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BEFORE THE BOARD OF ENVIRONMENTAL QUALITY
STATE OF IDAHO

IN THE MATTER OF AIR QUALITY PERMIT TO CONSTRUCT P-2019.0047 _____ NEZ PERCE TRIBE, IDAHO CONSERVATION LEAGUE, and SAVE THE SOUTH FORK SALMON, Petitioner, v. IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY, Respondent, and PERPETUA RESOURCES IDAHO, INC. Intervenor-Respondent.	Case Docket No. 0101-22-01 OAH Case No. 23-245-01 PERPETUA'S PREHEARING STATEMENT

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KEY TO TERMS AND ABBREVIATIONS

AACC	Acceptable Ambient Concentration for a Carcinogen
DEQ	Respondent Idaho Department of Environmental Quality
EPA	United States Environmental Protection Agency
IUR	Inhalation Unit Risk, developed by EPA
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, IDAPA 58.01.01, *et seq*.
Perpetua	Intervenor-Respondent Perpetua Resources Idaho, Inc.
Petitioners	Petitioners Nez Perce Tribe, Idaho Conservation League, and Save the South Fork Salmon
Project	Stibnite Gold Project
PTC	Air Quality Permit to Construct No. P-2019.0047, issued to Perpetua on June 17, 2022
TAP	Toxic air pollutant
T-RACT	Toxic air pollutant reasonably available control technology
URF	Unit Risk Factor, based on EPA's IUR

I. CONTESTED CASE REMAND AND STATEMENT OF ISSUES

The Board of Environmental Quality (the "Board") issued a Final Order regarding Perpetua Resources Idaho, Inc.'s ("Perpetua") Permit to Construct (the "PTC") for the Stibnite Gold Project (the "Project"). REC 3695-3720. The Board affirmed the Idaho Department of Environmental Quality ("DEQ") on four of the five claims presented. REC 3698-3706. On the fifth claim, the Board held there was insufficient evidence to determine whether DEQ acted reasonably and according to the Rules for the Control of Air Pollution in Idaho, IDAPA 58.01.01 *et seq.* (2022) (the "Idaho Air Rules"),[1] in analyzing ambient air concentrations of arsenic emissions and in finding those concentrations were less than the amount of arsenic that would contribute to an excess cancer risk probability of 1-in-100,000. *See* REC 3706-3717.

The Board found that DEQ "did not provide sufficient evidence in the form of an expert opinion from a toxicologist or other qualified expert regarding the cancer risk associated with the 16/70 adjustment." REC 3716. The Board remanded to the Hearing Officer "for the development of further evidence regarding the ambient air concentrations of arsenic that will be produced by the [Project] and whether those levels comply with the Air Rules." REC 3717. On remand, the parties "must focus only on the development of additional factual evidence on the ambient arsenic air concentration analysis performed by DEQ for the PTC." REC 3841-3842.

Specifically, the evidentiary hearing is limited to three issues:

(1) whether the "16/70 analysis performed by DEQ was equally or more protective of human and animal life and vegetation as what is provided for by the Air Rules" and whether ambient air concentrations of arsenic from the Project comply with the Idaho Air Rules, REC 3715-3717.

[1] All citations are to the 2022 version of the Idaho Air Rules.

(2) whether DEQ acted reasonably in using a five-year rolling average in analyzing arsenic ambient air concentrations, REC 3712-3713; and

(3) whether non-West End Pit production was limited, and what effect non-West End Pit production has on arsenic emissions, REC 3713-3714.

Analyzing ambient air concentrations of arsenic and the cancer risk probability associated with arsenic emissions are issues beyond the ordinary knowledge of a layperson. An expert witness's scientific, technical, or other specialized knowledge is necessary to help the Board understand the evidence. *See* IDAPA 62.01.01.485; *see also* REC 3375-3376. Perpetua will introduce qualified expert testimony at the hearing to provide the explanation and justification the Board seeks and will show that Petitioners' objections are simply opinions and unsupported speculation that provide no basis to conclude DEQ acted unreasonably or contrary to the Idaho Air Rules.

II. STANDARD OF REVIEW

The Board "must determine whether DEQ 'has acted reasonably and in accordance with the law.'" REC 3697 (quoting *In the Matter of Sunnyside Park Utilities' Application for Sewage Disposal Permit*, Final Order on Petition for Review of Preliminary Order, at p. 10 (BEQ Dkt. 0103-07-02, Apr. 7, 2009). This analysis appropriately considers DEQ's "experience, technical competence, and specialized knowledge" to evaluate evidence.[2] *See* Idaho Code § 67-5251(5); *see also* Idaho Code § 67-5251(4)(b) (authorizing the Board to take official notice of "generally recognized technical or scientific facts within the agency's specialized knowledge."); Michael S. Gilmore & Dale D. Goble, The Idaho Administrative Procedure Act: A Primer for the

[2] The Idaho Legislature recently amended the standard for judicial review under the Idaho Administrative Procedure Act to prohibit deference to agency interpretations, Idaho Code § 67-5279(5), but the standard for judicial review does not apply to the Hearing Officer or the Board's review of the PTC. *See* REC 3377 (explaining that the statute's standards "are not directly applicable").

Practitioner, 30 Idaho L. Rev. 273, 319 (1994) ("[T]he agency's repeated exposure to a specialized subject matter is a source of specialized knowledge that is useful in evaluating evidence."). The burden of establishing that DEQ acted unreasonably or inconsistently with the law falls on Petitioners, who must prove their allegations by a preponderance of the evidence. IDAPA 62.01.01.477.

III. RELEVANT REGULATORY BACKGROUND: IDAHO TAP RULES

The evaluation of arsenic emissions from the Project starts with IDAPA 58.01.01.161. *See* IDAPA 58.01.01.203.03. Section 161 requires DEQ to evaluate emissions of carcinogenic toxic air pollutants ("TAPs") and determine that the emissions will not injure or unreasonably affect human or animal life or vegetation. Preconstruction compliance with Section 161 can be shown using the methods provided in IDAPA 58.01.01.210. *See id*.

Compliance with Section 210 is shown when the modeled maximum ambient air impact is less than or equal to the applicable acceptable ambient concentration ("AACC") for carcinogens provided in IDAPA 58.01.01.586. *See* IDAPA 58.01.01.210. AACCs are based on Unit Risk Factors ("URFs") developed by the United States Environmental Protection Agency ("EPA"). *See* IDAPA 58.01.01.106.19, .586. AACCs and URFs are listed in Section 586 and assure that the excess cancer risk is no more than 1-in-1,000,000 over a 70-year lifetime of constant exposure to the listed carcinogen. This is made clear by the definition of "Toxic Air Pollutant Carcinogenic Increments" in the Idaho Air Rules:

> Those ambient air quality increments based on the probability of developing excess cancers over a seventy (70) year lifetime exposure to one (1) microgram per cubic meter (1 ug/m3) of a given carcinogen and expressed in terms of a screening emission level or an acceptable ambient concentration for a carcinogenic toxic air pollutant. They are listed in Section 586.

See IDAPA 58.01.01.006.125. AACCs are expressed as annual average concentrations. *See* IDAPA 58.01.01.586. The AACC for arsenic is 0.00023 $\mu g/m^3$. *Id*.

Here, DEQ found Perpetua demonstrated preconstruction compliance for arsenic emissions using the method set forth in Section 210.12.[3] Section 210.12 allows an applicant to use reasonable achievable control technology for TAPs ("T-RACT") to demonstrate compliance with Section 161. IDAPA 58.01.01.210.12.a. If T-RACT is used to control emissions, then the allowable excess cancer risk over a 70-year lifetime of constant exposure is 1-in-100,000, or 10 times the AACC. IDAPA 58.01.01.210.12.b. The T-RACT AACC for arsenic is 0.0023 $\mu g/m^3$.

The plain language of Section 210.12.b requires DEQ to *compare* the modeled T-RACT ambient concentration from the Project to the cancer risk of the T-RACT AACC:

> Compare the source's or modification's approved T-RACT ambient concentration at the point of compliance for the toxic air pollutant to the amount of the toxic air pollutant that would contribute an ambient air cancer risk probability of less than one to one hundred thousand (1:100,000) (which amount is equivalent to ten (10) times the applicable acceptable ambient concentration listed in Section 586).

IDAPA 58.01.01.210.12.b. Toxicologists refer to the modeled T-RACT ambient concentration as the "exposure concentration." If the exposure concentration is less than or equal to the T-RACT AACC, then "no further procedures for demonstrating preconstruction compliance will be required for that toxic air pollutant as part of the application process." IDAPA 58.01.01.210.12.c.

IV. QUALIFIED EXPERTS ON BEHALF OF PERPETUA WILL PRESENT ADDITIONAL EXPLANATION AT THE HEARING

Perpetua's qualified expert witnesses will present testimony that DEQ's analysis of arsenic emissions from the Project complied with the Idaho Air Rules and the toxicological and other scientific principles on which they are based. Theresa Lopez (a Principal Toxicologist at Tetra Tech, Inc.) and Kevin Lewis (a Principal Air Quality Engineer at Air Sciences Inc.) will

[3] Normally, fugitive dust emissions of arsenic from gold mining would be excluded from TAP compliance demonstrations because the emissions are "addressed" by National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 C.F.R. Part 63, Subpart EEEEEEE. *See* IDAPA 58.01.01.210.20.b.

explain why DEQ acted reasonably and in accordance with the law when comparing the Project's modeled arsenic exposure concentration to the T-RACT AACC and finding the emissions do not present an unacceptable risk to human health or the environment. Ms. Lopez and Mr. Lewis's testimony will be consistent with the expert declarations of Kevin Schilling (DEQ's Stationary Source Air Modeling Supervisor) and Dr. Norka Paden (a DEQ Environmental Toxicologist).

A. The evidence will show that DEQ properly adjusted the exposure duration for the arsenic exposure concentration to reflect the 16-year life of the Project.

Cancer risk cannot be evaluated without considering the length of time a potential receptor will be exposed to a carcinogen—referred to as "exposure duration." When comparing the Project's modeled arsenic exposure concentration to the T-RACT AACC pursuant to Section 210.12, DEQ properly adjusted the exposure concentration to account for the 16-year exposure duration of the Project. In other words, to ensure an "apples to apples" comparison between the arsenic exposure concentration and the T-RACT AACC, DEQ calculated the Project's exposure concentration using the 16-year exposure duration to ensure that concentration was comparable to the assumption of the 70-year exposure duration found in the AACC. The adjustment is illustrated in the following formula utilized by DEQ:

$$Lifetime\ exposure\ \left(\frac{\mu g}{m^3}\right) = \frac{Highest\ annual\ concentration\ \left(\frac{\mu g}{m^3}\right) \times 16\ (mine\ operation\ years)}{70\ (years, lifetime\ exposure)}$$

REC 710. The lifetime exposure in the formula is the Project's arsenic exposure concentration.

Based on the maximum modelled annual concentration, the lifetime exposure concentration of arsenic for the Project is 0.00095 µg/m^3. REC 714. Compared to the T-RACT AACC (0.0023 µg/m^3), the Project's lifetime exposure of arsenic is less than a 1-in-100,000 cancer risk and demonstrates that the Project's arsenic emissions will not injure or unreasonably affect human, animal life, or vegetation. The Board, however, did not find sufficient evidence to

support the 16/70 adjustment and called for a toxicologist or other qualified expert to cure perceived evidentiary gaps. *See* REC 3715-3717.

The expert testimony of Ms. Lopez and Mr. Lewis will explain that DEQ followed Sections 210.12 and 586 when adjusting the Project's arsenic exposure concentration to compare against the arsenic T-RACT AACC. Their collective expert testimony will be that:

- AACCs are calculated from URFs listed in Section 586, which are based on Inhalation Unit Risks ("IURs") for carcinogens developed by EPA;
- EPA developed IURs assuming the dose of a carcinogen is cumulative over the duration of exposure and that cancer risk increases linearly as the cumulative total dose increases over a 70-year lifetime (i.e., where the cancer risk is dependent on exposure duration);
- IURs/URFs are substantially conservative and based on a cumulative lifetime excess cancer risk of 1-in-1,000,000 from exposure to 1 $\mu g/m^3$ of a substance continuously (24 hours/day and 365 days/year) over a lifetime exposure of 70 years;
- the concepts of margin of safety and mode of action are not appropriately applied in toxicological risk assessment, and another margin of safety on top of IURs/URFs is absent from the Idaho Air Rules;
- AACCs are derived by dividing a 1-in-1,000,000 cancer risk by the URF and thus represent the excess cancer risk probability averaged over a 70-year lifetime;
- being based on URFs, AACCs are not annual emission limits but are excess cancer risk probability values expressed in terms of exposure concentrations for a lifetime;
- interpreting AACCs as annual emission limits ignores the definitions of IUR/URF and AACC and conflates incremental concentrations with incremental cancer risk;

- adjusting the arsenic exposure concentration for the 16-year life of the mine is consistent with toxicology guidance and practices, follows the method EPA developed for the correct use of IURs/URFs and AACCs, and does not underestimate excess cancer risk from the Project;
- the URF for arsenic is 0.0043 $\mu g/m^3$, which results in an AACC of 0.00023 $\mu g/m^3$ and a T-RACT AACC of 0.0023 $\mu g/m^3$;
- for a project with an operational life of less than 70 years, it is appropriate to adjust for actual exposure duration;
- the short-term project adjustment factor recognized in Section 210.15 is an example of an adjustment for exposure duration that is consistent with DEQ and EPA's methods for risk assessment and reliance on IURs/URFs and AACCs;
- DEQ and EPA use a formula to compare the exposure concentration ($C_{air\text{-}adj}$) from a project that operates for less than 70 years to the AACC, which considers the contaminant concentration in air (C_{air}), exposure time (ET) of 24 hours /day, exposure frequency (EF) of 365 days/year, exposure duration (ED) of years of exposure to the C_{air}, and an averaging time (AT) of 70 years x 365 days/year x 24 hours/day;
- the formula is $\mathbf{C_{air\text{-}adj}=C_{air}}$ **x ET x 1day/24 hours x EF x ED/AT**;
- using the maximum modelled annual concentration of arsenic and an ED of 16 years (the longest period the mine will operate), the arsenic exposure concentration is 0.00095 $\mu g/m^3$, which is less than the arsenic T-RACT AACC of 0.0023 $\mu g/m^3$; and
- based on the exposure concentration of 0.00095 $\mu g/m^3$, the incremental increase in cancer risk from the Project's arsenic emissions is 1-in-240,000, which is below the acceptable lifetime risk of 1-in-100,000 established by the T-RACT AACC.

The expert testimony at the hearing will demonstrate that comparing the Project's arsenic exposure concentration to the T-RACT AACC under Section 210.12 requires the exposure concentration to be adjusted from a lifetime exposure to the Project's actual exposure duration to provide an "apples to apples" comparison to the T-RACT AACC. The evidence will support the underlying rule-based mathematics that DEQ used to calculate the arsenic exposure concentration from a 16-year project and to properly compare the exposure concentration to the T-RACT AACC. Perpetua's expert testimony will also explain the flaws and misunderstandings in Petitioners' declarations, which simply reflect disagreements with the professional judgments of DEQ staff and advocacy positions that do not align with the Idaho Air Rules.

B. The evidence will show that DEQ properly used a five-year rolling average production limit for T-RACT.

Established as a T-RACT control, Condition 3.5 of the PTC limits mine production to 135,000 tons per day based on a five-year rolling average. REC 385. This production limit ensures that arsenic emissions from the Project are consistent with assumptions used to model maximum annual concentrations against the T-RACT AACC. The Board, however, found "no evidence in the record explaining how the five-year rolling average comports with the annual AACC limits." REC 3713. The expert testimony of Ms. Lopez and Mr. Lewis will explain that a five-year rolling average production limit will not change lifetime incremental cancer risk and is protective and consistent with Section 586 and AACCs. Collectively they will testify that:

- because AACCs are developed based on cumulative, lifetime exposure of 70-years, the values are based on a 70-year compliance period, do not require annual compliance, and are not annual limits;
- a five-year rolling average compliance period represents a shorter and more conservative timeframe than the 16-year life of the mine and ensures that cumulative

exposure over that duration will remain below the T-RACT AACC; and

- any averaging period that is less than an exposure duration of 16 years is consistent with the arsenic AACC and Sections 210.12 and 586 and will not increase or decrease the excess cancer risk estimated using maximum modelled annual concentrations.

The expert testimony at the hearing will show that AACCs are not based on annual exposure and that DEQ acted reasonably in determining that a production limit based on a five-year rolling average ensures the Project is operated as described in the compliance demonstration under Sections 210.12 and 586.

C. The evidence will show that the PTC already limits production from the non-West-End Pits, and no separate limit is necessary.

The PTC establishes two life-of-mine production limits in Condition 3.6: (1) a limit on total mine production of 788.4 million tons and (2) a limit on West End Pit production of 394.2 million tons, which is 50% of total mine production. REC 385. Condition 3.6 does not expressly address or limit non-West End Pit production. While so, in calculating the highest arsenic ambient concentrations from the Project, DEQ limited production by 50% from both the West End Pit and the non-West End Pits. The Board was uncertain why non-West End Pit production was adjusted and limited by 50%. REC 3714. In particular, the Board inquired why DEQ limited production from the non-West End Pits when Condition 3.6 includes no such limit. *Id*.

The expert testimony of Mr. Lewis will explain that a separate production limit on the non-West End Pits was not necessary. He will testify that:

- modeling scenarios based on full production from the non-West End Pits (*i.e.*, the entirety of mine production or 788.4 million tons) for the 16-year life of the mine demonstrated compliance with the T-RACT AACC;

- modeling scenarios based on 50% production from the West End Pits and the remaining 50% from the non-West End Pits (*i.e.*, 394.2 + 392.4 = 788.4 million tons) for the 16-year life of the mine also demonstrated compliance with the T-RACT AACC;
- since Condition 3.6 limits West End Pit production to 394.2 million tons and total production to 788.4 million tons, an additional production limit on the non-West End Pits is unnecessary and would be redundant (i.e., the non-West End Pits are already limited by the total production limit and demonstrate compliance with the T-RACT AACC at full production).

The expert testimony at the hearing will show that an additional production limit on the non-West End Pits offers no further protection to the public health or the environment.

V. CONCLUSION

At the evidentiary hearing, Perpetua will demonstrate that DEQ acted reasonably and in compliance with Sections 161, 203, 210.12, and 586 of the Idaho Air Rules when permitting the Project's arsenic emissions. Based on the expert testimony, the Hearing Officer should enter findings of fact and conclusions of law that DEQ properly adjusted the Project's arsenic T-RACT ambient concentration based on an exposure duration of 16 years, that a five-year rolling average production limit is consistent with the arsenic AACC, and that no additional production limit is necessary to limit emissions from the non-West End Pits.

DATED: October 11, 2024.

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CERTIFICATE OF SERVICE

I hereby certify that on October 11, 2024, a true and correct copy of the **PERPETUA'S PREHEARING STATEMENT** was served on the following:

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