

1 WASHINGTON STATE DEPARTMENT OF ECOLOGY
2 POST OFFICE BOX 47600
3 OLYMPIA, WASHINGTON 98504-7600
4

IN THE MATTER OF]

Northwest Pipeline Corporation] NO. PSD-01-09 **Fourth** Amendment
Mount Vernon Compressor Station]
Williams Gas Pipeline - West] FINAL APPROVAL
295 Chipeta Way] OF PSD APPLICATION
Salt Lake City, UT 84158-0900]

5
6 Pursuant to the United States Environmental Protection Agency (EPA) regulations for the
7 Prevention of Significant Deterioration (PSD) set forth in Title 40, Code of Federal Regulations,
8 Part 52 and regulations set forth in the Washington Administrative Code (WAC) 173-400-141,
9 and based upon the complete Prevention of Significant Deterioration (PSD) Permit Application
10 submitted by Williams Gas Pipeline - West for the Northwest Pipeline Corporation Mount
11 Vernon Compressor Station on December 4, 2001, first amendment was based on a letter of
12 request dated April 23, 2004. The third administrative amendment was based on a request by
13 email dated July 21, 2004. Furthermore, William Gas Pipeline submitted a request by a letter
14 dated October 26, 2004 to amend the PSD Permit No. PSD-01-09 (fourth amendment) for
15 NWP's existing Mt. Vernon Compressor Station facility. The technical analysis performed by
16 the Department of Ecology (Ecology), Ecology now finds the following:

17 **FINDINGS:**

- 18 1. The reason for this fourth administrative amendment is to address NWP's request for less
19 frequent emissions testing for the boiler (Seller C-80-w with heat input of 3.348 MMBtu/hr)
20 and standby generator. Northwest Pipeline requests Ecology to change the current permit
21 condition of nitrogen oxide (NO_x) performance tests from annual basis to every five years
22 starting from the date of the most recent compliance test.
- 23 2. At the full allowed operating time, NO_x emissions from the standby generator and the boiler
24 together are less than three-quarters of a ton per year. Ecology agrees that a once every five
25 years emissions test for these emissions units is satisfactory to assure air quality protection.
- 26 3. The reason for the third administrative amendment was to implement changes requested by
27 Northwest Pipeline Corporation (NWP) that are intended to clarify and streamline the
28 permit. There were no changes to the emission limits in this amendment. Therefore, public
29 notice was not required.

30 The reason for the second amendment was that Northwest Pipeline Corporation (NWP) and
31 Ecology discovered the inability of the Predictive Emissions Monitoring System (PEMS) to
32 accurately predict real-time emissions. This finding was based upon completion of one year
33 of PEMS data gathering and analysis, and Ecology agreed with NWP. There was no change
34 to emission limits in the second amendment as well. Therefore, public notice was not
35 required.

- 36 4. NWP owns and operates an existing Mount Vernon Compressor Station (MVCS) located
37 about nine miles east of Mt. Vernon, Washington (48°N 25' 19" latitude, 122°W 12'
38 58"longitude).
- 39 5. MVCS is located within a Class II area that is currently designated in attainment for all
40 national and state air quality standards. PSD permit 01-09 allowed an expansion to this
41 facility described in findings 6 through 19, below.
- 42 6. The site is 57 kilometers (km) from the nearest Class I Area, North Cascades National Park,
43 and within 100 km of four other Class I areas (Alpine Lakes Wilderness, Glacier Peak
44 Wilderness, Olympic National Park, and Pasayten Wilderness).
- 45 7. The site is about 45 kilometers from the U.S. - Canadian border.
- 46 8. This project consists of:
- 47 8.1. Adding one Mars 90-TI3002S (Mars 90S) gas turbine site-rated at 12,787 horsepower
48 (59° F),
- 49 8.2. Substituting an existing Centaur 40-T4500 upgraded to a Centaur 50-T6100S
50 (Centaur 50S) at 5,950 hp (59° F.) for the originally permitted Centaur 40-T4700S
51 (Centaur 40S) gas turbine site-rated at 4,554 horsepower.
- 52 8.3. Replacing an existing standby generator with one of larger capacity (450 kW) as
53 originally permitted.
- 54 8.4. Replacing an existing 2.5 million British thermal units per hour (MMBtu/hr.)
55 heater/boiler with one of larger capacity (3.348 MMBtu/hr. Sellers C80) as originally
56 permitted.
- 57 9. This project is subject to New Source Performance Standards (NSPS): 40 CFR Subpart GG
58 (Standards of Performance for Stationary Gas Turbines).
- 59 10. The emissions of all air pollutants from the proposed modification are subject to review
60 under Chapter 173-400 WAC, Chapter 173-460 WAC, and the regulations of the Northwest
61 Air Pollution Authority (NWAPA). Chapter 173-400 WAC includes provision for PSD
62 review (WAC 173-400-141). This permit considers only PSD applicable issues. All other
63 air quality related notice of construction approval issues are subject to the Northwest Air
64 Pollution Authority (1600 Second Street, Mt. Vernon, WA).
- 65 11. MVCS currently has the potential to emit more than 250 tons per year of any one pollutant
66 that is subject to the federal Clean Air Act. This qualifies MVCS as an existing major
67 stationary source as defined in WAC 173-400-113(1)(b). Any net increases in potential
68 emissions from the site that are considered significant under WAC 173-400-113(1)(a) will be
69 subject to PSD review under WAC 173-400-141.
- 70 12. As a result of this project, the net increase in MVCS's potential to emit nitrogen oxides
71 (NO_x) is 62.8 tons per year (TPY).
- 72 13. Because MVCS is an existing major stationary source, and the net emissions increase for
73 NO_x is more than 40 tons per year, the project qualifies as a major modification. [WAC 173-
74 400-113(1)(a), WAC 173-400-113(1)(b), WAC 173-400-113(1)(c), and WAC 173-400-

- 75 113(1)(d)]. As a result, the project is subject to PSD review under WAC 173-400-141.
76 Additionally, the project is subject to federal PSD review because it qualifies as a major
77 modification under federal rules [40 CFR 52.21(b)(2)(i), 40 CFR 52.21(b)(3)(i), and 40 CFR
78 52.21(b)(23)(i)].
- 79 14. Other than NO_x, the net emissions increases of all pollutants subject to regulation under the
80 federal Clean Air Act are below the significance levels specified in 40 CFR 52.21(b)(23)(i).
81 As a result, they are not subject to inclusion in this PSD permit.
- 82 15. The PSD permit application was submitted December 4, 2001, and determined to be
83 complete on January 3, 2002.
- 84 16. MVCS will operate the standby generator fewer than 500 hours in any calendar year. The
85 limit will be federally enforceable under the conditions of this PSD permit.
- 86 17. The Mars 90S turbine, the Centaur 50S turbine, the standby generator, and the heater/boiler
87 being installed for this project will burn only natural gas from the pipeline.
- 88 18. Best Available Control Technology (BACT) determinations for NO_x emissions:
- 89 18.1. Dry low-NO_x control (SoLoNOX) for the Mars 90S and Centaur 50S turbines.
90 18.2. Non-selective catalytic reduction for the standby generator.
91 18.3. Good combustion practice for the Sellers C80 heater/boiler.
- 92 19. Allowable emissions from the new emissions units will not cause or contribute to air
93 pollution in violation of:
- 94 19.1. Any ambient air quality standard;
95 19.2. Any applicable maximum allowable increase over the baseline ambient concentration.
96 19.3. National Ambient Air Quality Standards (NAAQS) and PSD increment consumption:
97 Modeling to determine impacts was not required because the applicant demonstrated
98 the impacts to be below modeling significance thresholds.
- 99 19.4. Visibility impact in the surrounding Class I areas: The highest modeled impact was a
100 4.8% degradation which occurred in North Cascades National Park in mid-winter.
101 Federal land manager guidance considers this to be below the "concern" threshold.
- 102 19.5. Visibility impact in nearby Class II parks and recreational areas: The highest
103 modeled impact in Mt. Baker Wilderness was a 6.2% degradation in mid-winter, and
104 less than 4% the rest of the year. Federal land manager guidance considers this to be
105 acceptable under PSD procedures and BACT requirements.
- 106 20. Ambient impact analysis indicates that there will be no significant pollutant deposition on
107 soils and vegetation in the Class I or Class II areas.
- 108 20.1. Modeled emissions ambient impact levels are substantially below all secondary
109 NAAQS. This indicates a low likelihood of negative impact on Class II area flora
110 and fauna. No sensitive species have been identified.
- 111 20.2. NWP has agreed with the Washington Department of Fish and Wildlife to conduct a
112 nesting survey for bald eagles expected to be in the vicinity of the facility.

113 20.3. The highest modeled nitrogen deposition in the surrounding Class I areas is less than
114 50% of the "concern" threshold in federal land manager guidance.

115 21. No significant effect on industrial, commercial, or residential growth in the Mt. Vernon,
116 Washington area is anticipated as a result of this project.

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

119

120 **APPROVAL CONDITIONS:**

121

122 1. The Mars 90S turbine, the Centaur 50S turbine, the standby generator, and the heater/boiler
123 being installed for this project:

124 1.1. Are only allowed to burn natural gas from the pipeline.

125 1.2. NWP shall monitor and report (see Condition 8) the analytical data from the Sumas
126 monitor location regarding the chemical composition of the fuel used to comply with
127 Condition 1.1.

128 2. The standby generator:

129 2.1. NWP shall operate the standby generator no more than 500 hours in any consecutive
130 12-month period.

131 2.2. NWP shall monitor compliance with Condition 2.1 with:

132 2.2.1. An hour meter for generator operation.

133 2.2.2. NWP shall not reset the hour meter without written authorization of Ecology or
134 NWAPA.

135 2.3. NO_x emissions from the standby generator are limited to not greater than 82 grams
136 per hour.

137 2.4. NWP shall demonstrate initial compliance with Condition 2.3:

138 2.4.1. Within 180 days after initial startup, NWP will have a source test performed by an
139 independent testing firm.

140 2.4.2. The run-time on the standby generator for the initial compliance demonstration
141 test shall not count toward the operating time limit in Condition 2.1.

142 2.4.3. The source test shall be in accordance with 40 CFR 60 Appendix A, Methods 2,
143 2A, 2C, or 2D, and Method 7E.

144 2.4.4. For the source test, NWP shall run the generator at maximum achievable load.

145 2.4.5. NWP shall determine the emissions rate in units of grams per hour by using the
146 source test results in applicable engineering calculations.

147 2.4.6. NWP shall submit a test plan to Ecology and NWAPA for approval at least 30
148 days prior to testing.

- 149 2.4.7. Within 90 days of initial startup, NWP will confirm to Ecology in writing that the
150 existing standby generator has been taken out of service.
- 151 2.5. NWP shall monitor compliance with Condition 2.3 by periodic NO_x emission
152 performance tests:
- 153 2.5.1. NWP shall conduct NO_x emission performance tests not less frequently than once
154 every 5 years of operation.
- 155 2.5.2. NWP may conduct the periodic performance tests by use of a portable emissions
156 analyzer verified as accurate in accordance with the process outlined in
157 Condition 6.
- 158 2.5.2.1. Testing shall be in accordance with USEPA Designated Conditional Test
159 Method 34. An alternate test method may be used if approved in writing
160 by Ecology or NWAPA at least 30 days prior to its first application.
- 161 2.5.2.2. NWP shall follow the currently approved performance test procedure until
162 acquiring approval from Ecology or NWAPA for a revised procedure.
- 163 2.5.2.3. For the source test, NWP shall run the generator at maximum achievable
164 load.
- 165 2.5.3. NWP shall determine the emissions rate in units of grams per hour by using the
166 source test results in applicable engineering calculations.
- 167 3. The 3.348 MMBtu/hr. Sellers C-80-w boiler:
- 168 3.1. The NO_x emissions concentration from the boiler stack is limited to not greater than
169 34 parts per million on a dry volumetric basis (ppmdv) over a twenty-four hour
170 average when corrected to 3.0 percent oxygen.
- 171 3.2. NWP shall demonstrate initial compliance with Conditions 3.1:
- 172 3.2.1. Within 180 days after initial startup, performed by an independent testing firm.
- 173 3.2.2. By source test in accordance with 40 CFR 60 Appendix A, Methods 7E and 19.
- 174 3.2.3. NWP shall submit a test plan to Ecology and NWAPA for approval at least 30
175 days prior to testing.
- 176 3.2.4. Within 90 days of initial startup, NWP will confirm to Ecology in writing that the
177 existing 2.5 MMBtu/hr heater/boiler has been taken out of service.
- 178 3.3. NWP shall monitor compliance with Condition 3.1 by periodic NO_x emission
179 performance tests:
- 180 3.3.1. NWP shall conduct NO_x emission performance tests not less frequently than once
181 every 5 years of operation.
- 182 3.3.2. NWP may conduct the periodic performance tests by use of a portable emissions
183 analyzer capable of adjustment to the 3% oxygen concentration basis, and verified
184 as accurate in accordance with the process outlined in Condition 6.

- 219 5.1.4. NWP shall count NO_x emissions during startup and shutdown towards monitoring
220 compliance with the twelve month mass emission limit in Condition 5.1.3.2 at a
221 rate of 4 lbs. NO_x per startup or shutdown.
- 222 5.1.5. NWP shall demonstrate compliance with Condition 5.1.1 initially and annually
223 thereafter:
- 224 5.1.5.1. Initial compliance shall be demonstrated within 180 days after initial
225 startup, performed by an independent testing firm. Annual compliance
226 shall be demonstrated no sooner than 10 months after the previous test and
227 no later than 13 months after the previous test.
- 228 5.1.5.2. Compliance shall be demonstrated in accordance with 40 CFR 60 Subpart
229 GG and 40 CFR 60 Appendix A, Method 20 except that the instrument
230 span shall be reduced as appropriate.
- 231 5.1.5.3. NWP shall submit a test plan to Ecology and NWAPA for approval at
232 least 30 days prior to testing. NWP shall submit a complete test report to
233 the NWAPA no later than 45 days after completion of the tests.
- 234 5.1.6. Compliance monitoring:
- 235 5.1.6.1. NWP shall monitor compliance with Condition 5.1.1 by measuring NO_x
236 emissions from the turbine exhaust stack.
- 237 5.1.6.1.1. The turbine exhaust stack NO_x concentration shall be monitored not
238 less frequently than once every 336 hours of turbine operation.
- 239 5.1.6.1.2. NWP may conduct these measurements by use of a portable emissions
240 analyzer capable of adjustment to the 15% oxygen concentration basis,
241 and verify as accurate in accordance with the process outlined in
242 Condition 6.
- 243 5.1.6.1.2.1. Portable emissions analyzer testing shall be in accordance with
244 USEPA Designated Conditional Test Method 34 or an alternate
245 method approved by Ecology in writing.
- 246 5.1.6.1.2.2. NWP shall follow the currently approved performance test
247 procedure until acquiring approval from Ecology for a revised
248 procedure.
- 249 5.1.6.1.2.3. NWP shall perform 3 consecutive tests using the portable
250 analyzer. If the average of the 3 test results shows
251 noncompliance with Condition 5.1.1, NWP shall continue
252 testing at least every 15 minutes until 3 hours of testing has
253 been completed. If the average of the test results shows
254 noncompliance after 3 hours of testing, NWP shall shut down
255 the unit as soon as is practical and contact the NWAPA as
256 promptly as possible and in no event more than 12 hours later.
257 However, if data shows compliance with Condition 5.1.1, no

- 258 action is required other than reporting as specified in Condition
259 8.3.6.5.
- 260 5.1.6.2. Within twenty days of the end of each month, pursuant to Condition
261 5.1.3.2, NWP shall determine the tons of NO_x emissions from the turbine
262 for the most recent consecutive twelve months. For this calculation, NWP
263 shall utilize a time-weighted average of the relevant stack test results
264 wherein the results of each source test shall be the presumed emission rate
265 until the next source test.
- 266 5.2. For the Centaur 50S combustion turbine:
- 267 5.2.1. Not greater than 25 parts per million NO_x emission concentration on a dry
268 volumetric basis (ppmdv) over a three hour average when corrected to 15.0
269 percent oxygen, ISO.
- 270 5.2.2. Condition 5.2.1 is relieved during startup and shutdown.
- 271 5.2.3. Mass emissions of NO_x shall not exceed
- 272 5.2.3.1. 106 lbs. NO_x/calendar day.
- 273 5.2.3.2. 18.5 tons of NO_x for any consecutive twelve month period.
- 274 5.2.4. NWP shall count emissions during startup and shutdown towards monitoring
275 compliance with the twelve-month mass emission limit in Condition 5.2.3.2 at a
276 rate of 2 lbs. NO_x per startup or shutdown.
- 277 5.2.5. NWP shall demonstrate compliance with Condition 5.2.1 initially and annually
278 thereafter:
- 279 5.2.5.1. Initial compliance shall be demonstrated within 180 days after initial
280 startup, performed by an independent testing firm. Annual compliance
281 shall be demonstrated no sooner than 10 months after the previous test and
282 no later than 13 months after the previous test.
- 283 5.2.5.2. Compliance shall be demonstrated in accordance with 40 CFR 60 Subpart
284 GG and 40 CFR 60 Appendix A, Method 20, except that the instrument
285 span shall be reduced as appropriate.
- 286 5.2.5.3. NWP shall submit a test plan to Ecology and NWAPA for approval at
287 least 30-days prior to testing. NWP shall submit a complete test report to
288 the NWAPA no later than 45 days after completion of the tests.
- 289 5.2.6. Compliance monitoring:
- 290 5.2.6.1. NWP shall monitor compliance with Conditions 5.2.1 by measuring the
291 NO_x concentration of the turbine exhaust stack.
- 292 5.2.6.1.1. The turbine exhaust stack NO_x concentration shall be monitored not
293 less frequently than once every 336 hours of turbine operation.
- 294 5.2.6.1.2. NWP may conduct these measurements by use of a portable emissions
295 analyzer capable of adjustment to the 15% oxygen concentration basis,

- 296 and verify as accurate in accordance with the process outlined in
297 Condition 6.
- 298 5.2.6.1.2.1. Portable emissions analyzer testing shall be in accordance with
299 USEPA Designated Conditional Test Method 34 or an alternate
300 method approved by Ecology in writing.
- 301 5.2.6.1.2.2. NWP shall follow the currently approved performance test
302 procedure until acquiring approval from Ecology for a revised
303 procedure.
- 304 5.2.6.1.2.3. NWP shall perform 3 consecutive tests using the portable
305 analyzer. If the average of the 3 test results shows
306 noncompliance with Condition 5.2.1, NWP shall continue
307 testing at least every 15 minutes until 3 hours of testing has
308 been completed. If the average of the test results shows
309 noncompliance after 3 hours of testing, NWP shall shut down
310 the unit as soon as is practical and contact the NWAPA as
311 promptly as possible and in no event more than 12 hours later.
312 However, if data shows compliance with Condition 5.2.1, no
313 action is required other than reporting as specified in Condition
314 8.3.6.5.
- 315 5.2.6.2. Within twenty days of the end of each month, pursuant to Condition
316 5.2.3.2, NWP shall determine the tons of NO_x emissions from the turbine
317 for the most recent consecutive twelve months. For this calculation, NWP
318 shall utilize a time-weighted average of the relevant stack test results
319 wherein the results of each source test shall be the presumed emission rate
320 until the next source test.
- 321 6. NWP shall verify the accuracy of any portable emissions analyzers used to satisfy the
322 monitoring requirements of this permit.
- 323 6.1. NWP shall submit a protocol to Ecology and NWAPA for written approval by
324 Ecology for verifying the accuracy of any portable emissions analyzer.
- 325 6.2. NWP shall use the procedure specified in the protocol required by Condition 6.1 to
326 verify the accuracy of any portable emissions analyzer prior to its use in satisfaction
327 of the monitoring requirements of this permit.
- 328 6.3. Not less than once every calendar year, NWP shall use the procedure specified in the
329 protocol required by Condition 6.1 to verify the accuracy of any portable emissions
330 analyzer intended to be used in satisfaction of the monitoring requirements of this
331 permit.
- 332 6.4. NWP shall keep records of the emissions analyzer accuracy verifications on site for
333 not less than five years for Ecology or NWAPA review.
- 334 7. NWP shall provide safe access and sampling ports for source testing of the standby
335 generator, the heater/boiler, the Mars 90S turbine, and the Centaur 50S turbine being
336 installed for this project, after each final pollution control device:

- 337 7.1. Safe access for the standby generator and the heater/boiler shall consist of not less
338 than a man-lift or situation-specific scaffolding.
- 339 7.2. Safe access for the Mars 90S turbine, the Centaur 50S turbine shall consist of
340 permanently constructed platforms on the respective stacks.
- 341 7.3. The sampling ports shall meet the requirements of 40 CFR, Part 60, Appendix A,
342 Method 20.
- 343 7.4. Other arrangements may be acceptable if approved by Ecology prior to installation.
- 344 8. NWP shall report the monitoring and process data from MVCS to Ecology and NWAPA as
345 follows:
- 346 8.1. Notifications:
- 347 8.1.1. Commencement of construction of the project described in Finding 5 of this
348 permit: In accordance with 40 CFR 60.7(1), no later than 30 calendar days after
349 such date.
- 350 8.1.2. Initial startup of the project described in Finding 5 of this permit: In accordance
351 with 40 CFR 60.7(3), no later than 15 calendar days after such date.
- 352 8.1.3. Completion of the entry into the operation and maintenance manual of the items
353 specified in Condition 9.
- 354 8.1.4. In the first quarterly report required under Condition 8.2, certification by the
355 responsible party for the facility that the relevant equipment was installed
356 consistent with the parameters developed pursuant to Condition 9.
- 357 8.2. Submit reports not less than once each calendar quarter or on another reporting
358 schedule approved by Ecology, and in the format approved by Ecology.
- 359 8.3. The reports shall include, but not necessarily be limited to, the following:
- 360 8.3.1. Certification by the responsible party for the facility that only natural gas from the
361 pipeline has been used as fuel.
- 362 8.3.2. Analytical data on the fuel composition per Condition 1.2.
- 363 8.3.3. Certification by the responsible party for the facility that the relevant equipment
364 was operated and maintained in accordance with the operational parameters and
365 practices developed pursuant to Condition 9.2.
- 366 8.3.4. For the standby generator:
- 367 8.3.4.1. Total hours of operation for the twelve immediately preceding months.
- 368 8.3.4.2. The total NO_x mass emissions for the twelve immediately preceding
369 months.
- 370 8.3.4.3. Results of any compliance monitoring source tests performed since the last
371 report.
- 372 8.3.5. For the 3.348 MMBtu/hr. Sellers C-80-w boiler:

