

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

IN THE MATTER OF:]	NO. EFSEC/2001-02
Sumas Energy 2]	FINAL APPROVAL OF THE PREVENTION OF
Generation Facility]	SIGNIFICANT DETERIORATION AND NOTICE
Sumas Energy 2, Inc.]	OF CONSTRUCTION
Sumas, WA]	

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 Administrative
9 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 by
15 Sumas Energy 2, Inc. and
16 the technical analysis performed by Ecology for EFSEC:
17

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

- 20 1. Sumas Energy 2, Inc. has applied to construct the Sumas Energy 2 Generation Facility
21 (SE2GF) which will be located in Sumas, Washington. The proposed project includes two
22 separate but identical combustion gas turbines, one steam turbine, three electric generators, and
23 two heat recovery steam generators (HRSG). Total power generating capacity is 660
24 megawatts (MW). Siemens-Westinghouse has been selected as the turbine supplier. Annual
25 emission rates and resulting environmental impacts have been evaluated for the maximum

- 26 anticipated emissions.
- 27 2. The project is subject to federal Prevention of Significant Deterioration (PSD) regulations under
28 Title 40 Code of Federal Regulations (CFR) 52.21 because it is one of 28 listed industries that
29 becomes a "major source," when emitting more than 100 tons per year of any regulated
30 pollutant. Each pollutant emitted above Significant Emission Rate thresholds must satisfy
31 requirements under PSD. As permitted, SE2GF has the potential to emit quantities of nitrogen
32 oxides (NO_x), particulate matter (PM₁₀), volatile organic compounds (VOCs), sulfur dioxide
33 (SO₂), and sulfuric acid mist (H₂SO₄) above the Significant Emission Rate thresholds. In
34 addition, SE2GF has the potential to emit toxic air pollutants in quantities sufficient to require
35 consideration under state new source review regulations.
- 36 3. The site of the proposed project is within a Class II area that is in attainment with regard to all
37 pollutants regulated by the National Ambient Air Quality Standards (NAAQS) and state air
38 quality standards. The site is 55 kilometers (km.) from the nearest Class I Area, North
39 Cascades National Park, within 175 km. of four other Class I areas (Alpine Lakes Wilderness,
40 Glacier Peak Wilderness, Olympic National Park, and Pasayten Wilderness), and within one-
41 half mile of the Canadian border.
- 42 4. The project is subject to the following requirements:
43 General and operating permit regulations for air pollution sources chapter 463-39 WAC;
44 New source review under Chapter 173-400 WAC, Chapter 173-460 WAC, and 40 CFR
45 52.21;
46 New source performance standards under 40 CFR 60.40a and 40 CFR 60.330;
47 Emission monitoring under Chapter 70.94 RCW, Chapter 173-400 WAC, 40 CFR 60
48 Appendices A, B, and F, and 40 CFR 75;
49 Gas fuel monitoring under 40 CFR 60.334(b)(2).
- 50 5. Sumas Energy 2, Inc.'s prevention of significant deterioration/notice of construction
51 (PSD/NOC) application for the proposed project was determined to be complete on
52 September 5, 2001.
- 53 6. The project will use natural gas with a maximum sulfur content that shall not exceed 2 grains per

- 54 100 cubic feet on a seven consecutive day average basis, and 1.1 grains per 100 cubic feet on a
55 consecutive 12 month average basis, as fuel.
- 56 7. Best available control technology (BACT) as required under WAC 173-400-113 (2) and toxic
57 best available control technology (T-BACT) as required under WAC 173-460-040(4) will be
58 used for the control of all air pollutants which will be emitted by the proposed project.
- 59 8. The following have been determined to be BACT for this project:
- 60 Use of standard dry low NO_x burners with selective catalytic reduction (SCR) for NO_x control.
61 Catalytic oxidation for CO control.
- 62 Good combustion practice, using only natural gas with a maximum sulfur content that shall not
63 exceed 2 grains per 100 cubic feet on a seven consecutive day average basis, and 1.1 grains
64 per 100 cubic feet on a consecutive 12 month average basis, for VOC, PM10, sulfur oxides,
65 and organic toxic air pollutants control.
- 66 SCR with a 5 ppmdv ammonia slip limit for ammonia control.
- 67 9. The facility will have the potential to emit up to 144.5 tons per year of nitrogen oxides (NO_x).
- 68 10. The facility will have the potential to emit up to 88 tons per year of carbon monoxide (CO).
- 69 11. The facility will have the potential to emit up to 153 tons per year of volatile organic compounds
70 (VOCs).
- 71 12. The facility will have the potential to emit up to 209 tons per year of particulate matter smaller
72 than 10 microns (PM₁₀, combined filterable and condensable).
- 73 13. The facility will have the potential to emit up to 69 tons per year of sulfur oxides (SO₂ and SO₃
74 or H₂SO₄ measured as SO₂).
- 75 14. The facility will have the potential to emit up to 14.3 tons per year of sulfuric acid mist (H₂SO₄).
76 This has also been counted in Finding # 13, above.
- 77 15. The facility will have the potential to emit 139 tons per year of ammonia.
- 78 16. Ambient concentrations of all of the toxic air pollutants (TAPs) attributable to the facility's
79 operation are projected to be well below the acceptable source impact levels (ASILs) specified
80 in Chapter 173-460 WAC. On the average, anticipated TAP emissions are less than 10% of

- 81 the ASILs.
- 82 17. Allowable emissions from the new emissions units will not cause or contribute to air pollution in
83 violation of:
- 84 17.1. Any ambient air quality standard;
- 85 17.2. Any applicable maximum allowable increase over the baseline ambient concentration.
- 86 18. Ambient impact analysis indicates that there will be no significant impacts resulting from pollutant
87 deposition on soils and vegetation in the Class I areas: Alpine Lakes Wilderness, Glacier Peak
88 Wilderness, North Cascades National Park, Olympic National Park, and Pasayten Wilderness,
89 the proposed Class I area, the Mt. Baker Wilderness, or in analogous areas in nearby British
90 Columbia, Canada.
- 91 19. Ambient impact analysis indicates that it is very unlikely that the proposed emissions will cause
92 significant degradation of regional visibility, or impairment of visibility in any Class 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 that
96 as approved below, the new emissions units comply with all applicable federal new source
97 performance standards. Approval of the PSD/NOC application is granted subject to the
98 following conditions.
- 99

99 **PREVENTION OF SIGNIFICANT DETERIORATION APPROVAL CONDITIONS**

- 100 1. The combustion turbines shall be fueled by natural gas with a maximum sulfur content that shall
101 not exceed:
- 102 1.1 2 grains per 100 cubic feet on a seven consecutive day average basis.
- 103 1.2 1.1 grains per 100 cubic feet on a consecutive 12 month average basis.
- 104 2. The oil fuel fired emergency generator shall not exceed 400 kW and shall not be operated in
105 excess of 500 hours per year. The following records regarding the emergency generator shall be
106 maintained current and kept at the facility:
- 107 2.1 Equipment type, make and model, maximum power input/output.
- 108 2.2 A monthly log of reason for operation, hours of operation, fuel type, quantity, and sulfur
109 content.
- 110 3. The oil fuel fired engine for driving the water pump(s) for emergency fire suppression shall not
111 exceed 300 HP and shall be operated only as needed for its maintenance and for emergency
112 fire suppression. The following records regarding this engine shall be maintained current and
113 kept at the facility:
- 114 3.1 Equipment type, make and model, maximum power input/output.
- 115 3.2 A monthly log of reason for operation, hours of operation, fuel type, quantity, and sulfur
116 content.
- 117 4 Sulfur content at the time of purchase of oil to be used as fuel in the emergency generator and
118 the engine for the fire suppression water pump(s) must conform with the then current limit
119 applied to on-road specification oil as defined in the Code of Federal Regulations (at the time of
120 issuance of this permit, defined in 40 CFR § 80.29(a)(i)).
- 121 5. No HRSG stack exhaust shall contain NO_x emissions that exceed 2.0 parts per million on a dry
122 volumetric basis (ppmdv) over a three hour average when corrected to 15.0 percent oxygen.
123 No HRSG stack exhaust shall exceed daily NO_x emissions of 179 kilograms (395 pounds). No
124 HRSG stack exhaust shall exceed annual NO_x emissions of 72 tons.

125

126 5.1 Initial performance and compliance for each turbine shall be determined in accordance
127 with Title 40 CFR Part 60, Subpart GG and Appendix A, Reference Method 20,
128 except that the instrument span shall be 6 ppm or less. An alternate method may be
129 used if approved in advance by EFSEC.

130 5.2 Continuous compliance will be determined by a continuous emission monitoring system
131 (CEMS) that measures and records NO_x and O₂ emissions from each exhaust stack.
132 The CEMS shall meet the requirements of Prevention of Significant Deterioration
133 Approval Condition 15.2.

134 5.3 Mass emission rates shall be determined using the appropriate procedures outlined in 40
135 CFR part 60 Appendix A Method 19. An equivalent mass emission rate calculation
136 method may be used if approved in advance by EFSEC.

137 6. No HRSG stack exhaust shall contain SO₂ emissions that exceed 1.0 parts per million on a dry
138 volumetric basis (ppmdv) over a one hour average when corrected to 15.0 percent oxygen. No
139 HRSG stack exhaust shall exceed daily SO₂ emissions of 86 kilograms (189 pounds).

140 6.1 Initial performance and compliance for each turbine shall be determined by EPA
141 Reference Method 6C. The instrument span shall be at a maximum of 3 ppm. All span
142 and calibration gases used shall follow in accordance with the method requirements. An
143 alternate method may be used if approved in advance by EFSEC.

144 6.2 Continuous emission monitoring of SO₂ is not required. Continuous compliance with
145 the limit for each stack shall be by means of fuel sulfur content reporting and fuel flow
146 monitoring to each turbine in accordance with Prevention of Significant Deterioration
147 Approval Conditions 18, 19, and 20, below.

148 7. No HRSG stack exhaust shall exceed daily VOC emissions of 190 kilograms (420 pounds)
149 calculated as methane.

150 7.1 Initial performance and compliance for each turbine shall be determined by EPA
151 Reference Method 18. Equivalent test methods may be used if approved in advance by
152 EFSEC.

153 7.2 Source testing must be conducted annually for the first three years following initial

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

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

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

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

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

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

- 183 9. No HRSG stack exhaust shall exceed daily total PM₁₀ emissions of 260 kilograms (573
184 pounds).
- 185 9.1 Initial performance and compliance with the particulate standard shall be determined by
186 summing the results of federal Reference Methods 201 (or 201A) and 202. Equivalent
187 concentration test methods may be used if approved in advance by 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 each
191 combustion turbine is defined as the time when the first electricity from that turbine is
192 delivered to the electrical power grid.
- 193 9.3 Mass emissions for compliance determination shall be calculated using the appropriate
194 data from the most recent source test. Mass emission rates shall be determined using the
195 appropriate procedures outlined in 40 CFR part 60 Appendix A Method 19.
196 Equivalent mass emission rate calculation methods may be used if approved in advance
197 by EFSEC.
- 198 10. No HRSG stack exhaust shall exceed daily H₂SO₄ emissions of 17.7 kilograms (39 pounds).
- 199 10.1 Initial performance and compliance with the H₂SO₄ emissions limits shall be determined
200 by EPA Reference Method 8 with incorporation of the procedures given in EPA
201 Reference Method 6, Section 7.3 for elimination of ammonia interference, or an
202 equivalent method approved in advance by EFSEC.
- 203 10.2 Source testing must be conducted annually for the first three years following initial
204 startup to demonstrate continued compliance. Test methods shall be the same as used
205 for the initial performance test unless approved in advance by EFSEC. Initial startup for
206 each combustion turbine is defined as the time when the first electricity from that turbine
207 is delivered to the electrical power grid. Testing thereafter will be once every three
208 years if the initial performance and subsequent tests satisfy permit limits. Failure of any
209 source test to meet permit limits restarts the three year annual test cycle.
- 210 10.3 Mass emissions for compliance determination shall be calculated using the appropriate
211 data from the most recent source test. Mass emission rates shall be determined using

212 the procedures outlined in 40 CFR part 60 Appendix A Method 19, adapted to
213 H₂SO₄. Equivalent mass emission rate calculation methods may be used if approved
214 in advance by EFSEC.

215 11. Startup and shutdown operation:

216 11.1 Startup is defined as any operating period that is ramping up from less than partial load
217 (70%), and ends when the operating rate has exceeded partial load (70%), and the
218 earlier of these events occurs:

219 11.1.1 Normal operating temperatures have been reached in both the catalytic
220 oxidation and selective catalytic reduction modules as indicated by the
221 manufacturer's operating manual.

222 11.1.2 One of the following time limits have been reached, as applicable:

223 11.1.2.1 Six hours have elapsed since either fuel was first introduced to
224 the applicable turbine on a cold startup. A cold startup is any startup
225 occurring after the applicable turbine has been shut down for seventy-
226 one hours or more.

227 11.1.2.2 Two and one-half hours elapsed since either fuel was first
228 introduced to the applicable turbine on a warm startup. A warm startup
229 is any startup occurring after the applicable turbine has been shut down
230 for more than eight hours but less than seventy-one hours.

231 11.1.2.3 One and one-half hours have elapsed since either fuel was first
232 introduced to or the beginning of the ramp-up of the applicable turbine
233 on a hot startup. A hot startup is any startup occurring after the
234 applicable turbine has been shut down for eight hours or less.

235 11.2 Shutdown is defined as any operating period for which all the following are occurring:

236 11.2.1 The system is ramping down from normal operation. Normal operation is
237 defined as operation between 70% and 100% of turbine power generation
238 capacity.

239 11.2.2 The system is at less than partial load (70%).

240 11.2.3 Either the catalytic oxidation or selective catalytic reduction systems are below
241 the normal operating temperature range indicated by the manufacturer's
242 operating manual.

243 Shutdown ends when the fuel feed to the system ceases.

244 11.3 Emission limits for NO_x during startup and shutdown:

245 11.3.1 For purposes of compliance with NO_x emission limits, startup or shutdown
246 operation exists only when the selective catalytic reduction system is below the
247 normal operating temperature range indicated by the manufacturer's operating
248 manual.

249 11.3.2 The limit on the three hour average NO_x concentration and daily NO_x mass
250 emissions from each HRSG stack exhaust are relieved.

251 11.3.3 The continuous emissions monitor (CEM) for NO_x shall be operated during
252 startup and shutdown periods. Total mass emissions as determined from the
253 CEM readings shall be included in determination of compliance with the annual
254 NO_x mass emission limit in Condition 5.

255 11.4 Emission limits for SO₂ during startup and shutdown:

256 11.4.1 The limit on the one hour average SO₂ concentration from each HRSG stack
257 exhaust is relieved.

258 11.4.2 Mass SO₂ emissions during startup and shutdown shall be determined from the
259 sulfur content of the fuel consumed assuming all sulfur is emitted as sulfur
260 dioxide.

261 11.4.3 Mass SO₂ emissions during startup and shutdown shall be included in
262 determination of compliance with the daily SO₂ mass emission limit in Condition
263 6.

264 11.5 Emission limits for VOCs during startup and shutdown:

265 11.5.1 VOC mass emission rates from each HRSG stack exhaust during startup and
266 shutdown shall be calculated from fuel consumption rates using the following
267 equations up to the partial load (70% of capacity) operating level:

268 Lbs./hr. VOCs from the turbine = $11.87 - 0.00483 * x_1$

269 Lbs./hr. VOCs from the duct burner = $60.3 - 0.1 * x_2$

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

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

273 11.5.2 The VOC mass emission rates during startup and shutdown shall be integrated
274 to determine total VOC mass emissions, and included in determination of
275 compliance with the daily VOC mass emission limit in Condition 7.

276 11.6 Emission limits for PM_{10} during startup and shutdown.

277 11.6.1 The individual filterable mass emission limit is relieved.

278 11.6.2 Total PM_{10} mass emission rates during startup and shutdown shall be calculated
279 from fuel consumption rates using the following equation up to the partial load
280 (70% of capacity) operating level:

281 Lbs./hr. $PM_{10} = 0.0074 * x + 5.5 * [1 - \exp(-.001818 * x)]$

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

284 11.6.3 The PM_{10} mass emission rates during startup and shutdown shall be integrated
285 to determine total PM_{10} mass emissions, and included with the total PM_{10} mass
286 emissions during normal operation to determine compliance with the daily PM_{10}
287 mass emission limit in condition 9.

288 11.7 Emission limits for H_2SO_4 during startup and shutdown:

289 11.7.1 Mass H_2SO_4 emissions during startup and shutdown shall be determined from
290 the sulfur content of the fuel consumed assuming 13.5 % of the sulfur is emitted
291 as H_2SO_4 .

292 11.7.2 Mass H_2SO_4 emissions during startup and shutdown shall be included in
293 determination of compliance with the daily H_2SO_4 mass emission limit in
294 Condition 10.

- 295 12. Within 180 days after initial start-up of each turbine, SE2GF shall conduct performance tests
296 for NO_x, SO₂, H₂SO₄, CO, VOCs and PM₁₀ on each combustion turbine.
- 297 12.1 The performance tests shall be performed by an independent testing firm.
- 298 12.2 A test plan shall be submitted for EFSEC's approval at least 30 days prior to the
299 testing.
- 300 13. Sampling ports and platforms shall be provided on each stack, after the final pollution control
301 device. The ports shall meet the requirements of 40 CFR, Part 60, Appendix A Method 20.
- 302 14. Adequate permanent and safe access to the test ports shall be provided. Other arrangements
303 may be acceptable if approved by EFSEC prior to installation.
- 304 15. Continuous Emission Monitoring Systems
- 305 15.1 Continuous emission monitoring systems (CEMS) for CO, shall satisfy the requirements
306 contained in 40 CFR, Part 60, Appendix B, Performance Specifications and 40 CFR,
307 Part 60, Appendix F, Quality Assurance Procedures.
- 308 15.2 CEMS for NO_x, O₂, and exhaust gas flow rate or velocity compliance shall satisfy the
309 requirements contained in 40 CFR 75, Emissions Monitoring.
- 310 15.3 Use of velocity factors from 40 CFR, Part 60, Appendix A, Method 19 shall satisfy the
311 requirements for determining exhaust gas flow rate or velocity compliance contained in
312 40 CFR 75, Emissions Monitoring.
- 313 16. Source testing for PM₁₀, VOCs, and H₂SO₄ is to coincide with the Relative Accuracy Test
314 Audit required for each installed CEMS.
- 315 17. CEMS and process data shall be reported in written form to the authorized representative of
316 EFSEC and to the EPA Region X Office of Air Quality within thirty days of the end of each
317 calendar month (unless a different report form/format, testing and reporting schedule has been
318 approved by EFSEC) which shall include but not be limited to the following:
- 319 17.1 Quantity and average sulfur content of natural gas burned as substantiated by purchase
320 records and vendor's report. Fuel sulfur content determination shall follow procedures
321 outlined in 40 CFR 60.335(d) and (e).
- 322 17.2 For each stack, the daily average NO_x and CO concentrations, in ppm_{dv} corrected to

- 323 15% oxygen.
- 324 17.3 For the project, total mass emissions of NO_x and CO on daily (pounds per day) and
325 twelve month moving total (tons per year) bases.
- 326 17.4 The duration and nature of any monitor down-time excluding zero and span checks.
- 327 17.5 Results of any monitor audits or accuracy checks.
- 328 17.6 Results of any required stack tests.
- 329 17.7 The above data shall be retained at the SE2GF site for a period of five years.
- 330 18. The format of the reporting described in Condition 17 shall match that required by EPA for
331 demonstrating compliance with the Title IV Acid Rain program reporting requirements.
332 Pollutants not covered by that format shall be reported in a format approved by EFSEC that
333 shall include at least the following:
- 334 18.1 Process or control equipment operating parameters.
- 335 18.2 The hourly maximum and average concentration, in the units of the standard, for each
336 pollutant monitored.
- 337 18.3 The duration and nature of any monitor down time.
- 338 18.4 Results of any monitor audits or accuracy checks.
- 339 18.5 Results of any required stack tests.
- 340 19. For each occurrence of monitored emissions in excess of the standard, the monthly emissions
341 report (per Prevention of Significant Deterioration Approval Condition 17) shall include the
342 following:
- 343 19.1 For parameters subject to monitoring and reporting under the Title IV Acid Rain
344 program, the reporting requirements in that program shall govern excess emissions
345 report content.
- 346 19.2 For all other pollutants:
- 347 19.2.1 The time of the occurrence.
- 348 19.2.2 Magnitude of the emission or process parameters excess.

- 349 19.2.3 The duration of the excess.
- 350 19.2.4 The probable cause.
- 351 19.2.5 Corrective actions taken or planned.
- 352 19.2.6 Any other agency contacted.
- 353 20. Operating and maintenance manuals for all equipment that has the potential to affect emissions
354 to the atmosphere shall be developed and followed.
- 355 20.1 Copies of the manuals shall be available to EFSEC or the authorized representative of
356 EFSEC.
- 357 20.2 Emissions that result from a failure to follow the requirements of the manuals may be
358 considered proof that the equipment was not properly operated and maintained.
- 359 21. Operation of the equipment that has the potential to affect the quantity and nature of emissions
360 to the atmosphere must be conducted in compliance with all data and specifications submitted
361 as part of the PSD/NOC application unless otherwise approved by EFSEC.
- 362 22. This approval shall become invalid if construction of the project is not commenced within
363 eighteen (18) months after receipt of final approval, or if construction of the facility is
364 discontinued for a period of eighteen (18) months, unless EFSEC extends the 18 month period
365 upon a satisfactory showing that an extension is justified, pursuant to 40 CFR 52.21(r)(2) and
366 applicable EPA guidance.
- 367 23. Any activity that is undertaken by SE2GF or others, in a manner that is inconsistent with the
368 application and this determination, shall be subject to EFSEC enforcement under applicable
369 regulations. Nothing in this determination shall be construed so as to relieve SE2GF of its
370 obligations under any state, local, or federal laws or regulations.
- 371 24. The SE2GF shall notify EFSEC in writing at least thirty days prior to start-up of the project.
- 372 25. Access to the source by EFSEC, the U.S. Environmental Protection Agency or the authorized
373 representative of EFSEC shall be permitted upon request for the purpose of compliance
374 assurance inspections. Failure to allow access is grounds for action under the federal Clean Air
375 Act and the Washington Clean Air Act.
- 376

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

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381 _____
Bernard Brady, P.E.

_____ Date

382 Engineering and Technical Services

383 Washington Department of Ecology

384

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
394

395 **NOTICE OF CONSTRUCTION APPROVAL CONDITIONS**

- 396 1. SE2GF will comply with all Prevention of Significant Deterioration approval conditions specified
397 above.
- 398 2. Total emissions of free NH₃ and ammonium salts measured as NH₃ from each HRSG exhaust
399 stack shall not exceed 5 parts per million on a volumetric basis (ppmdv) over a one hour
400 average when corrected to 15.0 percent oxygen. Daily emissions of free NH₃ and ammonium
401 salts measured as NH₃ from either HRSG stack exhaust shall not exceed 173 kilograms (382
402 pounds).
- 403 2.1 Initial compliance for each turbine shall be determined by Bay Area Air Quality
404 Management District Source Test Procedure ST-1B, "Ammonia, Integrated Sampling",
405 or an equivalent method approved in advance by EFSEC. Source test samples must be
406 unfiltered as taken from each stack.
- 407 2.2 Source testing must be conducted annually for the first three years following initial
408 startup to demonstrate continued compliance. Initial startup for each combustion turbine
409 is defined as the time when the first electricity from that turbine is delivered to the
410 electrical power grid. Testing thereafter will be once every three years if the initial
411 performance and subsequent tests satisfy permit limits. Failure of any source test to
412 meet permit limits starts the three year annual test cycle over.

- 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 Prevention of
444 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 No HRSG stack exhaust shall exceed hourly CO emissions of 909 kilograms (2,000
449 pounds).
- 450 5.4 The continuous emissions monitor (CEM) for CO shall be operated during startup and
451 shutdown periods. Total mass emissions as determined from the CEM readings shall be
452 included in determination of compliance with the annual CO mass emission limit in
453 Condition 4.
- 454 6. Ammonia consumption and fuel use data and opacity observations shall be reported in written
455 form to the authorized representative of EFSEC within thirty days of the end of each calendar
456 month (unless a different report form/format, and reporting schedule has been approved by
457 EFSEC).
- 458 7. For each opacity observation in excess of the standard, the monthly report (per Notice of
459 Construction Approval Condition 4) shall include the following:
- 460 7.1 The time of the occurrence.
- 461 7.2 Magnitude of the emission or process parameters excess.
- 462 7.3 The duration of the excess opacity.
- 463 7.4 The probable cause.
- 464 7.5 Corrective actions taken or planned.
- 465 7.6 Any other agency contacted.

466

467 This Notice of Construction Approval has been Reviewed by:

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469

470

471

Bernard Brady, P.E.
Engineering and Technical Services
Washington Department of Ecology

Date

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This Notice of Construction Approval has been Approved by:

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James Oliver Luce
Chair
Energy Facility Site Evaluation Council

Date

477 APPENDIX A – SUMMARY OF EMISSION LIMITATIONS for PSD EFSEC/2001-02

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 ppmdv	3 hour	RM 20 and CEMs	Initial
		395 lbs/day	daily		
		The above NO _x limits are relieved during startup and shutdown.			
		72 tons/year	Annual		
CO @ 15% O ₂		2.0 ppmdv	1 hour	RM 10 and CEMs	Initial
		99.9 tons/year	annual		
		The above CO limits are relieved during startup and shutdown.			
		Startup and shutdown: 2,000 lbs./hr.	1 hour		
SO ₂ @ 15% O ₂		1.0 ppmdv	1 hour	RM 6 and fuel monitoring	Initial
		The above SO ₂ limit is relieved during startup and shutdown.			
		189 lbs/day	daily		
PM ₁₀	Filterable	194 lbs/day	daily	RM 201 or 201A	Initial, annual for 3 years, once per three years thereafter as long as in compliance
		The above filterable PM ₁₀ limit is relieved during startup and shutdown			

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
PM ₁₀	Condens-able	377 lbs/day	daily	RM 202		Initial, once every three years
		The above condensable PM ₁₀ limit is relieved during startup and shutdown.				
	Total	Startup and shutdown: 573 lbs/day	daily	RM 201 (or 201A) and 202		Parametric as described in PSD Approval Condition 11.6.2
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 11.5.1
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} 382 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

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