FEDERAL REGISTER

Vol. 77 Wednesday,
No. 247 December 26, 2012

Part II

Environmental Protection Agency

40 CFR Part 52
Approval and Promulgation of Implementation Plans; State of Washington; Regional Haze State Implementation Plan; Federal Implementation Plan for Best Available Retrofit Technology for Alcoa Intalco Operations and Tesoro Refining and Marketing; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R10–OAR–2010–1071, FRL–9760–6]

Approval and Promulgation of Implementation Plans; State of Washington; Regional Haze State Implementation Plan; Federal Implementation Plan for Best Available Retrofit Technology for Alcoa Intalco Operations and Tesoro Refining and Marketing

AGENCY: Environmental Protection Agency (EPA)

ACTION: Proposed rule.

SUMMARY: EPA is proposing to partially approve and partially disapprove a Washington Regional Haze Implementation Plan (SIP) submitted by the State of Washington on December 22, 2010, that addresses regional haze for the first implementation period. This plan was submitted to meet the requirements of Clean Air Act (CAA) sections 169A and 169B that require states to prevent any future and remedy any existing man-made impairment of visibility in mandatory Class I areas. EPA is proposing to: (1) Approve portions of this SIP submittal as meeting most of the requirements of the regional haze program, (2) propose a limited approval and limited disapproval of the SO_2 Best Available Retrofit Technology (BART) determination for Intalco Aluminum Corp. (Intalco) potline operation and propose a federal ''Better than BART'' alternative, and (3) propose to disapprove the NOx BART determination for five BART emission units at the Tesoro Refining and Marketing refinery (Tesoro) and propose a federal Better than BART alternative. This combined rule package of proposed SIP approved elements and proposed federal elements will meet the requirements of CAA sections 169A and 169B. On August 20, 2012, EPA approved those provisions of the Washington SIP addressing the BART determination for TransAlta Centralia Generation L.L.C. coal fired power plant (TransAlta).

DATES: *Comments:* Written comments must be received at the address below on or before February 15, 2013.

Public Hearing: A public hearing is offered to provide interested parties the opportunity to present information and opinions to EPA concerning our proposal. Interested parties may also submit written comments, as discussed below. If you wish to request a hearing and present testimony, you should notify Mr. Steve Body on or before January 10, 2013 and indicate the nature of the issues you wish to provide oral testimony during the hearing. Mr. Body's contact information is found in **FOR FURTHER INFORMATION CONTACT** below. At the hearing, the hearing officer may limit oral testimony to 5 minutes per person. The hearing will be limited to the subject matter of this proposal, the scope of which is discussed below. EPA will not respond to comments during the public hearing. When we publish our final action we will provide a written response to all written or oral comments received on the proposal. EPA will not be providing equipment for commenters to show overhead slides or make computerized slide presentations. A transcript of the hearing and written statements will be made available for copying during normal working hours at the address listed for inspection of documents, and also included in the Docket. Any member of the public may provide written or oral comments and data pertaining to our proposal at the hearing. Note that any written comments and supporting information submitted during the comment period will be considered with the same weight as any oral comments presented at the public hearing. If no requests for a public hearing are received by close of business on January 10, 2013, a hearing will *not* be held; please contact Mr. Body at (206) 553–0782 to find out if the hearing will actually be held or if it will be cancelled for lack of any request to speak.

ADDRESSES: *Public Hearing:* A public hearing, if requested, will be held January 16, 2013, beginning at 6:00 p.m. at the Washington Department of Ecology Offices, Room #ROA–32, 300 Desmond Drive, Lacey, WA 98503.

Comments: Submit your comments, identified by Docket ID No. EPA–R10–OAR–2010–1071 by one of the following methods:

- *www.regulations.gov.* Follow the on-line instructions for submitting comments.
- Email: *R10-Public_Comments@epa.gov.*
- Mail: Steve Body, EPA Region 10, Suite 900, Office of Air, Waste and Toxics, 1200 Sixth Avenue, Seattle, WA 98101.
- Hand Delivery: EPA Region 10, 1200 Sixth Avenue, Suite 900, Seattle, WA 98101. Attention: Steve Body, Office of Air, Waste and Toxics, AWT–107. Such deliveries are only accepted during normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions: Direct your comments to Docket ID No. EPA–R10–OAR–2010–1071. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *www.regulations.gov* or email. The *www.regulations.gov* Web site is an ''anonymous access'' system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to EPA, without going through *www.regulations.gov,* your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

Docket: All documents in the docket are listed in the *www.regulations.gov* index. Although listed in the index, some information is not publicly available (e.g., CBI or other information whose disclosure is restricted by statute). Certain other material, such as copyrighted material, will be publicly available only in hard copy form. Publicly available docket materials are available either electronically at www.regulations.gov or in hard copy at the Office of Air, Waste and Toxics, EPA Region 10, 1200 Sixth Avenue, Seattle, WA 98101. EPA requests that if at all possible, you contact the individual listed below to view a hard copy of the docket.

FOR FURTHER INFORMATION CONTACT: Steve Body at telephone number (206) 553–0782, *body.steve@epa.gov,* or the above EPA, Region 10 address.

SUPPLEMENTARY INFORMATION: Throughout this document whenever ''we,'' ''us,'' or ''our'' is used, we mean the EPA. Information is organized as follows:

Table of Contents

I. Overview and Summary of EPA's Proposed Action

In this action, EPA proposes to approve the following provisions of Washington's Regional Haze SIP submittal: Washington's identification of Class I areas and determination of baseline conditions, natural conditions and uniform rate of progress (URP) for each of these Class I areas. We also propose to approve Washington's emission inventories, sources of visibility impairment in Washington Class I areas, monitoring strategy, consultation with other states and Federal Land Managers (FLMs), reasonable progress goals (RPGs), and long term strategy (LTS).

EPA previously approved Washington's BART determination for the TransAlta power plant in Centralia, Washington. In today's action we are proposing to approve BART determinations for all other sources subject to BART with the exception of certain BART emission units at two sources subject to BART. Specifically EPA is proposing to approve the BART determinations for the British Petroleum (BP) Cherry Point Refinery, Port Townsend Paper Company, LaFarge North America, and Weyerhaeuser Longview and portions of the BART determinations for Intalco and Tesoro. EPA is proposing a limited approval and limited disapproval of Washington's SO_2 BART determination for the potlines at Intalco in Ferndale, Washington. EPA proposes an alternative 'Better than BART'' Federal Implementation Plan (FIP) for SO_2 BART for the potlines with an annual limit on SO_2 emissions of 80% of baseyear emissions. EPA is proposing to disapprove Washington's NO_X BART determination for 5 BART units at the Tesoro refinery in Anacortes, Washington. EPA proposes a Better than BART alternative FIP for these 5 BART units.

II. Background for EPA's Proposed Action

In the CAA Amendments of 1977, Congress established a program to protect and improve visibility in national parks and wilderness areas. See CAA section 169A. Congress amended the visibility provisions in the CAA in 1990 to focus attention on the problem of regional haze. See CAA section 169B. EPA promulgated regulations in 1999 to implement sections 169A and 169B of the Act. These regulations require states to develop and implement plans to ensure reasonable progress toward improving visibility in mandatory Class I Federal areas [1] (Class I areas). 64 FR 35714 (July 1, 1999); see also 70 FR 39104 (July 6, 2005) and 71 FR 60612 (October 13, 2006).

A. Definition of Regional Haze

Regional haze is impairment of visual range or colorization caused by emission of air pollution produced by numerous sources and activities, located across a broad regional area. The sources include but are not limited to, major and minor stationary sources, mobile sources, and area sources including non-anthropogenic sources. Visibility impairment is primarily caused by fine particulate matter, particles with an aerodynamic diameter of less than 2.5 micrometers, ($PM_{2.5}$) or secondary aerosol formed in the atmosphere from precursor gasses (e.g., sulfur dioxide, nitrogen oxides, and in some cases, ammonia and volatile organic compounds). Atmospheric fine particulate reduces clarity, color, and visual range of visual scenes. Visibility reducing fine particulate is primarily composed of sulfate, nitrate, organic carbon compounds, elemental carbon, and soil dust, and impairs visibility by scattering and absorbing light. Fine particulate can also cause serious health effects and mortality in humans, and contributes to environmental effects such as acid deposition and eutrophication.[2]

Data from the existing visibility monitoring network, the ''Interagency Monitoring of Protected Visual Environments'' (IMPROVE) monitoring network, show that visibility impairment caused by air pollution occurs virtually all the time at most national parks and wilderness areas. Average visual range in many Class I areas in the Western United States is 100–150 kilometers, or about one-half to two-thirds the visual range that would exist without anmade air pollution.[3] Visibility impairment also varies day-to-day and by season depending on variation in meteorology and emission rates.

B. Regional Haze Rules and Regulations

In section 169A of the 1977 CAA Amendments, Congress created a program for protecting visibility in the nation's national parks and wilderness areas. This section of the CAA establishes as a national goal the ''prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air

[1] Areas designated as mandatory Class I Federal areas consist of national parks exceeding 6000 acres, wilderness areas and national memorial parks exceeding 5000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value. 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to ''mandatory Class I Federal areas.'' Each mandatory Class I Federal area is the responsibility of a ''Federal Land Manager.'' 42 U.S.C. 7602(i). When we use the term ''Class I area'' in this action, we mean a ''mandatory Class I Federal area.''

[2] See 64 FR at 35715.

[3] *Id.*

pollution.'' CAA section 169A(a)(1). On December 2, 1980, EPA promulgated regulations to address visibility impairment in Class I areas that is ''reasonably attributable'' to a single source or small group of sources, i.e., ''reasonably attributable visibility impairment''. 45 FR 80084. These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling, and scientific knowledge about the relationships between pollutants and visibility impairment were improved.

Congress added section 169B to the CAA in 1990 to address regional haze issues. EPA promulgated a rule to address regional haze on July 1, 1999 (64 FR 35713) (the Regional Haze Rule or RHR). The RHR revised the existing visibility regulations to integrate into the regulation, provisions addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in EPA's visibility protection regulations at 40 CFR 51.300–309. Some of the main elements of the regional haze requirements are summarized in section III of this notice. The requirement to submit a regional haze SIP applies to all 50 states, the District of Columbia and the Virgin Islands.[4] 40 CFR 51.308(b) requires states to submit the first implementation plan addressing regional haze visibility impairment no later than December 17, 2007.

C. Roles of Agencies in Addressing Regional Haze

Successful implementation of the regional haze program will require long-term regional coordination among states, tribal governments and various federal agencies. As noted above, pollution affecting the air quality in Class I areas can be transported over long distances, even hundreds of kilometers. Therefore, to effectively address the problem of visibility impairment in Class I areas, states need to develop strategies in coordination with one another, taking into account the effect of emissions from one jurisdiction on the air quality in another.

Because the pollutants that lead to regional haze impairment can originate from across state lines, even across international boundaries, EPA has encouraged the states and Tribes to address visibility impairment from a regional perspective. *Five regional planning organizations* (RPOs) were created nationally to address regional haze and related issues. One of the main objectives of the RPOs is to develop and analyze data and conduct pollutant transport modeling to assist the States or Tribes in developing their regional haze plans.

The Western Regional Air Partnership (WRAP), one of the five RPOs nationally, is a voluntary partnership of state, Tribal, federal, and local air agencies dealing with air quality in the West. WRAP member states include: Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. WRAP Tribal members include Campo Band of Kumeyaay Indians, Confederated Salish and Kootenai Tribes, Cortina Indian Rancheria, Hopi Tribe, Hualapai Nation of the Grand Canyon, Native Village of Shungnak, Nez Perce Tribe, Northern Cheyenne Tribe, Pueblo of Acoma, Pueblo of San Felipe, and Shoshone-Bannock Tribes of Fort Hall.

II. Requirements for the Regional Haze SIPs

A. The CAA and the Regional Haze Rule

Regional haze SIPs must assure reasonable progress towards the national goal of achieving natural visibility conditions in Class I areas. Section 169A of the CAA and EPA's implementing regulations require states to establish long-term strategies for making reasonable progress toward meeting this goal. Implementation plans must also give specific attention to certain stationary sources that were in existence on August 7, 1977, but were not in operation before August 7, 1962, and require these sources, where appropriate, to install BART controls for the purpose of eliminating or reducing visibility impairment. The specific regional haze SIP requirements are discussed in further detail below.

B. Determination of Baseline, Natural, and Current Visibility Conditions

The RHR establishes the deciview (dv) as the principal metric for measuring visibility. This visibility metric expresses uniform changes in haziness in terms of common increments across the entire range of visibility conditions, from pristine to extremely hazy conditions. Visibility is determined by measuring the visual range (or deciview), which is the greatest distance, in kilometers or miles, at which a dark object can be viewed against the sky. The deciview is a useful measure for tracking progress in improving visibility, because each deciview change is an equal incremental change in visibility perceived by the human eye. Most people can detect a change in visibility at one deciview.[5]

The deciview is used in expressing reasonable progress goals (which are interim visibility goals towards meeting the national visibility goal), defining baseline, current, and natural conditions, and tracking changes in visibility. The regional haze SIPs must contain measures that ensure ''reasonable progress'' toward the national goal of preventing and remedying visibility impairment in Class I areas caused by manmade air pollution by reducing anthropogenic emissions that cause regional haze. The national goal is a return to natural conditions, i.e., manmade sources of air pollution would no longer impair visibility in Class I areas.

To track changes in visibility over time at each of the 156 Class I areas covered by the visibility program (40 CFR 81.401–437), and as part of the process for determining reasonable progress, states must calculate the degree of existing visibility impairment at each Class I area at the time of each regional haze SIP submittal and periodically review progress every five years midway through each 10-year implementation period. To do this, the RHR requires states to determine the degree of impairment (in deciviews) for the average of the 20% least impaired (''best'') and 20% most impaired (''worst'') visibility days over a specified time period at each of their Class I areas. In addition, states must also develop an estimate of natural visibility conditions for the purpose of comparing progress toward the national goal. Natural visibility is determined by estimating the natural concentrations of pollutants that cause visibility impairment and then calculating total light extinction based on those estimates. EPA has provided guidance to states regarding how to calculate baseline, natural and current visibility conditions in documents titled, EPA's *Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule,* September 2003, (EPA–454/B–03–005 located at *http://www.epa.gov/ttncaaa1/t1/memoranda/rh_envcurhr_gd.pdf*), (hereinafter referred to as ''EPA's 2003 Natural Visibility Guidance''), and

[4] Albuquerque/Bernalillo County in New Mexico must also submit a regional haze SIP to completely satisfy the requirements of section 110(a)(2)(D) of the CAA for the entire State of New Mexico under the New Mexico Air Quality Control Act (section 74–2–4).

[5] The preamble to the RHR provides additional details about the deciview. 64 FR 35714, 35725 (July 1, 1999).

Guidance for Tracking Progress Under the Regional Haze Rule (EPA–454/B–03–004 September 2003 located at *http://www.epa.gov/ttncaaa1/t1/memoranda/rh_tpurhr_gd.pdf*)), (hereinafter referred to as ''EPA's 2003 Tracking Progress Guidance'').

For the first regional haze SIPs that were due by December 17, 2007, ''baseline visibility conditions'' were the starting points for assessing ''current'' visibility impairment. Baseline visibility conditions represent the degree of visibility impairment for the 20% least impaired days and 20% most impaired days for each calendar year from 2000 to 2004. Using monitoring data for 2000 through 2004, states are required to calculate the average degree of visibility impairment for each Class I area, based on the average of annual values over the five-year period. The comparison of initial baseline visibility conditions to natural visibility conditions indicates the amount of improvement necessary to attain natural visibility, while the future comparison of baseline conditions to the then current conditions will indicate the amount of progress made. In general, the 2000–2004 baseline time period is considered the time from which improvement in visibility is measured.

C. Consultation With States and Federal Land Managers

The RHR requires that states consult with Federal Land Managers (FLMs) before adopting and submitting their SIPs. 40 CFR 51.308(i). States must provide FLMs an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on the SIP. This consultation must include the opportunity for the FLMs to discuss their assessment of visibility impairment in any Class I area and to offer recommendations on the development of the reasonable progress goals and on the development and implementation of strategies to address visibility impairment. Further, a state must include in its SIP a description of how it addressed any comments provided by the FLMs. Finally, a SIP must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas.

D. Best Available Retrofit Technology

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often uncontrolled, older stationary sources in order to address visibility impacts from these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress towards the natural visibility goal, including a requirement that certain categories of existing major stationary sources [6] built between 1962 and 1977 procure, install, and operate the ''Best Available Retrofit Technology'' as determined by the state. States are directed to conduct BART determinations for such sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or other alternative program as long as the alternative provides greater reasonable progress towards improving visibility than BART.

On July 6, 2005, EPA published the *Guidelines for BART Determinations Under the Regional Haze Rule* at appendix Y to 40 CFR part 51 (hereinafter referred to as the ''BART Guidelines'') to assist states in determining which of their sources should be subject to the BART requirements and in determining appropriate emission limits for each applicable source. In making a BART applicability determination for a fossil fuel-fired electric generating plant with a total generating capacity in excess of 750 megawatts, a state must use the approach set forth in the BART Guidelines. A state is encouraged, but not required, to follow the BART Guidelines in making BART determinations for other types of sources.

States must address all visibility-impairing pollutants emitted by a source in the BART determination process. The most significant visibility-impairing pollutants are sulfur dioxide, nitrogen oxides, and fine particulate matter. EPA has indicated that states should use their best judgment in determining whether volatile organic compounds or ammonia compounds impair visibility in Class I areas.

Under the BART Guidelines, states may select an exemption threshold value to determine those BART eligible sources not subject to BART. A BART-eligible source with an impact below the threshold would not be expected to cause or contribute to visibility impairment in any Class I area. The state must document this exemption threshold value in the SIP and must state the basis for its selection of that value. Any source with emissions that model above the threshold value would be subject to a BART determination review. The BART Guidelines acknowledge varying circumstances affecting different Class I areas. States should consider the number of emission sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts. Generally, an exemption threshold set by the state should not be higher than 0.5 deciview.

In their SIPs, states must identify BART sources, (BART-eligible sources), as well as those BART eligible sources that have a visibility impact in any Class I area above the ''BART subject'' exemption threshold established by the state and thus, subject to BART. States must document their BART control analysis and determination for all sources subject to BART.

The term ''BART-eligible source'' used in the BART Guidelines means the collection of individual emission units at a facility that together comprises the BART-eligible source. In making a BART determination, section 169A(g)(2) of the CAA requires that states consider the following factors: (1) The costs of compliance, (2) the energy and non-air quality environmental impacts of compliance, (3) any existing pollution control technology in use at the source, (4) the remaining useful life of the source, and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. States are free to determine the weight and significance to be assigned to each factor.

The regional haze SIP must include source-specific BART emission limits and compliance schedules for each source subject to BART. Once a state has made its BART determination, the BART controls must be installed and in operation as expeditiously as practicable, but no later than 5 years after the date EPA approves the regional haze SIP. CAA section 169A(g)(4)). 40 CFR 51.308(e)(1)(iv). In addition to what is required by the RHR, general SIP requirements mandate that the SIP must also include all regulatory requirements related to monitoring, recordkeeping, and reporting for the BART controls on the source. States have the flexibility to choose the type of control measures they will use to meet the requirements of BART.

E. Determination of Reasonable Progress Goals (RPGs)

The vehicle for ensuring continuing progress towards achieving the natural

[6] The set of ''major stationary sources'' potentially subject to BART is listed in CAA section 169A(g)(7).

visibility goal is the submission of a series of regional haze SIPs from the states that establish two RPGs (i.e., two distinct goals, one for the ''best'' and one for the ''worst'' days) for every Class I area for each (approximately) 10-year implementation period. The RHR does not mandate specific milestones or rates of progress, but instead calls for states to establish goals that provide for ''reasonable progress'' toward achieving natural (i.e., ''background'') visibility conditions. In setting RPGs, states must provide for an improvement in visibility for the most impaired days over the (approximately) 10-year period of the SIP, and ensure no degradation in visibility for the least impaired days over the same period.

States have significant discretion in establishing RPGs, but are required to consider the following factors established in section 169A of the CAA and in EPA's RHR at 40 CFR 51.308(d)(1)(i)(A): (1) The costs of compliance; (2) the time necessary for compliance; (3) the energy and non-air quality environmental impacts of compliance; and (4) the remaining useful life of any potentially affected sources. States must demonstrate in their SIPs how these factors are considered when selecting the RPGs for the best and worst days for each applicable Class I area. States have considerable flexibility in how they take these factors into consideration, as noted in EPA's *Guidance for Setting Reasonable Progress Goals under the Regional Haze Program,* (''EPA's Reasonable Progress Guidance''), July 1, 2007, memorandum from William L. Wehrum, Acting Assistant Administrator for Air and Radiation, to EPA Regional Administrators, EPA Regions 1–10 (pp. 4–2, 5–1). In setting the RPGs, states must also consider the rate of progress needed to reach natural visibility conditions by 2064 (referred to as the ''uniform rate of progress'' or the ''glidepath'') and the emission reduction measures needed to achieve that rate of progress over the 10-year period of the SIP. Uniform progress towards achievement of natural conditions by the year 2064 represents a rate of progress which states are to use for analytical comparison to the amount of progress they expect to achieve. In setting RPGs, each state with one or more Class I areas (''Class I state'') must also consult with potentially ''contributing states,'' i.e., other nearby states with emission sources that may be affecting visibility impairment at the Class I state's areas. 40 CFR 51.308(d)(1)(iv).

F. Long Term Strategy (LTS)

Consistent with the requirement in section 169A(b) of the CAA that states include in their regional haze SIP a 10 to 15 year strategy for making reasonable progress, section 51.308(d)(3) of the RHR requires that states include a LTS in their regional haze SIPs. The LTS is the compilation of all control measures a state will use during the implementation period of the specific SIP submittal to meet applicable RPGs. The LTS must include ''enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals'' for all Class I areas within, or affected by emissions from, the state. 40 CFR 51.308(d)(3).

When a state's emissions are reasonably anticipated to cause or contribute to visibility impairment in a Class I area located in another state, the RHR requires the impacted state to coordinate with the contributing states in order to develop coordinated emissions management strategies. 40 CFR 51.308(d)(3)(i). In such cases, the contributing state must demonstrate that it has included, in its SIP, all measures necessary to obtain its share of the emissions reductions needed to meet the RPGs for the Class I area. The RPOs have provided forums for significant interstate consultation, but additional consultations between states may be required to sufficiently address interstate visibility issues. This is especially true where two states belong to different RPOs.

States should consider all types of anthropogenic sources of visibility impairment in developing their LTS, including stationary, minor, mobile, and area sources. At a minimum, states must describe how each of the following seven factors listed below are taken into account in developing their LTS: (1) Emissions reductions due to ongoing air pollution control programs, including measures to address RAVI; (2) measures to mitigate the impacts of construction activities; (3) emissions limitations and schedules for compliance to achieve the RPG; (4) source retirement and replacement schedules; (5) smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the state for these purposes; (6) enforceability of emissions limitations and control measures; and (7) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS. See 40 CFR 51.308(d)(3)(v).

G. Coordinating Regional Haze and Reasonably Attributable Visibility Impairment (RAVI)

As part of the RHR, EPA revised 40 CFR 51.306(c) regarding the LTS for RAVI to require that the RAVI plan must provide for a periodic review and SIP revision not less frequently than every three years until the date of submission of the state's first plan addressing regional haze visibility impairment, which was due December 17, 2007, in accordance with 40 CFR 51.308(b) and (c). On or before this date, the state must revise its plan to provide for review and revision of a coordinated LTS for addressing RAVI and regional haze, and the state must submit the first such coordinated LTS with its first regional haze SIP. Future coordinated LTS's, and periodic progress reports evaluating progress towards RPGs, must be submitted consistent with the schedule for SIP submission and periodic progress reports set forth in 40 CFR 51.308(f) and 51.308(g), respectively. The periodic review of a state's LTS must report on both regional haze and RAVI impairment and must be submitted to EPA as a SIP revision.

H. Monitoring Strategy and Other Implementation Requirements

Section 51.308(d)(4) of the RHR includes the requirement for a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment that is representative of all mandatory Class I Federal areas within the state. The strategy must be coordinated with the monitoring strategy required in section 51.305 for RAVI. Compliance with this requirement may be met through ''participation'' in the IMPROVE network, i.e., review and use of monitoring data from the network. The monitoring strategy is due with the first regional haze SIP, and it must be reviewed every five years. The monitoring strategy must also provide for additional monitoring sites if the IMPROVE network is not sufficient to determine whether RPGs will be met.

The SIP must also provide for the following:

- Procedures for using monitoring data and other information in a state with mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas both within and outside the state;
- Procedures for using monitoring data and other information in a state with no mandatory Class I areas to determine the contribution of emissions from within the state to regional haze

visibility impairment at Class I areas in other states;

- Reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state, and where possible, in electronic format;
- Developing a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area. The inventory must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. A state must also make a commitment to update the inventory periodically; and
- Other elements, including reporting, recordkeeping, and other measures necessary to assess and report on visibility.

The RHR requires control strategies to cover an initial implementation period extending to the year 2018, with a comprehensive reassessment and revision of those strategies, as appropriate, every 10 years thereafter. Periodic SIP revisions must meet the core requirements of section 51.308(d) with the exception of BART. The requirement to evaluate sources for BART applies only to the first regional haze SIP. Facilities subject to BART must continue to comply with the BART provisions of section 51.308(e), as noted above. Periodic SIP revisions will assure that the statutory requirement of reasonable progress will continue to be met.

III. EPA's Analysis of the Washington Regional Haze SIP

A. Affected Class I Areas

There are eight mandatory Class I areas within Washington: Olympic National Park, North Cascades National Park, Glacier Peak Wilderness Area, Alpine Lakes Wilderness Area, Mt. Rainier National Park, Goat Rocks Wilderness Area, Mt. Adams Wilderness Area, and Pasayten Wilderness Area. See 40 CFR 81.434. The Washington SIP submittal addresses all eight Class I areas.

B. Baseline and Natural Conditions and Uniform Rate of Progress

Washington, using data from the IMPROVE monitoring network, identified baseline and natural visibility conditions for all eight Class I areas in Washington. Baseline visibility was calculated from monitoring data collected by IMPROVE monitors for the 20% most-impaired (20% worst) days and the 20% least-impaired (20% best) days. Washington used the WRAP derived natural visibility conditions. In general, WRAP based their estimates on EPA guidance, ''Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Program'' (EPA–45/B–03–0005 September 2003), (*http://www.epa.gov/ttn/caaa/t1/memoranda/rh_envcurhr_gd.pdf*), but incorporated refinements which EPA believes provides results more appropriate for western states than the general EPA default approach. See section 2.E of the WRAP Technical Support Document (WRAP TSD).

Olympic National Park: An IMPROVE monitor is located northeast of the Park boundary at the extreme northeast corner of the Olympic Peninsula near Sequim, Washington. Based on baseline data from the years 2000 to 2004, the average 20% worst days visibility is 16.7 dv and the average 20% best days visibility is 6.0 dv. Natural visibility for the average 20% worst days is 8.4 dv.

North Cascades National Park and Glacier Peak Wilderness Areas: The North Cascades National Park and Glacier Peak Wilderness Area are both represented by an IMPROVE monitor located near Ross Lake on the Skagit River just outside the eastern boundary of the northern section of North Cascades National Park. Based on baseline data from the years 2000 to 2004, the average 20% worst days visibility is 16.0 dv and the average 20% best days visibility is 3.37 dv. Natural visibility for the average 20% worst days is 8.39 dv.

Alpine Lakes Wilderness Area: Alpine Lakes Wilderness Area visibility is represented by an IMPROVE monitor located southwest of the wilderness area at Snoqualmie Pass in the Cascade Mountains. Based on baseline data from the years 2000 to 2004, the average 20% worst days visibility is 17.8 dv and the average 20% best days visibility is 5.5 dv. Natural visibility for the Alpine Lakes Wilderness Area average 20% worst days is 8.4 dv.

Mt. Rainier National Park: Mt. Rainier National Park visibility is represented by an IMPROVE monitor located at Park headquarters at Tahoma Woods. Based on baseline data from the years 2000 to 2004, the average 20% worst days visibility is 18.2 dv and the average 20% best days visibility is 5.5 dv. Natural visibility for the Mt. Rainier National Park average 20% worst days is 8.5 dv.

Goat Rocks and Mt. Adams Wilderness Areas: The Goat Rocks and Mt. Adams Wilderness Area's visibility are both represented by an IMPROVE monitor located at White Pass in the Cascade Mountain Range. Based on baseline data from the years 2000 to 2004, the average 20% worst days visibility is 12.7 dv and the average 20% best days visibility is 1.7 dv for both areas. Natural visibility for the Goat Rocks and Mt. Adams Wilderness Areas average 20% worst days is 8.35 dv.

Pasayten Wilderness Area: The Pasayten Wilderness Area visibility is represented by an IMPROVE monitor located 50 km south and east of the wilderness boundary. Based on baseline data from the years 2000 to 2004, the average 20% worst days visibility is 15.2 dv and the average 20% best days visibility is 2.7 dv. Natural visibility for the Pasayten Wilderness Area average 20% worst days is 8.3 dv.

Based on our evaluation of the Washington's baseline and natural conditions analysis, EPA is proposing to find that Washington has appropriately determined the baseline visibility for the average 20% worst and 20% best days, and natural conditions for the average 20% worst days in each Class I area in Washington.

C. Washington Emissions Inventories

There are three main categories of air pollution emission sources: Point sources, area sources, and mobile sources. Point sources are larger stationary sources. Area sources are large numbers of small sources that are widely distributed across an area, such as residential heating units, wildfire, re-entrained dust from unpaved roads, or windblown dust from agricultural fields. Mobile sources are sources such as motor vehicles, locomotives, and aircraft.

The RHR requires a statewide emission inventory of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any mandatory Class I area. 40 CFR 51.308(d)(4)(v). The WRAP, with data supplied by Washington, compiled emission inventories for all major source categories in Washington for the 2002 baseline year and estimated emissions for 2018. Emission estimates for 2018 were generated from anticipated population growth, growth in industrial activity, and emission reductions from implementation of expected control measures, e.g., implementation of BART limitations and motor vehicle tailpipe emissions. Chapter 6 of the SIP submittal discusses how emission estimates were determined and contains the emission inventory. Detailed estimates of the emissions, used in the modeling conducted by the WRAP and Washington, can be found at the WRAP Web site: *http://vista.cira.colostate.edu/TSS/Results/Emissions.aspx*.

There are a number of emission inventory source categories identified in the Washington SIP submittal. The source categories vary with type of pollutant but include: Point, area, on-road mobile, off-road mobile, anthropogenic fire (prescribed forest fire, agricultural field burning, and residential wood combustion), natural fire, biogenic, road dust, fugitive dust and windblown dust. The 2002 baseline and 2018 projected emissions, as well as the net changes of emissions between these two years, are presented in Tables 6–1 through 6–8 of the SIP submittal for sulfur dioxide (SO_2), oxides of nitrogen (NO_X), volatile organic carbon (VOC), organic carbon (OC), elemental carbon (EC), $PM_{2.5,}$ and ammonia. The methods that WRAP used to develop these emission inventories are described in more detail in the WRAP TSD. As explained in the WRAP TSD, emissions were calculated using best available data and approved EPA methods. See WRAP TSD section 12.

Sulfur dioxide emissions in Washington come mostly from one coal fired power plant, oil refineries, aluminum plants, pulp and paper mills, and a cement plant. SO_2 emission estimates for point sources come either from source test data (where available) or calculations based on the quantity and type of fuel burned. These industrial point sources contribute 64% of total statewide SO_2 emissions. The second largest source category contributing to SO_2 emissions in Washington is off-road mobile sources which contribute 17%. The remainder of SO_2 emissions is from a variety of area sources including anthropogenic and natural fire. See Table 6–1 of the SIP submittal.

Washington projects a 29% statewide reduction in point source $S0_2$ emissions by 2018 due to implementation of BART emission limitations and other Washington State and federal emission reduction actions. Washington projects total 2018 statewide SO_2 emissions to be reduced by 40% below 2002 levels as a result of BART and additional reductions from mobile sources.

NO_X emissions in Washington come mostly from mobile sources, both on-road and off-road, which contribute 76% of total statewide NO_X emissions. The second largest source category of NO_X emissions is point source emissions which accounts for 11% of statewide NO_X emissions. Area source emissions account for less than 5% of statewide NO_X emissions.

Washington projects that 2018 total statewide emissions of NO_X will be 46% lower than 2002 levels. Washington also projects on-road and off-road mobile source emissions to be reduced by 72% and 45% respectively by 2018, due to new federal motor vehicle emission standards and fleet turnover. Washington projects area source NO_X emissions to increase by 29% due to population growth. See Table 6–2 of the SIP submittal.

Volatile organic compounds in Washington come mostly from biogenic emissions from forests, agriculture, and urban vegetation. The second largest source category in VOC emissions is on-road and off-road mobile sources. Washington projects 2018 statewide VOC emissions to increase by only 1% over 2002 levels. This very minor change is due to anticipated increases in area and point source emissions that would offset anticipated decreases in mobile sources and anthropogenic fire. See Table 6–3 of the SIP submittal.

Organic carbon in Washington comes almost equally from wildfire at 35% and other area sources at 33%. Anthropogenic fire accounts for 20% of statewide organic carbon emissions. Washington projects 2018 statewide organic carbon emissions to decrease 4% from 2002. Large reductions in emissions from mobile sources and anthropogenic fire are expected to be offset by increases in emissions from point and area sources due to population growth. See Table 5–4 of the SIP submittal.

The largest source categories of elemental carbon are mobile sources, natural fire and area sources. Washington projects 2018 statewide elemental carbon emissions to decrease by 25% from 2002 emission levels. These projected reductions are the result of anticipated emission reductions in on-road mobile and off-road mobile emissions of 76% and 60% respectively. See Table 6–5 of the SIP submittal.

Fine particulate is emitted from a variety of area sources which account for 95% of statewide fine particulate. Fugitive dust, from agriculture, mining, construction and roads, is the largest source category contributing 31% of total fine particulate. Anthropogenic and natural fire only account for 12% of the statewide fine particulate emissions. Point sources account for only 5% of statewide fine particulate. Washington projects that 2018 fine particulate emissions will increase by 20% over 2002 emission levels due to population and industrial growth. Emissions increases are projected from point, area, and fugitive dust at 16%, 36%, and 34% respectively. See Table 6–6 of the SIP submittal.

Ammonia does not directly impair visibility but can be a precursor to the formation of particulate in the atmosphere through chemical reaction with SO_2 and NO_X to form a ''secondary aerosol'' of ammonium sulfate and ammonium nitrate. Area sources are the primary source category contributing to ammonia emissions and account for 77% of total ammonia emissions. Washington projects ammonia emissions in 2018 to increase by 8% over 2002 emission levels with increasing emissions in all categories except for anthropogenic fire which Washington projects to decrease by 30%. See Table 6–8 of the SIP submittal.

EPA believes Washington's inventory of baseline emissions is accurate and comprehensive as Washington used the most current and appropriate methods at the time it was developed. We note that additional emission reductions may occur between the baseline year and 2018 that are not accounted for in the 2018 inventory. For example, no emission reductions from the new regulations relating to the International Maritime Organization Emission Control Area (ECA) on the west coast of the United States and Canada were taken into account in the 2018 emission estimates (ECA Amendments to MARPOL Annex VI). These emissions are outside the modeling domain but may impact the visibility in the Class I areas. Washington's projected 2018 emissions inventory also did not account for the now anticipated NO_X emission reductions from the TransAlta NO_X BART determination recently approved into the SIP.

The federal Better than BART determination proposed today for Tesoro identifies SO_2 emission reductions of 1068 t/y that were not included in the 2018 emission inventory. Also, the proposed federal Better than BART emission limits for Alcoa's Intalco operations, if finalized, are expected to reduce SO_2 emissions from the baseline year emission inventory by 1310 t/y. The sum total of the expected NO_X reductions from the TransAlta BART determination and the proposed FIP actions for Tesoro and Intalco are: 3688 t/y NO_X from TransAlta and 2378 t/y SO_2 Tesoro and Intalco.

D. Sources of Visibility Impairment in Washington Class I Areas

Each pollutant species has its own visibility impairing property; 1 μg/m³ of sulfate, for example, is more effective in scattering light than 1 μg/m³ of organic carbon and therefore impairs visibility more than organic carbon. Following the approach recommended by the WRAP and as explained more fully below, Washington used a two-step process to identify the contribution of each source or source category to existing visibility impairment. First, ambient pollutant concentration by species (sulfate, nitrate, organic carbon, fine particulate, etc.) was determined from the IMPROVE sampler in each Class I area. These concentrations were then converted into light extinction values to distribute existing impairment among the measured pollutant species. This calculation used the ''improved IMPROVE equation'' (See section 2.C of the WRAP TSD) to calculate extinction from each pollutant specie concentration. Total extinction, in inverse megameters, was then converted to deciview using the equation defining deciview.

After considering the available models, the WRAP and western states selected two source apportionment analysis tools. The first source apportionment tool was the Comprehensive Air Quality Model with Extensions (CAM_X) in conjunction with PM Source Apportionment Technology (PSAT). This model uses emission source characterization, meteorology and atmospheric chemistry for aerosol formation to predict pollutant concentrations in the Class I area. The predicted results are compared to measured concentrations to assess accuracy of model output. CAM_X PSAT modeling was used to determine source contribution to ambient sulfate and nitrate concentrations. Thus, the WRAP used state-of-the-science source apportionment tools within a widely used photochemical model. EPA has reviewed the PSAT analysis and considers the modeling, methodology, and analysis acceptable. See section 6.A of the WRAP TSD.

The second tool was the Weighted Emissions Potential (WEP) model, used primarily as a screening tool to decide which geographic source regions have the potential to contribute to haze at specific Class I areas. WEP does not account for atmospheric chemistry (secondary aerosol formation) or removal processes, and thus is used for estimating inert particulate concentrations. The model uses back trajectory wind flow calculations and resident time of an air parcel over each area source to determine source area and source category and location for ambient organic carbon, elemental carbon, $PM_{2.5}$, and coarse PM concentrations. These modeling tools were the state-of-the-science and EPA has determined that these tools were appropriately used by WRAP for regional haze planning. Description of these tools and our evaluation of them are described in more detail in section 6 of the WRAP TSD.

Chapter 8 of the Washington Regional Haze SIP submittal presents the light extinction for the base year at each Class I area by visibility impairing pollutant species for the average of the 20% worst days and the 20% best days. The most significant visibility impairing pollutant species identified for all Class I areas are: sulfate, nitrate, and organic carbon mass. For the Pasayten Wilderness area elemental carbon is also presented. See chapter 8 of the SIP submittal.

Tables 8–1 and 8–2 of the SIP submittal provides the percent contribution of ''in state'' sources to impairment in each Class I area on the 20% worst and best days for sulfate and nitrate for both 2002 and 2018. In the discussion below of each Class I area, the source category with the greatest impact will be identified.

Olympic National Park

Visibility at Olympic National Park is represented by the OLYM1 IMPROVE monitoring site. On the 20% most impaired days at Olympic National Park, sulfate accounts for 39%, nitrate accounts for 19%, and organic carbon accounts for 28% of impairment. On the 20% least impaired days, sulfate accounted for 36%, nitrate accounted for 17%, and organic carbon accounted 26% of impairment. See section 8.1 of the SIP submittal.

Sulfate on the 20% most impaired days at Olympic National Park: 37% is from outside the modeling domain, 21% originates from offshore Pacific offshore sources, and 21% from Canadian sources. Only 25% of the sulfate originates from sources in Washington. Washington point sources account for 15%, mobile sources 7%, and area sources 3% of sulfate impairment on the 20% most impaired days. Sulfate on the 20% least impaired days at Olympic National Park: 37% of the sulfate originates from outside the modeling domain, 34% from sources in Washington, 21% from sources in Canada, and 15% from Pacific offshore sources. Washington point sources account for 18% of the sulfate impairment on the 20% least impaired days.

Nitrate on the 20% most impaired days at Olympic National Park: 53% of the nitrate originates from sources in Washington, 21% originates in Canada, and 15% from the Pacific offshore. See Figure 8–5 of the SIP submittal. Of the sources in Washington, 40% is attributed to mobile sources, 9% to point sources, and 3% to area sources. Nitrate on the 20% least impaired days at Olympic National Park: 45% of the nitrate is from mobile sources, 8% from point sources, and 4% from area sources in Washington. See Table 8–2 of the SIP submittal.

Organic carbon is the second most significant pollutant impairing visibility in Olympic National Park. Most of the organic carbon originates in the Puget Sound area from area sources including aerosol formation from volatile organic compounds, natural and anthropogenic fire, and mobile sources. See section 8.1.3 of the SIP submittal.

North Cascades National Park and Glacier Peak Wilderness Area

These two Class I areas are represented by one IMPROVE monitor (NOCA1) located in the upper Skagit Valley. On the 20% most impaired days, sulfate accounts for 26%, nitrate accounts for 5%, and organic carbon accounts for 58% of impairment. On the 20% least impaired days, sulfate accounted for 45%, nitrate accounted for 14%, and organic carbon accounted to 21% of impairment. See section 8.2 of the SIP submittal.

Sulfate on the 20% most impaired: 32% of the sulfate originates from outside the modeling domain, 29% originates from sources in Washington, and 28% originates in Canada. See Figure 8–12 of the SIP submittal. Point sources in Washington contribute 20%, mobile sources contribute 5%, and area sources contribute 3% of the sulfate in these two areas. See Table 8–1 of the SIP submittal. Sulfate on the 20% least impaired days: 40% of the sulfate originates from outside the modeling domain, and 39% originates from sources in Washington. Of the sources in Washington, 23% comes from point sources, 10% from mobile sources, 5% from area sources (excluding fire), and 2% from fire. See Table 8–1 and Figure 8–15 of the SIP submittal.

Nitrate on the 20% most impaired days: 46% of the nitrate originates from sources in Washington, 27% from Canada, 16% from outside the modeling domain, and 7% from Pacific offshore sources. Of the sources in Washington, 34% is from mobile sources, 6% from point sources, 3% from fire, and 2% from area sources. See Table 8–2 and Figure 8–16 of the SIP submittal. Nitrate on the 20% least impaired days: 63% of the nitrate originates from sources in Washington, 13% from sources in Oregon and 10% originates from sources outside the modeling domain. Of the sources in Washington, 51% comes from mobile sources, 6% from point sources, 3% from area sources, and 2% from fire. See Table 8–2 and Figure 8–18 of the SIP submittal.

Organic carbon accounts for 56% of the impairment on the 20% most impaired days. Figure 8–21 shows that most organic carbon originates in Washington with a smaller fraction originating in Canada. Most of the organic carbon originates in the Puget Sound area from area sources including aerosol formation from volatile organic compounds, natural and anthropogenic fire, and mobile sources.

Alpine Lakes Wilderness Area

Alpine Lakes Wilderness Area is represented by the SNPA1 IMPROVE monitoring site. On the 20% most impaired days, sulfate accounts for 34%, nitrate accounts for 23% and organic carbon accounts for 30% of impairment. On the 20% least impaired days, sulfate accounted for 40%, nitrate accounted for 18% and organic carbon accounted for 16% of impairment. See section 8.3 of the SIP submittal.

Sulfate on the 20% most impaired days: 38% of the sulfate originates from outside the modeling domain, 32% from sources in Washington, 17% from Canada, and 8% from Pacific offshore. Of the sources in Washington, 16% is from point sources, 10% from mobile sources, and 5% from area sources. See Table 8–1 and Figure 8–23 of the SIP submittal. Sulfate on the 20 least impaired days: 42% of the sulfate originates from sources in Washington, 38% from outside the modeling domain, and 8% from Pacific offshore. Of the sources in Washington, 26% is from point sources, 11% from mobile sources, and 5% from area sources. See Table 8–1 and Figure 8–25 of the SIP submittal.

Nitrate on the 20% most impaired days: 68% of the nitrate originates from sources in Washington, 9% from outside the modeling domain, and 5% from Canada. Of the sources in Washington, 56% is from mobile sources, 5% from point sources and 3% from area sources and 3% from fire. See Table 8–2 and Figure 8–27 of the SIP submittal. Nitrate on the 20% least impaired days: 65% of the nitrate originates from sources in Washington, 15% from sources in Oregon, 9% from outside the modeling domain, and 7% from offshore Pacific sources. Of the sources in Washington, 52% is from mobile sources, 7% from point sources, 3% from area sources, and 1% from fire. See Table 8–2 of the SIP submittal.

Organic carbon on the 20% most impaired days is dominated by area sources in Washington. See Figure 8.2.3 and Table 8–3 of the SIP submittal. Organic carbon on the 20% least impaired days is dominated by area sources in Washington. See Table 8–3 of the SIP submittal.

Mount Rainier National Park

In Mount Rainier National Park, as monitored at the MORA1 IMPROVE monitoring site, sulfate is the largest contributor to visibility impairment on the most impaired days, as well as on the least impaired days. On the 20% most impaired days, sulfate accounts for 46%, nitrate accounts for 10%, and organic carbon accounts for 29% of impairment. On the 20% least impaired days, sulfate accounted for 40%, nitrate accounted for 10%, and organic carbon accounted to 23% of impairment. See section 8.4 of the SIP submittal.

Sulfate on the 20% most impaired days: 42% originates from sources in Washington, 31% originates from outside the modeling domain, 12% from Canada, and 12% from Pacific offshore. See Figure 8–34 of the SIP submittal. Of the sources in Washington, 25% is from point sources, 11% from mobile sources, and 6% from area sources. See Table 8–1 of the SIP submittal. Sulfate on the 20% least impaired days: 36% of the sulfate originates from sources in Washington, 38% from outside the modeling domain, 16% from sources in Oregon, and 8% from Pacific offshore. Of the sources in Washington, 25% is from point sources, 7% from mobile sources, and 3% from area sources. See Table 8–1 and Figure 8–36 of the SIP submittal.

Nitrate on the 20% most impaired days: Washington sources account for 78% of nitrate impairment. Of the Washington sources, 62% is from mobile sources, 9% from point sources, 5% from area sources, and 1% from fire. Nitrate on the 20% least impaired days: Washington sources account for 42% and sources in Oregon accounts for 35% of nitrate impairment. Of the sources in Washington, 32% is from mobile sources, 7% from point sources, 2% from area sources, and 1% from fire.

On the 20% most impaired days, almost all the organic carbon originates from sources located in Washington. See Figure 8–43 of the SIP submittal. On the 20% least impaired days, almost all the organic carbon originates from sources in Washington with some contribution from sources in Oregon. See Figure 8–44 of the SIP submittal.

Goat Rocks and Mount Adams Wilderness Areas

Both wilderness areas are represented by one IMPROVE monitoring site WHPA1. On the 20% most impaired days at these areas, sulfate accounts for 37%, nitrate accounts for 13%, and organic carbon accounts for 36% of impairment. On the 20% least impaired days, sulfate accounts for 49%, nitrate accounts for 13%, and organic carbon accounts for 14% of impairment. See section 8.5 of the SIP submittal.

Sulfate on the 20% most impaired days: 39% originates from sources outside the modeling domain, 29% originates from sources in Washington, and 18% from Canada. See Figure 8–45 of the SIP submittal. Of the sources in Washington, 16% is from point sources, 8% from mobile sources, and 4% from area sources. See Table 8–1 of the SIP submittal. Sulfate on the 20 least impaired days: 44% of the sulfate originates from sources in Washington, 29% from outside the modeling domain, 16% from sources in Oregon, and 8% from Pacific offshore. Of the sources in Washington, 30% is from point sources, 9% from mobile and 4% from area sources.

Nitrate on the 20% most impaired days: 64% originates from sources in Washington and 13% from sources outside the modeling domain. Of the sources in Washington, 52% is from mobile sources, 6% from point sources, 4% from area sources, and 2% from fire. See Table 8–2 and Figure 8–49 of the SIP submittal. Nitrate on the 20% least impaired days: 49% originates from sources in Washington, and 29% from sources in Oregon. Of the sources in Washington, 38% is from mobile sources, 7% from point sources, 2% from area sources, and 1% from fire. See Table 8–2 and Figure 8–51 of the SIP submittal.

On the 20% most impaired days, organic carbon is the second largest contributor to impairment in the Goat Rocks and Mt. Adams Wilderness Areas. Most of the OMC originates in Washington, with Oregon sources contributing minor amounts. See Figure 8–54 of the SIP submittal. On the 20% least impaired days, organic carbon sources in Washington, and Oregon contribute almost equally. See Figure 8–55 of the SIP submittal.

Pasayten Wilderness Area

The Pasayten Wilderness Area is monitored by the PASA1 IMPROVE monitor. On the 20% most impaired days, 20% is due to sulfate, nitrate accounts for 8%, and organic carbon accounts for 56% of impairment. On the 20% least impaired days, sulfate accounts for 49%, nitrate accounts for 17%, and organic carbon accounts for 17% of impairment. See section 8.6 of the SIP submittal.

Sulfate on the 20% most impaired days: 50% originates from outside the modeling domain, 22% from Canada, and 18% from Washington. Of the Washington sources, 8% is from point sources, 4% is from mobile sources, 4%

from fire and 2% from area sources. See section 8.6 and Table 8–1 of the SIP submittal. Sulfate on the 20% least impaired days: 40% originates from outside the modeling domain, 36% from Washington sources, and 10% from Canadian sources. Of the sources in Washington, 21% is from point sources, 10% from mobile sources, and 5% from area sources.

Nitrate on the 20% most impaired days: 48% originates from sources in Washington, 17% from outside the modeling domain, and 13% from Canadian sources. Of the sources in Washington, mobile sources contribute 36%, natural fire and biogenic sources 8%, and 3% point sources. Nitrate on the 20% least impaired days: 62% originates from sources in Washington, 15% from Oregon, and 85 from outside the modeling domain. Of the sources in Washington, 49% is from mobile sources, 6% from point sources, and 4% from natural and biogenic sources.

On the 20% most and least impaired days, organic carbon is responsible for over half of the total impairment. Natural fire in Washington is responsible for almost all the organic carbon and a small portion due to Washington area sources. See Figure 8–65 of the SIP submittal.

EPA is proposing to find that Washington, using the WRAP analysis, appropriately identified the pollutant species and source categories contributing to impairment to the Class I areas in Washington. See WRAP TSD.

E. Best Available Retrofit Technology

1. BART-Eligible Sources in Washington

The first phase of a BART evaluation is to identify all the BART-eligible sources within the Washington's boundaries. Table 11–1 in the SIP submission presents the list of all BART-eligible sources located in Washington. These sources and their source categories are:

Source	Category
Graymont Western US INC (Tacoma)	Lime plants.
TransAlta Centralia Generation, LLC	Fossil fuel-fired steam electric plants with a heat input greater than 250 MMBtu per hour.
Longview Fibre Co—Longview	Kraft Pulp Mills.
Weyerhaeuser Co—Longview	Kraft Pulp Mills.
Fort James Camas LLC (now Georgia Pacific Corporation—Camas)	Kraft Pulp Mills.
Goldendale Aluminum	Primary Aluminum Ore Reduction Plants.
Port Townsend Paper Co	Kraft Pulp Mills.
Simpson Tacoma Kraft	Kraft Pulp Mills.
Lafarge North America (Seattle)	Portland Cement Plants.
Intalco (Ferndale)	Primary Aluminum Ore Reduction Plants.
Alcoa Wenatchee Works	Primary Aluminum Ore Reduction Plants.
BP Cherry Point Refinery (Ferndale)	Petroleum Refineries.
Tesoro Refining and Marketing (Anacortes)	Petroleum Refineries.
Puget Sound Refining Company	Petroleum Refineries.
Conoco-Philips Company (Ferndale)	Petroleum Refineries.

2. Sources Subject to BART

The second phase of the BART determination process is to identify those BART-eligible sources that may reasonably be anticipated to cause or contribute to any impairment of visibility at any Class I area and are, therefore, subject to BART. As explained above, EPA has issued guidelines that provide states with guidance for addressing the BART requirements. 40 CFR part 51 appendix Y; see also 70 FR 39104 (July 6, 2005). The BART Guidelines describe how states may consider exempting some BART-eligible sources from further BART review based on dispersion modeling showing that the sources contribute to visibility impairment below a certain threshold. Washington conducted dispersion modeling for all the BART-eligible sources to determine the visibility impacts on Class I areas.

The BART Guidelines advises states to set a contribution threshold to assess whether the impact of a single BART-eligible source is sufficient to cause or contribute to visibility impairment at a Class I area. Generally, states may not establish a contribution threshold that exceeds 0.5 dv impact. 70 FR 39161. Washington established a contribution threshold of 0.5 dv. The 0.5 dv threshold is consistent with the threshold used by all other states in the WRAP. Any BART-eligible source with an impact of greater than 0.5 dv in any mandatory Class I area, including Class I areas in other states, would be subject to a BART analysis and BART emission limitations.

To determine those sources exceeding this contribution threshold and thus subject to BART, Washington used the CALPUFF dispersion modeling. The dispersion modeling was conducted in accord with the ''Washington, Oregon, Idaho BART Modeling Protocol''. This Protocol was jointly developed by the states of Idaho, Washington, Oregon and EPA and has undergone public review. The Protocol was used by all three states in determining which BART-eligible sources are subject to BART. See appendix H of the SIP submittal for details of the modeling protocol, its application and results.

The SIP submittal contained no rationale for adopting a 0.5 dv threshold for determining whether a BART-eligible source may be reasonably anticipated to cause or contribute to any visibility impairment in a mandatory Class I area. Although a number of stakeholders may have agreed that a 0.5 dv threshold is appropriate, and other states in the Region may have adopted such a threshold, such agreement does not provide sufficient basis for concluding that such a threshold was appropriate in the case of Washington. Based on EPA's review of the BART-eligible sources in Washington, however, and for the reasons discussed below, EPA is proposing to find that a 0.5 dv threshold is appropriate, given the specific facts in Washington.

Relying on modeling that each source conducted using the ''Idaho-Oregon-Washington BART Modeling Protocol'' that was reviewed by Washington, the visibility impact of each source was determined on all Class I areas within 300 km of all but one of the BART-eligible sources. See Table 11–3 of the SIP submittal for those sources with less than a 0.5 dv impact. The BART-eligible sources are generally widely distributed across the Washington. Given the relatively limited impact on visibility from these sources, Washington could have reasonably concluded that a 0.5 dv threshold was appropriate for capturing those BART-eligible sources with significant impacts on visibility in Class I areas. For these reasons, EPA is proposing to approve the 0.5 dv threshold adopted by Washington in its Regional Haze SIP.

In the BART Guidelines, EPA recommended that states ''consider the number of BART sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts. In general, a larger number of BART sources causing impacts in a Class I area may warrant a lower contribution threshold.'' 70 FR 39104, 39161 (July 6, 2005). In developing its Regional Haze SIP, Washington requested 14 of the 15 BART-eligible sources to model their respective impact on the Class I areas within a 300 km radius. For Goldendale Aluminum, Washington relied on modeling conducted by EPA, rather than requesting the source to model its impact because the facility has not operated since 2001.

Below is the list of sources that Washington determined were subject to BART and the Class I area for which the source has the greatest visibility impact (average of the three annual 8th highest daily value over 2003–2005 baseline):

BP Cherry Point Refinery, Blaine Wa	0.9 dv at Olympic National Park
Intalco Aluminum Corp. Ferndale	2.4 dv at Olympic National Park.
Tesoro Refining and Marketing Co	1.7 dv at Olympic National Park.
Port Townsend Paper Co	1.2 dv at Olympic National Park.
Lafarge North America	3.16 dv at Olympic National Park.
TransAlta Centralia Generation LLC	5.5 dv at Mt. Rainier National Park.
Weyerhaeuser Longview	1.0 dv at Mt. Rainier National Park.

3. Washington Source Specific BART Analyses

A BART determination was conducted for each of the sources subject to BART. At Washington's request, each source conducted its own BART analysis and prepared a report which Ecology then reviewed and used to make a case-by-case BART determination. In conducting the BART analysis, Washington considered all five BART factors. Washington explained that in order for it to select a specific control technology as BART, it must be technically feasible, cost effective, provide a visibility benefit, and have minimal potential for adverse non-air quality impacts. Washington further explained that normally visibility improvement is only one of the factors but if two available and technically feasible controls are essentially equivalent in cost effectiveness and collateral impacts then visibility may become the deciding factor. See e.g. Washington Regional Haze SIP submittal L–13. The BART determination, including controls, emission limits and compliance deadlines are reflected in an enforceable Order issued to each source. The BART Orders are included in the SIP submittal. Below is a table of compliance dates for each BART Order.

Facility	Compliance date
BP Cherry Point Refinery: Compliance for all PM, NO_X, and SO_2 emission limits.	July 7, 2010.
Intalco Aluminum Corp. Compliance with all PM, NO_X, and SO_2 emission limits.	November 15, 2010.
Tesoro Refining and Marketing Company	
Compliance for all PM and SO_2 emission limits	July 7, 2010.
Compliance with NO_X emission limits (unit F–103)	September 30, 2015.
Port Townsend Paper Corp.	
Compliance with emission limits for PM, NO_X, and SO_2	October 20, 2010.
Lafarge North America, Inc.	
Compliance with all PM emission limits	July 28, 2010.
Compliance with SO_2 emission limits	No than April 30, 2011, or 90 days after the kiln is restarted if the kiln is in temporary cessation on February 1, 2011.
Compliance with NO_X emission limits	No later than the date Lafarge completes optimization of the NO_X control system per specified criteria.
Weyerhaeuser Corp.	
Compliance with emission limits for PM, NO_X, and SO_2	July 7, 2010.

Below is a summary of Washington's BART analysis and determination for each of the seven sources subject to BART. Additional detail regarding the analysis for each source, unit and pollutant may be found in the Washington Regional Haze SIP submittal, appendix L.

a. British Petroleum, Cherry Point Refinery

The BP Cherry Point Refinery located near Ferndale, Washington, is a BART-eligible source subject to BART. Its maximum visibility impact of 0.9 dv is at Olympic National Park. Impacts at all other Class I areas within 300 km are less than 0.5 dv. See Table 11–4 of the SIP submittal. As summarized below, Washington and BP completed a BART analysis for all BART-eligible units at the refinery. Washington's BART determination, issued to BP as BART Compliance Order No. 7836 (BP Cherry Point BART Compliance Order), is included in the Washington's Regional Haze SIP submission. See Washington Regional Haze SIP submittal, page L–47. Additionally, the operating permit No. 7836 included with the SIP submittal contains emission control requirements for non-BART units beyond those required for BART.

As a component of a national consent decree between BP and the EPA, (United States District Court for the Northern District of Indiana, Hammond Division; Civil No. 2:96CV 095RL) most of the refinery's heaters and boilers have been evaluated for upgraded and retrofit control technology. As required under the consent decree, many heaters had been retrofitted with low-NO_X burners (LNBs) or ultra-low-NO_X burners (ULNBs). Washington considered these federally enforceable upgrades as existing control in the BART analysis.

One general consideration in determining the cost effectiveness of all potential BART control technologies for BP is the ability to install the retrofit technology during a regularly scheduled turnaround or maintenance period at the facility. Turnaround is the term used to describe when the refinery is shutdown periodically, on approximately 5 year intervals, for routine maintenance and process equipment upgrades. A retrofit during a routine turnaround would not incur the extra costs associated with loss of revenues during shutdown. Washington determined the cost effectiveness values of installing controls both during routine turnaround and outside the normal turnaround period.

Table 1–1 of the BP Cherry Point BART determination of appendix L of the SIP submittal identifies all emitting units at the facility and indicates whether the units are BART-eligible. Twenty-one of the refinery's emission units were determined to be BART-eligible and subject to BART. These units are as follows:

Heaters and Boilers:[7]

- Crude Charge Heater
- South Vacuum Heater
- Naphtha Hydrodesulfuriztion (HDS) Charge Heater
- Naphtha HDS Stripper Reboiler
- #1 Reformer Heaters
- Coker Charge Heater (#1 North)
- Coker Charge Heater (#2 South)
- 1st Stage Hydrocracker (HC) Fractionator Reboiler
- 2nd Stage HC Fractionator Reboiler
- R–1 HC Reactor Heater
- R–4 HC Reactor Heater
- #1 Diesel HDS Charge Heater
- Diesel HDS Stabilizer Reboiler
- Steam Reforming Furnace #1
- Steam Reforming Furnace #2

Sulfur Recovery Systems

- Two Sulfur Recovery Units (SRUs) and one of the associated Tail Gas Units (TGU)

Flares

- High Pressure Flare
- Low Pressure Flare

Material Handling

- Green Coke Load Out equipment

General Discussion of NO_X Control Technologies Considered for Heaters and Boilers at BP

BP conducted a source category evaluation of all available control technologies for this source category to eliminate those that are infeasible. All available NO_X control technologies identified for further evaluation were based on the EPA RACT/BACT/LAER Clearinghouse (RBLC). See appendix L of the SIP submittal at L–29. The table below identifies those NO_X control technologies and indicates which were determined to generally be technically feasible:

Technology	Sources to which they would potentially be applicable	Is it technically Feasible?
Selective Catalytic Reduction (SCR)	All Heaters	Yes.
Low-NO_X Burners (LNB) or Ultra Low NO_X Burners (ULNB).	All Heaters	Yes.
Selective non-catalytic Reduction (SNCR)	All Heaters	No. Exhaust gas temperatures vary too much and temperatures not in range for SNCR operation.
External Flue Gas Recirculation (FGR)	All Heaters and Boilers	No—Potential safety Issues.
Low Excess Air Operation—CO Control	All Units	No—Potential safety issues and small operating range.
Steam Injection	All Units	Not feasible except 1st Stage HC Fractionator Reboiler.
Lower Combustion Air Preheat	Units with air preheat	No. cooler air is introduced into the heater as combustion air, the heater has to utilize additional fuel to heat the air for the combustion process which ends up negating any NO_X reductions generated.
CETEK—Descale & Coat Tubes	Units with externally scaled tubes	No. This technique is only applicable to units where the heat transfer tubes are externally scaled.
Modify Existing Burners to Improve NO_X emissions.	All	Yes.

Evaluation of Technically Feasible NO_X Controls for specific heaters and boilers Crude Charge Heater (NO_X): The Crude Charge Heater currently uses conventional burners. Washington determined that a LNB is technically infeasible for this specific emission unit due to the high flame temperatures and heat density needed for the process. LNB would lower the flame temperature below that needed for the process and flame impingement from LNB would de-rate the heater and reduce throughput. Washington determined that while SCR is technically feasible for the Crude Charge Heater, it is not cost effective at $14,658/ton during scheduled turnaround and $32,000/ton during non-scheduled turnaround. Washington determined BART for NO_X for the Crude Heater is existing conventional burners.

South Vacuum Heater (NO_X): The South Vacuum Heater currently has ultra low-NO_X burners. These burners were installed in 2005 in accordance with the national consent decree. Washington determined that SCR is not cost effective for the South Vacuum Heater regardless of whether it was installed during a scheduled turnaround or not. Cost effectiveness during a scheduled turnaround or outside turnaround is $54,551/ton and $82,643/ton respectively. Washington determined BART for this unit is the existing ULNB. The NO_X emission limit is 0.08 lb/MMBtu.

Naphtha HDS Charge Heater & Naphtha HDS Stripper Reboiler (NO_X): Both of these boilers currently employ conventional burners in relatively small fire boxes. LNB is deemed infeasible on

[7] Power Boiler #1 and Power Boiler #3 were replaced in 2009 by Boilers #6 and #7. Boilers #6 and #7 were not considered in the BART determination as they are not BART-eligible and were permitted under PSD. The BART Order 7836 issued to BP July 7, 2010, Finding C and Condition 7 "Other Requirements" requires decommissioning of Boilers #1 and #3 no later than March 27, 2010.

both of these units due to small size of the heater and because, with LNBs, flame impingement on the boiler tubes would cause premature failure. SCR is not cost effective at $46,667/ton during turnaround and $31,467/ton during non-turnaround. Washington determined BART for NO_X is the existing conventional burners.

#1 Reformer Heater (NO_X): The #1 Reformer Heater has a complex design with four independent fire boxes and two stacks. It is currently fitted with conventional burners. LNB is infeasible due to small size of firebox and because the longer flame length of LNB would cause flame impingement on the heater tubes and lead to premature failure. SCR is not cost effective at $15,253/ton during turnaround and $17,299/ton during non-turnaround. Washington determined BART for NO_X is the current conventional burners.

Coker Charge Heater (#1 North) and Coker Charge Heater (#2 South) (NO_X): The Coker Heaters are both currently using early design (1999) LNB which incorporate staged air combustion and flue gas recirculation. LNB of a newer design is not cost effective at $31,301/ton for the #1 North Heater and $30,762/ton for the #2 South Heater. SCR is not cost effective at $35,202/ton for the #1 North Heater and $34,597/ton for the #2 South Heater. Washington found that BART for NO_X is the existing LNB with staged air combustion and flue gas recirculation. The NO_X emission limit for these units is 0.08 lb/MMBtu

#1 Diesel HDS Charge Heater and Diesel HDS Stabilizer Reboiler (NO_X): The heater and reboiler are currently fitted with ULNBs to comply with the consent decree. SCR is not cost effective at $192,585/ton for the #1 Diesel HDS Charge Heater and $145,094/ton for the Diesel HDS Stabilizer Reboiler. Washington determined BART for NO_X for the Diesel HDS Charge Heater is the existing ULNB with an emission limit of 0.040 lb/MMBtu.

Washington determined BART for NO_X for the Stabilizer Reboiler Heater is existing ULNBs with an emission limit of 26 ppmv (dry basis corrected to 7% O_2) based on a 24-hour rolling average. If this concentration is exceeded, a secondary limit to demonstrate compliance is 2.2 lb/hour based on a 24-hour rolling average.

Steam Reforming Furnace #1 (North H2 Plant) and Steam Reforming Furnace #2 (South H2 Plant) (NO_X): These units currently use conventional burners. LNB is not cost effective for these two furnaces at $21,234/ton for the North H2 Plant and $21,682/ton for the South H2 Plant. SCR is not cost effective at $28,378/ton for the North Plant and $28,900/ton for the South Plant. LNB with SCR is not cost effective at $29,555/ton and $30,104/ton. Washington determined that BART for NO_X for these units is the existing conventional burners.

R–1 HC Reactor Heater (NO_X): This heater currently operates with ULNB in accord with consent decree. In the general evaluation of control technologies for heaters and boilers BP determined that the only feasible technology with greater control efficiency than ULNB is SCR. SCR is not cost effective at $214,726/ton NO_X removed. Washington determined BART is the existing ULNB with a NO_X emission limit of 26 ppm by volume dry basis corrected to 7% O_2 on a 24-hour rolling average. Should the concentration limit be exceeded, the mass emission limit is 3.6 lb/hr on a 24-hour rolling average.

R–4 HC Reactor Heater (NO_X): The R–4 HC Reactor Heater is currently operating with conventional burners. LNBs are not technically feasible due to high heat density, flame impingement, and flame shape that would exceed the American Petroleum Institute (API) guidelines for burner spacing. SCR is not cost effective at $36,620/ton. Washington determined that BART is the current burners.

1st Stage HC Fractionator Reboiler (NO_X BART): The 1st stage HC Fractionator Reboiler is currently operating with conventional burners. The BART cost effectiveness analysis to install ULNBs is estimated by BP to be $12,044/ton. Washington determined this value to not be cost effective, however BP volunteered to install ULNB on this unit to achieve 0.05 lb NO_X/MMBtu. Washington did not propose ULNB as BART, but rather said in the BART analysis report the emission reductions would be considered in a future SIP submittal as further reasonable progress. (appendix L, at L–41) SCR is determined to be not cost effective at $19,470/ton. Washington determined BART to be the current conventional burners. The BART Order for BP, submitted with the Plan, includes a NO_X emission limit for this emission unit of 0.07 lb/MMBtu monthly average, or 56.2 tons per calendar year.

2nd Stage HC Fractionator Reboiler: This reboiler is currently fitted with LNBs. Washington found that ULNB is not cost effective at $36,395/ton and SCR is not cost effective at $37,810/ton. LNB with SCR is not cost effective at $40,768/ton. Washington determined BART to be the existing LNBs with an emission limit for NO_X of 0.07 lb/MMBtu based on a 24-hour average not to exceed 56.2 t/y on a calendar year rolling average.

General Discussion of SO_2 Control Technologies Considered and Those Technically Feasible for Heaters and Other Combustion Devices

Washington and BP identified four add-on SO_2 control technologies from the RBLC as described below; Emerachem EMX, Dry Scrubbing, Fuel Gas Conditioning (sulfur content reduction), and wet flue gas desulfurization (wet-FGD). In addition, the combination of fuel gas conditioning and wet flue gas desulfurization (wet-FGD) was considered. See SIP submittal, appendix L at L–28.

Emerachem EMX (previously known as $SCONO_X$): This technology has not been proven to run longer than one year without major maintenance. It has only been used on a small number of natural gas combustion turbines for NO_X control, and to date has not been used on oil refinery heaters to reduce SO_2 emissions. BP requires the refinery heaters to be able to operate five years between turnarounds. This technology is technically infeasible for use on the refinery heaters. Therefore, Washington agreed with BP that the technology is considered technically infeasible at this facility.

Dry Scrubbing: This technology requires a maintenance turnaround approximately every two years due to equipment plugging and wear. This level of needed maintenance is inconsistent with the refinery's turnaround schedule of every 5 years. Therefore, Washington agreed with BP that the technology is considered technically infeasible at this facility.

Fuel Gas Conditioning: This technology would reduce the concentration of sulfur in the refinery fuel gas from the current NSPS Subpart J limit of 162 ppmv hydrogen sulfide (H_2S) to 50 ppmv and this would reduce the average sulfur concentration in the fuel gas combusted by BART-eligible units by 89%. Cost effectiveness to upgrade the fuel gas treatment system to meet a 50 ppmv concentration limit is $22,282/ton when the costs are applied only to the BART units. Because fuel gas conditioning would be used for all the combustion sources at the refinery (both BART and non-BART), the technology would also reduce emissions from the non-BART units. When cost effectiveness calculations are applied to all emission units at the BP refinery the cost effectiveness is $14,428/ton. Washington determined this technology to not be cost effective.

Wet FGD: The cost effectiveness of wet flue gas desulfurization is calculated to be between $29,982/ton and $102,068/ton because the fuel gas already meets the existing fuel gas limit of 162 ppmH_2S. Washington has determined this technology is not cost effective.

Fuel Gas Conditioning and Wet FGD: The cost effectiveness of combined fuel gas conditioning and wet flue gas desulfurization is $49,743/ton and $179,151/ton. Washington has determined this technology is not cost effective.

Conclusions for SO_2 BART: Washington determined that the existing fuel gas sulfur removal system is BART for SO_2 for the refinery heaters.

Particulate Matter Control Technologies Considered for Heaters: BP reviewed information in EPA's RBLC database and control technology literature to find available technologies to control particulate emissions from refinery heaters. The most promising and thus those considered for further evaluation were fuel gas conditioning and wet electrostatic precipitators (WESP).

Fuel Gas conditioning: This control technology is discussed above in the BART determination for SO_2 and was determined to be not cost effective for PM control at this facility.

WESP: Using this technology would require a wet electrostatic precipitator (WESP) to be added to each heater and boiler. The cost effectiveness is determined to be $24,280/ton and determined to not be cost effective.

Since there are no technically or economically feasible PM control measures, Washington found that BART for PM for the heaters is good operating practices and the current refinery fuel gas treatment system.

Control Technologies Considered for NO^x, SO^2 and PM and Those Technically Feasible for High and Low Pressure Flares:

BP currently operates both a high pressure and low pressure flare. After a review of the RBLC, no add-on control technologies were identified. Currently both flares meet the applicable NSPS requirements for flares which emit NO_X, SO_2, and $PM_{2.5}$ (40 CFR 60.18 General control device and work practice requirements). Both flares are of smokeless design and steam assisted. A flare gas recovery system was installed in 1984 that significantly decreased the total volume of gas routinely sent to the flare. In addition, a coker blow down vapor recovery system was installed in 2007 that further reduced both the volume and sulfur content of the routinely flared gas. According to BP's analysis, as relied on by Washington, no add-on control technologies for flares were identified or known to be in commercial use for additional control of NO_X, SO_2, or PM.

Washington determined and required by BART Order 7836, BART for NO_X, SO_2, and PM control is the continued operation and maintenance of the existing high and low pressure flares, including the continued use of the flare gas recovery system, limiting pilot light fuel to pipeline grade natural gas, operating in accordance with 40 CFR 60.18, and conversion from steam assisted to air assisted flares. Additionally, sources using flares to comply with Refinery MACT equipment leak provisions shall monitor flares to assure they are maintained and operated properly to reduce the emissions of organic HAPS from miscellaneous process vents by 98% or to 20 ppmv. Flares shall be operated at all times when emissions may be vented to them.

SO_2 emissions from the high and low pressure flares shall not exceed 1000 ppm corrected to 7% O_2 averaged over a 60-minute period.

All Control Technologies Considered and Those Technically Feasible for Sulfur Recovery Systems

The sulfur recovery units (SRU) convert hydrogen sulfide (H_2S) to SO_2 and elemental sulfur. BP operates two SRUs in parallel with their exhaust gas streams combined and distributed to two tail gas units (TGU). One TGU utilizes the Shell Claus Off-gas Treating Process (SCOT) technology, a patented technology, and the other utilizes the CANSOLV (registered trademark of Cansolv Technologies Inc.) technology to assist in further collection of sulfur compounds and reducing the quantity of SO_2 discharged via the ''incinerator stack.'' The primary pollutant from the sulfur recovery unit is SO_2. The SRUs are subject to the requirements of 40 CFR 63 Subpart UUU, which specifies 40 CFR 60, Subpart J compliance as a control option. The SRUs are currently controlled to this MACT standard.

BP and Washington's analysis found that the RBLC database and control technology literature lists available technologies to control NO_X emissions from the SRUs and the TGU. In the RBLC, 24 entries were found regarding NO_X control for SRUs and TGUs at refineries. Two categories of control methods for NO_X were listed:

- Good Operating Practices (e.g., ''proper equipment design and operation, good combustion practices, and use of gaseous fuels'', ''optimized air-fuel ratio'', and ''good operating practices'')
- LNBs: LNBs can be installed either within the SRU itself (usually only as part of the initial design) or in the TGU. Replacing the existing burner in the SRU with a LNB would increase the flame length causing flame impingement and possible damage to the SRU. Because of the flame impingement issues, a LNB within the SRU is technically infeasible.

The original TGU at the refinery was installed in 1977 and utilizes natural draft burners which are not suitable for the direct installation of a LNB. The natural draft design would require addition of fans to supply air to the LNBs. The cost to install LNBs and additional fans would not be cost effective.

Washington determined that the continued operation of the existing SRUs and TGUs is BART for NO_X, SO_2 and $PM_{10}/PM_{2.5}$. The BART Order 7836 for BP, included in the SIP submittal, requires that SO_2 emitted from the SRU not exceed 135 tons during each consecutive 12-month rolling period. Supplemental fuel gas combusted in the No. 1 TGU is limited to a composition of H_2S <230 mg/dscm (0.10 gr/dscf) which is equivalent to 162 ppmH_2S, 3 hour rolling average. NO_X emissions from No. 2 TGU Stack are limited to 2.5 lbs/hr. SO_2 emissions from No. 2 TGU Stack are limited to 24.0 lbs/hr. In accordance with NSPS Subpart J, SO_2 emissions from the TGU stacks is limited to 250 ppm dry basis corrected to 0% O_2 based on a 12-hour rolling average or 1500 ppm dry basis corrected to 0% O_2 based on a 1-hour average.

Control Technologies Considered and Those Technically Feasible for Green Coke Load Out

The Green Coke Load Out system was constructed as part of the original refinery. The equipment was functionally replaced in 1978 by installation of the #1 & #2 calciners and a new coke load out system. However, the old equipment still physically exists at the refinery as back up during an emergency because there is no storage capability at the facility. Washington recognizes that continued ability to use the Green Coke Load Out system in an emergency is appropriate. Due to the limited use of the Green Coke Load Out system, the cost of any control would result in a high cost effectiveness value and limited visibility improvement. Washington's BART determination allows its limited emergency usage.

Cooling Tower: Cooling towers produce particulate from water droplet drift away from the towers. Washington evaluated droplet and particulate drift from cooling towers in the past and found that they produce relatively large particulate that does not drift far from the tower. Washington has made a qualitative review of BART for the control of particulate from this cooling tower and determined that the existing drift controls satisfy BART for this unit.

Visibility Improvement Expected From BART

BP modeled the visibility improvement expected to result from the implementation of BART determinations for the #1 Diesel HDS Charge Heater, HDS Stabilizer Reboiler, R–1 HC Reactor Heater, and 1st Stage HC Fractionator Reboiler. Visibility at the most impacted Class I area, Olympic National Park, using the metric of the 3-year combined 98% value (22nd high), improved from 0.84 dv to 0.79 dv, and the 98% value (max annual 8th high) improved from 0.9 dv to 0.83 dv. EPA is proposing to approve the BART Order with emission limitations on SO_2, NO_X, and $PM_{2.5}$ for the BART-eligible units at BP as they are reasonable.

The Table summarizes the proposed BART determination technology for each BART emission unit:

Emission unit	Technology
Crude Charge Heater	Current burners and operations.
South Vacuum Heater	Existing ULNB.
Naphtha HDS Charge Heater	Current burners and operations.
Naphtha HDS Stripper Reboiler	Current burners and operations.
#1 Reformer Heaters	Current burners and operations.
Coker Charge Heater (#1 North)	Current burners and operations.
Coker Charge Heater (#2 South)	Current burners and operations.
#1 Diesel HDS Charge Heater	Existing ULNB and operations.
Diesel HDS Stabilizer Reboiler	Existing ULNB and operations.
Steam Reforming Furnace #1 (North H2 Plant)	Current burners and operations.
Steam Reforming Furnace #2 (South H2 Plant)	Current burners and operations.
R–1 HC Reactor Heater	Existing ULNB and operations.
R–4 HC Reactor Heater	Current burners and operations.
1st Stage HC Fractionator Reboiler	Current burners and operations.
2nd Stage HC Fractionator Reboiler	Existing ULNB and operations.
Refinery Fuel Gas (hydrogen sulfide)	Currently installed fuel gas treatment system.
SRU & TGU (Sulfur Incinerator)	Current burners and operations.
High and Low Pressure Flares	NO_X: Good operation and maintenance including use of the flare gas recovery system and limiting pilot light fuel to pipeline grade natural gas.
	SO_2: Good operating practices, use of natural gas for pilot.
	PM.
	Good operating practices, use of a steam-assisted smokeless flare design, use of flare gas recovery system.
Green Coke Load-out	Maintain as unused equipment for possible emergency use.
Power Boilers 1 and 3	Replacement with new Power Boilers 6 and 7.

b. Intalco Aluminum Corp.

The Alcoa, Intalco Works (Intalco) is a primary aluminum smelter utilizing the prebake process located at Cherry Point near Ferndale, Washington. The visibility impairing pollutants from the facility are PM, NO_X and SO_2. The major sources of these pollutants at the facility are the potlines and to a lesser extent, the anode bake furnace.

Base year SO_2 emissions from the potlines are 6550 t/y from sulfur in anode coke that is consumed in the smelting process. Particulate emissions from the potlines and the anode bake oven are well controlled. The primary air pollution control system employed by Intalco for control of potline emissions consists of dry alumina injection followed by fabric filtration which effectively controls PM. Emissions of NO_X from the potlines are insignificant because the potlines are electrically heated (versus combustion of fossil fuels) and none of the raw materials contain significant quantities of nitrogen.

Modeled visibility impacts of baseline emissions were over 2.0 dv at Olympic National Park. Impacts of greater than 0.5 dv were shown for six other Class I areas. The modeling also showed that SO_2 emissions from the exit of the existing dry alumina baghouse potline emission control system as being responsible for 94% of the facility's total visibility impact and these emissions are the focus of EPA's evaluation of Washington's BART determination.

SO_2 BART Determination for Potlines

Eight different SO_2 add-on control options, along with pollution prevention, were identified in the SIP submittal as potential control measures. Six of the control options use wet scrubbing and two use dry scrubbing technology. Pollution prevention, by limiting the sulfur content of the coke used in the furnace anodes, along with the amount of carbon consumed in the process, was also evaluated.

Wet Scrubbing Technologies:

- Limestone slurry scrubbing with forced oxidation (LSFO)
- Conventional lime wet scrubbing
- Seawater scrubbing
- Dual alkali sodium/lime scrubbing (dilute mode)
- Conventional sodium scrubbing

Dry Scrubbing Technologies:

- Dry sorbent injection
- Semi-dry scrubbing (spray dryer)

Limestone Slurry Forced Oxidation (LSFO): Spray nozzles inject limestone slurry droplets into the exhaust gas stream from a spray tower. The limestone reacts with SO_2 to form calcium sulfite. Liquor is collected at the bottom of the tower and sparged with air to oxidize the calcium sulfite to calcium sulfate to enhance the settling properties. Recirculation pumps circulate the scrubbing liquor to the spray nozzles. Sulfur dioxide removal efficiencies of 90% or greater have been achieved. The bleed containing calcium sulfate is sent to a dewatering system to remove excess moisture. For an aluminum smelter, the process will produce either solid gypsum waste or commercial-grade gypsum suitable for reuse as a cement additive. Only a very small purge or blowdown stream is required. A more detailed evaluation of LSFO for the Intalco facility is discussed below following the short evaluation of other control technologies that were rejected.

Conventional Lime Wet Scrubbing: Conventional lime wet scrubbing is similar to LSFO except that the raw material is hydrated lime or quick lime that is either slaked on-site or purchased in the slaked form. The system typically uses forced oxidation, although natural oxidation is possible. The process produces either solid gypsum waste or commercial-grade gypsum suitable for possible reuse as a cement additive.

Seawater Scrubbing: Seawater scrubbing is used in Europe for control of SO_2 emissions from primary aluminum smelters similar to Intalco. As with other wet scrubbing technologies, an alkaline solution (in this case seawater) is sprayed into the exhaust gas stream within one or more vertical towers and the seawater is used to absorb the SO_2 in the exhaust gases. More specifically, by encouraging contact between the SO_2 containing gas stream and the slightly alkaline seawater, SO_2 is removed from the gas stream via absorption. The seawater is then discharged as wastewater.

Dual Alkali/Lime Scrubbing: Dual alkali sodium/lime scrubbing (dilute mode) uses a caustic sodium solution in the scrubber tower. A portion of the scrubbing liquid is discharged to a neutralization stage where lime slurry is used to regenerate the caustic, which is returned to the scrubber. The bleed from the scrubber is sent to a dewatering system to produce a gypsum byproduct. The process will produce either solid gypsum waste or commercial-grade gypsum suitable for reuse as a cement additive. Dual alkali sodium/lime scrubbing (dilute mode) is not currently marketed by major FGD vendors because the system is too complicated and expensive. Washington found that due to lack of availability and anticipated excessive cost, dual alkali sodium/lime scrubbing is not technically feasible.

Conventional Sodium Scrubbing: Sodium scrubbing is another wet scrubbing technology using scrubber liquor containing a sodium reagent. The infrastructure and associated capital costs for a sodium scrubber would be similar to that of LSFO, although sodium-based reagents are generally much more expensive than limestone or lime. Based on these factors, and the similarity to the equipment necessary for LSFO, further evaluation of sodium scrubbing is unnecessary.

Dry Sorbent Injection: In dry injection, a reactive alkaline powder is injected into a furnace, ductwork, or a dry reactor. Typical removal efficiencies with calcium adsorbents are 50 to 60% and up to 80% with sodium base adsorbents. However, as with wet scrubbing, disposal of waste using sodium adsorbents must consider their high solubility in water compared to those from calcium adsorbents. The temperature range over which scrubbing has been used is 300 to 1,800 °F; the minimum temperature is 300 to 350 °F. Dry systems are rarely used and only 3% of FGD systems installed in the U.S. are dry systems. The dry waste material is removed using particulate control devices such a fabric filter or an electrostatic precipitator (ESP).

Analysis of the Available Control Options

Seawater Scrubbing: As described by Washington, although technically feasible, seawater scrubbing was eliminated from consideration as BART due to water quality discharge concerns. See SIP submittal pages L–81 to L–83. Unlike aluminum plants in Europe, wastewater discharge from primary aluminum smelters in the United States must comply with specific limits on fluorides, among other pollutants (see 40 CFR 421, Subpart B). Washington found that the necessary wastewater treatment facilities would not be cost-effective, and would produce a large amount of wastewater treatment sludge. Treatment of seawater would produce significantly more sludge than freshwater since precipitation of the natural salts would be necessary in order to remove target pollutants.

EPA conducted further analysis of non-air related environmental impacts of seawater scrubbing. The offshore aquatic area immediately surrounding the Intalco smelter has recently been designated as an environmental aquatic reserve for the protection of herring. The Cherry Point Environmental Aquatic Reserve Management Plan expressly prohibits new saltwater intake structures, which would be necessary for seawater scrubbing. See Cherry Point Environmental Aquatic Reserve Management Plan p. 54. Thus, seawater scrubbing is not a viable control option.

Dry Sorbent Injection: Intalco's potline exhaust gas stream, downstream of the existing baghouses is low temperature (less than 205 °F) with low SO_2 concentrations of less than 105 ppm. Washington's analysis found that dry sorbent scrubbing is not effective at gas stream temperatures below 250 °F. Thus, due to the low temperatures in the Intalco potline exhaust gas stream, Washington determined dry scrubbing is not technically feasible.

EPA conducted a literature review which generally supports this finding. In addition, EPA contacted a vendor of dry scrubbing technology who confirmed the importance of exhaust gas stream temperature, and stated that its dry scrubbing technology could successfully control SO_2 emissions for gas stream temperatures down to approximately 250–260 °F.

Upstream of the existing baghouses, the exhaust gas temperature would be in the temperature range that is technically feasible for DSI. However, injection of the alkaline reagent may render the baghouse catch unsuitable for recycling to the potlines which is the current practice for reclamation of the alumina and control of fluorides.

Based on this research, we agree with Washington's determination that with a flue gas temperature of ~205 °F, dry scrubbing is technically infeasible for control of SO_2.

We did not conduct further analyses regarding Conventional Wet Lime Scrubbing, and Dual Alkali Sodium/Lime Scrubbing because we agree with Washington's determination that these technologies either had no advantages over LSFO, had clear disadvantages, or were likely to be more costly when compared with LSFO.

Low Sulfur Anode Coke: Washington discussed the current levels of sulfur in petroleum coke used by other aluminum smelters to determine whether a pollution prevention option using lower sulfur content coke would be a feasible BART option for Intalco. See Washington SIP submittal appendix L at L–68 to 69. This analysis indicated that some smelters currently utilize coke with sulfur contents as low as two 2%. An analysis was also done by Washington to determine whether coke with sulfur levels below 3% can be anticipated to be available into the future. The primary conclusions from Washington's analysis indicate that there will be a continuing increase in the sulfur content of available anode grade coke. The aluminum smelters that currently have sulfur limits below 3% are requesting the regulating agencies to relax this limit due to lack of available low sulfur coke.

Coke is a relatively small, low revenue component of a refinery's product profile. It is a low value product made from the thick, tar-like refinery wastes left over after all of the more valuable components have been removed from the petroleum crude. The aluminum industry has little influence in controlling the quantity, quality, and price of the coke produced by refineries.

Washington also found that low sulfur crude oil supplies are becoming less available and more expensive for petroleum refineries. In the future, refineries with coking capacity are expected to minimize their raw material costs by using more of the higher sulfur crude oils and oil sands. Washington further explained that as oil fields age, the sulfur content of the crude oil is known to increase and the crude oil in the fields becomes more viscous and harder to extract. This effect is expected to increase the sulfur content of the petroleum materials available to produce anode grade coke.

Global primary aluminum production is expected to grow, resulting in a commensurate growth in demand for anode grade coke. Growth in aluminum production will continue to outpace the growth in coke production. Coke providers are blending imported, high cost, lower sulfur coke with domestically sourced coke in attempts to meet the current specification requirements for coke. Removal or reduction of the sulfur content of the coke once it has been received is not feasible. It is the Washington's and EPA's conclusion that coke with a sulfur content of less than 3% is not a viable option due to its limited availability.

LSFO: LSFO technology was selected by Intalco and Washington as the best option among the technically feasible wet scrubbing technologies. EPA agrees that LSFO is the best SO_2 control technology for this facility and with Washington's rationale for that selection. LSFO is estimated to achieve a 95% control for SO_2 at Intalco.

Alcoa evaluated the estimated cost of LSFO, based on quotes from two separate vendors that were prepared for Alcoa for their Tennessee facility that were then scaled to the Intalco facility.[8] Both preliminary designs were based on a central scrubbing center as the lowest cost approach, where exhaust from all dry scrubbing systems would be ducted to a centralized scrubbing system. Both vendor quotes were based on systems that would provide 100% availability of emissions control on each day of the year, given that potlines cannot be easily shutdown and restarted for control system maintenance outages. In other words, the proposed designs include two scrubber towers; one primary tower which would operate most of the time and a second tower which could be used when the primary tower needed repair or maintenance.

Washington's cost effectiveness value for the proposed two-absorption tower design was $6,574/ton of SO_2 removed. The capital and total annual operating costs were estimated to be $208.5 million and $40.9 million per year respectively. Washington determined the cost effectiveness for the two-tower scrubber to be unreasonable.

Washington's BART Determination for Intalco Potlines: Washington determined that BART for SO_2 from the potlines is the existing pollution prevention measures, including the use of less than 3% sulfur in the anode coke.

EPA's Determination of Cost Effectiveness and Visibility Impacts

EPA independently estimated the cost effectiveness of LSFO. A memorandum, ''Intalco BART Technical Review Memo,'' November 16, 2012, describes EPA's BART evaluation and analysis, and is included in the docket to this action. EPA's cost effectiveness calculations are based on the lower of two site-specific vendor quotes for the primary aluminum smelter located in Alcoa, Tennessee. The costs estimates were scaled to reflect the differences between the Alcoa Tennessee smelter and the Alcoa Intalco operations, including smelter size, economy of scale, limestone consumption and gypsum production (waste disposal).

EPA's primary concern with Washington's cost estimates and the changes EPA made to the Washington's analysis are: (1) Single tower design, eliminating the cost of a backup tower; (2) the lower of the two vendor quotes is used rather than the average; (3) the scrubber equipment life is assumed to be 30 years rather than 15; and (4) assumption that the gypsum by-product is re-used rather than landfilled.

Single Tower Design: As explained above, Alcoa and Washington based the cost effectiveness calculation for LSFO on the assumption that two scrubber towers would be required so that the facility would have a back up scrubber available for use whenever the primary scrubber was off line for maintenance. In EPA's view the redundant, second tower, is not necessary. Building one scrubber tower would reduce the capital and annual maintenance costs associated with LSFO. The BART emission limit could be written to account for periods of time with higher emissions such as during maintenance of the scrubber tower.

Low Bid: Capital equipment quotes, used by both Alcoa and Washington, were obtained from two vendors of LSFO systems for the Alcoa Tennessee smelter and were provided to EPA. The Alcoa and Washington analysis averaged these two quotes in estimating these capital costs for the Intalco potlines. This approach is unacceptable based on the EPA Air Pollution Control Cost Manual and is not in accord with standard contracting procedures. The Control Cost Manual clearly supports the use of the low bid. Specifically, the manual states that ''[s]ignificant savings can be had by soliciting multiple quotes and discusses the ability to compare to other bids.'' See *EPA Air Pollution Control Cost Manual, Sixth Edition.* Our cost effectiveness analysis uses the lower of the two capital equipment quotes, scaled from the Tennessee smelter to Intalco.

Equipment Life: The Alcoa and Washington analysis used an expected equipment lifetime of 15 years for the LSFO system. Washington provided no basis for using a 15 year lifetime. Based on our review of available information, 30 years rather than 15, is an appropriate equipment life. The expected service life of wet flue gas desulfurization (FGD) systems such as LSFO is cited in the literature as 30 years. The actual life of wet FGD scrubbers installed at coal fired power plants has been demonstrated to be 30 years or more for many plants. Industry reports establish scrubber longevity near or exceeding 30 years. See Intalco BART Technical Review Memo.

Gypsum Reuse: Alcoa and Washington assumed the gypsum produced as a by-product from LSFO would be disposed of in a landfill at a cost of about $4 million per year. However, based on the information in Alcoa's contractor BART analysis report and equipment vendor information, it appears that the gypsum produced as a by-product of LSFO would be suitable for re-use. EPA conducted an internal economic analysis to evaluate the potential for beneficial reuse of the gypsum by-product from LSFO[9]. Our analysis identified several applications for so-called FGD gypsum in addition to market factors which suggest the likely presence of a market for the gypsum produced by Intalco. Specifically, we found that a significant price differential exists between FGD gypsum and natural (mined) gypsum favoring the former.

Based on the design specification establishing that the gypsum by-product would be suitable for commercial reuse, the information suggests a likely market for the gypsum. A considerable financial incentive would exist for Intalco to sell, or even give away the FGD gypsum, rather than dispose of it in a landfill. We do not agree that it is reasonable to assume that Intalco will need to pay to dispose of the gypsum from the LSFO process in a landfill. Our cost effectiveness analysis therefore eliminates the gypsum disposal costs

[8] These cost quotes have been reviewed and analyzed by EPA but Alcoa has claimed the cost quotes as confidential business information (CBI). Given Alcoa's claim of CBI, the actual quotes are not included in the public portion of the docket for this proposed action.

[9] *Market Review for Intalco Produced FGD Gypsum.* Elliot Rosenberg, Senior Economist. EPA Region 10. March 23, 2012.

and assumes that Intalco gives the gypsum away ''Free on Board'' [10] from the facility in Ferndale. Any proceeds from the sale of the gypsum would further improve the LSFO scrubber cost effectiveness.

Conclusion of Cost Effectiveness for LSFO at the Intalco facility: EPA estimates the cost effectiveness of an LSFO system in the range of $3875/ton to $4363/ton. See Intalco BART Technical Review Memo.

Visibility Impacts

EPA considered the visibility impact of the potline SO_2 emissions and the resulting improvement of visibility in Class I areas surrounding Intalco expected to result from installation and operating LSFO. Two modeling efforts were conducted by an Intalco contractor; one analysis used 4 kilometer (km) grid cells and the other used 1 km grid cells. The analysis using 4 km grid cells considered only the baseline case. The analysis using 1 km grid cells considered both the baseline and the control case. The use of 1 km grid cells for Intalco underestimates visibility impacts compared to results using 4 km grid cells. However, modeling of visibility impacts after installation of LSFO was only conducted using 1 km grid cells. EPA believes that the 1 km grid cell results may provide informative insight into the relative visibility improvements that could be achieved by implementing LSFO.

Both modeling results show significant SO_2 visibility impacts from Intalco in several Class I areas, with the greatest impact at Olympic National Park. The tables below show these impacts and the expected visibility improvement of greater than 75% in all Class I areas after implementation of LSFO:

Modeling With 1 km grid cells:

Class I area	Current impact (98th percentile dv, # of days >0.5 dv)	Impact with LSFO (98th percentile dv, # of days >0.5 dvdays)	Percent improvement in visibility (%)
Alpine Lakes	0.742, 18 days	0.158, 0 days	79
Glacier Peak	0.916, 24 days	0.190, 0 days	79
Mount Rainier	0.660, 11 days	0.108, 0 days	83
North Cascades	0.986, 35 days	0.212, 0 days	78
Olympic	1.527, 41 days	0.355, 2 days	77

Modeling With 4 km grid cells:

Class I area	Current impact	
	dv	# days >0.5 dv
Alpine Lakes Wilderness	1.0	32
Goat RocksWilderness	0.5	7
Glacier Peak Wilderness	1.0	33
Mount Adams Wilderness	0.4	5
Mount Rainier NP	0.8	21
North Cascades NP	1.3	51
Olympic NP	2.1	52
Pasayten Wilderness	0.8	25

EPA believes these are significant impacts, not only based on the maximum impact at Olympic National Park, but also the number of days over 0.5 dv at several Class I areas and the number of Class I areas with impacts greater than 0.5 dv. Installation and operation of LSFO would significantly improve visibility in several Class I areas in Washington.

EPA's Conclusion Regarding Washington's BART Determination for Intalco

EPA disagrees with Washington's BART analysis for Intalco because the cost of compliance was improperly determined and proposes to disapprove their analysis. As discussed above, EPA calculated a different cost effectiveness value based on eliminating the cost of a backup tower; using the lower of the two vendor quotes rather than the average; assuming the equipment life is 30 years rather than 15, and assuming the gypsum by-product is re-used rather than landfilled. EPA believes based on a cost effectiveness value in the range of $3875/ton to $4363/ton and the facts presented above and considering the following factors that LSFO would be BART:

- While the cost effectiveness is relatively high in the range of $3875 to $4363/ton, it is in the range of other EPA promulgated BART determinations. e.g. Four Corners Power Plant (77 FR 51619),
- A 95% reduction in SO_2 emissions will result in visibility improvement over 1 deciview at Olympic National Park and over 0.5 deciview at 5 other Class I areas,
- There is insignificant non-air environmental and energy impacts,
- The source is anticipated to remain in operation for the foreseeable future, assuming no requirement to install new controls,
- The current control for SO_2 on the potlines are the pollution prevention measures, including the 3% sulfur limit for incoming coke.

However as discussed below, at the request of Alcoa, EPA considered whether Alcoa would be able to afford LSFO and remain a viable entity.

Affordability: The BART Guidelines provide that even if a control technology is cost effective there may be some cases where installing the controls would affect the viability of continued plant operations. Specifically, the rule explains that there may be unusual situations that justify taking into consideration the condition of the plant and the economic effects of requiring the use of a given control technology. The economic effects could include effects on product prices, market share, and profitability of the source. See 40 CFR 51 appendix Y, IV.D.4.k. Alcoa indicated to EPA that it cannot afford installation and operation of an LSFO control system and requested that affordability be considered. As summarized below EPA conducted a thorough ''affordability assessment'' of Alcoa and the Intalco operations. Based on that analysis, EPA proposes to conclude that Alcoa cannot afford to install LSFO at Intalco at this time. See ''Intalco BART SO_2 Affordability Assessment'' (Affordability Assessment) in the docket for this action for

[10] Free on Board, defined here where the buyer pays for all loading, transportation, and unloading costs.

additional detail regarding EPA's affordability analysis.

Summary of Affordability Analysis

In June 2012, Alcoa provided EPA an analysis (claimed as Confidential Business Information) of the financial health of the Intalco Operations from 2008 through 2013. Their analysis included financial information for both Alcoa as a whole, and the Intalco operations specifically, indicating that Intalco has not been a profitable operation in recent years and that the projected profits for this year and next are less than the annualized cost of LSFO. Their analysis concluded that during this time frame, there was insufficient after tax income to afford the annualized cost (capital and O&M) for LSFO of $26 million.

EPA conducted an independent analysis of the financial status of the Alcoa Intalco operations, considering the current and future trends in the cost of raw materials, operating expenses (labor and electricity), revenue income, and increasing supply and anticipated demand for aluminum in the future. Intalco is currently operating at less than full capacity and is operating only two of its three potlines. Operating the third potline is not economical given existing market prices for aluminum and electricity, limited availability of reasonably priced power and potline production costs. If Intalco were to install the LFSO control technology, the annual cost of installing and operating the equipment would represent approximately 8–10% of the facility's sales revenue over the 30 year lifetime of the equipment at current utilization at the facility. We recognize that the cost/sales ratios may be higher or lower depending on plant utilization and future aluminum prices, but they are substantial in even the most optimistic cases.

Alcoa is unlikely to be able to pass these costs along to consumers, as shown by its historical inability to pass through higher electricity prices, and is also unlikely to operate its third potline to increase production in the near future. Additionally, as mentioned in the Affordability Assessment, Alcoa's credit rating and low cash reserves may limit its ability to obtain resources to purchase pollution control equipment. Finally, the installation and operating cost of LSFO would represent a significant initial and long-term expenditure and a decision by Alcoa to close the facility rather than incur the pollution control equipment expense could be consistent with the findings of the independent affordability analysis. See Affordability Assessment for additional detail.

Based on this analysis EPA concludes that the Alcoa Intalco operations cannot afford LSFO at the Intalco facility and remain a viable operation.

Summary of Other, Less Costly Control Options for Potlines

EPA also considered less costly control of partial scrubbing of the potline emissions. There are six baghouses, each with multiple exhaust stacks, controlling particulate from the three potlines. EPA considered controlling SO_2 from two of the six, and four of the six baghouses. Under this scenario, the capital costs are reduced, however the cost effectiveness values would increase due to the economies of scale. At the same time, visibility improvement would decrease as overall SO_2 emission reduction decreases proportionally. Thus, in light of the increased cost effectiveness values and decreased visibility improvement, we determined partial scrubbing is not reasonable.

EPA SO_2 BART Determination for Potlines

Based on all the considerations summarized above, EPA believes that while LSFO is cost effective and would significantly improve visibility, it is not affordable at this facility. Therefore, EPA proposes to find that the pollution prevention measure of limiting the sulfur content of anodes to 3% is BART for Intalco.

Regional Haze Rule Provision for Alternative BART Programs

Pursuant to the RHR, a state may choose to implement measures as an alternative to BART so long as the alternative measures can be demonstrated to achieve greater reasonable progress toward the national visibility goal than would be achieved through the installation and operation of BART. See 40 CFR 51.308(e)(2). The demonstration must include, among other things, a requirement that all necessary emission reductions take place during the first long term strategy period and a demonstration that the emissions reductions resulting from the alternative measures will be surplus to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP.

Better Than BART Proposal for the Intalco Potlines

In the letter dated June 22, 2012, from Alcoa to EPA, Alcoa proposed an alternative that would be Better than BART. This alternative consists of implementing pollution prevention measures, primarily the requirement of 3% or less sulfur in the anode coke, and limiting SO_2 emissions from the potlines to 80% of the base year emissions of 6550 t/y. For the reasons explained, EPA is proposing to accept this Better than BART alternative and proposes a 5240 t/y annual SO_2 emission limit on the potlines.

Better Than BART Visibility Impact

Alcoa modeled the visibility difference between base year SO_2 emissions of 6550 t/y and a 20% reduction in emissions to 5240 t/y from the Intalco facility. The modeled results are summarized below for Olympic National Park. The deciview metric is the 98th percentile value for the year.

BASE YEAR SO_2

[6550 t/y]

Metric	2003	2004	2005
98th Percentile.	2.36 dv	1.86 dv	2.14 dv
Days above 0.5 dv.	59	53	42
Days above 1.0 dv.	29	21	24

20% REDUCTION OF SO_2 EMISSIONS

[5240 t/y]

Metric	2003	2004	2005
98th Percentile.	1.20 dv	1.56 dv	1.82 dv
Days above 0.5 dv.	50	48	41
Days above 1.0 dv.	23	19	21

The 80% SO_2 emissions cap, limiting the SO_2 emission to 5240 t/y, will prevent visibility from degrading on the worst days (represented by the 98th percentile) and will also reduce the number of days with impairment greater than 0.5 dv and 1.0 dv.

Anode Bake Ovens

Intalco manufactures its own anodes from an on-site facility using calcined coke and pitch. Green anodes are baked to remove volatile organic impurities and hardened for use in the aluminum potlines. During the baking process, some of the sulfur in the coke is released as sulfur dioxide and emitted to the atmosphere. The Anode Bake Ovens are fueled with natural gas and emit visibility impairing pollutants of particulate matter, SO_2, and NO_X. Emissions are currently controlled with an alumina scrubber to remove hydrogen fluoride and volatile organics and then the outflow from the scrubber is ducted to baghouses to remove particulate. The baghouses provide 99% control of particulate matter.

Washington evaluated SO_2 scrubbers for the anode bake oven exhaust using information from its evaluation of potline SO_2 control. Costs determined for LSFO for the potlines were scaled to the lower gas flow rate of the bake oven. A 95% control efficiency for SO_2 was assumed. The cost effectiveness of LSFO scrubbing was estimated to be $36,400/ton and the visibility improvement would be 0.02 dv at Olympic National Park. Washington determined, based on the high cost and small visibility improvement that the petroleum coke sulfur limit of 3% is BART for anode bake furnace SO_2 emissions.

Washington also determined that the existing level of particulate matter control (based on baghouses on the alumina dry scrubbers) is BART for particulate emissions.

Washington rejected using an advanced firing system for reduced energy use as BART for NO_X because the technology would result in a negligible emission reduction and visibility improvement. Similarly, Washington rejected LoTOx™ as BART because the cost of the technology would be excessive and it has not been demonstrated in practice on aluminum plant anode bake ovens.

Washington determined that BART for anode bake furnace NO_X emissions is no controls. After review of available control technologies, EPA agrees with Washington's BART determination for this source and is proposing to approve the BART determinations for the anode bake ovens.

Aluminum Holding Furnaces

The aluminum holding furnaces are fueled with natural gas and emit NO_X. The emissions from the furnaces are small and result in negligible visibility impairment in any Class I area. Washington determined that BART for the aluminum holding furnaces is no controls. Washington rejected additional controls as BART because any visibility improvement would be negligible due to the low level of emissions from the natural gas-fired burners. EPA agrees that no additional control of emissions from the aluminum holding furnaces is BART.

Material Handling and Transfer Operations

The PM emissions from the BART-eligible material handling and transfer operations are all controlled using fabric filter technology, and these operations are a negligible source of NO_X and SO_2 emissions. Additional control of these pollutants would provide negligible visibility improvement. Therefore, Washington determined that the existing level of emissions control, fabric filters, is BART for these material handling and transfer operations.

EPA agrees that fabric filter (baghouse) is the appropriate control technology and all emission units must meet 40 CFR part 63, Subpart RRR, and emissions of PM shall not exceed 0.01 grains per dscf.

Summary of Intalco BART Determination and EPA's Proposed Action

EPA is proposing to approve Washington's BART determination for Intalco with the exception of the SO_2 BART determination for the Intalco potlines. EPA is proposing a limited disapproval of Washington's BART analysis for SO_2 because, as explained above, Washington did not properly calculate the cost effectiveness value. Washington determined a cost effectiveness value of greater than $6000/ton for LSFO and consequently dismissed LSFO as BART. EPA is proposing a Better than BART FIP for control of SO_2 emissions off the potlines.

As described above, EPA revised some of the cost inputs and assumptions and calculated a cost effectiveness value in the range of $3875/ton to $4363/ton for LSFO. When considered in light of the visibility improvement in Olympic National Park and several other Class I areas surrounding Intalco, LSFO likely would be considered BART. However, as also explained above, Alcoa claimed it cannot afford LSFO at Intalco and still have it remain a viable entity. After investigating the affordability claim, including an analysis of Alcoa's financial status, market conditions, and electricity availability, EPA agrees and thus rejects LSFO as BART for this facility.

Washington issued Intalco a BART Order, (Order No. 7837, Revision 1) on July 7, 2010, that establishes Washington's determined BART control technology, pollution prevention measures, emission limits, compliance dates, monitoring, and recordkeeping requirements. EPA is simultaneously issuing a limited approval of Washington's SO_2 BART Order for the potlines, as a SIP strengthening measure. Intalco can afford to continue to implement of the pollution prevention measures and limiting the sulfur content of anodes in the furnace to 3% as required under the Washington's BART Order. Intalco is currently operating the potlines with SO_2 emissions below the proposed Better than BART alternative. The Better than BART alternative makes Washington's pollution prevention requirements, including a 3% limit on anode coke federally enforceable. The proposed alternative imposes a 5240 t/y annual SO_2 emission limit, makes the 20% SO_2 emission reduction from baseline permanent and federally enforceable, and prevents any future visibility degradation should Intalco decide to increase production in the future. Compliance with the annual SO_2 emission limit will be demonstrated using the same information that Intalco is required to collect under existing Washington requirements. So while the proposed alternative would impose additional recordkeeping and reporting obligations related to the annual cap, it would not impose any additional monitoring requirements.

The table below summarizes the proposed BART determination and Better than BART FIP for each BART emission unit:

Emission unit	BART technology
Potlines	SO_2: 80% emission cap from baseyear (5,240 tons for any calendar year) and pollution prevention limit of 3% sulfur in the coke used to manufacture anodes. PM: Use of the current level of control, which is the use of baghouses to control PM emissions from the alumina dry scrubbers, and wet roof scrubbers to control secondary PM emissions from the potroom roofs. NO_X: no control.
Anode Bake Furnace	SO_2: pollution prevention limit of 3% sulfur in the coke used to manufacture anodes. PM: The current baghouse.

Emission unit	BART technology
Aluminum Holding Furnace	No control.
Material Handling and Transfer	PM Use of the current level of control, which is use of fabric filters.

c. Tesoro Refining and Marketing

The Tesoro refinery (Tesoro) near Anacortes, Washington, processes crude oil into refined oil products, including ultra low sulfur diesel oil, jet fuel, #6 fuel oil, and gasoline. Modeling of visibility impairment was done following the Oregon-Idaho-Washington Region 10 BART modeling protocol. Modeled visibility impacts of baseline emissions show impacts on the 8th highest day in any year (the 98th percentile value) of greater than 0.5 dv at five Class 1 areas. The highest impact was 1.72 dv at Olympic National Park.

Ten process heaters, one flare, one boiler, and two cooling towers at the plant are BART-eligible. The primary emission units of concern are the process heaters, boiler, and flares which have significant emissions of SO_2 and NO_X. Direct PM emissions from the BART-eligible units are low because almost all burn either refinery fuel gas or natural gas. Only one BART-eligible unit subject to BART, the crude oil distillation heater (unit F–103), is currently permitted to burn fuel oil. Tesoro reported 3 tons of $PM_{2.5}$ emissions from this unit in 2009.

Eleven of the 74 storage tanks at Tesoro emit VOCs and meet the 1962–1977 timeframe for BART-eligibility. Washington considers VOCs as visibility impairing pollutants (see appendix L, page 104 of the SIP submittal), but since the CALPUFF model, which is used to evaluate visibility impairment from single sources, cannot effectively model VOCs, Washington decided that VOC emissions from BART-eligible storage tanks and other units would not be evaluated for BART. Note that the facility's reported total VOC emissions in 2008 were 1,082 tons. The BART determination for the Tesoro refinery focuses only on SO_2, NO_X, and PM. EPA agrees that it is not necessary to further evaluate visibility impacts from VOCs for this planning period since, in addition to the modeling uncertainties, the majority of VOC emissions already have controls in place (for example to meet the applicable NSPS, MACT, and VOC fugitive emission control regulations). In addition, not all of the VOC emitted will convert to light scattering particles, so visibility impact due to VOC emissions is expected to be minimal.

The following are units at Tesoro subject to BART:

F–103 Crude Oil Distillation
F–104 Gasoline Splitter/Reboiler
F–304 CO Boiler No. 2
F–654 Catalytic Feed Hydrotreater
F–6600 Naphtha Hydrotreater
F–6601 Naphtha Hydrotreater
F–6602 Naphtha Hydrotreater
F–6650/6651 Catalytic Reformer
F–6652/6653 Catalytic Reformer
F–6654 Catalytic Reformer
F–6655 Catalytic Reformer
X–819 Flare
CWT #2 Cooling Water Tower
CWT #2a Cooling Water Tower

NO_X Controls Evaluated for All Combustion Units

Tesoro evaluated available NO_X control technologies generally applicable to combustion units. Unit-specific evaluations were completed based on technologies found generally feasible.

Flue Gas Recirculation: Flue gas recirculation was determined to be unacceptable due to safety factors.

Low NO_X burners: LNB and ULNB retrofits are commonly installed on combustion units, often as a result of BACT or LAER determinations and could be feasible at Tesoro depending on the specific unit application. Emission limits from EPA's RACT/BACT/LAER Clearinghouse range from 0.08 to 0.1 lb/MMBtu (NO_X) for LNBs and ULNBs.

Staged Air Low NO_X Burners: For this burner design, retrofitting heaters with less than three feet between the burner and the opposite wall of the firebox may not be practical due to potential flame impingement on the firebox refractory materials or heat transfer tubes. Emission reductions achieved by staged-air LNBs range from 30 to 40 percent below emissions from conventional burners. Tesoro used a 40 percent NO_X reduction for its initial cost analysis review.

Staged-fuel, low-NO_X burners: Staged-fuel LNBs have several advantages over staged-air LNBs. First, the improved fuel/air mixing reduces the excess air necessary to ensure complete combustion. The lower excess air both reduces NO_X formation and improves heater efficiency. Second, for a given peak flame temperature, staged-fuel LNBs have a more compact (shorter) flame than staged-air LNBs. Up to 72 percent NO_X emissions reductions for staged-fuel LNBs have been reported over conventional burners based on vendor test data. Tesoro used a 60 percent average NO_X reduction for its initial cost analysis review.

Ultra Low NO_X Burners: Tesoro used a 75% average NO_X reduction for its initial cost analysis based on EPA methods. After receiving vendor guaranteed average NO_X emission reductions ranging from 60 to 73.5 percent for specific units, Tesoro developed a vendor cost factor analysis for each unit based on the vendor guarantee and the unit-specific emission rate.

Selective Non-Catalytic Reduction (SNCR): Vendor NO_X reduction guarantees ranged from 35 to 40% based on Tesoro's fuel gas compositions and measured bridgewall temperatures. EPA's RACT/BACT/LAER Clearinghouse lists an emission limit of 127 ppmdv NO_X at seven percent oxygen for a SNCR used to control emissions from a Fluid Catalytic Cracking Regenerator unit followed by a CO Boiler.

NO_X tempering (steam or water injection): To date, NO_X tempering has only been used on large utility boilers and was not considered for further analysis.

Selective Catalytic Reduction (SCR): Typical SCR NO_X removal efficiencies range from 70 to 90+ percent removal, depending on the unit being controlled. Tesoro used a 90 percent NO_X removal in its cost analyses.

SO_2 Controls Evaluated for All Combustion Units

Plant-Wide SO_2 Control: Plant-wide SO_2 control is accomplished by reducing the sulfur content of fuel burned in various combustion units. Requiring the use of ''low sulfur fuel'' is the most common SO_2 control technique applied to oil refinery process units. ''Low sulfur fuel'' is usually defined as refinery fuel gas meeting the New Source Performance Standard (NSPS) requirements of 40 CFR part 60, Subpart J. This NSPS limits the H_2S in fuel gas to 0.1 gr/dscf.

Tesoro has already implemented improvements at the facility to reduce the H_2S concentration in the flue gas; any additional reduction in refinery fuel gas sulfur content will require construction of a new sulfur recovery unit (SRU). Tesoro evaluated the construction of a new 50 ton/day SRU and refinery modifications to route sulfur streams to the new unit. The capital cost is estimated to be $58 million to continuously treat all refinery gas to the level of the NSPS standard (162 ppm of H_2S). Attributing all the cost to the SO_2 reductions to all combustion units (not just the BART eligible units) results in a plant wide reduction from the 2003 to 2005 average emissions of 395 tons of SO_2 with a cost effectiveness of $16,100/ton of SO_2 (not including O&M costs). Tesoro also evaluated the cost effectiveness of continuously meeting a limit of 50 ppm of H_2S (a plant wide annual decrease of 451 tons per year), with the use of a new SRU. To meet a 50 ppm H_2S concentration would increase the cost effectiveness value to $14,100/ton (also not including O&M costs).

Washington determined that the construction of a new SRU to meet either 162 ppm H_2S or 50 ppm H_2S is not cost effective and that SO_2 BART for combustion units burning refinery fuel gas is the current H_2S limit of 0.10 percent by volume (1000 ppm) . See Washington's BART Compliance Order 7838.

PM Controls Evaluated for All Combustion Units

With the exception of emissions from unit F–304 (which primarily burns carbon monoxide from the fluid catalytic cracking unit and emits negligible amounts of PM), PM controls applicable to the process heaters at this facility are tied directly to the use of combustion fuel. Using low sulfur refinery fuel gas reduces potential particulate emissions. The refinery gas system includes process steps to remove particulates and some heavier hydrocarbons from the refinery gas prior to being sent to the various fuel burning units.

Washington determined PM BART is the curtailment of fuel oil for combustion with the substitution of refinery fuel gas. The specific emission limit for unit F–304 is 0.11 gr/dscf, corrected to 7% O_2. Particulate matter BART for all other BART units is 0.05 gr/dscf, corrected to 7% O_2.

Unit Specific BART Determinations for NO_X

Unit F–103, Crude Oil Distillation Heater: ULNB, SCR, SNCR, ULNB plus SCR, and ULNB plus SNCR were evaluated for cost effectiveness. Only ULNB, with a control efficiency of 75% had a reasonable cost effectiveness value at $3398/ton, using EPA calculation methods, and. All others cost effectiveness values exceeded $6374/ton. Washington determined ULNB to be BART for Unit F–103.

Unit F–104, Gasoline Splitter Reboiler: This reboiler currently has ULNB installed. The next more efficient control technology would be the addition of SCR with a cost effectiveness of $100,000/ton. See Table 2.1 of appendix L, Tesoro BART determination. Washington determined this cost to be unreasonable.

Unit F–6650, Catalytic Reformer Feed Heater; Unit F–6651, Catalytic Reformer Inter-Reactor Heater; Unit F–6652, Catalytic Reformer Inter-Reactor Heater; Unit F–6653, Catalytic Reformer Inter-Reactor Heater: These four heater units are ducted into two common exhaust stacks. However, the BART evaluations regarding burner design (e.g. LNB vs ULNB) and add on control (e.g. SCR) were made separately for each unit by the State, and are presented below.

Unit F–6650: The SIP submittal analyzed LNB, ULNB, SCR, SCR with LNB, and SCR with ULNB. ULNB is not technically feasible since there is insufficient space to install it. LNB is estimated to achieve a 60% reduction in NO_X, is cost effective at $3349/ton if installed during turnaround and over $10,000/ton outside normal turnaround. All of the SCR combinations are not cost effective with costs exceeding $10,000/ton during turnaround and even greater during non-scheduled turnaround refinery maintenance. Washington determined BART for NO_X emissions to be existing control.

Unit F–6651: The SIP submittal analyzes LNB, ULNB, SCR, SCR with LNB and SCR with ULNB. There is insufficient space to install ULNB thus it is not technically feasible. The cost of installing SCR on the common exhaust duct in addition to LNB is not reasonable with a cost effectiveness of greater than $10,000/ton. LNB with 60% control efficiency and a cost effectiveness of $3349/ton within the routine maintenance turnaround was determined to be reasonable. Washington found that the cost effectiveness increases to over $10,000/ton if the controls were required to be installed during non-routine turnaround and stated that the routine turnaround will be outside the BART implementation window requirement. However, as explained below this is no longer the case.

Washington determined BART for NO_X emissions to be existing control.

Unit F–6652: The SIP submittal analyzes LNB, ULNB, SCR, SCR with LNB and SCR with ULNB. Cost effectiveness of SCR options exceed $10,000/ton and thus these options are not reasonable. LNB and ULNB are cost effective and technically feasible. ULNB with a control efficiency of 75% and cost effectiveness of $3349/ton was determined to be BART for NO_X emissions, if installed during routine turnaround. Washington found that the cost effectiveness values increase to over $10,000/ton if installed outside routine turnaround, and stated that the routine turnaround will be outside the BART implementation window requirement. However, as explained below this is no longer the case. Washington determined BART for NO_X emissions to be existing control.

Unit F–304: The cost effectiveness of LNB, SCR, SNCR, LNB plus SCR, and LNB plus SNCR was evaluated. LNB with SNCR, with a control efficiency of 39% and cost effectiveness of $4592/ton when installed during turnaround was determined to be reasonable Washington calculated the cost effectiveness to be over $10,000/ton if the installation was conducted outside of the regularly scheduled turnaround. SNCR without LNB has a 35% control efficiency at a cost of $4534/ton and was not considered further as the control efficiency is less than LNB with SNCR. All other options are not cost effective. See Table 2–3 of the Tesoro BART Determination, appendix L of the SIP submittal.

Washington's NO_X BART determination for unit F–304 (CO Boiler No. 2) indicated that an emission limit, representative of the installation of LNB plus SNCR, would be reasonable if the controls could be installed during routine maintenance ''turnaround'' at Tesoro. Turnarounds are the only occasion when process units are intentionally taken out of operation, and during a turnaround, major maintenance occurs on all process units that are shut down. During a routine turnaround, low-NO_X burners or other appropriate controls could be installed and loss of production would not be included in the cost-effectiveness calculations. However, for the analysis contained in the SIP submittal, Washington assumed that the date for EPA's action to approve or disapprove the SIP submittal, plus the time allowed to comply with BART (i.e., as expeditiously as practicable, but no later than five years after SIP approval), would occur prior to the next scheduled turnaround. More specifically, Tesoro informed Washington that the next scheduled turnaround would not occur until 2017, which Washington had estimated would be after the date the BART controls would need to be installed. Consequently, Washington estimated costs for BART to include lost production, since, in order to comply within BART timeframe, the facility would be required to install the controls well before the 2017 turnaround. Including lost production into the costs, results in most cases in a cost effectiveness figure well in excess of $10,000/ton and the controls are not cost-effective. As a result, Washington determined that no additional control was required for BART for NO_X for boiler F–304.

However, as it turns out, the BART compliance time frame (which is now estimated to be no later than mid-2018) is much later than Washington originally estimated and now could indeed accommodate the 2017 turnaround cycle. When calculating cost-effectiveness without considering lost production, Washington concluded that controls for BART would in fact be reasonable. For example, see appendix L–3, Table 2–3, page L–125 of the SIP submittal showing a vendor cost estimate of $4,592/ton for installation of LNB plus SNCR for the boiler F–304. Therefore, Washington would have concluded that, except for the costs associated with taking units offline outside of the turnaround cycle, BART for NO_X for unit F–304, would be an emission limit associated with installation of LNB plus SNCR. Yet, because of the added costs estimated for lost production, Washington proposed no add on controls in the SIP submittal.

A similar circumstance applies to heaters F–6650, F–6651, F–6652, and F–6653. The SIP submission indicates that LNB would be cost-effective for F–6650 and F–6651, while ultra-LNB would otherwise be cost-effective for F–6652 and F–6653, except for the added costs due to lost production. Again, Washington determined BART was no add-on controls on these units, due to costs of lost production because of the assumption that Tesoro would need to take the units offline outside of the normal turnaround schedule in order to comply with BART. It is now evident however, that the BART compliance deadline could be structured to include time for the scheduled turnaround. Thus, Washington's BART determination of no controls for these units is not appropriate since the controls are cost effective if installation is conducted during a scheduled turnaround period.

In today's action, we are proposing to disapprove Washington's BART determinations for NO_X for units F–304, F–6650, F–6651, F–6652, and F–6653. We are proposing to approve Washington's BART determinations for SO_2 and PM for all of Tesoro's BART subject units, and for NO_X for units F–103, F–104, F–654, F–6600, F–6601, F–6602, F6654, and F–6655.

Tesoro Request for Alternative BART Program

As discussed above under the Intalco BART section, a state may choose to implement measures as an alternative to BART, so long as the alternative measures can be demonstrated to achieve greater reasonable progress toward the national visibility goal than would be achieved through the installation and operation of BART. See 40 CFR 51.308(e)(2).

In light of the currently expected date estimated for EPA's final action on the SIP submittal, EPA does not consider Washington's BART determination for NO_X for several units at the facility to be approveable. Tesoro submitted a request to EPA on November 5, 2012, for an alternative to BART for NO_X for units F–304, F–6650, F–6651, F–6652, and F–6653. Based on the analysis described below, EPA agrees that the alternative proposed by Tesoro is Better than BART, and because we are proposing to disapprove Washington's BART determination for NO_X for those units, we are also proposing a FIP as an alternative to BART, that results in greater reasonable progress than BART would for units, F–304, F–6650, F–6651, F–6652, and F–6653. We believe that the proposed Tesoro NO_X BART alternative meets the requirements for an alternative measure.

Tesoro NO_X BART Alternative

EPA is proposing a BART alternative for the NO_X emissions from the CO boiler #2 (unit F–304) and the four heaters, units F–6650, F–6651, F–6652, and F–665. This BART alternative achieves greater visibility progress than BART would for those units. 40 CFR 51.308(e)(2) and 40 CFR 51.308(e)(3) of the regional haze rule specify the requirements that a state must meet to show that an alternative measure or alternative program achieves greater reasonable progress than would be achieved through the installation and operation of BART. Pursuant to those requirements, Tesoro has identified seven non-BART units at the facility that achieve substantially more SO_2 emission reductions compared to their baseline emissions than the NO_X emission reductions that would be achieved from BART on the five BART subject units compared to their baseline emissions. The facility has requested SO_2 emission limitations on those non-BART units as an alternative to emission limits for NO_X on the BART-subject units. EPA believes it is appropriate to consider SO_2 reductions as a substitute for NO_X reductions for the alternative BART scenario since the SO_2 reductions, which are more than twice the NO_X reductions, will likely result in proportionately more sulfate than nitrate removed from the atmosphere. Accordingly, visibility improvement would be greater under the alternative than under BART. The table below shows the seven non-BART eligible units for which Tesoro is requesting SO_2 emission limits under the proposed alternative.

SO_2 UNITS REGULATED UNDER THE PROPOSED BART ALTERNATIVE

Unit	Description
F–101	Crude Heater, 120 MMBtu/hr.
F–102	Crude Heater, 120 MMBtu/hr.
F–201	Vacuum Flasher Heater, 96 MMBtu/hr.
F–301	Catalytic Cracker Feed Heater, 128 MMBtu/hr.
F–652	Heater, 67 MMBtu/hr.
F–751	Main Boiler, 268 MMBtu/hr.
F–752	Boiler, 268 MMBtu/hr.

In 2007, Tesoro made a major capital investment to improve the sulfur removal capability of the Anacortes refinery fuel gas (RFG) system and accepted a limit on H_2S in the fuel gas of 0.10 percent by volume, or 1,000 parts per million (ppm). This resulted in a significant reduction in SO_2 emissions as the average H_2S concentration of the fuel gas in 2006 was 2,337 ppm. A requirement to combust only pipeline quality natural gas or RFG meeting the 1,000 ppm limit was established on a number of units at the facility, including eleven BART-subject units as part of Washington's BART determination for those units. Tesoro requested that the same requirement be extended to the seven additional non-BART units shown in the table above. In Washington Class I areas, sulfates contribute significantly more than nitrates to visibility impairment (see SIP Submittal chapter 5) and it is likely that for the Class I areas impacted by Tesoro's SO_2 and NO_X emissions, more SO_2 converts to sulfate than NO_X does to nitrate. Limiting the SO_2 emissions from these seven units would thereby result in greater reasonable progress than would requiring BART for NO_X on the CO boiler #2 and four process heaters.

In Washington Class I areas, sulfates contribute significantly more than nitrates to visibility impairment (see SIP Submittal chapter 5) and it is likely that more SO_2 converts to sulfate than NO_X does to nitrate. Applying the SO_2 limit to these 7 units would result in greater reasonable progress than would requiring BART for NO_X on the CO boiler #2 and four process heaters.

Pursuant to 40 CFR 51.308(e)(2)(i)(D), a summary of the emission reductions expected from the BART alternative compared to emissions reductions that would be achieved by the application of Washington's estimated limits for NO_X for five BART-subject units is shown in the tables below.

SO_2 EMISSIONS UNDER THE BART ALTERNATIVE

Unit	2006* SO_2 Baseline emissions (tpy), pre-RFG as reported by Tesoro	BART alternative: 2007 post-RFG SO_2 emissions as reported by Tesoro	Reduction in SO_2 emissions (tpy)
F–101	193	42	151
F–102	178	48	130
F–201	232	51	181
F–301	58	11	47
F–652	77	25	52
F–751	291	54	237
F–752	326	56	270
Total	1,355	287	1,068

* The baseline year of 2006 was used because it was the last year preceding installation of the RFG improvements and representative of operating conditions at the refinery at that time.

NO_X EMISSIONS WITH WASHINGTON'S DETERMINATION OF BART

Unit	2006* NO_X Baseline emissions (tpy) as reported by Tesoro	Washington's estimated emissions based on BART analysis in SIP submittal (appendix L)	Projected reduction in NO_X emissions from BART controls (tpy)
F–304	717	437	280
F–6650	151	60	91
F–6651	114	46	68
F–6652	24	6	18
F–6653	12	3	9
Total	1,018	552	466

* The baseline year of 2006 for NO_X corresponds with the year the emissions were estimated for SO_2.

The projected NO_X emissions are based on Washington's estimates of appropriate control efficiencies applied to the 2006 emission rates. Washington's estimates are: SNCR plus LNB for F–304 with 39% reduction in NO_X; LNB for F–6650 and F–6651 with 60% reduction in NO_X; ULNB for F–6652 and F–6653 with 75% reduction in NO_X. EPA believes that for purposes of estimating the NO_X BART emission benchmark for 2006, Washington's estimates are adequate.

As the tables show, the 1,068 tpy reductions in SO_2 from the seven non-BART units are greater than the 466 tpy emissions reductions expected from BART for NO_X for the five BART-subject units. The reductions are surplus because they occurred during the first planning period, after the 2002 SIP baseline date and were not necessary to meet any other CAA requirements. As a final check, we note that SO_2 emissions from the seven units, if calculated assuming that the plant is operating at full capacity, would be 10,147 tpy prior to the refinery fuel gas improvements in 2007 and 1,127 tpy after applying the 1000 ppm H_2S limit. The net SO_2 emission reduction is estimated to be 9,020 tons, compared to 683 tons of NO_X reductions assuming BART level controls for NO_X were installed and the plant were operating at full capacity. For these reasons, EPA is proposing a BART alternative FIP that achieves greater reasonable progress than BART.

The proposed emission limit for the seven units being considered for the alternative to BART is the same limit as the other 11 BART-subject units for which we are proposing to approve. Specifically, the refinery fuel gas may not contain greater than 0.10 percent by volume H_2S on a 365-day rolling average basis. Setting the limit based on the concentration of H_2S in the fuel is consistent with the Standards of Performance for Petroleum Refineries (See 40 CFR part 60—Subpart J) and 51.308(e)(iii) for establishing BART. Since the proposed alternative would utilize the same requirement for monitoring refinery fuel gas combusted in the non-BART units that Washington has imposed for the BART-subject units, the proposed alternative would not impose any additional monitoring requirements. It would impose additional recordkeeping and reporting requirements related to the fuel combusted in the non-BART units.

Tesoro's November 5, 2012, letter actually included two options for a Better than BART alternative. The other option involved SO_2 emission reductions from another non-BART unit, CO boiler #1 (Unit F–302). However, we did not choose that option for the proposed Better than BART FIP because CO boiler #1 shares a common exhaust stack with CO boiler #2 (Unit F–304) which is a BART-eligible unit and the Washington BART order establishes an SO_2 limit for the combined emissions from both boilers. Even though Washington has not relied on the SO_2 reductions since baseline from CO boiler #1 in its regional haze plan, EPA is obliged to approve that limit as shown in the BART order and cannot use those same reductions in a Better than BART alternative FIP. However, EPA does want to point out that, when approved, the BART order will actually result in greater visibility improvements than projected in the regional haze reasonable progress demonstration.

Summary of Tesoro BART

The Table below is a summary of the proposed BART and Proposed Better than BART Technology for Tesoro.

Emission unit	BART technology
F–103	PM: End routine use of fuel oil. Use of refinery fuel gas or natural gas as primary fuel. SO_2: End routine use of fuel oil. Use of refinery fuel gas or natural gas as primary fuel. NO_X: Ultra-low-NO_X burners.
F–304, F–6650, F–6651, F–6652, F6653	SO_2 & PM: End routine use of fuel oil. Use of refinery fuel gas or natural gas as primary fuel. Proposed Better than BART Alternative Federal Implementation Plan: SO_2 limitations on units F–101, F–102, F–201, F–301, F–652, F–751, F–752 fuel gas of 1000 ppmv H_2S.
F–104, F–654, F–6600, F–6601, F–6602, F–6654, F–6655, Flare X–819, Cooling Towers 2 and 2a.	PM: End routine use of fuel oil. Use of refinery fuel gas or natural gas as primary fuel. SO_2: End routine use of fuel oil. Use of refinery fuel gas or natural gas as primary fuel.

d. Port Townsend Paper Company

Port Townsend Paper Company (PTPC) operates a kraft pulp and paper mill in Port Townsend, Washington that manufactures kraft pulp, kraft papers, and lightweight liner board. The four BART eligible emission units at the facility are: the recovery furnace, smelt dissolving tank, No. 10 power boiler, and lime kiln. PTPC visibility impacts are greatest at Olympic National Park. The 98th percentile impact during 2003 to 2005 at Olympic National Park is 1.9 dv. Impacts at all other Class I areas within 300 km of PTPC were less than 0.5 dv.

An electrostatic precipitator (ESP) currently controls PM from the recovery furnace, a wet scrubber currently controls PM and SO_2 from the smelt dissolving tank, a multiclone and wet scrubber control PM emissions from the No. 10 power boiler, and a wet venturi scrubber controls PM and SO_2 from the lime kiln. On October 20, 2010, Washington issued PTPC BART Order 7839 Revision 1 which establishes emission limits for these existing controls for the emission units subject to BART.

Recovery Furnace: The recovery furnace primarily burns black liquor solids with some recycled fuel oil. It emits SO_2, NO_X, and PM. The recovery furnace is intended to recover sulfur for use in the pulping process and the loss of sulfur through emissions of SO_2 is a loss of process chemical and therefore is undesirable for business reasons. The recovery furnace operations are optimized to minimize sulfur loss. Particulate matter is currently controlled with three dry electrostatic precipitators (ESPs). Current SO_2 and PM emissions are regulated by NESHAPS Subpart MM, and a PSD permit. NO_X emissions from recovery furnaces are generally low. Currently, there is no emission limit for NO_X.

NO_X: The recovery furnace inherently uses staged combustion to optimize combustion of black liquor (mostly lignins) to recover the sulfur. Also due to the unique nature of the recovery process, special safety precautions must be considered as explosion can occur. Washington and PTPC evaluated alternative NO_X control technologies and found them technically infeasible. See SIP submittal pages L–206 and L–207. Washington determined that the existing level of control provided by the existing staged combustion system is BART for NO_X for the recovery furnace.

SO_2: Washington and PTPC considered the Wet FGD, Dry FGD and low sulfur fuel as possible control technologies for the recovery furnace SO_2 emissions. Wet FGD is considered cost prohibitive by the National Council for Air and Stream Improvement (NCASI). *See Information on Retrofit Control Measures for Kraft Pulp Mill Sources and Boilers for NO_X, SO_2, and PM Emissions*, June 4, 2006. Additionally, due in part to the nature of the SO_2 emissions from a kraft recovery furnace, and related technical difficulties, this technology is considered technically infeasible for control of SO_2 emissions at this facility. Table 2–4, PTPC BART determination, appendix L of the SIP submittal.

Dry FGD is also not technically feasible as injection of a sorbent material disrupts the chemical reactions in the furnace and the sulfur content of the gas stream is too low for effective control of SO_2. The analysis also found that low sulfur fuel is not an option as the main fuel source is the black liquor from which sulfur is recovered. In essence, the recovery furnace is a control device to recover sulfur from the black liquor. Supplemental fuel oil is currently limited to a maximum of 0.75% sulfur content. Switching to a lower sulfur content fuel oil would cost $15,702/ton of SO_2 removed and is deemed not cost effective. Washington determined that the current level of controls provided by the existing staged combustion system and regulated by the PSD permit is BART for SO_2, with an emission limit of 200 ppm at 8% O_2.

PM: The PM emissions from the recovery furnace are currently controlled by an ESP. The existing ESP at the furnaces reduces actual PM emissions to an average of less than 50% of the MACT limit of 0.044 gr/dcsf, at 8% O_2. The BART Guidelines, section IV, states that ''Unless there are new technologies subsequent to the MACT Standards which would lead to cost effective increases in the level of control, [state agencies] may rely on MACT standards for purposes of BART.'' No new control technologies have been identified for recovery furnaces, thus Washington determined that the dry ESP meeting MACT limits is BART. Thus, the BART limit is the NESHAP Subpart MM limit of 0.044 gr/dscf at 8% oxygen.

Smelt Dissolving Tank

NO_X control: There are no NO_X emissions from the smelt dissolving

tank thus a BART determination for NO_X is not necessary.

SO_2 Control: Sulfur dioxide emissions are currently controlled by a wet scrubber. The only other available control option is either semi-dry or dry FGD. However, due to the very low exhaust flow rate, semi-dry or dry FGD with a dry ESP is technically infeasible. Adding an alkaline solution to the exhaust gas stream could provide additional SO_2 control. Washington's analysis found cost effectiveness of adding the alkaline solution to both is $16,247/ton and is not cost effective. Washington found BART for SO_2 is the existing wet scrubber for PM control.

PM Control: PM emissions are currently controlled by a dry ESP. Washington evaluated the cost of upgrading the current ESP to reduce existing PM emission by 50%. The cost effectiveness of this upgrade is $5,100/ton with a visibility improvement of 0.07 dv. In light of the cost and minimal visibility improvement, Washington determined the upgrades are not reasonable. The BART emission limit for PM is the NESHAP Subpart MM limit of 0.20 lb PM_{10} per ton black liquor solids (BLS).

No. 10 Power Boiler: The No. 10 power boiler currently burns a variety of fuels from wood waste to fuel oil and uses overfire air to reduce NO_X emissions. A multiclone followed by a wet scrubber reduces PM emissions.

NO_X: The design of the No. 10 power boiler which primarily burns wood waste results in a low flame temperature and minimal NO_X formation. Appendix C of the PTPC BART Determination report (appendix L of the SIP submittal) contains a lengthy discussion of why alternative control technologies are not technically feasible including; flue gas recirculation, LNBs, fuel staging, SNCR, and SCR. Washington determined that the existing NO_X emission limit of 0.80 lb/MMBtu (current NSPS Subpart D limit) is BART for this unit.

PM control: PM emissions from the No. 10 power boiler are currently controlled with a multiclone followed by a wet scrubber. The BART analysis evaluated fabric filters and the substitution of a wet ESP for the wet scrubber. The evaluation found that installation of a baghouse is technically infeasible for wood fired boilers due to the potential fire hazard. The addition of a wet ESP is technically feasible for this facility but is not cost effective at $11,249/ton of PM_{10} removed. The substitution of a wet ESP was also evaluated and it was found that due to the low emission rate and the small potential visibility improvement from upgrading to a wet ESP did not justify further study. Washington determined BART is the existing level of control as provided by the wet scrubber with a PM emission limit of 0.10 lb/MMBtu (the current NSPS Subpart D limit).

SO_2 Control: PTPC analysis found that FGD technology with wet injection using a wet scrubber would reduce SO_2 emissions but would also require the addition of alkaline chemicals which would change the chemical characteristics of the effluent and render it classified under Washington as 'Dangerous Waste' and as a hazardous waste under the federal Resource Conservation and Recovery Act, thus raising the cost and complexity of disposal. Fly ash from the boiler already aids in scrubbing SO_2 and adding an alkaline solution would only provide a small increment of control, but with increased problems with sludge disposal. The analysis concluded that implementation of wet FGD on the No. 10 power boiler is considered technically infeasible. Lowering the sulfur content of the fuel oil burned to 0.5%, while technically feasible, would cost $15,702/ton of SO_2 reduced. This was determined to not be cost effective. Washington determined that BART for SO_2 control on the No. 10 power boiler is the continued operation of the existing wet scrubber, continued use of the current low sulfur fuel and implementing good combustion practices aimed at minimizing recycled fuel oil firing as BART. The existing SO_2 emission limit is 0.30 lb/MMBtu.

Lime Kiln

PM: Currently the lime kiln uses wet venturi scrubber to capture PM emissions to meet the PM emission limits as specified in 40 CFR 63, Subpart MM. No new control technologies have been developed since the rule was promulgated therefore as explained above, Washington determined that wet venturi scrubber is BART. BART for PM is the same as 40 CFR 63, Subpart MM, with an emission limit of 0.064 gr/dscf at 10% O_2.

NO_X: The lime kiln is operated using a minimum of excess air. Washington's review determined that no add-on control technology was indicated for lime kilns in the EPA RBLC which lists ''good combustion'' and ''proper kiln design'' as BACT for lime kilns. However, as described in the SIP submittal, PTPC investigated ten other possible control options. Each of these control options were determined to be infeasible. See Washington Regional Haze SIP submittal L–190. Therefore Washington determined that BART for NO_X for the lime kiln is proper kiln design and good operating practices.

SO_2: The existing wet venturi scrubber captures lime dust and thereby also reduces SO_2 emissions. Washington and PTPC considered several additional SO_2 control technologies including increasing the alkalinity. See SIP submittal Table 2–3. However, the visibility improvement from increasing the alkalinity of the wet scrubber was estimated to be only 0.004 dv and did not warrant further consideration. As for other units in the facility, lower sulfur fuel oil was determined to not be cost effective due to the increased fuel cost and resulting cost effectiveness value of $15,702/ton. As documented in the SIP submittal each of the other technologies considered was rejected due to technical difficulties. See Washington Regional Haze SIP submittal L–213. Washington determined that BART for SO_2 for the lime kiln is the current level of control provided by the wet venturi scrubber. The SO_2 emission limit is continued use of the existing wet scrubber with inherently alkaline scrubber solution and 500 ppm at 10% O_2 (current Washington limit).

For of the reasons summarized above, Washington determined that the existing controls, techniques and emission limits constitute BART for NO_X, SO_2, and PM at the facility. The SIP submittal includes BART Compliance Order No. 7839, Revision 1, issued to Port Townsend Paper Corporation on October 20, 2010.

EPA finds after review of the SIP submittal that the BART determination and BART compliance order for PTPC is reasonable and proposes to approve it.

Summary of Port Townsend Paper Company BART

The table below summarizes the proposed BART technology for PTPC:

Emission Unit	BART Technology
Recovery Furnace	PM: Existing ESP. NO_X: Existing staged combustion system. SO_2: Good Operating Practices and limit of 200 ppm at 8% O_2.

Emission Unit	BART Technology
Smelt Dissolving Tank	PM: Existing wet scrubber NESHAP Subpart MM limit of 0.20 lb PM_{10} per ton BLS. SO_2: Existing wet scrubber.
No. 10 Power Boiler	PM_{10}: Existing multiclone and wet scrubber NSPS Subpart D limit of 0.10 lb/MMBtu. NO_X: Existing staged combustion system NSPS Subpart D limit of 0.30 lb/MMBtu. SO_2 Good Operating Practices NSPS Subpart D limit of 0.80 lb/MMBtu.
Lime Kiln	PM_{10}: Existing venturi wet scrubber NESHAP Subpart MM limit of 0.064 gr/dscf at 10% O_2. NO_X: Good Operating Practices. SO_2: Existing wet scrubber 500 ppm at 10% O_2.

e. Lafarge North America

Lafarge North America is located in Seattle, Washington and produces Portland cement by the wet kiln process. The facility consists of 18 emission units of which 16, in combination, meet the requirements as eligible for BART. Dispersion modeling of these16 emission units show emissions from these units exceed the visibility threshold of 0.5 dv for being subject to BART and thus are subject to BART. The largest sources of concern that are subject to BART are the rotary kiln and the clinker cooler. The other BART units include raw material handling, finished product storage bins, finish mill conveying system, bagging system, and bulk loading/unloading system baghouses, with a total of just 480 t/y emissions of PM.

Lafarge North America is subject to the terms and conditions specified in a consent decree resolving alleged Clean Air Act violations. *United States* v. *LaFarge North American Inc,* Civ. 3:10–cv–00044–JPG–CJP (S.D. Ill.). This consent decree established emission limitations and compliance dates for a number of cement plants owned and operated by Lafarge North America, including the Seattle plant.

Rotary Wet Process Kiln

SO_2: There is currently no control for SO_2 from the kiln at the Lafarge facility. The alkaline nature of the clinker formed in the kiln reduces SO_2 emissions to some extent. Additional control options evaluated were: dry sorbent injection (lime or sodium), semi-dry FGD, wet limestone forced oxidation, wet lime, ammonia forced oxidation, and alternative fuels and raw materials. See SIP Submittal appendix L, L–231,Table 2–2, Lafarge BART determination. The analysis found that dry sorbent injection (DSI) is technically feasible with a 25% removal efficiency for SO_2 at an estimated the cost effectiveness of $4034/ton. See Table 2–3 of appendix L, Lafarge BART determination. Washington determined that while the cost effectiveness value for DSI at this facility is relatively high compared to other cost effectiveness values that are considered BART, the visibility improvement at Olympic National Park is significant (0.8 dv) and warrants this control as BART. Washington determined dry sorbent injection with emission limit of not to exceed 8620 lb/day as BART.

Limestone slurry forced oxidation (LSFO) is a technically feasible control option with a control efficiency of 95% for SO_2. Cost effectiveness is $32,920/ton and is considered not reasonable for this facility. Lafarge considered, but rejected, wet lime scrubbing, which is similar to LSFO, but uses lime instead of limestone. The resulting waste product cannot be recycled into the process and would incur the additional cost to landfill. Also the cost of lime is considerably more than limestone. Both these factors would increase the cost effectiveness values even higher than LSFO.

NO_X: Currently NO_X emissions from the kiln are controlled by combustion control. As explained in greater detail in the Washington Regional Haze Submittal appendix L, Washington evaluated additional control options. In summary its analysis found that LNB with indirect firing is a technically feasible control option with a 15% control efficiency and cost effectiveness of $19,246/ton of NO_X reduced. The analysis determined that SCR has not proven effective in other wet process kiln cement plants that have used SCR. Thus SCR is not considered an available technology for this unit.

Washington found that SNCR is technically feasible at the facility with a 40% control efficiency and cost effectiveness value of $1409/ton. Washington has determined SNCR to be one option available to comply with BART at this facility. As part of their BART analysis, Washington also considered mid-kiln firing with whole used tires. Mid-kiln firing changes the combustion characteristics and provides a 40% control of NO_X. As Lafarge has already installed, but currently does not use the equipment for mid-kiln firing with whole tires, the cost effectiveness is low. Washington has determined that mid-kiln firing with whole tires is an available option to comply with BART. Finally, low NO_X burners with indirect firing and SNCR were evaluated. LNB with SNCR is technically feasible with a control efficiency of 55%. Cost effectiveness is determined by Washington to be $6247/ton. The incremental cost of adding LNB to SNCR is $14,900/ton. Washington determined that the incremental cost of adding LNB to SNCR is not cost effective. Thus, Washington determined that BART for NO_X to be either SNCR or mid-kiln firing of whole tires with an emission limit of 22,960 lb/day.

PM: The initial design of the Lafarge facility was for two kilns, but only one was built. Two ESPs were constructed, assuming a second kiln would be built. Currently, the exhaust gasses are ducted to both ESPs which decreases the flow rate by half and increases the control efficiency to 99.95%. This control efficiency is equal to that of a baghouse. Washington determined the existing ESPs are BART for PM with an emission limit of 0.05 g/dscf.

Clinker Cooler: There are no SO_2 or NO_X emissions from the Clinker Cooler and a BART determination for these pollutants was not conducted. Currently PM emissions from the clinker cooler are controlled by baghouses. The current baghouses control 99.8% of PM emissions, which is equal to an ESP. While other controls such as wet scrubbers or wet venture scrubbers are available, the analysis completed by Lafarge found that these other technologies did not control PM emissions as well as the baghouses currently in use at the facility. Therefore, Washington determined the existing primary and backup baghouses and the emissions limitations for these units contained in Regulation 1, section 9.09 (as in effect on June 30, 2008) and Order of Approval No. 5627 as BART.

All other sources: Existing baghouses were determined to be BART for PM with an emission limit of 0.005 g/dscf. Washington on July 28, 2010 issued Lafarge a revised BART Order No. 7841 requiring compliance with BART, including monitoring, recordkeeping and reporting requirements. See appendix L of the SIP submittal, Lafarge BART determination. Washington's BART determination and required controls for Lafarge is expected to result in approximately 1.1 dv visibility improvement in Olympic National Park and 0.2 to 0.8 dv improvement at the other affected Class I areas.

Summary of Proposed Lafarge BART Technology

The table below summarizes the proposed BART technology for Lafarge.

Emission unit	BART technology
Clinker Cooler	$PM/PM_{10}/PM_{2.5}$: Existing baghouses 0.025 g/dscf for the primary baghouse 0.005 g/dscf for backup baghouse.
Rotary Kiln	$PM/PM_{10}/PM_{2.5}$: Existing electrostatic precipitators 0.05 g/dscf. NO_X: SNCR or Mid-kiln firing of whole tires not to exceed 22960 lb/day. SO_2: Dry sorbent injection with lime plus currently permitted fuels and the cement kiln process not to exceed 8620 lb/day.
All Other PM_{10} Sources at Plant	PM_{10}: Existing baghouses 0.005 g/dscf.

f. TransAlta Centralia Generation, LLC

TransAlta Centralia Generation LLC, located in Centralia, Washington operates a two unit coal-fired power plant rated at 702.5 megawatt each, when burning coal from the Centralia coalfield as originally designed. These units are BART eligible and subject to BART as described in the SIP submittal, Supplement to appendix L. The units now burn Powder River Basin coal and are each rated at 670 MW. On June 11, 2003, EPA approved a revision to the Washington Visibility SIP which included controls for NO_X, SO_2, and PM. In the action approving these provisions of the Visibility SIP, EPA determined the controls to be BART for SO_2 and PM but not for NO_X. The NO_X controls included in the November 1999 Visibility SIP revision, which EPA approved into the SIP, were Alstrom concentric low NO_X burners with overfire air. TransAlta continues to be a BART eligible source for NO_X.

Washington's December 22, 2010 Regional Haze SIP submittal included a BART determination for TransAlta which was updated on December 29, 2011. EPA approved the updated TransAlta NO_X BART determination on August 20, 2012. The SIP approved BART determination imposes a NO_X emission limitation of 0.21 lb/MMBtu for each unit based on the installation of SNCR on both coal-fired units plus Flex Fuel. It also requires a one year performance optimization study and lowering the emission limits based on the study results. Additionally, the BART determination requires one unit to cease burning coal by December 31, 2020 and the second unit by December 31, 2025 unless Washington determines that state or federal law requires SCR to be installed on either unit.

g. Weyerhaeuser Company-Longview

Weyerhaeuser operates a Kraft pulp and paper mill in Longview, Washington. The facility has three emission units subject to BART: the No. 10 recovery furnace, No. 10 smelt dissolver tank and No. 11 power boiler. The recovery furnace currently controls PM emissions with an ESP. It also employs tertiary over fire air to control combustion and maximize chemical recovery. The recovery furnace currently is regulated by a PSD permit requiring BACT and 40 CFR part 63 Subpart MM. The smelt dissolver tank emits PM controlled with a high efficiency wet scrubber which was permitted as BACT in 1993 and is subject to 40 CFR part 63 Subpart MM.

The No. 11 power boiler provides steam for electricity generation and plant operations. It burns a combination of wood waste, dewatered waste water treatment sludge, and supplemental low sulfur coal (<2% sulfur by weight). Emissions from the No.11 power boiler are subject to BACT in the facility's New Source Review (NSR) permit and 40 CFR part 60 Subpart D NSPS and are controlled by: 1) a multiclone to remove large particulate, 2) dry trona injection to remove SO_2, and 3) a dry ESP for additional particulate control. NO_X emissions are controlled with good combustion practices.

Recovery Furnace BART Options

PM: Washington evaluated two technically feasible control options for increased PM control: wet ESP and venturi scrubber. A wet ESP would not provide any additional reduction in PM over the current dry ESP. A venturi scrubber added after the dry ESP would cost $28,000/ton of PM removed and is not cost effective. Additionally this cost effectiveness calculation did not include impacts of increased waste water to the treatment system which if included would only increase the cost. Adding an additional field to the existing dry ESP is not cost effective at $122,000/ton. Washington determined that PM BART is the existing BACT dry ESP with an emission limit of 0.027 gr/dscf at 8% O_2, and 0.020 gr/dscf at 8% O_2 annual average.

NO_X: The analysis of NO_X controls for this unit found that SCR and SNCR do not appear to be technically feasible due to the nature and purpose of the recovery boiler. As particulate matter captured from the exhaust gas stream is used in creating green liquor, the addition of ammonia upsets the delicate chemical make-up of the recovered salts. The catalyst used in SCR would be ''poisoned'' by the alkaline salts in the exhaust gas stream. Washington determined that NO_X BART for this furnace is the current staged combustion system with an emission limit of 140 ppm at 8% O_2.

SO_2: Wet and dry sorbent injection systems were considered as control options for SO_2. However, since the recovery furnace is intended to recover sodium and sulfur for reuse in the pulping process, the recovery furnace is designed to capture these chemical compounds and thus emits little SO_2 emissions. Weyerhaeuser and Washington's analysis found that

neither a wet lime scrubber, a limestone scrubber nor semi-dry or dry sorbent injection system are likely to reduce much SO_2 from this unit. Washington determined that BART is the current operation of the furnace using a tertiary air system, use of good operating practices and meeting the emission limitation in PSD permit 92–03 Amendment 4, of 75 ppm at 8% O_2.

No. 10 Smelt Dissolver Tank

The smelt tank only emits PM and is currently regulated by the most stringent BACT emission limit in the EPA RBLC, which is more stringent than the MACT standard. Because this unit is not a source of NO_X emission and only a negligible source of SO_2 emissions no additional controls are necessary for these pollutants. Washington determined that PM BART for this unit is current level of control provided by the existing wet scrubber and an emission limit of 0.12 lb/ton black liquor.

No. 11 Power Boiler

This power boiler currently uses overfire air to provide efficient combustion, a multiclone followed by an ESP for control of PM, and trona injection after the multiclone and before the ESP to control SO_2.

PM: Alternative control options were considered for PM control on the power boiler. Fabric filters are not feasible due to the fire hazard from burning wood chips. Wet ESPs are no more efficient than the existing dry ESP. Washington also found that space constraints on the No. 11 power boiler would prevent or require expensive infrastructure modifications to provide the space necessary for modifications to either the PM or SO_2 controls currently in place. Washington determined that BART for PM at the No. 11 power boiler is the existing multiclone followed by dry ESP with an emission limit of 0.10 lb/MMBtu.

NO_X: SCR and SNCR were evaluated for NO_X control. SCR with a control efficiency of 75% is not cost effective at $13,000/ton. SNCR with a control efficiency of 25% is not cost effective at $6686/ton. As described in the SIP submittal, Washington agreed with Weyerhaeuser's analysis finding that there is no other NO_X reduction technology that is technically and economically feasible for this unit. Washington determined that BART is the existing combustion system with an emission limit of (0.30x + 0.70y)/(x + y) lb per MMBtu (derived from solid fossil fuel, liquid fossil fuel and wood residue) where 40 CFR 60.44(b) defines the variables.

SO_2: The current dry sorbent (trona) injection system has a control efficiency of 25%. Additional control options including low sulfur fuel oil or coal and wet calcium scrubbing were evaluated. Due to the limited use of either oil or coal, emission reductions from changing to low sulfur coal would provide negligible SO_2 reductions and limited improvement in visibility. Hydrated lime injection is technically infeasible due to lime build-up on the ID fan blades causing potential fan failure and unsafe explosion conditions. LSFO and lime spray dryer control technologies are not cost effective at over $17,000/ton. Washington determined SO_2 BART for the No. 11 power boiler is the continued use of low sulfur fuels and dry trona sorbent injection with an emission limit of 1000 ppm at 7% O_2, 1-hour average, (0.8y +1.2z)/(y +z) lb per MMBtu. (derived from burning a mixture of liquid and solid fossil fuel) where 40 CFR 60.43(b) defines the variables).

Summary and Conclusion for Weyerhaeuser BART:

In conclusion for the Weyerhaeuser Company, Longview, for all of the reasons summarized above, Washington determined that the existing controls, techniques and emission limits constitute BART for NO_X, SO_2, and PM at the facility. On July 7, 2010, Washington issued Weyerhaeuser Company Order No. 7840 containing the BART requirements. After review of the SIP submittal, EPA proposes to find that the BART determination and BART compliance order for Weyerhaeuser is reasonable and proposes to approve it.

Summary of Weyerhaeuser Proposed BART Technology

The table below summarizes the proposed BART technology for Weyerhaeuser.

Emission unit	BART technology
No. 11 Power Boiler	PM: Existing ESP 0.050 grain/dscf at 7% O_2 (current limit). NO_X: Existing Combustion System (0.30x + 0.70y)/(x + y) lb per MMBtu (derived from solid fossil fuel, liquid fossil fuel and wood residue) (40 CFR 60.44(b) which also defines the variables) SO_2: Fuel mix and trona injection system 1000 ppm at 7% O_2, 1-hour average, (0.8y + 1.2z)/(y + z) lb per MMBtu (derived from burning a mixture of liquid and solid fossil fuel) (40 CFR 60.43(b) which also defines the variables).
No. 10 Recovery Furnace	PM: Existing ESP 0.027 gr/dscf, per test, and 0.020 grain/dscf, annual average (current BACT limits in PSD 92–03, Amendment 4). NO_X: Existing Staged Combustion System 140 ppm at 8% O_2 (current BACT limit in PSD 92–03, Amendment 4). SO_2: Good Operating Practices 75 PPM at 8% O_2 (current BACT limit in PSD 92–03, Amendment 4).
Smelt Dissolver Tank	PM: Existing High Efficiency Wet Scrubber 0.120 lb/BLS (current BACT limit in PSD 92–03, Amendment 4). NO_X: No limit required. SO_2: No limit required.

F. Determination of Reasonable Progress Goals

The RHR requires states to show ''reasonable progress'' toward natural visibility conditions over the time period of the SIP, with 2018 as the first milestone year. The RHR also requires that the state establish an RPG, expressed in deciviews (dv), for each Class I area within the state that provides for reasonable progress towards achieving natural visibility conditions by 2064. As such, the state must establish a Reasonable Progress Goals (RPGs) for each Class I area that provides for visibility improvement for the most-impaired (20% worst) days and ensures no degradation in visibility for the least-impaired (20% best) days in 2018.

RPGs are estimates of the progress to be achieved by 2018 through implementation of the LTS which includes anticipated emission reductions from all state and federal regulatory requirements implemented between the baseline and 2018, including but not limited to BART and any additional controls for non-BART sources or emission activities including any federal requirements that reduce visibility impairing pollutants. As explained above, the rate needed to achieve natural conditions by 2064 is referred to as the uniform rate of progress or URP.

If the state establishes a reasonable progress goal that provides for a slower rate of improvement than the rate that would be needed to attain natural conditions by 2064, the state must demonstrate, based on the factors in 40 CFR 51.308(d)(l)(i)(A), that the rate of progress for the implementation plan to attain natural conditions by 2064 is not reasonable; and the progress goal adopted by the state is reasonable. The state must provide to the public for review as part of its implementation plan an assessment of the number of years it would take to attain natural conditions if visibility continues at the rate of progress selected by the state. 40 CFR 51.308(d)(B)(ii).

Washington identified the visibility improvement by 2018 in each of the mandatory Class I areas as a result of implementation of the SIP submittal BART emission limits, using the results of the Community Multi-Scale Air Quality (CMAQ) modeling conducted by WRAP. CMAQ modeling identified the extent of visibility improvement for each Class I area by pollutant specie. The WRAP CMAQ modeling predicted visibility impairment by Class I area based on 2018 projected source emission inventories, which included federal and state regulations already in place (''on the books'') and BART limitations. A more detailed description of the CMAQ modeling performed by the WRAP can be found in the WRAP TSD. The modeling projected that statewide emissions of SO_2 will decline by almost 40% between the baseline period and 2018 attributable to a 29% reduction in point source emissions and a 95% reduction in on and off-road mobile sources. See e.g. SIP submittal at 9–3. Additionally, the WRAP's Particulate Matter Source Apportionment Technology (PSAT) analysis for 2018 indicates that sources beyond the control of the state that are outside the modeling domain, Canada or Pacific offshore that will contribute about two-thirds or more of the sulfate concentrations in many of the Class I areas. The modeling projected that nitrate concentrations will decrease by 46% between the baseline and 2018 primarily due to reductions in NO_X emissions from on-road and off-road mobile sources. Again, the PSAT analysis indicates the majority of the remaining nitrate in 2018 will come from sources in Canada, Pacific offshore or outside the modeling domain. See e.g. SIP submittal 9–4.

Chapter 9 of the SIP submittal discusses the establishment of the RPGs for 2018 for each Class I area in Washington. Table 9–4 of the SIP submittal presents the RPG's for each Class I area in Washington. These goals provide for modest improvement in visibility on the 20% most impaired days, but not to the level of 2018 URP in any of the Class I areas. The goals also provide for no degradation on the 20% least impaired days.

Washington relied on the regional modeling conducted by the WRAP in establishing the RPGs. The WRAP ran several emission scenarios representing base case and 2018 emissions. Washington elected to use the model run with emissions in the ''Preliminary Reasonable Progress'' emission estimates for 2018 (PRP18a). The WRAP modeling for the 2018 RPGs does not account for a number of changes in projected emissions that occurred subsequent to completion of the model runs including reductions that are expected to occur as a result of the proposed FIP. These include:

- Emission reductions resulting from final SIP and FIP BART determinations
- Emission reductions from International Maritime Organization Emission Control Area for the west coast of the U.S. and Canada
- Reductions in SO_2 emissions from SO_2 control measures on three oil refineries: TSEORO, Shell (Puget Sound Refining) and Conoco-Phillips
- Proposed Better than BART alternative federal emission limitations on Intalco
- Proposed Better than BART alternative federal program for Tesoro
- Additional NO_X emission reductions of 8022 t/y from the TransAlta BART determination

Therefore, the RPGs established by Washington are conservative and do not account for the above additional emission reductions that have already been, or are expected to be achieved by 2018.

As part of its reasonable progress analysis, Washington conducted a generalized four-factor analysis on those source categories that have the greatest visibility impact and determined that it should focus on the SO_2 and NO_X emissions and the source categories that emit more than 1000 t/y. Specific analysis was completed on the following three source categories: (1) Industrial processes, (2) external combustion boilers, and (3) stationary internal combustion engines.

Industrial processes account for 22,112 t/y of SO_2 emissions, primarily from aluminum smelting, petroleum processing (process heaters, catalytic cracking units, and flares), sulfate (Kraft) pulping, and wet process cement manufacturing. Of these industrial processes, external combustion boilers account for 13,783 t/y of SO_2 emissions primarily from burning process gas, wood waste, residual oil, and bituminous and sub-bituminous coal for electricity generation. Stationary internal combustion engines fueled by natural gas account for 911 t/y of SO_2 emissions.

Other industrial processes account for 19,070 t/y NO_X emissions primarily from wet and dry process cement manufacturing, glass manufacturing, sulfate (Kraft) pulping, sulfite pulping, and petroleum process heaters. External combustion boilers account for 26,895 t/y NO_X emissions primarily from burning bituminous and sub-bituminous coal for electricity generation, wood waste, process gas, and natural gas. Internal combustion engines account for 2,544 t/y NO_X emissions fueled by natural gas.

There are five crude oil refineries located in Washington. Process heaters are fueled with waste refinery gas, using natural gas as back-up. Two of the five refineries are subject to BART (BP Cherry Point and Tesoro) and BART determinations were made for them. See the previous BART discussion. The three other meet the NSPS limit for sulfur in refinery fuel gas.

Washington also considered the significant visibility impact caused by natural fire in three of the Class I Areas: North Cascades National Park, Glacier Peak Wilderness Area, and Pasayten Wilderness Area. The WRAP's analysis found that emissions attributable to natural fire are not expected to significantly change between the baseline and 2018. Washington found that if these projections are correct, the impact of natural fire is so great in these three areas that they will not be able to achieve the estimated natural conditions.

Washington's reasonable progress analysis found that emissions, particularly SO_2 and NO_X, from Canada result in significant impact on visibility in the Class I areas. Additionally, Pacific offshore emissions are significant in all areas except the Pasayten Wilderness Area. Of the sulfate impairment in Olympic National Park on the most impaired days, 73% originates from a combination of sources located outside the modeling domain, Canada, and Pacific offshore. Of the nitrate impairment in Olympic National Park on the most impaired days, 43% originates from sources in these areas. Similar impairment profiles exist in the other Class I areas in Washington. In Washington's view, Washington's mandatory Class I areas will not be able to attain natural conditions without further controls on Canadian and Pacific offshore emissions and the lack of controls inhibits these Class I areas' ability to achieve the URP and lengthens the time it will take to achieve natural conditions.

In establishing the 2018 RPGs, Washington did not account (or take credit) for almost 10,000 tons of SO_2 reductions that occurred in the 2003 to 2005 timeframe from implementation of various control technologies from the Tesoro, ConocoPhillips, and Shell refineries. Tesoro installed wet FGD on the CO Boiler (Fluidized Catalyst Cracker) in 2005 for a reduction of 4740 t/y SO_2 and is considered BART in Washington's BART determination. Conoco-Phillips installed wet-FGD on its CO boiler for a reduction of 2041 t/y SO_2 which was not included in the WRAP modeling for RPGs. Shell Puget Sound Refining installed wet-FGD on their CO boiler for a reduction of 3045 t/y SO_2 which was not included in the WRAP modeling. Washington relied on the WRAP modeling in establishing the RPG's, thus the goals of the SIP submittal underestimate actual improvement that is anticipated.

EPA proposes to find that the Washington Regional Haze SIP submittal meets the requirements of 40 CFR 51.308(d)(1). As discussed above, the RPGs established by Washington are conservative and do not account for a significant amount of additional emission reductions that have already been, or are anticipated to be achieved by 2018. These include the emission reductions expected from the BART determinations and Better than BART determinations proposed today and the almost 10,000 t/y SO_2 emission reductions from three refineries in northwest Washington.

As explained in EPA's RPG Guidance, the 2018 URP estimate is not a presumptive target and the Washington's RPGs may be lesser, greater or equivalent to the glide path. The glide path to 2064 represents a linear rate of progress to be used for analytical comparison to the amount of progress expected to be achieved. EPA believes that the RPGs established by Washington for the Class I areas in Washington, although not achieving the URP, are reasonable when considering the additional emission reductions expected to result from the BART controls, additional reductions on refineries not included in the reasonable progress demonstration and the significant contributions to visibility impairment from natural fire and from sources beyond Washington's regulatory jurisdiction. Additional controls on point sources or other source categories at this time is not likely to result in substantial visibility improvement in the first planning period due to the significant contribution from emissions from natural fire, the Pacific offshore, Canada, and outside the modeling domain.

EPA believes that actual visibility improvement in all Class I areas by 2018 will be significantly better than the RPGs established in the SIP submittal would suggest. The RPG's established in the SIP for the Class I areas in Washington meet the federal requirements by showing visibility improvement on the 20% worst days and no degradation on the 20% best days. EPA is proposing to find that Washington has demonstrated that its 2018 RPGs are reasonable for the first planning period and meet the requirements of 40 CFR 51.308(d)(1).

G. Long Term Strategy

The Long Term Strategy required by 40 CFR 51.308(d)(3) is a compilation of all existing and anticipated new air pollution control measures (both those identified in this SIP submittal as well as measures resulting from other air pollution requirements.) The LTS must include ''enforceable emission limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals'' for all Class I areas within or affected by emissions from the state. 40 CFR 51.308(d)(3). In developing a LTS, Washington identified existing programs and rules, and additional new controls that may be needed for other CAA requirements.

The Regional Haze Rule requires that states consider seven topics: (1) Ongoing air pollution control programs including measures to address RAVI, (2) measures to mitigate impacts of construction activities, (3) emission limitations and schedules for compliance, (4) source retirement and replacement schedules, (5) smoke management techniques for agricultural and forestry burning, (6) enforceability of emission limitations and control measures, and (7) the anticipated net effects on visibility due to projected changes in point, area and mobile source emissions over the first planning period which ends in 2018. 40 CFR 50.308(d)(3). In their reasonable progress analysis, Washington addressed each of these topics and added two additional factors; commercial marine shipping and residential wood combustion.

1. Emission reductions due to ongoing air pollution control programs. Washington discussed a number of current federal, state, and local permit programs and regulations that limit visibility impairing emissions from point, area, on-road and non-road mobile sources. The programs and requirements include for example the New Source Review and Washington's Reasonable Available Control technology (RACT) permitting requirements, the BART requirements and Washington's Smoke Management Plan.

2. Measures to mitigate impacts of construction activities. Washington explained that due to the location of the Class I areas relative to the urban areas in Washington, construction activities have not been identified as contributing to visibility impairment in the Class I areas. Washington also explained however, that construction activities are regulated under Washington or under local air quality authority rules and policies governing mitigation of air pollution from construction activities.

3. Emission limitations and schedules for compliance. The submission states that in addition to current state and federal rules, the BART requirements are important to achieving the estimated emission reductions necessary to meet the 2018 RPG. To this end, Washington issued enforceable BART Orders containing compliance schedules to each source subject to BART. The BART Orders are included as part of the SIP submittal.

4. Source retirement and replacement schedules. Washington is not aware of any scheduled and documented retirement or replacement of point sources emitting visibility impairing pollutants so source retirement and replacement schedules are not included as part of Washington's long term strategy. However, if Washington receives notice of source retirement or replacement in the future it commits to including the emission reductions into the long term strategy in its periodic updates.

5. Smoke management techniques for agricultural and forestry burning. In Washington agricultural burning is regulated by Washington and local agencies which establish controls for agricultural burning to minimize adverse health effects and environmental effects, including visibility. Washington's silvicultural

Smoke Management Plan was incorporated into the Washington RAVI SIP on June 11, 2003. See 68 FR 3482.

6. Enforceability of emission limitations and control measures. Emission limits on stationary sources are enforceable as a matter of state law under chapter 173–400 Washington Administrative Code, General Regulations for Air pollution Sources. Additionally, as mentioned above, Washington issued enforceable BART Orders to each BART source which will later be incorporated into the source's Title 5 permit.

7. Anticipated net effects on visibility due to projected changes in point, area and mobile source emissions over the first planning period. Washington relied on modeling results from the WRAP projecting the anticipated visibility improvement in 2018 for the LTS. See SIP submittal, Table 10–3. As explained above, in the discussion regarding the reasonable progress demonstration, due to the fact that the WRAP modeling was conducted prior to many emission reduction activities that have, or will occur, the projections in Table 10–3 of the SIP submittal are conservative. Thus, the actual visibility improvement is likely to be better than projected.

In addition to the seven factors discussed above, Washington also included two additional elements in their long term strategy; residential wood combustion program and woodstove change-outs and controls on emissions from commercial marine shipping. EPA acknowledges these additional measures, but it is not necessary to take these specific activities into account at this time in evaluating whether the enforceable measures contained in Washington's LTS satisfy the RHR requirements.

Washington consulted with surrounding states through participation in the WRAP to ensure that Washington would achieve its fair share of reductions so that Class I areas in other states can meet their RPGs. No state specifically requested Washington for emission reductions beyond those assumed by the WRAP when it completed its modeling of 2018 visibility conditions. Additionally, Washington commits to updating its comprehensive LTS on the schedule set by the RHR for the Regional Haze SIP updates.

EPA is proposing to find that Washington adequately addressed the RHR requirements in developing its LTS because it includes all the control measures that were anticipated at the time of the SIP development. The SIP submittal contains sufficient documentation to ensure that Washington's LTS will enable it to achieve the RPGs established for the mandatory Class I areas in Washington as well as the RPGs established by other states for the Class I areas where Washington sources are reasonably anticipated to contribute to visibility impairment.

Washington's analysis included consideration of all anthropogenic sources of visibility impairment including major and minor stationary sources, mobile sources and area sources. The anticipated net effect on visibility over the first planning period due to changes in point, area and mobile source emissions is an improvement in visibility in all Class I areas in Washington on the worst 20% days and no degradation of visibility on the 20% best days. EPA proposes to approve the Long Term Strategy (LTS) contained in the SIP submittal because it includes all the control measures that were anticipated at the time of the SIP development and the LTS as a whole provides sufficient measures to ensure that Washington will meet its emission reduction obligations.

H. Monitoring Strategy and Other Implementation Requirements

The primary monitoring network for regional haze in Washington is the IMPROVE network. As discussed previously, there are currently IMPROVE sites that represent conditions for all mandatory Class I areas in Washington.

IMPROVE monitoring data from 2000–2004 serves as the baseline for the regional haze program, and is relied upon in the Washington SIP submittal. In the SIP submittal, Washington commits to rely on the IMPROVE network for complying with the regional haze monitoring requirement in EPA's RHR for the current and future regional haze implementation periods. See chapter 12 of the SIP submittal. Washington will also rely on the continued existence of the WRAP and on the WRAP's work to provide adequate technical support to meet its commitment to conduct the analyses required under the 40 CFR 51.308(d)(4) and will collaborate with the WRAP members to ensure the continued operation of the technical support tools. Data produced by the IMPROVE monitoring network will be used for preparing the 5-year progress reports and the 10-year SIP revisions, each of which relies on analysis of the preceding 5 years of data. Washington also commits to updating its statewide emissions inventory periodically.

I. Consultation With States and Federal Land Managers

Through the WRAP, member states and Tribes worked extensively with the FLMs from the U.S. Departments of the Interior and Agriculture to develop technical analyses that support the regional haze SIPs for the WRAP states. Washington provided the proposed Regional Haze plan for Washington to the FLMs for comment in March 2010. See appendix B of the SIP submittal. Washington also consulted with the states of Idaho and Oregon, and all WRAP member states and Tribes.

J. Periodic SIP Revisions and 5-Year Progress Reports

Section 51.308(f) of the RHR requires that the regional haze plans be revised and submitted to EPA by July 31, 2018 and every 10 years thereafter. 40 CFR 51.308(g) requires the state to submit a progress report to EPA every 5 years evaluating the progress made towards the reasonable progress goals for each Class I area in the state and each Class I area located outside the state which may be affected by emissions from within the state. Washington commits to evaluate and assess each of the elements required under 40 CFR 51.308(f) and to submit a comprehensive Regional Haze SIP revision to EPA by July 31, 2018, and every 10 years thereafter. Washington also commits to submitting a report on its reasonable progress to EPA every 5 years to evaluate the progress made towards the RPGs and to address each of the elements specified in 40 CFR 51.308(g). See chapter 12 of the SIP submission.

V. What action is EPA proposing?

EPA is proposing a partial approval for most elements of the Washington Regional Haze SIP submittal. EPA is proposing a limited approval and limited disapproval of the State's SO_2 BART determinations for the Intalco potlines, and proposes a Better than BART alternative. The limited approval of the State's BART Order for Intalco is strengthening the SIP and the Better than BART FIP limiting annual SO_2 emissions to 5240 t/y is a BART alternative. This Better than BART alternative, as offered by Alcoa, will incur no cost to Alcoa as it currently operates within this emission limit. EPA is also proposing to disapprove the Tesoro NO_X BART determinations for emission units F–304, F–6650, F–6651, F–6652, and F–6653 and proposes a FIP for an alternative Better than BART. This Better than BART alternative, as offered by Tesoro, will incur no cost to

Tesoro as they currently operate within these emission limits.

VI. Washington Notice

Washington's Regulatory Reform Act of 1995, codified at chapter 43.05 Revised Code of Washington (RCW), precludes ''regulatory agencies'', as defined in RCW 43.05.010, from assessing civil penalties under certain circumstances. EPA has determined that chapter 43.05 of the RCW, often referred to as ''House Bill 1010,'' conflicts with the requirements of CAA section 110(a)(2)(A) and (C) and 40 CFR 51.230(b) and (e). Based on this determination, Ecology has determined that chapter 43.05 RCW does not apply to the requirements of chapter 173–422 WAC. See 66 FR 35115, 35120 (July 3, 2001). The restriction on the issuance of civil penalties in chapter 43.05 RCW does not apply to local air pollution control authorities in Washington because local air pollution control authorities are not ''regulatory agencies'' within the meaning of that statute. See 66 FR 35115, 35120 (July 3, 2001).

In addition, EPA is relying on the State's interpretation of another technical assistance law, RCW 43.21A.085 and .087, to conclude that the law does not impinge on the State's authority to administer Federal Clean Air Act programs. The Washington Attorney Generals' Office has concluded that RCW 43.21A.085 and .087 do not conflict with Federal authorization requirements because these provisions implement a discretionary program. EPA understands from the State's interpretation that technical assistance visits conducted by the State will not be conducted under the authority of RCW 43.21A.085 and .087. See 66 FR 16, 20 (January 2, 2001); 59 FR 42552, 42555 (August 18, 1994).

VII. Scope of Action

This proposed SIP approval does not extend to sources or activities located in ''Indian Country'' as defined in 18 U.S.C. 1151.[11] Consistent with previous Federal program approvals or delegations, EPA will continue to implement the Act in Indian Country because Washington did not adequately demonstrate authority over sources and activities located within the exterior boundaries of Indian reservations and other areas of Indian Country. The one exception is within the exterior boundaries of the Puyallup Indian Reservation, also known as the 1873 Survey Area. Under the Puyallup Tribe of Indians Settlement Act of 1989, 25 U.S.C. 1773, Congress explicitly provided state and local agencies in Washington authority over activities on non-trust lands within the 1873 Survey Area.

[11] ''Indian country'' is defined under 18 U.S.C. 1151 as: (1) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation, (2) all dependent Indian communities within the borders of the United States, whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a State, and (3) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. Under this definition, EPA treats as reservations trust lands validly set aside for the use of a Tribe even if the trust lands have not been formally designated as a reservation.

VIII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a ''significant regulatory action'' under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011). The proposed FIP applies to only two facilities and is not a rule of general applicability.

B. Paperwork Reduction Act

This proposed action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* Under the Paperwork Reduction Act, a ''collection of information'' is defined as a requirement for ''answers to * * * identical reporting or recordkeeping requirements imposed on ten or more persons * * *.'' 44 U.S.C. 3502(3)(A). Because the proposed FIP applies to just two facilities, the Paperwork Reduction Act does not apply. *See* 5 CFR 1320(c). Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. The OMB control numbers for our regulations in 40 CFR are listed in 40 CFR part 9.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions. For purposes of assessing the impacts of today's proposed rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for profit enterprise which is independently owned and operated and is not dominant in its field. After considering the economic impacts of this proposed action on small entities, I certify that this proposed action will not have a significant economic impact on a substantial number of small entities. The FIP for the two Washington facilities being proposed today does not impose any new requirements on small entities. The proposed partial approval of the SIP, if finalized, merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law. *See Mid-Tex Electric Cooperative, Inc.* v. *FERC,* 773 F.2d 327 (DC Cir. 1985).

D. Unfunded Mandates Reform Act (UMRA)

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on state, local, and Tribal governments and the private sector. Under section 202 of UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to state, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 of UMRA do not apply when they are inconsistent with applicable law. Moreover, section 205 of UMRA allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Under Title II of UMRA, EPA has determined that this proposed rule does not contain a Federal mandate that may result in expenditures that exceed the inflation-adjusted UMRA threshold of $100 million by state, local, or Tribal governments or the private sector in any 1 year. In addition, this proposed rule does not contain a significant Federal intergovernmental mandate as described by section 203 of UMRA nor does it contain any regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

Federalism (64 FR 43255, August 10, 1999) revokes and replaces Executive Orders 12612 (Federalism) and 12875 (Enhancing the Intergovernmental Partnership). Executive Order 13132 requires EPA to develop an accountable process to ensure ''meaningful and timely input by state and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct-effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.'' Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by state and local governments, or EPA consults with state and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts state law unless the Agency consults with state and local officials early in the process of developing the proposed regulation. This rule will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132, because it merely addresses the state not fully meeting its regional haze SIP obligations established in the CAA. Thus, Executive Order 13132 does not apply to this action. In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, Entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' This proposed rule does not have tribal implications, as specified in Executive Order 13175 because the SIP and FIP do not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule. EPA specifically solicits additional comment on this proposed rule from tribal officials. Consistent with EPA policy, EPA nonetheless provided a consultation opportunity to Tribes in Idaho, Oregon and Washington in letters dated January 14, 2011. EPA received one request for consultation, and we have followed-up with that Tribe. On September 20, 2012, EPA provided an additional consultation opportunity to 7 Tribes in Washington specific to the Washington regional haze plan. We received no requests for consultation.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045: *Protection of Children From Environmental Health Risks and Safety Risks* (62 FR 19885, April 23, 1997), applies to any rule that: (1) Is determined to be economically significant as defined under Executive Order 12866; and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. EPA interprets EO 13045 as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it implements specific standards established by Congress in statutes. However, to the extent this proposed rule will limit emissions of NO_X, SO_2, and PM_{10} the rule will have a beneficial effect on children's health by reducing air pollution.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

The EPA believes that VCS are inapplicable to the proposed partial approval of the SIP that if finalized, merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law. The FIP portion of this proposed rulemaking involves technical standards. EPA proposes to use American Society for Testing and Materials (ASTM) Methods and generally accepted test methods previously promulgated by EPA. Because all of these methods are generally accepted and are widely used by State and local agencies for determining compliance with similar rules, EPA believes it would be impracticable and potentially confusing to put in place methods that vary from what is already accepted. As a result, EPA believes it is unnecessary and inappropriate to consider alternative technical standards. EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially-applicable voluntary consensus standards and to explain why such standards should be used in this regulation.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994), establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. We have determined that this proposed rule, if finalized, will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low income populations. This proposed FIP limits emissions of SO_2 from two facilities in Washington. The partial approval of the SIP, if finalized, merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Visibility, and Volatile organic compounds.

Dated: November 30, 2012.

Dennis J. McLerran,

Regional Administrator, Region 10.

40 CFR part 52 is proposed to be amended as follows:

PART 52—[AMENDED]

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart WW—Washington

2. Section 52.2498 is amended by adding paragraph (c) to read as follows:

§ 52.2498 Visibility protection.

* * * * *

(c) The requirements of sections 169A and 169B of the Clean Air Act are not met because the plan does not include approvable provisions for protection of visibility in mandatory Class I Federal areas, specifically the Best Available Retrofit Technology (BART) requirement for regional haze visibility impairment (§ 51.308(e)). The EPA BART regulations are found in §§ 52.2500 and 52.2501.

* * * * *

3. Add §§ 52.2500 and 52.2501 to read as follows:

§ 52.2500 Best available retrofit technology requirements for the Intalco Aluminum Corporation (Intalco Works) primary aluminum plant—Better than BART Alternative.

(a) *Applicability.* This section applies to the Intalco Aluminum Corporation (Intalco Works) primary aluminum plant located in Ferndale, Washington and to its successors and/or assignees.

(b) *Better than BART Alternative—Sulfur dioxide (SO_2) emission limit for potlines.* Starting January 1, 2014, SO_2 emissions from all pot lines in aggregate must not exceed a total of 5,240 tons for any calendar year.

(c) *Compliance demonstration.* (1) Intalco shall determine on a calendar month basis, SO_2 emissions using the following formula:

SO_2 emissions in tons per calendar month = (carbon consumption ratio) × (% sulfur in baked anodes/100) × (% sulfur converted to SO_2/100) × (2 pounds of SO_2 per pound of sulfur) × (tons of aluminum production per calendar month).

(i) Carbon consumption ratio is the calendar month average of tons of baked anodes consumed per ton of aluminum produced as determined using the baked anode consumption and production records required in paragraph (e)(2) of this section.

(ii) % sulfur in baked anodes is the calendar month average sulfur content as determined in paragraph (d) of this section.

(iii) % sulfur converted to SO_2 is 95%.

(2) Calendar year SO_2 emissions shall be calculated by summing the 12 calendar month SO_2 emissions for the calendar year.

(d) *Emission monitoring.* (1) The % sulfur of baked anodes shall be determined using ASTM Method D6376 or an alternative method approved by EPA Region 10.

(2) Intalco shall collect at least four anode core samples during each calendar week.

(3) Calendar month average sulfur content shall be determined by averaging the sulfur content of all samples collected during the calendar month.

(e) *Recordkeeping.* (1) Intalco shall record the calendar month SO_2 emissions and the calendar year SO_2 emissions determined in paragraphs (c)(1) and (c)(2) of this section.

(2) Intalco shall maintain records of the baked anode consumption and aluminum production data used to develop the carbon consumption ratio used in paragraph (c)(i) of this section.

(3) Intalco shall retain a copy of all calendar month carbon consumption ratio and potline SO_2 emission calculations.

(4) Intalco shall record the calendar month net production of aluminum and tons of aluminum produced each calendar month. Net production of aluminum is the total mass of molten metal produced from tapping all pots in all of the potlines that operated at any time in the calendar month, measured at the casthouse scales and the rod shop scales.

(5) Intalco shall record the calendar month average sulfur content of the baked anodes.

(6) Records are to be retained at the facility for at least five years and be made available to EPA Region 10 upon request.

(f) *Reporting.* (1) Intalco shall report the calendar month SO_2 emissions and the calendar year SO_2 emissions to EPA Region 10 at the same time as the annual compliance certification required by the Part 70 operating permit for the Intalco Works is submitted to the Title V permitting authority.

(2) All documents and reports shall be sent to EPA Region 10 electronically, in a format approved by the EPA Region 10, to the following email address: *R10-AirPermitReports@epa.gov.*

§ 52.2501 Best available retrofit technology (BART) requirement for the Tesoro Refining and Marketing Company oil refinery—Better than BART Alternative.

(a) *Applicability.* This section applies to the Tesoro Refining and Marketing Company oil refinery located in Anacortes, Washington and to its successors and/or assignees.

(b) *Better than BART alternative.* The Sulfur dioxide (SO_2) emission limitation for non-BART eligible process heaters and boilers (Units F–101, F–102, F–201, F–301, F–652, F–751, and F–752) follows.

(1) *Compliance date.* Starting no later than [60 DAYS AFTER PUBLICATION OF THE FINAL RULE], Units F–101, F–102, F–201, F–301, F–652, F–751, and F–752 shall only fire refinery gas meeting the criteria in paragraph (b)(2) of this section or pipeline quality natural gas.

(2) *Refinery fuel gas requirements.* In order to limit SO_2 emissions, refinery fuel gas used in the units from blend drum V–213 shall not contain greater than 0.10 percent by volume hydrogen sulfide (H_2S), 365-day rolling average, measured according to paragraph (d) of this section.

(c) *Compliance demonstration.* Compliance with the H_2S emission limitation shall be demonstrated using a continuous emissions monitoring system as required in paragraph (d) of this section.

(d) *Emission monitoring.* (1) A continuous emissions monitoring system (CEMS) for H_2S concentration shall be installed, calibrated, maintained and operated measuring the outlet stream of the fuel gas blend drum subsequent to all unmonitored incoming sources of sulfur compounds to the system and prior to any fuel gas combustion device. The monitor shall be certified in accordance with 40 CFR part 60 appendix B and operated in accordance with 40 CFR part 60 appendix F.

(2) Record the calendar day average H_2S concentration of the refinery fuel gas as measured by the CEMS required in paragraph (d)(1) of this section. The daily averages shall be used to calculate the 365-day rolling average.

(e) *Recordkeeping.* Records of the daily average H_2S concentration and 365-day rolling averages are to be retained at the facility for at least five years and be made available to EPA Region 10 upon request.

(f) *Reporting.* (1) Calendar day and 365-day rolling average refinery fuel gas H_2S concentrations shall be reported to EPA Region 10 at the same time that the semi-annual monitoring reports required by the Part 70 operating permit for the Tesoro oil refinery are submitted to the Title V permitting authority.

(2) All documents and reports shall be sent to EPA Region 10 electronically, in a format approved by the EPA Region 10, to the following email address: *R10-AirPermitReports@epa.gov*.

[FR Doc. 2012–30090 Filed 12–21–12; 4:15 pm]

BILLING CODE 6560–50–P