Comments on Hi-Test Sand PSD Modeling Protocol
Submitted by Kalispel Tribe of Indians
October 2017

HiTest Sand, LLC (HiTest) proposes to construct and operate a silica smelter near Newport, WA along the Washington-Idaho state boundary. In support of an expected permit application under the Prevention of Significant Deterioration (PSD) regulations, HiTest has submitted an air quality dispersion modeling protocol for review by Washington Department of Ecology (Ecology). The protocol was prepared by HiTest's consultant, Ramboll Environ US Corporation. The Kalispel Tribe of Indians submits these comments to Washington DOE on the proposed modeling protocol.

This project will require a PSD permit, with source emissions for sulfur dioxide (SO_2) and nitrogen oxides (NO_x) exceeding 700 tons per year (tpy) each. The Tribe expects that the HiTest permit application, including dispersion modeling, will conform to applicable US Environmental Protection Agency (EPA) and Ecology guidelines and standards for PSD permits. The modeling protocol in its present form falls short of this requirement.

The protocol does indicate that the applicant's modeling will address the Kalispel Reservation as a Class I area and that approach is appreciated by the Tribe.

Major Concerns:

1. The meteorological data planned for the modeling is inadequate and does not conform to the applicable regulations and modeling guidelines. Under EPA's Guideline on Air Quality Models (40 CFR 51, Appendix W) and related guidance, the meteorological input data for dispersion modeling need to be spatially representative of the project site and also collected with known precision and accuracy. In addition to Appendix W, the relevant data requirements are addressed in EPA guidance such as Meteorological Monitoring Guidance for Regulatory Modeling Applications and the Ambient Monitoring Guidelines for Prevention of Significant Deterioration. The HiTest modeling protocol lacks any discussion of how the proposed meteorological data inputs conform to the requirements of the applicable guidelines. The Kalispel Tribe is also skeptical that the data selected can meet the applicable data requirements and reasonably support a PSD permit application. As such, the Tribe recommends that the applicant to conduct an on-site meteorological monitoring program for a minimum time period of one year in order to collect adequately representative data for use in the air dispersion modeling.

2. The modeling protocol indicates that the Modeled Emissions Rates for Precursors (MERP) guidance will not be used for Class I areas, such as the Kalispel Reservation. However, no alternative proposal for addressing the secondary PM-2.5 impacts is listed in the protocol. Any modeling of PM-2.5 impacts to the Kalispel Reservation needs to include an assessment for secondary PM contributions. If the applicant elects not to use the MERP approach, an alternative method is required.

Specific Technical Comments – Meteorological Data

1. Page 6: The protocol indicates that a five year data set spanning 2012-16 is planned, but the proposed ID41 met tower was apparently not installed until the end of 2013. The protocol should clarify this discrepancy. Based on discussions at the recent pre-application meeting, the Tribe's understanding is that the 2012-16 five year data set will be from National Weather Service (NWS) observations at Deer Park WA, with a second modeling data set from the 2014-16 ID41 data. The applicant should specifically list in the protocol the exact data to be used for the PSD permit modeling.

2. Data Representativeness: The EPA Modeling Guidelines (Appendix W) at Section 8.4 lists the regulatory requirements for meteorological data inputs used for permit modeling. The applicant needs to address how the data selected conform to the Guideline requirements for data representativeness. The Tribe is especially concerned regarding the planned use of the Deer Park Airport data as not being spatially representative of the proposed project site. The protocol (Page 6) also indicates that the instrument siting at ID41 may not meet the applicable EPA sensor siting guidelines. Based on the local topography, a reasonable expectation is that emissions transport would be parallel to the Pend Oreille River and that emissions would be carried from the proposed HiTest plant site toward the Kalispel Reservation. However, the protocol shows that the selected data have infrequent winds toward the Kalispel Reservation, which is contrary to reasonable expectations based on the local terrain. All of these factors suggest problems with data representativeness that have not been adequately addressed by the protocol. Ecology should not approve these Deer Park and ID41 data for use in the HiTest PSD permit modeling until all concerns regarding data representativeness are addressed.

3. In order to better illustrate the Tribe's concerns over data representativeness, a wind rose from the Hoodoo, ID RAWS station is attached (Figure 1). Hoodoo is about 20 kilometers (km) southeast of the proposed plant site (Figure 2). The Hoodoo data show distinctly different wind patterns compared to the ID41 and Deer Park data. The Hoodoo data indicate a predominance of winds from the east through south sectors, winds that would carry plant emissions toward the Kalispel Reservation. At this time, the Tribe is not recommending that the Hoodoo data be used in the HiTest PSD modeling without thoroughly vetting these data for data representativeness and quality as described elsewhere in these comments. However, the Hoodoo RAWS data show wind patterns more in line with expectations given the local topography of the area and illustrate why the Kalispel Tribe has concerns over the representativeness of the Deer Park and ID41 data recommended by the applicant.

4. Data Quality: No detailed information is presented by the applicant to allow an assessment of the data quality for the ID41 site. The desired specifications for meteorological sensors used in regulatory modeling are presented in EPA's Meteorological Program Guidance, specifically Tables 5-1 and 5-3. Does the monitoring equipment at ID41 meet these criteria? Also, EPA's PSD Monitoring Guideline at Section 5.2 discusses exposure of the meteorological instruments. The ID41 instrument

exposure is not addressed in the protocol other than a brief comment that nearby obstacles such as trees might interfere with the measurements. The limited information provided by the protocol in fact casts serious doubts on the overall ID41 data representativeness and data quality. Lastly, Section 7.0 in EPA's PSD Monitoring Guidelines discusses quality assurance for PSD-level data, including recovery requirements for valid data, requirements for periodic calibration of the meteorological sensors, and requirements for an independent sensor audit. Unless the applicant can show that the ID41 data meet the applicable data quality requirements from EPA guidelines governing on-site data collection, Ecology should not allow their use in the HiTest PSD permit application.

Specific Technical Comments - Secondary PM Impacts

1. Page 21: The protocol indicates that the MERP guidance is not applicable to Class I areas. The applicant needs to provide the technical/regulatory basis to support that statement; otherwise, the claim has no credibility.

2. The Kalispel Tribe would support the MERP approach to address the contribution of secondary PM to the modeled PM-2.5 concentrations. Based on the modeling protocol (Page 19), this would add 0.50 micrograms per cubic meter to the modeled 24-hour PM-2.5 concentration. However, if the MERP approach is not desired by the applicant, an alternative modeling approach for addressing secondary PM formation is needed. The proposed source will release SO_2 and NO_x and over 700 tpy each, and the formation of secondary PM from these SO_2 and NOx precursor emissions needs to be addressed in some fashion for impacts at Class I PSD areas.

Other Technical Comment

1. Page 4 (Emissions Inventory): The HiTest PSD modeling should be based on appropriate emission limits for the averaging time of interest (1-hr, 3-hr, 24-hr, etc.). The Kalispel Tribe expects that the PSD permit issued by Ecology will contain appropriate permit limits derived in part from the emission rates used in the modeling.

2. Page 9 (Average Surface Moisture): The protocol indicated that average surface moisture characteristics will be used. Instead, local precipitation data should be used to determine the appropriate surface moisture for input to the model on a year-by-year basis. Average moisture should not be assumed in AERMET/AERMOD if it is known that the year being modeled is a wet or dry year.

3. Page 15-16 (PSD Increment Inventory): The protocol correctly notes that whether or not a nearby source consumes PSD increment is determined using the PSD baseline date. However, these dates may be different depending on the location of the increment consuming source. For example, the SO_2 baseline date for the Eastern Washington control region is 8/31/79 and for the Northern Washington control region is 6/28/81. A single PSD baseline date would not be applicable for all of the PSD increment inventory.

4. Page 17 (Modeling for Toxic Air Emissions): Like Washington, the State of Idaho has concentration thresholds for potential impacts of toxic air contaminants. AERMOD receptors located in Idaho should be evaluated against the appropriate toxic contaminant concentration thresholds for Idaho.

5. Page 21 (Receptor Density at Kalispel Reservation): Depending on the modeling results and the margin of compliance with Class I increments, additional modeling receptors with a spacing of less than 200 m may be needed within the Kalispel Reservation.

6. Page 22 (Class I Significant Impact Levels): The Kalispel Tribe expects that any exceedance of the applicable Class I SIL would trigger a cumulative modeling analysis for Class I PSD increment compliance, including cumulative PSD increment impacts at the Kalispel Reservation.

Figure 1

Hoodoo, ID RAWS Station Wind Rose
Period of Record: September 1, 2012 through August 31, 2017

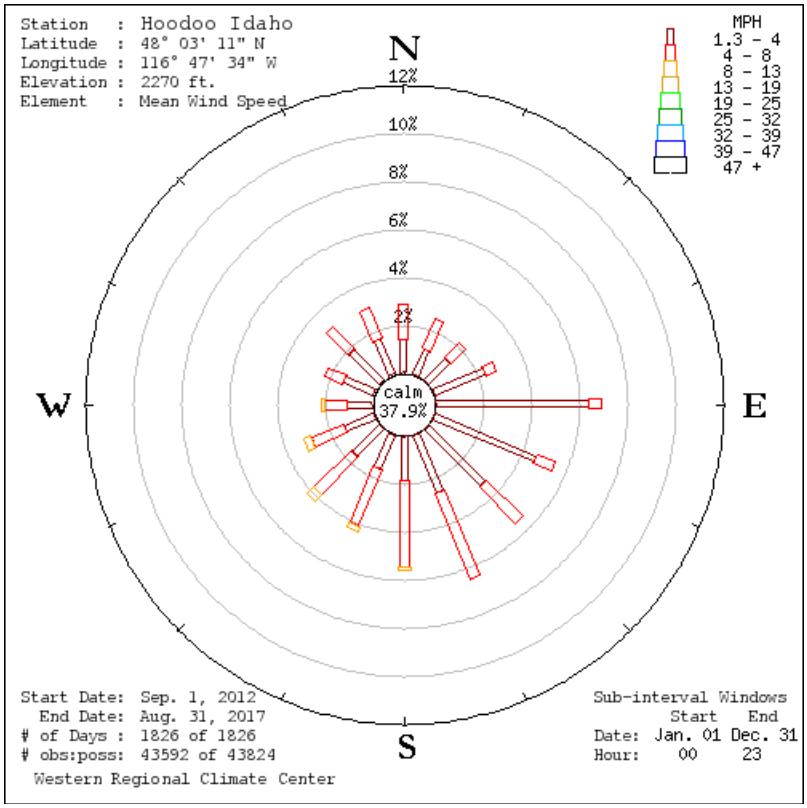

Figure 2

Hoodoo RAWS Station Location Relative to HiTest Plant Site