2 was attributed to Unit 2, the Unit would need to scrub to an SO2 emission rate of 0.030 lb/MMBtu to achieve the RPEL. Scrubbing to an SO2 emission rate of 0.030 lb/MMBtu on Unit 2 would require $256,000/year in capital upgrades and $615,000/year in O&M costs for a total annualized cost of $871,000/year.

3.2 Time Necessary for Compliance

The second factor of the statutory four-factor reasonable progress analysis is the timeframe for compliance. The installation of either SNCR or SCR at Huntington Unit 1 or 2 would require PacifiCorp to permit the installation of new pollution control equipment through the UDAQ New Source Review permitting process. The installation of SNCR on the units would be less intensive than would SCR, but both would require significant permitting, engineering, and procurement lead times for installation. It is anticipated that SNCR or SCR NOX control technologies, if required, could be installed at Huntington Units 1 and 2 by the end of the second planning period in 2028.

Implementation of the Huntington RPEL would also require permitting through UDAQ. However, the RPEL could be implemented as soon as the State's implementation plan is finalized and achieves federal approval. This means the RPEL would result in much earlier implementation of regional haze emission limits than the imposition of SNCR or SCR.

3.3 Energy and Non-Air Environmental Impacts

The third factor of the statutory four-factor reasonable progress analysis requires that the "energy and non-air quality environmental impacts" be considered. The 2019 Guidance explains that as part of analyzing "energy" impacts, "states consider energy impacts by accounting for any increase or decrease in energy use at the source as part of the costs of compliance." 2019 Guidance at 41. The following sub-sections provide several analyses of "energy" and "environmental" impacts covered by this factor, including comparisons of energy use; environmental impacts; consumption of natural resources; greenhouse gas ("GHG") emissions; coal combustion residuals ("CCR") impacts (including fly ash and bottom ash disposal); and additional benefits that would result from implementing the Huntington RPEL as compared to either the installation of SNCR or SCR.

3.3.1 Energy Impacts

The installation of SCR on Huntington Units 1 and 2 would require significant electrical energy to operate, with the two SCRs having a total electric power requirement of approximately 8.6MW. Adoption of either SNCR or the Huntington RPEL would avoid the significant auxiliary load demand of the two SCR installations, allowing the electrical energy which would have been required by the SCRs to instead be directed to the power grid. The 8.6 MW is enough energy to power approximately 6,864 average homes.

3.3.2 Non-Air Environmental Impacts

The 2019 Guidance indicates that "non-air impacts can include the generation of wastes for disposal," and that States may consider "water usage or waste disposal of spent catalyst or reagent". 2019 Guidance at 33, 42. Overall, the Huntington RPEL would result in fewer non-air environmental impacts than either SNCR or SCR.

First, the SCR "parasitic load" of 8.6 MW means a greater consumption of natural resources, increases in GHGs, and the creation and disposal of more CCR than either the Huntington RPEL or SNCR. To quantify these impacts, 32,607,019 gallons of water are required just to produce the electricity needed for the SCR parasitic load; 79,734 more tons of CO2 would be emitted; and 3,834 more tons of CCR would be generated and disposed of to produce the electricity needed for the SCR.

It should also be noted that the installation of SCR would result in the storage and use of ammonia (a hazardous substance) and a periodic requirement to dispose of SCR catalyst. Likewise, the installation of SNCR at Huntington would require the storage and use of urea (also a hazardous substance). All calculations for non-air environmental impacts can be found in Attachment 3. An analysis of the energy and environmental impacts favors the RPEL as the best choice of reasonable progress control, with both SNCR and SCR having distinct, negative impacts.

3.3.3 Consumption of Natural Resources

In addition to SCR's parasitic load impacts on natural resources, if either SCR or SNCR are installed on Huntington Units 1 and 2, the facility has a potential to combust 2,538,709 tons of coal per year based on operating up to its most restrictive limit (the current PALs). With implementation of the Huntington RPEL, the facility would have the potential to combust a maximum of 2,292,081 tons of coal per year, providing a potential annual coal combustion decrease of 246,628 tons per year.

The Huntington plant utilizes raw water supplied by Huntington Creek in its plant processes. This water is primarily used for equipment cooling as well as to provide make-up for losses through evaporative cooling from the cooling towers. Huntington has a design make-up water requirement of approximately 7,069 gallons per minute. If either SCR or SNCR are installed on Huntington Units 1 and 2, the facility would maintain a water make-up demand of 2,492,452,589 gallons per year (7,649 acre-feet/year) based on operating up to its most restrictive limit (the current PALs). With implementation of the Huntington RPEL, the facility would have water make-up demand of 2,250,318,336 gallons per year (6,906 acre-feet/year). Thus, the RPEL provides a potential decrease in water make-up of 242,134,253 gallons per year (743 acre-feet/year).

3.3.4 Greenhouse Gas Emissions

A byproduct of the coal combustion process is the generation of carbon dioxide (CO_2) which is a greenhouse gas. If either SCR or SNCR are installed on Huntington Units 1 and 2, the facility has a potential to emit 5,981,040 tons of CO_2 per year based on operating up to its most restrictive limit (the current PALs).15 With implementation of the Huntington RPEL, the facility would have the potential to emit a maximum of 5,400,000 tons of CO_2 per year. Thus, the RPEL provides a potential annual CO_2 emission decrease of 581,040 tons per year compared with SCR and SNCR.

3.3.5 CCR Impacts

As a coal fired plant with fabric filter baghouses and scrubber pollution control equipment, the Huntington coal combustion process and pollution control equipment generate waste materials which the EPA has classified as CCR. At Huntington, CCR consists of fly ash, bottom ash and spent scrubber reagent. Fly ash, bottom ash and scrubber waste are coal combustion byproducts which are collected in the boilers, fabric filter baghouses and scrubbers and disposed at the facility's ash disposal site. At Huntington, coal ash is categorized as fly ash (approximately 75 percent of total ash production) and bottom ash (approximately 25 percent of total ash production). Huntington's current and projected coal ash content is 11.3 percent. Under the Huntington RPEL, due to reduced coal combustion and the resultant reduced generation of CCR waste materials, the generation of CCR would be reduced as compared to operation with SCR or SNCR. If either SCR or SNCR are installed on Huntington Units 1 and 2, the facility has a potential to generate 285,861 tons of CCR per year based on operating up to its most restrictive limit (the current PALs). With implementation of the Huntington RPEL, the facility would have the potential to generate a maximum of 258,091 tons of CCR per year, providing a potential annual CCR generation decrease of 27,771 tons per year.

The Huntington plant is engaged in ongoing efforts to makes its CCR available for beneficial use. However, currently, all of the facility-generated bottom ash and fly ash is transported to the Huntington plant's CCR landfill for final disposal. The potential for reduced CCR under the RPEL would mean less waste going to the landfill, potentially extending the life of the landfill compared to SCR and SNCR.

In summary, adoption of the Huntington RPEL will provide the following potential CCR-related benefits:

- A reduction in the amount of coal combusted in the two facility boilers;
- A commensurate reduction of the volume of fly ash and bottom ash generated by the boilers;
- A reduction of ash transported to and disposed in the Huntington CCR landfill;
- A potential increase in the operational life of the CCR landfill, lessening the future need for another permitted disposal site, and;
- A reduced coal demand and a corresponding reduction of coal mining activities, raw material usage, and transportation requirements as compared to operation with SCR or SNCR installed on the two Huntington boilers.

3.3.6 Additional Environmental Benefits from RPEL

In addition to the benefits described above, implementing the RPEL as compared to operation with SCR or SNCR also provides reductions in consumables and waste products associated with the coal combustion process. This includes a potential reduction in consumption of the following materials:

- Boiler and circulating water treatment chemicals
- Water treatment acids and bases
- SCR anhydrous ammonia reagent
- SNCR urea reagent
- Mercury control system reagent (powdered activated carbon and halogenated compounds)
- Diesel fuel consumed in heavy equipment used to manage the Huntington coal inventory

Lastly, the installation of SCR at Huntington will adversely affect the units' heat rates – essentially the thermal efficiency of the facility – due to increased boiler draft restrictions created by the installation of SCR equipment in the boiler flue gas streams. Overall, proper analysis of the energy and non-air quality environmental benefits factor favors the RPEL.

3.3.7 Remaining Useful Life

The fourth statutory reasonable progress factor requires consideration of the remaining useful life of the emissions source. The remaining useful life of Huntington Units 1 and 2 is currently planned by PacifiCorp to be 2036. If PacifiCorp were required to install SNCR or SCR on either unit, it would need to re-evaluate the expected remaining useful life of both units to determine whether such a requirement would increase or decrease the facility's remaining useful life. It should be noted that the cost-effectiveness estimates cited herein were calculated using the EPA-mandated 20-year depreciable life for SNCR and 30-year depreciable life for SCR, which is obviously much too long and likely causes the true cost-effectiveness numbers to be greatly skewed (meaning the cost effectiveness numbers should be higher). Implementing the Huntington RPEL is not expected to either increase or decrease the remaining useful life of the facility. Proper analysis of this factor favors the RPEL.

3.4 Balancing the Four Factors

When balanced for Huntington Units 1 and 2, the four factors demonstrate that the RPEL is the best option for making reasonable progress during the second planning period. First, installation of SNCR or SCR are not cost effective (even with the skewed depreciable life assumptions) and would result in hundreds of millions of dollars in costs for PacifiCorp customers, and tens of millions in additional operating costs for PacifiCorp. Implementation of the Huntington RPEL would not result in any significant additional costs for customers and would result in minimal additional operating costs. Second, installation of SNCR or SCR would involve long-lead times for permitting, design, procurement, and installation before reductions and compliance can be achieved. The Huntington RPEL requires negligible time for compliance, and could be implemented as soon as the State's implementation plan is finalized and achieves federal approval. Third, SCR requires more energy to implement, and SNCR and SCR result in additional non-air environmental impacts over the Huntington RPEL. As documented, the Huntington RPEL has less potential consumption of natural resources, less GHG emissions, and less generation of CCR. Fourth and finally, a requirement to install SCR or SNCR on Huntington Units 1 and 2 would create uncertainty about the facility's remaining useful life. Many coal-fired power plants across the country have been forced to shut down due to the increased costs associated with SNCR and SCR. Implementing the Huntington RPEL would not be expected to either increase or decrease the remaining useful life of the facility. Based on this analysis, Utah should determine that the Huntington RPEL is the best option for achieving reasonable progress during the second planning period.

The Utah Division of Air Quality has indicated that photochemical grid modeling and analysis of visibility impacts will be performed by the Western Regional Air Partnership ("WRAP") as part of the state's second planning period analysis. PacifiCorp anticipates that visibility modeling which incorporates the Huntington RPEL (and is compared to modeling of Huntington's current, permitted potential to emit) would assist the state in demonstrating reasonable progress at the Class I Areas impacted by emissions from the Huntington plant, supporting a conclusion that no additional installation of retrofit pollution control equipment is required at Huntington. However, if the State were to determine that the Huntington RPEL, as proposed, would not contribute to reasonable progress, PacifiCorp respectfully requests that the State propose an alternative RPEL (NOx+SO2 limit) for Huntington (allowing time for PacifiCorp to analyze the feasibility of the alternative RPEL proposal) as opposed to pursuing a requirement to install SNCR or SCR retrofits. This reasonable progress analysis demonstrates that implementing a RPEL is a better option than installing SNCR or SCR retrofits under each of the four statutory factors.

4.0 UDAQ's Analysis

UDAQ has found the following issues with PacifiCorp's analysis which require additional information and/or feedback from the source:

4.1 Use of an Incorrect Interest Rate

PacifiCorp's SCR and SNCR cost effectiveness analyses used an interest rate of 7.0% for amortizing capital costs of SCR and SNCR over the assumed lifetimes of the SCR and SNCR (for which PacifiCorp assumed 30 years for SCR and 20 years for SNCR). EPA's Cost Estimation spreadsheets state that the "User should enter current bank prime rate (available at https://www.federalreserve.gov/releases/h15/)." Over the past five years, the bank prime rate has not been higher than 5.5% and at present the current bank prime rate is 3.25%. The Federal Reserve has indicated that it expects interest rates to remain at these same low levels at least through 2023. Based on EPA's Control Cost Manual spreadsheets, the interest rate should be set at the bank prime rate of 3.25%.

4.1 Additional Information Should be Provided on Control Efficiency

UDAQ believes that PacifiCorp's analysis is lacking with respect to the expected control efficiency of both SCR and SNCR when applied to the Huntington Plant. UDAQ agrees that some allowances must be made for retrofitting control technology onto existing boilers with established exhaust trains and some degree of previously installed NOx emission controls. However, annual emission rates lower than the estimates provided by PacifiCorp have been achieved at similar facilities. PacifiCorp should provide additional explanation as to why these lower emission rates are not achievable at the Huntington Plant.

4.2 Additional Information Should be Provided on Control Costs

Similarly, PacifiCorp has deviated from the standard methodology in calculation of the cost of controls. Specifically:

- the inclusion of EPM (engineering, procurement and management) costs which may not be justified
- the use of two different auxiliary power costs - $30/MW-hr for SCR, $50/MW-hr for SNCR

- the inclusion of an air-preheater for SNCR which may not be justified

Although UDAQ does not completely disagree with the inclusion of the air-preheater and EPM costs, additional justification should be provided. However, the use of two different values for the cost of auxiliary power is a different matter and should be corrected.

4.3 UDAQ's Analysis

Revising PacifiCorp's analysis to address the deficiencies noted would be problematic, as some of these deficiencies may be justified. In fact, only the use of the incorrect interest rate and the inconsistent cost of auxiliary power are easily corrected without additional input from the source. However, even these two adjustments make a noticeable change in the overall cost of the NOx controls. This is shown in the table below:

Recalculation of Costs at 3.25% Interest Rate

Unit #	Cost Effectiveness of SNCR	Cost Effectiveness of SCR
Huntington 1	$3,987	$4,069
Huntington 2	$4,152	$4,277

With these revisions, the cost of these controls appears to be more viable. However, this only represents an annual $/ton result, and does not represent the full impact of installing the control options (as was noted in PacifiCorp's own analysis). The source should expand its analysis of mitigating factors, excessive capital costs, alternative solutions, and other costs in order to justify the removal of either SNCR and/or SCR as viable control options.

PacifiCorp's suggested control alternative, the RPEL option is lacking. PacifiCorp has proposed reductions in combined emissions based on the theoretical implementation of SNCR – without actually installing SNCR. This does not represent a reduction in actual emissions. Over the last several years under both the previous PAL and the current PAL levels, PacifiCorp has routinely operated below these maximum emission rates. PacifiCorp has operated below the 80% planning threshold UDAQ used in its calculation methodology for establishment of the PALs during both the initial and renewal 10-year periods. PacifiCorp has provided additional information suggesting that the plant has always had the option to adjust operations to return to permitted levels – and thus the taking of an additional limit beyond the PALs would represent a genuine reduction in emissions.

UDAQ disagrees with this argument, as historical emissions have been trending consistently downward – leading to a reduction of the PAL limits for both NOx and SO2 upon renewal – and have been on this trend for a long enough period that expectations of a sudden increase in emissions to permitted levels seems extremely far-fetched. PacifiCorp itself offers many counter-arguments to this idea in its own analysis when discussing trends in power production in western states.

UDAQ is not opposed to the RPEL conceptually, and believes that the approach of additional limit(s) beyond the PALs offers a unique approach to limiting total emissions in this SIP.

5.0 Conclusion

At this time, UDAQ is unable to proceed with its review and requests additional information as follows:

1. The source needs to resubmit the Four Factor analysis correcting the errors mentioned above.
2. Additional information must be provided regarding the infeasibility of SCR.
    a. This information can include additional details on economics as well as technical limitations.
3. Additional information must be provided regarding the infeasibility of SNCR.
    a. As with SCR, this information can include additional details on economics as well as technical limitations.
4. Supplemental details regarding the RPEL approach, including the selection of allowable limits should be provided. The methodology used for setting the allowable limits should be discussed in detail.
5. Any other pertinent information PacifiCorp feels is warranted should also be provided in order to assist UDAQ in the review process.