WASHINGTON STATE DEPARTMENT OF ECOLOGY
POST OFFICE BOX 47600
OLYMPIA, WASHINGTON 98504-7600

IN THE MATTER OF:	**]**	**NO. PSD-06-02**
	]	
Simpson Tacoma Kraft Company	**]**	**FINAL APPROVAL**
801 Portland Avenue	**]**	**OF PSD APPLICATION**
Tacoma, Washington 98421	**]**	

This approval is issued pursuant to the United States Environmental Protection Agency (EPA) regulations for the Prevention of Significant Deterioration (PSD) set forth in Title 40 Code of Federal Regulations Part 52, and regulations set forth in the Washington Administrative Code 173-400-700. Based upon the complete application submitted by Simpson Tacoma Kraft Company (Simpson) dated September 2006, and the technical analysis performed by the Department of Ecology (Ecology), Ecology now finds the following:

FINDINGS

1. The Simpson Tacoma Kraft Company (Simpson) proposes to install a steam turbine generator driven by steam produced from #4 Recovery Boiler and #7 Power Boiler. This project will allow Simpson to cogenerate and distribute electrical power.
2. The Simpson mill is located at 801 Portland Avenue in Tacoma, Washington. It is situated on a peninsula bordered by the mouth of the Puyallup River on the northeast, Inner Commencement Bay on the northwest, and the St. Paul CDF (former St. Paul Waterway) on the southwest. The mill manufactures bleached and unbleached kraft pulp and linerboard.
3. The Simpson mill is located within a Class II area that is currently designated in attainment for all national and state air quality standards.
4. Ecology received the Simpson PSD permit application on September 6, 2006. The application was determined to be complete as of October 9, 2006.
5. The proposed project consists of installation of:
   - A steam turbine and electrical generator rated at up to 60 MW.
   - Power distribution and overload protection equipment.
   - A building to house the turbine/generator.
   - Upgrades to the demineralizer system to produce the higher-quality boiler feedwater required for power generation.
   - A cooling tower to condense the turbine discharge steam that is not used in the process.
   - Boiler improvements to produce the higher pressure and temperature steam required for power generation. These improvements will include adding tube area to #7 Power Boiler's superheater section, upgrading the pressure rating of #4 Recovery Boiler's generation bank, new pressure safety valves, and piping changes to handle higher pressure steam.

- Upgrades to #7 Power Boiler to increase its Maximum Continuous Rated (MCR) steaming capacity from 300,000 lb/hr to 340,000 lb/hr. These will include larger forced-draft and induced-draft fan motors, wood fuel feed system improvements, and possibly improvements to the ash handling, electrostatic precipitator, and other ancillary systems.

6. Because Simpson is an existing major stationary source, any net emissions increase of a regulated pollutant greater than its Significant Emission Rate (SER) qualifies the proposed project as a major modification. As a result, the project would be subject to PSD review under WAC 173-400-700 for that pollutant. Additionally, the project is subject to federal PSD review because it qualifies as a major modification under federal rules [40 CFR 52.21(b)(2)(i), 40 CFR 52.21(b)(3)(i), and 40 CFR 52.21(b)(23)(i)].

7. Potential regulated pollutants for the proposed project are shown in Table 1. They are nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), volatile organic carbon compounds (VOC), particulates less than 10 microns in diameter (PM_{10}), and particulates of any diameter (PM).

Table 1: Summary of Baseline and Projected Actual Emissions

	NOx	**CO**	**SO_2**	**PM_{10}[3]**	**VOC**
Short-term Emission Rates (lb/hr)					
Existing (annual average)[1]	65.9	81.5	84.1	12.5	5.1
Future (at MCR)[2]	119.1	208.4	87.5	22.6	12.0
Increase in Hourly Emissions	53.2	126.9	3.4	10.0	6.8
Annual Emission Rates (tons)					
Baseline Years	2000-2001	2004-2005	2003-2004	1996-1997	2001-2002
Baseline Emissions	289	357	368	55	23
Future Potential Emissions	522	913	383	99	52
Difference	233	556	15	44	30
PSD Applicability Trigger	40	100	40	15	40
PSD?	**Yes**	**Yes**	No	**Yes**	No

[1] Estimated by dividing baseline annual emissions by 355 days of 24-hour operation.

[2] Assumes 365 days per year of operation.

[3] All PM/PM_{10} is considered PM_{10} for this permitting action.

[Note: PM_{10} potential emissions include emissions from the cooling tower.]

8. Regulated pollutants with net emissions increases greater than their PSD SER are subject to regulation under PSD. For this project, the PSD regulated pollutants are NO_X, CO, and PM_{10}.

9. The emissions of all air pollutants from Simpson are subject to review under Chapter 173-400 WAC and Chapter 173-460 WAC. Chapter 173-400 WAC includes provision for PSD review (WAC 173-400-700). This permit considers only PSD pollutants that have a significant net emission increase due to the project when considered under PSD regulations. All other pollutants are regulated under state regulations by Ecology's Industrial Section.

10. The NSPS requirements of 40 CFR 60 Subpart Db currently apply to #7 Power Boiler, and will be re-triggered by boiler modifications and increased emissions due to increased utilization. NSPS NO_X limits are not applicable because the boiler has a 10% limit on use of

fossil fuel (oil) in its federally enforceable NOC permit. PM (PM_{10}) emissions are limited to less than 0.085 lb/MMBtu. There are no NSPS requirements for CO. All limits are on a 30-day rolling average. Permit limits will be lower than the NSPS maximums.

11. The project does not trigger any PSD permitting requirements for #4 Recovery Boiler.

12. Best Available Control Technology (BACT) determinations are shown in Table 2.

Table 2: Best Available Control Technology (BACT) Determinations

Pollutant	#7 Power Boiler BACT Limit and Control Technology
Nitrogen Oxides (NO_X)	0.20 lb/MMBtu based on using proper combustion controls and overfire air
Carbon Monoxide (CO)	0.35 lb/MMBtu based on using proper combustion controls and overfire air
Particulate Matter and Particulate Matter less than 10 microns (PM_{10})	0.020 lb/MMBtu based on using an electrostatic precipitator
	Cooling Tower BACT Limit and Control Technology
PM/PM_{10}	Installation of a demister guaranteed to have a drift loss of less than 0.0005% of the recirculating water flow rate

13. Allowable increases in emissions from the project will not cause or contribute to air pollution in violation of:

13.1. Any National Ambient Air Quality Standard (NAAQS). Table 3 shows NO_X and CO impacts are below their respective NAAQS and SILs.

13.2. Any PSD increment consumption.

Table 3: Maximum Predicted Criteria Pollutant Concentrations ($\mu g/m^3$)

Compound	Averaging Period	Maximum Concentration	SIL [1]	PSD Monitoring De Minimis
NO_2 [2]	Annual	1.0	1	14
CO	1-hour	195	2000	
	8-hour	97	500	575
PM_{10} (PB 7 Only)	24-hour	4.8	5	10
	Annual	0.24	1	
PM_{10} (PB 7 & Cooling Tower)	24-hour	16[3]	5	10
	Annual	0.39	1	

[1] SIL = Significant Impact Level, per WAC 173-400-113(3).

[2] NO_2 was assumed to be 75% of the emitted NO_X based on Section 6.2.3 of the EPA's Guideline on Air Quality Models (codified as Appendix W to 40 CFR Part 51).

[3] Ecology determined that this PM_{10} SIL exceedance due to cooling tower drift did not trigger cumulative impact modeling requirements both because it was over water and because it could be an artifact of how the model predicts PM_{10} drift as opposed to large water droplet drift from the cooling tower.

14. The distances to nearest Class I areas are shown in the following table:

Table 4: Class I Area Distances in Kilometers (km)

Class I Area	Distance
Alpine Lakes Wilderness Area	64
Glacier Peak Wilderness Area	118
Goat Rocks Wilderness Area	91
Mt. Adams Wilderness Area	121
Mt. Hood Wilderness Area	203
Mt. Jefferson Wilderness Area	267
Mt. Rainier National Park	47
North Cascades National Park	159
Olympic National Park	67
Pasayten Wilderness Area	189
Columbia River Gorge National Area [1]	167
Mt. Baker Wilderness Area [1]	151

[1] The Columbia River Gorge National Scenic Area and the Mt. Baker Wilderness Area are not designated Class I areas. However, at the FLMs and Ecology's request, these areas are usually included in AQRV assessments.

15. Allowable emissions will not cause a significant visibility impact in:

    15.1. The surrounding Class I areas: The highest modeled impacts were 3.9% and 3.0% degradation in the Alpine Lakes Wilderness Area and Olympic National Park respectively. Federal land manager guidance considers this to be below the "concern" threshold.

    15.2. Nearby Class II wilderness and scenic areas: The highest modeled impact was 1.4% degradation in the Mt. Baker Wilderness Area. Federal land manager guidance considers this to be below the "concern" threshold.

16. The highest modeled deposition in the surrounding Class I areas is 0.0034 kilograms nitrogen and 0.0017 kilograms sulfur per hectare per year in the Alpine Lakes Wilderness Area. The nitrogen deposition level is 68% of the "concern" threshold in federal land manager guidance. The sulfur deposition level is 34% of the federal land manager "concern" threshold.

17. No significant effect on industrial, commercial, or residential growth in the area is anticipated as a result of this project.

18. Ecology finds all requirements for PSD have been satisfied. Approval of the PSD application is granted subject to the following conditions.

APPROVAL CONDITIONS

Emission Limits

1. NO_X emissions from #7 Power Boiler shall not exceed:
   1.1. 0.20 lb/MMBtu based on heat input value of the fuel on a 30-day rolling average.
   1.2. 522 tons per year (tpy) on a 12-month rolling total, calculated monthly.
2. CO emissions from #7 Power Boiler shall not exceed:
   2.1. 0.35 lb/MMBtu on a 30-day rolling average.
   2.2. 913 tons per year on a 12-month rolling total, calculated monthly.
3. PM_{10} emissions (filterable only) from #7 Power Boiler shall not exceed:
   3.1. 0.020 lb/MMBtu on a calendar day basis.
   3.2. 99 tons per year on a 12-month rolling total, calculated monthly.
4. PM_{10} emissions from the cooling tower shall not exceed 4 tons per year on a 12-month rolling total, calculated monthly.

Initial Compliance Demonstration and Notification

5. Simpson shall notify Ecology in writing at least 30 days prior to initial startup of the modified #7 Power Boiler and steam turbine.
6. For NO_X emissions from #7 Power Boiler exhaust stacks, Simpson will demonstrate initial compliance with Condition 1.1.
   6.1 Simpson will conduct a compliance test within 60 days of achieving the maximum firing rate at which #7 Power Boiler will be operated, but not later than 180 days after initial startup of the steam turbine.
   6.2 The compliance test will use a continuous emission monitoring system (CEMS) that measures and records NO_X emissions from #7 Power Boiler exhaust stacks.
   6.3 The CEMS will meet the requirements of Condition 14.1.
   6.4 For the compliance test, NO_X emissions from #7 Power Boiler are continuously monitored.
      6.4.1 For not less than 24 consecutive operating hours.
      6.4.2 At an average firing rate as close to the rated capacity as practical. If this is less than 90% of the rated capacity, the reason shall be explained in the test report.
   6.5 Determine compliance from the arithmetic mean of the NO_X emissions data in lb NO_X/MMBtu monitored pursuant to Condition 6.4, using a continuous 24-hour period of the compliance test.
   6.6 Simpson will submit a test plan to Ecology for approval at least 30 days prior to initial performance testing.

7. For CO emissions from #7 Power Boiler exhaust stacks, Simpson will demonstrate initial compliance with Condition 2.1.

   7.1 Simpson will have a compliance test conducted by an independent testing vendor within 60 days of achieving the maximum firing rate at which #7 Power Boiler will be operated, but not later than 180 days after initial startup of the steam turbine.

   7.2 Number 7 Power Boiler is to be operated at an average firing rate as close to the rated capacity during the compliance test as practical. If this is less than 90% of the rated capacity, the reason shall be explained in the test report.

   7.3 Determine compliance using 40 CFR 60 Appendix A Method 10, or equivalent concentration test method if approved in advance by Ecology.

   7.4 Simpson will submit a test plan to Ecology for approval at least 30 days prior to initial performance testing.

8. For PM/PM_{10} emissions from #7 Power Boiler unit exhaust stacks, Simpson will demonstrate initial compliance with Condition 3.1.

   8.1 Simpson will have a compliance test conducted by an independent testing vendor within 60 days of achieving the maximum firing rate at which #7 Power Boiler will be operated, but not later than 180 days after initial startup of the steam turbine.

   8.2 Number 7 Power Boiler is to be operated at an average firing rate as close to the rated capacity during the compliance test as practical. If this is less than 90% of the rated capacity, the reason shall be explained in the test report.

   8.3 Determine compliance using 40 CFR 60 Appendix A Method 5 front half, or equivalent test method if approved in advance by Ecology.

   8.4 For informational purposes only, also run 40 CFR 51 Appendix M Method 202 for the back half.

   8.5 A typical mix of normal fuels such as wood, sludge, and oil shall be burned during the test period. This mix shall be listed in the test plan referenced in Condition 8.6.

   8.6 Simpson will submit a test plan to Ecology for approval at least 30 days prior to initial performance testing.

9. For the cooling tower, Simpson shall demonstrate initial compliance by obtaining an affirmative report by the cooling tower drift eliminator manufacturer, based on an on-site inspection of the completed installation, that its product has been installed in accordance with its specifications to have a drift loss of less than 0.0005% of the recirculation water flow rate.

Compliance Monitoring and Testing

10. For NO_X emissions from #7 Power Boiler exhaust stacks, Simpson will demonstrate compliance with Condition 1.1 and 1.2

    10.1 Monitor using a CEMS those measures and records NO_X emissions from #7 Power Boiler exhaust stacks and that meets the requirements of Condition 14.1.

    10.2 Calculate compliance with Condition 1.2 monthly.

11. For CO emissions from #7 Power Boiler exhaust stacks, Simpson will demonstrate routine compliance with Conditions 2.1 and 2.2.

    11.1 Monitor using a CEMS that measures and records CO emissions from the #7 Power Boiler exhaust stacks and meets the requirements of Condition 14.2.

    11.2 Calculate compliance with Condition 2.2 monthly.

12. For particulate emissions from the #7 Power Boiler exhaust stacks, Simpson will demonstrate routine compliance with Conditions 3.1 and 3.2.

    12.1 PM_{10} emission rates shall be tested monthly. Source testing may be reduced to quarterly if six consecutive month's tests are below 75% of the limitation. If any single source exceeds 75% of the limit, source testing shall revert to monthly until six consecutive month's tests are below 75% of the limit.

        12.1.1 Testing shall be done using 40 CFR 60 Appendix A Method 5 (front half only), or equivalent test method if approved in advance by Ecology.

        12.1.2 Testing shall be done at a boiler-operating rate equal to or greater than 90% of the highest daily operating rate within the previous three months.

        12.1.3 A single 1-hour test may be conducted in lieu of the normal three 1-hour tests.

        12.1.4 For informational purposes only, once per year testing shall include 40 CFR 51 Appendix M Method 202 for the back half, or equivalent test method if approved in advance by Ecology.

    12.2 Compliance with Condition 3.2 shall be by calculation based on the average of the last three particulate tests done per Condition 12.1.

13. For particulate emissions from the cooling tower, Simpson will demonstrate compliance with Condition 4 through monthly calculation of emissions. The calculation will be based on cooling tower operating factors such as recirculation rate, total dissolved solids (TDS), and tower design factors. The calculation procedure will be included in the Operation and Maintenance Manual per Condition 18.

14. Continuous Emission Monitoring Systems:

    14.1 Installation, calibration, maintenance and operation of the CEMS for NO_X compliance will satisfy the requirements contained in 40 CFR 60.48b(b) through 40 CFR 60.48b(f).

    14.2 CEMS for CO will satisfy the requirements contained in 40 CFR, Part 60, Appendix B, Performance Specification 4 and 40 CFR Part 60, Appendix F, Quality Assurance Procedures.

    14.3 Required Relative Accuracy Test Audits for the NO_X and CO CEMS shall be performed during the same test periods.

Recordkeeping, Notification and Reporting

15. After installation of the project upgrades to #7 Power Boiler, Simpson shall submit reports to Ecology concerning routine compliance monitoring and testing in Conditions 10 through 14.

    15.1 The monthly reports should include:

        15.1.1 NO_X daily averages, daily 30-day rolling averages, and maximum 30-day rolling average for the month. Report in units of lb/MMBtu.

        15.1.2 CO daily averages, daily 30-day rolling averages, and maximum 30-day rolling average for the month. Report in units of lb/MMBtu.

        15.1.3 PM_{10} source test results collected during the month, if any. Report in units of lb/MMBtu and gr/dscf corrected to 7% O_2.

        15.1.4 NO_X, CO, and PM_{10} monthly totals and rolling 12-month totals. Report in units of tons.

        NO_X and CO calculations shall be made by multiplying the daily average concentration (lb/MMBtu) times daily heat input (MMBtu), dividing by 2000 lb/ton to convert to tons, and summing over the appropriate time period.

        PM_{10} calculations shall be made by multiplying the average concentration of the three previous source tests (lb/MMBtu) times daily heat input (MMBtu), dividing by 2000 lb/ton to convert to tons, and summing for the appropriate time period.

        15.1.5 Any exceedances per Condition 16.

    15.2 All results of CEM RATAs shall be submitted within 30 days of availability.

    15.3 All records pertaining to emissions shall be retained for a period of not less than five years.

16. Each occurrence of NO_X, CO, or PM_{10} emissions measured in excess of the limits shall be reported in writing to Ecology. Such reports shall as a minimum include:

    16.1 The time of the occurrence.

    16.2 Magnitude of excess from the emission limit.

    16.3 The duration of the excess.

    16.4 The probable cause.

    16.5 Corrective actions taken or planned.

    16.6 Any agency contacted.

Standard Requirements

17. Sampling ports and platforms shall be provided on the #7 Power Boiler's stacks, after any final pollution control device. The ports shall meet the requirements of 40 CFR 60 Appendix A, Method 1. Adequate, permanent, and safe access to the test ports shall be provided.

18. Within 90 days of startup of the steam turbine, Simpson shall identify operational parameters and practices that will constitute "proper operational practices" of the wood waste fired boiler relative to compliance with the conditions of this permit. These operational parameters and practices shall be included in an O&M manual for the facility. The O&M manual shall be maintained and followed by Simpson and shall be available for review by Ecology or EPA. If a failure to follow the requirements of the manuals results in excess emissions, that failure may be considered credible evidence that the event was caused by poor or inadequate operation or maintenance.

19. Access to the source by Ecology or the EPA shall be permitted upon request. Failure to allow such access is grounds for an enforcement action under the federal Clean Air Act and the Washington State Clean Air Act.

20. This approval shall become invalid if construction of the project is not commenced within eighteen (18) months after receipt of the final approval, or if construction of the facility is discontinued for a period of eighteen (18) months, unless Ecology extends the 18-month period, pursuant to 40 CFR 52.21(r)(2) and applicable EPA guidance.

21. The effective date of this permit shall not be earlier than the date upon which the EPA notifies Ecology that the EPA has satisfied its obligations, if any, under Section 7 of the Endangered Species Act 16 U.S.C. § 1531 et seq., 50 C.F.R. part 402, subpart B (Consultation Procedures) and Section 305(b)(2) of the Magnuson-Stevens Fishery and Conservation Act 16 U.S.C. § 1801 et seq., 50 C.F.R. part 600, subpart K (EFH Coordination, Consultation, and Recommendations).

22. For federal regulatory purposes and in accordance with 40 CFR 124.15 and 124.19: If there was a public comment requesting a change in the preliminary determination or a proposed permit condition during the public review and comment period, the effective date of this permit shall not be earlier than 30 days after service of notice to the commenters and applicant on the preliminary determination.

    22.1 If a review of the final determination is requested under 40 CFR 124.19 within the 30-day period following the date of the final determination, the effective date of the permit is suspended until the review and any subsequent appeal against the permit are resolved.

    22.2 If there was no public comment requesting a change in the preliminary determination or a proposed permit condition during the public review and comment period, this permit is effective upon the date of finalization subject to consideration of Condition 21 (EPA's ESA requirement) above.

Reviewed by:

Robert C. Burmark

May 22, 2007

Robert C. Burmark, P.E.
Technical Services Section
Air Quality Program

Date

EXPIRES 1-4-08

Approved by:

FOR STU CLARK

MAY 22 2007

Stuart A. Clark, Program Manager
Air Quality Program
Washington State Department of Ecology

Date

Ecology was notified by the U.S. EPA that the U.S. EPA has satisfied its obligations under the Endangered Species and Magnuson-Stevens Acts relative to PSD Permit 06-02 issued to Simpson Tacoma Kraft Company on:

May 2, 2006

Date of U.S. EPA Notification

FOR STU CLARK

Stuart A. Clark, Program Manager
Air Quality Program
Washington State Department of Ecology