

1 ENERGY FACILITY SITE EVALUATION COUNCIL
2 P.O. BOX 43172
3 OLYMPIA, WASHINGTON 98504-3172

IN THE MATTER OF:] NO. EFSEC/01-02
Sumas Energy 2] DRAFT APPROVAL OF THE PREVENTION OF
Generation Facility] SIGNIFICANT DETERIORATION AND
Sumas Energy 2, Inc.] NOTICE OF CONSTRUCTION
Sumas, WA]

Important Note: The following is a DRAFT Notice of Construction/Prevention of Significant Deterioration (NOC/PSD) Permit for the proposed Sumas Energy 2 Generation Facility Project. This Draft NOC/PSD Permit was written on behalf of the Energy Facility Site Evaluation Council (EFSEC) by its contractor, the Department of Ecology, Air Quality Program.

EFSEC and EPA rules (Chapter 463-39 Washington Administrative Code and 40 CFR 51.166(q) and 40 CFR 124 subparts A and C) require EFSEC to prepare a draft PSD Permit and Fact Sheet. The Fact Sheet discusses the project and issues considered in preparing the draft Permit. The Fact Sheet developed for this draft Permit is available to anyone who wishes a copy. THE ISSUANCE OF THIS DRAFT FACT SHEET AND DRAFT PSD PERMIT SHOULD IN NO WAY BE INTERPRETED TO REPRESENT CONCLUSIONS, CONDITIONS OR RECOMMENDATIONS TO THE GOVERNOR OF WASHINGTON STATE DRAWN BY THE ENERGY FACILITY SITE EVALUATION COUNCIL.

4
5 EFSEC finds the following pursuant to
6 the Energy Facility Site Evaluation Council (EFSEC) regulations for
7 air permit applications (Washington Administrative Code 463-42-385),
8 General and Operating Permit Regulations for Air Polluting Sources (Washington
9 Administrative Code 463-39),
10 the Washington Department of Ecology (Ecology) regulations for
11 new source review (Washington Administrative Code 173-400-110 and Chapter 174-460
12 WAC),
13 the federal Prevention of Significant Deterioration regulations (40 CFR 52.21),
14 the complete Notice of Construction/Prevention of Significant Deterioration Application submitted
15 by Sumas Energy 2, Inc. and

16 the technical analysis performed by Ecology for EFSEC:

17 **FINDINGS (Applicable to both the Prevention of Significant Deterioration and Notice of**
18 **Construction Approval)**

- 19 1. Sumas Energy 2, Inc. has applied to construct the Sumas Energy 2 Generation Facility
20 (SE2GF) which will be located in Sumas, Washington. The proposed project includes two
21 separate but identical combustion gas turbines, one steam turbine, three electric generators,
22 and two heat recovery steam generators (HRSG). Total power generating capacity is 660
23 megawatts (MW). Siemens-Westinghouse has been selected as the turbine supplier. Annual
24 emission rates and resulting environmental impacts have been evaluated for the maximum
25 anticipated emissions.
- 26 2. The project is subject to federal Prevention of Significant Deterioration (PSD) regulations
27 under Title 40 Code of Federal Regulations (CFR) 52.21 because it is one of 28 listed
28 industries that becomes a "major source," when emitting more than 100 tons per year of any
29 regulated pollutant. Each pollutant emitted above Significant Emission Rate thresholds
30 must satisfy requirements under PSD. As permitted, SE2GF has the potential to emit
31 quantities of nitrogen oxides (NO_x), particulate matter (PM₁₀), volatile organic compounds
32 (VOCs), sulfur dioxide (SO₂), and sulfuric acid mist (H₂SO₄) above the Significant
33 Emission Rate thresholds. In addition, SE2GF has the potential to emit toxic air pollutants
34 in quantities sufficient to require consideration under state new source review regulations.
- 35 3. The site of the proposed project is within a Class II area that is in attainment with regard to
36 all pollutants regulated by the National Ambient Air Quality Standards (NAAQS) and state
37 air quality standards. The site is 55 kilometers (km.) from the nearest Class I Area, North
38 Cascades National Park, within 175 km. of four other Class I areas (Alpine Lakes
39 Wilderness, Glacier Peak Wilderness, Olympic National Park, and Pasayten Wilderness),
40 and within one-half mile of the Canadian border.
- 41 4. The project is subject to the following requirements:
42 General and operating permit regulations for air pollution sources chapter 463-39 WAC;
43 New source review under Chapter 173-400 WAC, Chapter 173-460 WAC, and 40 CFR

- 44 52.21;
- 45 New source performance standards under 40 CFR 60.40a and 40 CFR 60.330;
- 46 Emission monitoring under Chapter 70.94 RCW, Chapter 173-400 WAC, 40 CFR 60
- 47 Appendices A, B, and F, and 40 CFR 75;
- 48 Gas fuel monitoring under 40 CFR 60.334(b)(2).
- 49 5. Sumas Energy 2, Inc.'s prevention of significant deterioration/notice of construction
- 50 (PSD/NOC) application for the proposed project was determined to be complete on
- 51 September 5, 2001.
- 52 6. The project will use pipeline quality natural gas as fuel.
- 53 7. Best available control technology (BACT) as required under WAC 173-400-113 (2) and
- 54 toxic best available control technology (T-BACT) as required under WAC 173-460-040(4)
- 55 will be used for the control of all air pollutants which will be emitted by the proposed
- 56 project.
- 57 8. The following have been determined to be BACT for this project:
- 58 Use of standard dry low NO_x burners with selective catalytic reduction (SCR) for NO_x
- 59 control.
- 60 Catalytic oxidation for CO control.
- 61 Good combustion practice, using only pipeline quality natural gas for VOC, PM₁₀, sulfur
- 62 oxides, and organic toxic air pollutants control.
- 63 SCR with a 5 ppmdv ammonia slip limit for ammonia control.
- 64 9. The facility will have the potential to emit up to 144.5 tons per year of nitrogen oxides
- 65 (NO_x).
- 66 10. The facility will have the potential to emit up to 88 tons per year of carbon monoxide (CO).
- 67 11. The facility will have the potential to emit up to 153 tons per year of volatile organic
- 68 compounds (VOCs).
- 69 12. The facility will have the potential to emit up to 209 tons per year of particulate matter

- 70 smaller than 10 microns (PM₁₀, combined filterable and condensable).
- 71 13. The facility will have the potential to emit up to 69 tons per year of sulfur oxides (SO₂ and
72 SO₃ or H₂SO₄ measured as SO₂).
- 73 14. The facility will have the potential to emit up to 14.3 tons per year of sulfuric acid mist
74 (H₂SO₄). This has also been counted in Finding # 13, above.
- 75 15. The facility will have the potential to emit 139 tons per year of ammonia.
- 76 16. Ambient concentrations of all of the toxic air pollutants (TAPs) attributable to the facility's
77 operation are projected to be well below the acceptable source impact levels (ASILs)
78 specified in Chapter 173-460 WAC. On the average, anticipated TAP emissions are less
79 than 10% of the ASILs.
- 80 17. Allowable emissions from the new emissions units will not cause or contribute to air
81 pollution in violation of:
- 82 17.1. Any ambient air quality standard;
- 83 17.2. Any applicable maximum allowable increase over the baseline ambient
84 concentration.
- 85 18. Ambient impact analysis indicates that there will be no significant impacts resulting from
86 pollutant deposition on soils and vegetation in the Class I areas: Alpine Lakes Wilderness,
87 Glacier Peak Wilderness, North Cascades National Park, Olympic National Park, and
88 Pasayten Wilderness, the proposed Class I area, the Mt. Baker Wilderness, or in analogous
89 areas in nearby British Columbia, Canada.
- 90 19. Ambient impact analysis indicates that it is very unlikely that the proposed emissions will
91 cause significant degradation of regional visibility, or impairment of visibility in any Class
92 I area.
- 93 20. No significant effect on industrial, commercial, or residential growth in the Sumas area is
94 anticipated due to the project.
- 95 21. EFSEC finds that all requirements for new source review (NSR) and PSD are satisfied and
96 that as approved below, the new emissions units comply with all applicable federal new

97 source performance standards. Approval of the PSD/NOC application is granted subject to
98 the following conditions.

99 **PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL CONDITIONS**

- 100 1. The combustion turbines shall be fueled by pipeline quality natural gas.
- 101 2. The oil fuel fired emergency generator shall not exceed 400 kW and shall not be operated in
102 excess of 500 hours per year. The following records regarding the emergency generator
103 shall be maintained current and kept at the facility:
- 104 2.1 Equipment type, make and model, maximum power input/output.
- 105 2.2 A monthly log of reason for operation, hours of operation, fuel type, quantity, and
106 sulfur content.
- 107 3. The oil fuel fired engine for driving the water pump(s) for emergency fire suppression shall
108 not exceed 300 HP and shall be operated only as needed for its maintenance and for
109 emergency fire suppression. The following records regarding this engine shall be
110 maintained current and kept at the facility:
- 111 3.1 Equipment type, make and model, maximum power input/output.
- 112 3.2 A monthly log of reason for operation, hours of operation, fuel type, quantity, and
113 sulfur content.
- 114 4 Sulfur content at the time of purchase of oil to be used as fuel in the emergency generator
115 and the engine for the fire suppression water pump(s) must conform with the then current
116 limit applied to on-road specification oil as defined in the Code of Federal Regulations (at
117 the time of issuance of this permit, defined in 40 CFR § 80.29(a)(i)).
- 118 5. No HRSG stack exhaust shall contain NO_x emissions that exceed 2.0 parts per million on a
119 dry volumetric basis (ppmdv) over a three hour average when corrected to 15.0 percent
120 oxygen. No HRSG stack exhaust shall exceed daily NO_x emissions of 179 kilograms (395
121 pounds). No HRSG stack exhaust shall exceed annual NO_x emissions of 72 tons.
- 122 5.1 Initial performance and compliance for each turbine shall be determined in
123 accordance with Title 40 CFR Part 60, Subpart GG and Appendix A, Reference

- 124 Method 20, except that the instrument span shall be 6 ppm or less. An alternate
125 method may be used if approved in advance by EFSEC.
- 126 5.2 Continuous compliance will be determined by a continuous emission monitoring
127 system (CEMS) that measures and records NO_x and O₂ emissions from each
128 exhaust stack. The CEMS shall meet the requirements of Prevention of Significant
129 Deterioration Approval Condition 15.2.
- 130 5.3 Mass emission rates shall be determined using the appropriate procedures outlined
131 in 40 CFR part 60 Appendix A Method 19. An equivalent mass emission rate
132 calculation method may be used if approved in advance by EFSEC.
- 133 6. No HRSG stack exhaust shall contain SO₂ emissions that exceed 1.0 parts per million on a
134 dry volumetric basis (ppmdv) over a one hour average when corrected to 15.0 percent
135 oxygen. No HRSG stack exhaust shall exceed daily SO₂ emissions of 86 kilograms (189
136 pounds).
- 137 6.1 Initial performance and compliance for each turbine shall be determined by EPA
138 Reference Method 6C. The instrument span shall be at a maximum of 3 ppm. All
139 span and calibration gases used shall follow in accordance with the method
140 requirements. An alternate method may be used if approved in advance by EFSEC.
- 141 6.2 Continuous emission monitoring of SO₂ is not required. Continuous compliance
142 with the limit for each stack shall be by means of fuel sulfur content reporting and
143 fuel flow monitoring to each turbine in accordance with Prevention of Significant
144 Deterioration Approval Conditions 18, 19, and 20, below.
- 145 7. No HRSG stack exhaust shall exceed daily VOC emissions of 190 kilograms (420 pounds)
146 calculated as methane.
- 147 7.1 Initial performance and compliance for each turbine and boiler shall be determined
148 by EPA Reference Method 18. Equivalent test methods may be used if approved in
149 advance by EFSEC.
- 150 7.2 Source testing must be conducted annually for the first three years following initial
151 startup to demonstrate continued compliance. Test methods shall be the same as

152 used for the initial performance test unless approved in advance by EFSEC. Initial
153 startup for each combustion turbine is defined as the time when the first electricity
154 from that turbine is delivered to the electrical power grid. Testing thereafter will be
155 once every three years if the initial performance and subsequent tests satisfy permit
156 limits. Failure of any source test to meet permit limits starts the three year annual
157 test cycle over.

158 7.3 Mass emissions for compliance determination shall be calculated using the
159 appropriate data from the most recent source test. Mass emission rates shall be
160 determined using the procedures outlined in 40 CFR part 60 Appendix A Method
161 19, adapted to VOCs measured as methane. Equivalent mass emission rate
162 calculation methods may be used if approved in advance by EFSEC.

163 8. No HRSG stack exhaust shall exceed daily filterable PM₁₀ emissions of 88 kilograms (194
164 pounds).

165 8.1 Initial performance and compliance with the particulate standard shall be
166 determined by federal Reference Methods 201 or 201A based on the filterable
167 portion (“front half”) of the test method capture. Equivalent concentration test
168 methods may be used if approved in advance by EFSEC.

169 8.2 Source testing must be conducted annually for the first three years following initial
170 startup to demonstrate continued compliance. Test methods shall be the same as
171 used for the initial performance test unless approved in advance by EFSEC. Initial
172 startup for each combustion turbine is defined as the time when the first electricity
173 from that turbine is delivered to the electrical power grid. Testing thereafter will be
174 once every three years if the initial performance and subsequent tests satisfy permit
175 limits. Failure of any source test to meet permit limits starts the three year annual
176 test cycle over.

177 8.3 Mass emissions for compliance determination shall be calculated using the
178 appropriate data from the most recent source test. Mass emission rates shall be
179 determined using the appropriate procedures outlined in 40 CFR part 60 Appendix
180 A Method 19. Equivalent mass emission rate calculation methods may be used if

- 181 approved in advance by EFSEC.
- 182 9. No HRSG stack exhaust shall exceed daily total PM₁₀ emissions of 171 kilograms (573
183 pounds).
- 184 9.1 Initial performance and compliance with the particulate standard shall be
185 determined by summing the results of federal Reference Methods 201 (or 201A) and
186 202. Equivalent concentration test methods may be used if approved in advance by
187 EFSEC.
- 188 9.2 Source testing must be conducted once every three years following initial startup to
189 demonstrate continued compliance. Test methods shall be the same as used for the
190 initial performance test unless approved in advance by EFSEC. Initial startup for
191 each combustion turbine is defined as the time when the first electricity from that
192 turbine is delivered to the electrical power grid.
- 193 9.3 Mass emissions for compliance determination shall be calculated using the
194 appropriate data from the most recent source test. Mass emission rates shall be
195 determined using the appropriate procedures outlined in 40 CFR part 60 Appendix
196 A Method 19. Equivalent mass emission rate calculation methods may be used if
197 approved in advance by EFSEC.
- 198 10. No HRSG stack exhaust shall exceed daily H₂SO₄ emissions of 17.7 kilograms (39
199 pounds).
- 200 10.1 Initial performance and compliance with the H₂SO₄ emissions limits shall be
201 determined by EPA Reference Method 8 with incorporation of the procedures
202 given in EPA Reference Method 6, Section 7.3 for elimination of ammonia
203 interference, or an equivalent method approved in advance by EFSEC.
- 204 10.2 Source testing must be conducted annually for the first three years following initial
205 startup to demonstrate continued compliance. Test methods shall be the same as
206 used for the initial performance test unless approved in advance by EFSEC. Initial
207 startup for each combustion turbine is defined as the time when the first electricity
208 from that turbine is delivered to the electrical power grid. Testing thereafter will be

209 once every three years if the initial performance and subsequent tests satisfy permit
210 limits. Failure of any source test to meet permit limits restarts the three year annual
211 test cycle.

212 10.3 Mass emissions for compliance determination shall be calculated using the
213 appropriate data from the most recent source test. Mass emission rates shall be
214 determined using the procedures outlined in 40 CFR part 60 Appendix A Method
215 19, adapted to H₂SO₄. Equivalent mass emission rate calculation methods may be
216 used if approved in advance by EFSEC.

217 11. Startup and shutdown operation:

218 11.1 Startup is defined as any operating period that is ramping up from less than partial
219 load (70%), and ends when the operating rate has exceeded partial load (70%), and
220 the earlier of these events occurs:

221 11.1.1 Normal operating temperatures have been reached in both the catalytic
222 oxidation and selective catalytic reduction modules as indicated by the
223 manufacturer's operating manual.

224 11.1.2 One of the following time limits have been reached, as applicable:

225 11.1.2.1 Six hours have elapsed since either fuel was first introduced
226 to the applicable turbine on a cold startup. A cold startup is any
227 startup occurring after the applicable turbine has been shut down for
228 seventy-one hours or more.

229 11.1.2.2 Two and one-half hours elapsed since either fuel was first
230 introduced to the applicable turbine on a warm startup. A warm
231 startup is any startup occurring after the applicable turbine has been
232 shut down for more than eight hours but less than seventy-one hours.

233 11.1.2.3 One and one-half hours have elapsed since either fuel was
234 first introduced to or the beginning of the ramp-up of the applicable
235 turbine on a hot startup. A hot startup is any startup occurring after
236 the applicable turbine has been shut down for eight hours or less.

- 237 11.2 Shutdown is defined as any operating period for which all the following are
238 occurring:
- 239 11.2.1 The system is ramping down from normal operation. Normal operation is
240 defined as operation between 70% and 100% of turbine power generation
241 capacity.
- 242 11.2.2 The system is at less than partial load (70%).
- 243 11.2.3 Either the catalytic oxidation or selective catalytic reduction systems are
244 below the normal operating temperature range indicated by the
245 manufacturer's operating manual.
- 246 Shutdown ends when the fuel feed to the system ceases.
- 247 11.3 Emission limits for NO_x during startup and shutdown:
- 248 11.3.1 For purposes of compliance with NO_x emission limits, startup or shutdown
249 operation exists only when the selective catalytic reduction system is below
250 the normal operating temperature range indicated by the manufacturer's
251 operating manual.
- 252 11.3.2 The limit on the three hour average NO_x concentration and daily NO_x mass
253 emissions from each HRSG stack exhaust are relieved.
- 254 11.3.3 The continuous emissions monitor (CEM) for NO_x shall be operated during
255 startup and shutdown periods. Total mass emissions as determined from the
256 CEM readings shall be included in determination of compliance with the
257 annual NO_x mass emission limit in Condition 5.
- 258 11.4 Emission limits for SO₂ during startup and shutdown:
- 259 11.4.1 The limit on the one hour average SO₂ concentration from each HRSG stack
260 exhaust is relieved.
- 261 11.4.2 Mass SO₂ emissions during startup and shutdown shall be determined from
262 the sulfur content of the fuel consumed assuming all sulfur is emitted as
263 sulfur dioxide.

264 11.4.3 Mass SO₂ emissions during startup and shutdown shall be included in
265 determination of compliance with the daily SO₂ mass emission limit in
266 Condition 7.

267 11.5 Emission limits for VOCs during startup and shutdown:

268 11.5.1 VOC mass emission rates from each HRSG stack exhaust during startup and
269 shutdown shall be calculated from fuel consumption rates using the
270 following equations up to the partial load (70% of capacity) operating level:

271
$$\text{Lbs./hr. VOCs from the turbine} = 11.87 - 0.00483 * x_1$$

272
$$\text{Lbs./hr. VOCs from the duct burner} = 60.3 - 0.1 * x_2$$

273 where x_1 = million Btus/hr. fuel consumption (higher heating value, HHV)
274 by the turbine, $x_1 > 0$, and

275 x_2 = million Btus/hr. fuel consumption (HHV) by the duct burner, $x_2 > 0$.

276 11.5.2 The VOC mass emission rates during startup and shutdown shall be
277 integrated to determine total VOC mass emissions, and included in
278 determination of compliance with the daily VOC mass emission limit in
279 Condition 8.

280 11.6 Emission limits for PM₁₀ during startup and shutdown.

281 11.6.1 The individual filterable mass emission limit is relieved.

282 11.6.2 Total PM₁₀ mass emission rates during startup and shutdown shall be
283 calculated from fuel consumption rates using the following equation up to
284 the partial load (70% of capacity) operating level:

285
$$\text{Lbs./hr. PM}_{10} = 0.0074 * x + 5.5 * [1 - \exp(-.001818 * x)]$$

286 where x = million Btus/hr. fuel consumption (HHV) turbine and duct burner
287 combined

288 11.6.3 The PM₁₀ mass emission rates during startup and shutdown shall be
289 integrated to determine total PM₁₀ mass emissions, and included with the

290 total PM₁₀ mass emissions during normal operation to determine
291 compliance.

292 11.7 Emission limits for H₂SO₄ during startup and shutdown:

293 11.7.1 Mass H₂SO₄ emissions during startup and shutdown shall be determined
294 from the sulfur content of the fuel consumed assuming 13.5 % of the sulfur
295 is emitted as H₂SO₄.

296 11.7.2 Mass H₂SO₄ emissions during startup and shutdown shall be included in
297 determination of compliance with the daily H₂SO₄ mass emission limit in
298 Condition 10.

299 12. Within 180 days after initial start-up of each turbine, SE2GF shall conduct performance
300 tests for NO_x, SO₂, H₂SO₄, CO, VOCs and PM₁₀ on each combustion turbine.

301 12.1 The performance tests shall be performed by an independent testing firm.

302 12.2 A test plan shall be submitted for EFSEC's approval at least 30 days prior to the
303 testing.

304 13. Sampling ports and platforms shall be provided on each stack, after the final pollution
305 control device. The ports shall meet the requirements of 40 CFR, Part 60, Appendix A
306 Method 20.

307 14. Adequate permanent and safe access to the test ports shall be provided. Other arrangements
308 may be acceptable if approved by EFSEC prior to installation.

309 15. Continuous Emission Monitoring Systems

310 15.1 Continuous emission monitoring systems (CEMS) for CO, shall satisfy the
311 requirements contained in 40 CFR, Part 60, Appendix B, Performance
312 Specifications and 40 CFR, Part 60, Appendix F, Quality Assurance Procedures.

313 15.2 CEMS for NO_x, O₂, and exhaust gas flow rate or velocity compliance shall satisfy
314 the requirements contained in 40 CFR 75, Emissions Monitoring.

315 16. Source testing for PM₁₀, VOCs, and H₂SO₄ is to coincide with the Relative Accuracy Test
316 Audit required for each installed CEMS.

- 317 17. CEMS and process data shall be reported in written form to the authorized representative of
318 EFSEC and to the EPA Region X Office of Air Quality within thirty days of the end of each
319 calendar month (unless a different report form/format, testing and reporting schedule has
320 been approved by EFSEC) which shall include but not be limited to the following:
- 321 17.1 Quantity and average sulfur content of natural gas burned as substantiated by
322 purchase records and vendor's report. Fuel sulfur content determination shall follow
323 procedures outlined in 40 CFR 60.335(d) and (e).
- 324 17.2 For each stack, the daily average NO_x and CO concentrations, in ppm_{dv} corrected to
325 15% oxygen.
- 326 17.3 For the project, total mass emissions of NO_x and CO on daily (pounds per day) and
327 twelve month moving total (tons per year) bases.
- 328 17.4 The duration and nature of any monitor down-time excluding zero and span checks.
- 329 17.5 Results of any monitor audits or accuracy checks.
- 330 17.6 Results of any required stack tests.
- 331 17.7 The above data shall be retained at the SE2GF site for a period of five years.
- 332 18. The format of the reporting described in Condition 17 shall match that required by EPA for
333 demonstrating compliance with the Title IV Acid Rain program reporting requirements.
334 Pollutants not covered by that format shall be reported in a format approved by EFSEC that
335 shall include at least the following:
- 336 18.1 Process or control equipment operating parameters.
- 337 18.2 The hourly maximum and average concentration, in the units of the standard, for
338 each pollutant monitored.
- 339 18.3 The duration and nature of any monitor down time.
- 340 18.4 Results of any monitor audits or accuracy checks.
- 341 18.5 Results of any required stack tests.
- 342 19. For each occurrence of monitored emissions in excess of the standard, the monthly

343 emissions report (per Prevention of Significant Deterioration Approval Condition 17) shall
344 include the following:

345 19.1 For parameters subject to monitoring and reporting under the Title IV Acid Rain
346 program, the reporting requirements in that program shall govern excess emissions
347 report content.

348 19.2 For all other pollutants:

349 19.2.1 The time of the occurrence.

350 19.2.2 Magnitude of the emission or process parameters excess.

351 19.2.3 The duration of the excess.

352 19.2.4 The probable cause.

353 19.2.5 Corrective actions taken or planned.

354 19.2.6 Any other agency contacted.

355 20. Operating and maintenance manuals for all equipment that has the potential to affect
356 emissions to the atmosphere shall be developed and followed.

357 20.1 Copies of the manuals shall be available to EFSEC or the authorized representative
358 of EFSEC.

359 20.2 Emissions that result from a failure to follow the requirements of the manuals may
360 be considered proof that the equipment was not properly operated and maintained.

361 21. Operation of the equipment that has the potential to affect the quantity and nature of
362 emissions to the atmosphere must be conducted in compliance with all data and
363 specifications submitted as part of the PSD/NOC application unless otherwise approved by
364 EFSEC.

365 22. This approval shall become invalid if construction of the project is not commenced within
366 eighteen (18) months after receipt of final approval, or if construction of the facility is
367 discontinued for a period of eighteen (18) months, unless EFSEC extends the 18 month
368 period upon a satisfactory showing that an extension is justified, pursuant to 40 CFR

369 52.21(r)(2) and applicable EPA guidance.

370 23. Any activity that is undertaken by SE2GF or others, in a manner that is inconsistent with the
371 application and this determination, shall be subject to EFSEC enforcement under applicable
372 regulations. Nothing in this determination shall be construed so as to relieve SE2GF of its
373 obligations under any state, local, or federal laws or regulations.

374 24. The SE2GF shall notify EFSEC in writing at least thirty days prior to start-up of the project.

375 25. Access to the source by EFSEC, the U.S. Environmental Protection Agency or the
376 authorized representative of EFSEC shall be permitted upon request for the purpose of
377 compliance assurance inspections. Failure to allow access is grounds for action under the
378 federal Clean Air Act and the Washington Clean Air Act..

379 This Prevention of Significant Deterioration Permit has been Reviewed by:

380 _____
381 Bernard Brady, P.E. Date _____
382 Engineering and Technical Services
383 Washington Department of Ecology

384 This Prevention of Significant Deterioration Permit has been Approved by:

385 _____
386 Barbara McAllister Date _____
387 Director, Office of Air Quality
388 U.S. Environmental Protection Agency, Region X

389 _____
390 James Oliver Luce Date _____
391 Chair
392 Energy Facility Site Evaluation Council

393 **NOTICE OF CONSTRUCTION APPROVAL CONDITIONS**

- 394 1. SE2GF will comply with all Prevention of Significant Deterioration approval conditions
395 specified above.
- 396 2. Total emissions of free NH₃ and ammonium salts measured as NH₃ from each HRSG
397 exhaust stack shall not exceed 5 parts per million on a volumetric basis (ppmdv) over a one
398 hour average when corrected to 15.0 percent oxygen. Daily emissions of free NH₃ and
399 ammonium salts measured as NH₃ from either HRSG stack exhaust shall not exceed 35
400 kilograms (69.5 pounds).
- 401 2.1 Initial compliance for each turbine shall be determined by Bay Area Air Quality
402 Management District Source Test Procedure ST-1B, “Ammonia, Integrated
403 Sampling”, or an equivalent method approved in advance by EFSEC. Source test
404 samples must be unfiltered as taken from each stack.
- 405 2.2 Source testing must be conducted annually for the first three years following initial
406 startup to demonstrate continued compliance. Initial startup for each combustion
407 turbine is defined as the time when the first electricity from that turbine is delivered
408 to the electrical power grid. Testing thereafter will be once every three years if the
409 initial performance and subsequent tests satisfy permit limits. Failure of any source
410 test to meet permit limits starts the three year annual test cycle over.
- 411 2.3 Coincident ammonia consumption and fuel use shall be recorded daily and reported
412 monthly. The initial and first three years’ source tests shall be used by EFSEC to
413 establish a base line relating the of ammonia-consumption:fuel-use ratio to
414 ammonia emissions. EFSEC or its delegated compliance agent may require
415 ammonia source testing at any time that this relationship indicates ammonia
416 emissions may be exceeding the permit limitation.
- 417 3. Opacity from each exhaust stack of the project shall not exceed 10 percent over a six minute
418 average as measured by EPA Reference Method 9, or an equivalent method approved in
419 advance by EFSEC. Opacity from each stack shall be measured and recorded by continuous

420 emissions monitoring systems (CEMS). Each CEMS shall satisfy the requirements
421 contained in 40 CFR, Part 60, Appendix B, Performance Specification 1 and 40 CFR, Part
422 60, Appendix F, Quality Assurance Procedures.

423 4. No HRSG stack exhaust shall contain CO emissions that exceed 2.0 parts per million on a
424 dry volumetric basis (ppmdv) over a one hour average when corrected to 15.0 percent
425 oxygen. No HRSG stack exhaust shall exceed daily CO emissions of 108 kilograms (240
426 pounds). No HRSG stack exhaust shall exceed annual CO emissions of 99.9 tons.

427 4.1 Initial performance and compliance for each turbine shall be determined by EPA
428 Reference Method 10 modified to use nondispersive infrared (NDIR) with gas filter
429 correlation, and following the calibration and operation guidelines of EPA
430 Reference Method 6C. The NDIR must have performance specifications allowing a
431 minimum detectable sensitivity of 1 ppmdv with accuracy within +/- 0.5 ppmdv.
432 The span and linearity calibration gas concentrations in Method 10 shall be
433 appropriate to the CO concentration limits specified in this condition. Equivalent
434 concentration test methods may be used if approved in advance by EFSEC.

435 4.2 Mass emission rates shall be determined using the procedures outlined in 40 CFR
436 part 60 Appendix A Method 19, adapted to CO. Equivalent mass emission rate
437 calculation methods may be used if approved in advance by EFSEC.

438 4.3 CO emissions from each exhaust stack shall be measured and recorded by CEMS
439 that meet the requirements of Prevention of Significant Deterioration Approval
440 Condition 16.1. Such CEMS shall be used to determine compliance with this
441 Condition.

442 5. Emission limits for CO during startup and shutdown:

443 5.1 Startup and shutdown shall be defined as in Approval Condition 11 of the
444 Prevention of Significant Deterioration permit for SE2GF.

445 5.2 For purposes of compliance with CO emission limits, startup or shutdown operation
446 exists only when the combustion catalyst system is below the normal operating

- 447 temperature range indicated by the manufacturer's operating manual.
- 448 5.3 The daily CO emission limit on each HRSG stack exhaust is relieved.
- 449 5.4 No HRSG stack exhaust shall exceed hourly CO emissions of 909 kilograms (2,000
450 pounds)[0].
- 451 5.5 The continuous emissions monitor (CEM) for CO shall be operated during startup
452 and shutdown periods.
- 453 6. Ammonia consumption and fuel use data and opacity observations shall be reported in
454 written form to the authorized representative of EFSEC within thirty days of the end of each
455 calendar month (unless a different report form/format, and reporting schedule has been
456 approved by EFSEC).
- 457 7. For each opacity observation in excess of the standard, the monthly report (per Notice of
458 Construction Approval Condition 4) shall include the following:
- 459 7.1 The time of the occurrence.
- 460 7.2 Magnitude of the emission or process parameters excess.
- 461 7.3 The duration of the excess opacity.
- 462 7.4 The probable cause.
- 463 7.5 Corrective actions taken or planned.
- 464 7.6 Any other agency contacted.
- 465

466 This Notice of Construction Approval has been Reviewed by:

467 _____
468 Bernard Brady, P.E. Date
469 Engineering and Technical Services
470 Washington Department of Ecology

471 This Notice of Construction Approval has been Approved by:

472 _____
473 James Oliver Luce Date
474 Chair
475 Energy Facility Site Evaluation Council

476 APPENDIX A – SUMMARY OF EMISSION LIMITATIONS for PSD EFSEC/00-01

EMISSIONS LIMITS¹ SUMAS ENERGY 2 GENERATION FACILITY COMBUSTION TURBINE WITH DRY LOW NO_x TECHNOLOGY, SELECTIVE CATALYTIC REDUCTION, AND OXIDATION CATALYST (PER TURBINE)					
Pollutant		Limit	Averaging Time	Test Method (or equivalent approved by EFSEC)	Stack Testing or Certification Frequency
NO _x @ 15% O ₂		2.0 ppm _{dv} 395 lbs/day The above NO _x limits are relieved during startup and shutdown.	3 hour daily	RM 20 and CEMs	Initial
		72 tons/year	annual		
CO @ 15% O ₂		2.0 ppm _{dv} 240 lbs/day The above CO limits are relieved during startup and shutdown.	1 hour daily	RM 10 and CEMs	Initial
		Startup and shutdown: 50 ppm _{dv}	1 hour		
SO ₂ @ 15% O ₂		1.0 ppm _{dv} The above SO ₂ limit is relieved during startup and shutdown.	1 hour	RM 6 and fuel monitoring	Initial
		189 lbs/day	daily		
PM ₁₀	Filterable	194 lbs/day The above filterable PM ₁₀ limit is relieved during startup and shutdown.	daily	RM 201 or 201A	Initial, annual for 3 years, once per three years thereafter as long as in compliance

EMISSIONS LIMITS¹ SUMAS ENERGY 2 GENERATION FACILITY COMBUSTION TURBINE WITH DRY LOW NO_x TECHNOLOGY, SELECTIVE CATALYTIC REDUCTION, AND OXIDATION CATALYST (PER TURBINE)						
Pollutant		Limit	Averaging Time	Test Method (or equivalent approved by EFSEC)		Stack Testing or Certification Frequency
	Condensable	377 lbs/day The above condensable PM ₁₀ limit is relieved during startup and shutdown.	daily	RM 202		Initial, once every three years
	Total	Startup and shutdown: 571 lbs/day	daily	RM 201 (or 201A) and 202		Parametric as described in PSD Approval Condition 12.7.3
VOC		420 lb/day (as methane)	daily	RM 18		Initial, annual for 3 years, once per three years thereafter as long as in compliance. Determined parametrically during startup and shutdown as described in PSD Approval condition 12.6.1
Sulfuric Acid Mist		39 lbs/day	daily	RM 8		Initial, annual for 3 years, once per three years thereafter as long as in compliance
Ammonia		5 ppm _{dv} 69.5 lbs/day	1 hour daily	by BAAQMD Source Test Procedure ST-1B		Initial, annual for 3 years, once per three years thereafter as long as in compliance
Opacity		10%	6 minute	6 minute (one daily reading)	RM 9 and COMS	Initial and 6 month reader certification

477 1. This table is a summary of the permit's conditions. If there is a conflict between this table and a
478 permit provision, the written permit provision takes precedence.