

2016

**Utah Physicians for a Healthy Environment and Friends of Great Salt Lake, vs. Executive Director of the Utah Department of Environmental Quality and the Director of the Utah Division of Air Quality, in Their Official Capacity, and the Utah Department of Environmental Quality, the Utah Division of Air Quality
:Replacement Opening Brief**

Utah Supreme Court

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IN THE UTAH SUPREME COURT

**Utah Physicians for a Healthy
Environment and FRIENDS of Great
Salt Lake,**

Petitioners/Appellants

vs.

**Executive Director of the Utah
Department of Environmental Quality ;
and the Director of the Utah Division ;
of Air Quality, in their official capacity, ;
and the Utah Department of ;
Environmental Quality, the Utah ;
Division of Air Quality, ;**

Respondents/Appellees.

Appeal No. 20140344-SC

Petition for Review of Agency Decisions

Project No. N10123-0041

AO No. DAQE-AN101230041-13

REPLACEMENT OPENING BRIEF

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Oral Argument Requested

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UTAH APPELLATE COURTS

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LIST OF PARTIES

Petitioners/Appellants:

Utah Physicians for a Health Environment
FRIENDS of Great Salt Lake

Respondents/Appellees:

Executive Director of the Utah Department of Environmental Quality
Director of the Utah Division of Air Quality
Utah Department of Environmental Quality
Utah Division of Air Quality
Holly Refining & Marketing Company – Woods Cross, LLC

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JURISDICTION

Jurisdiction is provided by Utah Code Ann. §78A-4-103(2)(a)(i)(B).

ISSUES FOR REVIEW

All the issues in this matter concern whether the Executive Director of the Department of Environmental Quality (ED) erred in upholding the permitting decisions by the Director of the Utah Division of Air Quality (Director)¹ authorizing the construction of the Heavy Black Waxy Crude Processing Project (Expansion) at the Holly Marketing and Refining (Holly) Woods Cross Refinery, Davis County (Refinery) and if the ED decided correctly:

I. First Issue

Whether the Director made a defensible determination that the Expansion, which would be constructed in the Salt Lake non-attainment area for the 24-hour fine particulate matter (PM_{2.5}) National Ambient Air Quality Standard (NAAQS), was not a “major modification” and therefore not subject to Utah Admin. Code r.307-403.

Sub-Issue 1: If the Director’s calculation of the “potential-to-emit” (PTE) PM_{2.5} for a subset of the Refinery boilers and heaters based on a suspect “emission factor” 20-25 times smaller than emission rates he had previously deemed the most reliable is legally erroneous, represents an inappropriate departure from prior practice, and lacks foundation in the administrative record (Record).

¹ “Director” refers collectively to the Director of the Utah Division of Air Quality and Utah Division of Air Quality (“DAQ”).

Sub-Issue 2: Whether the Director improperly authorized a credit of 2.19 tons per year (tpy) of PM_{2.5} for the closure of the Propane Pit Flare (PPF) where the credit eclipsed the PM_{2.5} emissions from Holly's remaining, much larger flares and from all the flares at three local refineries and when the Record contained no supporting calculations or monitoring data, but only inconsistencies.

Sub-Issue 3: Did the Director's PTE determination for fluidized catalytic cracking unit 25 (FCCU25) based on a 0.3-lb PM₁₀/1000-lb coke-burned permit limit adequately represent the maximum capacity of the unit to emit PM_{2.5} although the Director did not restrict FCCU25's coke-burn rate, failed to calculate PTE based on "the most pollutant-generating" crude Holly is authorized to process, relied on data from the existing FCCU which utilizes different control technology and processes a different feedstock, and neglected to consider that the new feedstock for FCCU25 would produce more coke.

A. Standard of Review

In reviewing the legal adequacy of the Director's compliance with his permitting responsibilities, this Court will apply Utah Code Ann. §63G-4-403(4), recognizing the agency has "substantial discretion to interpret its governing statutes and rules" and upholding "factual, technical, and scientific agency determinations that are supported by substantial evidence viewed in light of the record as a whole." Utah Code Ann. §19-1-301.5(14)(c); *Murray v. Utah Labor Comm'n*, 2013 UT 38, ¶19, 308 P.3d 461 (agency finding of fact reviewed for substantial evidence). Specifically, this Court will assess whether the Director's PTE calculations and determination of the emission decreases

from the PPF closure are based on an erroneous interpretation of the law, adequately supported by the Record, “contrary to [his] prior practice” and unjustified and unfair or arbitrary and capricious. Utah Code Ann. §63G-4-403(4)(d), (4)(g), (4)(h)(iii)-(iv).

The assessment of the Director’s compliance with Rules 307-401 and 307-403 presents a mixed question of law and fact reviewed to determine if the “agency has erroneously...applied the law.” *Provo City v. Utah Labor Com’n*, 2015 UT ¶9, 345 P.3d 1242; *id.* ¶10 (“[T]he characteristic that distinguishes a mixed question from a question of fact is the existence of an articulable legal issue.”); *id.* ¶16 (“A court cannot resolve” this issue “without applying a legal definition...to the facts of the case.”). As a result, the appellate court will “review the administrative body’s findings of fact under the substantial evidence standard,” while it will “review the law applied to these facts for correctness.” *Provo City*, ¶17; *see also Utah Chapter of the Sierra Club v. Air Quality Board*, 2009 UT 76, ¶14, 226 P.3d 719 (“[M]ixed findings of fact and law, and the agency’s interpretation of the operative provisions of statutory law it is empowered to administer are reviewed under an intermediate standard that considers whether the agency’s determination was rational”); *id.*, ¶13 (“When reviewing an agency’s interpretation of law, we review for correctness[.]”).

Despite any discretion given to the Director’s decision, his best available control technology (BACT) analysis must be supported by substantial evidence, *Sierra Club*, ¶13, and must further the goals of ensuring that the best control technology is adopted, *id.*, ¶45 (“[W]hile the Board has discretion to interpret its own regulations...it must do so with an eye to...ensuring that the best available control technology is adopted.”), and

protecting short-term ambient standards. *Sierra Club*, ¶48.

The ED's November 17, 2014 Final Order is owed no deference. The ED necessarily limited her review to the same administrative record that is before this Court, Utah Code Ann. §19-1-301.5(8)(a), to which she applied the same standard of review that this Court will apply to agency factual determinations. Utah Code Ann. §§19-1-301.5(14); 19-1-301.5(13)(b). Because this is an "on-the-record" case, there was no trial below, no witness testimony and no observation of facts "that cannot be adequately reflected in the record available to appellate courts[.]" *Adoption of Baby B.*, 2012 UT 35, ¶42, 308 P.3d 382.

Therefore, this Court is positioned to undertake an independent evaluation of the Director's permitting decision based on the administrative record and the standard of review articulated above. *See Olenhouse v. Commodity Credit Corp.*, 42 F.3d 1560, 1580 (10th Cir.1994) ("In reviewing the agency's action," on the record, "we must render an independent decision using the same standard of review applicable to the District Court. Once appealed, the District Court's decision is accorded no particular deference."). This is particularly true because the Director's decision must be reviewed on the basis he articulated at the time he made his decision and any post-hoc rationalizations for the permitting decision are unpersuasive. *Id.* 1575.

B. Preservation

This issue was preserved as follows: 1) Sub-Issue 1 (IR008584-95,² IR008597-98); 2) Sub-Issue 2 (IR008595-97, IR009062-63, IR009151); and, 3) Sub-Issue 3 (IR008598-601, IR009077-78, IR009081, IR009151, IR009162).

II. Second Issue

Whether, in authorizing the Expansion, the Director met his permitting obligations under Utah Admin. Code r.307-401-8.

Sub-Issue 1: If, after acknowledging that the flares would be a considerable source of air pollution, particularly of SO₂ and NO_x, during upset conditions at the Refinery, the Director complied with Utah Admin. Code r.301-401-8(1)(b)(vii), 8(1)(a) and 8(5) although he did not impose AO limits on flare emissions or otherwise ensure that the Expansion would not interfere with the maintenance or attainment of short-term NAAQS.

Sub-Issue 2: Did the Director meet the requirements of Utah Admin. Code r.301-401-8(1)(b)(vii), 8(1)(a) and 8(5) although he did not impose short-term limits on the Expansion emission units.

Sub-Issue 3: If the Director's confusing references to the applicability of Subpart Ja to the Expansion, particularly the flares, and his refusal to specify which of the particular terms and conditions of this complex provision apply to the Refinery, meet the requirements of Utah Admin. Code r.301-401-8(1)(b)(vi).

² Utah Physicians attached and incorporated the Mark Hall Comments found at IR008579-602. IR009137.

Sub-Issue 4: Whether, given the evidence in the Record, with the South Flare shut down for reconstruction and all Refinery gases routed to the North Flare, the Record adequately supports the Director's contention that the apparent modification of the North Flare and increase in emissions from the unit did not trigger Subpart Ja or Utah Admin. Code r.307-401-8(1)(a).

A. Standard of Review

This Court will assess Issue 2 under the same standard of review it will apply to Issue 1, with the exception that Utah Code Ann. §63G-4-403(4)(h)(iii) is not relevant to Issue 2.

B. Preservation

This issue was preserved as follows: 1) Sub-Issue 1 and 2 (IR009078-80, IR009089-91, IR009155-57, IR009158-60); 2) Sub-Issue 3 (IR009152-54); and, 3) Sub-Issue 4 (IR009154).

DETERMINATIVE LAW

Utah Admin. Code r.307-401-8 (2012)

Utah Admin. Code r.307-403-3, 4 & 10 (2012)

STATEMENT OF THE CASE

I. Nature of the Case

Anyone living along the Wasatch Front has experienced our air pollution crisis, particularly wintertime "inversions" that settle on the Salt Lake Valley for extended periods, causing concentrations of fine particulate matter (PM_{2.5}) to skyrocket and giving Utah the dubious distinction of having the nation's worst air quality. We have felt our

eyes and lungs burn, fretted over whether to let our children outside to play, agonized about parents and grandparents with heart problems – even taken them to the emergency room as their symptoms worsened – and watched those with asthma struggle to breathe.

Monitors quantify this public health emergency. Since 2009, the greater Salt Lake area has been formally designated as not attaining the nation's 24-hour PM_{2.5} NAAQS. The Salt Lake City non-attainment area includes Salt Lake, Davis, Weber, Tooele and Box Elder counties. IR008482.³ Because the state could not show that the area would attain the standard by 2015, the Salt Lake non-attainment area will be designated as a “serious” PM_{2.5} non-attainment area as a matter of law by December 2015. 42 U.S.C. § 7513(b)(1), (c)(1).⁴

Our air pollution is serious. In 2013, air quality along the Wasatch Front exceeded the 24-hour PM_{2.5} standard for at least 47 days – sometimes by 100%. This means that for more than a month, our community – including its most vulnerable populations, the young and the old – were subjected to levels of air pollution considerably higher than concentrations deemed unsafe and unhealthy at exposures lasting only 24 hours. *E.g.* IR009139-40.

Salt Lake County is further designated as not meeting the 24-hour PM₁₀ and the SO₂ NAAQS and in recent years, air quality there has exceeded the 8-hour ozone

³ <http://www.epa.gov/pmdesignations/2006standards/final/region8.htm>

⁴ In the Interior West – made up of Utah, Idaho, Montana, Colorado, New Mexico, Arizona, Nevada, Wyoming, Texas, Kansas, North Dakota, South Dakota, Nebraska and Oklahoma – only Utah (with seven counties) and Arizona (with two counties) do not meet the 24-hour PM_{2.5} NAAQS. www.epa.gov/pmdesignations/2006standards/state.htm.

NAAQS, while Davis County is a “maintenance” area for ozone. IR009225; IR008482; IR008566-67; IR009140.

The health consequences of our dirty air are significant. The findings of 3,000 published research papers underscore key concepts now accepted by the medical community worldwide. First, there is no safe level of exposure to particulate pollution and no threshold below which negative health effects disappear. People literally die from exposure. For every 10 $\mu\text{g}/\text{m}^3$ increase in $\text{PM}_{2.5}$ concentrations, community mortality rates rise 14%. IR009140. Therefore, Utah Physicians estimates that 1,400 to 2,000 premature deaths occur every year in Utah from $\text{PM}_{2.5}$. IR009142.

Air pollution has the same extensive, broad-based health consequences as cigarette smoke because the signature physiologic response is the same – low-grade arterial inflammation, narrowing of blood vessels and increased propensity for clot formation, resulting in immediate increases in blood pressure, followed within hours by higher rates of heart attacks and strokes. IR009140-41.

The inflammation caused by $\text{PM}_{2.5}$ affects other organs. Particulate pollution penetrates every cell in the body, but is particularly well-documented in the brain. There, air pollution causes poor neurologic outcomes throughout the age spectrum, including loss of intelligence in children, higher rates of autism, and attention deficit disorders, as well as multiple sclerosis, Alzheimer’s, and accelerated cognitive decline in the elderly. IR009142. Virtually every lung disease is caused or exacerbated, and growth of lung function during childhood can be irreversibly stunted by air pollution exposure. IR009143. Cancers, including childhood leukemia, lung, breast, prostate, cervical, brain

and stomach cancer, occur at higher rates among people exposed to more air pollution, while cancer survival rates are reduced. IR009143.

The blood vessel inflammation caused by air pollution also affects the placenta, arguably representing the most significant public health impact of air pollution. Women who breathe more air pollution have higher rates of adverse pregnancy outcomes, their newborn babies showing increased birth defects, genetic damage, and a life-long disease burden that includes higher rates of metabolic disorders, reactive airway disease, cardiovascular disease, cancer, Alzheimer's and all diseases consequent to immunosuppression. IR009143-44. The alteration of genetic material triggered by pollution can be seen within minutes, underscoring that short-term spikes in air pollution harm developing fetuses. IR009144.

At the center of Utah's Wasatch Front are five refineries, including the Holly facility. These refineries contribute to our air pollution problem by directly emitting PM_{2.5}, as well as the "precursor" pollutants that form fine particulate matter during our inversions – sulfur oxides (SO_x), nitrous oxides (NO_x) and volatile organic compounds (VOCs). These facilities represent a host of additional health risks. For example, when toxic substances are microscopically attached to fine particles, the health consequences are enhanced. Refinery particulate pollution is high in concentrations of attached hazardous air pollutants (HAPs) including heavy metals and polycyclic aromatic hydrocarbons (PAHs). IR009144.

Children living near petrochemical industries have higher PAH levels than adults, contributing to more DNA damage and endangering a more vulnerable population.

Industrial-based pollution is more toxic to DNA than traffic-based pollution. Rates of leukemia are doubled in populations living in the vicinity of oil refineries. Benzene, a primary component of refinery emissions, is carcinogenic and harmful to a developing fetus, causing low birth weight, delayed bone formation, bone marrow damage and low white blood cell and platelet counts. Exposure to benzene near the national standard is associated with sperm aneuploidy. Exposure to petrochemicals, specifically benzene, gasoline, and hydrogen sulfide, is significantly associated with increased frequency of spontaneous abortion. IR009144-45.

Even infinitesimal levels of exposure to PAHs, which are “endocrine disruptors,” may cause “endocrine or reproductive abnormalities, particularly if exposure occurs during a critical developmental window...[L]ow doses may even exert more potent effects than higher doses.” As a result, there are no safe doses for PAHs. IR009145.

In this context – a public health crisis affecting millions of Utahns – the Director issued a permit authorizing Holly to expand its facilities. At a time when the Clean Air Act requires the Director to reduce PM_{2.5}, NO_x, SO₂ and VOC emissions dramatically and bring the Salt Lake Valley into compliance with the NAAQS as “expeditiously as practicable,” 42 U.S.C. §7513(c), he approved project increases in the refinery’s annual emissions of PM_{2.5} by 9.19 tons and PM₁₀ by 9.54 tons, IR008566, annual emissions of the PM_{2.5} and ozone precursors SO₂, NO_x and VOCs by 38, 83 and 32 tons respectively, and annual emissions of CO by 343 tons. IR008565. Annual refinery HAPs emissions will increase by 9.3 tons a year, IR002834, bringing the refinery’s total yearly emissions

of benzene to 1.46 tons, hexane to 5.41 tons, toluene to 1.21 tons, and xylene to 1598 pounds. IR008493.

Moreover, the Director determined that each year the refinery will release significant **uncontrolled** emissions of PM_{2.5} precursors, including 240 tons of SO₂, 8 tons of NO_x and 16 tons of VOCs. IR008561. In the case of SO₂, these emissions will eclipse the relevant permit limit on the **entire** Holly facility – 110 tons of SO₂ each year, IR009245 – by more than 200%. Although these emissions threaten Utah’s ability to comply with the NAAQS, the Director failed to impose emission limits or monitoring and recordkeeping requirements on the flares in order to constrain these substantial predicted “upset” emissions of SO₂, NO_x or VOCs. *E.g.* IR009245-46; IR009249-50.

As a result, at a time when the Director must find every possible emission reduction from every polluting sector, the Director has failed to undertake the analysis and review of the permit applications and the assertions they contain mandated by law and necessary to protect public health. In essence, the Director’s permitting decision is not sufficiently rigorous and is not supported by the Record. The result is a permit that fails to give the citizens of Utah the legal protections to which they are entitled, does not require the control of emissions at the refinery to the extent the law demands, and fails to protect the public from air pollution.

II. Proceedings Below

Because it wanted to expand its refining capacity from 40,000 to 60,000 barrels a day (bpd) and to “accommodate...the processing” of thick and dirty heavy black and yellow waxy crudes, Holly submitted a revised Notice of Intent (NOI) to the Director in

July 2012. IR002798-3590. The Director issued an Intent to Approve (ITA) the NOI on June 5, 2013, IR008449-79, along with a Source Plan Review analyzing the proposal. IR008480-8575. Utah Physicians filed two sets of comments on the Director's plan to authorize the expansion. IR004007-44; IR009046-9173. The Director responded to these and other comments. IR009174-9222. On November 18, 2013, the Director issued an approval order (AO) to Holly, authorizing the construction of the Expansion. IR009223-54.

On December 18, 2013, pursuant to Utah Code §§19-1-301.5, Utah Physicians for a Healthy Environment and FRIENDS of Great Salt Lake (collectively "Utah Physicians") filed a Request for Agency Action (Request) seeking administrative review of the AO. ADJ009257-9373. On December 20, 2013, Utah Physicians moved for a stay of the AO. ADJ009557-96. The matter was assigned to an administrative law judge ("ALJ"), ADJ009601, who recommended denial of the stay in a March 25, 2014 proposed order, ADJ010798-820, Exhibit C, that was adopted by the ED on March 8, 2015. ADJ011035-39, Exhibit D.

On March 11, 2015, after briefing and argument, the ALJ issued another proposed order suggesting dismissal of Utah Physicians' Request. ADJ011536-648, Exhibit E. On March 31, 2015, in a two page decision, the ED adopted the proposed order. ADJ011651-53, Exhibit F. Utah Physicians timely appealed both ED orders to this Court.

III. Statement of Facts

A. NSR Permitting

“The Clean Air Act...aims to ‘protect and enhance the quality of the Nation’s air resources’ by prescribing National Ambient Air Quality Standards (NAAQS), which state and regional authorities are required to either maintain or progress toward.” *Sierra Club*, 2009 UT 76, ¶1. A key component of the Act that Congress deemed necessary to achieve and maintain the NAAQS and protect public health and the environment is the New Source Review (NSR) permitting program. Under NSR, before commencing construction or making modifications, stationary sources must obtain one or more of the following permits: a non-attainment NSR (NNSR) permit, 42 U.S.C. §§7501-15; prevention of significant deterioration (PSD) permit, *id.* §§7470-79; or a minor NSR permit. *Id.* §7410(a)(2)(C). The permits specify what air pollution control devices must be used, what emission limits must be met, and how the facility must be operated. *EPA NSR Workshop Manual* H.1.⁵ Overall, permit conditions establish limits on the types and amounts of air pollution allowed, operating requirements for pollution control devices or pollution prevention activities, and monitoring and recordkeeping requirements. *Id.*

NSR serves two purposes: First, that the addition of new and modified industrial sources does not degrade air quality. *EPA NSR Factsheet* at 1, Exhibit G. In areas with unhealthy air – where NNSR applies – new emissions may not slow progress toward cleaner air, while in areas with clean air, PSD areas, new emissions may not worsen air

⁵ <http://www.epa.gov/nsr/ttnnsr01/gen/wkshpman.pdf>, included on CD.

quality. *Id.* Second, the NSR program assures citizens that new or modified sources will be as clean as possible and advances in pollution control will be implemented as industries expand. *Id.* The NSR program accomplishes its goals by requiring sources to “obtain permits limiting air emissions before they begin construction. For that reason, NSR is commonly referred to as the ‘preconstruction air permitting program.’” *Id.*

Utah’s NSR permitting programs were approved by the U.S. Environmental Protection Agency (EPA) and incorporated into Utah’s State Implementation Plan (SIP). EPA determined that Utah’s permitting regimes complied the NNSR, PSD and minor NSR program requirements. 42 U.S.C. §7410. EPA approved and incorporated by reference into federal regulation Rule 307-401, 40 C.F.R. §52.2320(c)(28)(i)(B), and Rule 307-403, as necessary components of Utah’s SIP. 40 C.F.R. §52.2320(c)(59)(i)(A). Rule 307-401 applies to all sources and all modifications, whether or not they are “major” and whether or not they are in non-attainment areas.⁶ Utah Admin. Code r.307-401-3. Rule 307-403 applied to, *inter alia*, major modifications to major sources in non-attainment areas. *Id.* r.307-403-2.⁷

B. The Director’s Non-Attainment NSR Determinations

Because Utah has failed to show that it will attain the 24-hour PM_{2.5} NAAQS by the statutory deadline, the greater Salt Lake area – already deemed a moderate non-attainment area – will be designated a “serious” non-attainment area by December 2015.

⁶ There are certain exemptions not relevant to the present matter to this requirement.

⁷ “In a non-attainment area” is a simplification. NNSR requirements apply only to particular pollutants depending on which NAAQS the non-attainment area is failing to meet. *Id.* r.307-403-2(1).

42 U.S.C. §7513(b)(1), (c)(1); IR009225. This delay brings urgency to the Director's obligation to reduce emissions of air pollutants in order to achieve the PM_{2.5} standard as "expeditiously as practicable." 42 U.S.C. §7513(c). To further this goal, the Clean Air Act constrains any project in a non-attainment area that constitutes a "major modification" – or that results in, *inter alia*, an increase in PM_{2.5} emissions of 10 tons per year (tpy) or more. Utah Admin. Code r.307-101-2 ("major modification" is a change "that would result in a significant net emissions increase of any pollutant" and "significant" is a "net emissions increase or...potential of a source to emit" that "would equal or exceed" 10 tpy of PM_{2.5}); *id.* r.307-403-2(1) (r.307-403 applies to "major modifications"). Congress reasoned that no project may interfere with prompt compliance with the NAAQS or delay relief from harmful levels of air pollution to which the citizens living in a non-attainment area are entitled.

Rule 307-403 authorizes the Director to approve a major modification in a non-attainment area, "if and only if" he determines: 1) LAER (lowest achievable emission rate) has been applied, Utah Admin. Code r.307-403-3(3)(a); 2) emission offsets, "enforceable by the time a...modified source commences construction," have been secured, *id.* r.307-403-4(2) & 403-3(3)(c); and, 3) after public comment and based on an analysis of "alternative sites, sizes, production processes, and...control techniques" for the modification, that the project's benefits "significantly outweigh the environmental and social costs[.]" *Id.* r.307-403-10. Because the application of Rule 307-403 depends upon his conclusion, the Director must accurately determine, before construction

commences, whether an emission increase is significant and if a project is a major modification.

Because the refinery is located in the Salt Lake PM_{2.5} non-attainment area, the Director calculated the PTE PM_{2.5} of the Expansion's modified and constructed units, including the FCCU25 and the NSPS boilers (Boilers#8-#11) and 11 heaters. IR002833. PTE is "the maximum capacity of a source to emit a pollutant[.]" Utah Admin. Code r.304-101-2.

The Director approximated the PM_{2.5} emissions rate of Boilers#8-#11 and the 11 "non-NSPS" heaters using a constant created for inventory purposes that had never been used to predict emissions for NSR permitting. *E.g.* IR008483; IR008911-12; IR009043; IR007239-42. The inventory constant is 20 to 25 times **smaller** than the emission rate the Director applied to the other Refinery boilers and heaters, IR008549; IR008558, 20 to 25 times less than the emission rate based on the manufacture's data and guarantees, IR008502; IR002902; IR002920; IR003053, 1/20th to 1/25th of the emission rate that represents BACT and the "lowest emission rate" in the nation, IR002902-3; IR002920, and 20 to 25 times smaller than EPA's published AP-42 emission factors, the emission factor Holly used in the NOI to calculate emissions from the "NSPS" boilers and heaters. IR002847; IR003043-46; IR003048-50.

The Director authorized Holly to take "credit" for retiring the PPF. Based on a reckoning of "actual" emissions from the unit, IR008564; IR008369, the Director determined Holly could subtract 2.19 tpy PM_{2.5} from the emission increases resulting from the Expansion. IR008564. 2.19 tpy is considerably greater than the annual PM_{2.5}

emissions from the larger North and South flares, IR002852; IR003176; IR003164, which are estimated to be zero in both upset and non-upset conditions, IR002865; IR002996; IR003029; IR003069, and is greater than the SIP-estimated PM_{2.5} emissions of 1.44 tpy from all the flares at Holly, Tesoro and Big West combined. IR008153. There are no calculations or monitoring data in the Record to support the 2.19 tpy. IR003035. The AP-42 emission factor on which Holly bases its calculation of PM_{2.5} flare emissions varies from 0-274 micrograms per liter (µg/L). AP-42, 13.5-4. The Record does not indicate how the company used the variable AP-42 emission factors to calculate actual PPF emissions. IR003035. The 2.19 tpy credit is based on an unexplained increase in emissions, IR003035, that occurred after the PPF was replaced and redesigned to reduce PM_{2.5} emissions. IR008564.

The Director calculated the PM_{2.5} PTE for FCCU25 at 8.15 tpy, IR008367, or 97% of the Expansion's total PTE. IR008568. FCCU25 will process Utah black waxy crude, a substantial departure from the Canadian Select processed at the existing FCCU, IR007166; IR002839; IR007168, and will produce more carbon burn-off. IR008598-99; IR002937; 40 C.F.R. §60.101a; *id.* §60.104a. To assess PTE, the Director relied on an AO limit of 0.3-lb PM₁₀/1000-lb coke burned, IR009243, without restricting or accurately estimating the maximum rate of coke burn-off. IR009242-43; IR008052.

After adding and subtracting, the Director determined that the Expansion would cause an 8.35 tpy increase in PM_{2.5} emissions – slightly under the significance level of 10 tpy. IR008568. Therefore he concluded the Expansion was not a major modification and not subject to Rule 307-403.

C. The Director's Minor Source NSR Permitting

The Director must comply with Rule 307-401-8 whether the Expansion is a major or minor modification. The rule, by its own terms, *see Sierra Club*, ¶13 (“We review administrative rules in the same manner as statutes, focusing first on the plain language of the rule.”), applies equally to minor or major modifications. Utah Admin. Code r.307-401-3.

Under Rule 307-401-8, the Director may issue an AO only if he determines that the “degree of pollution control for emissions...is at least BACT.” Utah Admin. Code r.307-401-8(1)(a); *id.* r.307-401-8(5). BACT is an “emissions limitation...based on the maximum degree of reduction for each air contaminant which...is achievable[.]” *Id.* r.307-401-2(1); *Sierra Club* ¶48. The goals of BACT emission limitations are: “(1) to achieve the lowest percent reduction, (2) to protect short-term ambient standards, and (3) to be enforceable as a practical matter.” *Sierra Club*, ¶48 (*citing NSR Manual*, B.6-.9); *NSR Manual* B.56 (“BACT emission limits...must...demonstrate protection of short-term ambient standards (limits written in pounds/ hour) and be enforceable as a practical matter (contain appropriate averaging times, compliance verification procedures and recordkeeping requirements).”).

In addition to his obligation to protect short-term NAAQS by imposing appropriate BACT emission limitations, the Director has an independent duty to ensure that emissions from any modification will not interfere with the attainment or maintenance of the NAAQS. Utah Admin. Code r.307-401-8(1)(b)(vii); *id.* r.307-401-8(5).

EPA established short-term NAAQS because spikes in air pollution of a shorter duration are as harmful to public health as long-term exposure to lower levels of pollution. Short-term NAAQS include standards prohibiting concentrations of SO₂ and NO_x from exceeding designated levels monitored over a one-hour period. 75 Fed. Reg. 35520 (June 22, 2010); 75 Fed. Reg. 6474 (February 2, 2010). The 24-hour PM_{2.5} and PM₁₀ NAAQS, 78 Fed. Reg. 3086 (January 15, 2013), and the eight-hour ozone standard, 73 Fed. Reg. 16436 (March 27, 2008), also protect against high levels of these air pollutants averaged over shorter periods of time.

The Director applied BACT to various Expansion emission units, including 11 process heaters, Boiler#11, FCCU25, and the South Flare. IR008495-8518.⁸ The resulting SO₂ and NO_x emission limitations are typically expressed by daily and yearly (365-day rolling) averages and **not** as hourly limits. IR009245; IR009248. The limitations on FCCU25 SO₂ and NO_x are averaged over a rolling 7-day and 365-day period. IR009242-43. The SO₂ limit on the FCCU25 scrubber is averaged on a daily and yearly basis. IR009245. The source-wide limitations on both SO₂ and NO_x are averaged daily or on a 365-day rolling basis. IR009245; IR009248. SO₂ emissions from the South and North flares are not limited by the permit, IR009186-87; IR009241-51, and only annual “non-upset” NO_x flare emissions are restricted by the AO. IR009249. NO_x emissions from the heaters and boilers are determined on a three-hour basis, but compliance is gauged by a stack test performed once in three years. IR009249-50.

⁸ The Director is also required to derive and impose BACT on the North Flare.

Compliance with the PM₁₀ emissions from the “NSPS” heaters and boilers are evaluated by a yearly stack test. IR009248.

The Director admits that the two Holly flares will be a significant source of air pollution. Each year, emissions from each flare due to “upsets” will amount to 120 tons of SO₂, 21 tons of CO, 4 tons of NO_x and 8 tons of VOCs. IR008561; IR002865. The Director proposed to limit flare emissions by removing exemptions for flares from the emission caps for SO₂ sources, IR008568, PM₁₀ sources, IR008569, and NO_x sources. IR008569. The final AO contains “no limits on the flares.” IR009186-87. The AO does not require a calculation of flare SO₂, CO, VOCs or PM₁₀ emissions in order to determine whether the sources covered by emission caps are complying with the relevant emission limitations. IR009245-48. For NO_x, the AO limits only annual “non-upset” emissions by including only “non-upset” flare throughput rates in the calculation of emissions. IR009249. The AO does not limit any “upset” flare emissions for any pollutants. IR009241-51. “[F]lares are in place as control device for upset conditions.” IR009186.

Holly modeled the impact of the Expansion on NAAQS, IR002993-96, and showed an increase in NO₂ concentrations equal to 95% of the one-hour NAAQS. IR00003596. Holly’s modeling did not include any “upset emissions” from the flares, IR009214, did not determine maximum short-term emissions and instead used as inputs average annual emissions that masked any spikes in air pollution. IR002993-96. The Director acknowledged that the Refinery experiences significant variability in day to day emission and production levels. IR009187.

SUMMARY OF ARGUMENT

Families living along the Wasatch Front are held hostage by air pollution. During frequent wintertime inversions, they are told to stay indoors and not to exercise. They cough, get headaches and struggle to breathe. The fine particles, individually invisible but concentrated enough to block the sun, enter the body, causing inflammation and increased blood pressure, heart attacks and stroke. PM_{2.5} damages lungs, retards lung function and penetrates and impairs the brain. Developing fetuses are prone to genetic damage and lifelong diseases as they are exposed to the air pollution their mothers breathe.

By 2015, the year the law promised them relief, the citizens of Utah were still trapped in unhealthy air. The State's plan to reduce emissions was not adequate and the date of compliance with the NAAQS was pushed off until 2020. In December 2015, Salt Lake, Davis, Weber, Box Elder and Tooele counties will be re-designated a "serious" non-attainment area and the State will have to develop a new plan with stricter measures to secure the necessary emission reductions. Utahns will face at least five more years of unhealthy air. In the meantime, they are entitled to all the protections the Clean Air Act provides and all the steps toward healthy air the law guarantees.

When a major source like the Refinery proposes a project that will increase emission of PM_{2.5} in the Salt Lake serious nonattainment area, much is at stake – the expeditious compliance with the NAAQS and the corresponding health benefits that legal promise entails. The Director must determine if the project is a major modification and therefore if Rule 307-403 applies. The purpose of this assessment is clear. In an area

already plagued by unhealthy levels of air pollution, where emissions must be reduced as expeditiously as possible, air pollution increases are not permissible.

Although an accurate calculation of projected $PM_{2.5}$ increases is fundamental to implementation of the NSR program, the Director did not make a defensible determination. First, to deem the Expansion a minor modification, the Director used an emission rate 20 to 25 times smaller than the emission rates derived from several sources the Director has deemed reliable and referenced again and again for his NSR permitting. Second, the Director approved an emission reduction for the retirement of a flare that Holly claims, without showing its monitoring data, assumptions or calculations, emitted more $PM_{2.5}$ each year than both of Holly's other, larger flares combined and more than all the flares at the Holly, Tesoro and Big West refineries put together. Third, the Director determined the PTE for FCCU25, the largest source of $PM_{2.5}$ emission increases, from a rate of 0.3-lb PM_{10} /1000-lb coke-burned, without restricting or accurately estimating the maximum hourly rate at which coke may be burned in the unit. This means that the FCCU25 PM_{10} emissions are not subject to a hard ceiling and the Director's calculation of PTE without a limit on coke-burn rate will necessarily be inaccurate.

The next line of defense safeguarding Wasatch Front air quality is Rule 307-401, which covers minor modifications. Again, the Director misapplied the law, failing to assure that the Expansion would not impede the attainment or maintenance of the NAAQS. The Director acknowledged that during upset conditions, Holly's flares would be a significant source of air pollution – for example, emitting double the Refinery-wide SO_2 emission cap – but did not restrict these emissions. The Director decided not to

impose short-term limits on the Refinery to protect the short-term NAAQS, claiming that modeling showed such restrictions were unnecessary. Actually, Holly modeled neither upset flare emissions nor maximum short-term emission rates, and instead relied on average annual rates, underestimating impacts to short-term NAAQS. Still the company's analysis showed that the Expansion threatened the one-hour NO₂ NAAQS. The Director also neglected his permitting obligations by failing to clarify the application of NSPS Subpart Ja to the Expansion and refusing to specify the exact conditions of this complex rule that apply to the Refinery.

As explained below, although the Director has discretion to carry out the Clean Air Act, the people of Utah have a right to every emission reduction the law requires. Unless and until the Director carries out his NSR obligations with the requisite rigor and basis, Utahns are not receiving the relief to which they are entitled.

ARGUMENT

I. The Director's Calculation of Increases in PM_{2.5} Emissions from the Expansion Is Fatally Flawed.

Because the law requires it and because PM_{2.5} air pollution from the Expansion will be added to our already seriously unhealthy air, it is critical that the increase in emissions be calculated accurately and supported by the Record. As EPA states, PTE "is of primary importance in establishing whether a...modified source is major." *EPA NSR Manual* A.4. Despite the importance of the undertaking, the Director's calculation reflects an erroneous application of the law, is not supported by the Record, is "contrary

to [his] prior practice,” and unjustified and unfair as well as arbitrary and capricious.

Utah Code Ann. § 63G-4-403(4)(d), (4)(g), (4)(h)(iii)-(iv).

A. The Director’s Departure from Prior Practice and Inconsistent Reliance on the NEI Constant is Unlawful.

Abruptly diverging from prior practice, reversing positions in the middle of permitting, embracing inconsistent methods in a single AO and deviating from a previous AO determination, the Director improperly adopted a National Emission Inventory (NEI) constant of 0.00042 lb/MMBtu – a number designed for calculating a national inventory of air pollution – to estimate PM_{2.5} PTE for an arbitrary subset of Holly’s boilers and heaters. *E.g.* IR008558-9; IR008419.⁹ The Director’s application of the NEI constant to some, but not all, heaters and boilers, represents a radical departure from the manufacturer’s own specifications, EPA’s AP-42 emission factors, Holly’s BACT analysis and the Director’s 2010 AO and BACT. The NEI constant represents an emission rate 1/20th-1/25th of the manufacture’s guarantee and the standard AP-42 emission factor, is 20-25 times lower than what Holly called the “lowest emission limits” in the nation and results in an estimate of total PM_{2.5} emissions 29 times smaller than NOI calculation. Therefore the Record does not support the adoption of this outlying emission rate and confirms that the resulting PTE does not reflect the maximum capacity of the heaters and boilers to emit PM_{2.5}.

⁹ 0.43 lb PM_{2.5}/MMscf equals 0.00042 lb/MMBtu.

1. The Director Deviated from His Prior Practice and Arrived at an Emission Rate Out-of-Sync with Sources He Deemed Reliable.

Neither Utah, the other 49 states, nor EPA has ever used a NEI constant to calculate PTE for NSR. *E.g.* IR008911-12; IR009043; IR007239-42. The Director's own forms and guidance establish what the "NSR Section" – the Director's permitting branch – has long considered appropriate methods for calculating emissions, directing applicants to use manufacturer specifications or AP-42 emission factors.¹⁰ DAQ NSR *Form 19, Natural Gas Boilers and Liquid Heaters* commands: "Supply calculations for all criteria pollutants[.] Use AP-42 or Manufacturers' data to complete your calculations." Exhibit H at 3; *Form 2 – Process Information* at 2 (same). DAQ's *Emission Calculation Sheets – Boiler Emissions Natural Gas* states: "Emission factors are from EPA AP-42[.] Most newer boilers have smaller emission rates, if you have manufacturer's emission rates you should use them. Please include the manufacturer's literature as a reference for why you are using different factors." Exhibit I at 2; *Boiler Emissions Fuel Oil* (same). The DAQ *AP-42 Guide* confirms: "EPA's AP-42 is the recommended source of air pollutant emission factors for both criteria and toxic emissions."¹¹ Similarly, the recent *Emission Estimation Protocol for Petroleum Refineries* confirms that for combustion sources, if "direct emission monitoring or site-specific emission factors are not available...default emission factors may be the only way to estimate emissions" and "emission factors in

¹⁰ An emissions factor is supposed to be a representative value that relates the quantity of a pollutant emitted with an associated activity.

¹¹ www.deq.utah.gov/ProgramsServices/programs/air/emissionsinventories/ap42guide.htm

AP-42 are the recommended default emission factors, and AP-42 should be consulted to obtain the appropriate emission factors for criteria pollutants such as SO₂, NO_x, PM, and CO.” IR008715; DAQ’s *NOI Guide* at i., v. & 2 (linking to “AP-42: EPA’s Air Pollutant Emission factors”).¹²

Consistent with this longstanding approach, the Director and Holly identified PM₁₀/PM_{2.5} emission rates ranging from 0.010 lb/MMBtu to 0.0075 lb/MMBtu for the Refinery Boilers#8-11 and various process heaters based on the sources the Director’s own materials deem reliable – manufacturer’s data and EPA’s AP-42 emission factors – and consistent with BACT and the “lowest emission rates” across the country.

The Director and Holly acknowledge that the manufacturer’s guaranteed PM₁₀/PM_{2.5} emission rate for Boilers#8-#11 is 0.010 lb/MMBtu. IR008502 (“[M]anufacturer’s data indicates a guaranteed emission factor of 0.010 lb/MMBtu”); IR003053 (“PM₁₀/PM_{2.5} emissions based on manufacturer supplied emission rate of 0.010 lb/MMBtu” for Boiler#11); IR002920 (same). Holly concludes that a 0.010 lb/MMBtu emission rate for Boiler#11 represents BACT, IR002920, an emission limitation based on “best available control technology,” Utah Admin. Code r.307-401-2(1) (BACT definition), and states that 0.0075 lb/MMBtu is the “lowest [boiler] emission rate[] identified in the past four years.” IR002920; IR002829 (“Emission estimates...based on

¹² “In some cases” source-specific stack tests may be used as emission factors. *NOI Guide* at 2; IR008013 (EPA AP-42 Guide stating “source-specific tests or continuous emission monitors can determine” emissions better than emission factors and giving as alternative “emissions information from equipment vendors, particularly emissions performance guarantees or actual data from similar equipment”).

manufacturer data, EPA...AP-42, fuel type, and anticipated operating hours.”); IR002847 (same); IR003045 (using AP-42 to calculate boiler emissions); IR003049. Holly and the Director also decide that EPA’s AP-42 emission factor for natural gas boilers – 0.0075 lb/MMBtu – is the most appropriate emission rate for all the other Refinery boilers. IR008549 (applying emission rate of 7.65 lb/MMscf); IR008558.

For the process heaters, reliable sources also zero in on an emission rate – 0.0075 lb/MMBtu. In the NOI, Holly calculates PM₁₀/PM_{2.5} emissions from its “new” NSPS heaters using AP-42 emission factor 0.0075 lb/MMBtu.¹³ *E.g.* IR003045-46; IR003048-50. Holly concludes that the PM₁₀/PM_{2.5} emission factor that best represents BACT is the rate based on manufacturer data – 0.0075 lb/MMBtu. IR002902. Holly “lists the lowest emission rates identified in the past several years” for process heaters – all of which hover around 0.0075 lb/MMBtu. IR002902-3. In the NOI, Holly applies AP-42 to calculate process heaters/furnace PM_{2.5} emissions. *E.g.* IR002847; IR003045-46; IR003048-50. Holly and the Director also decide that EPA’s AP-42 emission factor for natural gas boilers – 0.0075 lb/MMBtu – is the most appropriate emission rate for all other Refinery heaters. IR008549; IR008558.

Finally, the Director determined in a previous permitting decision – the 2010 AO – that Boilers#9-#10 – which have been constructed – have a PM₁₀/PM_{2.5} emission rate of 0.005 lb/MMBtu. IR008193 (5 lb/MMscf).¹⁴ At the time, he also determined that this emission rate reflects BACT. Utah Admin. Code r.307-401-8(1)(a).

¹³ Sometimes expressed as 0.008 lb/MMBtu.

¹⁴ lb/MMscf is converted to lb/MMBtu by dividing by 1020. AP-42, Table 1.4-2.

Thus, before departing from the position that manufacturer data and AP-42 were the best way to calculate PTE, the Director and Holly both concluded that a representative emission rate for the NSPS boilers and heaters, based on information long deemed reliable, was between 0.010 lb/MMBtu and 0.005 lb/MMBtu. Holly put complete confidence in manufacturer data to derive the appropriate emission rate – and backed this up with a survey of the “lowest emission rates” in the country to settle on a boiler emission rate of 0.010 lb/MMBtu and a heater rate of 0.0075 lb/MMBtu. The Director applied the emission rate of 0.005 lb/MMBtu to the existing Boilers#9-10 based on his determination of BACT. The rates from all these credible sources are similar in magnitude, further underscoring their reliability.

Then, in sudden disregard for sources he deemed most dependable, manufacturer guarantees and AP-42, and contrary to his 2010 AO determination and Holly’s BACT, the Director departed from his previous position to capitulate to the 0.00042 lb/MMBtu inventory constant – a mere 4% or 1/25th of the manufacture-specified value for boilers and 5% or 1/20th of the guarantee for heaters. IR008502; IR002902; IR002920; IR003053. The inventory constant is also 20-25 times lower than what Holly deemed the “best available” and “lowest” emission rate in the U.S, IR002902-3; IR002920, and 20-25 times less than EPA’s AP-42, the emission factor Holly relied on in the NOI to calculate emissions from the “NSPS” boilers and heaters, IR002847; IR003045-46; IR003048-50, and the basis for the emission rates applied to the remaining boiler and

heaters. The Director also bypassed his own 2010 AO determination of BACT emission rates for Boilers#9-10 and refused to require stack testing of this existing equipment, calculating a PTE for existing boilers 8% or 1/13th of his 2010 AO determination. IR008193.

The consequences of this new math are significant. Relying on manufacturer data and BACT, the Director's PM₁₀/PM_{2.5} PTE for the NSPS boilers and heaters is 19.81 tpy— alone almost twice the 10 tpy threshold that makes the Expansion a major modification. Using the NEI constant, that number is 0.69 tpy – 3.5% or 1/29th – of the total representing the rates from manufacturer's data, AP-42, BACT and the 2010 AO.

Unit	Original PM ₁₀ /PM _{2.5} Emissions (tpy) IR002834	"New" PM _{2.5} Emissions (tpy) IR008367
Boiler#11	3.91	0.16
27H1	3.25	0.18
24H1	1.97	0.11
25H1	1.48	0.08
20H3	1.38	0.08
Boilers#9-#10	7.82 ¹⁵	0.08 ¹⁶
Total	19.81	0.69

¹⁵ IR002842.

¹⁶ IR008410.

These numbers evidence an arbitrary departure from established practice, particularly when there is no basis in the Record to embrace an emission rate so out-of-sync with the rates derived from a host credible sources – manufacturer’s data, AP-42, BACT and permit limits from other sources that reflect the lowest emission rates in the nation. While the manufacturer’s data, EPA’s AP-42 emission factors, Holly’s BACT analysis and the 2010 AO all arrive at emission rates of a similar magnitude, the NEI constant is a complete outlier, deviating radically from the emission rates both Holly and the Director embraced at one time, and have continued to apply to the “non-NSPS” boilers and heaters. Because the so-called NSPS boilers and heaters are not necessarily “new,” there is nothing to distinguish them from the non-NSPS boilers and heaters that the Director believes have an emission rate considerably higher than the NEI constant. IR008558 (“Holly Refinery and DAQ are less confident this older equipment can verify these lower NEI emission factors.”). Indeed, there is nothing in the Record to explain why the PM_{2.5} emission rates for one set of boilers and heaters at the refinery would be 20-25 times lower than the PM_{2.5} emission rates for another set.

Thus, the Director’s adoption of the NEI constant is subject to remand. The Director’s action is “contrary to [his] prior practice” and he has not “justifie[d]” the departure “by giving facts and reasons that demonstrate a fair and rational basis for the inconsistency.” Utah Code Ann. §63G-4-403(4)(h)(iii). The Director’s unlawful reliance on future stack tests to support a calculation that must accurately reflect PTE before construction commences subverts r.307-403 and the protections it provides. Given that the NEI constant is so much smaller than the rates derived from sources the Director

deems credible, he has failed to derive a legally defensible PTE that represents “the maximum capacity of a source to emit a pollutant[.]” Utah Admin. Code r.304-101-2.

2. The Director Did Not Provide a Fair or Reasonable Basis for His Inconsistency or Deviation from Prior Practice.¹⁷

The Director attempts to justify his abandonment of manufacturer’s specifications, the 2010 AO, BACT and AP-42, but this effort fails. He contends that “NEI emission factors can be used for estimating PTE emissions as long as Holly...can demonstrate compliance with these emissions factors through stack testing[.]” IR009216; IR008558-59; IR009215-19; IR008545. However, these stack tests will not occur until well after the Expansion is complete. IR008545; IR009248. As a result, the Director subverts Rule 307-403’s “preconstruction” permitting process. In particular, emission offsets must be “enforceable by the time a...modified source commences construction,” Utah Admin. Code r.307-403-4(2), and the Director must analyze “alternative sites, sizes, production processes, and environmental control techniques” to determine if purported benefits of the Expansion “significantly outweigh the environmental and social costs imposed as a result of [the]...modification” *Id.* r.307-403-10. For example, the purpose of “analysis of alternatives,” which considers, *inter alia*, siting the Expansion outside of the non-attainment area, and the requirement that offsets be enforceable at the commencement of construction, would be frustrated if the Director tried to comply with them after the Expansion is constructed and operating.

¹⁷ The ED’s findings are found at ADJ011622-23. Pertinent Record evidence includes England reports, IR007238-58; IR008024-44, the Director’s RTC, IR009215-18, and the SPR. IR008558-59.

The Director also contends that should stack tests “indicate that the equipment cannot meet the 0.00051 lb/MMBtu for PM₁₀,” Holly “would be required to either install additional control equipment to comply with this limit, or submit an application to reevaluate the project...for Major NSR applicability.” IR009216; IR009215-19. This explanation lacks merit. Under r.307-403, post-construction application of “Major NSR” is too late. Holly’s own BACT analysis concludes that there is no further way to reduce PM_{2.5} emissions from the heaters or boilers. IR002902 (“the only control technology” – which was adopted – “is...good combustion practices and use of low sulfur...fuel”); IR002919; IR008502. Therefore there is no “additional control equipment” to install.

Finally, in determining whether the NEI constant actually represents boilers and heaters PM_{2.5} emissions, the most the Director can say is “EPA believes that the current AP-42 factors for condensable emissions are too high based on some limited data from a pilot-scale dilution sampling method[.]” IR008558; IR009215-19. This lukewarm statement – which cannot overcome the vast deviation from the relevant manufacturer’s data, 2010 AO, BACT and AP-42 – is not supported by the Record.

First, EPA experts did **not** advocate using NEI data as the basis for an emission factor, noting the lack of “detailed supporting information,” explaining that even if the NEI numbers were more reliable, they would still have to be averaged with other data, expressing concern that the sampled population would not be representative and pointing to recent NSPS boiler standards as a better estimate of emissions. IR008911-12; IR009043 (explaining an emission factor would not be valid without an underlying test report). The Record further explains why EPA lacks faith in the NEI constants, listing

the significant uncertainty associated with the “England” factors and acknowledging that the EPA had not reported any of the details that supposedly support the agency’s NEI numbers, such as the statistical significance, associated uncertainty or number of tests that purport to back them up. IR007248.

Second, England, Holly’s own expert and author of a report on a “dilution” sampling method that was the basis for the NEI constant, IR008911, acknowledged that his emission estimates were not ready for use, cautioning that they: 1) “should not be considered representative of all units within the same source category,” 2) “should be used with considerable caution;” 3) “do not necessarily represent results from a random sample of an entire source category;” and, 4) “may best be used in conjunction with test results from other units within the same source category...to develop more robust, reliable emission factors.” IR008998-99; IR009000-01; IR007248 (showing considerable uncertainty for the dilution method).¹⁸

Third, while the Director calls these selected boilers and heaters “new,” nothing in the Record suggests that they are. IR008558. Actually, this equipment is subject to NSPS, *id.*, and therefore could be constructed or modified. 40 C.F.R. § 60.1. For example, the mothballed FCCU25 comes “from an idled New Mexico refinery,” IR002821, but has been called “new” and is subject to NSPS Subpart Ja. IR002868.

Fourth, the Director’s reliance on an unapproved PM_{2.5} “emissions factor” based on severely limited “NEI” data violates federal and state law. *See* 42 U.S.C. §7430

¹⁸ At IR008022-44, the author of these statements attempts to rehabilitate his study and discount his previous warnings.

(requiring EPA approval of emissions factors not established by EPA); IR008020 (because “AP-42 emission factors may have effects on most aspects of air pollution control...these factors are always made available for public review and comment before publication.”). And, unlike AP-42, they have never been vetted or subject to public notice and comment. Thus, the Director has failed to show that his departure from previous practice is reasonable and fair. Utah Code Ann. § 63G-4-403(4)(h)(iii).

B. The Director Failed to Provide a Defensible Calculation of Emission Decreases from Closure of the Propane Pit Flare.

In assessing whether the Expansion is a major modification, the Director also authorized Holly to claim a credit for closing the PPF and therefore to subtract 2.19 tpy from the Expansion’s PM_{2.5} emission increases. IR008564; IR008369.¹⁹ However, the absence of support and significant inconsistencies that surround this number mean that the Director’s reliance on the 2.19 tpy PM_{2.5} credit cannot be sustained.

First, 2.19 tpy of PM_{2.5} represents an enormous level of emissions coming from a hydrocarbon flaring device like the PPF, particularly in comparison to the South and North flares, which are also hydrocarbon flaring devices, IR004473, and considerably larger than the PPF. IR002852 (South Flare non-upset flow 17,000 scf/h); IR003176 (PPF 280 scf/h); IR003164 (North Flare 21,960 scf/h). Holly estimates that under both upset and non-upset conditions, PM₁₀/PM_{2.5} emissions from the South and North flares are zero (0.0). IR002865; IR002996; IR003029; IR003069. The draft PM_{2.5} non-attainment State Implementation Plan (SIP) calculates the “actual” 2008 PM_{2.5} emissions

¹⁹ The ED’s findings are found at ADJ011639-40.

for all Holly, Tesoro and Big West refinery flares combined as 1.44 tpy. IR008153.

Therefore, the “actual” emissions from the PPF eclipse the emissions from the North and South flares and are even greater than the State’s estimate of all the PM_{2.5} emissions from all the flares at the three local refineries, including Holly. This casts doubt on the reliability of the 2.19 tpy PM_{2.5} emission credit and the Director’s claim that the credit reflects actual emissions.²⁰

Second, according to the Director, the 2.19 tpy credit is accurate because Holly used AP-42 emission factors to determine “actual” PM_{2.5} emissions from the PPF based on continuously monitored throughput for 2008-2009. IR008564; IR009218; ADJ011101; ADJ011204 (DAQ relied on calculations “based on monitored throughput data of propane to the flare and AP-42 emission factors.”). While AP-42, 13.5, gives a vast range of emission factors, spanning from 0 to 274 µg/L depending on whether the flares are not smoking or are smoking heavily, AP-42, 13.5-4, Exhibit J, the PPF “actual” PM_{2.5} emissions were the same for the years 2009 to 2011. This suggests the unlikely scenario that the PPF was smoking at a consistent yearly average, somewhere between 0-274 µg/L, for three years in a row.

Third, the AP-42 emission factors calculate soot, not PM_{2.5}. *Id.* Yet, nothing in the Record explains how the emission factor for soot was used to calculate PM_{2.5}. Without a foundation in the Record, the Director is not free to assume that all flare soot is

²⁰ The 2.19 tpy credit is exaggerated. Using AP-42 emission factors, Utah Physicians back-calculated the propane the PPF would have had to burn to generate 2.19 tpy PM_{2.5}. The answer was more than 8 million dollars’ worth of propane each year, with constant flaring, visible night and day. IR008596-97.

PM_{2.5}. Also, AP-42 factors for flares are based on gas that is 7% propane, AP-42, 13.5-5, but the Director does not explain how “actual” emissions were derived from emission factors applied to gas that is presumably 100% propane.

Fourth, the Director claims that new PPF installed in 2009 added “air assist (to control smoke production).” IR008564; AP-42, 13.5-3 (“Soot is eliminated by adding steam or air”). He also maintains that “emission estimates” for the new PPF “compared to the flare prior to replacement did not change because reported emissions (prior to and after replacement) were based on AP-42...emission factors [and] bringing the flare into compliance did not adjust emissions.” IR008564; IR007270-71; IR009182. However, according to the Record, PM_{2.5} emissions from the PPF actually increased in 2009 (from 1.78 tpy in 2008), when the Consent Decree required replacement of the PPF, IR007270, and remained exactly the same – 2.6 tpy – for 2009, 2010 and 2011. IR003035. Again, it is difficult to explain how “actual” emissions based on real monitoring data and variable emission factors could remain static and the Record does not do so.

Fifth, Holly explains that under the Consent Decree it agreed to “[e]liminate the routing of continuous or intermittent, routinely-generated refinery fuel gases to” the PPF. IR004385; IR007951 (Consent Decree “requirement” for PPF to “eliminate all routinely-generated gas”), *but see* IR009182. The Consent Decree also imposes on Holly the obligation to “implement good air pollution control practices to minimize emissions from its Flaring Devices as required by 40 C.F.R. §60.11(d).” IR004384. When pressed, Holly defended the PPF’s high and undocumented PM_{2.5} emissions, claiming “[t]hat the propane pit flare may have been flaring continuously to equate with the...baseline is of

no consequence – it is likely that given the obvious inefficiencies...the flare was flaring continuously to manage the amount of gas released from the pit.” ADJ011204.

Therefore, Holly admits that the claimed 2.19 tpy PM_{2.5} credit likely runs afoul of the Consent Decree and federal requirement that Holly minimize emissions.

These substantial discrepancies, at a minimum, underscore that the Record must include a sound basis for the 2.19 tpy credit. But there is none. *E.g.* IR003035. Despite the importance of an accurate determination of net PM_{2.5} emissions and therefore any credit attributable to the closure of the PPF, the Record is devoid of any specific emission factors, conversions, equations, calculations, assumptions or monitoring data to substantiate Holly’s claimed PPF emissions. IR003035; *DAQ NOI Guide* (“Give calculations of the emission estimates.... Include equations, all relevant emission factors, and references. Explain all assumptions...made in your calculations.”). Although the Director insists that the PPF PM_{2.5} emissions were based on “actual throughput data,” IR009218, neither he nor Holly provides those data. IR003035. As a result, for lack of foundation, the 2.19 tons of PM_{2.5} credit is not supported by the Record and the Director’s reliance on it to conclude the Expansion is a minor modification is invalid.

C. The Director's Estimate of the FCCU25 PM_{2.5} Emissions Does Not Reflect the "Maximum Capacity of the Source to Emit" PM_{2.5}.

When Holly decided "to switch its crude oil feedstock source from...Select Canadian Crude to Utah Black Wax Crude (BWC)," IR007166, it proposed to bring a mothballed fluidized catalytic cracking unit (FCCU25) from New Mexico, IR002821, to process BWC in the Salt Lake non-attainment area. IR002816; IR002810. This "central" change, constituted a "revision in the planned nature of the crude oil feed to the refinery." IR002839. "Given the differences between these feedstock sources," Holly sought authorization to install new equipment and modify existing equipment so that it could now refine BWC. IR007168.

For example, because it will process BWC, FCCUC25 will not be equipped with a hydrotreater to control emissions as the BWC "heavy residual bottoms fraction" makes hydrotreatment "infeasible." IR002937. In keeping with this assessment, Universal Oil Products (UOP), world leader in FCCU technology, concluded that BWC has a relatively high tendency to produce coke in a FCCU. IR008598-99;²¹ IR004250 ("Coke is a high carbon residue that is the final product of thermal decomposition in the condensation process in cracking."). Feedstock with a higher "coke-burn rate" will produce more coke in an FCCU, resulting in a proportional increase in PM_{2.5} emissions. *Id.*; 40 C.F.R. §60.101a; *id.* §60.104a.

²¹ The Director discounted this information, but did not endeavor to derive the degree to which BWC would produce coke in FCCU25, IR009219, while acknowledging "different feedstocks can result in slightly different emission profiles[.]" IR009194.

Because PM_{2.5} emissions from FCCU25 comprise 97% of the Expansion's total PTE, an accurate calculation of the emission increases from this unit is crucial. However, the Director's calculation is legally and factually flawed. PTE must reflect "the maximum capacity of a source to emit a pollutant[.]" Utah Admin. Code r.304-101-2. A limitation on the capacity of the source to emit will be considered in a PTE calculation only if the limit is "federally" and "practically enforceable." *Id.*; *EPA NSR Manual* A.4-A.5. Where limitations are not enforceable, PTE is based on a unit's full capacity and year-round operation. *Id.* A.9; r.304-101-2.

Here, the Director relied on an AO limit of 0.3-lb PM₁₀/1000-lb coke burned, IR009243, and Holly's "engineering calculation" of a "maximum" coke-burn rate of 6200-lbs/hr, IR003047, to arrive at a PTE PM_{2.5} of 8.15 tpy. IR008367. However, the 8.15 tpy does not reflect the maximum capacity of FCCU25 to emit PM_{2.5} because there is no federally and practically enforceable limitation that restricts the coke-burn rate or the amount of coke/hr that Holly may burn. The AO does not put a 6200-lbs of coke-burn/hr or similar limit on FCCU25. IR009242-43. The AO does not require Holly to track the coke burned in FCCU25. IR009242-43. The AO does not even require a reality check or any verification that FCCU25 will meet the 6200-lbs/hr rate that is the basis of the PTE calculation.²² IR009242-43. For these reasons alone, the 8.15 tpy does not meet

²² As established above, r.307-403 does not permit verifications of PTE after construction but rather demands accurate PTE calculations before construction.

the definition of PTE. After all, nothing in the AO constrains Holly from exceeding the 6200-lb/hr coke-burn rate.²³

Given that FCCU25 will process BWC and its heavy residual bottoms, it is almost certain that the 6200-lb/hr coke-burn rate will be surpassed. Because PTE represents the maximum capacity of a source to pollute, the Director's PTE must estimate emissions during the worst-case scenario, when the FCCU25 is emitting the maximum PM_{2.5} it is capable of releasing while still complying with applicable federally and practically enforceable permit limitations. Here, where there are no restrictions on the feedstock that FCCU25 may process, PTE must be calculated for "the most pollutant-generating" crude Holly is authorized to put into the unit – the crude that will generate the most coke. As EPA instructs:

Where raw materials or fuel vary in their pollutant-generating capacity, the most pollutant-generating substance must be used in the potential-to-emit calculations unless such materials are restricted by federally enforceable operational or usage limits. Historic usage rates alone are not sufficient to establish potential-to-emit.

NSR Manual c.2 (Appendix).

Said another way, there is nothing in the Record to suggest that the 6200-lb/hr coke-burn estimate reflects emissions from FCC25 for "the most pollutant-generating" feedstock Holly is authorized process.²⁴ Indeed, the Director is remiss. Although r.307-401-5(2)(a) requires Holly to describe "the nature...and quantities of raw materials" it

²³ The ED's findings are found at ADJ011610-11. Relevant to the inquiry are IR009219; IR009192; IR009208; IR008052; IR009229.

²⁴ By acknowledging "different feedstocks can result in slightly different emission profiles," IR009194, the Director is obligated to determine PTE for the feedstock that will generate the most PM_{2.5}.

proposes to process and although he cannot make a defensible permitting decision without it, the Director does not attempt to determine the impact that the “revision in the planned nature of the crude oil feed to the refinery,” IR002839, “the differences between the[] feedstock sources,” IR007168, will have on the PTE of FCCU25. Rather, he rejects the notion that he must determine the maximum capacity of FCCU25 to emit pollutants by considering, *inter alia*, emissions from its “most pollutant-generating” feedstock. IR009194 (“While it is true that different feedstocks can result in slightly different emission profiles, attempting to address every possible specific chemical profile would be impossible.”). As a result, the PTE is legally insufficient and lacks a basis in the Record.

The Director defends his PTE by claiming that the capacity of FCCU25 – which he lists as an “annual average capacity of 8,500 bpd,” IR009229, functions as a limitation on PTE. IR009192; IR009208. However, the Record makes no link between the 8,500 bpd capacity and a coke-burn rate of 6200-lb/hr. After all, the 8.15 tpy PTE is accurate only if it is based on the maximum capacity of FCCU25 to emit PM_{2.5} and therefore only if FCCU25 never exceeds the 6200lb/hr coke-burn rate. And yet, the Director does not explain why the unit’s annual average barrel-per-day capacity will prevent FCCU25 from exceeding the 6200-lb/hr rate. In contrast, the formula for calculating coke-burn rate is based on a host of factors that have nothing to do with capacity. 40 C.F.R §60.104a. As the UOP analysis and 40 C.F.R §60.104a show and as the Director admits, IR009194, the composition of the feedstock has a direct influence on coke-burn rate. IR008599-600. PTE must also reflect the maximum capacity of a source to emit pollutants, so reference to “annual average” is not helpful. Instead, the Director must provide the “maximum

capacity” of FCCU25 and then explain how that capacity would prevent FCCU25 from exceeding the estimated 6200-lb/hr coke-burn rate.

Finally, any reliance the Director placed on Holly’s “calculation supporting the coke-burn estimate,” IR009219, is misplaced. First, the calculation is based on the 2013 operation of the existing FCCU4, IR008052, likely processing Select Crude and not on an estimate of FCCU25 processing “the most pollutant-generating” feedstock. Second, FCCU4 has a hydrotreater, IR008052, and FCCU25 does not. IR002937. Holly admits that “hydrotreating...lowers coke load,” but makes no attempt to adjust or substantiate an adjustment to its calculation to reflect that FCCU25 has no hydrotreater. IR008052.²⁵ Third, a defensible PTE may not be based on “[h]istoric usage rates alone[.]” *NSR Manual* c.2. Rather, PTE must represent the maximum capacity of FCCU25 to emit PM_{2.5} as it processes “the most pollutant-generating” feedstock. Because Holly’s estimate of the coke-burn rate depends upon historic operations at a FCCU with a hydrotreater that was not processing the BWC that is incompatible with a hydrotreater, these past data points are not sufficient to establish potential-to-emit.

II. In Approving the Expansion, the Director Did Not Meet the Requirements of Rule 307-401-8.

Congress created the minor source NSR program to ensure that, *inter alia*, emissions from a minor modification to a major source, whether in an attainment or a non-attainment area, would not interfere with the achievement or maintenance of the

²⁵ Holly implies that the hydrotreater might reduce coke load by 10%, but the company lacks conviction and provides no basis for the suggestion. IR008052.

NAAQS. 42 U.S.C. §7410(a)(2)(C) (requiring a program “to provide for the enforcement of the measures...and regulation of the modification...of any stationary source...as necessary to assure that national ambient air quality standards are achieved”). As defined by the Clean Air Act and reflected in r.307-401-8, the purpose of Utah’s minor source NSR is to protect the national air quality standards, including short-term NAAQS. Rule 307-401-8 also imposes BACT on minor modifications. As an extension of Utah’s minor source NSR program, the resulting BACT emission limitation must further the goal of preventing a project’s emissions from impeding progress toward attaining the NAAQS or threatening compliance with the standards. Thus, whether he is permitting a minor or major modification or deriving a BACT emission limit, the Director must restrict emissions and apply the measures necessary to assure that NAAQS, including the short-term standards, are achieved. 42 U.S.C. §7410(a)(2)(C).

A. While Acknowledging the Flares Are a Considerable Source of Air Pollution, Including SO₂ and NO_x, the Director Fails to Protect Short-Term NAAQS from Flare Emissions.

The two Holly flares are a significant source of air pollution. Each is predicted to release an annual total of 120 tons of SO₂, 21 tons of CO, 4 tons of NO_x and 8 tons of VOCs during various upset events. IR008561; IR002865. During these episodes, the two units have the potential to emit 240 tons of SO₂ and 8 tons of NO_x, and to overwhelm corresponding daily source-wide emission limitations imposed on the Refinery’s operations. SO₂ and NO_x are PM_{2.5} precursors subject to a 1-hour NAAQS. Annual upset SO₂ emissions from the flares are more than double the SO₂ PTE for the entire refinery and are twice the 110.3 tpy SO₂ emissions cap on the entire plant. IR009225;

IR009245. The yearly SO₂ emissions from the flares alone will exceed the refinery's SO₂ PTE and SO₂ emissions cap by more than 200 percent.

1. The AO Does Not Limit Flare Emissions.

The Director proposed to limit flare emissions by removing exemptions for flares from the emission caps for SO₂ sources, IR008568, PM₁₀ sources, IR008569,²⁶ and NO_x sources. IR008569. However, he admits that the final AO contains “no limits on the flares.” IR009186-87. The AO does not require a calculation of flare SO₂, CO, VOCs or PM₁₀ emissions in order to determine whether the sources covered by emission caps are complying with the relevant emission limitations. IR009245-48. For NO_x, the AO puts a source-wide limit on flare emissions by calculating annual “non-upset” emissions based on “non-upset” flare throughput rates. IR009249.²⁷ Although “the flares are in place as control devices for upset conditions,” IR009186, the AO does not limit any “upset” flare emissions for any pollutants. IR009241-51.

2. The Director Failed Rule 307-401-8 by Neglecting to Protect Short-Term NAAQS from Unregulated Flare Emissions.

The Record confirms that the AO does not restrict the vast majority of the flare emissions, including the predicted annual emissions of 240 tons of SO₂, 42 tons of CO, 8 tons of NO_x and 16 tons of VOCs the Director defines as upset emissions. IR008561; IR002865. Because they will spike during upset conditions at the Refinery, these uncontrolled emissions will have a considerable effect on short-term concentrations of

²⁶ IR009247-48. But upset and non-upset PM₁₀ emissions from flares are estimated to be zero. IR002865; IR002996.

²⁷ The AO includes a 20% opacity limit on the flares. IR009241.

SO₂ and NO_x, easily outstripping the daily Refinery-wide SO₂ limit of 0.31 tons, IR009245, and the daily facility-wide 2.09-ton NO_x emission limitation. IR009248.

As a result, the Director cannot claim that he has met his obligation to protect short-term NAAQS and comply with Rule 307-401-8(1)(b)(vii). As the Director is also required to undertake BACT analysis for the flares, he has not fulfilled the added duty to derive BACT emission limitations or controls that likewise protect short-term NAAQS. Despite the magnitude of the unregulated flare emissions, there is nothing in the Record to demonstrate how the AO will protect the short-term NAAQS. Although the Record confirms that the unregulated flare emissions will be a substantial source of short-term emissions and will reach levels considerably higher than the “controlled” Refinery emissions, IR008561, IR002865, the Director did not impose AO limits or derive BACT controls that adequately resolve these “upset” emissions. IR009186-87; IR009241-51. He did not take steps to ensure that the Expansion will not interfere with the attainment or maintenance of the one-hour SO₂ and NO_x NAAQS and so violated Rule 307-401-8(1)(b)(vii). *Id.*

3. Holly’s Modeling Does Not Reflect Maximum Short-Term Emission Rates.

The Director claims that Holly conducted air quality modeling demonstrating “no violation of short-term NAAQS would occur[.]” IR009187; IR009190.²⁸ The Director admits that Holly’s modeling did not include any “upset emissions” from the flares.

²⁸ The ED’s findings are found at ADJ011583-85. Record evidence includes IR009109-91; IR009186-87; IR009209; IR009186-87; IR001153-54; IR003591-97; IR002993-96; IR009214; IR003017.

IR009214. Translating the emission rate values for the flares from grams/second to tons/year confirms that these rates do not include predicted upset emissions. For example, the short-term and annual NO_x emission rate of 0.1675 g/s for the South Flare, IR002996; IR002999, converts to 5.82 tpy, which is the estimated non-upset annual emission rate of South Flare, IR003069, and does not include the additional upset NO_x emissions of 4.0 tpy. IR008561; IR002865. Similarly, the modeled SO₂ emission rate – 0.0030 g/s, IR002996 – translates to 0.1043 tpy, which is the estimate of the South Flare’s annual SO₂ non-upset emissions, IR003069, and does not include the predicted 120 tpy of SO₂ the South Flare will release during upset conditions. IR008561; IR002865.

By omitting the considerable upset flare emissions from its “short-term” modeling, Holly failed to show that its emissions will not cause or contribute to a violation of short-term NAAQS. Modeling flare upset emissions may not be required by law. IR009214-15. The Director may not claim, however, that Holly’s modeling demonstrates protection of the short-term NAAQS unless that modeling considers the impact of the significant flare emissions that he predicts will occur during upset conditions.

The ED further states that “Holly’s emission modeling analysis contemplated... maximum emissions...on a lb/hr basis, thereby ensuring that any short-term spikes in emissions were accounted for...and would not cause exceedances.” ADJ011584 (*citing* IR002993-96). Examination of the inputs Holly used for its short-term modeling, IR002993-96, shows that the ED is incorrect. The emission rates Holly modeled do **not** represent “maximum emissions” or “short-term spikes” at all. The inputs for Holly’s

short-term model represent annual PTE or annual AO emission limits in tons per year spread evenly over the approximately 31.5 million seconds there are in a year. By using these values, Holly assumes that there will be no variation in emissions and that emissions from any given unit will hold steady over every second of the year.

Comparing Holly's "PTE Emission Rates – Short-Term" model, IR002994-96, with its "PTE, NO₂ Annual Emission Rates" model, IR002997-99, provides the first evidence that Holly's short-term modeling does **not** represent maximum emission rates. In both models, for each emission "source," the inputs in the columns labeled "NO_x g/s" are identical. The two models rely on the same NO_x emission rates. There is no difference between the NO_x values used for the short-term and annual models. In reality, maximum short-term emission rates, which represent spikes in emission rates, are substantially higher than annual emissions averaged over 365 days. Holly's short-term model merely reflects annual emission rates, which smooth out any variability, and not the sharp increases in emissions that occur on a short-term basis.

The second clue is that, when converted to tons per year, the inputs for the short-term model equate to annual emission limits or estimates of annual emissions (PTE). For example, the purported short-term SO₂ emission rate for the FCCU25 and FCCU4 scrubbers – 0.5091g/s, IR002994-95 – equals 17.7 tpy, which is the AO annual emission limit on these units. IR009245. The modeled short-term SO₂ and NO_x emission rates for the South Flare, IR002996, translated to tons per year, equal the estimate of the South Flare's annual non-upset SO₂ and NO_x emissions. IR003069. This again shows that the inputs for the short-term model reflect annual emission rates held constant over the year,

thereby masking any spikes in emissions. The short-term model does not represent the maximum emission rates that result from the operations of the facility over the short-term.

Thus, Holly's short-term model does not consider emission spikes or variability in emissions. As a result, the model cannot demonstrate that, despite the emission increases authorized by the AO, the short-term NAAQS will be maintained. This is particularly true because Holly's faulty modeling shows that the Expansion presents a real threat to the short-term NAAQS. Without including upset flare emissions and with modeling maximum short-term emissions, Holly concludes that 95% of the NO₂ NAAQS will be consumed as a result of the project – leaving a very small margin before the standard will be exceeded. IR003596. According to the model, the total predicted concentration of NO₂ as a result of the Expansion is 178 µg/m³, just under the one-hour NO₂ NAAQS of 188 µg/m³. *Id.* Modeling of either the considerable upset flare emissions or maximum short-term emissions would almost certainly confirm an impermissible violation of the NAAQS.

Nor may Holly assume that there is no variability in the emissions from any of the Refinery units or that maximum short-term emissions can be estimated by equating them to annual emissions. The Director has acknowledged that emissions from the refineries, including Holly, are highly variable, explaining that “[a]fter reviewing several years’... of operational records...for emission estimates/calculations and production levels,” the Director “agreed with refinery officials that there was significant variability from day to

day and from year to year. Therefore, the refineries were allowed maximum never-to-be exceeded daily limits of PM₁₀, SO₂, NO_x based on the apparent variability.” IR009187.²⁹

The Director’s own modeling guidance also prohibits Holly from making such an assumption, stating that the basis of a modeling analysis of maximum short-term concentrations³⁰ must be short-term emission rates based on short-term limits specified in the AO:

Modeled emission rates should be representative of the averaging period(s) for which impacts are being determined. The emission rate used in the modeling analyses to establish maximum short-term concentrations (24 hours or less) should be representative of the pending AO’s permitted maximum allowable emission level for that time period[.]³¹

IR007802; *NSR Manual* C.45 (for NAAQS compliance demonstrations, “the emissions rate for the proposed...modification must reflect the maximum allowable operating conditions as expressed by the federally enforceable emissions limit, operating level, and operating factor for each applicable pollutant and averaging time.”).

Thus, the Director admits that refinery emissions are variable. He may not argue, therefore, that Holly need not model maximum short-term emission rates to determine potential exceedances of the NAAQS. His own guidance underscores that, particularly where variability exists, compliance with the one-hour NAAQS must be based on maximum one-hour emission rates determined by federally enforceable permit limits.

²⁹ This statement predates the designation of the one-hour SO₂ and NO_x NAAQS.

³⁰ These are the concentrations that would be compared to the short-term NAAQS.

³¹ The Record cannot show that Holly “routinely operates at a significantly lower emission rate.” There are no federally enforceable short-term operating limits on the Refinery. Holly’s modeling did not address upset emissions from the flares which indicate that the Refinery operates at a higher emission rate during these frequent upsets.

4. Rule 307-107 Does Not Regulate Upset Flare Emissions.

The Director maintains that “the flares are in place as control device for upset conditions,” IR009186, and “[f]lare emissions during malfunction/upset conditions are regulated through R307-107 (ITA Condition I[.3]).” IR009211; IR009186-87; IR009227 (Holly “shall comply with UAC R307-107” which addresses “breakdowns”). However, Rule 307-107 does not apply to upset emissions from the Holly flares. Therefore, the Director is mistaken to maintain that Rule 307-107 “regulates” flares or protects short-term NAAQS from upset flare emissions.

Rule 307-107, Utah’s “Breakdown Rule,” provides that emissions from “upsets” or “malfunctions” are not be exempt from determining compliance with AO terms and conditions. A source must report to the Director any “breakdown,” including information on the quantity of emissions released as a consequence of the “incident.” Utah Admin. Code r.307-101-2(1). The rule revolves around the meaning of “breakdown,” which means “any malfunction...start-up [or] shutdown, which will result in...emissions in excess of those allowed by approval order or Title R307.” *Id.* r.307-101-2. Under Rule 307-107, a source need only report a “breakdown” and a “breakdown” occurs only when an incident results in excess emissions or emissions in excess of the terms and conditions of an AO. *Id.*

As the Director acknowledges, at the Refinery, there are no limitations on upset flare emissions, IR009186-87, and no AO emission limits apply when the flares are operating under “upset” conditions. IR009245-50. Therefore, the Breakdown Rule will never apply to the Refinery flares because there can be no “excess emissions” and

therefore no “breakdown” when the flares are operating under upset conditions. Any emissions from the flares would **not** be in excess of those allowed by the AO, because the AO allows unlimited “upset” emissions from the flares. Without excess emissions, there is no breakdown, no reporting requirement and Rule 307-107 does not apply. Because Rule 307-107 does not serve to prohibit or limit upset flare emissions, it does not “regulate” them and does not protect short-term NAAQS from upset flare emissions.

B. The Director Fails to Protect Short-Term NAAQS from Refinery Emissions.

For the same reasons that he has failed to protect short-term NAAQS from the upset flare emissions, the Director has neglected his duty to ensure that the Refinery emissions do not impede attainment or maintenance of the NAAQS. The Director has not imposed short-term emission limits on the Refinery emission limits. His oversight is particularly telling because there are no hourly source-wide short-term emission limits, which the Director deemed necessary to protect the NAAQS: “Protection of the NAAQS...is not achieved on an emission unit-by-emission unit basis...but rather on a source-by-source basis.” IR009186.³² The source-wide emission limitations on SO₂ and NO_x are expressed in tons per day and a 365-day rolling average, not with hourly averaging times. IR009245; IR009248. Combined with upset flare emissions, Refinery emissions that are not subject to short-term limits will exceed the NAAQS.

³² Of course, many emission units make up a single source.

C. The AO is Invalid Because it Is Mired in Confusion and Conflicting Statements and Does Not Specify Applicable Subpart Ja Terms and Conditions.

New Source Performance Standard (NSPS) Subpart Ja applies to Refinery flares that have been constructed, reconstructed or modified since June 24, 2008. 40 C.F.R. §60.100a(b). Under r.307-401-8(5), the Director may not issue an AO unless and until he determines that the source will comply with, *inter alia*, the NSPS. Utah Admin. Code r.307-401-8(1)(b)(vi); r.307-210. In addition, citizens are guaranteed the right to comment on a proposed AO and have their comments addressed by the Director, r.307-401-7, and to enforce an AO's terms and conditions in court. 42 U.S.C. §7604.

Despite these decrees, it remains unclear if and how Subpart Ja applies to the Refinery and its South and North flares. For example, the Director's list of "applicable programs" does not specify that Subpart Ja applies to the flares. IR008483-89. While the Director claims that ITA section III states that NSPS Subpart Ja does pertain to both the North and South flares, IR009183,³³ that section references Subpart Ja "for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007." IR008477. The date that triggers the application of Subpart Ja for flares is June 24, 2008. 40 C.F.R. §60.100a(b).³⁴

The Director also claims "the North Flare is not being modified as part of" the Expansion and so is "outside the scope of this permit action," IR009183, suggesting he

³³ There are statements in the Record suggesting that Subpart Ja applies to Refinery emission units, including the flares. *E.g.* IR008517; IR009246; IR002866-67; IR002868-69. These statements are not clear or specific and do not explain what the Director considers to be "new."

³⁴ *But see* IR009186-87.

has **not** made a determination whether Subpart Ja applies to this flare. The Director suggests that he will impose on each “new fuel gas combustion device” – without defining the terms – the Subpart Ja short-term 162 ppmv H₂S limit for the fuel gas, IR008572, but does not include that limit in the AO. IR009241. He instead lists a daily 60 ppmv H₂S concentration averaged over 365 days. IR009246.³⁵ The Director also refuses to include in the AO the particular Subpart Ja terms and conditions applicable to the refinery, disagreeing with a comment contending that he must do so. IR009212. The AO reflects this approach, for example, by failing to list the exact provisions of Subpart Ja applicable to the flares, such as the a short-term 162 ppmv H₂S limit for the fuel gas.

Particularly given the significant confusion around the applicability of the provision, the Director’s decision to leave Subpart Ja terms and conditions out of the AO is untenable. Utah Physicians challenges any practitioner to decipher Subpart Ja and determine with any assurance how it applies to the Refinery and flares. The rule includes ten extensive sections, replete with equations, definitions, technical terms, cross references, options and alternatives. 40 C.F.R. §60.100a-109a. Unless the Director specifies the applicable provisions, terms and conditions in the AO, it is impossible for citizens to know – much less comment on – what the Director means if he maintains that Subpart Ja applies to the Refinery, whether he has met his r.307-401-8(5), 8(1)(b)(vi) and r. 307-210 obligations or even if Holly and the Director agree on the application of the provision to the source. The Director’s approach effectively prohibits the public from

³⁵ The AO should include both the Subpart Ja short-term limit and this long-term limit.

exercising the Clean Air Act's citizen suit provision as it is almost impossible to enforce a permit as vague as the AO in the context of confusion that surrounds the proper application of Subpart Ja to the Refinery.

D. The Record Does Not Support the Director's Determination that the North Flare Has Not been Modified by the Expansion or Is Exempt from BACT.

The Director insists that "the North Flare is not being modified as part of" the Expansion and thus that any application of Subpart Ja to the flare is outside the present permitting process. IR009183. The Record does not support this position. Actually, Subpart Ja applies to any flare that has been modified since June 24, 2008. 40 C.F.R. § 60.100a(b). "Modification" is defined as including "any new piping...physically connected to the flare for venting or emergency relief" or an alteration "to increase the flow capacity of the flare." 40 C.F.R. § 60.100a(c). Here, the Director acknowledges that the South Flare "will be reconstructed and reconfigured as part of the heavy crude processing project." IR002825. In 2013, Holly clarified that "the decommissioned south flare will be replaced with a new flare" and "currently, all gases are routed to the north flare." IR007168. In 2008, during various shut-down events, the average flowrate to the South Flare was 40,080 scf/h, while the average flowrate of the North Flare was 21,960 scf/h. IR001261-67. To route all South Flare gases to the smaller North Flare – as the reconstruction of the South Flare had entailed – requires an alteration to increase the flow capacity of the North Flare, and likely new piping, thereby triggering Subpart Ja. 40 C.F.R. § 60.100a(c)

For the same reasons, the modification to the North Flare means that the Director must apply BACT. Utah Admin. Code r.307-401-8(1)(a). BACT is “an emissions limitation . . . based on the maximum degree of reduction for each air contaminant which would be emitted from any proposed . . . modification[.]” *Id.* r.307-401-2(1). A modification is “any planned change in a source which results in a potential increase of emission.” Utah Admin. Code r.307-101-2. As a result of the Expansion, both the refinery and the North Flare will be “changed” and will experience a potential increase in emissions. IR007168; IR009225. Therefore, BACT applies to the North Flare.³⁶

CONCLUSION

Based on the legal deficiencies identified above, Utah Physicians asks that the AO be revoked, vacated and remanded with instructions that the Director undertake a defensible calculation of the emission increases and decreases to determine whether the Expansion is a major modification subject to Rule 307-403. Revocation and remand is also warranted because the Director has failed to assure that the Refinery will not impede

³⁶ The Director’s statements that the North Flare has not been modified and therefore is not subject to BACT, IR009189; IR007999; IR008516-17, are not compelling. He does not explain how the larger flare could be shut down and all its gases rerouted to the smaller flare without the North Flare undergoing a physical change or change in operations resulting in an emission increase.

attainment or maintenance of the short-term NAAQS and has not properly applied Subpart Ja to the Expansion.

Respectfully submitted this 6th day of September, 2016.

A handwritten signature in black ink, appearing to be 'Joro Walker', with a large, stylized initial 'J' and 'W'.

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CERTIFICATE OF COMPLIANCE

This Opening Brief contains 13,993 words and complies with the type-volume limitation of Utah R. App. P. 24(f)(1). This brief uses a proportionally spaced typeface – Times New Roman – in a 13 point font and therefore complies with the typeface requirements of Utah R. App. P. 27(b).

CERTIFICATE OF SERVICE

I certify that on September 6, 2016, I mailed two copies of this Opening Brief to

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A handwritten signature in black ink, appearing to read 'Joro Walker', with a large loop at the start and a trailing flourish.

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Appeal No. 20140344-SC
Exhibit List

Exhibit	Exhibit Description
A.	Glossary
B.	Determinative Law
C.	Findings of Fact, Conclusions of Law, and Proposed Order Regarding Petitioners' Motion Requesting Stay of Approval Order (March 25, 2014)
D.	Order Adopting ALJ's Proposed Order and Denying Petitioners' Request for Stay (March 8, 214)
E.	Findings of Fact, Conclusions of Law, and Recommended Order on the Merits (March 11, 2015)
F.	Order Adopting Findings of Face, Conclusions of Law, and Proposed Dispositive Action
G.	EPA New Source Review Factsheet
H.	DAQ NSR Section Form 19, Natural Gas Boilers and Liquid Heaters
I.	DAQ's Emission Calculation Sheets – Boiler Emissions Natural Gas -84
J.	AP-42, 13.5 – Industrial Flares
K.	(CD Only) EPA New Source Review Workshop Manual

Tab A

GLOSSARY OF TERMS AND ACRONYMS

AO – Approval Order

BACT – Best Available Control Technology

CO – Carbon monoxide

EPA – U.S. Environmental Protection Agency

FCCU – Fluidized Catalytic Cracking Unit

H₂S – Hydrogen Sulfide

HAPs – Hazardous Air Pollutants

ITA – Intent to Approve

NAAQS – National Ambient Air Quality Standards

NOI – Notice of Intent

NSPS – New Source Performance Standards

NSR – New Source Review

NO₂ – Nitrogen Dioxide

NO_x – Nitrous Oxides

NNSR – Non-attainment New Source Review

PAHs – Polycyclic Aromatic Hydrocarbons

PM₁₀ – Coarse Particulate Matter (10 Micrometers in Diameter or Smaller)

PM_{2.5} – Fine Particulate Matter (2.5 Micrometers in Diameter or Smaller)

PSD – Prevention of Significant Deterioration

PTE – Potential to Emit

SO₂ – Sulfur dioxide

SO_x – Sulfur Oxides

SPR – Source Plan Review

SSM – Startup, Shutdown and Malfunction

UAPA – Utah Administrative Procedures Act

VOCs – Volatile Organic Compounds

UNITS

bpd – barrels per day

lb/hr – pounds per hour

lb/MMBtu – pounds per million British thermal units

ppmv – parts per million by volume

scf – standard cubic feet

tpd – tons per day

tpy – tons per year

$\mu\text{g}/\text{m}^3$ – micrograms/cubic meter

Tab B

Determinative Law

R307-401-8. Approval Order.

(1) The director will issue an approval order if the following conditions have been met:

(a) The degree of pollution control for emissions, to include fugitive emissions and fugitive dust, is at least best available control technology. When determining best available control technology for a new or modified source in an ozone nonattainment or maintenance area that will emit volatile organic compounds or nitrogen oxides, best available control technology shall be at least as stringent as any Control Technique Guidance document that has been published by EPA that is applicable to the source.

(b) The proposed installation will meet the applicable requirements of:

(i) R307-403, Permits: New and Modified Sources in Nonattainment Areas and Maintenance Areas;

(ii) R307-405, Permits: Major Sources in Attainment or Unclassified Areas (PSD);

(iii) R307-406, Visibility;

(iv) R307-410, Emissions Impact Analysis;

(v) R307-420, Permits: Ozone Offset Requirements in Davis and Salt Lake Counties;

(vi) R307-210, National Standards of Performance for New Stationary Sources;

(vii) National Primary and Secondary Ambient Air Quality Standards;

(viii) R307-214, National Emission Standards for Hazardous Air Pollutants;

(ix) R307-110, Utah State Implementation Plan; and

(x) all other provisions of R307.

(2) The approval order will require that all pollution control equipment be adequately and properly maintained.

(3) Receipt of an approval order does not relieve any owner or operator of the responsibility to comply with the provisions of R307 or the State Implementation Plan.

(4) To accommodate staged construction of a large source, the director may issue an order authorizing construction of an initial stage prior to receipt of

detailed plans for the entire proposal provided that, through a review of general plans, engineering reports and other information the proposal is determined feasible by the director under the intent of R307. Subsequent detailed plans will then be processed as prescribed in this paragraph. For staged construction projects the previous determination under R307-401-8(1) and (2) will be reviewed and modified as appropriate at the earliest reasonable time prior to commencement of construction of each independent phase of the proposed source or modification.

(5) If the director determines that a proposed stationary source, modification or relocation does not meet the conditions established in (1) above, the director will not issue an approval order.

R307-403-3. Review of Major Sources of Air Quality Impact.

Every major new source or major modification must be reviewed by the director to determine if a source will cause or contribute to a violation of the NAAQS. The determination of whether a source will cause or contribute to a violation of the NAAQS will be made by the director as of the new source's projected start-up date. He will make an analysis of the proposed new source's operation data using the best information and analytical techniques available.

(3) If the director finds that the emissions from a proposed source in a nonattainment area would contribute to an existing violation of a national ambient air quality standard at the time of the source's proposed start-up date, approval shall be granted if and only if:

(a) the new source meets an emission limitation which is the Lowest Achievable Emission Rate (LAER) for such source and

(b) the applicant has certified that all existing major sources in the State, owned or controlled by the owner or operator (or by any entity controlling, controlled by or under common control with such owner or operator) of the proposed source, are in compliance with all applicable rules in R307, including the Utah Implementation Plan requirements or are in compliance with an approved schedule and timetable for compliance under the Utah Implementation Plan, R307, or an enforcement order, and that the source is complying with all requirements and limitations as expeditiously as practicable.

(c) emission offsets to the extent provided in R307-403-4, 5 and 6 are sufficient such that there will be reasonable further progress toward attainment of the applicable NAAQS.

(d) the emission offsets provide a positive net air quality benefit in the affected area of nonattainment.

(e) there is an approved implementation plan in effect for the pollutant to be emitted by the proposed source.

(4) A source which is locating outside a nonattainment area or the Salt Lake City and Ogden maintenance areas for carbon monoxide and which causes the significant increments in (1) above to be exceeded in the nonattainment or maintenance area is subject to the requirements of (3) above.

R307-403-4. Offsets: General Requirements.

(1) Emission offsets must be obtained from the same source or other sources in the same nonattainment area except that the owner or operator of a source may obtain emission offsets in another nonattainment area if:

(a) the other area has an equal or higher nonattainment classification than the area in which the source is located; and

(b) emissions from such other area contribute to a violation of the national ambient air quality standard in the nonattainment area in which the source is located or which is impacted by the source.

(2) Any emission offsets shall be enforceable by the time a new or modified source commences construction, and, by the time a new or modified source commences operation, any emission offsets shall be in effect and enforceable and shall assure that the total tonnage of increased emissions of the air pollutant from the new or modified source shall be offset by an equal or greater reduction, as applicable, in the actual emissions of such air pollutant from the same or other sources in the area.

(3) Emission reductions otherwise required by the federal Clean Air Act or R307, including the State Implementation Plan shall not be creditable as emission reductions for purposes of any offset requirement. Incidental emission reductions which are not otherwise required by federal or state law shall be creditable as emission reductions if such emission reductions meet the requirements of (1) and (2) above.

(4) Sources shall be allowed to offset, by alternative or innovative means, emission increases from rocket engine and motor firing, and cleaning related to such firing, at an existing or modified major source that tests rocket engines or motors under the conditions outlined in 42 U.S.C. 7503(e) (Section 173(e)(1) through Section 173(e)(4) of the federal Clean Air Act as amended in 1990).

R307-403-10. Analysis of Alternatives.

The owner or operator of a major new source or major modification to be located in a nonattainment area or which would impact a nonattainment area must, in addition to the requirements in R307-403, submit with the notice of intent an adequate analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source which demonstrates the benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification. The director shall review the analysis. The analysis and the director's comments shall be subject to public comment as required by R307-401-7. The preceding shall also apply in Salt Lake and Davis Counties for new major sources or modifications which are considered major for precursors of ozone, including volatile organic compounds and nitrogen oxides.

Tab C

**BEFORE THE EXECUTIVE DIRECTOR OF THE
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY**

In the Matter of:

Approval Order No. DAQE-AN101230041-13

Holly Refining & Marketing Company –
Woods Cross, LLC
Heavy Crude Processing Project
Project No. N10123-0041

**FINDINGS OF FACT, CONCLUSIONS
OF LAW, AND PROPOSED ORDER
REGARDING PETITIONERS'
MOTION REQUESTING STAY OF
APPROVAL ORDER**

Administrative Law Judge Bret F. Randall

March 25, 2014

This matter is before me pursuant to appointment by the Executive Director of the Utah Department of Environmental Quality dated January 9, 2014. The appointment charges me to conduct a permit review adjudicative proceeding in this matter in accordance with Utah Code Ann., § 19-1-301.5 and Utah Admin. Code R305-7.

Procedural Background

On November 18, 2013, the Director of the Utah Division of Air Quality (“Director”) issued approval order DAQE-AN101230041-13 (Project Number N10123-0041) (the “AO” or “Permit”) to Holly Refining and Marketing Company, Woods Cross LLC (“Holly”), authorizing the construction of the Heavy Black Waxy Crude Processing Project (“Expansion Project”).

On December 18, 2013, Utah Physicians for a Healthy Environment and FRIENDS of Great Salt Lake (collectively “Utah Physicians”) filed a Request for Agency Action seeking administrative review of the AO, pursuant to Utah Code §§ 19-1-301.5 and 63G-4-201(1)(b), (3) and Utah Admin. Code R305-7-203.

On December 24, 2013, Utah Physicians filed a motion and supporting memorandum requesting a stay of the AO, pursuant to Utah Admin. Code R305-7-217 and Utah Code Ann. § 19-1-301.5. However, because Utah Physicians had not been granted party status and no ALJ

had yet been appointed to this matter, the time for responding to the motion to stay did not begin to run at that time.

On January 16, 2014, I entered an Order on Petition to Intervene, provisionally granting intervention to Utah Physicians for a Healthy Environment and Friends of Great Salt Lake (collectively, "Petitioners"). On the same date, I entered a Notice of Further Proceedings.

Petitioners filed a Corrected Motion and Memorandum Requesting Stay on January 21, 2014 ("Stay Motion"). I deemed that the date of the filing of the corrected motion for stay triggered a new response period for Respondents. The Stay Motion is the subject of the present Proposed Order.

Pursuant to the Utah Code, whenever a motion to stay is filed in a permit review adjudicative proceeding, "the administrative law judge shall: (i) consider a party's motion to stay a permit during a permit review adjudicative proceeding; and (ii) submit a proposed determination on the stay to the executive director." Section 19-1-301.5(15)(c), Utah Code Ann.

Following briefing on the Stay Motion, I granted Respondents' motion for oral argument, with oral argument being held on March 6, 2014. All parties appeared and participated in oral argument, which was of record through a court reporter.

Having heard argument on the Stay Motion, and being fully advised in the premises, and pursuant to Section 19-1-301.5(15)(c), Utah Code Ann., this tribunal enters the following proposed Findings of Fact and Conclusions of Law, and proposed determination that the Executive Director of the Utah Department of Environmental Quality ("DEQ") deny Petitioners' Stay Motion for the reasons set forth herein.

FINDINGS OF FACT

Regulatory Background

1. Air pollution is harmful to human health and to the environment. [IR at 009140-48; IR at 009139-45; IR at 009144-45; IR at 009145-47.]

2. In enacting the Utah Air Conservation Act, the Utah Legislature declared: “It is the policy of this state and the purpose of [the Utah Air Conservation Act] to achieve and maintain levels of air quality which will protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this state, and facilitate the enjoyment of the natural attractions of this state.” Section 19-2-101(2), Utah Code Ann.

3. The Utah Legislature further declared that the “purpose” of the Utah Air Conservation Act is to “(a) provide for a coordinated statewide program of air pollution prevention, abatement, and control; (b) provide for an appropriate distribution of responsibilities among the state and local units of government; (c) facilitate cooperation across jurisdictional lines in dealing with problems of air pollution not confined within single jurisdictions; and (d) provide a framework within which air quality may be protected and consideration given to the public interest at all levels of planning and development within the state.” Section 19-2-101(4), Utah Code Ann.

4. Similarly, in enacting the Clean Air Act, the Congress found, among other things:

(2) that the growth in the amount and complexity of air pollution brought about by urbanization, industrial development, and the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare, including

injury to agricultural crops and livestock, damage to and the deterioration of property, and hazards to air and ground transportation; [and]

(3) that air pollution prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments

42 U.S.C. § 7401(a).

5. Congress also stated that the “primary goal” of the Clean Air Act is to “encourage or otherwise promote reasonable Federal, State, and local governmental actions . . . for pollution prevention.” 42 U.S.C. § 7401(c).

Permit Chronology

6. In May of 2012, Holly Refining & Marketing Company – Woods Cross, LLC (“Holly”) submitted a notice of intent (“NOI”) to DAQ requesting an approval order to expand its Woods Cross refinery and modernize certain equipment in a way that allowed Holly to process an additional 20,000 barrels per day of black wax crude from the Uintah Basin in eastern Utah (“May NOI”). [May NOI at IR000049-001108.]

7. In response to DAQ’s request to provide additional information, Holly re-submitted its NOI in July of 2012 (“July NOI”). [July NOI at IR002798-003590.]

8. Following its technical and legal evaluation of the July NOI and related evidence, DAQ released for public comment an Intent to Approve (“First ITA”), dated November 28, 2012. The First ITA included a draft Approval Order. [First ITA at IR001967-001996.]

9. During the initial 60-day public comment period, DAQ received comments from Western Resource Advocates on behalf of Utah Physicians for a Healthy Environment (“UPHE”) and Friends of Great Salt Lake (“Friends”) [IR004007-004035], Blaine Rawson on behalf of Mark J. Hall [IR004202-004217], Alexander Sagady on behalf of UPHE [IR009046-009135],

the Environmental Protection Agency (“EPA”) [IR004001-004005], and Holly [IR003757-003910].

10. In April 2013, Holly submitted a new netting analysis in a revised NOI. [Revised NOI at IR007335-007395.]

11. In addition to certain other changes, the Revised NOI estimated PM_{2.5} emissions from Holly’s gas-fired heaters and boilers based on the EPA’s National Emission Inventory (“NEI”) data. [*Id.*]

12. Following its technical and legal evaluation of the Revised NOI and related evidence, DAQ released, on June 5, 2013, for a second public comment period an Intent to Approve document (“Second ITA”) and a Source Plan Review (“SPR”). [Second ITA at IR007498-007499, SPR at IR008480-008575.]

13. On July 25, 2013, DAQ received comments on the draft approval order from Western Resource Advocates on behalf UPHE [IR007842-007997], Blaine Rawson on behalf of Mark J. Hall [IR008579-008602], Alexander Sagady on behalf of Petitioners [IR009046-009135], the EPA [IR007840-007841], and Holly [IR007613-007836].

14. Following its review and evaluation of the foregoing information and comments, on November 6, 2013, DAQ requested additional information from Holly that DAQ believed was necessary in order to fully consider the pending comments and evidence. Holly responded to DAQ’s request for additional information on November 7, 2013. [IR008021, IR008022-0052.]

15. After considering the supplemental information provided by Holly, on November 18, 2013, DAQ issued Holly a new approval order authorizing the construction of the Modernization Project (“Holly AO”). [Holly AO at IR009223-009254.]

16. Concurrently therewith, DAQ issued a Response to Comments Memorandum (“Response Memorandum”) that addressed the comments made during the public comment periods, explained DAQ’s response to those comments, and, where appropriate, described how the comments had been incorporated into the Holly AO. [Response Memorandum at IR009174-009222.]

17. On December 18, 2013, Petitioners filed their Request for Agency Action. On January 22, 2014, Petitioners filed their Amended Motion and Memorandum Requesting a Stay of the Approval Order. Oral argument was held on the Stay Motion on March 6, 2014.

DAQ’s Permit Review

18. In their Stay Motion, Petitioners challenge three portions of the Holly AO: (1) the use of the NEI emission factors to estimate PM_{2.5} emissions from Holly’s new gas-fired heaters and boilers; (2) the calculated coke burn rate for Holly’s proposed Fluid Catalytic Cracking Unit (“FCC Unit 25”), and (3) the calculated reduction of PM_{2.5} emissions from the removal of Holly’s existing propane pit flare. [Stay Motion, p. 15-37.]

19. DAQ determined that use of the NEI emission factors to calculate PM_{2.5} emissions from the new heaters and boilers was appropriate because (1) there was substantial evidence in the record supporting the accuracy of these emission factors to estimate PM emissions from gas-fired heaters and boilers, as explained in the two reports from Glenn England [See Glen England Reports at IR007238-007258, IR008024-008044; *see also* Response Memorandum at IR009215-009216]; (2) DAQ had imposed a stack testing requirement in the Holly AO to verify that the emission factors were an accurate representation of actual emissions [Response Memorandum at IR008129-008131]; and (3) DAQ imposed a limit derived from the NEI factors into the final Holly AO that is binding on Holly during all operations of the Woods

Cross refinery [Holly AO, Section II.B.7.a.2 at IR009248; *see also* Response Memorandum at IR009217].

20. DAQ determined that regardless of whether there were other alternative emission factor calculations for heaters and boilers that yielded higher estimates, Holly would be subject to an enforceable PM₁₀ emission limit of 0.00051 lb/MMBtu, derived from the NEI emission factors. [See Response Memorandum IR008130.] DAQ reasoned that any failure by Holly to comply with that emission limit would result in compliance violations, which would ensure that Holly would not contribute a significant increase of PM as a result of the expansion. [*Id.*]

21. DAQ determined that 40 C.F.R. § 60.14 did not require the use of the older AP-42 emission factors, as Petitioners argued, to calculate Holly's PM_{2.5} emissions from the heaters and boilers because that regulation only applies to determining applicability of the New Source Performance Standards, "which [is] separate from the New Source Review regulations that are relevant to this permitting process." [Response Memorandum at IR008130.] Moreover "EPA guidance states that sources other than the AP-42 emission factors may be used in determining emissions for PSD/NSR emissions...including '[e]mission factors from technical literature.'" [*Id.* (second alteration in original) (quoting EPA New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, draft dated October 1990 at A.22).]

22. With respect to the PM_{2.5} emission reduction of 2.19 tons per year ("tpy") from the decommissioning of Holly's propane pit flare, which Petitioners claimed was inaccurately high, the Revised NOI reflects that Holly and DAQ calculated this emission reduction using the actual emission inventory data on file at DAQ for the years 2008 and 2009. [Revised NOI at IR007339; Response Memorandum at IR009218 ("flare emissions came from the UDAQ

inventory record for reported actual emissions from 2008-2009 based on 259 MMBtu/hr and actual throughput data”).]

23. As to the coke burn rate for Holly’s proposed FCC Unit 25, which Petitioners claimed was inaccurately low, the emission calculations Holly provided to DAQ indicate that the rate was calculated based on actual emission data from the current FCC Unit 4, a larger unit than the proposed FCC Unit 25, and thus was a conservatively high estimate of expected emissions from the FCC Unit 25. [IR008052; *see also* Holly AO at IR009227-009229 (The FCC Unit 4 processes 8,880 barrels per day (“bpd”) while the proposed FCC Unit 25 can only process 8,500 bpd.)]

24. Regardless of the coke burn rate, DAQ concluded that the FCC Unit 25 is subject to a specific PM₁₀ limit of 0.30lb/1000 lb. of coke burned, which is limited by the 8,500 bpd operating capacity, and is also subject to the overall PM₁₀ emission cap of 47.5 tpy and 0.13 tons per day (“tpd”) for combustion sources. [Response Memorandum at IR009219.] “If these limitations are not met, the refinery will be out of compliance until it remedies the problem with additional control equipment or redesign of the system until it meets these limits.” [*Id.*]

25. DAQ rejected Petitioners’ calculation of coke burn based on the Universal Oil Products yield estimates because they “provided no documents or primary data to support or detail [] which estimate, if any, was used to derive the suggested range of coke burn estimates.” [Response Memorandum at IR009219.] “Based on UDAQ’s technical experience and expertise,” DAQ determined that “the 6200 lb/hr value is a fair and reasonable estimate of the quantity of coke burn in FCC Unit 25.” [*Id.*]

Impacts of Modernization Project Construction

26. The Conrad Jenson Declaration submitted with Holly's opposition to the Stay Motion ("Jenson Declaration") is the most recent evidence of Holly's present construction schedule. In light of the procedural history recited above, the earlier construction timetable estimates are deemed to be updated by the facts as set forth in the Jenson Declaration, which are credited and treated as true for the purposes of this proposed order.

27. According to the Jenson Declaration, Holly's first phase of construction will not be fully installed and operational until the fall of 2015. [Exhibit A to Holly's Opposition to Petitioners Motion Requesting Stay of Approval Order ¶ 9.]

28. "[D]uring the construction of Phase I, there will not be any increase in emissions until completion of Phase I in the fall of 2015." [*Id.* ¶ 10.]

29. As confirmed by the parties during oral argument, this permit review adjudicative proceeding is expected to be fully briefed by July 9, 2014. [*See* Corrected Stipulated Order Regarding Response to Request for Agency Action and Subsequent Deadlines, dated February 19, 2014.] Oral argument likely will be scheduled before the end of July 2014 and a recommended order will likely be prepared for the Executive Director as soon as possible after oral argument, certainly by the end of September 2014. [*See* Stay Motion Hearing Transcript at p. 14-16.] During this time, it is undisputed that there will be no increase in emissions from the Holly refinery due to the Modernization Project, and no emissions for at least a year beyond the proposed adjudicative proceeding timeline. [Jenson Declaration ¶ 10.]

30. Holly has already incurred approximately \$48,000,000 in costs for preliminary activities in preparation for construction. [*Id.* ¶ 6.]

31. Holly commenced construction on the Expansion Project after receiving the Holly AO. [*Id.* ¶ 7.]

32. The overall costs of the Modernization Project are anticipated to be approximately \$700 to \$800 million, with approximately \$300 million allocated to Phase I and the remaining approximate \$400 to \$500 million allocated to Phase II. These estimated costs represent design/engineering, materials, and construction costs. [*Id.* ¶ 11.]

33. If the Holly AO is stayed and construction stopped, it is undisputed that Holly would experience significant demobilization and remobilization costs. According to the Jenson Declaration, the demobilization costs include hourly pay rates for the remaining contract workers who will need to secure construction equipment and the construction site safely during the stay period. It also includes costs of equipment storage. Remobilization costs would include similar expenses for restarting work that had been stopped. If construction is stayed, Holly's main contractor would charge a minimum of \$625,000 per month for such delays. These figures do not account for lost profits or additional harm of further delay on the overall project schedule. [*Id.* ¶ 13.]

34. Delays in the Project are directly correlated with lost revenue that Holly would have generated if it were able to process the increased number of barrels of crude on schedule. For every month Holly is unable to process additional crude, it anticipates a loss of approximately \$10,000,000. [*Id.* ¶ 15.]

35. During Phase I and Phase II of construction, Holly anticipates up to 500 people at any given time on site fulfilling construction jobs related to the project. [*Id.* ¶ 17.]

36. After Phase I of the Modernization Project is completed, Holly anticipates a 25% increase in permanent jobs at the Woods Cross refinery. After completion of Phase II, Holly

anticipates another 25% increase in permanent jobs. This is a 50% overall increase in permanent jobs at the refinery. [*Id.* ¶ 18.]

37. Overall, the Modernization Project will create a public benefit through job creation, increased state and local taxes, and capital infusion and investment in Davis County, as well as benefits from increased crude production within the state of Utah. These benefits will be delayed or may be lost if Holly is forced to stop construction on the Project. [*Id.* ¶ 19.]

38. The Modernization Project may also result in a number of calculated emission reductions at the Holly refinery, including a reduction in NO_x by 21.53 tpy, a reduction in SO₂ by 150.69 tpy, and a reduction in VOC by 17.02 tpy. [IR007575.] DAQ has determined that these pollutants are precursors to PM_{2.5} and major contributors to wintertime inversions in the Salt Lake Valley. [Utah State Implementation Plan, § IX.A, dated December 4, 2013, § 1.6.] According to the recent Utah State Implementation Plan for PM_{2.5}, reductions in these pollutants would have the secondary effect of reducing wintertime PM_{2.5} levels. [*Id.*]

39. Based on the evidence, these emission reductions are the result of voluntary pollution control strategies that Holly has proposed for the Modernization Project and that are incorporated in the Holly AO. [See SPR at IR008564, IR008568-008569; see also IR007335.] These reductions fall into five different categories:

- a. Holly will install a new wet gas scrubber as part of the new FCC Unit 25 and will route its existing gas streams that presently are emitted after treatment in an existing sulfur recovery unit (“SRU”) through that wet gas scrubber, reducing overall SO₂ emissions [See July NOI IR002812, 002821, 002823-002824.];

- b. Holly will remove both its propane pit flare and the frozen earth propane pit storage facility, which will reduce NO_x and VOC emissions, respectively [*See* July NOI at IR002828, 003035];
- c. Holly will replace four gas-driven compressor engines with electric engines, which will reduce NO_x emissions [*See* Revised NOI at IR007335];
- d. Holly will add selective catalytic reduction technology to three current heaters and boilers, further reducing NO_x emissions [*See* Source Plan Review at IR008551; Holly AO at IR009248]; and
- e. Holly will be subject to overall, refinery-wide emissions limitation reductions for PM₁₀, NO_x, and SO₂. [*See* Holly AO at IR009225.]

40. Based on the evidence of record, if the Holly AO is stayed or remanded, these emission control strategies will either be delayed or will not be implemented because they are approved and authorized by the Holly AO. [*See* SPR at IR008564, IR008568-008569; *see also* IR007335.]

CONCLUSIONS OF LAW

1. This is a permit review adjudicative proceeding pursuant to Utah Code § 19-1-301.5 and Utah Admin. Code R305-7.

2. The Stay Motion is governed by Section 19-1-301.5(15), Utah Code Ann., providing:

(a) The filing of a request for agency action does not stay a permit or delay the effective date of a permit.

(b) A permit may not be stayed or delayed unless a stay is granted under this Subsection (15).

(c) The administrative law judge shall:

(i) consider a party's motion to stay a permit during a permit review adjudicative proceeding; and

(ii) submit a proposed determination on the stay to the executive director.

(d) The administrative law judge may not recommend to the executive director a stay of a permit, or a portion of a permit, unless:

(i) all parties agree to the stay; or

(ii) the party seeking the stay demonstrates that:

(A) the party seeking the stay will suffer irreparable harm unless the stay is issued;

(B) the threatened injury to the party seeking the stay outweighs whatever damage the proposed stay is likely to cause the party restrained or enjoined;

(C) the stay, if issued, would not be adverse to the public interest; and

(D) there is a substantial likelihood that the party seeking the stay will prevail on the merits of the underlying claim, or the case presents serious issues on the merits, which should be the subject of further adjudication.

3. In order to prevail on the Stay Motion, Petitioners must satisfy all four of the statutory elements listed above. Failure to satisfy even one element is fatal to the Stay Motion. *See Utah Med. Prods. Inc. v. Searcy*, 958 P.2d 228, 231 (Utah 1998).

4. Petitioners' burden to satisfy the four factors listed above is more stringent under Utah Code Section 19-1-301.5 than under the analogous state (or federal) procedural stay standards. Utah Code Section 19-1-301.5 represents statutory language enacted by the Utah Legislature. By contrast, the law governing interlocutory relief in state and federal courts is primarily judge-made common law, guided by procedural rules. In Utah, the rules of civil procedure do not rise to the level of statutory law but are promulgated and regulated by the Utah Supreme Court. Section 78A-3-103, Utah Code Ann. The express statutory language provides

governing stays in permit review adjudicative proceedings states that the ALJ “may not” recommend a stay of a permit “unless” the moving party establishes all four statutory elements. By contrast, Rule 65A of the *Utah Rule of Civil Procedure* begins with a neutral presumption and simply provides that a court “may issue” an injunction upon a showing of four elements. *See* Utah R. Civ. P. 65A(e) (“A restraining order or preliminary injunction may issue only upon a showing that . . .”). This permissive language is consistent with the touchstone of interlocutory relief in state and federal courts: the broad discretion afforded state and federal judges. *See Southwest Stainless, LP v. Sappington*, 582 F.3d 1176, 1191 (10th Cir. 2009) (“The district court’s discretion in [granting an injunction] is necessarily broad . . .”); *Purkey v. Roberts*, 2012 UT App 241, ¶ 21, 285 P.3d 1242 (“Ultimately, the decision of whether to issue an injunction remains within the discretion of the trial court.”). It is also worth noting that the federal courts of appeals have articulated differing versions of the discretionary, balancing tests applicable to interlocutory orders. However, these legal tests relate to a trial judge’s discretion and are therefore not directly applicable here in light of the clear and unambiguous requirement in the Utah Code that the moving party prove the application of all four statutory standards.

5. Based on the foregoing and without limiting the potential discretion of the Executive Director in granting preliminary injunctive relief in permit review adjudicative proceedings, it is clear that the Utah Legislature employed mandatory language that is not found in the analogous federal and state procedural rules and case law. As a result, the state and federal cases governing stays and injunctive relief, while important to consider, also apply less stringent legal standards than the Utah Legislature has directed be applied to the Stay Motion. Analysis of the following factors is therefore undertaken in light of the more stringent statutory standard established by the Utah Legislature.

Irreparable Harm

6. Irreparable harm being the *sine qua non* of interlocutory relief, the moving party has a particularly heavy burden to prove it. *Dominion Video Satellite, Inc. v. Echostar Satellite Corp.*, 356 F.3d 1256, 1260 (10th Cir. 2004) (noting that the irreparable harm factor is the “single most important prerequisite for the issuance of a preliminary injunction”) (internal quotations and citation omitted); *accord, Sys. Concepts, Inc. v. Dixon*, 669 P.2d 421, 427 (Utah 1983); *see also New York v. NRC*, 550 F.2d 745, 753 (2d Cir. 1977). Irreparable harm must be non-speculative and imminent: there must be evidence supporting a conclusion that irreparable harm will, in fact, occur if the relief is not granted. *See Direx Israel, Ltd. v. Breakthrough Medical Corp.*, 952 F.2d 802 (4th Cir. 1991).

7. In the context of a permit review adjudicative proceeding, the irreparable harm must necessarily relate to the period of time between the date of the motion for stay and the final determination on the merits. This conclusion is particularly important in the instant proceeding, where no evidentiary hearing or trial is provided. In an analogous situation, Judge Posner wrote: “When persons harmed by administrative action bring a suit for injunction in a federal district court, it is not because they want, or are entitled to, a trial.” *Cronin v. United States Dep’t of Agriculture*, 919 F.2d 439, 443 (7th Cir. 1990). Rather, he continued, such persons are entitled to judicial review of the agency action, applying the standard touchstones of administrative law. *Id.* After considering the legal standards that might be applied to that case, involving a Forest Service decision to allow for the cutting of timber on federal land, Judge Posner concluded: “But all this assumes that the decision whether to grant or deny the preliminary injunction is preliminary to a full hearing on the plaintiff’s claim. If it is not[, then] the two stages are

collapsed into one because there will never be a fuller hearing” Id. at 445. *See also Rodriguez ex rel. Rodriguez v. DeBuono*, 175 F.3d 227, 235 (2d Cir. 1998) (noting that a petitioner must show that “the harm . . . [is] so imminent as to be irreparable if a court waits until the end of trial to resolve the harm.”). Stated differently, “if a trial on the merits can be conducted before the injury would occur there is no need for interlocutory relief.” 11A Charles Alan Wright, Arthur R. Miller & Mary Kay Kane, *Federal Practice & Procedure* § 2948.1, at 129 (3d ed. 2013). Such is certainly the case in these proceedings: the decision on the merits will be rendered prior to the time that the Expansion Project begins operation.

8. Petitioners have failed to carry their burden of proof that they will suffer irreparable harm if the Permit is not stayed prior to the time that the review on the merits is completed in this matter. The record supports the finding that hearing and determination on the merits in this case will be completed by the end of the summer of 2014, long before the Expansion Project is operational, being the fall of 2015 at the earliest. [Jenson Declaration ¶ 10.] If Petitioners are successful on their claims on the merits, then the proper remedy would be to remand to the Director to reconsider the Permit. In that event, the Petitioner would not have the Permit necessary to operate the Expansion Project as required by the Utah Air Conservation Act and the Clean Air Act (“CAA”). The requested injunctive relief would therefore be self-enforcing and no claimed irreparable harm could result.¹ If Petitioners’ claims fail on the merits, then injunctive relief would not be warranted in any event.

¹ This conclusion is an important consideration here because the case law cited by Petitioners supporting the Stay Motion is distinguishable from the case at bar. Here, success on the merits would itself result in a self-enforcing injunction, inasmuch as the Permit is required in order for Holly to operate the Expansion Project in the first instance. Thus, this matter is distinguishable from *Davis v. Mineta*, 302 F.3d 1104 (10th Cir. 2002), where construction of the highway project in question without proper wetland fill permits under the Clean Water Act may have caused irreparable harm.

9. Petitioners have failed to carry their burden of proof that “bureaucratic momentum” will result in irreparable harm prior to the time that hearing on the merits is completed. There is no evidence to support any such conclusion. Moreover, the instant permit review adjudicative proceeding is easily distinguishable from the cases cited by Petitioners, supporting their “bureaucratic momentum” argument for irreparable harm. Here, the provisions of the CAA impose substantive requirements on Holly within the permitting process or upon a remand. See *Sierra Club v. Marsh*, 872 F.2d 497, 503 (1st Cir. 1989) (holding that where a statute substantively “require[s] the agency to change direction,” such as the Clean Water Act at issue in *Weinberger v. Romero-Barcelo*, 456 U.S. 305 (1982), or the Alaska National Interest Lands Conservation Act in *Amoco Prod. Co. v. Village of Gambell*, 480 U.S. 531 (1987), “bureaucratic commitment to a project” does not constitute irreparable harm). Indeed, the one case to address the “bureaucratic commitment” theory in the context of the CAA permitting process expressly rejected the argument. *Sierra Club v. Larsen*, 769 F. Supp. 420 (D. Mass. 1991), *aff’d* 2 F.3d 462 (1st Cir. 1993). The National Environmental Protection Act (“NEPA”) case law upon which Petitioners rely for their “bureaucratic momentum” argument is simply inapplicable in this case. See *Marsh*, 872 F.2d at 503; 15 U.S.C. § 793(c)(1) (“No action taken under the CAA shall be deemed a major federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act.”). Stated differently, under the CAA, Holly is required to have, maintain, and follow a legal and valid permit in order to operate the Expansion Project. This scenario is easily distinguishable from a NEPA situation, where the law requires, and only requires, that full consideration of the environmental impacts of all applicable options be undertaken and completed *before the “federal action” can be initiated*. More specifically, the principle in *Sierra Club* that a violation of NEPA

constitutes an irreparable injury rests on NEPA's purpose to foster informed decision-making. *Sierra Club*, 872 F.2d at 500. In the context of NEPA, irreparable harm to the environment, almost by definition, occurs because uninformed decisionmakers commit themselves to a course of action that rarely can be undone given "a chain of bureaucratic commitment that will become progressively harder to undo the longer it continues." *Id.* Such considerations are not applicable here, where the substantive requirements of the CAA will continue to have prospective application.

10. Petitioners' failure to carry their burden of proof as to irreparable harm is dispositive to the Stay Motion. However, analysis of the remaining factors is warranted.

Likelihood of Success on the Merits

11. Petitioners raise three issues in their Stay Motion regarding the merits: (1) the assertion that DAQ erred in allowing the use of the NEI emission factors to calculate PM_{2.5} emissions from Holly's gas-fired heaters and boilers; (2) the assertion that Holly overestimated the PM_{2.5} emission reductions that will be realized through the decommissioning of the propane pit flare; and (3) the assertion that DAQ underestimated the coke burn rate from the FCC Unit 25, which Petitioners argue will result in higher PM_{2.5} emissions. [Stay Motion pp. 15-37.]

12. The merits have not yet been fully briefed and argued by the parties.

13. DAQ is granted substantial discretion to interpret its governing statutes and rules. *See* Utah Code § 19-1-301.5(14)(c) (expressly "recognizing that [DAQ] has been granted substantial discretion to interpret its governing statutes and rules"). Moreover, Section 19-1-301.5 instructs that DAQ's factual, technical and scientific determinations should be upheld if they are supported by substantial evidence in the record. Utah Code § 19-1-301.5(14)(c).

14. Solely for purposes of this Recommended Order, I conclude that Petitioners have failed to carry their burden of showing that they are likely to succeed on the merits, or that the case presents serious issues on the merits, which should be the subject of further adjudication. Carrying this burden here requires a showing that DAQ abused its discretion or lacked substantial evidence to support its factual, technical and scientific determinations in connection with the Permit.

15. In reaching Conclusion No. 14, I rely in large part on the independent determination of EPA that the Permit is acceptable, notwithstanding Petitioners' objections. *See* EPA Comment Letters [IR004001-004005; IR007840-007841]. In *Alaska Dep't of Envtl. Conservation v. EPA*, 540 U.S. 461, 124 S. Ct. 983 (2004), the U.S. Supreme Court held that EPA is entitled to review the reasonableness of state permitting authorities' BACT determinations under the PSD program and has authority to issue stop construction orders if it reasonably believes that a BACT designation is erroneous or unreasonable. The CAA also provides EPA with concurrent enforcement authority that is directly applicable to the present proceeding. 42 U.S.C. §§ 7477, 7413(a)(5)(A) (describing the enforcement options available to the EPA when it finds that a state is not complying with any requirement of the CAA with respect to construction of a new source or modification of an existing source). *See* Jennifer A. Davis Foster, Note, EPA Oversight in Determining Best Available Control Technology: The Supreme Court Determines the Proper Scope of Enforcement, 69 Missouri L. Rev., Issue 4, at 1 (Fall 2004). Based on the foregoing, it is clear that if in EPA's independent judgment, any of the objections and issues Petitioners have raised on the merits were deserving of further evaluation, comment, or reconsideration, EPA had an independent duty and authority to pursue such issues. EPA declined to do so even after being given the opportunity in connection with the Permit.

16. In this permit review adjudicative proceeding, we have a somewhat unusual situation in administrative law where not one but two regulatory agencies with significant technical expertise and concurrent (and somewhat overlapping) legal jurisdiction have been involved in the procedural and substantive process that led to the issuance of the Permit. This situation provides a second layer of regulatory oversight to ensure that the applicable procedural and substantive requirements of the CAA, as adopted and enforced through the Utah Air Conservation Act in the spirit of “cooperative federalism,” have been met. Solely for purposes of the Stay Motion, therefore, I conclude that EPA’s independent review and acceptance of the Permit demonstrates that Petitioners do not have a substantial likelihood of success on the merits or that the case presents serious issues on the merits, which should be the subject of further adjudication

17. Petitioners’ failure to carry their burden of proof as to success on the merits should, standing alone, be dispositive of the Stay Motion.

Public Interest

18. Air pollution is harmful to humans and ecological receptors. Thus, it is self-evident that the public interest is served by reduction and elimination of air pollution. Under our system, however, a source’s compliance with the requirements set forth in the CAA, as implemented through the Utah Air Conservation Act and related rules and regulations, satisfies, as a matter of law, the public policy of protection of human health and the environment from exposures to air pollution.

19. Petitioners have failed to make a showing of cognizable harm that will occur during the pendency of these proceedings unless the Holly AO is stayed. As a result, they have failed to show that the public interest favors a stay.

20. To the extent that a violation of the CAA and other applicable law may have occurred in connection with the Permit, the instant proceedings will be concluded prior to the time that the Expansion Project begins operation. And in the event that Petitioners are successful on the merits, injunctive relief, in a sense, would be self-executing since a valid permit is required to operate the Expansion Project in the first instance. Hence, I find that the public interest is adequately protected by compliance with the existing permitting requirements set forth in the Utah Air Conservation Act and the CAA.

21. The record also shows that the Holly AO will result in substantial emission reductions in SO₂, NO_x, and VOCs, which are precursors to PM pollution along the Wasatch Front. The Holly AO will also lower refinery-wide emissions limits for PM₁₀, NO_x, and SO₂. Staying the Holly AO will delay implementation of pollution control technologies that will result in these emission reductions, harming the public interest.

22. Finally, the public interest also extends to the economic activity, including jobs the Modernization Project design and construction will generate. This undisputed factor weighs against the Stay Motion.

23. Petitioners' failure to establish that the Stay Motion is in the public interest should be dispositive of the Stay Motion.

Balance of Harms

24. Petitioners have failed to carry their burden to show that the balance of harms tips in their favor.

25. The increased emissions about which Petitioners complain will not occur until after construction is completed in 2015, long after determination on the merits is completed. By

contrast, a stay would result in the immediate cessation of design and construction activities for the Expansion Project, resulting in the undisputed harms that are of record.

26. Finally, if Petitioners are successful on the merits, injunctive relief would be self-executing as discussed above. The balance of the harms, therefore, does not tip in Petitioners' favor.

27. Petitioners' failure to carry their burden to demonstrate that the balance of harms tips in their favor should be dispositive of the Stay Motion.

PROPOSED ORDER

Based on the forgoing, I recommend that the Executive Director deny the Stay Motion.

DATED this 25th day of March, 2014.

A handwritten signature in dark ink, appearing to read "B. Randall", is written over a horizontal line.

BRET F. RANDALL
Administrative Law Judge

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 25th day of March 2014, I served the foregoing
**FINDINGS OF FACT, CONCLUSIONS OF LAW AND RECOMMENDED ORDER
REGARDING PETITIONERS' MOTION REQUESTING STAY OF APPROVAL
ORDER** via email on the following:

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/s/ Bret F. Randall, ALJ

Tab D

**BEFORE THE EXECUTIVE DIRECTOR
OF THE UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY**

In the Matter of:

**Approval Order No.
DAQE-AN101230041-13**

**Holly Refining & Marketing Company—
Woods Cross, LLC
Heavy Crude Processing Project
Project Number: N10123-0041**

**ORDER ADOPTING ALJ'S PROPOSED
ORDER
and
DENYING PETITIONERS' REQUEST
FOR STAY**

**Amanda Smith
Executive Director
Department of Environmental Quality**

May 8, 2014

This matter is before me based on the Administrative Law Judge's proposed determination on a motion for stay in this matter. For the reasons set forth herein, I hereby adopt the March 25, 2014 Proposed Order regarding Petitioners' Motion Requesting Stay of Approval Order.

Findings of Fact

1. On November 18, 2013, the Director of the Utah Division of Air Quality issued Approval Order DAQE-AN101230041-13 (Project Number N10123-0041) (hereafter "AO") to Holly Refining and Marketing Company, for the construction of the Heavy Black Waxy Crude Processing Project.
2. On December 18, 2013, Petitioners Utah Physicians for a Health Environment and Friends of the Great Salt Lake (hereinafter "Utah Physicians") filed a Request for Agency Action (RFAA) seeking a review of the AO pursuant to Utah Code §§19-1-301.5 and 63G-4-201(1)(b) and Utah Admin. Code R305-7-203.

3. On January 9, 2014, I appointed Bret F. Randall as the Administrative Law Judge (ALJ) in this matter pursuant to Utah Code Ann., §19-1-301.5(5). I charged the ALJ to conduct a permit review adjudicative proceeding in accordance with Utah Code Ann., §19-1-301.5 and Utah Admin. Code R305-7.

4. On December 21, 2013, Utah Physicians filed a motion and supporting memorandum requesting a stay of the AO pending a full hearing on the merits pursuant to Utah Code Ann., §19-1-301.5(15) and Utah Admin. Code R305-7-217. Petitioners filed a Corrected Motion and Memorandum Requesting Stay on January 21, 2014.

5. Following extensive briefing on the motion to stay by the Parties, the ALJ heard oral argument on March 6, 2014. The hearing was transcribed by a court reporter.

6. On March 25, 2014, pursuant to Utah Code Ann., §19-1-301.5(15)(c), the ALJ issued proposed findings of fact (including references to the initial administrative record) conclusions of law and a proposed order recommending that the Executive Director deny the petitioners' motion to stay.

7. The ALJ's findings of fact (including references to the initial administrative record) address the: regulatory background; permit chronology; DAQ's permit review; and impacts of modernization project construction. The ALJ's conclusions of law address each of the four statutory elements required for a stay. The required statutory elements were briefed and argued by the parties at the March 6, 2014 hearing.

8. On April 8, 2014, Utah Physicians submitted comments on the ALJ's proposed order. The following memoranda were subsequently filed on April 15, 2014 in response to Utah Physicians' comments: Holly's Response to Utah Physicians' Comments on ALJ's Recommended Order Re: Petitioners' Request for a Stay of Approval Order; and the Utah

Division of Air Quality's Response to Utah Physicians' Comments on ALJ's Recommended Order Regarding Stay of Approval Order.

9. The points raised by Holly and DAQ in response to Utah Physicians' comments confirm that the comments repeat points previously briefed and argued at the time of the hearing on the stay. The ALJ has addressed each of those points in his proposed order.

Conclusions of Law

10. Whenever a motion to stay is filed in a permit review adjudicative proceeding, the ALJ shall: (i) consider a party's motion to stay a permit review adjudicative proceeding; and (ii) submit a proposed determination on the stay to the Executive Director. Utah Code Ann., §19-1-301.5(15)(c).

11. Utah Code Ann., §191-301.5(15)(d) provides that the ALJ may not recommend to the executive director a stay of a permit, or a portion of a permit, unless: (i) all parties agree to the stay; or (ii) the party seeking the stay demonstrates that:

- (A) the party seeking the stay will suffer irreparable harm unless the stay is issued;
- (B) the threatened injury to the party seeking the stay outweighs whatever damage the proposed stay is likely to cause the party restrained or enjoined;
- (C) the stay, if issued would not be adverse to the public interest; and
- (D) there is a substantial likelihood that the party seeking the stay will prevail on the merits of the underlying claim, or the case presents serious issues on the merits, which should be the subject of further adjudication.

The Parties did not stipulate to a stay and the Petitioners must, therefore, demonstrate compliance with all of the four statutory elements.

12. The ALJ's findings of fact and conclusions of law address each of the elements necessary for a stay and establish that based on the record then before the ALJ, the Petitioners have failed to carry their burden of proof on the statutory elements required for a stay.

Order

I have reviewed the proposed findings of fact, conclusions of law and proposed determination. I have also reviewed the comments and responses to comments submitted by the parties regarding the ALJ's proposed determination. Based on the ALJ's review and evaluation, I am persuaded that the petitioners have failed to meet the statutory elements required for a stay. I therefore adopt the ALJ's findings of fact, conclusions of law and proposed order, and I deny the Petitioners' motion for stay.

Dated this 8th day of May, 2014



Amanda Smith, Executive Director
Department of Environmental Quality
195 North 1950 West
Salt Lake City, UT 84114-4810
amandasmith@utah.gov

CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of May, 2014, the foregoing **ORDER ADOPTING ALJ'S PROPOSED ORDER and DENYING PETITIONERS' REQUEST FOR STAY** was served via e-mail upon the following:

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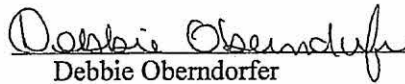
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**BEFORE THE EXECUTIVE DIRECTOR OF THE
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY**

In the Matter of:

Approval Order No. DAQE-AN101230041-13

Holly Refining & Marketing Company –
Woods Cross, LLC
Heavy Crude Processing Project
Project No. N10123-0041

**FINDINGS OF FACT, CONCLUSIONS
OF LAW, AND RECOMMENDED
ORDER ON THE MERITS**

Administrative Law Judge Bret F. Randall

March 11, 2015

This matter is before me pursuant to appointment by the Executive Director of the Utah Department of Environmental Quality dated January 9, 2014. The appointment charges me to conduct a permit review adjudicative proceeding in this matter in accordance with Utah Code Ann., § 19-1-301.5 and Utah Admin. Code R305-7. Following are my Findings of Fact,¹ Conclusions of Law, and Recommended Order on the Merits.

¹ While the Utah Code directs me to provide “findings of fact,” I note that my review of this matter is in an appellate capacity. There was no trial, no witnesses were called, no testimony was heard, and no evidence was presented to me as a trier of fact. Thus, the legislature’s requirement that the ALJ provide “findings of fact” and a proposed dispositive action should not be read to suggest that I have weighed evidence, except in an appellate-like role, applying the standards of review as discussed below.

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INTRODUCTION

This matter came before me for oral argument on September 17, 2014 at 9:30 am. Present at the argument was Joro Walker and Rob Dubuc on behalf of Petitioners; Christian Stephens for Respondent Division of Air Quality; and Steve Christiansen, David Reymann, Cheylynn Hayman, and Megan Houdeshel for Respondent Holly. Having reviewed the briefing in this matter and heard oral argument, I propose that Petitioners' Request for Agency Action and all claims asserted therein be rejected.

PROCEDURAL BACKGROUND

1. In May of 2012, Holly Refining & Marketing Company – Woods Cross, LLC (“Holly”) submitted a notice of intent (“May NOI”) to the Utah Division of Environmental Quality (“UDAQ”) requesting an approval order to expand its Woods Cross refinery (“Holly Refinery”) and modernize certain equipment in a way that would allow Holly to process an additional 20,000 barrels per day of black wax crude from the Uintah Basin in eastern Utah (“Modernization Project”). [May NOI, IR000049-001108].

2. In July of 2012, Holly re-submitted its May NOI with revisions in response to UDAQ's request for additional information (“July NOI”). [July NOI, IR002798-003590].

3. On November 28, 2012, UDAQ released for public comment an Intent to Approve document (“First ITA”) containing a draft approval order. [First ITA, IR001967-001996].

4. During the initial 60-day public comment period, UDAQ received comments from the U.S. Environmental Protection Agency (“EPA”) [IR004001-004005]; Western Resource Advocates on behalf of Utah Physicians for a Healthy Environment and Friends of Great Salt Lake (collectively “Petitioners”) [IR004007-004035]; Blaine Rawson on behalf of

Mark J. Hall [IR004202-004217]; Alexander Sagady on behalf of Petitioners [IR009046-009135]; and Holly [IR003757-003910].

5. In February and March of 2013, Holly provided a detailed response to EPA relating to the EPA's comments referenced above, which objected (among other things) to Holly's original netting analysis. [IR008245-008259].

6. In March 2013, Holly submitted a new netting analysis partly in response to a specific request made by UDAQ in February of 2013 and partly in response to EPA's comments referenced above [IR008198-008259].

7. In April 2013, Holly formally submitted a revised NOI ("Revised NOI") to UDAQ that also included the new netting analysis. [Revised NOI at IR007335-007395].

8. In addition to certain other changes, the Revised NOI estimated PM_{2.5} emissions from Holly's gas-fired heaters and boilers based on the EPA's National Emission Inventory ("NEI") data. [*Id.*]

9. On June 5, 2013, UDAQ released for a second public comment period an Intent to Approve document ("Second ITA") and a Source Plan Review. [Second ITA, IR00008449-008479; SPR, IR008480-008575].

10. On July 25, 2013, UDAQ received comments on the draft approval order in the Second ITA from EPA ("EPA's Second Comment Letter") [IR007840-007841]; Western Resource Advocates on behalf of Petitioners ("Petitioners' Second Comment Letter") [IR007842-007997]; Blaine Rawson on behalf of Mark J. Hall ("Rawson's Second Comment Letter") [IR008579-008602]; Alexander Sagady on behalf of Petitioners ("Sagady's Second Comment Letter") [IR009046-009135]; and Holly ("Holly's Second Comment Letter") [IR007613-007836].

11. On November 6, 2013, UDAQ requested additional information from Holly pertaining to certain comments raising questions about the Second ITA and Holly responded to this request for supplemental information on November 7, 2013. [IR008021, IR008022-0052].

12. On November 18, 2013, UDAQ issued a Response to Comments Memorandum (“Response to Comments Memo”) addressing all of the comments made during the second public comment period, explained UDAQ’s response to those comments, and, where appropriate, described how the comments had been incorporated into the Holly AO. [Response to Comments Memo, IR009174-009222].

13. UDAQ, having considered and answered all of the comments received during the public comment period, issued Holly a new approval order authorizing the construction of the Modernization Project (“Holly AO”), on November 18, 2013. [Holly AO, IR009223-009254].

14. On December 18, 2013, Petitioners filed their Request for Agency Action contesting UDAQ’s issuance of the Holly AO (“RAA”).

15. In January 9, 2014, the Executive Director of UDAQ appointed me as the administrative law judge (“ALJ”) to conduct a permit review adjudicative proceeding in this matter in accordance with Utah Code Section 19-1-301.5 and Utah Admin. Code R305-7.

16. On January 16, 2014, I issued a Notice of Further Proceedings, in which, among other things, ordered that the party with the burden of proof on any issue would be held to a stringent marshaling requirement (“Marshaling Requirement”).

17. On January 22, 2014, Petitioners filed an Amended Motion and Memorandum Requesting a Stay of the Approval Order (“Motion for Stay”). Oral argument was held on the Motion for Stay on March 6, 2014.

18. On March 25, 2014, I recommended to the Executive Director of the Department of Environmental Quality (“Executive Director”) deny the Motion for Stay finding that Petitioners had not satisfied the four factors required for issuance of a stay of an environmental permit.

19. On May 8, 2014, the Executive Director of the Department of Environmental Quality adopted my proposed order and denied the Motion for Stay.

20. Prior to briefing the merits, Holly and UDAQ submitted Motions to Dismiss certain issues in Petitioners’ RAA.

21. On April 2, 2014, I denied without prejudice the Motions to Dismiss, finding at that time that “preservation issues would be most efficiently addressed in connection with briefing on the merits,” which would afford a reviewing court “a more complete record for appellate review.” [Order on Motions to Dismiss at 6-7].

22. On April 16, 2014, the Petitioners filed a Motion for Clarification Regarding Notice of Further Proceedings, in which they asked me to clarify the Marshaling Requirement imposed by the Notice of Further Proceedings.

23. On April 17, 2014, I issued an Order Clarifying the Marshaling Requirement (“Clarification Order”) reiterating that the Petitioners bear the burden to marshal all of the evidence in the administrative record, both supportive of and contrary to their claims.

24. On September 12, 2014, I issued a subsequent Order regarding the Marshaling Requirement, clarifying further the Petitioners’ burden of proof in light of the Utah Supreme Court decision in State v. Nielsen, 2014 UT 10, 326 P.3d 645. In that Order, I explained that Petitioners were required to marshal all of the evidence in the administrative record to carry their burden of proof on any particular issue.

25. On September 17, 2014, after receiving briefs on the merits from all the parties, I heard oral argument to hear the merits of Petitioners' RAA, as required by the Utah Code. After reviewing and considering all of the facts and arguments presented in the briefing and at oral argument and pursuant to Utah Code Section 19-1-301.5(12)(c), I hereby submit to the Executive Director the following Proposed Findings of Fact, Conclusions of Law, and Proposed Order Regarding the Merits.

LAW APPLICABLE TO THIS ADJUDICATION

I. Standard of Review

1. This permit review adjudicative proceeding is governed by Utah Code Section 19-1-301.5, which requires the presiding ALJ to "conduct a permit review adjudicative proceeding based only on the administrative record and not as a trial de novo." Utah Code § 19-1-301.5(8)(a). Unlike many other administrative proceedings involving an ALJ, in a permit review adjudicative proceeding it is clear that the Utah Legislature intended to limit the ALJ's authority to a review of UDAQ's decision, thereby placing the ALJ in an appellate-like review role. There is to be no trial. There will be no witnesses, no examination or cross examination, and no findings of fact where disputed testimony is weighed and where witness credibility is at issue, as often occurs in other administrative adjudicative proceedings. Rather, all of the weighing of the evidence has already occurred at the UDAQ level.

2. UDAQ prepared a written response to public comments in connection with the issuance of the Holly AO. [IR009174-9222]. The ALJ must "review...the director's determination, based on the record," culminating in a proposed dispositive action that includes findings of fact, conclusions of law, and a recommended order. Utah Code § 19-1-301.5(12)(b)-(c). Because these proceedings are, by definition, limited to the issues raised during the public

comment period, UDAQ's written response to public comments plays a central role in evaluating whether UDAQ's conclusions satisfy applicable legal requirements.

3. Petitioners have the burden of proof to demonstrate that the Director's determination to issue the Holly AO was in error. [Clarification Order at 4 ("Petitioners acknowledge that they have the burden of proof in this proceeding."); *see also* Taylor v. Pub. Serv. Comm'n, 2005 UT App 121, *1 (unpublished) ("In the typical challenge to agency action, the party challenging the action carries the burden of demonstrating its impropriety." (internal quotations omitted))].

4. The Director's determination can include factual findings, interpretations of law, and mixed determinations of law and facts.

5. To carry their burden of proof with respect to their challenge of factual findings, the Petitioners must demonstrate that UDAQ's findings of fact are not supported by substantial evidence; otherwise, the ALJ must "uphold all factual technical, and scientific agency determinations that are supported by substantial evidence taken from the record as a whole." Utah Code § 19-1-301.5(13)(b).² Under Utah case law relevant to this proceeding, the ALJ's review on questions of fact is limited to determining if UDAQ's factual findings "were reasonable and rational," while giving "great deference" to UDAQ's factual findings and not "reweighing" the evidence. Utah Chapter of the Sierra Club v. Bd. of Oil, Gas & Mining, 2012

² While subsection (13)(b) expressly applies directly to the Executive Director's review, the standard of review that the ALJ is to apply to the record is not expressly stated in the Utah Code. Under a fair reading of the statute, it is clear that the ALJ is to apply the same standard as the Executive Director is required to apply. This conclusion is based on a reading of the permit review adjudicative proceeding statute as a whole. In the first instance, the ALJ's express duty and authority is to undertake a permit review adjudicatory proceeding and not a trial *de novo* on the merits, resulting in a recommended ruling for the Executive Director. In other words, the role of the ALJ is to "stand in the shoes" of the Executive Director and provide her with a recommended ruling on the merits. Thus, the ALJ is to apply the same standard of review to the administrative record as the Executive Director is required to apply. Utah Code Ann. § 19-1- 301.5.

UT 73, ¶ 11, 38 P.3d 291 (hereinafter Sierra Club v. BOGM) (internal quotation marks omitted).³

While reviewing an agency's determination for substantial evidence, the ALJ should "state the facts and all legitimate inferences drawn therefrom in the light most favorable to the agency's findings." *Id.* ¶ 12.

6. With respect to legal interpretations, the ALJ should grant "substantial discretion" to UDAQ in its interpretation of its governing statutes and rules. *See* Utah Code § 19-1-301.5(14)(c)(i). In this case, the governing statutes and rules include the Clean Air Act, the Utah Air Conservation Act, and the applicable regulations under these statutes. UDAQ's legal interpretation of these statutes and rules may be overturned only if Petitioners show that such interpretation is a "clearly erroneous interpretation or application of the law." *See, e.g., Sierra Club v. BOGM*, 2012 UT 73, ¶ 10; *see also Assoc. Gen. Contractors v. Bd. of Oil, Gas & Mining*, 2001 UT 112, ¶ 18, 38 P.3d 291 (an agency's "interpretation of the operative provisions of the statutory law it is empowered to administer" must be given deference).

7. By contrast, UDAQ's general interpretations of the law, including constitutional questions, jurisdiction, and statutes unrelated to the agency, are granted little or no deference and are simply reviewed for correctness. *Sierra Club*, 2012 UT 73, ¶ 9; *see also Sevier Citizens v. Dept. of Env't. Quality*, 2014 UT App 257, ¶ 6 (where the statute under review was procedural, and where issue was interpretation of the statute itself that granted agency interpretive discretion, the court applied a traditional approach to standard of review and imposed a correctness standard

³ Section 19-1-301.5, however, also vests the ALJ with the authority to supplement the administrative record. Utah Code Ann. § 19-1-301.5(8)(c)(iv) (providing that the ALJ "may supplement the record with technical or factual information."). Based on these statutory provisions, if the ALJ determines that UDAQ has not addressed an issue or UDAQ's response to an issue is inadequate, the ALJ may request additional technical or factual information from the parties as opposed to recommending a remand of the AOs.

to the question of whether the failure to file a petition to intervene strips the agency of jurisdiction under Utah Code Section 19-1-301.5(7)).

8. Finally, when the agency has been granted discretion to interpret the statute or regulation at issue, mixed questions of law and fact are reviewed under an abuse of discretion standard. *See Murray v. Utah Labor Comm'n*, 2013 UT 38, ¶ 39, 308 P.3d 461. Here, Section 19-1-301.5(14)(c)(i) expressly grants UDAQ “substantial discretion to interpret its governing statutes and rules.” Agency decisions on mixed questions of law and fact must be upheld under this discretion standard if they are “rationally based” and set aside only “if they are imposed arbitrarily and capriciously or are beyond the tolerable limits of reason.” *Assoc. Gen. Contractors*, 2001 UT 112, ¶ 18 (internal quotation marks omitted).

II. Petitioners’ Burden of Proof

1. Petitioners, as the parties challenging UDAQ’s decision to issue the Holly AO, carry the burden of demonstrating UDAQ’s determinations were not supported by substantial evidence, were erroneous, or were an abuse of discretion. *See Sierra Club v. BOGM*, 2012 UT 73, ¶ 31; *Associated Gen. Contractors*, 2001 UT 112, ¶ 34; *Taylor*, 2005 UT App 121, *1 (Utah Ct. App 1993) (unpublished).

2. A party with the burden of proof must “fully identify, analyze, and cite its legal arguments” and “provide meaningful legal analysis” but may not “dump the burden of argument and research” on the reviewing authority. *W. Jordan City v. Goodman*, 2006 UT 27, ¶ 29, 135 P.3d 874 (internal quotation marks omitted); *see also Kennon v. Air Quality Bd.*, 2009 UT 77, ¶ 29, 270 P.3d 417 (declining to review a petitioner’s challenge to an AO where the petitioners failed to adequately brief a claim). Moreover, a party’s briefing is inadequate where the briefing “merely contains bald citations to authority without development of that

authority and reasoned analysis based on that authority.” Allen v. Friel, 2008 UT 56, ¶ 9, 194 P.3d 903 (internal quotation marks omitted); State v. Lamb, 2013 UT App 5, ¶ 11, 294 P.3d 639.

III. Petitioners’ Duty to Marshal All Relevant Evidence

1. This tribunal’s statutory jurisdiction under Utah Code Section 19-1-301.5 requires this tribunal to conduct this proceeding based only on the administrative record and to uphold “all factual, technical, and scientific agency determinations that are supported by substantial evidence viewed in light of the record as a whole.” Utah Code § 19-1-301.5(14)(c) (emphasis added). Accordingly, there will never be a “trial” on the merits. Rather, UDAQ undertook the adjudication of Holly’s NOIs after receiving and considering, among other things, public comments.

2. All of the evidentiary information upon which the Director could have relied is contained in the formal administrative record as defined by Utah Code Section 19-1-301.5(8)(b). For every issue raised in public comments, the Director provided a detailed written response, which also forms part of the administrative record. Utah Code Ann. § 19-1-301.5(8)(b).

3. The Director’s detailed response to comments provides a specific record as to how the Director considered and resolved each public comment and also, in some instances, refers to and provides citation to other evidence in the administrative record upon which the Director has relied in reaching any given conclusion. Thus, while there is no trial on the merits, the Director’s response to public comments provides a rather detailed “roadmap” as to the factual and legal basis for the Director’s decision to issue the Holly AO.

4. Because Petitioners have the burden of persuasion in this proceeding, the only way they can possibly carry that burden of proof is to convince the ALJ (or, by extension, the Executive Director, the Utah Court of Appeals, or the Utah Supreme Court) that any disputed factual, technical, or scientific agency determination is not supported by substantial evidence taken from the administrative record as a whole. By extension, therefore, they must marshal all of the evidence relevant to each claim they assert. *See, e.g., Nielsen*, 2014 UT 10, ¶ 42. In short, the Marshaling Requirement forms an inherent part of Petitioners' burden of proof in this proceeding. Indeed, the Utah Supreme Court recently clarified that "a party who fails to identify and deal with supportive evidence will never persuade an appellate court to reverse under the deferential standard of review that applies to such issues." *Nielsen*, 2014 UT 10, ¶ 40 (emphasis added).

5. In their briefing on the merits and at oral argument, Petitioners raised a number of objections to the Marshaling Requirement. These objections lack merit.⁴ The Marshaling Requirement was properly imposed, either as an inherent part of Petitioners' burden of proof or, in the alternative, pursuant to the ALJ's statutory grant of authority to manage all non-dispositive aspects of these proceedings.

6. The Utah Legislature has granted the ALJ the jurisdiction to "take any action in a permit review adjudicative proceeding that is not a dispositive action." Utah Code § 19-1-301.5(9)(f). Although the Marshaling Requirement is not specifically adopted in the Utah Code or Utah Administrative Code as applied to these proceedings and Rule 24(a)(9) does not expressly apply here, an ALJ has the authorization to manage this proceeding in the most efficient

⁴ The fact that Holly was able to marshal record evidence, point by point, in the manner that I had requested of Petitioners, provides further support for the conclusion that Petitioners' arguments against the Marshaling Requirement lack merit and should be rejected.

and effective way appropriate under the circumstances of this case.⁵ All of the policy reasons underlying Rule 24(a)(9) of the Rules of Appellate Procedure apply with full force to a permit review adjudicative proceeding.

7. In an analogous situation, the Utah Court of Appeals declined to undertake an independent review of a large record. Wright v. Westside Nursery, 787 P.2d 508, 512 n.2 (Utah App. 1990). There, the court noted that Rule 24(a)(9) was intended precisely “to spare appellate courts such an onerous burden.” *Id.* Hence, the court continued, “[a]bsent exceptional circumstances, our review of the record is limited to those specific portions of the record which have been drawn to our attention by the parties and which are relevant to the legal questions before us.” *Id.* The court noted that Rule 24(a)(9) was intended precisely “to spare appellate courts such an onerous burden.” Hence, the court continued, “[a]bsent exceptional circumstances, our review of the record is limited to those specific portions of the record which have been drawn to our attention by the parties and which are relevant to the legal questions properly before us.” *Id.* I have applied this same standard to my review of the administrative record in this proceeding, for the same reasons as stated by the Utah Court of Appeals. If this rule were not applied to the administrative record in a permit review adjudicative proceeding, an appellant on future appeal could potentially argue that the administrative law judge overlooked or failed to consider, under his or her independent review of the record, certain evidence of record even though that evidence was not specifically drawn

⁵ It is undisputed that should Petitioners appeal any issue arising from this proceeding to the Utah Court of Appeals, Rule 24(a)(9) would apply to their briefs on appeal. Because the administrative law judge and the Executive Director are called upon to apply the same standard of review to the agency determinations as the Utah Court of Appeals, it stands to reason that the marshaling requirement should also apply at the ALJ and Executive Director levels of review. Moreover, Petitioners have been on notice of this procedural requirement from the outset of this proceeding and did not appeal the ALJ’s Order Clarifying the Marshaling Requirement to the Executive Director. They cannot therefore show undue burden or prejudice.

to the attention of the administrative law judge. I find and conclude that the types of “exceptional circumstances” that may warrant deviation from this rule, as stated in *Wright*, do not apply to the present proceedings.⁶

8. This conclusion finds further support in Utah case law in the cases cited below, subject to the clarification that in these cases, the potential for a procedural default upon failure to marshal the record is not an appropriate result, as held in *State v. Nielsen*, *supra*. However, to the extent that Utah case law regarding the burden of proof and marshaling does not deal with the procedural default issue rejected in *State v. Nelson*, it is still good law and should be considered as being relevant here. *See, e.g., Simmons Media Group, LLC v. Waykar, LLC*, 2014 UT App 145, ¶¶ 46, 763 Utah Adv. Rep. 32 (dismissing a claim where the appellant “does not identify and deal with the supportive evidence” (internal quotation marks omitted)); *Nebeker v. Summit County*, 2014 UT App 137, ¶ 46, 762 Utah Adv. Rep. 25 (“To prevail on such a challenge, the County must acknowledge the evidence that supports the findings and demonstrate ‘a basis for overcoming the healthy dose of deference owed to factual findings’” (quoting *Nielsen*, 2014 UT 10 ¶¶ 41-42); *Wachocki v. Luna*, 2014 UT 139, ¶ 11, n. 6, 330 P.3d 717 (holding that because appellants failed to marshal the evidence, appellants did not carry their burden on appeal); *W. Jordan City*, 2006 UT 27, ¶ 29; *Heinecke v. Dep’t of Commerce*, 810 P.2d 459, 464 (Utah Ct. App. 1991) (holding that parties fail to meet their burden to marshal the evidence when they leave “it to the court to sort out what evidence

⁶ There is simply nothing in the Utah Code to suggest that the administrative law judge in a permit review adjudicative proceeding has an independent duty to comb through the entire Administrative Record to identify all relevant facts in support of a disputed factual, technical, and scientific agency determination, particularly where, as here, Petitioners are represented by experienced and competent legal counsel. To be sure, a more generous standard of briefing may apply to a permit review adjudicative proceeding where parties appear *pro se*. Because no *pro se* parties are involved in the instant proceeding, I will not speculate as to the potential applicability of the Marshaling Requirement in cases where parties are not represented by legal counsel.

actually supported the finding” and instead argued their “own position without regard for the evidence supporting the...findings”).

9. The duty to carry the burden of proof through marshaling must fall to Petitioners in this permit review adjudicative proceeding, because as a matter of longstanding administrative law, the party challenging any factual finding underlying an agency’s determination is required to marshal “all” evidence supporting the agency’s determination. Sierra Club v. BOGM, 2012 UT 73, ¶ 12; *see also* Kenyon, 2009 UT 77, ¶ 27 (“When challenging factual findings, a party is obligated to marshal ‘all record evidence that supports the challenged finding.’” (quoting Utah R. App. P. 24(a)(9))); First Nat’l Bank of Boston v. County Bd. of Equalization of Salt Lake County, 799 P.2d 1163, 1165 (Utah 1990) (In an appeal of an agency action, “the party challenging the finding...must marshal all of the evidence supporting the finding.”).

10. The duty to marshal the evidence in administrative appeals also applies to parties challenging an agency’s determination on mixed questions of fact and law. Peterson Hunting v. Labor Comm’n, 2012 UT App 14, ¶ 15, 269 P.3d 998; *see also* United Park City Mines Co. v. Stichting Mayflower Mountain Fonds, 2006 UT 35, ¶ 25, 140 P.3d 1200 (“Even where the defendants purport to challenge only the legal ruling, as here, if a determination of the correctness of a court’s application of a legal standard is extremely fact-sensitive, the [appellants] also have a duty to marshal the evidence.” (internal quotation marks omitted)).

A party obligated to marshal the evidence must do so for each claim that the marshaling mandate applies. Sierra Club 2012, 2012 UT 73, ¶ 30 & n.3 (holding that Petitioners failed to marshal one claim while determining that the same Petitioners marshaled another claim). At its core, the marshaling requirement demands that a party “marshal all of the evidence supporting the findings and show that despite the supporting facts, the...findings are not support by substantial evidence.” *Id.* ¶ 30. To do so, the party may not “‘simply attack [the agency’s] credibility.’”

Associated Gen. Contractors, 2001 UT 112, ¶ 34 (quoting Brewer v. Denver & Rio Grande W. R.R., 2001 UT 77, ¶ 36, 31 P.3d 557).

11. In light of the Marshaling Requirement, the ALJ has ordered that Petitioners were not subject to a page limitation in their briefing on the merits. Rather, the only requirement has been that the briefing be of reasonable length. Thus, Petitioners have been afforded every opportunity to carry their burden of proof in this proceeding to convince the ALJ that any disputed factual, technical, or scientific agency determination is not supported by substantial evidence taken from the administrative record as a whole. In order to meet that burden of proof, it will be necessary for Petitioners to bring to the tribunal's attention all evidence from the administrative record that relates to any such disputed issue.

IV. Preservation Standard

1. Pursuant to Utah Code Section 19-1-301.5(10), “[a] person who files a request for agency action has the burden of demonstrating that an issue or argument raised in the request for agency action has been preserved.” Lacking such demonstration, the ALJ “shall dismiss, with prejudice, any issue or argument in a request for agency action that has not been preserved.” *Id.*

2. An issue or argument has been preserved for appeal if (a) the person raised it during the public comment period and it was supported with sufficient information or documentation to enable the director to fully consider the substance and significance of the issue, Utah Code § 19-1-301.5(4)(a)-(b); or (b) the issue was not reasonably ascertainable during the public comment period, *id.* § 19-1-301.5(6)(c).

3. The failure to raise reasonably ascertainable issues or arguments relating to the proposed permit during the public comment period deprives UDAQ from considering all

possible issues prior to any issuance of an approval order and results in less effective agency process.

4. The demonstration that each issue has been properly preserved must be found in the Petitioners' RAA at the outset of the case. *See id.*; *see also* Utah Admin. Code R305-7-203(3)(h) (mandating that an RAA provide a showing on preservation).

5. The failure to raise issues in the RAA frustrates the goals of the permit review adjudicative process by failing to place the respondents on notice of the specific claims. Such failure prevents UDAQ and Holly from assessing whether it should have supplemented the record in response to newly presented claims in the RAA. Moreover, by not raising issues in the RAA and waiting to reveal claims until the briefing, Petitioners prevented Holly from assessing the full risks of proceeding with construction under an AO subject to a permit challenge.

6. Any claims not preserved in accordance with the statutory standard set forth above will be dismissed.

7. Petitioners raised concerns in their RAA and then again in their Reply Brief about whether due process had been satisfied where Holly submitted additional information to UDAQ after the close of the public comment period and Petitioners were not given a second opportunity to submit comments on this additional material.

8. First, Petitioners have waived this claim by not briefing it in their opening brief. Petitioners may not raise claims in their RAA and then wait to address such claims until their Reply brief. *See e.g., Coleman ex rel. Schefski v. Stevens*, 2000 UT 98, ¶ 9, 17 P.3d 1122 (refusing to consider matters raised for the first time in the reply brief).

9. Even if Petitioners' claims regarding procedural due process were not waived and had merit, which is unclear in light of the fact that Petitioners do not adequately brief this issue,

fail to cite any case law, or quote from the due process clause of the Utah or United States Constitution, it is clear that Petitioners were afforded an opportunity to supplement the record and raise issues in the RAA relating to any new information submitted after the close of the public comment period.

10. Petitioners were on notice that additional information had been submitted, as it was referenced multiple times in the response to comments document UDAQ issued in conjunction with the final Holly AO. Petitioners also had access to UDAQ's permitting file after the Holly AO was issued before the deadline for filing their RAA.

11. Moreover, this tribunal has allowed arguments that were not reasonably ascertainable to be raised in the RAA, for the first time, in accordance with Utah Code Section 19-1-301.5(6)(c)(ii), and allowed the parties to supplement the record via motion in accordance with Section 19-1-301.5(8)(c). This tribunal has also waived any page limits to allow the parties the opportunity to fully develop any claims that arose either during the public comment period, or after.

12. Petitioners are incorrect that their due process rights have been implicated in this case.⁷ Any claims or issues that were reasonably ascertainable during the public comment period must have been raised in Petitioners' comments. Any claims that were not reasonably ascertainable during the public comment period could be included for the first time in the Petitioners' RAA but may not appear for the first time in Petitioners' briefing on the merits. Petitioners have failed to demonstrate how, in light of this tribunal's treatment of the claims in accordance with 19-1-301.5, any procedural due process rights have been violated.

⁷ To the extent Petitioners claim that permit review adjudication statute and rules violate the due process protections of the Utah and United States Constitutions, such claims are beyond the jurisdiction of the ALJ to decide in this permit review proceeding. *See e.g., Nebeker v. Utah State Tax Comm'n*, 2001 UT 74, ¶ 23, 34 P.3d 180.

V. Scope of Proceedings; Regulatory Background; and EPA Role

1. The evidence Petitioners presented in this matter stands for the self-evident, general proposition that air pollution is harmful to human health and to the environment. [IR at 009140-48; IR at 009139-45; IR at 009144-45; IR at 009145-47.] On that point, there is no disagreement.

2. In enacting the Utah Air Conservation Act, the Utah Legislature declared: “It is the policy of this state and the purpose of [the Utah Air Conservation Act] to achieve and maintain levels of air quality which will protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this state, and facilitate the enjoyment of the natural attractions of this state.” Section 19-2-101(2), Utah Code Ann.

3. The Utah Legislature further declared that the “purpose” of the Utah Air Conservation Act is to “(a) provide for a coordinated statewide program of air pollution prevention, abatement, and control; (b) provide for an appropriate distribution of responsibilities among the state and local units of government; (c) facilitate cooperation across jurisdictional lines in dealing with problems of air pollution not confined within single jurisdictions; and (d) provide a framework within which air quality may be protected and consideration given to the public interest at all levels of planning and development within the state.” Section 19-2-101(4), Utah Code Ann.

4. Similarly, in enacting the Clean Air Act, the Congress found, among other things:

(2) that the growth in the amount and complexity of air pollution brought about by urbanization, industrial development, and the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare, including

injury to agricultural crops and livestock, damage to and the deterioration of property, and hazards to air and ground transportation; [and]

(3) that air pollution prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments

42 U.S.C. § 7401(a).

5. Congress also stated that the “primary goal” of the Clean Air Act is to “encourage or otherwise promote reasonable Federal, State, and local governmental actions . . . for pollution prevention.” 42 U.S.C. § 7401(c).

6. In these proceedings, I am charged to conduct a permit review adjudicative proceeding in this matter in accordance with Utah Code Ann., § 19-1-301.5 and Utah Admin. Code R305-7.

7. As a matter of law, any source’s compliance with the permitting requirements set forth in the Clean Air Act and the Utah Air Conservation Act satisfies the public policy of protecting the public and the environment from the harms of air pollution.

8. The question before me in these proceedings is not whether air pollution is harmful but rather whether the Holly AO is in compliance with applicable laws, rules, and regulations. Based on the evidence in this record, the unavoidable conclusion is that the Holly AO is in compliance with the law, all as explained in more detail below.

9. The conclusions reached in these proposed Findings and Fact and Conclusions of Law, to the effect that the Holly AO is in compliance with all applicable laws, rules, and regulations, notwithstanding Petitioners’ objections, find additional support in the EPA’s independent review of the Holly AO and that agency’s conclusion that the Holly AO may be issued. *See* EPA Comment Letters [IR004001-004005; IR007840-007841]. In *Alaska Dep’t of*

Envtl. Conservation v. EPA, 540 U.S. 461, 124 S. Ct. 983 (2004), the U.S. Supreme Court held that EPA is entitled to review the reasonableness of state permitting authorities' BACT determinations under the PSD program and has authority to issue stop construction orders if it reasonably believes that a BACT designation is erroneous or unreasonable. The CAA also provides EPA with concurrent enforcement authority that is directly applicable to the present proceeding. 42 U.S.C. §§ 7477, 7413(a)(5)(A) (describing the enforcement options available to the EPA when it finds that a state is not complying with any requirement of the CAA with respect to construction of a new source or modification of an existing source). See Jennifer A. Davis Foster, Note, EPA Oversight in Determining Best Available Control Technology: The Supreme Court Determines the Proper Scope of Enforcement, 69 Missouri L. Rev., Issue 4, at 1 (Fall 2004). Based on the foregoing, it is clear that if in EPA's independent judgment, any of the objections and issues Petitioners have briefed on the merits were meritorious, EPA had an independent duty and authority to pursue such issues. EPA declined to do so even after being given the opportunity in connection with the Holly AO.

10. In this permit review adjudicative proceeding, we have a somewhat unusual situation in administrative law where not one but two regulatory agencies with significant technical expertise and concurrent (and somewhat overlapping) legal jurisdiction have been involved in the procedural and substantive process that led to the issuance of the Permit. This situation provides a second layer of regulatory oversight to ensure that the applicable procedural and substantive requirements of the Clean Air Act, as adopted and enforced through the Utah Air Conservation Act in the spirit of "cooperative federalism," have been met.

**FINDINGS OF FACT AND CONCLUSIONS OF LAW FOR CLAIMS PETITIONERS
FAILED TO BRIEF ON THE MERITS**

1. Petitioners' RAA contains a number of claims that Petitioners did not raise in their briefing on the merits. Those claims are listed in a Table of Waived Claims attached hereto as **Appendix A**, incorporated herein by this reference.

2. Both Holly and UDAQ pointed out in their briefing and at oral argument that Petitioners failed to brief these claims and therefore waived such claims. Petitioners did not rebut this argument and at oral argument conceded that this tribunal need not address claims they did not brief.

3. Because Petitioners failed to brief these claims, they should be dismissed with prejudice on two separate and independent grounds: (a) waiver; and (b) failure to carry Petitioners' burden of proof. *See, e.g., See Sierra Club v. BOGM*, 2012 UT 73, ¶ 31; *Kenyon*, 2009 UT 77, ¶ 29; *W. Jordan City*, 2006 UT 27, ¶ 29; *Anderson v. Kriser*, 2009 UT App 319, *2 n.3 (“[A]rguments not raised in an appellant's initial brief are waived.”); *Brown v. Glover*, 2000 UT 89, ¶ 23, 16 P.3d 540 (“Generally, issues raised by an appellant in the reply brief that were not presented in the opening brief are considered waived and will not be considered by the appellate court.”).

**FINDINGS OF FACT AND CONCLUSIONS OF LAW FOR CLAIMS PETITIONERS
BRIEFED ON THE MERITS**

Petitioners' remaining claims can be grouped into eleven independent claims, each of which will be addressed below. Before addressing the specific claims, I would like to make the following general findings of fact relating to the regulatory context, inasmuch as the general aim of many of Petitioners' comments go to the issue of the harms caused by air pollution.

I. UDAQ Is Properly Regulating the Holly Refining Flares as Required by Subpart Ja.

Petitioners' first specific argument on the merits goes to the interplay between the regulation of the Holly flares, as required by law, and the Holly AO at issue in this matter. Petitioners argue that the Holly AO is invalid because UDAQ did not "properly regulate" the refining flares by explicitly listing and explaining every applicable provision of the regulation governing the flares (New Source Performance Standards ("NSPS"), 40 C.F.R. Part 60, Subpart Ja ("Subpart Ja")). [Petitioners' Opening Brief at 4-12.] More specifically, Petitioners argue that "the Director has failed to specify in the AO – or elsewhere – the exact conditions of Subpart Ja that apply to the Holly Refining Flares and has failed to impose these conditions on the facility. Without particular AO terms and conditions that reflect the relevant Subpart Ja standards on the flares, the Heavy Crude Project will not meet the requirements of Utah Admin Code R307-401-8(1)(b)(vi), Rule 307-401-8(1)(a) and Rule R307-401-8(5)." [Petitioners' Opening Brief at 4-5.] For the reasons set forth below, this argument should be rejected.

A. Findings of Fact

1. Holly's NOI acknowledges that Subpart Ja applies to the refinery generally and to the flares specifically. [See IR002866-87, Holly's July 2012 NOI ("The following Subparts are applicable to the proposed project...Subpart Ja – Standards of Performance for Petroleum Refineries"); IR002868-69 ("The provisions of [40 C.F.R. Part 60 Subpart Ja] apply to the new FCCU and fuel gas combustion devices, including flares and process heaters.");⁸ IR002962

⁸ When Holly submitted its NOI, Subpart Ja included all flares in its definition of "fuel gas combustion device." See 40 C.F.R. § 60.101a (2012). However, during Holly's permit review process, the regulation was revised to separate fuel gas combustion devices from flares. 40 C.F.R. § 60.101a (2013). Despite this change in the regulations, in Holly's NOI and the Source Plan Review, flares were grouped together with other fuel gas combustion devices and subject to the same emission requirements. See IR005871-72.

(“Because the flare is located at a petroleum refinery, the flare must comply with the requirements and limitations presented in 40 C.F.R. Part 60 Subpart Ja.”)].

2. Holly’s NOI also incorporated emission limits derived from Subpart Ja for combustion devices. [IR002868-69, Holly’s July 2012 NOI (“Holly will comply with the following emission limitations...Holly shall not burn in any new fuel gas combustion device any fuel gas that contains H₂S in excess of 162 ppmv determined hourly on a three-hour rolling average basis and H₂S in excess of 60 ppmv determined daily on a 365 successive calendar day rolling average basis.”).]

3. UDAQ independently recognized in the Source Plan Review that Subpart Ja applies to the Holly Refinery and that Holly is subject to the emission limitations contained in Subpart Ja. [IR008571-8572, Source Plan Review (“40 CFR 60 Subpart Ja: The provisions of this subpart apply to the new FCCU and fuel gas combustion devices, including flares and process heaters. Holly Refinery will comply with the following emission limitations...Holly Refinery shall not burn in any new fuel gas combustion device any fuel gas that contains H₂S in excess of 162 ppmv determined hourly on a three-hour rolling average basis and H₂S in excess of 60 ppmv determined daily on a 365 successive calendar day rolling average basis.”).] UDAQ also made clear that Subpart Ja applies to the flares in its Response to Comments Memo. [IR009183, Response to Comments Memo (“NSPS Subpart Ja applies to the Woods Cross refinery generally and to both the North and South Flares.”)].

4. UDAQ determined that Holly is required to comply with Subpart Ja whether or not such emission limits were contained in the Holly AO. [See IR009183, Response to Comments Memo (“Regardless of whether the requirements [of NSPS] are in the AO, Holly Refinery must comply with all applicable subparts...Holly Refinery is not in violation of any

federal limits.”); IR009252, Holly AO (listing Subpart Ja in Section III, “Applicable Federal Requirements”).]

5. The EPA made no comments regarding issues with the applicability or enforcement of Subpart Ja as to the Holly Refinery generally or as to the AO specifically. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

B. Findings and Conclusions on Preservation

6. Petitioners preserved this argument in accordance with 19-1-301.5(4) by raising the issue during the public comment period. [See IR007858-7860, Petitioners’ Second Comment Letter.]

C. Findings and Conclusions on Burden of Proof

7. Petitioners assert that this issue is purely a question of law—whether UDAQ is required to explicitly outline and explain every applicable provision of Subpart Ja in the Holly AO. Petitioners concede that Subpart Ja applies to Holly’s flares and other combustion sources, but argue that the AO is deficient because each applicable provision is not explained in detail in the Holly AO.

8. The question of whether Utah law requires applicable NSPS provisions to be listed in approval orders is a question of law that the agency has been given discretion to interpret and so shall be reviewed under a clearly erroneous standard. Whether UDAQ correctly applied a particular NSPS provision and whether Holly is in compliance with NSPS are mixed questions of law and fact that are reviewed for reasonableness and whether there is substantial evidence in the record to support the determinations. Whether Holly is in compliance with subpart Ja is a question that is specifically handled by DAQ’s enforcement section and therefore beyond the scope of these proceedings.

9. In their briefing, Petitioners failed to reference any of the specific evidence in Holly's NOI in which Holly recognized it was subject to Subpart Ja.

10. Additionally, Petitioners' reference to other evidence in the record is relegated to footnotes and lacks any description of the document being referenced.

11. Because Petitioners have omitted multiple pieces of evidence from their analysis that show Subpart Ja does apply to the Holly Refinery, they have failed to meet their burden of proof on this issue for the reasons described in more detail above.

D. Conclusions of Law on the Merits

12. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' arguments should fail on the merits for the independent reasons discussed below.

13. Subpart Ja is one of many NSPS the EPA has promulgated for particular types of new or modified sources that EPA has determined are major emitters of criteria air pollutants, such as petroleum refineries. *See generally* 42 U.S.C. § 7411, Standards of Performance for New Stationary Sources (granting the administrator of EPA the authority to regulate certain sources). The applicability of a particular NSPS to a particular source is often specifically outlined in the text of the regulation applicable to that source category. *See e.g.*, 40 C.F.R. § 60.100a (defining modification for purposes of Subpart Ja applicability). The applicability of NSPS is evaluated separately from other Clean Air Act regulations such as the Prevention of Significant Deterioration Program ("PSD"), which is implemented through individual pre-construction permits like the Holly AO. *See generally* 42 U.S.C. §§ 7475, 7503 (setting forth the pre-construction permitting requirements).

14. Unlike the PSD program, the NSPS regulations apply to a source whether or not that source is undergoing a modification requiring pre-construction approval. *See, e.g.*, 40 C.F.R. § 60.1(a) (defining NSPS applicability); *id.* § 60.2 (defining when “construction” or “modification” takes places for purposes of NSPS applicability); Env’tl Defense v. Duke Energy Corp., 549 U.S. 561, 577-78 (2007) (recognizing the distinction between the NSPS and PSD regulations). Therefore, NSPS compliance and/or applicability determinations are not dependent upon inclusion of the NSPS regulation’s language in the pre-construction permit. Compliance or non-compliance with NSPS is entirely separate from the PSD permitting process.

15. The oversight of Holly’s compliance with Subpart Ja is a matter for UDAQ’s enforcement section. This is true regardless of whether the provisions of Subpart Ja are in the permit or not. [IR009183, Response to Comments Memo (“Regardless of whether the requirements [of NSPS] are in the AO, Holly Refinery must comply with all applicable subparts...Holly Refinery is not in violation of any federal limits.”).]

16. If Holly were in violation of Subpart Ja, contrary to UDAQ’s determination, the Clean Air Act provides Petitioners with a separate remedy in the form of a citizen suit under Section 304 of the Clean Air Act. *See* 42 U.S.C. § 7604(a) (Clean Air Act citizen suit provision). Challenging compliance with Subpart Ja in this permit review proceeding is therefore misplaced.

17. Petitioners also are incorrect in their assertion that R307-415 of the Utah Administrative Code requires all federally-applicable NSPS requirements to be included in the Holly AO. The regulations Petitioners cite apply only to Title V operating permits—not approval orders. The Title V operating permit regulations are independent of the approval order

pre-construction permit regulations. *Compare* Utah Admin. Code R307-415 (Title V operating permit regulations), *with id.* R307-401 (pre-construction approval order permit regulations).

18. The purpose of Title V is to consolidate all applicable federal and state regulatory requirements into one permit. *See* 40 C.F.R. § 71.1(b) (“All sources subject to the operating permit requirements of title V and this part shall have a permit to operate that assures compliance by the source with all applicable requirements.”). Thus, there is no legal requirement to include all applicable NSPS regulations in an approval order.

19. Accordingly, Petitioners’ arguments that the applicable provisions of Subpart Ja must be included in the Holly AO fail on the merits and should be dismissed.

II. The North Flare is Subject to Subpart Ja.

1. The Petitioners next contend that the Director erred in reversing his position regarding the applicability of Subpart Ja to the North Flare. [Petitioners’ Opening Brief at 12-15.] For the reasons stated below, this argument should be rejected.

A. Findings of Fact

2. The Director determined that Holly must comply with all applicable subparts of the NSPS regulations and that Holly was not in violation of any federal limits. [IR009183, Response to Comments Memo (“Regardless of whether the requirements [of NSPS] are in the AO, Holly Refinery must comply with all applicable subparts...Holly Refinery is not in violation of any federal limits.”).]

3. The Director determined that the North Flare was not being modified as part of this project and therefore was outside the scope of the permitting action. [IR009183, Response to Comments Memo (“The North Flare is not being modified as part of the project proposed by

Holly Refinery in its NOI, so it is outside the scope of this permit action. NSPS Subpart Ja applies to the Woods Cross refinery generally and to both the North and South Flares.”.)]

4. According to undisputed evidence in the record, Holly’s North Flare was subject to and in compliance with Subpart J and A of the NSPS regulations. [IR007999, Email Correspondence between Eric Benson and Camron Harry (“Holly’s North Flare was applicable and compliant with 40 CFR 60 Subpart A & J upon startup.”).]

5. A consent decree entered in 2008 between Holly and EPA required that Holly bring the North Flare into compliance with applicable NSPS standards. [See IR004800-4801, Consent Decree (requiring flaring devices to become NSPS compliant).]

6. As of December 2008, Holly reported to the EPA that its North Flare was in compliance with NSPS. [See IR007946, IR007951, Semi-Annual Progress Report to EPA and UDAQ re Consent Decree (reporting that “Performance tests for both North and South Flares [were] conducted December 10, 2008” and “[the] North Flare [was] subject to NSPS as of date of [Consent Decree] entry, eliminate all routinely-generated gas” and compliance status was “Complete....[N]o routinely-generated gas sent to the flare.”).]

7. In connection with its independent review of the entire Holly AO, the EPA made no comments about the North Flare or Subpart Ja, compliance with the Consent Decree, or any of the other related issues raised by Petitioners here. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

B. Findings and Conclusions on Preservation

8. Petitioners preserved this argument in accordance with 19-1-301.5(4) by raising the issue during the public comment period. [See IR007858, IR007864, Petitioners’ Second Comment Letter.]

C. Findings and Conclusions on Burden of Proof

9. Petitioners' argument that the Director reversed his position relative to the North Flare is a question of fact and the Petitioners bear the burden to demonstrate that the Director's decision is not supported by substantial evidence in the record and was an abuse of discretion.

10. Petitioners, in their briefing, failed to marshal all of the evidence that supported the Director's ultimate conclusion that Subpart Ja applied to the North Flare and that Holly was in compliance with this Subpart. By contrast, Holly did marshal all of the evidence in its briefing.

11. Nothing in the record supports the assertion that the Director changed his mind about the applicability of Subpart Ja. From the beginning of the project, all parties agreed that this NSPS provision applied to the Holly Refinery.

12. Accordingly, Petitioners failed to satisfy their burden of proof for this claim.

D. Conclusions of Law on the Merits

13. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' claims fail on the merits for the independent reasons discussed below.

14. The legislative intent of a permit review adjudicative process is to allow for an evolving understanding of a project before any final decisions are made. The Director may, at the beginning of a project, take a position in light of the information in the record at the time but later reverse that position based on additional information presented during the public comment period or otherwise, such as information provided by the source upon request. The question that must be answered in this permit review adjudication proceeding is whether the Director's final decision to issue the Holly AO is supported by substantial evidence in the record. This question

remains the same whether or not the Director may have changed his mind during the permitting process. In fact, the entire point of the permitting process as defined by the Utah Legislature is to allow for well-informed administrative decisionmaking. To the extent that the Director may have reached a different view on any given point suggests that the process is working as intended.

15. In this case, the Petitioners do not present any evidence that there was a reversal of position with respect to the applicability of Subpart Ja to the North Flare. To the contrary, all of the evidence in the record supports the position that the Director ultimately took, which was that Subpart Ja applied to the North Flare.

16. Petitioners argue that the North Flare was modified when all gases from the South Flare were routed to the North Flare and this modification triggered NSPS Subpart Ja applicability. [Petitioners' Opening Brief at 13.]

17. Regardless of whether the North Flare was modified, the record evidence demonstrates that Holly and the Director agreed that Subpart Ja applied for this project. [IR009183; IR009183; IR004800-4801; IR007946, IR007951.] Therefore, any evidence that a modification may have occurred on the North Flare would only be superfluous, not contradictory.

18. The EPA raised no procedural or substantive comments regarding with UDAQ's handling of Subpart Ja. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

19. The substantial weight of the evidence supports the Director's ultimate determination that Subpart Ja applies to Holly's North Flare and Petitioners' arguments that the Director contradicted himself should be dismissed with prejudice.

III. A BACT Analysis Was Not Required for the North Flare.

1. Petitioners argue that UDAQ erred in failing to perform or require a BACT analysis for the North Flare. [Petitioners' Opening Brief at 15-16]. For the reasons set forth below, this argument should be rejected.

A. Findings of Fact

2. Holly did not propose any physical modification of the North Flare as part of the project approved in the Holly AO. [IR009183, Response to Comments Memo ("The North Flare is not being modified as part of the project proposed by Holly Refinery in its NOI, so it is outside the scope of this permit action. NSPS Subpart Ja applies to the Woods Cross refinery generally and to both the North and South Flares."); IR009189, Response to Comments Memo ("Because neither the North Flare nor the SRU will undergo any physical change or experience an increase in emissions as a result of Holly Refinery's proposed project, the 'emission units' are not subject to the BACT analysis requirements in the PSD rules.").]

3. UDAQ did not anticipate any increase in overall flare emissions as a result of the project. [IR008561, Source Plan Review ("there is no reason to assume that upset condition emissions will be any greater after the project is complete than before the project.").]

4. The North Flare is already subject to and in compliance with NSPS requirements. [IR009183, Response to Comments Memo ("NSPS Subpart Ja applies to the Woods Cross refinery generally and to both the North and South Flares.").]

5. UDAQ determined that BACT for flares was compliance with Subpart Ja. [IR008516-17, Source Plan Review ("The only technically feasible control options for emissions of all pollutants from flares are: (1) equipment design specifications and good combustion work

practices...; and (2) flare gas recovery systems...DAQ NSR recommends compliance with the requirements of 40 CFR 60 Subpart Ja as BACT.”).]

6. According to the record, prior to the authorization of this project, all of the flare gases were being routed to the North Flare. [IR08200, Holly’s first revised netting analysis (“currently all gases are routed to the north flare”).]

7. The EPA raised no procedural or substantive comments regarding UDAQ’s analysis regarding BACT for the North Flare. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

B. Findings and Conclusions on Preservation

8. Petitioners preserved this argument in accordance with 19-1-301.5(4) by raising the issue during the public comment period. [See IR007858, IR007864, Petitioners’ Second Comment Letter.]

C. Findings and Conclusions on Burden of Proof

9. Petitioners’ claim that UDAQ erred in failing to perform a BACT analysis on the North Flare is a mixed question of law and fact. There is also a dispute regarding the correct interpretation of the regulations that trigger BACT, which is a question of law reviewed under a clearly erroneous standard. The application of that law to the facts in this case triggers the mixed question standard of review in which the ALJ reviews the Director’s determination for reasonableness.

10. Petitioners failed to marshal all of the evidence related to their claim.

11. Specifically, Petitioners failed to cite UDAQ’s finding that BACT for flares is compliance with Subpart Ja and that the North Flare is already subject to NSPS requirements.

12. Accordingly, Petitioners failed to satisfy their burden of proof on this claim and it can be dismissed on this basis.

D. Conclusions of Law on the Merits

13. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' claims fail on the merits for the independent reasons discussed below.

14. In the briefing on this issue, Petitioners erroneously conflate the same definition of modification they cite in their NSPS arguments. However, a "modification" that triggers a BACT analysis is different than what is required to trigger NSPS applicability. *See, e.g., Env't Defense v. Duke Energy Corp.*, 549 U.S. 561, 577 (2007) ("The 1980 PSD regulations on 'modification' simply cannot be taken to track the Agency's regulatory definition under the NSPS.").

15. A modification for purposes of BACT applicability occurs when a person "intend[s] to make modifications or relocate an existing installation which will or might reasonably be expected to increase the amount or change the effect of, or the character of, air contaminants discharged." Utah Admin. Code R307-401-3(1)(a) (emphasis added). An "installation" is defined as "a discrete process with identifiable emissions which may be part of a larger industrial plant" and a "modification" is defined as "any planned change in a source which results in a potential increase of emission." *Id.* R307-100-2.

16. Accordingly, for there to be a "modification" triggering BACT applicability, there must be (1) a planned change in an emissions unit that (2) is reasonably expected to increase the amount or character of the emissions. The federal regulations contain similar requirements. *See* 40 C.F.R. § 52.21(j)(3) (BACT is required on units that experience a net emissions increase "as a

result of a physical change or change in the method of operation in the unit.”); 71 Fed. Reg. 54,235, 54,240 (Sept. 14, 2006) (“We further note that our current rules do not require BACT or LAER at unchanged units”); Letter from Robert B. Miller, Chief of the Permits and Grants Section of the EPA to Lloyd Eagan, Director of the Bureau of Air Management in Wisconsin (Feb. 8, 2000) (“[W]here an emissions unit has not undergone a physical or operational change, BACT does not apply.”).

17. Here, UDAQ specifically found that Holly was not proposing any changes to its North Flare as part of the project. A shift of emissions from one flare to the other does not result in increased emissions, only *redistributed* emissions. In its NSPS regulations, the EPA discussed the analogous situation of two interconnected flares, stating “that interconnections between flares will not alter the cumulative amount of gas being flared (i.e., interconnecting two flares does not result in an emissions increase relative to the two single flares prior to interconnection).... Considering this, we agree that the interconnection of two flares does not necessarily result in a modification of the flare and we have specifically excluded flare interconnections from the modification provisions.... [W]e agree that connections that do not increase the emissions from the flare should not trigger a modification....” 77 Fed. Reg. 56,422, 56,438 (Sept. 12, 2012). Petitioners’ argument is not the law.

18. Moreover, to the extent Petitioners are arguing that the re-route of gases to the North Flare constitutes a change in operation, such a change occurred well before Holly initiated the current black wax crude project. This is evidenced by the language Petitioners themselves quote which reflects that “*currently* all gases are routed to the north flare.” [IR08200, Holly’s first revised netting analysis (emphasis added).]

19. Without a change in operation or an increase in emissions for the North Flare, Petitioners' argument (that a "modification" of the North Flare was part of this project triggering a BACT analysis for the North Flare) is not supported by the record and should be rejected.

20. Even if Petitioners could demonstrate by substantial evidence that Holly proposed to modify the North Flare, conducting a BACT analysis on the North Flare would be superfluous because the North Flare is already subject to Subpart Ja, which itself constitutes BACT for Holly's flares. [See IR008516-17, Source Plan Review ("The only technically feasible control options for emissions of all pollutants from flares are: (1) equipment design specifications and good combustion work practices...; and (2) flare gas recovery systems...DAQ NSR recommends compliance with the requirements of 40 CFR 60 Subpart Ja as BACT."); *see also* IR009183, Response to Comments Memo ("NSPS Subpart Ja applies to the Woods Cross refinery generally and to both the North and South Flares.")] Petitioners' argument fails for this independent reason as well.

21. Finally, the record suggests that Petitioners' argument is ultimately moot because Holly is required by the recently-adopted PM_{2.5} SIP to install flare gas recovery technology at the Refinery,⁹ which Petitioners do not contest is the most stringent pollution control device currently available for flares.¹⁰ [See IR008516, Source Plan Review (referring to flare gas recover as "the top control technology").] This requirement is binding on Holly regardless of whether it is explicitly stated in the Holly AO. As such, even if Petitioners' argument were

⁹ The Utah PM_{2.5} SIP requires "all major source petroleum refineries in or affecting a designated PM_{2.5} non-attainment area within the State shall install and operate a flare gas recovery system." See Utah PM_{2.5} SIP, Section IX, Part H, p. 43.

¹⁰ Flare gas recovery is a system that captures gases that would otherwise be combusted in the flare and redirects those gases as fuel sources for other refinery operations. This reduces the emissions associated with flaring and is an economic use of excess fuel gas.

correct, there is no need for a remand regarding control technology on the North Flare because there are no additional pollution controls that could be required of Holly.

22. Accordingly, Petitioners have failed to demonstrate with substantial evidence in the record as a whole that UDAQ erred in not performing a BACT analysis on the North Flare and this claim should be dismissed with prejudice on the merits.

IV. Emissions From Holly's Flares Were Properly Calculated and Are Regulated in Accordance With the Unavoidable Breakdown Rule.

1. Petitioners next argue that the emissions from the flares have not been properly calculated and that UDAQ has not been appropriately regulating the flares in accordance with the Unavoidable Breakdown Rule ("UBR"). [Petitioners' Opening Brief at 16-22.] For the reasons stated below, this argument should be rejected.

A. Findings of Fact

2. In the Holly AO, UDAQ imposed a number of emission limits that included emissions from the flares, thereby limiting the routine emissions from the flares. [See IR009225, Holly AO ("Previous exclusions from the AO emission caps will be removed therefore the AO emission caps will be source wide caps."); IR009240, Holly AO ("PM₁₀ Combustion Emissions Cap Sources...Flares."); IR009247, Holly AO ("PM₁₀ emissions from all combustion sources shall not exceed 47.5 tons per rolling 12-month period or 0.13 tpd."); IR009245, Holly AO ("The emission of SO₂ into the atmosphere from all sources (excluding routine turnaround maintenance emissions) shall not exceed 110.3 tons per rolling 12-month period or 0.31 tons per day."); IR009245, Holly AO ("Emissions of SO₂ shall be limited as follows...All other sources 0.21 (tpd) 74.9 (tpy)."); IR009245, Holly AO ("For all the above listed emission points a CEM shall be used to determine compliance as outlined in II.B.3.e."); IR009247-48, Holly AO ("Total 24-hour PM₁₀ emissions for the sources shall be calculated by adding the daily results of the above

PM₁₀ emissions equations for natural gas, plant gas, and fuel oil combustion. Results shall be tabulated for every day, and records shall be kept.”); IR008568, Source Plan Review (discussion of inclusion of flares into SO₂ and PM emission caps).]

3. In response to Petitioners’ comments that the emission estimates for the flares were inaccurate because they did not include upset emissions, UDAQ explained that Holly’s emissions were capped and any exceedance due to an upset would constitute an exceedance of the cap. [IR009187, Response to Comments Memo (“The commenter is correct that there are no limits on the flares. This is because the flares are in place as control device[s] for upset conditions. However Holly Refinery does have to comply with the requirements of 40 CFR 60 Subpart Ja. The Commenter is incorrect that ‘upset’ conditions are not addressed...‘the refineries were allowed maximum never-to-be exceeded daily limits of PM₁₀, SO₂, NO_x based on the apparent variability. Emissions were capped at these maximum levels from the sources that could have their emissions metered by fuel metering/and calculations and from the other sources that would be stack tested every 1-3 years.” (quoting Utah SIP § IX.A.6.c.(2) (1991)).]

4. The assumption in determining the PTE for the flares was that upset emissions would be zero because they are not part of normal refinery operation. [IR002852, July 2012 NOI (“PM₁₀ and PM_{2.5} emissions for the Woods cross refinery flares were assumed to be zero.”); *see also* IR002857, July 2012 NOI (“Startup, shutdown, malfunction events were considered to be zero.”).]

5. According to the evidence in the record, the PTE for the flares was calculated based on the purge gas flowing through the flare and planned startups and shutdowns, but did not include calculations for upset emissions. [IR003175-76, July 2012 NOI (recognizing emissions from the flares of SO₂ were estimated based on the assumption of 1700 scfh non-upset

throughput to the flare. This is the “purge gas” amount that must run to the flare to keep it from backdrafting); IR009196, Response to Comments (“startup and shutdown emissions were included in the analysis”); IR008560-8561, Source Plan Review (“to be conservative and representative of potential increases in emissions from SU and SD, UDAQ and Holly Refinery have agreed to include these emissions in Step 1 of the PSD and NNSR applicability analysis”); IR008522, Source Plan Review (“To ensure proper flare operation, Holly Refinery will install flow meters and gas combustion monitors on the flare gas line.”); IR009211 (“The combustion of flue gas through the pilot flame is accounted for in the emission calculations.”).]

6. According to the record, upset emissions from flares are unpredictable and uncontrollable because the flare is the safety valve for excess refinery gases generated in a period of malfunction. [IR008516, Source Plan Review (“The flare system at Holly Refinery provides for the safe disposal of hydrocarbon gases which are vented automatically from process units through pressure relief valves, control valves or are manually vented.”); IR008561, Source Plan Review (“Section 3.6 of the July 2012 NOI lists upset conditions for both the North and South Flares. These upset conditions (malfunctions) do not include normal process flow combustion at the flares and there is no reason to assume that upset condition emissions will be any greater after the project is complete than before the project. Although these emissions have not been included in the netting analysis, they are noted below for reference.”).]

7. The Holly AO does not contain exceptions for emissions due to malfunctions at the refinery; such excess emissions are subject to the UBR. [IR009196, Response to Comments Memo (“All limits of the permit apply at all times, which include periods of startup, shutdown and malfunction. The ITA contains no exclusion for these events.”); IR009211 (“Flare

emissions during malfunction/upset conditions are regulated through R307-107 (ITA Condition II.3).”.)]

8. In connection with its independent review of the Holly AO, the EPA raised no procedural or substantive comments regarding with UDAQ’s regulation of the Refinery Flares, including the UBR. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

B. Findings and Conclusions on Preservation

9. Petitioners have partially preserved this argument in accordance with Section 19-1-301.5(4). In their comments, Petitioners challenged the calculation of the PTE for the flares but said nothing about misapplication or noncompliance with the UBR. [See IR009056-9057, Sagady second comment letter.]

10. Petitioners could have reasonably ascertained this issue as the UBR was specifically referenced in the ITA. [See IR008453.]

11. The argument that the issue is preserved because UDAQ referenced the UBR in the Response to Comments Memo is misplaced. In the responses, UDAQ simply referenced the UBR in response to an entirely unrelated comment. [See IR009210-9211, Response to Comments Memo (referring to R307-107 in response to the comment that “nothing provided by the applicant’s final revised notice of intent justifies the claimed 98% control efficiency claimed for VOC, HAP and CO Destruction efficiency from Applicant’s open air flares”).]

12. UDAQ’s unrelated response does not save Petitioners from the requirement to raise their issues and arguments in a way that gives UDAQ notice of the substance of the issue.

13. To the extent Petitioners argue that the UBR has been violated by Holly or is not being enforced by UDAQ, the argument is beyond the scope of what was raised during the

comment period and is unpreserved pursuant to Utah Code Section 19-1-301.5(4). Accordingly, it should be dismissed.

C. Findings and Conclusions on Burden of Proof

14. The claims Petitioners assert (both preserved and unpreserved) regarding the PTE for the flares constitute mixed questions of law and fact. The questions of law involve the interpretation of the UBR and the regulations and guidance relating to how PTE for flares should be calculated—specifically, whether upset emissions must be included in such calculations. The application of those laws to the facts of this case and the calculations performed by Holly create a mixed question. Accordingly, a reasonableness standard of review shall apply.

15. Petitioners have failed to meet their burden of proof for this claim because they failed in their briefing to marshal all of the relevant evidence from the record.

16. Petitioners ignore multiple pieces of evidence that explain how Holly calculated the PTE for the flares in accordance with applicable guidance and the UBR.

17. Having failed to meet their burden of proof, Petitioners' claim should be dismissed on this basis.

D. Conclusions of Law on the Merits

18. Even if Petitioners had properly preserved all of their arguments regarding the PTE calculations of the flare emissions, and even had carried their burden of proof (or to the extent marshaling is not properly applied to this claim (being a question of law)), Petitioners' claims fail on the merits for the independent reasons discussed below.

i. UBR Application

19. Petitioners claim that the UBR requires emission limits on sources of malfunction emissions. Nothing in the plain language of the UBR requires numeric limits on malfunction

emissions. Nor is there any other authority in support of requiring such a limit as part of the UBR. To the extent that Petitioners' arguments constitute a request for rulemaking, they must be rejected in these permit review proceedings.¹¹

20. In any event, such limits are impossible for malfunction emissions because such emissions are, by their very nature, unpredictable and uncontrollable. [See IR008516.]

21. The UBR simply sets forth criteria that must be met in the event of excess malfunction emissions to allow UDAQ the enforcement discretion to forgo monetary penalties. See Utah Admin. Code R307-107-1 to -3.

22. Stated differently, the UBR assumes that malfunction emissions are violations of an applicable approval order but affords to UDAQ enforcement discretion regarding the imposition of fines and penalties if a source is otherwise in compliance with the other requirements of the rule, including monitoring and good combustion practices. Utah Admin. Code R307-107-1 to -3 (requiring reporting of breakdown emissions and giving UDAQ enforcement discretion).

23. The limit in the Holly AO for malfunction emissions from the flare is zero tpy, which is accounted for in the overall SO₂ and PM emission caps. [See IR002857, July 2012 NOI ("Startup, shutdown, malfunction events were considered to be zero").] Any violation of those limits due to an upset or malfunction subjects Holly to the enforcement discretion of UDAQ under the UBR.

¹¹ Petitioners may not advocate for a rulemaking change in a permit review adjudicative proceeding. [See In the Matter of: South Davis Sewer District, Order (*Remand to ALJ with Directions on Determining Whether There is a Basis to Grant Friends Standing to Intervene*), March 29, 2011, p. 11 ("a permitting proceeding is not the appropriate forum in which to advance adoption of new rules or challenge existing ones").] Such a request is only proper in a rulemaking proceeding under Utah Code Section 63G-3-101 *et seq.*

24. Any enforcement action by UDAQ, however, would be an independent proceeding separate from this adjudication and not a valid basis to remand the AO.

ii. Flare PTE

25. Petitioners challenge the PTE calculations of SO₂ and PM from the flares by arguing that the PTE inappropriately excluded upset and malfunction emissions. This argument fails for three reasons.

26. First, the law does not require the inclusion of upset emissions in a PTE calculation for flares because such upset emissions are not considered part of normal operation. *See Sierra Club v. Wyoming Dep't of Env'tl. Quality*, 251 P.3d 310, 314 (Wyo. 2011) (holding that “hypothesizing the worst possible emissions from the worst possible operation is the wrong way to calculate potential to emit...PTE includes only emissions that occur during normal operations” thus “cold start” emissions and “malfunctions” were properly excluded from the plant’s PTE); *see also Alabama Power Co. v. Costle*, 636 F.2d 323 (D.C. Cir. 1979); *United States v. Louisiana-Pacific Corp.*, 682 F. Supp. 1141, 1158 (D. Colo. 1988) (“[P]otential to emit does not refer to the maximum emissions that can be generated by a source hypothesizing the worst conceivable operation. Rather, the concept contemplates the maximum emissions that can be generated while operating the source as it is intended to be operated and as it is normally operated.”).

27. Holly excluded malfunction emissions from its PTE calculations for the flares and, instead, calculated emissions based on the “average non-upset throughput to [the] flare” and appropriate emissions factors. [See IR 003175.]

28. Second, Petitioners' arguments challenging the PTE calculations for the flares also fail because federally enforceable permit conditions in the Holly AO limit malfunction emissions to zero tons per year from the flares.

29. PTE is defined as:

the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. *Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.*

40 C.F.R. § 52.21(b)(4) (emphasis added); Utah Admin. Code R307-101-2 (same definition).

30. Holly assumed a limit of zero tpy for malfunction emissions, which it factored into its emissions totals for the SO₂ and PM₁₀ emission caps in the Holly AO. [See IR002857, July 2012 NOI ("Startup, shutdown, malfunction events were considered to be zero.")] The SO₂ and PM₁₀ emission caps, which include emissions from all combustion sources including flares, are federally enforceable operational limitations. [See IR009245, Holly AO (Section II.B.6.a, "The emission of SO₂ into the atmosphere from all sources (excluding routine turnaround maintenance sessions) shall not exceed 110.3 tons per rolling 12-month period or 0.31 tons per day."); see also IR009247, Holly AO (Section II.B.7.a "PM₁₀ emissions from all combustion sources shall not exceed 47.5 tons per rolling 12-month period.").]

31. If Holly exceeds its emission caps due to an upset or malfunction, Holly will be in violation of its permit and subject to enforcement by UDAQ. [See IR009196, Response to Comments Memo ("All limits of the permit apply at all times, which include periods of startup, shutdown and malfunction.").] The UBR was put in place to deal with these very kinds of emissions.

32. Finally, the 240 tpy that Petitioners contend will be emitted every year as a result of upset emissions was a conservative estimate of what malfunctions could be—not what they actually are. [See IR003780.]

33. In fact, the emission calculation documentation in the record demonstrates that actual recorded historic malfunction emissions from the flare averaged only 34 tpy of SO₂ from both flares combined.¹² [*Id.*]

34. An addition of 34 tpy of SO₂ from the flares, even if such emissions were required for purposes of calculating PTE, would not have changed the conclusions of the netting analysis or made this project major for SO₂ given that the netting analysis demonstrated a 150.69 tpy overall emission reduction in SO₂. [See IR007574-7575.]

35. For all of these independent reasons, Petitioners' arguments regarding the PTE for the flares fail on the merits and should be dismissed.

iii. Reporting Requirements for the Flares

36. Petitioners' final argument relating to the flares is that the Holly AO lacks limits or enforceable reporting requirements for its flares. The substantial weight of record evidence shows that this contention is unfounded.

¹² The prediction for malfunction emissions utilized three standard deviations of the average actual malfunction emissions to come up with the 120 ton per flare figure. [See IR003780] The actual total of SO₂ emitted from the North and South Flares *combined* was:

12.7 tons of SO₂ in 2009
25.5 tons of SO₂ in 2008
91.0 tons of SO₂ in 2007
19.7 tons of SO₂ in 2006
20.8 tons of SO₂ in 2005

Id. Accordingly, contrary to Petitioners' contention that 240 tons of SO₂ from the flares will be emitted on a yearly basis, the highest emissions in any one given year was only 91 tons and the lowest was 12.7 tpy.

37. Holly is required to perform continuous emissions monitoring (“CEM”) of SO₂ emissions on all sources of SO₂, including flares. [IR009245, Holly AO, (“For all the above listed emission points a CEM shall be used to determine compliance as outlined in II.B.3.e.”).]

38. Holly also is required to install “flow meters and gas combustion monitors” on the South Flare gas line “to monitor flare combustion efficiency” [IR009251, Holly AO]; and Holly is required to calculate PM emissions from all PM sources based on the amount of fuel combusted, the totals of which are then added into Holly’s emission cap for PM and reported to the state. [IR009245-47, Holly AO.]

39. Finally, Subpart Ja—applicable to all Holly Flares—contains requirements for monitoring and recordkeeping. *See* 40 C.F.R. § 60.107a(a)(2) (requiring owners or operators of flares to install a continuous monitoring device to measure H₂S in the fuel gases going to the flare); *see also* 40 C.F.R. § 60.108a (record keeping and reporting requirements).

40. These multiple record keeping and reporting requirements all apply to Holly’s flares. Accordingly, Petitioners arguments regarding the flares all fail and should be dismissed with prejudice on the merits.

V. The Record Demonstrates That Holly’s Emissions Will Not Cause or Contribute to an Exceedance of the NAAQS.

1. Petitioners next argue, at some length, that the Holly AO is insufficient to protect the short term National Ambient Air Quality Standards (“NAAQS”) because it does not contain short term emission limits on all of Holly’s emission sources. [Petitioners’ Opening Brief at 22-34.] For the reasons stated below, this argument should be rejected.

A. Findings of Fact

2. UDAQ determined that its regulations did not require short term emission limits when there was no risk of exceedance of the NAAQS. [IR009186, Response to Comments

Memo (“Where it is clear that a source would not cause or contribute to a NAAQS violation, there is no free-standing regulation requiring short-term emissions limits.”).]

3. Based on modeling information provided by Holly and reviewed by UDAQ’s modeling staff, UDAQ determined there was no risk of any exceedance of the NAAQS from Holly’s proposed project. [IR009190-91, Response to Comments Memo (“Holly Refinery’s October 9, 2012 memo...was based on a request by UDAQ for Holly Refinery to submit an initial impact analysis based on the July 2012 NOI. This analysis showed no impact on the NAAQS CO, PM₁₀, NO₂, or SO₂.”); IR009209, Response to Comments Memo (“This modeling analysis demonstrates that the predicted 1-hour SO₂ concentrations would be 50.4 µg/m³, much lower than the NAAQS of 195 µg/m³”).]

4. Holly submitted its plans for modeling to UDAQ and those plans were approved by UDAQ’s modeling staff. [IR00031-48, Modeling Protocol (prepared by MSI setting forth the plan for the modeling); IR001153-54, Letter from UDAQ to Holly (approving of the Modeling Protocol submitted for emissions impact modeling); IR003591-97, Tom Orth Memo (analyzing Holly’s modeling and agreeing with results).]

5. Holly’s emission modeling analysis contemplated the maximum emissions that Holly could generate on a lb/hr basis, thereby ensuring that any short-term spikes in emissions were accounted for in the modeling and would not cause exceedances. [IR002993-96, July 2012 NOI (explaining that emissions input for the modeling were measured in lb/hr); IR009209, Response to Comments Memo (“This modeling analysis demonstrates that the predicted 1-hour SO₂ concentrations would be 50.4 µg/m³, much lower than the NAAQS of 195 µg/m³”).]

6. Malfunction emissions were not considered in the modeling analysis because federal and state guidance exclude malfunction emissions from the modeling protocols.

[IR009214, Response to Comments Memo (explaining the application of Appendix W and that malfunction emissions need not be included in modeling).]

7. The results of Holly's modeling efforts clearly demonstrated there would be no exceedance of the NAAQS, including short-term NAAQS. [IR003017, July 2012 NOI (Table 6-15) (demonstrating no exceedance of NAAQS).]

8. UDAQ determined that Holly's permit application was complete in an email sent on July 19, 2014. [See IR003767, email from Camron Harry to Eric Benson, dated July 19, 2012 ("I am notifying you that I have now determined Holly Refinery's NOI is administratively complete.")].

9. In connection with its independent review of the Holly AO, EPA submitted two separate comment letters to UDAQ but did not raise any comments regarding short-term NAAQS protection or otherwise exercise EPA's broad oversight or enforcement discretion over the final Holly AO for any real or perceived failure to protect the short-term NAAQS. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

B. Findings and Conclusions on Preservation

10. Petitioners preserved this argument in accordance with 19-1-301.5(4) by raising the issue during the public comment period. [See IR007861-7863, Petitioners' Second Comment Letter.]

C. Findings and Conclusions on Burden of Proof

11. Petitioners have not satisfied their burden of proof for this argument because they have failed to marshal all of the evidence that demonstrates the NAAQS will not be exceeded.

12. While Petitioners cite some of UDAQ's reasoning in the response to comments, they failed to marshal the actual modeling evidence showing that short term emissions were

calculated on a lb/hr basis. This evidence supports UDAQ's determination that the short-term NAAQS were being protected regardless of whether there are short term emission limits in the Holly AO.

13. Having failed to provide any contradictory evidence in the record, Petitioners cannot satisfy their burden of proof and their claims regarding the NAAQS fail.

D. Conclusions of Law on the Merits

14. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' claims fail on the merits for the independent reasons discussed below.

i. Short-Term Emission Limits Are Not Required for Minor Modifications

15. Petitioners contend that short-term emission limits are always required to ensure protection of the short-term NAAQS. However, the one-hour NO₂ and SO₂ guidance documents Petitioners rely upon for this contention, [Petitioners' Opening Br. at 23-24], by their terms apply only to "major" modifications. *See* Memorandum from Anne Marie Wood, Air Quality Policy Division, to EPA Regional Directors, General Guidance for Implementing the 1-hour SO₂ National Ambient Air Quality Standard in Prevention of Significant Deterioration Permits, at 6 (Aug. 23, 2010) ("We are issuing the following guidance to explain and clarify the procedures that may be followed by applicants for *Prevention of Significant Deterioration Permits*." (emphasis added)).

16. Moreover, the guidance expressly states that it does not bind state permitting authorities. *See* Memorandum from Stephen D. Page, Office of Air Quality Planning and Standards, to Regional Air Division Directors, at 2 (Aug. 23, 2010) ("This guidance does not bind state and local governments and permit applicants as a matter of law.").

17. According to UDEQ's analysis, Holly's proposed project fell into the "major" category for CO and GHG emissions, not for NO_x, SO₂, or PM. [IR009186, Response to Comments Memo.]

18. Whether a modification is "major" is determined on a pollutant-by-pollutant basis:

Applicability of the major NSR program must be determined in advance of construction and is pollutant-specific. In cases involving existing sources, this requires a pollutant-by-pollutant determination of the emissions change, if any, that will result from the physical or operational change Once a modification is determined to be major, the PSD requirements apply only to those specific pollutants for which there would be a significant net emissions increase.

67 Fed. Reg. 80,186, 80,188 & n. 5 (Dec. 31, 2002). Because the project is not major for NO_x, SO₂, or PM, the Director, as a matter of law, was not required to adhere to federal guidance or impose short-term emissions limits for these pollutants.¹³

¹³ Petitioners claim that the Utah Supreme Court has "held that BACT emission limits must protect short term NAAQS," citing *Sierra Club v. Air Quality Board*, 2009 UT 76, 226 P.3d 719. [Petitioners' Opening Br. at 23-27.] Petitioners incorrectly interpret the Court's holding. In that case, the court simply observed in dicta "the EPA has described the goals of BACT emission limitations in three-parts: (1) to achieve the lowest percent reduction, (2) to protect short-term ambient standards, and (3) to be enforceable as a practical matter." *Id.* at 734. The court never evaluated or held this was a correct interpretation of the relevant regulations. Moreover, the fact that a goal of BACT is to protect the short-term NAAQS does not mean that short-term limits must invariably be imposed as part of a BACT determination regardless of whether the project involves a major modification or poses any actual risk of an exceedance. EPA guidance indicates that while any BACT emissions limits are to be considered in determining whether the source will cause or contribute to a NAAQS violation, the BACT requirement is not an independent basis for imposing additional short-term emissions limits. *See* Memorandum from Anne Marie Wood, Acting Director Air Quality Policy Division to Regional Air Division Directors, at 7 (Aug. 23, 2010) ("Once a level of control is determined by the PSD applicant via the Best Available Control Technology (BACT) top-down process, the applicant must model the proposed source's emissions at the BACT emissions rate(s) to demonstrate that those emissions will not cause or contribute to a violation of any NAAQS or PSD increment.").

19. Petitioners' reliance on *In re: Mississippi Lime*, PSD Appeal No. 11-01 (Aug. 9, 2011) as an alternate basis for the requirement for imposition of short-term emission limits in the Holly AO is also misplaced. The decision is inapplicable for two reasons.

20. First, in *Mississippi Lime*, the permit applicant proposed to construct a facility that, unlike Holly's proposed expansion, would emit SO₂ and NO_x in quantities well above the significance thresholds so as to render the proposed facility subject to the PSD requirements for those pollutants. See IEPA, Project Summary at 4 (2010) (noting that "Mississippi Lime's proposed lime manufacturing plant is subject to PSD for emissions of SO₂, NO_x and CO because the potential emissions of the plant are more than 100 tons/year"), available at <http://www.epa.state.il.us/public-notice/2010/mississippi-lime-pdr/project-summary.pdf>; see also *Mississippi Lime*, slip op. at 1 (noting that Mississippi Lime sought to construct a new lime manufacturing plant).

21. Second, as the Director explained in his response to comments—which Petitioners do not contest—in *Mississippi Lime*, the permit was remanded to the state permitting authority "not simply because it failed to establish a limit, but because IEPA failed to provide 'a coherent, well-reasoned explanation of the decision' not to impose such a limit." [IR009186, Response to Comments Memo.]

22. By contrast, UDAQ has a well-reasoned explanation for why it did not impose the short-term limits requested by Petitioners—the modeling demonstrated there would be no exceedance of the short-term NAAQS. [IR003017, July 2012 NOI (Table 6-15) (demonstrating no exceedance of NAAQS).]

23. Accordingly, Petitioners' argument that short-term limits were required in the Holly AO fails on the merits and should be rejected.

ii. *Holly's Modeling Constitutes Substantial Evidence That the NAAQS Will Be Protected*

24. Although UDAQ and Holly were not required to conduct modeling to demonstrate compliance with the NAAQS because Holly proposed only a minor modification for NO_x, SO₂, and PM, *see* 40 C.F.R. § 52.21(a)(2)(ii) (“The requirements of paragraphs (j) through (r) of this section apply to ... the major modification of any existing major stationary source.”),¹⁴ in an effort to be thorough, Holly conducted the modeling anyway.

25. Before conducting any modeling, Meteorological Solutions Inc. (“MSI”), Holly’s technical consultant, developed a modeling protocol setting forth the procedure that MSI would use to demonstrate that there would be no exceedance of the NAAQS, including the short term NAAQS. This protocol was sent to the modeling staff at UDAQ, who approved of the protocol. [See IR00031-48, Modeling Protocol; IR001153; IR003593, Orth Modeling Memo (“The applicant had an approved modeling protocol for using AERMOD in PSD modeling protocols.”).] MSI used the PTE calculations of all SO₂ and NO_x emission sources at the refinery for input into the model for the short-term modeling. [See IR000038 (“Maximum hourly potential to emit (PTE) emissions for existing and proposed sources will be input to the model.”); IR000041 (same).]

26. PTE is defined as “the maximum capacity of a stationary source to emit a pollutant under its physical and operational design,” taking into account enforceable emissions limits. 40 C.F.R. §§ 52.21(b)(4), 51.165(a)(1)(iii), 51.166(b)(4). Using the maximum capacity of each unit, MSI determined the total emissions the refinery could generate in one hour of operation measured in terms of lbs/hr. [See IR002993-96, July 2012 NOI.] Because PTE is

¹⁴ *See also* Utah Admin. Code R307-403-3 (“Every...major modification must be reviewed by the director to determine if a source will cause or contribute to a violation of the NAAQS.”)

based on maximum capacity, this calculation represented the maximum emissions that could be produced at the refinery in a one-hour period. These values were used in the model and, once the background concentrations were combined with the PTE emissions, the modeling results showed that there would be no exceedance of the NAAQS, including the short-term NAAQS. [See IR003017, July 2012 NOI (Table 6-15); IR003596, Tom Orth Memo (Table 3); *see also* IR009209 (“This modeling analysis demonstrates that the predicted 1-hour SO₂ concentrations would be 50.4 µg/m³, much lower than the NAAQS of 195 µg/m³...Accordingly there is no need to impose 1 or 24-hour SO₂ limits to protect the SO₂ NAAQS.”).]

27. UDAQ’s Orth Memorandum specifically found that “the proposed project’s impacts, when combined with other industrial sources and ambient background, would comply with federal standards,” including the one-hour NO_x and SO₂ NAAQS. In light of all of this record evidence, it was reasonable for UDAQ not to include any additional short-term emission limits in the Holly AO.

28. Petitioners do not dispute that the modeling results showed no exceedance of the NAAQS. Instead Petitioners challenge the modeling itself. These challenges do not undermine UDAQ’s approval of and reliance on the modeling analysis, particularly given the deference that UDAQ is due with respect to technical issues such as air quality modeling: “[Q]uestions pertaining to the appropriate pollutant emissions rates and other inputs to air quality models raise scientific and technical concerns that generally are best left to the specialized expertise and reasoned judgment of the permitting authority.” *In re: N. Mich. Univ. Ripley Heating Plant*, PSD Appeal No. 08-02, at 53 (EAB Feb. 18, 2009).

29. First, Petitioners argue that DAQ’s Orth Memorandum is unreliable because it states that “[t]his report outlines the methodology used in the dispersion modeling analysis of

emissions of criteria and HAP proposed in the NOI and the subsequent modeling results. It makes no determination with respect to compliance with the NAAQS or UDAQ – Toxic Screening Levels for HAPs or compliance thereof.” [IR003591-92, Tom Orth Memo.] However, that language simply indicates that the Orth Memorandum, by itself, did not constitute a determination as to compliance with the NAAQS, as illustrated by the fact that the memorandum made only a “recommendation” as to what further steps to take. [IR003597, Tom Orth Memo.] It does not mean that the Director may not consider the Orth Memorandum in determining compliance with the NAAQS and whether short-term limits are required, as the Director did in the Response to Comments Memorandum. [See IR009190-91, IR009209, Response to Comments Memo.]

30. Second, Petitioners assert that the modeling analysis cannot be used because the modeling must be “based on short term limits specified in the AO,” and may not “merely estimate short term emission rates.” [Petitioners’ Opening Br. at 29-31.] However, the modeling done here was based on the *maximum* possible hourly emissions level based on the *maximum* capacity of each emissions unit as explained above, not an estimate of average short-term emission rates. [See IR002993-96, July 2012 NOI.] UDAQ acted within its discretion when it relied upon this modeling analysis.

31. Third, Petitioners argue that the modeling is inadequate to demonstrate compliance with the short-term NAAQS because the modeling does not include upset emissions from the flares. [Petitioners’ Opening Br. at 31-33.] In support of this argument, Petitioners rely on 40 C.F.R. § 51, Appendix W, for the proposition that such emissions must be modeled. Petitioners are incorrect. As UDAQ specifically explained in rejecting Petitioner’s argument:

The commenter references 40 CFR 51 Appendix W, Section 8.1.2(a) as reference that malfunction/upset emissions should be included in the modeling analysis.

However, the commenter neglected to include the following footnote from that same section: “Malfunctions which may result in excess emissions are not considered to be a normal operating condition. They generally should not be considered in determining allowable emissions. However, if the excess emissions are the result of poor maintenance, careless operation, or other preventable conditions, it may be necessary to consider them in determining source impact.”

[IR009214, Response to Comments Memo (quoting 40 C.F.R. pt. 51, App’x W, § II.B.7.a.1.2(a) n.a).] UDAQ’s explanation has not been rebutted by Petitioners.

32. UDAQ’s interpretation of Appendix W is supported by a 2011 EPA guidance document providing additional clarification of the modeling requirements under Appendix W. *See* Memorandum from Tyler Fox, Leader Air Quality Modeling Group to Regional Air Division Directors, *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard* (Mar. 1, 2011). There, EPA stated that modeling for compliance with the 1-hour NAAQS should only

address emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations based on existing modeling guidelines, which provide sufficient discretion for reviewing authorities to not include intermittent emissions from emergency generators or startup/shutdown operations from compliance demonstrations for the 1-hour NO₂ standard under appropriate circumstances.

Id. at 2.¹⁵

33. In an attempt to fit within the language of Appendix W, Petitioners contend that Holly’s malfunction emissions must be the result of poor maintenance, careless operation, or

¹⁵ EPA further clarified that “we are concerned that assuming continuous operations for intermittent emissions would effectively impose an additional level of stringency beyond that intended by the level of the standard itself. As a result, we feel that it would be inappropriate to implement the 1-hour NO₂ standard in such a manner and recommend that compliance demonstrations for the 1-hour NO₂ NAAQS be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations.” *Id.* at 9. The same logic applies to the 1-hour SO₂ standard.

other preventable conditions, and therefore should have been included in the modeling analysis. Petitioners argue that because EPA's NSPS regulations relating to flares require a root cause analysis where a flare emits more than 500 pounds of SO₂ in a 24-hour period, emissions over that level are necessarily the result of poor maintenance, careless operation, or other preventable conditions. [Petitioners' Opening Br. at 33.] However, Petitioners cite no authority suggesting that the separate requirement to conduct a root cause analysis contained in the NSPS regulations somehow amounts to a determination that as a matter of law all upsets emitting more than 500 pounds of SO₂ are necessarily caused by preventable conditions for purposes of Appendix W. Petitioners cite no reason to conclude that, just because an investigation into the cause of all emission events over a certain size is required, all such emission events are necessarily caused by preventable conditions. Indeed, EPA recognizes that "the probability of successfully identifying a means to avoid future emissions from each root cause analysis performed is certainly less than 100 percent," 72 Fed. Reg. 27,178, 27,197 (May 14, 2007), indicating that far from all emissions that trigger a root cause analysis would be caused by preventable conditions. [Petitioners' Opening Br. at 32-33.] Petitioners' argument finds no support in the record. The record evidence is to the contrary, recognizing that

if SO₂ modeling would have been required, then the malfunction emissions for SO₂ would not have been included because they do not represent normal, controlled operations. The 120 tpy of SO₂ from the flares due to malfunctions, as documented in the SPR Reviewer Note 5 (pp81-82), are based on Holly Refinery's historical data and do not predict future malfunctions. Nor do they result from poor maintenance or careless operation of the flare.

[IR009214-15, Response to Comments Memo.]

34. In light of UDAQ's technical conclusion, it was well within UDAQ's discretion to determine that the malfunction emissions should not be included in the modeling analysis.

iii. Holly Was Not Required to Model for PM_{2.5}

35. Petitioners raise one final challenge to Holly's modeling. Specifically, Petitioners argue the modeling did not address the revision of the annual PM_{2.5} NAAQS that took place in January 2013. This argument does not relate to any purported need for short-term emissions limits but rather is a separate attack on the modeling analysis.

36. For the same reasons as stated above, Holly's modification was not determined to be "major" for PM_{2.5} and therefore Holly was not required to do any modeling for PM regardless of whether the NAAQS were amended. *See* 40 C.F.R. § 52.21(k)-(m); *see also* Utah Admin. Code R307-410-4.

37. Additionally, Holly's application fell within the grandfathering provision of the revised PM_{2.5} NAAQS and so did not need to be updated to address the revised NAAQS. In finalizing the PM_{2.5} NAAQS, EPA explained:

To facilitate timely implementation of the PSD requirements resulting from the revised NAAQS, which would otherwise become applicable to all PSD permit applications upon the effective date of this final PM NAAQS rule, the EPA is finalizing a grandfathering provision for pending permit applications. This final rule incorporates revisions to the PSD regulations that provide for grandfathering of PSD permit applications that have been determined to be complete on or before December 14, 2012 or for which public notice of a draft permit or preliminary determination has been published as of the effective date of today's revised PM_{2.5} NAAQS. Accordingly, for projects eligible under the grandfathering provision, sources must meet the requirements associated with the prior primary annual PM_{2.5} NAAQS rather than the revised primary annual PM_{2.5} NAAQS.

78 Fed. Reg. 3,086, 3,249 (Jan. 15, 2013).

38. Holly's application was determined to be administratively complete on July 19, 2012, long before the PM_{2.5} NAAQS modeling requirements became effective. [*See* IR003767, email from Camron Harry to Eric Benson, dated July 19, 2012 ("I am notifying you that I have

now determined Holly Refinery's NOI is administratively complete.".)] Therefore, no additional modeling was required.

39. In short, none of Petitioners' challenges to the modeling analysis itself succeed. Petitioners have failed to provide any evidence that would undermine the significant evidence in the record demonstrating there would not be an exceedance of the NAAQS. The modeling analysis demonstrated that Holly's project would not cause or contribute to any NAAQS violation, including the short-term NAAQS. EPA raised no comments about any of the foregoing issues in connection with its independent technical and legal review of the Holly AO. Therefore Petitioners' arguments fail on the merits and should be dismissed.

VI. Holly and the Director Properly Calculated PM Emissions from the FCC Units.

1. Petitioners next argue that the Director erred in failing to require Holly to count condensable emissions in determining compliance with the emission limits on the FCC Units. [Petitioners' Opening Brief at 34-36.] For the reasons stated below, this argument should be rejected.

A. Findings of Fact

2. UDAQ determined that condensable particle emissions would not be counted for compliance with FCC Unit limits, but would be included in inventory calculations. [IR009243, Holly AO ("The condensable particle emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.".)]

3. The Utah PM₁₀ SIP, approved by EPA in 1994 (64 Fed. Reg. 68031 (July 8, 1994)), excluded condensable PM emissions from compliance demonstration with the PM₁₀ emission caps in the SIP. [IR007826, PM₁₀ SIP (attached as Exhibit L to Holly's Comment

Letter, (“The back half condensibles are required for inventory purposes and shall be determined using the method specified by the Executive Secretary.”).]

4. UDAQ recognized that the language in the PM₁₀ SIP controlled for purposes of drafting the Holly AO and excluded condensable emissions from all compliance limits for all PM₁₀ SIP cap sources—including the FCC Unit 25. [IR008569, Source Plan Review (“Holly Refinery is listed in the PM₁₀ SIP. That document established several emission limitations, one of which is a cap on PM₁₀ emissions. At the time the SIP was written the cap on PM₁₀ emissions was established using only the filterable PM₁₀ emissions captured during stack testing. This limitation was then included in the AO (and subsequent revisions) issued to Holly Refinery. UDAQ has since agreed that all future particulate (PM₁₀ and PM_{2.5}) limitations at all sources will also include the condensable fraction of particulate emissions (such as those found in the back half of a particulate sampling train or by reference test method 202). However, any limitation which is derived directly from the PM₁₀ SIP cannot be altered without similarly altering the SIP. Therefore, those limitations on SIP-listed sources will continue to retain the original ‘filterable emissions only’ language, with the condensable emissions being used only for inventory purposes. Such is the case with Holly Refinery’s PM₁₀ cap emission limit. It is the intent of the Division to update these types of conditions once new SIP limitations are established in the PM_{2.5} SIP.”).]

5. UDAQ specifically determined that it would not set PM_{2.5} limits on the new FCC Unit 25 because source wide limits of PM_{2.5} were being set for Holly in the new PM_{2.5} SIP that was being developed at the time UDAQ issued the Holly AO. [IR009183, Response to Comments Memo (“UDAQ has not set a condensable limit on the FCC Unit 25 in this permitting action because UDAQ is currently developing a SIP for PM_{2.5}. In this SIP, the contribution of

Holly Refinery to the valley airshed will be part of that evaluation and condensable limitations will be addressed.”); IR009206, Response to Comments Memo (“PM_{2.5} condensable emissions will be addressed in the PM_{2.5} SIP.”).]

6. In connection with its independent review of the Holly AO, the EPA submitted two separate comment letters to UDAQ but did not raise any comments regarding condensable emissions in determining compliance with the PM emission limits on the FCC Units or otherwise exercise EPA’s broad oversight or enforcement discretion over the final Holly AO for any real or perceived failure regarding the same. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

B. Findings and Conclusions on Preservation

7. During the public comment period, Petitioners’ comments were limited to challenging the PTE calculations for the new FCC Unit 25 and whether such calculations properly included condensable emissions. [See IR007857, WRA Second Comment Letter (“Holly’s Permit Application Underestimates the Increase in PM Emissions from the new FCCU”).]

8. Petitioners’ challenge to the FCC Unit 25 emission limit and the exclusion of condensables was never raised in the comments notwithstanding the fact that this issue was reasonably ascertainable as the limit was included in the ITA. [See IR008469, ITA (“Condensable particle emissions shall not be used for compliance demonstration, but shall be used for inventory purposes”).]

9. Petitioners also appear to argue in their Opening Brief that the BACT analysis for the FCC Unit 25 was invalid because it did not address condensables. Petitioners failed to raise this argument during the comment period and therefore it was not preserved.

10. Because, Petitioners failed to preserve both of these arguments as required by Utah Code Section 19-1-301.5(4), they should be dismissed.

C. Findings and Conclusions on Burden of Proof

11. Even if Petitioners had preserved their claims, Petitioners have failed to meet their burden of proof.

12. Whether condensable emissions are required to be included for purposes of compliance with emission limits is a question of law. Because this question of law is one with which UDAQ has been charged to administer, the ALJ must apply a clearly erroneous standard of review.

13. Petitioners do not acknowledge the requirements of the PM₁₀ SIP. Although this is not an instance where marshaling is required, Petitioners' disregard of the PM₁₀ SIP requirements is fatal to their claim that condensable emissions must be included for compliance with the FCC Unit's limits.

14. Petitioners have failed to point to any valid legal basis that undermines UDAQ's conclusion that the PM₁₀ SIP does not require condensables to be included for compliance with the PM emission limits in the Holly AO.

D. Conclusions of Law on the Merits

15. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' claims fail on the merits for the independent reasons discussed below.

16. The PM₁₀ SIP imposes a cap on all PM₁₀ sources at the Holly refinery including the new FCC Unit 25 but does not require condensable PM emissions to be calculated for compliance with that cap. [IR007826, PM₁₀ SIP (attached as Exhibit L to Holly's Comment

Letter (“The back half condensibles are required for inventory purposes and shall be determined using the method specified by the Executive Secretary.”); IR009243, Holly AO (“The condensable particle emissions shall not be used for compliance demonstration, but shall be used for inventory purposes.”); IR008569, Source Plan Review (recognizing the PM₁₀ SIP cap).]

17. At the time the Holly AO was being considered, the PM₁₀ SIP was the only applicable PM SIP and any provisions in the Holly AO that conflicted with that SIP would have required a SIP amendment. [See IR008569, Source Plan Review (“any limitation which is derived directly from the PM₁₀ SIP cannot be altered without similarly altering the SIP”); IR007826; Attachment L to Holly’s second comment letter (excerpt from PM₁₀ SIP stating “[t]he back half condensibles are required for inventory purposes...[t]he PM₁₀ captured in the front half...shall be considered for compliance purposes”).]

18. Although the recently adopted PM_{2.5} SIP now requires condensable PM emissions to be calculated for compliance purposes, such a requirement was not in place prior to the issuance of the Holly AO. Utah law is clear that permits are only required to incorporate regulatory requirements that exist at the time of permit issuance. [See, e.g., In the Matter of Petroleum Processing Plant Emery Refining, LLC, Order Returning Recommended Order Re Motions to Stay to Administrative Law Judge for Further Action, April 8, 2014 (“Emery Order”) at 4 (limiting ALJ’s review to the record before her and prohibiting consideration of a separate NOI that could be granted or denied sometime in the future).]

19. Petitioners’ references to Federal Register notices and guidance requiring PM condensable emissions for compliance purposes are misplaced because such requirements had not yet become binding on Holly. See 73 Fed. Reg. 28321, 28334 (May 16, 2008) (describing a

transition period for incorporation of condensable requirements into state implementation plans but only requiring such inclusion on major NSR projects).

20. If EPA believed UDAQ erred in its handling of condensables in the Holly AO, it had the jurisdiction and obligation to raise that issue in connection with its independent review of the Holly AO. EPA declined to do so. [*See* IR007840-7841, EPA comment letter (raising no issues about permit limits or the inclusion of condensables for compliance purposes).]

21. Petitioners also appear to argue that the BACT analysis for the new FCC Unit 25 is invalid because it does not account for condensable emissions. This argument fails not only because Petitioners did not preserve it during the comment period but also because any emission control technology that reduces filterable emissions will necessarily control for condensable emissions, both being post-control components of Holly's emission sources. Petitioners do not present any evidence that an alternative emission control technology would more effectively control condensable emissions beyond that which Holly is already required to install.

22. All of Petitioners' arguments regarding UDAQ's treatment of condensable PM emissions in the Holly AO fail on the merits and should be dismissed with prejudice.

VII. Holly Properly Calculated and Included in its Netting Analysis VOC Emissions Reductions From its Cooling Towers.

1. Petitioners next argue that Holly improperly claimed a 39.28 tpy VOC emission reduction from its cooling towers in the netting analysis it submitted to UDAQ. [Petitioners' Opening Brief at 36-41.] For the reasons set forth below, this argument should be rejected.

A. Findings of Fact

2. In 2009, Holly implemented a voluntary monitoring program in which it identified leaks in its cooling tower operation and fixed those leaks, thereby reducing emissions of VOCs from its cooling towers. [IR009203, Response to Comments Memo ("The reduction in

VOC emissions reported in Holly Refinery's NOI was a result of a voluntary monitoring program of the cooling towers that identified leaks from the towers that Holly Refinery fixed, thereby reducing its VOC emissions.”.)]

3. This monitoring program was made mandatory in the Holly AO on a going forward basis to ensure that the emission reductions Holly experienced by fixing its equipment remained at the reduced level. [IR007236, email from Mike Astin (environmental manager for Holly) to Camron Harry (permit writer for UDAQ), dated March 26, 2013 (“For the cooling towers, we monitor the cooling water return lines monthly for volatile organics using the Texas El Paso method. If any leaks are identified, we use screening methods to identify the leaking heat exchanger and repair it.”); IR009230; Holly AO (requiring that “all cooling towers implement the Modified El Paso Method.”); IR009244, Holly AO (requiring repair of any leaks detected “as soon as practicable, but no later than 45 days after identifying the leak...[v]erification of the repair shall be done through additional testing”).]

4. Prior to implementing the leak detection and monitoring program, Holly utilized an “uncontrolled” emission factor to calculate emissions from its cooling towers. [IR009203, Response to Comments Memo (“Prior to using the Modified El Paso Method, the AP-42 VOC ‘uncontrolled’ emissions were the basis for refineries to report cooling tower VOC emissions.”).]

5. After implementation of the monitoring program made mandatory by the Holly AO, Holly utilized a “controlled” emission factor to calculate emissions from its cooling towers. [IR008558, Source Plan Review (“VOC emissions from cooling towers 4 through 8 were previously estimated using the uncontrolled emission factor listed in AP-42 Section 5.1 of 6 lb/10⁶ gal cooling water. In 2009, Holly Refinery began a voluntary daily monitoring program to detect VOC leaks into cooling water and to eliminate those leaks. In 2012, the monitoring

method was replaced with monthly monitoring using the Texas El Paso method. With continued use of regular monitoring, it is proposed to utilize the ‘controlled’ emission factor of 0.7 lb/10⁶ gallons cooling water in AP-42 Section 5.1. This method will also be implemented for cooling towers 10 and 11.”.]

6. It is the difference between the calculations with the “uncontrolled” and “controlled” emission factor that makes up the emission reduction that Holly included in its netting analysis. [*Id.*]

7. In connection with its independent review of the Holly AO, EPA submitted two separate comment letters to UDAQ. [*See* IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.] While the Second Comment Letter requested more information regarding “the basis for the estimate of emissions reduced by converting from gas fired to electric motors for the compressors” [IR007840], the EPA raised no concerns about the netting issues raised by Petitioners here. Moreover, EPA’s request for supplemental information on this issue was satisfied in UDAQ’s response to comments.

B. Findings and Conclusions on Preservation

8. Petitioners preserved this argument in accordance with 19-1-301.5(4) by raising the issue during the public comment period. [*See* IR004214-4216, Mark Hall First Comment Letter.]

C. Findings and Conclusions on Burden of Proof

9. Petitioners’ claim that Holly incorrectly included a VOC emission reduction from its cooling towers is a mixed question of law and fact. The correct interpretation of the regulations governing when a source can utilize an emission reduction in a netting analysis is a

question of law. However, the application of those regulations to the facts in this case presents a mixed question to which the ALJ must apply a reasonableness standard of review.

10. Because this is a mixed question of law and fact, Petitioners had the burden to marshal the relevant factual evidence that pertained to this claim.

11. Petitioners failed to meet this burden by failing to reference the requirements in the Holly AO that make monitoring and leak repairs for the cooling towers enforceable permit conditions. This evidence undermines Petitioners' argument that the cooling tower emission reductions are not enforceable or creditable.

12. Having failed to marshal this and other relevant evidence, Petitioners cannot satisfy their burden to prove that UDAQ acted unreasonably in accepting Holly's netting analysis.

D. Conclusions of Law on the Merits

13. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' claims fail on the merits for the independent reasons discussed below.

14. Petitioners challenge the creditability and enforceability of the VOC emission reduction from the cooling towers because they claim it resulted from a voluntary monitoring program and therefore was unenforceable. *See* 40 C.F.R. § 52.21(b)(3) (requiring decreases in actual emissions be creditable and enforceable in order to be included in a netting analysis); [*see also* Petitioners' Opening Br. at 36-37]. Petitioners also claim that Holly was precluded from including the emission reduction in its netting analysis because the State of Utah arguably relied upon the emission reduction for demonstration of attainment of the PM_{2.5} SIP. [*Id.*] Both arguments fail on the merits.

i. Creditability of the VOC emission reduction

15. The UDAQ reasonably found that Holly's VOC emission reduction to be creditable because it resulted from a physical change to refinery equipment and will be maintained through an enforceable permit condition in the Holly AO. [See IR009230; Holly AO (requiring that "all cooling towers implement the Modified El Paso Method."); IR009244, Holly AO (requiring repair of any leaks detected "as soon as practicable, but no later than 45 days after identifying the leak...[v]erification of the repair shall be done through additional testing").]

16. Under applicable law, an emission reduction is creditable if "(a) the old level of actual emissions exceeds the new level of actual emissions; (b) it is enforceable as a practical matter; [and] (c) it has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change." 40 C.F.R. § 52.21(vi)(a)-(c). The VOC emission reduction Holly claimed satisfies each of these three requirements.

17. First, Holly's VOC cooling tower emissions were higher prior to Holly's physical repairs to the cooling towers. [See IR009203, Response to Comments Memo ("The reduction in VOC emissions reported in Holly Refinery's NOI was a result of a voluntary monitoring program of the cooling towers that identified leaks from the towers *that Holly Refinery fixed*, thereby reducing its VOC emissions.") (emphasis added); see also IR007236, email from Mike Astin (environmental manager for Holly) to Camron Harry (permit writer for UDAQ), dated March 26, 2013 ("For the cooling towers, we monitor the cooling water return lines monthly for volatile organics using the Texas El Paso method. If any leaks are identified, we use screening methods to identify the leaking heat exchanger and repair it.").]

18. Petitioners argue that these emissions are merely estimated from emission factors and do not represent actual emission reductions, and therefore are not credible. Contrary to

Petitioners' arguments, however, the applicable regulations contemplate the calculation of emissions through emission factors. *See* 40 C.F.R. § 52.21(b)(21)(i) (providing that emissions "shall be calculated"). The EPA-drafted preamble to the relevant regulation explains that emission factors may be used in calculating "actual emissions." 67 Fed. Reg. 80,186, 80,195 (Dec. 31, 2002) ("When you calculate the baseline actual emissions for an existing emissions unit...you may select any consecutive 24 months of source operation within the past 10 years. Using the relevant source records for that 24-month period, including such information as the utilization rate of the equipment, fuels and raw materials used in the operation of the equipment, *and applicable emission factors*, you must be able to calculate an average annual emissions rate, in tpy, for each pollutant emitted by the emissions unit that is modified, or is affected by the modification." (emphasis added)).

19. I find that a "calculation" of emissions from cooling towers would necessarily be an estimate based on operating hours, production rates, and types of materials. Holly's VOC calculation was based on these same factors. [*See* IR008558, Source Plan Review (noting that Holly used the 'controlled' emission factor of 0.7 lb/10⁶ gallons cooling water as described in AP-42 Section 5.1)]; *See also* AP-42 5.1 Petroleum Refining emission calculation descriptions, available at <http://www.epa.gov/ttnchie1/ap42/ch05/final/c05s01.pdf> (including in the emission calculation for cooling tower emissions the cooling water rate and refinery feed rate).]

20. Prior to Holly's voluntary monitoring program and physical changes to its cooling towers to reduce and eliminate VOC leaks, Holly utilized the "uncontrolled" AP-42 emission factor to calculate the VOC emissions from the cooling towers. [*See* IR009203, Response to Comments Memo ("Prior to using the Modified El Paso Method, the AP-42 VOC 'uncontrolled' emissions were the basis for refineries to report cooling tower VOC emissions.")].

21. After the units were repaired, Holly used the AP-42 “controlled” emission factor which resulted in a calculated emission reduction. [IR008558, Source Plan Review (“VOC emissions from cooling towers 4 through 8 were previously estimated using the uncontrolled emission factor listed in AP-42 Section 5.1 of 6 lb/10⁶ gal cooling water. In 2009, Holly Refinery began a voluntary daily monitoring program to detect VOC leaks into cooling water and to eliminate those leaks. In 2012, the monitoring method was replaced with monthly monitoring using the Texas El Paso method. With continued use of regular monitoring, it is proposed to utilize the ‘controlled’ emission factor of 0.7 lb/10⁶ gallons cooling water in AP-42 Section 5.1. This method will also be implemented for cooling towers 10 and 11.”).]

22. Where actual emissions are not easily measured—such as VOC emissions leaking from cooling towers—calculation estimates can provide reliable information to satisfy 40 C.F.R. § 52.21(vi)(a)-(c). *See* 74 Fed. Reg. 55,670 55,679 (Oct. 28, 2009) (noting that certain historical inventory data based on the AP-42 factors and “the AP-42 emission factors are the best available data by which to estimate cooling tower emissions”).

23. Second, the VOC emission reduction from the cooling towers is enforceable because it was the result of a physical change to the refinery equipment, which must be monitored and maintained under the terms of the HollyAO. [IR009224, Holly AO (condition II.B.4.a *Id.*; *see also* 40 C.F.R. § 52.21(b)(3)(vi)(b) (reduction is creditable if it is enforceable “at and after the time that actual construction on the particular change begins”).]

24. Holly is required, pursuant to the terms of the Holly AO, to continue monitoring for leaks from the cooling towers and must fix any discovered leaks in order to maintain the lower VOC emission levels from the cooling towers. [See IR009230; Holly AO (requiring that “all cooling towers implement the Modified El Paso Method.”); IR009244, Holly AO (requiring

repair of any leaks detected “as soon as practicable, but no later than 45 days after identifying the leak...[v]erification of the repair shall be done through additional testing”).] Any failure to do so subjects Holly to enforcement action by UDAQ—making these requirements, and the associated emission reduction, enforceable.

25. Third, Holly has satisfied the qualitative significance requirement that Petitioners claim has been violated. EPA’s NSR Manual states that “[c]urrent EPA policy *is to assume that an emissions decrease will have approximately the same qualitative significance* for public health and welfare as that attributed to an increase” unless the state has reason to believe otherwise. [Petitioners’ Reply Brief at 34 (emphasis added) (quoting EPA NSR Workshop Manual, 1990, A-38-39).]

26. Holly’s modeling demonstrates that there will be no violation of any NAAQS or PSD increments and overall, VOC emissions will be reduced. [See IR002980-3021, Holly’s NOI, section 6.0; see also IR003591-3597, Tom Orth Memorandum; IR007575, UDAQ information sheet (indicating a -17.02 overall VOC emission decrease from the project).]

27. Consequently, UDAQ had no reason to believe that the qualitative presumption would not be met in this case, and Petitioners have not identified any contrary evidence. See, e.g., *In re Inter-Power of N.Y., Inc.*, No. 92-8, 5 E.A.D. 130, 153-54 (EAB Mar. 16, 2014) (rejecting the argument that EPA should have conducted a health assessment to demonstrate that the qualitative significance of emissions was approximately the same, and holding that the burden was on the petitioner to “document[] that [the source’s] fuel change has increased its heavy metals emissions or created any health concerns. Accordingly, [petitioner] has not pointed to any record evidence” that indicates that this provision was not satisfied). Holly’s inclusion of the VOC emission reductions from the cooling towers therefore was proper.

28. Petitioners also argue that the 52.95 tpy VOC emission baseline referenced in the July 2012 NOI is inflated and, therefore, the emission reduction of 39.28 tons of VOC is inflated. Petitioners overlook that the emission spreadsheet they cite indicates that if 52.95 tpy was the VOC baseline, the associated emission reduction would have been 48.08 tons—not 39.28. [IR003059, July 2012 NOI.] Holly had two different baseline calculations for VOC emissions because at different points in the application process it used different baseline years for its netting calculations. [*Compare* IR003059, July 2012 NOI, *with* IR007300, Revised NOI.] In its Revised NOI, Holly used 44.15 tpy as a baseline for VOC emissions, which resulted in the reduction of 39.28 tons of VOC. [IR007300.] Had it used the higher baseline, the emission reduction would have also been higher, which means Holly’s netted VOC reduction is conservatively low. All of these baseline totals are derived from emission inventory reports that Holly submitted to DAQ, and they were all calculated with AP-42 emission factors. [IR003059, July 2012 NOI (citing “VOC Baseline 2008-2009” inventory years; IR007300, Revised NOI (citing “VOC baseline 2008-2009” inventory years”).]

ii. Holly Was Not Required to Adjust Downward its Baseline VOC Emission Calculations

29. Petitioners also challenge the VOC emission reduction on the basis that Holly should have adjusted downward its baseline VOC emission calculations because the El Paso monitoring method is required by a Maximum Achievable Control Technology (“MACT”) requirement under a National Emission Standard for Hazardous Air Pollutants and has been relied upon by UDAQ as a Reasonably Available Control Technology (“RACT”) requirement in the PM_{2.5} SIP to demonstrate attainment.

30. Any requirements that are otherwise required to be imposed as MACT standards under section 112 of the Clean Air Act that result in emission reductions can still be used for

netting purposes unless the state has specifically relied upon the emission reduction in demonstrating attainment of a NAAQS in a SIP. *See* 40 CFR § 52.21(b)(48)(ii)(b) & (c) (“[I]f an emission limitation is part of a maximum achievable control technology standard..., the baseline actual emissions need only be adjusted if the State has taken credit for such emissions reductions in an attainment demonstration or maintenance plan.”); *see also* Memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards, to Bob Hanneschlager, Acting Director, Multimedia Planning and Permitting Division, Region VI (Nov. 12, 1997) (“Since the MACT program is not designed to limit criteria or other pollutants regulated by NSR programs of parts C and D of title I of the Act, EPA’s policy is that actual emissions reductions of hazardous or other air pollutants that result from complying with MACT regulations codified at 40 CFR part 63 may be considered ‘surplus’ for purposes of NSR netting and are not precluded from NSR netting as long as the reductions are otherwise creditable under NSR.”).

31. Petitioners argue that UDAQ relied upon the MACT standard of the Texas El Paso Method in the PM_{2.5} SIP to demonstrate compliance. However, that assertion is misplaced because the PM_{2.5} SIP had not been formally adopted at the time UDAQ issued the Holly AO. Petitioners overlook that the regulation upon which they rely for this assertion provides only that emissions must be adjusted downward where such emissions “would have exceeded an emissions limitation with which the major stationary source must *currently comply*,” with “currently comply” referring to the time of permit issuance. 40 C.F.R. § 52.21(b)(48)(ii)(c) (emphasis added).

32. That Holly may have been on notice that the El Paso Method might subsequently be required as a RACT standard is irrelevant in this analysis and Petitioners cite no authority holding otherwise.

33. Accordingly, UDAQ acted reasonably in accepting Holly's netting analysis with the VOC emission reductions included therein. Petitioners' claims to the contrary should be dismissed with prejudice on the merits.

VIII. The FCC Unit 25's PTE Was Accurate and its Emission Limits Are Adequate.

1. Petitioners challenge the accuracy of Holly's PTE calculations for the FCC Unit 25, arguing that the Holly AO is insufficient because it does not impose specific PM emission limits on the unit. [Petitioners' Opening Brief at 41-46.] For the reasons stated below, this argument should be rejected.

A. Findings of Fact

2. The emissions from the FCC Unit 25 are limited by the maximum capacity of the unit of 8500 barrels per day ("bpd"). [IR002811, July 2012 NOI ("A Fluid Catalytic Cracking Unit (FCCU) with a capacity of processing 8500 barrels per day will be constructed along with a 45 MMBtu/hr feed heater. Emissions from the FCCU will be controlled by a wet gas scrubber."); IR002820, July 2012 NOI ("A Fluid Catalytic Cracking Unit (FCCU) from an idled New Mexico refinery will be relocated to the Woods Cross Refinery. This unit is capable of processing 8500 barrels of gas oil per day and is similar in size to the existing FCCU."); IR003078, July 2012 NOI ("FCC Capacity Limit based on Equipment Specifications 8500 bbls/day."); IR003160, July 2012 NOI ("New FCCU...Capacity...8500 bbpd."); IR008491, Source Plan Review ("To process the additional bottom cut from the new crude unit (Unit 24), an additional Fluid Catalytic Cracking Unit ('FCCU Unit 25') with a capacity of processing 8500 barrels per day will be constructed."); IR009227, Holly AO ("Unit 4: Fluid Catalytic Cracking Unit (FCCU) 8,880 bpd annual average capacity"); IR009229, Holly AO ("Unit 25: FCCU 8,500

bpd annual average capacity”); IR009192, Response to Comments Memo (explanation for why the FCC Unit 25 emissions are limited by the operational capacity of the unit).]

3. The information relating to the capacity of the FCC Unit 25 contained in Holly’s NOI was certified as accurate by the Plant Manager, Mike Wright. [IR007836, certification signature page (Mike Wright certified that the information provided for the approval order was accurate and complete.).]

4. UDAQ determined that a coke burn rate of 6200 lb/hr was reasonable based on the data Holly provided. [IR009219, Response to Comments Memo (“Based on UDAQ’s technical expertise and experience,” UDAQ determined that “the 6200 lb/hr value is a fair and reasonable estimate of the quantity of coke burn in FCC Unit 25.”); IR008052, November 7, 2013 letter (Holly’s emission calculations for PTE of the FCC Unit 25).]

5. UDAQ also determined that Holly was subject to a PM emission cap that included the FCC Unit 25, and that any exceedance of the PTE calculated for the unit would subject Holly to enforcement for exceedance of the emission cap. [IR009208, Response to Comments Memo (“regardless of maximum throughput rates, the emissions are limited at the values established in ITA”); IR009219, Response to Comments Memo (explanation for why the PTE for the FCC Unit #25 was correct because the unit is subject to the PM emission cap and any exceedance of that cap would be a violation).]

6. In connection with its independent review of the Holly AO, the EPA submitted two separate comment letters to UDAQ but did not raise any comments regarding UDAQ’s PTE calculations for any FCCU or otherwise exercise EPA’s broad oversight or enforcement discretion over the final Holly AO for any real or perceived failure regarding the same. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

B. Findings and Conclusions on Preservation

7. In their public comments, Petitioners only challenged the accuracy of the PTE calculations for Holly's FCC Unit 25. Specifically, Petitioners argued there was insufficient evidence to support the 6200 lbs/hr coke burn rate calculation, and that as a result, additional limits were needed for the unit. [See IR008598-8599, Mark Hall Second Comment Letter.]

8. In response to this comment, UDAQ requested that Holly provide additional documentation and calculations to support the 6200 lb/hr coke burn rate. [IR008021.]

9. Holly responded by providing the calculations it used to determine the coke burn rate. [IR8022-8023; IR008052.]

10. Petitioners argued differently in their Motion for Stay, that the 6200 lb/hr figure would not effectively limit PM emissions because emissions would increase if more coke was burned.

11. In Petitioners' briefing on the merits, Petitioners challenge for the first time the accuracy of the maximum capacity of the FCC Unit 25, claiming that there was no evidence in the record to support the 8500 bpd figure.

12. This maximum capacity was expressly stated in multiple places in the NOI and ITA. Any concern with the accuracy of the number was therefore reasonably ascertainable during the public comment period. [IR002811, July 2012 NOI ("A Fluid Catalytic Cracking Unit (FCCU) with a capacity of processing 8500 barrels per day"); IR008491, Source Plan Review ("To process the additional bottom cut from the new crude unit (Unit 24), an additional Fluid Catalytic Cracking Unit ('FCCU Unit 25') with a capacity of processing 8500 barrels per day will be constructed.").]

13. Accordingly, the only issue that has been adequately preserved by Petitioners is their challenge to the 6200 lb/hr coke burn rate and their assertion that additional limits are required for the FCC Unit 25. Their most recent challenge to the accuracy of the 8500 bpd capacity limit on the FCC Unit 25 has not been preserved in accordance with Utah Code Section 19-1-301.5(4) and should be dismissed for the reasons described above.

C. Findings and Conclusion on Burden of Proof

14. Even if Petitioners had preserved their challenge to the accuracy of the 8500 bpd capacity limit on the FCC Unit 25, Petitioners have failed to satisfy their burden of proof.

15. Whether the PTE emission calculations for the FCC Unit 25 are supported in the record is a highly technical factual issue that requires this tribunal to give deference to UDAQ in its review of the issue. Petitioners must demonstrate that UDAQ lacked substantial evidence in the record to support its decision that the PTE was calculated correctly.

16. Accordingly, Petitioners carry a heavy burden of proof to marshal the evidence relating to this issue to allow this tribunal to adequately evaluate and weigh the evidence relating to the claims at issue.

17. Petitioners have failed to meet their burden here by ignoring the relevant evidence in Holly's NOI explaining how Holly calculated the emissions that would be generated by the FCC Unit 25. Petitioners also provide no evidence contradicting Holly's certification that all of the numbers contained in the NOI were accurate.

18. DAQ invited commenters, including Petitioners here, during the public comment period to provide technical evidence of alternate coke burn rates that commenters argued would be more appropriate. Neither Petitioners nor other commenters responded to DAQ's request. [IR009219, Response to Comments Memo ("The commenter makes general reference to the

‘UOP yield estimates’ and ‘other more generic publications,’ but provided no documents or primary data to support or detail to which estimate, if any, was used to derive the suggested range of coke burn estimates. Based on UDAQ’s technical experience and expertise, the 6200 lb/hr value is a fair and reasonable estimate of the quantity of coke burn in FCC Unit 25. The commenter has not provided any specific technical information to UDAQ that would suggest a higher value is more appropriate.”)

19. Failing to carry their burden of proof on this highly technical issue, Petitioners’ claims fail.

D. Conclusions of Law on the Merits

20. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners’ claims fail on the merits for the independent reasons discussed below.

21. The question of whether Holly and UDAQ correctly calculated the potential emissions for the FCC Unit 25 is a highly technical issue that requires this tribunal and any reviewing court to give deference to the agency because the agency, in its technical expertise, is in the best position to evaluate these issues.

22. Holly based its conclusion that the new FCC Unit 25 would burn coke at a rate of 6200 lb/hr on empirical data it obtained from the FCC Unit 4 that was in current operation at the refinery. [IR008052.] UDAQ requested and reviewed Holly’s calculation information and was satisfied that it justified the coke burn rate. [IR009219, Response to Comments Memo (“Based on UDAQ’s technical expertise and experience,” UDAQ determined that “the 6200 lb/hr value is a fair and reasonable estimate of the quantity of coke burn in FCC Unit 25.”); IR008052, November 7, 2013 letter (Holly’s emission calculations for PTE of the FCC Unit 25).]

23. The 6200 lb/hr figure was a conservative estimate. The original calculations showed a rate of 5653.964 lb/hr, and the FCC Unit 4 is a larger unit than the new FCC Unit 25. [IR008052; *see also* Holly AO at IR009227-009229 (The FCC Unit 4 processes 8,880 barrels per day (“bpd”) while the proposed FCC Unit 25 can only process 8,500 bpd).]

24. Petitioners are incorrect in their assumption that because the rate is not included as a limit in the Holly AO that Holly will exceed the PM limit of 0.30lb/1000 lbs of coke burned. The FCC Unit 25 emissions will not exceed the PTE because there is a finite capacity limit on the FCC Unit 25 that acts as a physical limitation on the amount of PM that can be emitted.

25. Even were this not the case, the refinery is limited to an overall PM₁₀ emission cap of 47.5 tpy and 0.13 tpd for combustion sources. [See IR009219, Response to Comments Memo.] “If these limitations are not met, the refinery will be out of compliance until it remedies the problem with additional control equipment or redesign of the system until it meets these limits.” [*Id.*]

26. Petitioners have failed to point to any evidence in the record that undermines the reasonableness of UDAQ’s reliance on the calculations Holly provided.

27. Petitioners’ only challenge to the PM cap that limits emissions from the FCC Unit 25 is the contention that EPA generally disfavors source wide cap limits. This assertion is without merit.

28. In the PM₁₀ SIP that EPA approved, UDAQ specifically noted that due to the significant variability of emission sources at a refinery, emission caps are appropriate. [See IR07768, PM₁₀ SIP language attached to Holly Comment letter as Exhibit I, (because “there was significant variability from day to day and from year to year...the refineries were allowed maximum never-to-be exceeded daily limits of PM₁₀, SO₂, NO_x based on the apparent

variability”).] This is true even though EPA generally disfavors source wide caps. In this case, EPA recognized an exception to the general approach in approving such caps in the PM₁₀ SIP.

29. In light of the highly technical nature of this issue, UDAQ must be afforded the greatest degree of deference in its conclusions regarding the evidence in the record supporting the FCC Unit 25’s PTE calculations. *See* Utah Code § 19-1-301.5(14). Lacking any evidence that would undermine UDAQ’s conclusions,¹⁶ Petitioners’ challenge to the PM emission calculations fail.

IX. Holly is in Compliance with Title V.

1. Petitioners next argue that the Holly AO may not be issued if Holly is not in compliance with Title V of the Clean Air Act. Petitioners make three distinct arguments related to this claim: (1) Holly’s Title V application is not complete because the AO and Source Plan review lack certain Title V requirements; (2) Holly has not adequately supplemented its Title V application; and (3) not all applicable parts of Subpart Ja are included in the Holly AO in violation of Title V regulations. [Petitioners’ Opening Brief at 46-51.] For the reasons stated below, these arguments should be rejected.

¹⁶ For the first time in their Reply Brief, Petitioners appear to suggest that the Holly AO is purportedly deficient because the Director’s use of PM₁₀ modeling as a surrogate for PM_{2.5} modeling was invalid. Specifically, Petitioners assert that the FCC Unit 25 must contain a separate PM_{2.5} limit to ensure its emissions will not contribute to a NAAQS violation. [Petitioners’ Reply Brief at 42.] Even were it permissible to raise a new argument in a Reply Brief, Petitioners never raised any concerns about this alleged surrogate policy in their comment letters; thus the issue is not preserved. Moreover, Holly is now subject to a source wide emission cap in the PM_{2.5} SIP that will limit its PM_{2.5} emissions. [Utah PM_{2.5} SIP, January 8, 2014, p. 21 (setting a source wide PM_{2.5} limit of 47.6 tons per rolling 12-month period).] UDAQ was reasonable in determining that its regulation of Holly’s PM_{2.5} sources in the PM_{2.5} SIP would limit Holly’s emissions and that a separate limit in the Holly AO was unnecessary.

A. Findings of Fact

2. Holly's predecessor-in-interest received a letter from UDAQ in 1995 that stated Holly's operating permit application was administratively complete, which provides Holly with an application shield from Title V enforcement action. [IR007725, Letter from UDAQ to the Phillips 66 Company, Holly's predecessor in interest (stating that "the Operating Permit application for Phillips Refinery (application #47) has been reviewed and determined to be complete in accordance with Utah Administrative Code (UAC) R307-15-5(1)(b)," that "the above site is shielded from enforcement action for operating without a permit until a permit is issued," and that additional information would be requested if needed).]

3. UDAQ recognized that Holly had a Title V application shield letter in its response to Petitioners' comments regarding Title V. [IR009175, Response to Comments Memo (Holly submitted at UDAQ's request "a July 29, 1995 letter from UDAQ indicating that a complete Title V Permit application had been received [and it] has been included in the record."); IR009184, Response to Comments Memo ("In any event...Holly Refinery is operating under an application shield...[t]he Title V application is currently pending.").]

4. UDAQ also recognized that Petitioners pointed to no statute or regulation that would preclude Holly from receiving an approval order without first obtaining a final Title V permit. [IR009184, Response to Comments Memo ("UDAQ does agree that Holly Refinery is a major source and is thus bound by R307-415, but the commenter has not referenced regulations that prevent a major source without a Title V permit from obtaining an AO, nor is UDAQ aware of such a regulation.").]

5. UDAQ determined that Holly was still subject to all applicable federal regulations regardless of whether Holly was in receipt of a final Title V permit. [IR008571, Source Plan

Review (“Title V of the Clean Air Act of 1990 applies to Holly Refinery as a major source. The absence of a Title V permit does not negate the requirements of Holly Refinery, it is still subject to all AO conditions and federal regulations that would be included in the Title V permit.”).]

6. In connection with its independent review of the Holly AO, the EPA submitted two separate comment letters to UDAQ but did not raise any comments regarding non-compliance with Title V or otherwise exercise EPA’s broad oversight or enforcement discretion over the final Holly AO for any real or perceived failure regarding the same. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.]

B. Findings and Conclusions on Preservation

7. Petitioners did raise a Title V issue during the comment period that focused on the allegation that Holly was illegally operating without a Title V permit. [See IR007860-7861, Petitioners’ Second Comment Letter (“Holly Refinery is illegally operating and will continue to do so until it receives a valid Title V permit.”).]

8. However, this is a much different claim than what Petitioners advocate in their briefing on the merits—that somehow Holly’s approval order and supporting documentation turned into a Title V application that is insufficient, leaving Holly in violation of Title V of the Clean Air Act.

9. This new argument was also not raised by Petitioners in their RAA even though the source plan review signature page they rely upon in the briefing was available for Petitioners to review. [See IR007834-7835 (attached to Holly’s Second Comment Letter).]

10. The relief requested in the RAA was simply that the Director must issue a Title V permit for Holly prior to authorizing the expansion project—not that Holly’s Title V application was incomplete or insufficient. [See RAA at 38.]

11. To the extent Petitioners' arguments extend beyond their initial contention that Holly is allegedly illegally operating without a valid Title V permit, such arguments have not been adequately preserved and should be dismissed on this basis.

C. Findings and Conclusions on Burden of Proof

12. The question of whether Holly is in compliance with Title V and whether UDAQ properly interpreted the Title V statute and rules to allow UDAQ to issue the Holly AO presents a mixed question of law and fact. The questions regarding interpretation of the Title V rules and regulations are questions of law. The application of that law to this specific case presents a mixed question of fact and law that must be reviewed under a reasonableness standard.

13. Petitioners are required to marshal all of the relevant evidence on this issue to allow this tribunal to adequately evaluate whether there is substantial evidence in the record to support UDAQ's decision to issue the Holly AO.

14. Petitioners have failed to satisfy their burden of proof for this claim. In fact, Petitioners' fail to reference the only piece of record evidence related to Title V compliance: UDAQ's letter to Holly's predecessor expressly stating that the refinery *is in compliance* with Title V. [See IR007725.]

15. Petitioners also fail to identify any final determination on Holly's pending Title V application that would restrict UDAQ's ability to issue Holly its approval order.

16. Lacking this evidence, Petitioners cannot satisfy their burden of proof and their claims regarding Title V must fail.

D. Conclusions of Law on the Merits

17. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' claims fail on the merits for the independent reasons discussed below.

18. Petitioners argue that before the Director may issue Holly an approval order, he must purportedly determine whether Holly is in compliance with Title V. *See* Utah Admin. Code R307-401-8(1)(b)(x) (an approval order may only be issued if "the proposed installation will meet the applicable requirements of...all other provisions of R307"); [*see also* Petitioners' Opening Br. at 47].

19. Petitioners assert that Holly is in violation of Title V because its Title V application is not complete and it has violated its duty to supplement its application "as necessary to address any requirements that become applicable to the source." Utah Admin. Code R307-415-5b. In support of this assertion, Petitioners rely on the fact that, as part of Holly's approval order application, Holly signed an optional signature page allowing the information in the Source Plan Review to be included in Holly's pending operating permit application. [*See* IR007836, SPR signature page.] Because this signature page signifies that the AO application is an update to Holly's Title V application but lacks certain Title V requirements, Petitioners argue that Holly's Title V application is legally deficient.

20. Petitioners similarly argue that by omitting the Subpart Ja requirements in the Holly AO, Holly also has violated the application requirements under Title V. On these bases, Petitioners assert that UDAQ may not issue an approval order to Holly while it is in violation of the Title V permit application requirements.

21. These arguments fail for four reasons.

22. First, any arguments related to Title V compliance or the sufficiency of Holly's Title V application is outside of this tribunal's jurisdiction. The Executive Director of DEQ has made clear that an ALJ's jurisdiction is limited to the administrative record before him or her and the particular permit under review. [See Emery Order (limiting ALJ's jurisdiction to the record before her and prohibiting consideration of an NOI application that could be granted or denied at some point in the future.).] Any other permits or applications for permits that Holly may have submitted—all of which involve separate administrative records—are beyond the scope of these proceedings. *Id.* More important, Petitioners do not point to any final Title V permit decision that could be reviewed by this tribunal even if it had jurisdiction to do so.

23. Second, even if I had jurisdiction, it is clear from this record that Petitioners have not presented any evidence or authority that renders invalid the application shield letter issued to Holly's predecessor-in-interest. [See IR007725.] This shield remains in place until the permitting authority takes action on the entire Title V permit application, which it appears has not yet occurred. *See* 42 U.S.C. § 7661c(d) ("if a part 70 source submits a timely and complete application for permit issuance (including for renewal), the source's failure to have a part 70 permit is not a violation of this part until the permitting authority takes final action on the permit application"); *see also* 40 C.F.R. § 70.7(b) (same); *see also* Utah Admin. Code. R307-415-5a(3)(e) (same). This means every approval order that Holly has received is an update to its Title V permit application. The Holly AO is no exception and does not independently give rise to a cause of action under Title V's separate rules or regulations.

24. Third, even if I had jurisdiction, this argument fails as a matter of law: Nothing in the Title V statute or applicable regulations contains any time period for supplementation of the Title V application. *See* Utah Admin. Code R307-415-5b. That Holly continues to provide

information to EPA and UDAQ regarding NSPS compliance (which is a Title V requirement) effectively evidences that Holly's Title V permit application is being updated on an ongoing basis. [See IR004138-59, Exhibit 7 to Petitioners' first comment letter (containing a compliance report, sent to the EPA and UDAQ, including compliance demonstration for NSPS requirements).] Thus, Petitioners' reliance on the signature page as evidence of an incomplete Title V application is without merit.

25. Fourth, even if I had jurisdiction, Petitioners' argument that UDAQ's failure to recite the entire Subpart Ja regulation in the Holly AO violates Title V is incorrect. [Petitioners' Br. at 10-11.] As previously explained, UDAQ is not required to recite the entire 43-page Subpart Ja regulation in the Holly AO. In any event, the record demonstrates that Subpart Ja *does apply* and that Holly is in compliance with all federal requirements. [See IR007725.]

26. For all of these reasons, Petitioners' claims regarding Title V fail on the merits and should be dismissed with prejudice.

X. The Record Supports the Use of the NEI Emission Factors in Holly's Emission Calculations.

1. Petitioners next argue that the Director erred when he authorized the use of the NEI emission factors to calculate PM emissions from certain of Holly's heaters and boilers. [Petitioners' Opening Brief at 51-58.] For the reasons discussed below, this argument should be rejected.

A. Findings of Fact

2. Holly submitted to UDAQ two independent expert reports explaining why the NEI emission factors were more accurate and better predictors of emissions than the AP-42 emission factors—namely, because of the newer dilution testing methodology that was used to develop the NEI emission factors. [IR007238-58, First Glen England Report ("England I")]

(explaining why the NEI emission factors more accurately predict PM_{2.5} emissions from gas fired heaters and boilers); IR008024-44, Second Glen England Report (“England II”) (same).]

3. Because the NEI emission factors were untested at the Holly refinery, UDAQ imposed stack testing requirements to verify the accuracy of the emission factor calculations. [IR009215-16, Response to Comments Memo (explaining that UDAQ imposed stack testing requirements to verify the accuracy of the NEI emission factors, reviewed the Glen England Reports and maintained the original conclusion that use of the NEI emission factors was appropriate); IR009217, Response to Comments Memo (explaining that Holly was subject to a stringent emission limit for its heaters and boilers that matched the NEI emission factor calculations and that Holly is subject to stack testing requirements to verify compliance).]

4. UDAQ also imposed an emission limit of 0.00051 lb/MMBtu in Section II.B.7.a.2 of the Holly AO. [IR009248, Holly AO.]

5. UDAQ only imposed this limit on Holly’s NSPS heaters and boilers. [IR008558-59, Source Plan Review (explaining use of NEI emission factors for NSPS sources); IR009218, Response to Comments Memo (explaining use of NEI emission factors for NSPS sources).]

6. Presumably at the request of Mark Hall, a commenter on the draft Holly AO, EPA staff members sent emails to an undisclosed Gmail account discussing the accuracy of the NEI emission factors and the ability of EPA to approve new emission factors generally. [IR008911-8922; IR009043.] Neither the attachments to these emails nor the complete emails were included with the comments. [*Id.*]

B. Findings and Conclusions on Preservation

7. Petitioners preserved some aspects of their argument regarding their challenge to the NEI emission factors in accordance with 19-1-301.5(4) by raising the issue during the public comment period. [See IR008584-8595, Mark Hall Second Comment Letter.]

8. Petitioners did not, however, preserve the argument that § 7430 of the Clean Air Act precluded the use of the NEI emission factors.

9. Section 7430 of the Clean Air Act was not cited anywhere in the comments submitted during the public comment period but was reasonably ascertainable because it was codified in the U.S. Code during the public comment period.

10. Petitioners did not raise this substantive argument until their briefing on their request for a stay in this proceeding.

11. Accordingly, any arguments relating to § 7430 of the Clean Air Act are unpreserved and should be dismissed.

12. In their Reply Brief, Petitioners, argued for the first time that the § 7430 claim was made in response to additional information submitted to UDAQ after the close of the public comment period and was therefore not barred by the preservation rules found in Utah Code Section 19-1-301.5(4). Petitioners asserted that any prohibition to their ability to address information submitted after the close of the public comment period would be a violation of their due process rights.

13. Petitioners' due process argument relating to their ability to assert the § 7430 claim was not briefed until the Reply. Issues raised for the first time in a reply brief are rejected in appellate contexts. *See e.g., Coleman ex rel. Schefski v. Stevens*, 2000 UT 98, ¶ 9, 17 P.3d 1122 (refusing to consider matters raised for the first time in the reply brief). Accordingly, this

tribunal will not entertain Petitioners' due process arguments briefed for the first time in their Reply Brief.

14. Additionally, even if such an argument were properly before this tribunal, the only information Holly submitted after the close of the public comment period relating to the NEI emission factors was the second Glen England Report, in which Mr. England expanded on his prior report (submitted before the public comment period) explaining why the NEI emission factors were the most representative factor for determining emissions from Holly's new heaters and boilers. [See IR008024-44.]

15. Petitioners' § 7430 argument is not directed at this second Glen England report and does not address any of the technical findings contained therein. Instead, as Petitioners admit, the § 7430 argument is purely a legal argument relating to whether UDAQ could use emission factors other than the AP-42 factors, officially approved by EPA.

16. Therefore, in light of the fact that the § 7430 argument has nothing to do with the Glen England Report and is a purely legal argument that was reasonably ascertainable during the public comment period, the claim has not been adequately preserved, and no due process rights have been infringed.

C. Findings and Conclusions on Burden of Proof

17. Even if Petitioners' claims had all been adequately preserved, they have failed to meet their burden of proof.

18. Petitioners' claim that UDAQ erred in relying on the NEI emission factors to calculate the PTE for Holly's NSPS heaters and boilers presents a mixed question of law and fact. Whether UDAQ is legally authorized to use an emission factor other than AP-42 is a question of law and UDAQ has been given discretion to interpret this law, requiring the

application of a clearly erroneous standard of review. The question of whether UDAQ was reasonable in accepting the NEI emission factor data is a highly technical mixed question of law and fact that is reviewed for reasonableness.

19. Although Petitioners reference, in a footnote, the Glen England Reports, they do not analyze any of the information contained in those reports. Instead, Petitioners focus on a paper that Glen England published in 2004, which discusses generally the NEI emission factors as well as several emails from EPA staff discussing the adequacy of the NEI emission factors.

20. Petitioners also focus their argument on the assertion that UDAQ is prohibited by Section 7430 of the Clean Air Act from using any emission factors not specifically approved by EPA.

21. Petitioners have failed to adequately marshal all of the relevant evidence for this highly complicated issue. Accordingly, they have not satisfied their burden of proof to challenge Holly's use of and UDAQ's acceptance of the NEI emission factors.

D. Conclusions of Law on the Merits

22. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' claims fail on the merits for the independent reasons discussed below.

23. Petitioners advance multiple arguments as to why the use of the NEI emission factors to calculate emissions from Holly's heater and boilers was improper. Each of these arguments fails for the reasons discussed in detail below.

i. *There is No Legal Requirement that UDAQ use AP-42 Emission Factors*

24. Petitioners argue that the law mandates UDAQ use AP-42 emission factors to calculate PM emissions from Holly's NSPS heaters and boilers. This argument fails for three reasons.

25. First, nothing in Utah's minor source permitting regulations and nothing in the federal PSD/NSR regulations requires the use of AP-42 emission factors. In fact, those regulations do not mention the AP-42 factors at all.

26. While EPA has identified the AP-42 factors as one method of estimating potential emissions under the PSD/NSR program, the AP-42 factors are not the only authorized method. EPA also has sanctioned numerous other methods, including "emissions from technical literature." [EPA New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, draft dated October 1990 ("EPA Puzzlebook"). The NEI emission factors are "emissions from technical literature" that Holly used to calculate potential PM_{2.5} emissions from its gas fired heaters and boilers.

27. Moreover, the AP-42 factors themselves caution that they are not to be mechanically applied, but may be superseded by more specific or appropriate technical information. As EPA has advised:

Before simply applying AP-42 emission factors to predict emissions from new or proposed sources, or to make other source-specific emission assessments, the user should review the latest literature and technology to be aware of circumstances that might cause such sources to exhibit emission characteristics different from those of other, typical existing sources. Care should be taken to assure that the subject source type and design, controls, and raw material input are those of the source(s) analyzed to produce the emission factor. This fact should be considered, as well as the age of the information and the user's knowledge of technology advances.

EPA, *Introduction to AP-42*, 4 (Jan. 1995), available at www.epa.gov/ttnchie1/ap42/c00s00.pdf.

In this fashion, EPA delegates to the relevant permitting authority discretion to determine how to calculate emission rates.

28. Second, Petitioners' argument that the NSPS regulations mandate the use of AP-42 is also misplaced because the NSPS program is entirely separate from the PSD program and regulations from one program cannot dictate action in the other. *See, e.g., Env'tl. Defense v. Duke Energy Corp.*, 549 U.S. 561, 577 (2007) (recognizing the definitions of "modification" under the PSD and NSPS programs are distinct and the "PSD regulations on 'modification' simply cannot be taken to track the Agency's regulatory definition under the NSPS").

29. Finally, Petitioners' argument that 42 U.S.C. § 7430 prohibits the use of the NEI emission factors because EPA has not specifically approved such factors also fails.

30. The plain language of this statute contradicts Petitioners' argument because Section 7430 applies only to emission factors used "to estimate the quantity of emissions of *carbon monoxide, volatile organic compounds, and oxides of nitrogen* from sources of such air pollutions."¹⁷ 42 U.S.C. § 7430 (emphasis added). The statute says nothing about the use of emission factors to estimate the quantity of PM_{2.5} and PM₁₀—the only emissions for which Holly used NEI factors to estimate emissions from its heaters and boilers.

31. In any event, Section 7430 does not dictate that UDAQ use any specific emission factors in a permitting proceeding, but requires EPA to update emission factors, saying nothing

¹⁷ Consistent with the plain language of the statute, EPA has repeatedly explained that this provision applies only to "the emission factors used to estimate emissions of volatile organic compounds (VOC), carbon monoxide (CO), and oxides of nitrogen (NO_x) from area and mobile sources," not to emission factors for PM_{2.5} and PM₁₀. 67 Fed. Reg. 56289 (Sept. 3, 2002); 62 Fed. Reg. 45802 (Aug. 29, 1997).

about when such factors must be used. UDAQ retains discretion to decide which emission factors are appropriate, in its expert technical opinion.

32. As EPA has explained in evaluating the use of emission factors generated under Section 7430:

These procedures are *not* a means for individual facilities to obtain EPA approval of a site-specific emission factor or to determine the appropriateness of applying a published EPA factor to a specific facility. *EPA does not approve site-specific factors or judge the appropriateness of its factors for specific facilities. The responsibility for such decisions continues to be that of the State or local regulating authority, as well as the facility operators themselves.*

EPA's published emission factors are intended to provide an affordable method of estimating emissions where no better data are available. They are best used to characterize the total emissions loading of a large geographic area containing many individual facilities. Therefore, these factors attempt to represent a typical or average facility or process in a given industry. *EPA recognizes that other methods of obtaining emissions estimates may be more accurate than industry-average emission factors, and encourages the use of better methods whenever the source and/or the State or local regulating authority is able to support those methods.*

Public Participation Procedures for EPA Emission Estimation Guidance Materials, at 2 (May 1997) (second and third emphasis added).¹⁸

33. EPA has specifically recognized that state permitting authorities may use other methods *without* obtaining approval under § 7430, so long as the permitting authority "is able to support these methods." *Id.*

34. UDAQ had substantial evidence in the record to support its decision to use the NEI emission factors as set forth in section *ii.* below.

¹⁸ Available at <http://tinyurl.com/EPA-guidance>.

35. Petitioners have failed to establish any valid legal basis mandating the use of AP-42 emission factors for estimating PTE for permitting purposes. Therefore this claim fails on the merits.

ii. *It Was Reasonable for UDAQ to Accept Holly's Use of the NEI Emission Factors*

36. UDAQ did not abuse its discretion by following EPA's instruction and looking to alternative methods of calculating emissions in this case. As noted above, the determination of which emission factors to use falls squarely within the discretion of UDAQ. That determination is entitled to substantial deference, particularly given its technical nature. *See, e.g., Utah Code* § 19-1-301.5(13)(b); *accord In re: N. Mich. Univ. Ripley Heating Plant*, PSD Appeal No. 08-02, at 53 (EAB Feb. 18, 2009) (“[Q]uestions pertaining to the appropriate pollutant emissions rates and other inputs to air quality models raise scientific and technical concerns that generally are best left to the specialized expertise and reasoned judgment of the permitting authority.”); *In re: Newmont Nev. Energy Inv., LLC, TS Power Plant*, 12 E.A.D. 429, 444 (EAB 2005) (“[W]e accord broad deference to permitting authorities with respect to issues requiring the exercise of technical judgment and expertise.”); *Utah Dep't of Admin. Servs. v. Pub. Serv. Comm'n*, 658 P.2d 601, 610 (Utah 1983) (“[A] court should afford great deference to the technical expertise or more extensive experience of the responsible agency.”).

37. Before explaining why UDAQ's acceptance of the NEI emissions factors is reasonable, supported by substantial evidence, and does not constitute an abuse of discretion, it is necessary to provide some brief background regarding PM and emission factors generally.

38. Particulate matter (PM) is comprised of a complex mixture of extremely small particles and liquid droplets. [Utah PM_{2.5} State Implementation Plan, adopted December 4, 2013 (“2013 SIP”), § 1.1.] PM₁₀ is particulate matter with an aerodynamic diameter of 10 microns or

less. 40 C.F.R. § 51.50. PM_{2.5} is particulate matter with an aerodynamic diameter of 2.5 microns or less. *Id.*

39. There are two types of PM emissions: primary and secondary. The type on which Petitioners focus in their challenge, primary PM, is comprised of particles that are directly emitted from a source as a solid or liquid (“filterable PM”) or vapor that immediately condenses after discharge to form solid or liquid PM (“condensable PM”). *See* 40 C.F.R. § 51.50. According to EPA’s AP-42 emission factors, condensable PM accounts for 75% of PM emissions from the type of natural gas combustion sources at issue here. [*See* AP-42 Compilation of Air Pollutant Emission Factors (1998); *see also* England II at IR008029.]

40. An emission factor attempts to estimate the quantity of a pollutant released into the atmosphere with an activity associated with the release of that pollutant. 47 Fed. Reg. 52723-01, 52724 (Oct. 14, 2009). EPA’s AP-42 emission factors were “initially developed for emission inventory purposes only”—i.e., to assist national, regional, state, and local regulatory authorities with making air quality management decisions and developing emission control strategies. *Id.* at 52723, 52725. Since then, however, EPA has recognized the AP-42 emission factors have been “used for many other air pollution control activities for which they were not designed,” including permitting and enforcement. *Id.*

41. Various testing methods have been developed for calculating primary PM_{2.5} emissions (both filterable and condensable). The AP-42 factors on which Petitioners rely were originally developed almost twenty years ago using a “stack test impinger method,” which draws a gas sample through a heated filter and then a series of iced “impingers.” [England I at IR007240.] As explained in the England Reports, the problem with this method is that cooling the sample with chilled water causes emissions—and particularly SO₂ emissions—to condense

and particulate out as “pseudo-particulate” matter. Although the gas emissions would not condense to form particulate matter under normal operating conditions, the AP-42 factors nevertheless measure this pseudo-particulate matter as primary PM_{2.5}. [England II at IR008027-8029; England I at IR007240, IR007242.]

42. EPA has recognized this same problem with the stack test impinger method. EPA has observed, for example, that “sulfur dioxide (SO₂) gas (a typical component of emissions from several types of stationary sources) can be absorbed partially in the impinger solutions and can react chemically to form sulfuric acid. This sulfuric acid ‘artifact’ is not related to the primary emission of [condensable particulate matter] from the source, but may be counted erroneously as [condensable particulate matter].” 75 Fed. Reg. 80,118, 80,121 (Dec. 21, 2010). EPA also has acknowledged “that SO₂ in particular, and perhaps other gaseous compounds, can react with the collecting liquids used in the [stack test impinger] method to form materials (artifacts) that would not otherwise be solid or liquid or would not condense upon exiting the stack.” 72 Fed. Reg. 20,586, 20,653 (Apr. 25, 2007).

43. The Glen England Reports explain that this problem is particularly acute for gas-fired sources. EPA developed its test methods for sources such as coal-fired boilers, which emit PM concentrations at much higher levels than gas-fired sources, and EPA has never evaluated the performance of these methods for gas-fired sources. [England II at IR008029, IR008034.] These measurement errors caused by the hot filter/iced impinger methods “are so significant when applied to gas-fired boilers and heaters ... that they partially or completely obscure the true emission level.”¹⁹ [England II at IR008029.]

¹⁹ In addition to being based on flawed test methods which measure artifacts that do not actually constitute particulate matter, the relevant AP-42 PM_{2.5} factors are based on limited data. The AP-42 PM_{2.5} factors are based on only 11 tests of four emissions units for condensable

44. The NEI factors, by contrast, were developed using a newer “dilution method.” Unlike the old stack test methods, dilution-based testing does not create artificial pseudo-particulate matter because the gas sample is cooled with filtered air, similar to what happens to emissions in the course of actual operations. According to the England Reports, this results in much more representative and accurate PM_{2.5} measurements. [England II at IR008027, IR008030-8032; England I at IR007241.]

45. EPA has recognized the benefits of this newer testing method, observing “that a dilution sampling method for measuring direct PM_{2.5} eliminates essentially all artifact formation *and provides the most accurate emissions quantification.*” 72 Fed. Reg. 20,586, 20,653 (Apr. 25, 2007) (emphasis added). In fact, EPA has expressly identified certain applications “where dilution sampling provides advantages over the standard test methods,” and actively “encourage[d] sources that encounter these situations to request that the regulatory authority ... use this method to approve the use of dilution sampling as an alternative to the test method specified for determining compliance.” 75 Fed. Reg. 80118-01, 80132 (emphasis added).

46. In this case, EPA raised no objection to use of the NEI emission factors during the public comment period.²⁰ [See Response to Comments at 43 (noting that “during the public comment period, EPA did not object to the use of [the NEI] emission factors”).] Nor has EPA

particulate matter (which forms the majority of PM_{2.5} emissions). [England II at IR008039.] These tests were not performed by EPA, but by contractors on behalf of individual facilities or industry trade associations. [England II at IR008035.] Moreover, the measurement uncertainty of the AP-42 PM_{2.5} factors for gas-fired sources is greater than the average estimate of emissions. [England II at 4.] The England Reports describe these and a number of other flaws with the AP-42 PM_{2.5} factors that are not reiterated in detail here. [See England II at 3.]

²⁰ While EPA did ask for more information as to the basis for the reduction of PM₁₀ and PM_{2.5} potential-to-emit numbers in Holly’s second netting analysis, [see IR007840-7841], UDAQ addressed this inquiry in its Response to Comments, explaining that the calculations were “based on the 2006 EPA-published National Emissions Inventory (NEI) Information.” [IR009176] Subsequent to this direct identification of the use of NEI emission factors, EPA has raised no further questions concerning the netting analysis or otherwise challenged Holly’s AO.

challenged the issuance of the AO. EPA also has raised no objection to UDAQ's recent authorization of the NEI factors for purposes of calculating PM_{2.5} under UDAQ's PM_{2.5} State Implementation Plan. [See Utah SIP § I.X.H.11(k)(i), dated January 8, 2014 ("SIP Part H") at 60.]

47. In arguing that UDAQ must use the AP-42 emission factors, Petitioners do not defend the accuracy of the AP-42 factors on a technical basis. Nor do they address any of the criticisms, expressed by both EPA and the England Reports, about the inaccuracies of the stack test impinger methods on which the AP-42 factors are based.

48. The fact that AP-42 factors have been used in the past does not mean that UDAQ must continue to rely on those same factors for the Holly AO. UDAQ's determinations—including the "technical" and "scientific" questions such as what emission factors are to be used—are to be made on the basis of the evidence provided to UDAQ and placed in the administrative record in a particular permitting action. Utah Code § 19-1-301.5(13)(b). Holly provided UDAQ with data regarding the flaws in the AP-42 PM_{2.5} factors and outlining the superior accuracy of the NEI PM_{2.5} factors. UDAQ evaluated this evidence and "determined that the NEI emission factors can be used." [IR009216, Response to Comments Memo.] Prior use of the AP-42 PM_{2.5} factors does not undermine this conclusion.²¹

²¹ Petitioners' claim that the May 2011 RTI International Emission Estimation Protocol for Petroleum Refineries endorses the use of the AP-42 emission factors and does not identify the NEI PM_{2.5} data. [See IR008661, attachment F to Mark Hall Second Comment Letter.] However, the purpose of the protocol was not to identify the *absolute* level of PM_{2.5} emissions from each refinery, but to require the tested refineries to use the same emissions factor so that their *relative* emissions could be compared. In responding to comments on the protocol, EPA explained that "it is important that default emission factors are consistent between different reporters so we can properly compare the results." [Summary of Comments and Responses, EPA-HQ-OAR-2010-0682 (Feb. 2, 2011), Appx. V of Holly's Opposition to Motion for Stay, also available at www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2010-0682-0028.] In any event, the protocol itself states that the "emission factors in AP-42 are *the recommended default* emission

49. Based on the substantial evidence in the record providing technical support for UDAQ's decision to accept use of the NEI emission factors and the emission calculations based on those factors, and given the lack of contradictory technical evidence, Petitioners cannot meet their burden to demonstrate that UDAQ acted unreasonably.

iii. *The NEI PM_{2.5} Emission Factors are Based on Sound Technical Data and Petitioners' Reference to Other Information Does Not Undermine the Data.*

50. The majority of the technical data supporting the NEI emission factors is found in the England Reports, which state that “[t]he NEI PM_{2.5} emission factors were derived by EPA staff from data contained in GE EER’s comprehensive test reports published from 2002-2004,” along with “detailed supporting test data.” [England II at IR008032.]

51. This testing program “included extensive quality assurance measures,” and more comprehensive data than is provided in the compliance tests used to develop the AP-42 factors. [England II at IR008034-8035.] These results have been subject to peer review and have been corroborated by other independent scientific studies. [England II at IR008032.] The NEI test data is also quantitatively superior when it comes to condensable particulate matter emissions, which form the majority of PM_{2.5} emissions: the AP-42 factors were based on 11 test runs of four units, while the NEI factors were based on 20 test runs of six units. [England II at IR008039, IR008041.]

52. The cautionary statements regarding the NEI emission factors upon which Petitioners rely “do not suggest in any way that those factors are insufficiently supported by data or should not be used.” [England II at IR008033.] The AP-42 PM emission factors are accompanied by similar language explaining that the emission factors are based on limited data factors,” not that the AP-42 factors are the only permissible emission factors. [IR008715 (emphasis added).]

and may not be accurate. [England II at IR008029-8030.] Such cautionary language is generally found in all instances where emission factors are used.

53. The boiler sampling data and performance guarantees from the John Zink Company are an incomplete compilation of data that is not explained, nor relatable to Holly's gas fired heaters and boilers. The boiler standards were provided to UDAQ on a one-page sheet of test results, without the full test reports or any explanation as to the testing methodology or nature of the emissions sources. [See IR008586, Mark Hall Second Comment Letter.] Additionally, two of the four boilers did not burn natural gas during their tests and so are not analogous to the gas-fired sources at issue here. [England II at IR008030 n.1.] The emissions from the remaining two sources vary widely, resulting in "very low" confidence in the average. [England II at IR008040.] Accordingly, this data does not undermine use of the NEI emission factors.

54. The Zink guarantees were similarly provided without context or explanation. Without the testing data, it is impossible to verify that these factors were not based on the same flawed test methods as the AP-42 factors. Moreover, the Zink guarantees are not emission factors or estimates, but rather guarantees provided by a commercial manufacturer that emissions will not exceed a certain level. Equipment manufacturers have an incentive to guarantee emissions that are conservatively high so that the commercial risk associated with failing to meet the guarantee is low. [England II at IR008034 ("If PM guarantees are not met during performance tests on a new unit, tens or hundreds of millions of dollars in customer payments may be at stake.").]

55. In weighing the evidence in the record, as this tribunal must do in accordance with Utah Code Section 19-1-301.5, it is clear that the use of the NEI emission factors is

supported by the majority of sound scientific evidence in the record and UDAQ was therefore reasonable in its acceptance of the NEI factors.

iv. *UDAQ Was Reasonable in its Reliance on Enforceable Emissions Limits in the Holly AO in Determining the Potential to Emit for Holly's Heaters and Boilers.*

56. Petitioners argue that emission limits on Holly's heaters and boilers cannot be used to limit the facility's potential to emit and so UDAQ erred in its determination that Holly's project was minor for PM_{2.5}. This tribunal disagrees.

57. The AO imposes an enforceable limit on PM_{2.5} emissions from each of the emissions units for which the NEI emission factors were used in an amount equal to the NEI emission factors. [IR009248, Holly AO (providing that "[t]he emissions of PM₁₀ from the following NSPS Boilers and heaters shall not exceed 0.00051 lb/MMBtu").]

58. The methodology used in this case to determine whether the proposed modification was "major" for PSD/NSR purposes was a comparison of the refinery's potential to emit after the expansion project versus its baseline actual emissions before the expansion. *See* 40 C.F.R. § 52.21(a)(2)(iv)(d). [*See also* IR008560, Source Plan Review (noting that Holly has used the potential to emit methodology to determine the projected increases from the expansion project).] Under this method, the estimated potential emissions are compared to the baseline emissions; if the difference between the two exceeds a certain quantity, the modification is deemed "major" for that pollutant.

59. "Potential to emit" is defined as

the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. *Any physical or operational limitation on the capacity of the source to emit a pollutant*, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted,

stored, or processed, *shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.*²²

40 C.F.R. § 52.21(b)(4) (emphasis added); Utah Admin. Code R307-101-2 (same definition).²³

60. The emissions limit imposed on the NSPS boilers and heaters is an enforceable limitation in the Holly AO. [See IR009218, Response to Comments Memo (“If the stack testing indicates that Holly Refinery cannot comply with these emission factors, it would be out of compliance with its AO....”)]; *see also* 67 Fed. Reg. 80,186, 80,190-91 (Dec. 31, 2002) (explaining when an emissions limitation is enforceable). Accordingly, the potential to emit of these emissions units was properly limited to 0.00051 lb/MMBtu – the same level as established by the NEI emission factors.

61. UDAQ was reasonable in relying on this limiting factor in its determination that Holly’s project would only be a minor modification for PM.

62. Ultimately, none of Petitioners’ arguments challenging Holly’s use of the NEI emission factors undermines’ UDAQ’s reasonable decision to accept Holly’s emission calculations based on those factors. Petitioners’ arguments on this claim all fail on the merits and should be dismissed with prejudice.

XI. The Emission Reductions From the Decommissioning of the Propane Pit Flare Were Properly Included in Holly’s Netting Analysis.

²² The term “federally” in this definition is interpreted as meaning “practically enforceable” by a federal, state, or local entity. 67 Fed. Reg. 80,186, 80,191 (Dec. 31, 2002). [See also Memorandum from John S. Seitz re: Release of Interim Policy on Federal Enforceability of Limitations on Potential to Emit, at 3 (Jan. 22, 1996).]

²³ Petitioners suggest that the NSPS regulations provide a definition for calculating “potential to emit.” This is incorrect. The NSPS rules nowhere use the concept of “potential to emit” to determine whether a modification has taken place. Instead, the NSPS definition of modification is based on whether there has been a change in the hourly emissions rate, while the PSD regulations are based on total annual emissions. *See Duke Energy Corp.*, 549 U.S. at 577-78.

1. Petitioners final argument is that Holly inaccurately calculated the emission reductions from its decommissioning of the propane pit flare and should not have included such emissions in its netting analysis. [Petitioners' Opening Brief at 60-61]. For the reasons stated below, this final argument should be rejected.

A. Findings of Fact

2. The emission reductions that Holly claimed from its decommissioning of the propane pit flare came from actual emission inventory information submitted to UDAQ in 2008 and 2009 and were not re-calculated specifically for purposes of this project. [IR009218, Response to Comments Memo ("flare emissions came from the UDAQ inventory record for reported actual emissions from 2008-2009 based on 259 MMBtu/hr and actual throughput data").]

3. The historic modifications to the propane pit flare to bring it into compliance with NSPS did not affect the baseline calculations or the AP-42 emission factor calculations. [IR007337, Revised NOI ("Compliance with NSPS affects neither the AP-42 emission factor calculation, which is based on the amount of propane used, nor the baseline calculations.").]

4. None of Holly's modifications to the Propane Pit Flare affected overall emissions. Therefore Holly was free to take credit for the emission reductions when the flare was decommissioned. [IR009182, Response to Comments Memo ("Because compliance with 40 CFR 60 Subparts A & J did not affect emissions, reductions from the removal of this propane pit flare are creditable reductions.").]

5. In connection with its independent review of the Holly AO, EPA submitted two separate comment letters to UDAQ. [See IR004001, EPA First Comment Letter; IR007840-7841, EPA Second Comment Letter.] While the Second Comment Letter requested more

information regarding (a) “the basis for the estimate of emissions reduced by converting from gas fired to electric motors for the compressors” [IR007840] and (b) the netting calculations relating to the new benzene saturation unit #23 and applying a boiler #5 NOx limit [IR007841], the EPA raised no concerns about the netting issues raised by Petitioners in their final argument on appeal. Moreover, EPA’s request for supplemental information on this issue was satisfied in UDAQ’s response to comments.

B. Findings and Conclusions on Preservation

6. Petitioners preserved this argument in accordance with 19-1-301.5(4) by raising this issue during the public comment period. [See IR007857 Petitioners’ Second Comment Letter.]

C. Findings and Conclusions on Burden of Proof

7. The issue of whether Holly accurately estimated reduction of PM emissions from the removal of its propane pit flare presents highly technical factual questions. It also presents legal questions about what data may be used for reduction purposes in a netting analysis. Accordingly, this issue is a mixed question of law and fact and UDAQ’s decision to include the emission reductions in the netting analysis will be analyzed under a reasonableness standard.

8. Petitioners failed to marshal all of the evidence pertaining to this issue—namely the 2008 and 2009 emission inventory data. Petitioners merely question the final calculations without presenting any conflicting evidence or analyzing the evidence in the record.

9. Accordingly, Petitioners have not met their burden of proof on this claim and it fails on that basis.

D. Conclusions of Law on the Merits

10. Even if Petitioners had carried their burden of proof, or to the extent marshaling is not properly applied to this claim (being a question of law), Petitioners' claims fail on the merits for the independent reasons discussed below.

11. Petitioners argue that the propane pit flare emissions were overestimated based on Holly's use of AP-42 emission factors. Petitioners contend the emission reduction must be overestimated because based on the calculated reduction, the propane pit flare would have been burning every day of the year.

12. Petitioners submit no evidence in support of this contention. Specifically, Petitioners do not address the fact that the emission reduction was based on the 2008 and 2009 historic emission inventory data that Holly submitted to UDAQ as required by Utah Admin. Code R307-150.

13. Part of this calculation involved the use of AP-42 emission factors to calculate the emissions from the flares because emission factors are necessary where emissions are generated from an open flame. [See IR007337, Revised NOI, ("Baseline emissions for the flare at the propane pit were calculated based on the AP-42 emission factors for flares.").]

14. For purposes of netting, the regulations expressly provide that the historical inventory information may be used as a baseline for calculating emissions increases and decreases. *See* 40 C.F.R. § 52.21(b)(48)(ii).

15. That Holly used NEI emission factors to calculate emissions from its heaters and boilers is irrelevant to the question of whether the flare emissions were properly calculated with AP-42 factors. Petitioners have pointed to no statute or regulation that would require Holly or UDAQ to re-calculate historic inventory information every time new emission factors are developed.

16. Petitioners' claim that there is no evidence in the record to support these historic emission calculations also fails because all parties, including Petitioners, agreed to exclude the emission inventory calculations from the record given the volume of those files. [See Holly's Surreply at 28; *see also* UDAQ's Surreply at 33.] If Petitioners thought there was an error in the calculations, the information could have been made available to them for their review. Petitioners may not now argue, without having asked to review the calculations, that the lack of such evidence supports their claim.

17. Petitioners have failed to present any evidence that would undermine the significant deference afforded to UDAQ in its review of highly technical emission calculations and review of netting analyses. Moreover, Petitioners have presented no technical evidence that undermines the accuracy of the historical inventory information. Accordingly, Petitioners' challenge to the propane pit flare emission calculations fails on the merits and should be dismissed with prejudice.

CONCLUSION AND PROPOSED ORDER

1. Based on the foregoing, Petitioners have not met their burden to demonstrate that UDAQ erred in issuing the Holly AO.

2. Further based on the foregoing and having satisfied my charge to undertake a permit review adjudicative proceeding in connection with this matter in accordance with Utah law, I recommend that the Executive Director deny Petitioners' Request for Agency Action and affirm UDAQ's issuance of the Holly AO.

DATED this 11th day of March, 2015.

A handwritten signature in black ink, appearing to read "B. Randall", written over a horizontal line.

BRET F. RANDALL
Administrative Law Judge

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 11th day of March 2015, I served the foregoing
FINDINGS OF FACT, CONCLUSIONS OF LAW AND RECOMMENDED ORDER
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APPENDIX A

Table of Waived Claims Petitioners Raised in Their RAA But Failed to Brief on the Merits

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43-44	"It is Impossible to Verify the Facility's SO ₂ Potential to Emit"	17
47-48	"The BACT for the South Flare is Inadequate"	20
50	"The AO Does Not Comply with the Federally Enforceable PM ₁₀ SIP"	24
51	"There is No Adequate Basis in the Record for the AO as the Record Does Not Reflect Independent Analysis of the Assertions and Calculations Made in the NOI"	25
51-52	"There is Insufficient Information and Analysis in the Record to Support the AO"	26
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62-63	"The AO is Based on an Improper Characterization of the Contemporaneous Period"	35
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Tab F

**BEFORE THE EXECUTIVE DIRECTOR
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY**

In the Matter of:

Approval Order No. DAQE-AN101230041-13

Holly Refining & Marketing Company –
Woods Cross, LLC
Heavy Crude Processing Project
Project No. N10123-0041

**ORDER ADOPTING FINDINGS OF FACT,
CONCLUSIONS OF LAW, AND
RECOMMENDED ORDER ON THE MERITS**

Date: March 31, 2015

On March 11, 2015, the administrative law judge issued a *Findings of Fact, Conclusions of Law, and Recommended Order on the Merits* (proposed dispositive action) in the above referenced Division of Air Quality permit review adjudicative proceeding, conducted in accordance with Utah Code Ann. §19-1-301.5 and Utah Admin. Code r. 305-7. When an administrative law judge submits a proposed dispositive action, I may adopt, adopt with modifications, or reject the proposed dispositive action; or return the proposed dispositive action to the administrative law judge for further action as required. Utah Code Ann. § 19-1-301.5(13)(a). I am required to uphold all factual, technical, and scientific agency determinations that are supported by substantial evidence taken from the record as a whole. Utah Code Ann. § 19-1-301.5(13)(b).

Having reviewed the *Findings of Fact, Conclusions of Law, and Recommended Order on the Merits* and the accompanying record, I am satisfied that the factual, technical, and scientific agency determinations are supported by substantial evidence taken from the record as a whole.

ORDER

WHEREFORE, I adopt the *Findings of Fact, Conclusions of Law, and Recommended Order on the Merits*. For the reasons stated therein, I affirm the Division of Air Quality's decision to issue the approval order described above and I order the dismissal with prejudice of each of the Petitioners' arguments.

NOTICE OF RIGHT TO PETITION FOR JUDICIAL REVIEW

Judicial review of this final order may be sought in the Utah Court of Appeals in accordance with Sections 63G-4-401, 63G-4-403, and 63G-4-405 of the Utah Code Ann. and the Utah Rules of Appellate Procedure by filing a proper petition within thirty days after the date of this order.

DATED this 31 day of March, 2015.



AMANDA SMITH
Executive Director
Utah Department of Environmental Quality

CERTIFICATE OF SERVICE


I HEREBY CERTIFY that on the 31st day of March 2015, I served the foregoing
ORDER ADOPTING FINDINGS OF FACT, CONCLUSIONS OF LAW AND RECOMMENDED ORDER
ON THE MERITS via email on the following:

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Tab G



FACT SHEET: New Source Review (NSR)

What is New Source Review?

New Source Review (NSR) is a Clean Air Act program that requires industrial facilities to install modern pollution control equipment when they are built or when making a change that increases emissions significantly. The program accomplishes this when owners or operators obtain permits limiting air emissions before they begin construction. For that reason, NSR is commonly referred to as the "preconstruction air permitting program."

The purpose of the NSR program is to protect public health and the environment, even as new industrial facilities are built and existing facilities expand. Specifically, its purpose is to ensure that air quality:

- does not worsen where the air is currently unhealthy to breathe (i.e. nonattainment areas)
- is not significantly degraded where the air is currently clean (i.e. attainment areas)

What are permits?

Permits are enforceable legal documents that an industrial facility, or stationary source, must comply with. Permits may place restrictions on:

- What construction is allowed
- What air emission limits must be met
- How the source can be operated

To assure that sources comply with a permit's emission limits, a permit almost always contains monitoring, recordkeeping, and reporting requirements.

What pollutants are regulated under the NSR program?

The NSR program applies to regulated NSR pollutants. In the PSD program, the regulated NSR pollutants include the National Ambient Air Quality Standards (NAAQS) pollutants and some other pollutants including sulfuric acid mist, hydrogen sulfide, etc. In nonattainment NSR, the regulated NSR pollutants are only the NAAQS pollutants.

EPA sets NAAQS for six principal pollutants, which are commonly called "criteria" pollutants and include: ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxide. The NAAQS are set at levels that protect human health and the environment.

For each criteria pollutant, every area of the United States has been designated as one of the following categories:

- **Attainment:** air quality is equal to or better than the level of the NAAQS; these areas must maintain clean air
- **Unclassifiable:** there are no data on air quality for the area; the area is treated as attainment

- **Nonattainment:** air quality is worse than the level of the NAAQS; these areas must take actions to improve air quality and attain the NAAQS within a certain period of time

What are the types of NSR permitting programs and what do they require?

There are three types of NSR permitting programs, each with a different set of requirements. A facility may have to meet one or more of these sets of permitting requirements.

1. **Prevention of Significant Deterioration (PSD) program** applies to a new major source or a source making a major modification in an attainment area. The program requirements include:
 - Installation of the Best Available Control Technology (BACT)
 - Emission limitation based on the maximum degree of emission reduction (considering energy, environmental, and economic impacts) achievable through application of production processes and available methods, systems, and techniques
 - An Air Quality Analysis
 - Assesses existing air quality and predicts through modeling the ambient concentrations that will result from the proposed project and future growth associated with the project
 - An Additional Impacts Analysis
 - Assesses the impacts of air, ground, and water pollution on soils, vegetation and visibility caused by any increase in emissions of any regulated pollutant from the source or modification under review
 - Public Involvement
 - Opportunities include public comment period, hearings, appeals, etc. during the permit issuance process.
2. **Nonattainment NSR program** applies to a new major source or a source making a major modification in a nonattainment area. The program requirements include:
 - Installation of the Lowest Achievable Emission Rate (LAER)
 - The rate of emissions that reflects: (1) the most stringent emission limitation included in the implementation plan of any state for a similar source unless the facility owner or operator demonstrates such limitations are not achievable; or (2) the most stringent emissions limitation achieved in practice, whichever is more stringent.
 - Emission Offsets
 - To avoid increases in emissions, proposed emissions increases from new or modified facilities are balanced by equivalent or greater reductions from existing sources.
 - Public Involvement
 - Opportunities include public comment period, hearings, appeals, etc. during the permit issuance process.

3. **Minor NSR program** applies to a new minor source and/or a minor modification at both major and minor sources, in both attainment and nonattainment areas. Minor NSR may apply to criteria pollutants as well as other pollutants depending on the state. The program requirements include:
 - New sources or modifications at existing sources must comply with any emissions control measures required by the state.
 - The program must not interfere with attainment or maintenance of the National Ambient Air Quality Standards or the control strategies of a State Implementation Plan (SIP) or Tribal Implementation Plan (TIP).
 - An implementation plan is a set of programs and regulations developed by the appropriate regulatory agency in order to assure that the NAAQS are attained and maintained.

Who issues the permits?

Usually NSR permits are issued by state or local air pollution control agencies. State, tribal and local air pollution control agencies may have developed their own NSR permit programs, as part of their State Implementation Plans (SIP) or Tribal Implementation Plans (TIP), that are approved by EPA or they may be delegated the authority to issue permits on behalf of EPA. If a state or a tribe chooses not to develop a SIP or a TIP and also not seek delegation of the federal NSR programs, EPA would implement the programs and issue the NSR permit, as we do for the PSD program in Indian country.

What sources are regulated under NSR?

The NSR permitting program applies to both: major and minor stationary sources.

1. **Major sources** are facilities that have the potential to emit pollutants in amounts equal to or greater than the corresponding major source threshold levels. These threshold levels vary by pollutant and/or source category. Major sources must comply with specific emission limits; which are generally more stringent in nonattainment areas.
2. **Minor sources** are facilities that have the potential to emit pollutants in amounts less than the corresponding major source thresholds.

Synthetic minor sources are facilities that have the potential to emit pollutants at or above the major source threshold level, but voluntarily accept enforceable limits to keep their emissions below the major source thresholds and avoid the major NSR requirements.

Where can I find additional information about NSR?

EPA's NSR Web site: <http://www.epa.gov/nsr/>

The NSR Web site provides links to regulations, publications and state permitting contacts pertaining to New Source Review

Tab H



Utah Division of Air Quality
New Source Review Section

Form 19
Natural Gas Boilers and Liquid Heaters

Company _____
Site/Source _____
Date _____

Boiler Information

1. Boiler Manufacturer: _____	
2. Model Number: _____	3. Serial Number: _____
4. Boiler Rating: _____ (10 ⁶ Btu per Hour)	
5. Operating Schedule: _____ hours per day _____ days per week _____ weeks per year	
6. Use: <input type="checkbox"/> steam: psig _____ <input type="checkbox"/> hot water <input type="checkbox"/> other hot liquid: _____	
7. Fuels:	<input type="checkbox"/> Natural Gas <input type="checkbox"/> LPG <input type="checkbox"/> Butane <input type="checkbox"/> Methanol
	<input type="checkbox"/> Process Gas - H ₂ S content in process gas _____ grain/100cu.ft.
	<input type="checkbox"/> Fuel Oil - specify grade: _____ <input type="checkbox"/> Other, specify: _____
	Sulfur content _____ % by weight Days per year during which unit is oil fired: _____
Backup Fuel	<input type="checkbox"/> Diesel <input type="checkbox"/> Natural Gas <input type="checkbox"/> LPG <input type="checkbox"/> Butane <input type="checkbox"/> Methanol <input type="checkbox"/> Other _____
8. Is unit used to incinerate waste gas liquid stream? <input type="checkbox"/> yes <input type="checkbox"/> no (Submit drawing of method of waste stream introduction to burners)	

Gas Burner Information

9. Gas Burner Manufacturer: _____	
10. No. of Burners: _____	11. Minimum rating per burner: _____ cu. ft/hr
12. Average Load: _____ %	13. Maximum rating per burner: _____ cu. ft/hr
14. Performance Guarantee (ppm dry corrected to 3% Oxygen): NO _x : _____ CO: _____ Hydrocarbons: _____	
15. Gas burner mode of control: <input type="checkbox"/> Manual <input type="checkbox"/> Automatic on-off <input type="checkbox"/> Automatic hi-low <input type="checkbox"/> Automatic full modulation	

Oil Burner Information

16. Oil burner manufacturer: _____	
17. Model: _____	number of burners: _____ Size number: _____
18. Minimum rating per burner: _____ gal/hr	19. Maximum rating per burner: _____ gal/hr

Form 11 - Natural Gas Boiler and Liquid Heater (Continued)

Modifications for Emissions Reduction

20. Type of modification: <input type="checkbox"/> Low NO _x Burner <input type="checkbox"/> Flue Gas Recirculation (FGR)	
<input type="checkbox"/> Oxygen Trim	<input type="checkbox"/> Other (specify) _____

For Low-NO_x Burners

21. Burner Type: <input type="checkbox"/> Staged air <input type="checkbox"/> Staged fuel <input type="checkbox"/> Internal flue gas recirculation	
<input type="checkbox"/> Ceramic	<input type="checkbox"/> Other (specify): _____
22. Manufacturer and Model Number: _____	
23. Rating: _____ 10 ⁶ BTU/HR	24. Combustion air blower horsepower: _____

For Flue Gas Recirculation (FGR)

25. Type: <input type="checkbox"/> Induced <input type="checkbox"/> Forced Recirculation fan horsepower: _____	
26. FGR capacity at full load: _____ scfm _____ %FGR	
27. FGR gas temperature or load at which FGR commences: _____ °F _____ % load	
28. Where is recirculation flue gas reintroduced? _____	

For Oxygen Trim Systems

29. Manufacturer and Model Number: _____	
30. Recorder: <input type="checkbox"/> yes <input type="checkbox"/> no Describe: _____	

Stack or Vent Data

31. Inside stack diameter or dimensions _____ Stack height above the ground _____ Stack height above the building _____	32. Gas exit temperature: _____ °F
33. Stack serves: <input type="checkbox"/> this equipment only, <input type="checkbox"/> other equipment (submit type and rating of all other equipment exhausted through this stack or vent)	
34. Stack flow rate: _____ acfm Vertically restricted? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Emissions Calculations (PTE)

35. Calculated emissions for this device			
PM ₁₀ _____ Lbs/hr _____ Tons/yr	PM _{2.5} _____ Lbs/hr _____ Tons/yr		
NO _x _____ Lbs/hr _____ Tons/yr	SO _x _____ Lbs/hr _____ Tons/yr		
CO _____ Lbs/hr _____ Tons/yr	VOC _____ Lbs/hr _____ Tons/yr		
CO ₂ _____ Tons/yr	CH ₄ _____ Tons/yr		
N ₂ O _____ Tons/yr			
HAPs _____ Lbs/hr (speciate) _____ Tons/yr (speciate)			
Submit calculations as an appendix. If other pollutants are emitted, include the emissions in the appendix.			

Instructions Form 19 – Natural Gas Boiler and Liquid Heater

This application form is applicable to natural gas-fired boilers and liquid heaters. Boiler(s) rated for a total of less than five million Btu per hr and fueled by natural gas and one million Btu per hour and fired by fuel oil numbers 1-6 are exempt from filing a Notice of Intent to construct. See Source Category Exemptions R307-401-10 (1) and (2).

- NOTE:
1. **Submit this form in conjunction with Form 1 and Form 2.**
 2. Call the Division of Air Quality (DAQ) at **(801) 536-4000** if you have problems or questions in filling out this form. Ask to speak with a New Source Review engineer. We will be glad to help!
 3. Attach specification sheets for all burners, equipment and modifications to boiler.

1. Company name of manufacturer of boiler (specifically the pressure vessel or shell).
2. Manufacturer's model number.
3. Specific identification, serial, number of the boiler.
4. The maximum heat input for which the boiler is rated. Give the value in million British thermal units per hour.
5. The operating schedule for which you want to be permitted. The air quality impact will be evaluated according to this schedule. Note: The approval order will limit operating hours to what you request.
6. Mark the box indicating the purpose of the boiler.
7. Mark all fuels that you wish to be approved to use, also list the backup fuel to be used if any.
8. If a waste stream is burned, answer yes and submit drawings, etc. to characterize the method.
9. Company name of manufacturer of gas burners. If the boiler is a packaged boiler, list the manufacturer of the boiler.
10. How many gas burners will be installed in the boiler?
11. Minimum gas flow rate at which each burner can operate (in cubic feet per hour)
12. The average load at which you plan to operate each burner, compared to the maximum burner rating.
13. Maximum gas flow rate at which each burner can operate (in cubic feet per hour)
14. List the maximum concentration which the manufacturer guarantees the burners will produce in parts per million of Nitrogen Oxides (NO_x), Carbon Monoxide (CO), and Total Hydrocarbons. If the percentage of Non-methane hydrocarbons is known, please provide that information.
15. Indicate the method used to control the flame for the burners.
16. Company name of manufacturer of oil burners. If the boiler is a packaged boiler, and has dual fuel capability, list the manufacturer of the boiler.
17. Manufacturer's model, number (quantity), and size of oil burners to be installed in the boiler.
18. Minimum oil flow rate at which each burner can operate (in gallons per hour).
19. Maximum oil flow rate at which each burner can operate (in gallons per hour).
20. Indicate the type of emissions reduction strategy(ies) used in the proposed boiler.
21. Indicate the low-NO_x strategy used in the burner design.
22. Company name of manufacturer of the burners. Manufacturer's model number for the burners.
23. The heat input rating of each burner in million British thermal units per hour.
24. In a forced draft design, the horsepower of the fan motor used.
25. Method for delivering the flue gas to the combustion zone. Forced draft indicates the presence of a fan. Give the fan horsepower if so equipped.
26. The amount of flue gas which can be recirculated, in standard cubic feet per minute. And the percentage of the flue gas that can be recirculated at full load.
27. Generally, flue gas recirculation systems start up at a given load or temperature. Give that specification.
28. Where in relation to the burner/combustion zone is the flue gas reintroduced to the boiler?
29. Name of the manufacturer and the model number of the oxygen trim system.
30. Is there a data recorder? If so, describe it: What is recorded? How is it read?
31. Give the inside diameter or the dimensions of the stack. List the stack height above the ground and above the building in which it is located, describe if the gas flow is vertically restricted. This information will be used in modeling the impact of emissions on the ambient air.
32. Give the expected gas exit temperature at the end of the stack. Also to be used in modeling.
33. Indicate if other equipment is also vented to this stack. If other equipment is served by the stack, provide the flow rates, operating parameters, fuel and combustion information that can be used to characterize the total emissions from the stack.
34. Give the gas flow rate out of the stack in actual cubic feet per minute (acfm).
35. Supply calculations for all criteria pollutants, greenhouse gases and HAPs. Use AP42 or Manufacturers' data to complete your calculations.

Tab I

Air Emissions

Boiler-Natural Gas

Boiler Emissions - Natural Gas

Date: 0-00-00

Company Name:	Test
Facility Name:	test
Equipment Name:	Admin E Boiler

Enter Maximum Heat Rate, (Btu/hr or Btuh) 90000000**Gas Consumption per Hour (cubic feet per hour) 90000**

Calculated using a 1000 Btu/cu ft heating value for natural gas and 100% boiler load.

Enter Number Hours Operated per Year 400

The calculated emissions will be :

Emission Factors listed below are for **Natural Gas Boilers**
Less Than 100 Million Btuh

b Pollutant	c Emission Factor	d Emission Rate	Emissions
	lbs/cu ft gas	lbs/hr c x cubic feet hour	tons/yr d x hours/2000
Particulate Material - PM ₁₀	0.0000076	0.684	0.137
Sulfur Dioxide - SO ₂	0.0000006	0.054	0.011
Nitrogen Oxides - NO _x	0.0001	9.000	1.800
Volitile Organic Compounds - VOC	0.0000055	0.495	0.099
Carbon Monoxide - CO	0.000084	7.560	1.512

Note: This calculation chooses the correct set of emission factors, from the table below, based on the boiler heat rate. The correct emission factor will automatically be choosen to match the maximum heat rate input. Each boiler must have it's own calculation, do **not** total the heat rates for the site and use the one number for emission calculations.

Air Emissions

Boiler-Natural Gas

Boiler Emissions - Natural Gas

Instructions

These calculation sheets have been written using Microsoft Excel.

Step 1 Fill in the name and identifying information.

Enter the boiler heat output, in Btu/hour or Btuh, from the boiler name plate. Every boiler needs an emission calculation sheet.

Step 2 Enter the hours the boiler will be operated.

Step 3 Once you have entered in all the values click anywhere on the sheet and the calculation will be done by the program. Remember the information is being used for permitting purposes, so be sure the numbers are right and realistic.

Step 4 If this is the only piece of equipment you are done with the calculations.

Save a copy by printing out the page.

You now need to determine what type of permit you need

Step 5 If this is one of several emission points, download the Air Emission Summary page and enter the equipment name and emissions.

Emission Factors - Natural Gas Boilers	Less Than 100 Million Btuh (lb/cu ft gas)	Greater Than 100 Million Btuh (lb/cu ft gas)
Particulate Material - PM ₁₀	0.0000076	0.0000076
Sulfur Dioxide - SO ₂	0.0000006	0.0000006
Nitrogen Oxides - NO _x	0.0001	0.00028
Volitile Organic Compounds - VOC	0.0000055	0.0000055
Carbon Monoxide - CO	0.000084	0.000084

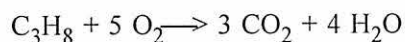
Emission factors are from EPA AP 42, 1.4 Natural Gas Combustion, Emission Factors are for an uncontrolled boiler. Most newer boilers have smaller emission rates, if you have manufacturers emission rates you should use them. Please include the manufacturers literature as a reference for why you are using different factors. Emission factors used could become a permit condition, and the Division of Air Quality can ask for a test to confirm emissions.

Tab J

13.5 Industrial Flares

13.5.1 General

Flaring is a high-temperature oxidation process used to burn combustible components, mostly hydrocarbons, of waste gases from industrial operations. Natural gas, propane, ethylene, propylene, butadiene and butane constitute over 95 percent of the waste gases flared. In combustion, gaseous hydrocarbons react with atmospheric oxygen to form carbon dioxide (CO₂) and water. In some waste gases, carbon monoxide (CO) is the major combustible component. Presented below, as an example, is the combustion reaction of propane.



During a combustion reaction, several intermediate products are formed, and eventually, most are converted to CO₂ and water. Some quantities of stable intermediate products such as carbon monoxide, hydrogen, and hydrocarbons will escape as emissions.

Flares are used extensively to dispose of (1) purged and wasted products from refineries, (2) unrecoverable gases emerging with oil from oil wells, (3) vented gases from blast furnaces, (4) unused gases from coke ovens, and (5) gaseous wastes from chemical industries. Gases flared from refineries, petroleum production, chemical industries, and to some extent, from coke ovens, are composed largely of low molecular weight hydrocarbons with high heating value. Blast furnace flare gases are largely of inert species and CO, with low heating value. Flares are also used for burning waste gases generated by sewage digesters, coal gasification, rocket engine testing, nuclear power plants with sodium/water heat exchangers, heavy water plants, and ammonia fertilizer plants.

There are two types of flares, elevated and ground flares. Elevated flares, the more common type, have larger capacities than ground flares. In elevated flares, a waste gas stream is fed through a stack anywhere from 10 to over 100 meters tall and is combusted at the tip of the stack. The flame is exposed to atmospheric disturbances such as wind and precipitation. In ground flares, combustion takes place at ground level. Ground flares vary in complexity, and they may consist either of conventional flare burners discharging horizontally with no enclosures or of multiple burners in refractory-lined steel enclosures.

The typical flare system consists of (1) a gas collection header and piping for collecting gases from processing units, (2) a knockout drum (disentrainment drum) to remove and store condensables and entrained liquids, (3) a proprietary seal, water seal, or purge gas supply to prevent flash-back, (4) a single- or multiple-burner unit and a flare stack, (5) gas pilots and an ignitor to ignite the mixture of waste gas and air, and, if required, (6) a provision for external momentum force (steam injection or forced air) for smokeless flaring. Natural gas, fuel gas, inert gas, or nitrogen can be used as purge gas. Figure 13.5-1 is a diagram of a typical steam-assisted elevated smokeless flare system.

Complete combustion requires sufficient combustion air and proper mixing of air and waste gas. Smoking may result from combustion, depending upon waste gas components and the quantity and distribution of combustion air. Waste gases containing methane, hydrogen, CO, and ammonia usually burn without smoke. Waste gases containing heavy hydrocarbons such as paraffins above methane, olefins, and aromatics, cause smoke. An external momentum force, such as steam injection or blowing air, is used for efficient air/waste gas mixing and turbulence, which promotes smokeless

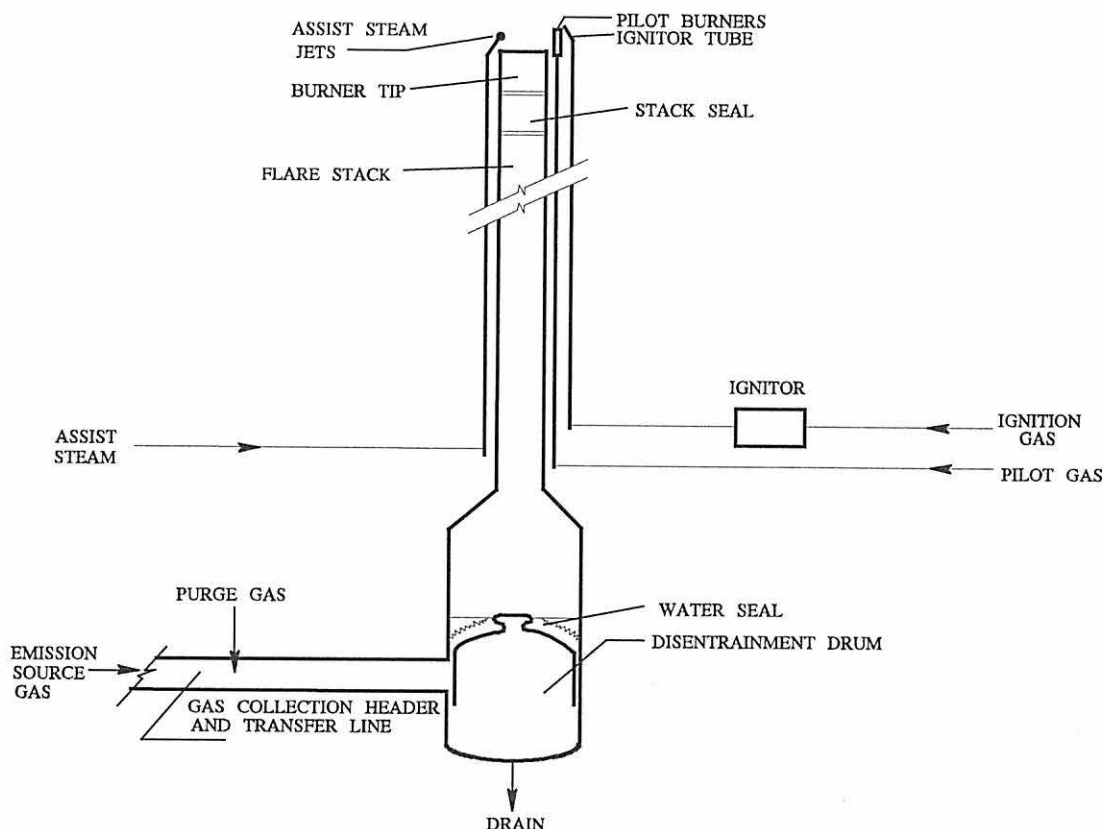


Figure 13.5-1. Diagram of a typical steam-assisted smokeless elevated flare.

flaring of heavy hydrocarbon waste gas. Other external forces may be used for this purpose, including water spray, high velocity vortex action, or natural gas. External momentum force is rarely required in ground flares.

Steam injection is accomplished either by nozzles on an external ring around the top of the flare tip or by a single nozzle located concentrically within the tip. At installations where waste gas flow varies, both are used. The internal nozzle provides steam at low waste gas flow rates, and the external jets are used with large waste gas flow rates. Several other special-purpose flare tips are commercially available, one of which is for injecting both steam and air. Typical steam usage ratio varies from 7:1 to 2:1, by weight.

Waste gases to be flared must have a fuel value of at least 7500 to 9300 kilojoules per cubic meter kJ/m^3 (200 to 250 British thermal units per cubic foot $[\text{Btu/ft}^3]$) for complete combustion; otherwise fuel must be added. Flares providing supplemental fuel to waste gas are known as fired, or endothermic, flares. In some cases, even flaring waste gases having the necessary heat content will also require supplemental heat. If fuel-bound nitrogen is present, flaring ammonia with a heating value of $13,600 \text{ kJ/m}^3$ (365 Btu/ft^3) will require higher heat to minimize nitrogen oxides (NO_x) formation.

At many locations, flares normally used to dispose of low-volume continuous emissions are designed to handle large quantities of waste gases that may be intermittently generated during plant emergencies. Flare gas volumes can vary from a few cubic meters per hour during regular operations up to several thousand cubic meters per hour during major upsets. Flow rates at a refinery could be

from 45 to 90 kilograms per hour (kg/hr) (100 - 200 pounds per hour [lb/hr]) for relief valve leakage but could reach a full plant emergency rate of 700 megagrams per hour (Mg/hr) (750 tons/hr). Normal process blowdowns may release 450 to 900 kg/hr (1000 - 2000 lb/hr), and unit maintenance or minor failures may release 25 to 35 Mg/hr (27 - 39 tons/hr). A 40 molecular weight gas typically of 0.012 cubic nanometers per second (nm^3/s) (25 standard cubic feet per minute [scfm]) may rise to as high as 115 nm^3/s (241,000 scfm). The required flare turndown ratio for this typical case is over 15,000 to 1.

Many flare systems have 2 flares, in parallel or in series. In the former, 1 flare can be shut down for maintenance while the other serves the system. In systems of flares in series, 1 flare, usually a low-level ground flare, is intended to handle regular gas volumes, and the other, an elevated flare, to handle excess gas flows from emergencies.

13.5.2 Emissions

Noise and heat are the most apparent undesirable effects of flare operation. Flares are usually located away from populated areas or are sufficiently isolated, thus minimizing their effects on populations.

Emissions from flaring include carbon particles (soot), unburned hydrocarbons, CO, and other partially burned and altered hydrocarbons. Also emitted are NO_x and, if sulfur-containing material such as hydrogen sulfide or mercaptans is flared, sulfur dioxide (SO_2). The quantities of hydrocarbon emissions generated relate to the degree of combustion. The degree of combustion depends largely on the rate and extent of fuel-air mixing and on the flame temperatures achieved and maintained. Properly operated flares achieve at least 98 percent combustion efficiency in the flare plume, meaning that hydrocarbon and CO emissions amount to less than 2 percent of hydrocarbons in the gas stream.

The tendency of a fuel to smoke or make soot is influenced by fuel characteristics and by the amount and distribution of oxygen in the combustion zone. For complete combustion, at least the stoichiometric amount of oxygen must be provided in the combustion zone. The theoretical amount of oxygen required increases with the molecular weight of the gas burned. The oxygen supplied as air ranges from 9.6 units of air per unit of methane to 38.3 units of air per unit of pentane, by volume. Air is supplied to the flame as primary air and secondary air. Primary air is mixed with the gas before combustion, whereas secondary air is drawn into the flame. For smokeless combustion, sufficient primary air must be supplied, this varying from about 20 percent of stoichiometric air for a paraffin to about 30 percent for an olefin. If the amount of primary air is insufficient, the gases entering the base of the flame are preheated by the combustion zone, and larger hydrocarbon molecules crack to form hydrogen, unsaturated hydrocarbons, and carbon. The carbon particles may escape further combustion and cool down to form soot or smoke. Olefins and other unsaturated hydrocarbons may polymerize to form larger molecules which crack, in turn forming more carbon.

The fuel characteristics influencing soot formation include the carbon-to-hydrogen (C-to-H) ratio and the molecular structure of the gases to be burned. All hydrocarbons above methane, i. e., those with a C-to-H ratio of greater than 0.33, tend to soot. Branched chain paraffins smoke more readily than corresponding normal isomers. The more highly branched the paraffin, the greater the tendency to smoke. Unsaturated hydrocarbons tend more toward soot formation than do saturated ones. Soot is eliminated by adding steam or air; hence, most industrial flares are steam-assisted and some are air-assisted. Flare gas composition is a critical factor in determining the amount of steam necessary.

Since flares do not lend themselves to conventional emission testing techniques, only a few attempts have been made to characterize flare emissions. Recent EPA tests using propylene as flare gas indicated that efficiencies of 98 percent can be achieved when burning an offgas with at least $11,200 \text{ kJ/m}^3$ (300 Btu/ft^3). The tests conducted on steam-assisted flares at velocities as low as 39.6 meters per minute (m/min) (130 ft/min) to 1140 m/min (3750 ft/min), and on air-assisted flares at velocities of 180 m/min (617 ft/min) to 3960 m/min (13,087 ft/min) indicated that variations in incoming gas flow rates have no effect on the combustion efficiency. Flare gases with less than $16,770 \text{ kJ/m}^3$ (450 Btu/ft^3) do not smoke.

Table 13.5-1 presents flare emission factors, and Table 13.5-2 presents emission composition data obtained from the EPA tests.¹ Crude propylene was used as flare gas during the tests. Methane was a major fraction of hydrocarbons in the flare emissions, and acetylene was the dominant intermediate hydrocarbon species. Many other reports on flares indicate that acetylene is always formed as a stable intermediate product. The acetylene formed in the combustion reactions may react further with hydrocarbon radicals to form polyacetylenes followed by polycyclic hydrocarbons.²

In flaring waste gases containing no nitrogen compounds, NO is formed either by the fixation of atmospheric nitrogen (N) with oxygen (O) or by the reaction between the hydrocarbon radicals present in the combustion products and atmospheric nitrogen, by way of the intermediate stages, HCN, CN, and OCN.² Sulfur compounds contained in a flare gas stream are converted to SO_2 when burned. The amount of SO_2 emitted depends directly on the quantity of sulfur in the flared gases.

Table 13.5-1 (English Units). EMISSION FACTORS FOR FLARE OPERATIONS^a

EMISSION FACTOR RATING: B

Component	Emission Factor (lb/10 ⁶ Btu)
Total hydrocarbons ^b	0.14
Carbon monoxide	0.37
Nitrogen oxides	0.068
Soot ^c	0 - 274

^a Reference 1. Based on tests using crude propylene containing 80% propylene and 20% propane.

^b Measured as methane equivalent.

^c Soot in concentration values: nonsmoking flares, 0 micrograms per liter ($\mu\text{g/L}$); lightly smoking flares, 40 $\mu\text{g/L}$; average smoking flares, 177 $\mu\text{g/L}$; and heavily smoking flares, 274 $\mu\text{g/L}$.

Table 13.5-2. HYDROCARBON COMPOSITION OF FLARE EMISSION^a

Composition	Volume %	
	Average	Range
Methane	55	14 - 83
Ethane/Ethylene	8	1 - 14
Acetylene	5	0.3 - 23
Propane	7	0 - 16
Propylene	25	1 - 65

^a Reference 1. The composition presented is an average of a number of test results obtained under the following sets of test conditions: steam-assisted flare using high-Btu-content feed; steam-assisted using low-Btu-content feed; air-assisted flare using high-Btu-content feed; and air-assisted flare using low-Btu-content feed. In all tests, "waste" gas was a synthetic gas consisting of a mixture of propylene and propane.

References For Section 13.5

1. *Flare Efficiency Study*, EPA-600/2-83-052, U. S. Environmental Protection Agency, Cincinnati, OH, July 1983.
2. K. D. Siegel, *Degree Of Conversion Of Flare Gas In Refinery High Flares*, Dissertation, University of Karlsruhe, Karlsruhe, Germany, February 1980.
3. *Manual On Disposal Of Refinery Wastes, Volume On Atmospheric Emissions*, API Publication 931, American Petroleum Institute, Washington, DC, June 1977.

Tab K

**Exhibit "K" - Produced in
Electronic Format**