

# **INSTRUCTIONS**

## **APPLICATION FOR AIR QUALITY PERMIT TO CONSTRUCT AND OPERATE**

**WESTERN NORTH CAROLINA  
REGIONAL AIR QUALITY AGENCY  
PO Box 2749  
ASHEVILLE, N.C. 28802**

**TELEPHONE: (828) 250-6777  
FAX: (828) 250-6222**

<http://www.wncairquality.org>

# AIR PERMIT INSTRUCTION LISTING

## **SECTION A - FACILITY INFORMATION**

- A1 - FACILITY (GENERAL INFORMATION)
- A2 - EMISSION SOURCE LISTING
- A3 - 112(r) APPLICABILITY INFORMATION

## **SECTION B - EMISSION SOURCES**

- B - SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)
- B1 - EMISSION SOURCE (WOOD, COAL, OIL, GAS, AND OTHER FUEL-FIRED BURNER)
- B2 - EMISSION SOURCE (INTERNAL COMBUSTION ENGINE/GENERATOR)
- B3 - EMISSION SOURCE (LIQUID STORAGE TANK)
- B4 - EMISSION SOURCE (WOODWORKING)
- B5 - EMISSION SOURCE (COATING/FINISHING/PRINTING)
- B6 - EMISSION SOURCE (STORAGE SILO/BIN)
- B7 - EMISSION SOURCE (MANUFACTURING OF CHEMICALS/COATINGS/INKS)
- B8 - EMISSION SOURCE (INCINERATION)
- B9 - EMISSION SOURCE (OTHER)

## **SECTION C - CONTROL DEVICES**

- C1 - CONTROL DEVICE (FABRIC FILTER)
- C2 - CONTROL DEVICE (ELECTROSTATIC PRECIPITATOR)
- C3 - CONTROL DEVICE (THERMAL OR CATALYTIC)
- C4 - CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)
- C5 - CONTROL DEVICE (ADSORBER)
- C6 - CONTROL DEVICE (GASEOUS ABSORBER)
- C7 - CONTROL DEVICE (CONDENSER)
- C8 - CONTROL DEVICE (WET PARTICULATE SCRUBBER)
- C9 - CONTROL DEVICE (OTHER)

## **SECTION D - APPLICATION SUPPORT INFORMATION**

- D1 - FACILITY-WIDE EMISSIONS SUMMARY
- D2 - AIR POLLUTANT NETTING WORKSHEET
- D3 - MODELING REQUEST FORM
- D4 - EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY
- D5 - TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION
- D6 - NORTH CAROLINA MODELING PROTOCOL CHECKLIST

## **SECTION E - TITLE V**

- E1 - TITLE V GENERAL INFORMATION
- E2 - EMISSION SOURCE APPLICABLE REGULATION LISTING
- E3 - EMISSION SOURCE COMPLIANCE METHOD
- E4 - EMISSION SOURCE COMPLIANCE SCHEDULE
- E5 - TITLE V COMPLIANCE CERTIFICATION (REQUIRED)
- E6 - COMPLIANCE ASSURANCE MONITORING (CAM) PLAN

APPENDIX A - COMPLETENESS CHECKLIST

## GENERAL INSTRUCTIONS

1. Application forms are for Title V and non-Title V facilities.
2. The following information shall be submitted, at a minimum, with each application or the application may be returned as incomplete:
  - (a) A permit application processing fee,
  - (b) The appropriate number of copies of the application (see No. 6 below),
  - (c) The signature of the appropriate individual (see No. 7 below),
  - (d) The specific emission source reduction and recycling activities Form A4, and
  - (e) A financial qualification or substantial compliance statement (if required).
3. The permit application should be submitted in the following arrangement:
  - (a) Forms A1 through A4 should be grouped together.
  - (b) For each emission source, the appropriate forms B and C should be grouped together.
  - (c) The forms D should be grouped together.
  - (d) The forms E (Title V facilities) not attached to a specific emission source should be grouped together.
4. Print or type only.
5. For assistance, call the Western North Carolina Regional Air Quality Agency at (828) 250-6777.
6. Submit the following copies of the application and other supporting data:
  - (a) One copy for NON-TITLE V FACILITIES that are not subject to the requirements of WNCRAQA Code 4.0530 (PSD), 4.0531 (nonattainment), or 4.1200 (Incinerators).
  - (b) Three copies for TITLE V FACILITIES and facilities that are subject to the requirements of WNCRAQA Code 4.0530 (PSD), 4.0531 (nonattainment), or 4.1200 (Incinerators).

TO:     Western North Carolina Regional Air Quality Agency  
          P.O. Box 2749                             52 Coxe Avenue  
          Asheville, NC 28802                 Asheville, NC 28801
7. The application **MUST BE SIGNED** on Form A1 by a **RESPONSIBLE PERSON** or **COMPANY OFFICIAL**.  
  
For Title V facilities, the application **MUST BE SIGNED** on Form E5 by a **RESPONSIBLE COMPANY OFFICIAL**.
8. Because the application is not ideally suited for every conceivable operation, applicants are encouraged to submit additional information when needed to complete the application and provide adequate explanation of the operations.

# INSTRUCTIONS FOR FORM A1

## A1 - FACILITY (GENERAL INFORMATION)

Form A1 contains the general information on the facility being permitted. One Form A1 is to be completed for each permit application.

**NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:** Check the appropriate boxes to indicate which items are included with the application. Pursuant to WNCRAQA Code 17.0304(b) and (k) and 17.0507(d) and (j), all applicants, whether Title V or Non-Title V, are required to submit the following with each permit application or the application may be returned as incomplete:

1. For a new facility or expansion of an existing facility, a consistency determination according to G.S. 143-215.108(f) that:
  - (a) Bears the date of receipt entered by the clerk of the local government, or
  - (b) Consists of a letter from the local government indicating that all zoning or subdivision ordinances are met by the facility.
2. For a new facility or modification of an existing facility, a facility reduction and recycling description (use Form A4), and
3. The appropriate, non-refundable application processing fee in accordance with WNCRAQA Code 17.0200.

**FACILITY NAME:** The full business name of the facility as registered with the Secretary of State's Office.

**MAILING ADDRESS, CITY, STATE, ZIP CODE:** The address at which the facility receives mail.

**SITE ADDRESS, CITY, ZIP CODE:** The location where WNCRAQA would go to inspect the equipment. The street and street number is sufficient here.

**CONTACT PERSON:** The person at the facility who is responsible for providing information concerning the facility.

**TITLE, TELEPHONE, FAX, E-MAIL:** For the contact person.

**OWNER OF FACILITY:** If the facility is wholly or partly owned by another entity, identify that entity.

**MAILING ADDRESS, CITY, STATE, ZIP CODE:** The address at which the owner receives mail.

**CONTACT PERSON:** The owner's agent who is to be contacted for information concerning the facility.

**TITLE, TELEPHONE, FAX, E-MAIL:** For the owner's agent concerning the facility.

**APPLICATION IS BEING MADE FOR (CHECK ALL THAT APPLY, NOTE: (TV) INDICATES APPLICABILITY TO TITLE V FACILITIES ONLY):**

1. **NEW FACILITY** - Application is made for construction / operation of a new facility (greenfield facility). Note - construction of new emission sources at an existing permitted facility, or construction and / or change in operation that modifies existing sources at an existing permitted facility, are considered to be modifications of a facility.

2. **MODIFICATION** - Check this item for construction of new emission sources at an existing permitted facility, or for construction and / or change in operation that modifies existing sources at an existing permitted facility.
3. **RENEWAL with MODIFICATION** - Check this item if a modification (i.e., construction of new emission sources at an existing permitted facility, or for construction and / or change in operation that modifies existing sources at an existing permitted facility) is to be included as part of a permit renewal.
4. **RENEWAL (TV)** - Applies to Title V facilities only. Renewals are processed in accordance with WNCRAQA Code 17.0513. These processes should be reviewed by the applicant prior to preparing an application. Title V permit expiration will terminate the facility's right to operate unless a complete renewal application has been submitted at least nine months before the date of permit expiration.

**FACILITY IS TITLE V / SYNTHETIC MINOR FACILITY / SMALL:** Please check whether the facility is subject to Title V or is a Synthetic Minor or Small facility (as discussed below) or qualifies for a general or prohibitory small permit (contact WNCRAQA for information about these categories). A facility is subject to the Title V permitting procedures if the facility falls into any of the categories described below. Note that Title V applicability is based on a facility's potential emissions.

Potential emissions, as defined in WNCRAQA Code 17.0103(27), "means the rate of emissions of any air pollutant which would occur at the facility's maximum capacity to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a facility to emit an air pollutant shall be treated as a part of its design if the limitation is federally enforceable. Such physical or operational limitations include air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed. Potential emissions include fugitive emissions as specified in the definition of major source in 40 CFR 70.2. Potential emissions do not include a facility's secondary emissions such as those from motor vehicles associated with the facility and do not include emissions from insignificant activities because of category defined under Rule .0503 of this Section."

In determining a facility's potential emissions, two parameters (uncontrolled emission rate and control efficiency) must be measured, calculated, or estimated:

1. Uncontrolled Emission Rate - the worst case uncontrolled emission rate, which is based on the dirtiest fuels, the materials which produce the maximum emissions, and the maximum operating conditions that the facility is permitted to use under federally-enforceable requirements. For example:
  - (a) For boilers that are permitted to combust No. 2 and No.6 fuel oil, the worst case uncontrolled emission rate is calculated with No. 6 fuel oil.
  - (b) For paint spray booths that use different paints, the worst case uncontrolled emission rate is calculated with the paint that produces the highest emission rate.
  - (c) The maximum operating conditions shall be 8,760 hrs/yr unless limited by a federally enforceable condition.
2. Control Efficiency - the minimum control device efficiency or other parameters as specified in a federally enforceable permit limitation. If your facility's permit does not contain a federally enforceable permit condition for your control device, then the uncontrolled emission rate determines your applicability. If this application is for a new facility or a modification of an existing non-Title V facility, you may use this application as a means to establish synthetic minor limitations in order to avoid Title V permitting.

Pursuant to WNCRAQA Code 17.0502 and 40 CFR Part 70, a facility that falls into one of the following categories, is subject to the Title V regulations and must complete a Title V permit application:

1. Major facilities, as defined in 40 CFR 70.2, are facilities that have potential emissions of 100 tons per year or more of at least one regulated air pollutant, 10 tons per year or more of at least one hazardous air pollutant, 25 tons per year or more of any combination of all hazardous air pollutants, or such lesser quantities as the EPA may establish by rule. It is important to note that hazardous air pollutants (HAPs), as listed in Section 112(b) of the federal Clean Air Act, are not identical to the toxic air pollutants (TAPs) listed in WNCRAQA Code 17.0711.
2. Facilities with an emission source subject to 40 CFR Part 63 or any other standard or other requirement under Section 112 of the federal Clean Air Act, except that a source is not required to obtain a permit solely because it is subject to rules or requirements under Section 112(r) of the federal Clean Air Act;
3. Facilities to which WNCRAQA Codes 4.0517(2), 4.0528, 4.0529, or 4.0534 applies.
4. Facilities with a source subject to Title IV or 40 CFR Part 72; or
5. Facilities in a source category designated by EPA as subject to the requirements of 40 CFR Part 70.

Note that for purposes of determining Title V applicability to a facility based on the emissions criteria above, the definition of facility is: Any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same person, and belong to a single major industrial grouping (have the same 2-digit SIC code). This includes processes at the facility that support the primary manufacturing function, but may have a different SIC code if viewed alone. For example, industrial boilers that support the manufacturing processes are considered part of the manufacturing facility under that particular SIC code and the boiler emissions are included in determining Title V applicability. The definition of facility for Title V may be more inclusive than this, but not less. This definition, which allows partitioning of a facility by SIC code, is applicable to PSD, nonattainment permitting and Title V permitting only. *The definition of facility under the North Carolina air toxics permitting requirements does not recognize SIC code distinctions.*

**SYNTHETIC MINOR:** A synthetic minor facility is defined in WNCRAQA Code 17.0503(17) as "a facility that would otherwise be required to follow the procedures of this Section [17.0500 "Title V Procedures"] except that the potential to emit is restricted by one or more federally enforceable physical or operational limitations, including air pollution control equipment and restrictions on hours of operation, the type or amount of material combusted, stored, or processed, or similar parameters." By checking this box, you have indicated either:

1. Your facility is currently designated as a synthetic minor facility, or
2. You are requesting synthetic minor status for your facility and, as a requirement of federal enforceability, you are requesting that your "draft permit go to public notice with an opportunity to request a public hearing" in accordance with WNCRAQA Code 17.0306(a)(10).

**SMALL:** A small facility is one whose potential to emissions fall below the Title V thresholds discussed above.

**DESCRIBE TYPE OF OPERATION:** This is a short statement describing what is taking place at the facility (e.g., asphalt batch plant, rock quarry, cigarette manufacturing, etc.).

**SIC CODE/ NAICS CODE:** The Standard Industrial Classification (SIC) code can be found in the Standard Industrial Classification Manual or online at: [http://www.osha.gov/pls/imis/sic\\_manual.html](http://www.osha.gov/pls/imis/sic_manual.html). The North American Industry Classification System (NAICS) code can be found in the US NAICS Manual or online at: <http://www.census.gov/eos/www/naics/index.html>. If there are multiple processes at the facility

that have different SIC or NAICS codes, list the code or codes that best represent the primary activity at the facility. A description of the SIC or NAICS group may also be provided.

**CURRENT / PREVIOUS PERMIT NO.:** If the facility currently has a permit or had a permit at one time, please list the number. If the facility currently has a permit, list the expiration date.

**FACILITY COORDINATES:** The latitude and longitude can be determined by locating your facility using a geographic information system (GIS), such as Google Earth or the Buncombe County GIS. The coordinates can also be determined by locating your facility on a USGS topographic map.

**DO YOU CLAIM CONFIDENTIALITY OF DATA:** All information in this application and the attachments thereto are considered public information unless the applicant can demonstrate that specific information qualifies for confidential treatment under the provisions of WNCRAQA Code 17.0107. Any request for confidential treatment must be made **at the time the information is FIRST submitted to WNCRAQA and under separate cover** and shall state in writing why the information should be held confidential. Requests for confidentiality made at a later date will not be considered. Additionally, for each copy of the application required to be submitted, the following must be submitted:

1. One complete application form, stamped confidential on each page and containing the confidential and non-confidential information, and
2. One application form containing only the non-confidential information.

Please note that the all application forms, including those deemed confidential by WNCRAQA, may be submitted to EPA. Because EPA has different guidelines for confidentiality, what may be deemed confidential by WNCRAQA may be released as public information by EPA. Therefore, it is advised that the North Carolina General Statutes and the federal laws concerning confidentiality be reviewed prior to submitting proprietary information to WNCRAQA.

**PERSON OR FIRM THAT PREPARED APPLICATION:** Enter name, address, and telephone number of person or firm that prepared the application. Also include a person who can be contacted for information concerning the application.

**SIGNATURE OF RESPONSIBLE PERSON OR COMPANY OFFICIAL, TITLE, DATE:** All Non-Title V applications must be signed by an employee of the facility applying for a permit - preferably an officer or company official. All Title V applications must be signed by a responsible company official on form E-5 (see E-5 instructions).

## INSTRUCTIONS FOR FORM A2

### A2 - EMISSION SOURCE LISTING

All emission sources (TV and non-TV) and control devices (equipment) being affected by this application must be listed in the appropriate section of this form as accurately as possible.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is being made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID No. (e.g., valves, pumps, compressors = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process, and for which a single process rate can be determined, can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**CONTROL DEVICE DESCRIPTION:** Describe each control device for which application is made.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**EQUIPMENT TO BE ADDED BY THIS APPLICATION (New, Previously Unpermitted, or Replacement):** List all equipment being added to the permit for which application is made. This would include newly purchased equipment, equipment existing at the facility but previously unpermitted, or equipment being installed as replacement for existing equipment. Use the same ID number indicated on the equipment being replaced listed below.

**EQUIPMENT TO BE MODIFIED BY THIS APPLICATION:** List all equipment for which any modification is being requested requiring modification on the air permit. Such changes may be a new ID Number, change in requested process rate, change to accompanying control device, etc. All equipment listed should be existing permitted equipment only.

**EQUIPMENT TO BE DELETED BY THIS APPLICATION:** List all equipment (including control devices) being deleted from the permit by this application. All equipment listed will be removed from the permit.



## INSTRUCTIONS FOR FORM A3

### A4 - 112(r) APPLICABILITY INFORMATION

**IS YOUR FACILITY SUBJECT TO 40 CFR PART 68 “PREVENTION OF ACCIDENTAL RELEASES” - SECTION 112(r) OF THE FEDERAL CLEAN AIR ACT?** Answer yes or no. If the answer is no, provide detailed information on how your facility avoided applicability (e.g., facility does not store, handle, or use a 112(r) regulated pollutant, facility has taken administrative controls to avoid 112(r) (please specify)).

#### **IF YOUR FACILITY IS SUBJECT TO 112(r), PLEASE COMPLETE THE FOLLOWING:**

- A. Have you submitted a Risk Management Plan (RMP) to EPA pursuant to 40 CFR Part 68.10 or Part 68.150? Answer yes or no, and provide required RMP submittal date.
- B. Are you using administrative controls to subject your facility to a lesser 112(r) program standard? Answer yes or no, and provide specifics on the administrative controls taken.

**COMMENTS** - Use additional pages if needed.

## INSTRUCTIONS FOR FORM B

### B - SPECIFIC EMISSIONS SOURCE INFORMATION

MAKE AS MANY COPIES OF THIS FORM AS NECESSARY TO COMPLETE ONE FOR EACH EMISSION SOURCE. **All calculations, assumptions, analyses and other information used to support this form must be included on form D5.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process, and for which a single process rate can be determined, can be labeled a single emission source (e.g., a chain of reaction vessels). This description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**INDICATE WHETHER THIS SOURCE IS SUBJECT TO:** NSPS (New Source Performance Standards) and / or NESHAP (National Emission Standards for Hazardous Air Pollutants). These regulations are contained in WNCRAQA Codes 4.0524, 4.1110, and 4.1111.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario.

**DESCRIBE PROCESS:** Describe what is taking place at the emission source (e.g., Tobacco is conveyed to a conditioning drum where moisture is added. There are hoods to collect dust from the conveyor and dust pickup points at the entrance to the conditioning drum.).

**TYPE OF EMISSION SOURCE:** Check appropriate box and complete corresponding form B1-B9.

**START CONSTRUCTION DATE:** The date construction will commence, or for equipment, the date it will be installed.

**OPERATION DATE:** For equipment already in operation this is the date when operation began. If before 1972, enter "pre-1972". For new equipment this is the estimated date when operation will begin.

**DATE MANUFACTURED:** Only complete this if there is a standard that has an applicability date based on the manufacture date of the equipment. For example, the New Source Performance Standards only apply to equipment manufactured after a certain date as determined by the promulgation date of the individual subparts.

**MANUFACTURER / MODEL NUMBER:** Enter the name of the manufacturer for this process equipment. If multiple processes with multiple manufacturers at this emission source, label on the flow charts that you attach with the application. Enter "see flow chart" on form. Add the manufacturer's model number.

**EXPECTED OPERATING SCHEDULE:** Enter the actual hours per day, days per week, and weeks per year this emission source is expected to be in operation.

**PERCENTAGE ANNUAL THROUGHPUT (%):** Enter the percent of the total annual throughput for this source for each quarter. A source that operates year round with no fluctuations would have 25 in every block.

**EXPECTED ANNUAL HOURS OF OPERATION:** Enter the actual hours per year this emission source is expected to be in operation.

**VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION:** Enter the expected stack opacity due to this emission source.

**CRITERIA / HAZARDOUS / TOXIC AIR POLLUTANTS:** In addition to the criteria pollutants, which are listed in the table, enter every regulated hazardous or toxic air pollutant being emitted from this emission source along with the associated CAS No. (one pollutant per line) in the appropriate table.

**SOURCE OF EMISSION FACTOR:** Enter one of the following numbers corresponding to the type of emission factor used in the calculations:

- 1 = Emissions calculated based on source test or other emissions measurements.
- 2 = Emissions calculated based on material balance using engineering knowledge of the process.
- 3 = Emissions calculated based on AP-42 or EPA 450/2-90-011 or other EPA emission factor.
- 4 = Emissions calculated by engineering judgment. This factor must be approved by WNCRAQA prior to use.
- 5 = Emissions calculated based on a state or local agency emission factor.

**LBS/HR POTENTIAL:** Calculate the potential emissions of each pollutant from this emission source based on the emission factor used for each pollutant.

*EXAMPLE: The AP-42 emission factor for emissions of SO<sub>2</sub> from distillate oil is 142S lbs/10<sup>3</sup> gal. of oil burned (where S = % sulfur in the fuel). Assume that the oil has a 0.5% sulfur content, a 33 million Btu/hour boiler is the emissions source, one (1) gallon of distillate oil has a heating value of 145,000 Btu, and WNCRAQA Code 4.0516 is the applicable regulation with a standard of 2.3 lb/million Btu. The actual operating hours for this plant are 12 hours/day, 5 days/week, and 50 weeks/year. There are no hourly or annual fuel restrictions and there are no operating hour limits. When calculating the potential emissions, it is assumed that the boiler will be operated 24 hours per day for 365 days per year at the maximum heat input. The estimated potential SO<sub>2</sub> emissions are:*

$$(33 \text{ MMBtu/hour}) \times (1 \text{ gal}/0.145 \text{ MMBtu}) \times ([142\{0.5\} \text{ lbs}] / 1,000 \text{ gal}) = 16.16 \text{ lbs/hour.}$$

**LBS/HR ACTUAL:** Calculate the actual emissions of each pollutant from this emission source based on the emission factor used for each pollutant. If the above boiler is usually operated at 90% of the maximum heat input, the actual emissions would be 14.54 lbs/hr.

**LBS/YR POTENTIAL:** Calculate the potential emissions of each pollutant from this emission source based on the emission factor used for each pollutant.

*Using the above example and assuming the boiler normally operates at full capacity:*

$$(16.16 \text{ lbs/hour}) \times (8,760 \text{ hours/year}) = 141,562 \text{ lbs/year.}$$

**LBS/YR ACTUAL:** Calculate the actual emissions of each pollutant from this emission source based on the emission factor used for each pollutant.

*Using the above example and assuming the boiler normally operates at 75% capacity:*

$$(16.16 \text{ lbs/hour}) \times (0.75) \times (12 \text{ hours/day}) \times (5 \text{ days/week}) \times (50 \text{ weeks/year}) = 36,360 \text{ lbs/year.}$$

*Or, if there is a federally enforceable permitted fuel restriction of 1.4 million gallons of distillate No. 2 oil per year, then the potential emissions would be:*

$$(1,400,000 \text{ gallons/year}) \times (145,000 \text{ Btu/gallon}) \times (16.16 \text{ lbs/hour}) \times (1 \text{ hour}/33 \text{ MMBtu}) = 99,408 \text{ lbs/year.}$$

# INSTRUCTIONS FOR FORM B1

## **B1 - EMISSION SOURCE (WOOD, COAL, OIL, GAS, OTHER FUEL-FIRED FIRED BURNER)**

This form is used for burners / boilers that use wood, coal, gas, or other fuels. **All calculations, assumptions, analyses and other information used to support this form must be included on form D5.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES -\_\_\_, each fugitive emission source ID number with F -\_\_\_, each control device ID number with CD -\_\_\_, and each emission point ID number with EP -\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario.

**DESCRIBE USE:** Check all that are applicable:

PROCESS HEAT - Source used to produce heat for some type of process.

SPACE HEAT - Source is used to produce heat for comfort or to maintain facility temperature above freezing.

ELECTRICAL GENERATION - Source is used for the generation of electrical power.

CONTINUOUS USE - Source is intended to be used without interruption.

STAND BY / EMERGENCY - Source is only used for stand-by purposes (e.g., when electricity goes out or another boiler goes down). It is not used on a routine or regular basis and is not used to handle peak loads.

OTHER - Describe in comments.

**HEATING MECHANISM:** Indicate whether DIRECT or INDIRECT heating is used. In direct heating, the combustion gases are used to supply heat directly to a process or room. In indirect heating, the

combustion gases are used to heat another medium, which in turn is used supply heat to a process or room.

**MAX. FIRING RATE (MILLION BTU/HOUR):** Enter the maximum designed firing rate (input) of the boiler in million Btu/hour. See boiler manufacturer specifications usually stamped on the "boiler plate".

**FOR WOOD-FIRED BURNERS:**

**WOOD TYPE:** Check all that are applicable:

BARK - Check if combusting bark only.

WOOD & BARK - Check if combusting wood and bark.

WOOD - Check if combusting wood only.

OTHER - Describe in comments.

**UNCONTROLLED:** Check if there is no boiler emission control device.

**FLYASH REINJECTION:** Check if boiler flyash is returned to boiler combustion area to be burned a second time.

**NO FLYASH REINJECTION:** Check if a mechanical control device (multicyclone) removes particulate from particulate laden gas streams.

**FUEL FEED METHOD:** Describe fuel feed method (e.g., spreader stoker, overfeed stoker, underfeed stoker, suspension firing, fluidized bed, cone shaped pile on a flat sloping grate or fuel dropped on to a suspended fixed grate, etc.).

**HEAT TRANSFER MEDIA:** Indicate whether STEAM or AIR is being heated by the boiler to transfer heat for its intended use.

**METHOD OF TUBE CLEANING:** List method of tube cleaning (e.g., lancing, tube blowing, etc).

**CLEANING SCHEDULE:** List frequency of cleaning (e.g., Daily at 8:00 AM, once a year in June while boiler is down, etc.).

**FOR COAL-FIRED BURNERS:**

**TYPE OF BOILER:** Check the applicable fuel feed method. If combination, check more than one. If other, describe:

PULVERIZED - Any source utilizing coal that has been crushed to coal dust and is burned in suspension.

PULVERIZED WET BED - Source in which the ash is removed in a molten form.

PULVERIZED DRY BED - Source in which the ash is removed in a solid dry form.

OVERFEED STOKER - A source continually feeding the coal by distributing the coal on the upper side of the burning bed. This is done mechanically.

UNCONTROLLED - Check if there are no boiler emissions control device.

CONTROLLED - Check if there is a boiler emissions control device (e.g., a multicyclone) that removes particulate from particulate laden gas streams.

UNDERFEED STOKER - A source continually feeding the coal from the underside of the burning bed. This is done mechanically.

UNCONTROLLED - Check if there are no boiler emissions control device.

CONTROLLED - Check if there is a boiler emissions control device (e.g., a multicyclone) that removes particulate from particulate laden gas streams.

SPREADER STOKER - A source continually spreading the coal on to a moving or stationary fuel bed. Combustion occurs in suspension as well as on the bed. Spreading is done mechanically or pneumatically.

UNCONTROLLED - Check if there is no boiler emissions control device.

FLYASH REINJECTION - Boiler flyash is collected from a mechanical control device (multicyclone) and returned to boiler combustion area to be burned a second time.

#### FLUIDIZED BED

CIRCULATING - A circulating fluidized bed boiler.

RECIRCULATING - A recirculating fluidized bed boiler.

#### **METHOD OF LOADING:**

CYCLONE - A source utilizing suspension firing of low ash fusion coal crushed to a four mesh size. Coal is fed tangentially, with primary air, to a horizontal cylindrical combustion chamber.

HANDFIRED - A source where coal is manually spread over the burning bed.

TRAVELING GRATE - A traveling grate is characterized by a coal bed three to five inches in depth and a high blast of underfired air at the rear or dumping end of the grate.

**METHOD OF TUBE CLEANING:** List method of tube cleaning (e.g., lancing, tube blowing, etc).

**CLEANING SCHEDULE:** List frequency of cleaning (e.g., Daily at 8:00 AM, once a year in June while boiler is down, etc.).

#### **FOR OIL-FIRED OR GAS-FIRED BURNERS:**

##### **TYPE OF BOILER:**

UTILITY - Source is used primarily for generation of steam or electricity. The source would be greater than 100 million Btu/hour gross heat input.

INDUSTRIAL - Source is used primarily in an industrial operation. The source would be between 10 and 100 million Btu/hour gross heat input.

COMMERCIAL - The source is used primarily in a commercial operation. The source would be between 0.5 and 10 million Btu/hour gross heat input.

RESIDENTIAL - The source is used for residential type operation only. The source is less than 0.5 million Btu/hour gross heat input.

**METHOD OF TUBE CLEANING:** List method of tube cleaning (e.g., lancing, tube blowing, etc).

**CLEANING SCHEDULE:** List frequency of cleaning (e.g., Daily at 8:00 AM, once a year in June while boiler is down, etc.).

**FOR OTHER FUEL-FIRED BURNERS:**  
**TYPE OF BOILER:**

UTILITY - Source is used primarily for generation of steam or electricity. The source would be greater than 100 million Btu/hour gross heat input.

INDUSTRIAL - Source is used primarily in an industrial operation. The source would be between 10 and 100 million Btu/hour gross heat input.

COMMERCIAL - The source is used primarily in a commercial operation. The source would be between 0.5 and 10 million Btu/hour gross heat input.

RESIDENTIAL - The source is used for residential type operation only. The source is less than 0.5 million Btu/hour gross heat input.

**METHOD OF TUBE CLEANING:** List method of tube cleaning (e.g., lancing, tube blowing, etc).

**CLEANING SCHEDULE:** List frequency of cleaning (e.g., Daily at 8:00 AM, once a year in June while boiler is down, etc.).

**FUEL USAGE (INCLUDE STARTUP / BACKUP FUELS):**

**FUEL TYPE:** List the fuel to be combusted and the startup fuel.

**UNITS:** List fuel units for the amounts listed (e.g., pounds, tons, gallons, cubic feet, etc.).

**MAX. DESIGN CAPACITY (UNIT/HR):** List the maximum amount of fuel capable of being burned per hour.

**REQUESTED CAPACITY LIMITATION (UNIT/HR):** Complete this section **ONLY** if you are requesting that this emission source be limited to this level. The permit will reflect this limit and specify additional recordkeeping and reporting requirements.

**FUEL CHARACTERISTICS (COMPLETE ALL THAT ARE APPLICABLE):**

**FUEL TYPE:** List the fuel to be combusted and the startup fuel.

**BTU CONTENT:** List heat content of fuel expressed in Btu and list units for applicable fuel type (e.g., Btu per pound-wood, Btu per board-foot).

**SULFUR CONTENT:** For solid and liquid fuels, list sulfur content of fuel expressed as % by weight to nearest 1/100th of a %. This should be the worst case that you propose to burn. There will be permit conditions limiting the fuel to this amount.

**ASH CONTENT:** For solid fuels, list ash content of fuel expressed as % by weight to nearest 1/100th of a %. This should be the worst case that you propose to burn. There will be permit conditions limiting the fuel to this amount.

**SAMPLING PORTS:** Indicate if sampling ports compliant with EPA Method 1 are, or will be, installed on the stack(s).

**COMMENTS:** Add any additional information needed to evaluate the burner.



## INSTRUCTIONS FOR FORM B2

### B2 - EMISSION SOURCE (INTERNAL COMBUSTION ENGINE/GENERATOR)

This form is for internal combustion engines (ICEs) and generators. **All calculations, assumptions, analyses and other information used to support this form must be included on form D5.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario.

**DESCRIBE USE:** Check all that are applicable:

PROCESS HEAT - Source is used to produce heat for a process.

SPACE HEAT - Source is used to produce heat for comfort or to maintain facility temperature above freezing.

PEAK SHAVER - Source is intended to be used as a peak electrical shaver.

ELECTRICAL GENERATION - EMERGENCY - Source is used for the generation of electrical power only for stand-by purposes (e.g., when electricity goes out or another generator goes down). It is not used on a routine or regular basis and is not used to handle peak loads.

ELECTRICAL GENERATION - NON-EMERGENCY - Source is used for the generation of electrical power used on a routine or regular basis.

OTHER - Describe in comments.

**GENERATOR OUTPUT:** Enter the maximum designed electrical output of the generator in kilowatts. See generator manufacturer specifications.

**ENGINE OUTPUT:** Enter the maximum designed power output of the engine in horsepower. See engine manufacturer specifications.

**TYPE ICE:** If application is being made for an internal combustion engine or generator, check all that apply. If combination, check more than one. If other, describe:

GASOLINE ENGINE - Engine is capable of combusting gasoline.

DIESEL ENGINE UP TO 600 HP - Engine is capable of combusting diesel fuel and has a power output rating less than 600 horsepower.

DIESEL ENGINE GREATER THAN 600 HP - Engine is capable of combusting diesel fuel and has a power output rating greater than 600 horsepower.

DUAL FUEL ENGINE - Engine is capable of combusting a mixture of diesel fuel and natural gas.

OTHER - Describe in comments.

**EMISSION CONTROLS:** For internal combustion engine or generator, check all that apply:

INJECTION TIMING RETARD - Fuel injection timing has been modified to allow combustion process to occur later in the power stroke.

PREIGNITION CHAMBER COMBUSTION - Engine has been modified to include a precombustion chamber for improved fuel mixing.

OTHER - Describe in comments.

**STATIONARY GAS TURBINE:** If application is being made for a stationary gas turbine, check all that apply:

**FUEL:** Indicate whether natural gas, fuel oil, or some other fuel is combusted.

**CYCLE:** Check all that apply:

SIMPLE - Heat content of exhaust gases exiting the turbine are discarded without heat recovery.

REGENERATIVE - Heat content of exhaust gases exiting the turbine are recovered with a heat exchanger to preheat combustion air entering the combustor.

COGENERATION - Heat content of exhaust gases exiting the turbine are recovered in a heat recovery steam generator to raise process steam, with or without supplementary firing.

COMBINED – Heat content of exhaust gases exiting the turbine are recovered, with or without supplementary firing, to raise steam for a steam turbine Rankine cycle.

**EMISSION CONTROLS:** Check all that apply:

WATER/STEAM INJECTION - Water or steam is injected into the turbine to reduce peak temperatures in the flame zone.

LEAN PRE-MIX - Air and fuel are thoroughly blended to form a lean mixture prior to combustion.

OTHER - Describe in comments.

**NATURAL GAS PIPELINE COMPRESSOR OR TURBINE:** If application is being made for a natural gas pipeline compressor or turbine, check all that apply:

**ENGINE TYPE:** Check one of the following:

2-CYCLE LEAN BURN - Two-stroke engine where the operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is greater than 1.1.

4-CYCLE LEAN BURN - Four-stroke engine where the operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is greater than 1.1.

4-CYCLE RICH BURN - Four-stroke engine where the operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1.

TURBINE - Engine is capable of combusting a mixture of diesel fuel and natural gas.

OTHER - Describe in comments.

**EMISSION CONTROLS:** Check all that apply:

NONSELECTIVE CATALYTIC REDUCTION - NSCR (often referred to as a three-way catalyst) uses a catalyst to simultaneously reduce NO<sub>x</sub>, CO, and hydrocarbons (HC).

SELECTIVE CATALYTIC REDUCTION - SCR reduces NO<sub>x</sub> emissions selectively by injecting ammonia into the exhaust gas stream upstream of a catalyst.

CLEAN BURN AND PRECOMBUSTION CHAMBER - Measures to promote cleaner combustion, including thoroughly blending air and fuel in a chamber prior to combustion

OTHER - Describe in comments.

**FUEL USAGE (INCLUDE STARTUP / BACKUP FUELS):**

**FUEL TYPE:** List the fuel to be combusted and the startup fuel.

**UNITS:** List fuel units for the amounts listed (e.g., pounds, tons, gallons, cubic feet, etc.).

**MAX. DESIGN CAPACITY (UNIT/HR)** - List the maximum amount of fuel capable of being burned per hour.

**REQUESTED CAPACITY LIMITATION (UNIT/HR)** - Complete this section **ONLY** if you are requesting that this emission source be limited to this level. The permit will reflect this limit and specify additional recordkeeping and reporting requirements.

**FUEL CHARACTERISTICS (COMPLETE ALL THAT ARE APPLICABLE):**

**FUEL TYPE:** List the fuel to be combusted and the startup fuel.

**BTU CONTENT:** List heat content of fuel expressed in Btu.

**UNITS:** List units for applicable fuel type (e.g., Btu per gallon-oil, or Btu per cubic foot-natural gas).

**SULFUR CONTENT (% BY WEIGHT):** List sulfur content of fuel expressed as % by weight to nearest 1/100th of a %. This should be the worst case that you propose to burn. There will be permit conditions limiting the fuel to this amount.

**MANUFACTURER'S SPECIFIC EMISSION FACTORS:** Provide emissions data if available from the engine or generator manufacturer.

**DESCRIBE METHODS TO MINIMIZE VISIBLE EMISSIONS DURING IDLING, OR LOW LOAD OPERATIONS:** Describe any procedures used to minimize visible emissions during idling or low load operations, especially as provided by the manufacturer.

**INDICATE ALL REQUESTED STATE AND FEDERALLY ENFORCEABLE PERMIT LIMITS AND DESCRIBE HOW THESE LIMITS ARE MONITORED AND WITH WHAT FREQUENCY:** If any state and federally enforceable permit limits are to be placed on this source (e.g., the hours of operation, the material input rates, the emission rate, etc.) identify these here and identify the motivating regulation for such limitations.

**COMMENTS:** Add any additional information needed to evaluate the equipment.

## INSTRUCTIONS FOR FORM B3

### B3 - EMISSION SOURCE (LIQUID STORAGE TANK)

This form is for liquid storage tanks. The following storage tanks, unless otherwise required to be permitted in WNCRAQA Code 17.0102(b), are exempted from permitting in accordance with WNCRAQA Code 17.0102(c)(2)(A). However, for Title V facilities, these sources must be listed on form E2.

1. Above-ground storage tanks with a storage capacity of no more than 1100 gallons storing organic liquids with a true vapor pressure of no more than 10.8 pounds per square inch absolute at 70°F; or
2. Underground storage tanks with a storage capacity of no more than 2500 gallons storing organic liquids with a true vapor pressure of no more than 10.8 pounds per square inch absolute at 70°F.

**All calculations, assumptions, analyses and other information used to support this form must be included on form D5.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario.

**DESCRIBE STORAGE TANK:** Describe fixed roof storage tank and tank condition. Include the roof and shell paint shade or type and condition, use for liquid etc. (e.g., aboveground vertical fixed roof tank storing toluene for use in ink mixing process.).

**LIQUID STORED:** List name(s) of liquid(s) being stored. Where mixtures of liquids are stored, list the components.

**LIQUID MOLECULAR WEIGHT (LB/LB-MOLE):** Enter the liquid molecular weight of the chemical.

**TANK CAPACITY (GAL):** List tank capacity in gallons.

**VAPOR MOLECULAR WEIGHT (LB/LB MOLE):** List the molecular weight of the vapor(s) expressed in pound per pound mole. Molecular weight of vapor can be determined from reference materials that list physical properties of selected petroleum liquids or volatile organic liquids or by analyzing vapor samples.

**AVERAGE LIQUID SURFACE TEMPERATURE (°F):** List the average liquid surface temperature expressed in °F. The average liquid surface temperature may be based on liquid surface temperature measurements from the tank.

**VAPOR PRESSURE AT AVERAGE LIQUID SURFACE TEMPERATURE (PSIA):** List the true vapor pressure in (PSIA) pounds per square inch absolute. True vapor pressure is the equilibrium partial pressure exerted by a volatile organic liquid.

**MINIMUM LIQUID SURFACE TEMPERATURE (°F):** List the minimum liquid surface temperature expressed in °F. The minimum liquid surface temperature may be based on liquid surface temperature measurements from the tank.

**MAXIMUM LIQUID SURFACE TEMPERATURE (°F):** List the maximum liquid surface temperature expressed in °F. The maximum liquid surface temperature may be based on liquid surface temperature measurements from the tank.

**MAXIMUM TRUE VAPOR PRESSURE (PSIA):** List the maximum true vapor pressure in (PSIA) pounds per square inch absolute. True vapor pressure is the equilibrium partial pressure exerted by a volatile organic liquid.

**BULK LIQUID TEMPERATURE (°F):** List the average liquid temperature expressed in °F. The average liquid temperature may be based on temperature measurements from the tank.

**BREATHING VENT SETTINGS (PSIG):** Vacuum Pressure

**SHELL DIAMETER (FT):** List tank diameter in feet.

**SHELL CONDITION:** Mark \_\_\_GOOD or \_\_\_POOR to indicate the condition of the shell.

**IS TANK HEATED:** Mark \_\_\_YES or \_\_\_NO.

**SHELL COLOR:** Indicate shell color.

**MAXIMUM THROUGHPUT (GAL/YR):** List the maximum potential throughput per year (annual) in gallons.

**MAXIMUM TURNS PER YEAR:** List maximum number of turns per year (dimensionless) that you desire this tank to be permitted. Number of turns per year is derived by dividing total throughput per year in gallons by tank capacity in gallons.

**WORKING VOLUME (GAL):** List tank capacity in gallons for liquids.

**ACTUAL THROUGHPUT (GAL/YR):** List the actual throughput in gallons per year.

**ACTUAL TURNS PER YEAR:** List the actual number of turns per year for this tank for the previous calendar year. For new tanks, list the estimated actual number of turns for the first year of operation.

**MAX. FILLS PER DAY:** List maximum number of times per 24 hour day tank filling activities could occur at maximum usage rates.

**MAX. FILLING RATE (GAL/MIN):** List maximum filling rate in gallons per minute.

**MIN. DURATION OF FILL (HR/FILL):** List the minimal hours required to fill the tank.

**Fill out appropriate tank description for the source:**

**VERTICAL FIXED ROOF TANKS:**

**SHELL HEIGHT (FT):** List tank shell height in feet as measure from bottom of tank. Shell height is the highest elevation of vertical cylinder of tank..

**ROOF TYPE:** Mark \_\_\_\_\_ CONE or \_\_\_\_\_ DOME for the roof type.

**ROOF HEIGHT (FT):** List overall tank roof height in feet as measure from bottom of tank. List height at highest point of fixed roof if cone or dome roof. This is used to calculate tank vapor space volume.

**AVERAGE LIQUID HEIGHT (FT):** List average height of the stored liquid as measure from bottom of tank. This is used to calculate tank vapor space volume.

**ROOF CONDITION:** Mark \_\_\_\_\_ GOOD or \_\_\_\_\_ POOR for the roof condition.

**MAXIMUM LIQUID HEIGHT (FT):** List the maximum liquid height in feet.

**ROOF COLOR:** List the roof color.

**HORIZONTAL TANKS:**

**SHELL LENGTH (FT):** List the length of the shell.

**IS TANK UNDERGROUND?** Mark \_\_\_\_\_ YES or \_\_\_\_\_ NO

**FLOATING ROOF TANKS:** Describe pertinent tank data such as decks, rim-seals, liquid density @ 60°F.

**DESCRIBE ANY MONITORING OR WARNING DEVICES (SUCH AS LEAK AND FUME DETECTION INSTRUMENTATION):** Describe any liquid or bulk storage monitoring or warning devices and quality assurance procedures to assure the devices are operating properly.

**COMMENTS:** Add any additional information needed to evaluate the source.

**DESCRIBE ALL MAINTENANCE PROCEDURES:** Describe all maintenance procedures performed on the storage tank(s) and related equipment.

**INDICATE ALL REQUESTED STATE AND FEDERALLY ENFORCEABLE PERMIT LIMITS AND DESCRIBE HOW THESE LIMITS ARE MONITORED AND WITH WHAT FREQUENCY:** If any state and federally enforceable permit limits are to be placed on this source (e.g., the hours of operation, the material input rates, the emission rate, etc.) identify these here and identify the motivating regulation for such limitations.

## INSTRUCTIONS FOR FORM B4

### B4 - EMISSION SOURCE (WOODWORKING)

This form is for Woodworking sources. The following woodworking processes, unless otherwise required to be permitted in WNCRAQA Code 17.0102(b), are exempted from permitting in accordance with WNCRAQA Code 17.0102(c)(2)(D). However, for Title V facilities, these sources must be listed on form E2.

1. Sawmills that saw no more than 2,000,000 board feet per year provided only green wood is sawed.

**All calculations, assumptions, analyses and other information used to support this form must be included on form D5.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario.

**DESCRIBE WOODWORKING OPERATION:** Describe the woodworking operation in detail. Include the types of woodworking and amount of each type (i.e. five band saws, two abrasive planer and one turing lathe). Also, attach flowchart or diagram of system(s).

**TYPE OF WOOD:** Mark the box for SOFT or HARD to denote the type of the majority of the wood used in operation. Mark the box for GREEN or DRYWOOD if the moisture reading is less than 19%. List the percent moisture of the dry wood.



**IS THIS OPERATION CONTROLLED:** If there is a device that captures the emissions from the woodworking operation, mark the box for YES. If there is not, mark the box for NO. If YES is marked, mark the box for CYCLONE or BAGFILTER, or identify the type of control device after OTHER.

**PERCENT OF ANNUAL HOURS VENTING INDOORS:** If the woodworking operation always operates inside, mark 100%. If the operation is open or vents outdoors part of the year, indicate the appropriate percent of the hours vented indoors.

**LOSS (% WASTE):** Quantify the percentage loss from the operation. **This may be figured from the dust collected by a control device and weight of any scrap that results. Following calculation?**

**AVERAGE LB/BD-FT:** List the average pound per board foot of the wood being processed.

**ACTUAL BD-FT/YEAR:** List the actual board feet processed by the woodworking operation per year.

**MAXIMUM BD-FT/HOUR:** List the maximum board feet of wood that the woodworking operation can process per hour.

**QUANTIFY THE AMOUNT OF WOODWASTE GENERATED:**

**TOTAL WASTE:** Figure the total waste from the operation if this group of woodworking machines were operating at maximum capacity. Quantify in pounds, the expected total waste generated per hour (including blocks, dust and material vented to the ductwork.) Put that number in the block and multiply this number by 8760 (the hours in a year.) Divide the result by 2000 pounds per ton. Fill in the box after the following with that number.

**THE POTENTIAL AMOUNT OF TOTAL WASTE EXPECTED ON ANNUAL BASIS (INCLUDING BLOCKS)** is equal to the result in tons.

**REVISED UP TO THIS POINT.**

## INSTRUCTIONS FOR FORM B5

### B5 - EMISSION SOURCE (COATING/FINISHING/PRINTING)

A coating / finishing emission source is a single operation where coatings are applied to a material. As specified in WNCRAQA Code 17.0102(c)(2)(D), paint spray booths or other painting or coating operations without air pollution control devices (water wash and filters that are an integral part of the paint spray booth are not considered air pollution control devices) are exempted from permitting if they are located at a facility whose facility-wide actual emissions of volatile organic compounds are less than five tons per year, provided the facility is not required to be permitted under WNCRAQA Code 17.0102(b). **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**INDICATE WHETHER THIS SOURCE IS SUBJECT TO:** NSPS (New Source Performance Standards) and / or NESHAP (National Emission Standards for Hazardous Air Pollutants). These regulations are contained in WNCRAQA Codes 4.0524, 4.1110, and 4.1111.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**OPERATION DATE:** For equipment already in operation this is the date when operation began. For new equipment this is the estimated date when operation will begin.

**DESCRIBE PROCESS:** Describe the coating operation. *Example - Wood furniture is moved by conveyor through this spray booth where reactive and non-reactive lacquers are applied. There are no VOC controls. A water wall is used for particulate control. Coatings are already mixed and are applied as received.*

**OPERATING SCHEDULE:** Enter the actual hours per day, days per week, and weeks per year this emission source is expected to be in operation.

**SEASONAL VARIATION:** Enter the percent of the total annual throughput for this source for each quarter. A source that operates year round with no fluctuations would have 25 in every block.

**TYPE OF COATING OPERATION:** Describe the method for applying the coating (e.g., flow coating, dip coating, roller coating, brush coating, air atomized spray, airless spray, electrodeposition, HVLP, electrostatic spray, powder coating, etc). Include the type of application equipment used (e.g., manual spray guns, automatic system, etc).

**WHAT IS BEING COATED:** Specify what is being coated (e.g., metal furniture, wood furniture, structural steel, etc).

**CONTINUOUS COATING:** This is a painting or coating operation where the materials to be coated are introduced continuously into the spray operation.

**TYPE FEED SYSTEM:** Specify the type of system used to introduce the materials to be painted (e.g., conveyor, hangars, web-fed, trays, etc).

**MAX. NO. OF ITEMS COATED/HR:** Specify the maximum number of items coated in one hour. Keep in mind that the operation may be limited by permit condition to this amount and recordkeeping and reporting requirements may be required.

**MAX. SPEED:** Enter the maximum feeding speed of the line in feet per minute. Keep in mind that the operation may be limited by permit condition to this speed and recordkeeping and reporting requirements may be required.

**BATCH OPERATION:** This is a painting or coating operation where the materials to be coated are introduced into the spray operation at one time, either individually or as a group, sprayed, then removed.

**MAX. NO. OF ITEMS COATED/BATCH:** Specify the maximum number of materials coated / painted in one batch. Keep in mind that the operation may be limited by permit condition to this amount and recordkeeping and reporting requirements may be required.

**BATCH TIME AT MAX.:** At maximum capacity what is the shortest amount of time in minutes it takes to complete a batch. This would be the amount of time it takes to introduce the material, spray, dry (if drying is allowed as part of the operation), and remove the material. If batch time is dependent on another process at the facility, explain in the comments section.

**NUMBER OF STATIONS / BOOTHS:** Enter the number of spray stations or spray booths in the painting / coating operation.

**NO. OF SPRAY GUNS:** Enter the total maximum number of spray guns that can be used in the operation at one time. The operation may be limited to this amount.

**TRANSFER EFF.:** Enter the % (expressed as decimal) of solid that actually is applied to item being sprayed, taking into consideration solid lost due to overspray, etc. Use the following default values or provide documentation for other:

- 0.25 - air atomized,
- 0.25 - airless spray,
- 0.60 - manual electrostatic spray,
- 0.70 - nonrotational automatic electrostatic spray,
- 0.80 - rotating head electrostatic (manual and automatic),
- 0.90 - dip coat and flow coat,

0.95 - electrodeposition.

The above numbers are typical. Your numbers may vary.

**CAPTURE EFF.:** Enter the % (expressed as decimal) of total sprayed that is captured from the process and sent to the exhaust air stream. A coating operation with 60% transfer efficiency and 98% capture efficiency will have an overall efficiency of 58.8% ( $.98 \times .60 = .588$ ).

**COATING USE:** This section establishes what coatings are applied at each station or booth. A form D1 must be completed for each coating used.

**STATION:** Identify each station or booth. It may be simplest to number them from 1 to X starting from the first station to the last.

**COATING(S) APPLIED AT STATION:** On each form D1 a unique coating ID has been assigned. List the ID for each coating that may be applied at each station.

**NO. GUNS:** Enter the maximum number of spray guns you propose for this station / booth.

**ACTUAL USAGE:** Enter the actual amount of coating applied at this station in gallons per hour and gallons per year.

**MAX. DESIGN CAPACITY:** Enter the maximum amount of coating capable of being applied at this station in gallons per hour and gallons per year.

**NO. OF BAKE OVENS:** Specify the total number of ovens or dryers used in the drying process.

**METHOD OF HEATING:** Specify the method of heating for the bake ovens as STEAM, DIRECT FIRED, ELECTRIC, or OTHER.

**FUEL USED:** Many printing operations require the use of dryers or ovens to speed the drying process. Specify the type of fuel used if there are any associated with the printing process. If there is a separate boiler used for drying then this information should be supplied on either form B2, B3, or B4 depending on the type of fuel used.

**TOTAL MAX. FIRING RATE (MILLION BTU/HR):** Enter the total maximum firing rate for all burners at this emission source based on heat input.

**MAX. ANNUAL FUEL USE:** Indicate the maximum amount of fuel you propose to burn at this emission source in one year. If this is less than the maximum capacity of the fuel burners then the source will be restricted to this amount.

**MAX. HOURLY FUEL USE:** Indicate the maximum amount of fuel you propose to burn in one hour at this emission source. If this is less than the maximum capacity of the fuel burner then the source will be restricted to this amount.

**ACTUAL ANNUAL FUEL USE:** Indicate the actual amount of fuel consumed in one year.

**ACTUAL HOURLY FUEL USE:** Indicate the actual amount of fuel consumed in one hour.

**DESCRIBE ANY MONITORING DEVICES, GAUGES OR TEST PORTS:** List and describe any emission point monitoring devices, gauges, or test port locations used for monitoring compliance parameters or used in demonstrating compliance. Provide any calibration or maintenance activities and frequency (e.g., continuous emission monitors, O<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, or opacity monitors, emission point temperature, steam flow, etc).

**INDICATE ALL REQUESTED STATE AND FEDERALLY ENFORCEABLE PERMIT LIMITS AND DESCRIBE HOW THESE LIMITS ARE MONITORED AND WITH WHAT FREQUENCY:** If any state and federally enforceable permit limits are to be placed on this source (e.g., the hours of operation, the material input rates, the emission rate, etc.) identify these here and identify the motivating regulation for such limitations.

**COMMENTS:** Comment on any process bottlenecks, requests for restrictions, or any other information that needs explanation on this page. Use additional pages if needed.

## INSTRUCTIONS FOR FORM B

### B - EMISSION SOURCE (PRINTING)

A printing emission source would be a single operation where inks or coatings are applied to a material. Multiple presses or printing sources of the same type would not be considered a single emission source. As specified in WNCRAQA Code 17.0102(c)(2)(D), printing operations without air pollution control devices are exempted from permitting if they are located at a facility whose facility-wide actual emissions of volatile organic compounds are less than five tons per year, provided the emission source is not required to be permitted as specified in WNCRAQA Code 17.0102(b). **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**INDICATE WHETHER THIS SOURCE IS SUBJECT TO:** NSPS (New Source Performance Standards) and / or NESHAP (National Emission Standards for Hazardous Air Pollutants). These regulations are contained in WNCRAQA Codes 4.0524, 4.1110, and 4.1111.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**OPERATION DATE:** For equipment already in operation this is the date when operation began. For new equipment this is the estimated date when operation will begin.

**DESCRIBE PROCESS:** Describe the printing operation (e.g., A continuous roll of paper enters the five-station rotogravure press. There are five burners for drying and all emissions vent to vapor recovery. Inks are all water based.).

**OPERATING SCHEDULE:** Enter the actual hours per day, days per week, and weeks per year this emission source is expected to be in operation.

**SEASONAL VARIATION:** Enter the percent of the total annual throughput for this source for each quarter. A source that operates year round with no fluctuations would have 25 in every block.

**TYPE OF PRINTING OPERATION:** Specify the type of printing operation (e.g., flexographic, offset lithographic, rotogravure, publication rotogravure, packaging rotogravure, screen printing, etc).

**WHAT IS BEING PRINTED:** Specify what is being printed (e.g., paper, packaging, envelopes, posters, T-shirts, etc).

**CONTINUOUS PRINTING:** This is a printing process where the material being printed is supplied to the printing machine continuously in a roll. At the end of the printing process, the material is normally folded and / or cut into properly sized products.

**NO. OF PRINT STATIONS:** Specify the total number of print stations. A station is a location within a printing operation where coatings are applied.

**WEIGHT OF MATERIAL BEING PRINTED (LB/FT<sup>2</sup>):** Enter the maximum weight of the material being printed per unit square foot before printing.

**MAX. WIDTH OF ITEMS BEING PRINTED (INCHES):** This is the maximum width of the material proposed to be printed. Keep in mind that the operation may be limited by permit condition to this width and recordkeeping and reporting requirements may be required.

**MAX. SPEED (FT/MIN):** This is the maximum feed rate of the material going through the printing operation. Keep in mind that the operation may be limited by permit condition to this speed and recordkeeping and reporting requirements may be required.

**ACTUAL (FT/MIN):** This is the actual feed rate of the material going through the printing operation.

**NON-CONTINUOUS PRINTING:** This is a printing process where the material being printed is fed individually, either mechanically or by hand (e.g., Printing envelopes that are not fed from a roll. Printing posters or screen printing of T-shirts where the material is placed in the printing unit one at a time by hand).

**NO. OF PRINT STATIONS:** Specify the total number of print stations. A station is a location within a printing operation where coatings are applied.

**WEIGHT OF MATERIAL:** What is the maximum weight of the material before printing per 100 units of the similar materials (e.g., 5 lb/100 envelopes or 10 lb/100 posters).

**MAX. DIMENSIONS (INCHES):** Enter the maximum dimensions of material being printed by LENGTH and WIDTH. Keep in mind that the operation may be limited by permit condition to these dimensions and recordkeeping and reporting requirements may be required.

**MAX. PRINTED/MINUTE:** This is the maximum number of items printed per minute (e.g., 100 envelopes/minute, 150 checks/minute). Keep in mind that the operation may be limited by permit condition to this rate and recordkeeping and reporting requirements may be required.

**COATING USE:** This section establishes what coatings are applied at each print station. A form D1 must be completed for each coating used.

**PRINT STATION:** Identify each print station. It may be simplest to number them from 1 to X starting from the first station to the last. For some printing operations there may be only one.

**COATING(S) APPLIED AT STATION:** A unique coating ID must be assigned for each coating used by this source. List the ID for each coating that may be applied at each station.

**ACTUAL USAGE:** Enter the actual amount of coating applied at this station in gallons per hour and gallons per year.

**MAX. DESIGN CAPACITY:** Enter the maximum amount of coating capable of being applied at this station in gallons per hour and gallons per year.

**NO. OF BAKE OVENS:** Specify the total number of ovens or dryers used in the drying process.

**METHOD OF HEATING:** Specify the method of heating for the bake ovens as STEAM, DIRECT FIRED, ELECTRIC, or OTHER.

**FUEL USED:** Many printing operations require the use of dryers or ovens to speed the drying process. Specify the type of fuel used if there are any associated with the printing process. If there is a separate boiler used for drying then this information should be supplied on either form B2, B3, or B4 depending on the type of fuel used.

**TOTAL MAX. FIRING RATE (MILLION BTU/HR):** Enter the total maximum firing rate for all burners at this emission source based on heat input.

**MAX. ANNUAL FUEL USE:** Indicate the maximum amount of fuel you propose to burn at this emission source in one year. If this is less than the maximum capacity of the fuel burners then the source will be restricted to this amount.

**MAX. HOURLY FUEL USE:** Indicate the maximum amount of fuel you propose to burn in one hour at this emission source. If this is less than the maximum capacity of the fuel burner then the source will be restricted to this amount.

**ACTUAL ANNUAL FUEL USE:** Indicate the actual amount of fuel consumed in one year.

**ACTUAL HOURLY FUEL USE:** Indicate the actual amount of fuel consumed in one hour.

**DESCRIBE ANY MONITORING DEVICES, GAUGES OR TEST PORTS:** List and describe any emission point monitoring devices, gauges, or test port locations used for monitoring compliance parameters or used in demonstrating compliance. Provide any calibration or maintenance activities and frequency (e.g., continuous emission monitors, O<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, or opacity monitors, emission point temperature, steam flow, etc).

**INDICATE ALL REQUESTED STATE AND FEDERALLY ENFORCEABLE PERMIT LIMITS AND DESCRIBE HOW THESE LIMITS ARE MONITORED AND WITH WHAT FREQUENCY:** If any state and federally enforceable permit limits are to be placed on this source (e.g., the hours of operation, the material input rates, the emission rate, etc.) identify these here and identify the motivating regulation for such limitations.

**COMMENTS:** Comment on any process bottlenecks, requests for restrictions, or any other information that needs explanation on this page. Use additional pages if needed.



## INSTRUCTIONS FOR FORM B6

### B6 - EMISSION SOURCE (STORAGE SILO/BIN)

Many industries use storage vessels to store ingredients and final products. The material stored is usually a bulk solid. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES -\_\_\_, each fugitive emission source ID number with F -\_\_\_, each control device ID number with CD -\_\_\_, and each emission point ID number with EP -\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**INDICATE WHETHER THIS SOURCE IS SUBJECT TO:** NSPS (New Source Performance Standards) and / or NESHAP (National Emission Standards for Hazardous Air Pollutants). These regulations are contained in WNCRAQA Codes 4.0524, 4.1110, and 4.1111.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**OPERATION DATE:** For equipment already in operation this is the date when operation began. For new equipment this is the estimated date when operation will begin.

**DESCRIBE PROCESS:** Describe the process (e.g., Lead oxide is loaded into storage vessel pneumatically from truck. It is stored for use in battery manufacturing.).

**SEASONAL VARIATION:** Enter the percent of the total annual throughput for this source for each quarter. A source that operates year round with no fluctuations would have 25 in every block.

**MATERIAL STORED:** List what material is being stored in vessel (e.g., cement, lead oxide, sand).

**DENSITY OF MATERIAL:** What is the weight (pounds) of a cubic foot of material.

**CAPACITY:** List the capacity of vessel in CUBIC FEET and also in TONS.

**DIMENSIONS:** For a round vessel give the dimensions (feet) in HEIGHT and DIAMETER. The height should be the height of the vessel only and should not include any structural supports. If the storage vessel is not round, give the dimensions of the vessel in LENGTH, WIDTH, and HEIGHT.

**ANNUAL PRODUCT THROUGHPUT:**

**MAX. DESIGN CAPACITY:** List the maximum annual throughput in tons that you propose for this emission source. Keep in mind that the operation may be limited by permit condition to this amount and recordkeeping and reporting requirements may be required.

**ACTUAL:** List the actual annual throughput for the previous calendar year. For new sources, list the projected throughput for this emission source.

**PNEUMATICALLY FILLED:** If vessel is filled pneumatically, check which is applicable:

BLOWER - Airflow created by a blower.

COMPRESSOR - Airflow created by a compressor.

**NO. OF FILL TUBES:** Enter the number of fill tubes used at one time to fill the silo.

**MAX. ACFM:** Enter the volumetric capacity of system in cubic feet per minute while filling.

**MECHANICALLY FILLED:** If vessel is filled mechanically, check which is applicable:

SCREW CONVEYOR - Vessel is filled by screw conveyor.

BELT CONVEYOR - Vessel is filled by belt conveyor.

BUCKET ELEVATOR -Vessel is filled by bucket elevator.

OTHER - If filling method is not listed please describe.

**FILLED FROM:** Check where the material being loaded into silo is coming from:

RAILCAR - Material loaded from railroad car.

TRUCK - Material loaded from tractor/trailer type motor vehicle.

STORAGE PILE - Material loaded from a storage pile.

OTHER - If other, describe.

**MATERIAL IS UNLOADED TO:** Describe where the material goes as it leaves the silo for use. If it goes to another emission source include the source ID No. (e.g., boiler, cement truck, etc).

**BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO:** Describe how material is unloaded from vessel (e.g., gravity, pneumatically, screw conveyor, etc).

**MAX. DESIGN FILLING RATE OF MATERIAL (TONS/HOUR):** What is the maximum rate at which you plan to fill the silo? The permit to operate may have conditions limiting the filling rate to this rate. There may be permit recordkeeping and reporting requirements associated with these amounts.

**MAX. DESIGN UNLOADING RATE OF MATERIAL (TONS/HOUR):** What is the maximum rate at which you plan to use the material in the silo? The permit to operate may have conditions limiting the use to this

rate. If the material is input directly into another emission source then the limits will probably be associated with that emission source.

**DESCRIBE EMISSION CONTROLS FOR SILO LOADING:** Describe how emissions to the atmosphere are reduced while loading the silo. If there is a pollution control device then complete the proper form C for the control(s).

**DESCRIBE EMISSION CONTROLS FOR SILO UNLOADING:** Describe how emissions to the atmosphere are reduced while unloading the silo. If there is a pollution control device, then complete the proper pages for the control(s). If the controls are associated with another emission source then also address the controls as part of that emission source.

**DESCRIBE ANY MONITORING OR WARNING DEVICES:** Describe any warning devices alerting the operator that the silo is full. Describe any gauges such as pressure drop, PSI, etc.

**INDICATE ALL REQUESTED STATE AND FEDERALLY ENFORCEABLE PERMIT LIMITS AND DESCRIBE HOW THESE LIMITS ARE MONITORED AND WITH WHAT FREQUENCY:** If any state and federally enforceable permit limits are to be placed on this source (e.g., the hours of operation, the material input rates, the emission rate, etc.) identify these here and identify the motivating regulation for such limitations.

**COMMENTS:** Add any additional information needed to evaluate the source.

## INSTRUCTION FOR FORM B7

### **B7 - EMISSION SOURCE (MANUFACTURING OF CHEMICALS/COATINGS/INKS)**

This form is for any process used for the manufacture of solvent containing coatings, inks, or other solvent containing products. Usually, this emission source will involve a batch type of process. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**INDICATE WHETHER THIS SOURCE IS SUBJECT TO:** NSPS (New Source Performance Standards) and / or NESHAP (National Emission Standards for Hazardous Air Pollutants). These regulations are contained in WNCRAQA Codes 4.0524, 4.1110, and 4.1111.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**OPERATION DATE:** For equipment already in operation this is the date when operation began. For new equipment this is the estimated date when operation will begin.

**DESCRIBE PROCESS:** Describe the mixing operation (e.g., Inks are mixed for distribution in 55-gallon drums. This emission source includes all equipment in mixing room No. 2. All equipment is covered at all times, except during material transfer.).

**OPERATING SCHEDULE:** Enter the actual hours per day, days per week, and weeks per year this emission source is expected to be in operation.

**SEASONAL VARIATION:** Enter the percent of the total annual throughput for this source for each quarter. A source that operates year round with no fluctuations would have 25 in every block.

**EQUIPMENT SUMMARY:**

**TYPE:** List equipment for which a quantity of throughput can be measured. They must be similar in function and identical in capacity to list together on the same line (e.g., 100 gallon mixers, 55 gallon portable mixers, etc).

**CAPACITY:** Enter the maximum capacity this piece of equipment can process per batch. If several similar sources are included on one line enter the capacity of a single source.

**NO. OF UNITS:** Enter the number of sources identical to this type and capacity of equipment.

**PRODUCT THROUGHPUT (GAL):**

**ACTUAL (HOURLY):** List the actual hourly throughput in gallons that is typically processed through this emission source. This would be the total gallons/hour from all of the equipment types listed.

**ACTUAL (ANNUAL):** List the actual annual throughput in gallons that are typically processed through this emission source (i.e., the total gallons for all of the equipment types).

**DESIGNED MAX. (HOURLY):** List the maximum hourly throughput in gallons that you propose to process in this emission source. Keep in mind that the operation may be limited by permit condition to this amount and recordkeeping and reporting requirements may be required.

**DESIGNED MAX. (ANNUAL):** List the maximum annual throughput in gallons that you propose to process in this emission source. Keep in mind that the operation may be limited by permit condition to this amount and recordkeeping and reporting requirements may be required.

**MAX. VOC WEIGHT (LB/GAL):** Enter the permitted maximum lb/gal by weight of volatile organic compounds (VOC) in the product you are producing that you propose for this emission source. Keep in mind that the operation may be limited by permit condition to this amount and recordkeeping and reporting requirements may be required.

**EVAPORATION RATE (% OF THROUGHPUT):** Enter the evaporation rate as a percent of the total product throughput.

**METHOD FOR DETERMINATION:** Enter your method for determining the above "Evaporation Rate" (e.g., material balance, test results, literature search, Federal / State / Local Factor, etc).

**NO. OF COOKERS:** Specify the total number of heated vessels or cookers used in the heating process.

**METHOD OF HEATING:** Specify the method of heating for the cookers as STEAM, DIRECT FIRED, ELECTRIC, or OTHER.

**FUEL USED:** Many printing operations require the use of dryers or ovens to speed the drying process. Specify the type of fuel used if there are any associated with the printing process. If there is a separate boiler used for drying then this information should be supplied on either form B2, B3, or B4 depending on the type of fuel used.

**TOTAL MAX. FIRING RATE (MILLION BTU/HR):** Enter the total maximum firing rate for all burners at this emission source based on heat input.

**MAX. ANNUAL FUEL USE:** Indicate the maximum amount of fuel you propose to burn at this emission source in one year. If this is less than the maximum capacity of the fuel burners then the source will be restricted to this amount.

**MAX. HOURLY FUEL USE:** Indicate the maximum amount of fuel you propose to burn in one hour at this emission source. If this is less than the maximum capacity of the fuel burner then the source will be restricted to this amount.

**ACTUAL ANNUAL FUEL USE:** Indicate the actual amount of fuel consumed in one year.

**ACTUAL HOURLY FUEL USE:** Indicate the actual amount of fuel consumed in one hour.

**DESCRIBE ANY MONITORING DEVICES, GAUGES OR TEST PORTS:** List and describe any emission point monitoring devices, gauges, or test port locations used for monitoring compliance parameters or used in demonstrating compliance. Provide any calibration or maintenance activities and frequency (e.g., continuous emission monitors, O<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, or opacity monitors, emission point temperature, steam flow, etc).

**INDICATE ALL REQUESTED STATE AND FEDERALLY ENFORCEABLE PERMIT LIMITS AND DESCRIBE HOW THESE LIMITS ARE MONITORED AND WITH WHAT FREQUENCY:** If any state and federally enforceable permit limits are to be placed on this source (e.g., the hours of operation, the material input rates, the emission rate, etc.) identify these here and identify the motivating regulation for such limitations.

**COMMENTS:** Comment on any process bottlenecks, requests for restrictions, or any other information that needs explanation on this page. Use additional pages if needed.

## INSTRUCTIONS FOR FORM B8

### B8 - EMISSION SOURCE (INCINERATION)

This form is for sources that eliminate waste or other material thermally. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. Emission source is defined as any stationary article, machine, process equipment, or other contrivance, or combination thereof, from which air pollutants emanate or are emitted, either directly or indirectly. Groups of equipment that are interconnected as a single continuous process can be labeled a single emission source (e.g., a chain of reaction vessels). However, this description should specify the number of individual pieces of equipment that make up this emission source.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**INDICATE WHETHER THIS SOURCE IS SUBJECT TO:** NSPS (New Source Performance Standards) and / or NESHAP (National Emission Standards for Hazardous Air Pollutants). These regulations are contained in WNCRAQA Codes 4.0524, 4.1110, and 4.1111.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE INCINERATOR:** Provide a brief description of incinerator (e.g., Medical waste incinerator that burns red bag waste for 200 bed hospital. Primary and secondary combustion chambers as well as emission point burner.).

**MANUFACTURER:** Enter name of manufacturer.

**MODEL NO.:** Enter model number for each piece of equipment.

**DATE MANUFACTURED:** Only complete this if there is a standard that has an applicability date based on the manufacture date of the equipment. For example, the New Source Performance Standards only apply to equipment manufactured after a certain date as determined by the promulgation date of the individual subparts.

**OPERATION DATE:** For equipment already in operation this is the date when operation began. For new equipment this is the estimated date when operation will begin.

**OPERATING SCHEDULE:** Enter the actual hours per day, days per week, and weeks per year this emission source is expected to be in operation.

**SEASONAL VARIATION:** Enter the percent of the total annual throughput for this source for each quarter. A source that operates year round with no fluctuations would have 25 in every block.

**PRIMARY CHAMBER:**

**FIRING RATE:** Enter the maximum heat input to the burner in million Btu/hour.

**OPERATING TEMPERATURE:** Enter the actual chamber temperature in degrees Fahrenheit under normal operation.

**SECONDARY CHAMBER:**

**FIRING RATE:** Enter the maximum heat input to the burner in million Btu/hour.

**OPERATING TEMPERATURE:** Enter the actual chamber temperature in degrees Fahrenheit under normal operation.

**RETENTION TIME:** Enter the amount of time the gas stream remains in the secondary chamber. This can be calculated by dividing the volume of the chamber (cubic feet) by the airflow rate (cubic feet/minute) then multiplying this by 60.

**EXCESS AIR (%):** The amount of air provided in excess of that ideally required for complete combustion expressed in percent.

**OVERFIRED / UNDERFIRED:** Overfired air is usually applied above the burning bed and is directed through openings in the charging door or incinerator walls. Underfired air is usually directed through air inlets located near the floor or hearth of primary chamber.

**AIRFLOW ENTERING UNIT:** Enter the volumetric flow rate of ambient air that is introduced into the incinerator.

**TYPE OF CHARGING:** Specify the method of charging the waste to the incinerator (e.g., manual, automatic charge, continuous).

**QUANTITY OF WASTE BURNED:**

**HOURLY CHARGE RATE:**

**DESIGNED MAXIMUM:** List the maximum hourly charge rate at which the unit is designed to operate.

**ANNUAL CHARGE RATE:**

**DESIGNED MAXIMUM:** List the maximum yearly amount that you propose to operate this source. Keep in mind that the operation will be limited by permit condition to this amount and recordkeeping and reporting requirements may be required.

**WASTE COMPOSITION:**

**AVERAGE BTU/LB:** Enter the average Btu content of the material charged per pound.



**AVERAGE PERCENT MOISTURE CONTENT:** Enter the average moisture content of material combusted as charged.

**WASTE TYPE:** List each type of waste that is incinerated (e.g., office paper, body parts, red bag, animal parts).

**% BY WT.:** Specify the percent by weight of each waste type burned. This should correspond to the worst case percentage for each waste type for any single charge. The total percentage could therefore be greater than 100% of the maximum design capacity.

**FUEL USAGE (INCLUDE STARTUP / BACKUP FUELS):**

**FUEL TYPE:** List the fuel to be combusted and the startup fuel.

**UNITS:** List fuel units for the amounts listed (e.g., pounds, tons, gallons, cubic feet, etc.).

**MAX. DESIGN CAPACITY (UNIT/HR) -** List the maximum amount of fuel capable of being burned per hour.

**REQUESTED CAPACITY LIMITATION (UNIT/HR) -** Complete this section **ONLY** if you are requesting that this emission source be limited to this level. The permit will reflect this limit and specify additional recordkeeping and reporting requirements.

**FUEL CHARACTERISTICS (COMPLETE ALL THAT ARE APPLICABLE):**

**FUEL TYPE:** List the fuel to be combusted and the startup fuel.

**BTU CONTENT:** List heat content of fuel expressed in Btu.

**UNITS:** List units for applicable fuel type (e.g., Btu per gallon-oil, or Btu per cubic foot-natural gas).

**SULFUR CONTENT (% BY WEIGHT):** List sulfur content of fuel expressed as % by weight to nearest 1/100th of a %. This should be the worst case that you propose to burn. There will be permit conditions limiting the fuel to this amount.

**FINAL DISPOSITION OF ASH:** What is the ultimate disposition of the ash (e.g., Ash is stored on site and disposed of once per month. It is disposed of as hazardous waste by ABC Company in the XYZ Landfill.).

**INCLUDE WITH APPLICATION (ON SEPARATE PAGES):** Attach the mentioned items in this section with this B5 form. This information is required for the completeness of this application.

**INDICATE ALL REQUESTED STATE AND FEDERALLY ENFORCEABLE PERMIT LIMITS AND DESCRIBE HOW THESE LIMITS ARE MONITORED AND WITH WHAT FREQUENCY:** If any state and federally enforceable permit limits are to be placed on this source (e.g., the hours of operation, the material input rates, the emission rate, etc.) identify these here and identify the motivating regulation for such limitations.

## **INSTRUCTIONS FOR FORM B9**

**B9 - EMISSION SOURCE (OTHER)**

# INSTRUCTIONS FOR FORM C1

## C1 - CONTROL DEVICE (GENERAL)

Use this form to describe any control device not included on Forms C2 through C9. This form allows for the entering of general control device parameters. A complete description of your control device may include other parameters not on this form. It is important that you attach manufacturer's specifications, schematics, and all other drawings necessary to describe this control device and its relationship to its emission source. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Give a brief description of the control device. Include such information as other devices used in conjunction with this device, number of compartments, etc.

**POLLUTANT(S) COLLECTED:** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.

**PRESSURE DROP (IN. H<sub>2</sub>O):** Enter the minimum and maximum operating pressure drop across the device in inches H<sub>2</sub>O during normal operation needed to maintain the desired efficiency.

**INLET TEMPERATURE (°F):** Enter the minimum and maximum inlet temperature during normal operation.

**OUTLET TEMPERATURE (°F):** Enter the minimum and maximum outlet temperature during normal operation.

**INLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in cubic feet per minute entering the control device during normal operation.

**OUTLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in cubic feet per minute exiting the control device during normal operation.

**INLET AIRFLOW VELOCITY (FT/SEC):** Enter the actual airflow velocity in feet per second entering the control device during normal operation.

**OUTLET AIRFLOW VELOCITY (FT/SEC):** Enter the actual airflow velocity in feet per second exiting the control device during normal operation.

**INLET MOISTURE CONTENT (%):** Enter the percent moisture content of the emission stream entering the control device.

**COLLECTION SURFACE AREA (FT<sup>2</sup>):** Enter the area of pollutant collecting material in square feet.

**FUEL USED:** Enter the type(s) of fuel(s) used in the device.

**FUEL USAGE RATE:** Enter the maximum fuel usage rate on an hourly or annual basis.

**DESCRIBE STARTUP PROCEDURES:** Describe procedures for starting the equipment noting emissions and estimated rates where possible.

**DESCRIBE MAINTENANCE PROCEDURES:** Routine maintenance is one of the most important factors in maintaining continual compliance using any control device. Describe all maintenance procedures including the monitoring of pressure drop, temperature, dust removal, opacity, etc.

**DESCRIBE ANY AUXILIARY MATERIALS INTRODUCED INTO THE CONTROL SYSTEM:** Describe any auxiliary materials (e.g., lime, caustic acid, etc.) introduced into the control system.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., manahelics, temperature gauges, opacity monitors, etc.) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Describe any test ports available for inspectors to conduct measurements of temperature and pressure drop. Describe quality assurance procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.

**SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

**ATTACH MANUFACTURER'S SPECIFICATIONS, SCHEMATICS, AND ALL OTHER DRAWINGS NECESSARY TO DESCRIBE THIS CONTROL DEVICE AND ITS RELATIONSHIP TO ITS EMISSION SOURCE.**

## INSTRUCTIONS FOR FORM C2

### C2 - CONTROL DEVICE (FABRIC FILTER)

A fabric filter removes dust from a gas stream by passing the stream through a porous fabric (e.g., bagfilter, baghouse, HEPA filter). Dust particles form a more or less porous cake on the surface of the fabric. It is this cake that does the majority of the filtration. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Give a brief description of the control device. Include such information as other devices used in conjunction with this device, number of compartments, etc. *Example - This fabric filter is the second of two control devices with the first unit being a cyclone (CD-1). This control system collects sanding dust from the #3 sanding room. It has 2 separate compartments each of which can be operated while the other is shut down for maintenance.*

**POLLUTANT(S) COLLECTED:** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.

**PRESSURE DROP (IN. H<sub>2</sub>O):** Enter the minimum and maximum operating pressure drop across the device in inches H<sub>2</sub>O during normal operation needed to maintain the desired efficiency.

**WARNING ALARM:** Indicate if a warning alarm is installed on the unit to sound an alert in the event the pressure drop is outside the allowable range.

**INLET TEMPERATURE (°F):** Enter the minimum and maximum inlet temperature during normal operation.

**OUTLET TEMPERATURE (°F):** Enter the minimum and maximum outlet temperature during normal operation.

**INLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in cubic feet per minute entering the control device during normal operation.

**AIR TO CLOTH RATIO:** This is the ratio between the airflow rate (ACFM) listed above and the filter surface area listed in the next block (e.g., 10,000 ACFM divided by 1000 square feet of filter area would give an air to cloth ratio of 10:1).

**FILTER SURFACE AREA (FT<sup>2</sup>):** The total square feet of filter surface area. Round off to nearest whole number.

**MAX. FILTER OPERATING TEMP. (°F):** Enter the maximum operating temperature for the filter material.

**FILTER MATERIAL:** What is the filter material composed of? This can be obtained by contacting the supplier of the filters (e.g., fiberglass, Nomex, wool, cotton, nylon, Teflon, etc).

**DESCRIBE CLEANING PROCEDURES:** Most fabric filters have a mechanism to clean the filter media on a regular basis. The most common techniques are mechanical, reverse air, air pulse, and sonic cleaning. There are some types that require the replacement of the filter media rather than cleaning. Other parameters to include would be the frequency of cleaning, on-stream or off-stream cleaning, duration of cleaning, etc. Describe the cleaning procedures.

**TIME BETWEEN CLEANING:** The time between cleaning cycles.

**CLEANING TIME:** The time required for each cleaning cycle.

**DESCRIBE MAINTENANCE PROCEDURES:** Routine maintenance is one of the most important factors in maintaining continual compliance using a fabric filter. This is especially true when abrasive particulate is being collected. Describe all maintenance procedures including the monitoring of pressure drops, temperature, dust removal, opacity, etc. Describe methods used and frequency to detect leaks and holes in filter media.

**DESCRIBE MOISTURE BLINDING, CHEMICAL RESISTIVITY, AND / OR SPECIAL OPERATING CONDITIONS:** Describe any possible factors that would result in moisture blinding of the filter. Address the chemical resistivity of the filter if the pollutant is corrosive. Describe any special or unique operating conditions used for this filter.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., magnahelics, temperature gauges, opacity monitors, etc) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Describe any test ports available for inspectors to conduct measurements of temperature and pressure drop. Describe quality assurance procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.

**SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION**

**SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

## INSTRUCTIONS FOR FORM C3

### C3 - CONTROL DEVICE (ELECTROSTATIC PRECIPITATOR)

An electrostatic precipitator (ESP) removes particulate matter from a gas stream by passing the gas stream through discharge electrodes and collection plates. Most particulates become charged and are collected on the plates. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Describe type of ESP: single stage, two stage, low voltage, high voltage, hot side, cold side, other (describe), negative or positive corona. Also, list any ancillary equipment: level detectors, hopper insulation, hopper heaters, and weather enclosures.

**POLLUTANT(S) COLLECTED:** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.



**PRESSURE DROP (IN. H<sub>2</sub>O):** Enter the minimum and maximum operating pressure drop across the device in inches H<sub>2</sub>O during normal operation needed to maintain the desired efficiency.

**WARNING ALARM:** Indicate if a warning alarm is installed on the unit to sound an alert in the event the pressure drop is outside the allowable range.

**INLET TEMPERATURE (°F):** Enter the minimum and maximum inlet temperature during normal operation.

**OUTLET TEMPERATURE (°F):** Enter the minimum and maximum outlet temperature during normal operation.

**INLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in actual cubic feet per minute during normal operation.

**COLLECTION PLATE AREA (FT<sup>2</sup>):** Enter total ESP collection plate surface area expressed in square feet. See manufacturer's specifications.

**NO. COMPARTMENTS:** List the number of compartments and their arrangement (series or in parallel sections).

**NO. CELLS PER COMPARTMENT:** List the number of cells per compartment.

**PARTICLE MIGRATION VELOCITY (FT/SEC):** Enter the average migration (drift) velocity for the collected particles.

**PARTICLE DENSITY (LB/FT<sup>3</sup>):** Enter the average particle density entering the ESP.

**FIELD STRENGTH (VOLTS):**

**CHARGING:** Enter the strength of the field (in volts) imparting the charge to the particles to be collected.

**COLLECTING:** Enter the strength of the field (in volts) where particles are to be collected.

**CORONA POWER (WATTS/1000 CFM):** List corona power (input) in watts per 1000 CFM (this information should be contained in the manufacturer's specifications).

**ELECTRICAL USAGE (KW/HR):** List electrical usage in kilowatts per hour.

**RESISTIVITY OF POLLUTANT (OHM-CM):** List the resistivity of pollutant to be collected by the unit. Resistivity is the overall resistance to charge dissipation to the ESP collection plate.

**GAS VISCOSITY (POISE):** If the gas stream is other than predominantly air, list the viscosity of the gas stream in poise.

**DESCRIBE CLEANING PROCEDURES:** Check cleaning method(s) that are applicable.

**DESCRIBE ANY MAINTENANCE PROCEDURES:** Describe maintenance procedures performed on ESP.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., primary voltage, secondary current, spark rate meter gauges, emission point temperature, opacity monitor, etc) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Describe any test ports available for inspectors to conduct measurements of temperature and pressure drop. Describe quality assurance

procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.

**SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION**

**SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

ATTACH A DIAGRAM OF THE TOP VIEW OF THE ESP WITH DIMENSIONS (INCLUDE AT A MINIMUM THE PLATE SPACING AND WIRE SPACING AND INDICATE THE ELECTRODE TYPE).

## INSTRUCTIONS FOR FORM C4

### C4 - CONTROL DEVICE (THERMAL OR CATALYTIC)

A control device that operates by thermal (non-catalytic) and catalytic incineration can oxidize any hydrocarbons and / or toxic pollutants into carbon dioxide and water. High temperature and residence time must be sufficient to obtain the desired oxidation results. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Provide a brief description of control system (e.g., Thermal incinerator which controls VOC emissions from can painting line).

**POLLUTANT(S) COLLECTED -** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.

**IF CATALYST USED:**

**TYPE:** Enter the type of catalyst material (e.g., palladium on ceramic honeycomb design).

**CATALYST VOLUME (FT<sup>3</sup>):** Enter the volume of the catalyst material used in this operating scenario in cubic feet.

**VELOCITY THROUGH CATALYST (FT/SEC):** Input the velocity of the pollutant laden air stream through the catalyst.

**AIRFLOW THROUGH CATALYST (SCFM):** Enter the Standard Cubic Feet per Minute of airflow through the above mentioned catalyst volume in this operating scenario.

**PRESSURE DROP (IN. H<sub>2</sub>O):** Enter the minimum and maximum operating pressure drop across the device in inches H<sub>2</sub>O during normal operation needed to maintain the desired efficiency. A gauge indicating operating pressure must be installed and operational on this equipment at all times.

**INLET TEMPERATURE (°F):** Enter the minimum and maximum inlet temperature during normal operation.

**OUTLET TEMPERATURE (°F):** Enter the minimum and maximum outlet temperature during normal operation.

**INLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in actual cubic feet per minute during normal operation.

**RESIDENCE TIME (SECONDS):** Enter the amount of time the gas stream remains in the combustion chamber. This can be calculated by dividing the volume of the combustion chamber (cubic feet) by the actual airflow rate (cubic feet/minute) at the incinerator temperature and then multiplying this result by 60.

**COMBUSTION CHAMBER VOLUME (FT<sup>3</sup>):** Enter the volume of the combustion chamber.

**COMBUSTION TEMPERATURE (°F):** Enter the minimum temperature in the combustion chamber during normal operation.

**% EXCESS AIR:** The amount of air provided in excess of the minimum amount required for complete combustion expressed as a percentage.

**INLET MOISTURE CONTENT (%):** Give the maximum % of moisture in the inlet emission stream.

**FUEL USED:** Enter the type(s) of fuel(s) used in the device.

**TOTAL MAX. FIRING RATE (MILLION BTU/HR):** Enter the total maximum firing rate for all burners based on input.

**MAX. ANNUAL FUEL USE:** Indicate the maximum amount of fuel you propose to burn in one year. If this is less than the maximum capacity of the fuel burners then the unit will be restricted to this amount.

**MAX. HOURLY FUEL USE:** Indicate the maximum amount of fuel you propose to burn in one hour. If this is less than the maximum capacity of the fuel burner then the unit will be restricted to this amount.

**ACTUAL ANNUAL FUEL USE:** Indicate the actual amount of fuel consumed in one year during normal operation.

**ACTUAL HOURLY FUEL USE:** Indicate the actual amount of fuel consumed in one hour during normal operation.

**METHOD USED TO INCREASE MIXING:** Higher destruction efficiencies are achieved by thoroughly mixing the gas stream in the combustion chamber. Describe methods used to enhance mixing (e.g., refractory baffles, baffle plates, swirl-fired burner).

**DESCRIBE STARTUP / SHUTDOWN PROCEDURES:** Describe in detail the steps taken to bring the incinerator from a cold state to maximum operation and then through shut down.

**DESCRIBE MAINTENANCE PROCEDURES:** Describe maintenance procedures performed on control device.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., temperature, CO monitor, O<sub>2</sub> monitor, opacity monitor, etc.) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Provide any calibration or maintenance activities and frequency. Describe quality assurance procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.

**ON A SEPARATE PAGE, SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

## INSTRUCTIONS FOR FORM C5

### C5 - CONTROL DEVICE (MECHANICAL)

Mechanical collectors, such as settling chambers, cyclones, and multicyclones, utilize gravity and inertia to separate particulates from a gas stream. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Provide a detailed description of the control device. Include all information needed to evaluate the system that is not already included.

**POLLUTANT(S) COLLECTED -** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.

**PRESSURE DROP (IN. H<sub>2</sub>O):** Enter the minimum and maximum operating pressure drop across the device in inches H<sub>2</sub>O during normal operation needed to maintain the desired efficiency. A gauge indicating operating pressure must be installed and operational on this equipment at all times.

**WARNING ALARM:** Indicate if a warning alarm is installed on the unit to sound an alert in the event the pressure drop is outside the allowable range.

**INLET TEMPERATURE (°F):** Enter the minimum and maximum inlet temperature during normal operation.

**OUTLET TEMPERATURE (°F):** Enter the minimum and maximum outlet temperature during normal operation.

**INLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in actual cubic feet per minute during normal operation.

**PARTICLE DENSITY (LB/FT<sup>3</sup>):** Enter the average particle density entering the control device in pounds per cubic feet.

**SETTLING CHAMBER:** There are two types of gravity settling chambers. The SIMPLE EXPANSION CHAMBER which is basically a long, horizontal box with inlet, outlet, and collection hoppers. The gas stream enters the expansion section of the device and its velocity is reduced, thereby allowing particulate matter in the gas stream to be collected by gravity. The MULTIPLE TRAY SETTLING CHAMBER (Howard settling chamber) operates on the same principle as the simple expansion chamber, but there are several horizontal collection plates in order to shorten the settling path of the particle, thus enhancing collection efficiency. The BAFFLE CHAMBER is a variation of the settling chamber. These units have baffles within the chamber in order to impart a downward motion to the particles in the gas stream, thus collection is accomplished by inertia as well as gravity.

**DIMENSIONS (TO NEAREST INCH):**

**LENGTH:** Length of the chamber in inches.

**WIDTH:** Width of the chamber in inches.

**HEIGHT:** Greatest distance a particle must fall to be collected. In multiple tray devices this is the distance between trays.

**VELOCITY (FT/SEC):** Specify the velocity at which the particulate laden gas travels through the chamber.

**NO. OF TRAYS:** If the device is of multiple tray design, specify the number of horizontal trays.

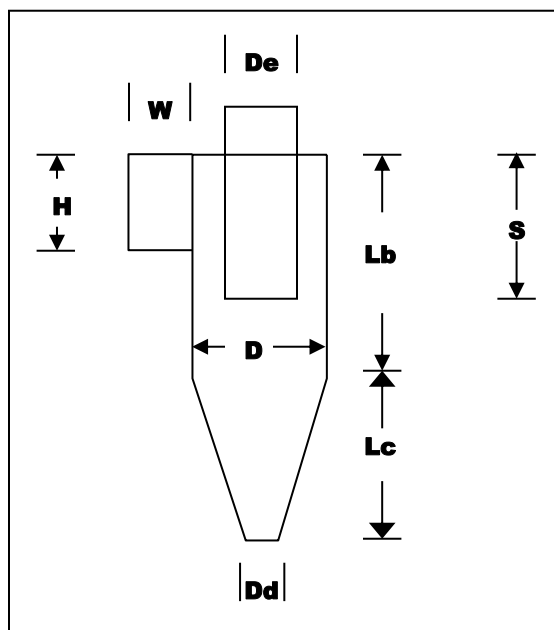
**NO. OF BAFFLES:** If the device is a baffle chamber, specify the number of baffles.

**CYCLONE:** An inertial separator in which the particulate laden gas stream is forced to spin in a vortex. As the gas changes direction, the inertia of the particles causes them to be separated from the gas stream and collected.

**INLET VELOCITY (FT/SEC):** What is the velocity of air stream entering the cyclone.

**CIRCULAR or SQUARE:** Indicate whether the inlet dimension "H" below is for a circular or square inlet.

**DIMENSIONS:** Provide the dimensions of the cyclone. Refer to the diagram below for a description of variables for a typical top inlet cyclone. For other types of cyclones (such as bottom inlet, axial inlet or straight-through designs) provide a diagram labeling the dimensions of the analogous parts.



**IF WET SPRAY UTILIZED:** If wet spray is used inside the cyclone to enhance collection efficiency complete this section.

**LIQUID USED:** Specify liquid that is sprayed.

**FLOW RATE:** Rate of liquid application in gallons per minute.

**MAKE UP RATE:** Rate of replacement for liquid lost to evaporation, absorption and disposal, in gallons per minute.

**MULTICYCLONE:** When high efficiency and large throughput are necessary, multiple cyclones may be operated in parallel. In a multiple cyclone separator, the housing typically contains a large number of axial inlet cyclone tubes.

**NO. OF TUBES:** Number of tubes in the multicyclone.

**TUBE DIAMETERS:** Diameter of tubes in inches.

**IS A HOPPER ASPIRATION SYSTEM UTILIZED:** Yes or No. Hopper aspiration is when a small portion of the total gas flow is drawn off through the collection hopper, which can increase collection efficiency by reducing particulate re-entrainment into the cyclone tubes.

**LOUVERS:** Yes or No.

**DESCRIBE MAINTENANCE PROCEDURES:** Provide a detailed explanation of the maintenance procedures used to ensure the unit is operating at maximum efficiency.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., magnahelics, temperature gauges, opacity monitors, etc.) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Describe any test ports available for inspectors to conduct measurements of temperature and pressure drop. Describe quality assurance procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.



**SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION**

**SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

## INSTRUCTIONS FOR FORM C6

### C6 - CONTROL DEVICE (ADSORBER)

Adsorption is a control where gaseous pollutants are extracted from gas phase and concentrated at the surface of a solid. Carbon is commonly used to adsorb volatile organic compounds from an air stream. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Give a detailed description of the adsorber system used. Indicate whether the system is a recirculating system, a nonregenerative system, or a regenerative system, whether the system has a fixed, moving, or fluidized bed, whether it involves multiple beds, and any other relevant information. Include the gas pretreatment methods such as particulate removal, heat exchange, dehumidification, etc. List the methods for bed regeneration such as thermal, chemical, pressure swing, displacement cycle, etc. Attach a blueprint or diagram of the system along with the manufacturer's literature.

**POLLUTANT(S) COLLECTED -** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.

**PRESSURE DROP (IN. H<sub>2</sub>O):** Enter the minimum and maximum operating pressure drop across the device in inches H<sub>2</sub>O during normal operation needed to maintain the desired efficiency. A gauge indicating operating pressure must be installed and operational on this equipment at all times.

**WARNING ALARM:** Indicate if a warning alarm is installed on the unit to sound an alert in the event the pressure drop is outside the allowable range.

**INLET TEMPERATURE (°F):** Enter the minimum and maximum inlet temperature during normal operation.

**OUTLET TEMPERATURE (°F):** Enter the minimum and maximum outlet temperature during normal operation.

**INLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in actual cubic feet per minute during normal operation.

**SIZE OF COMPARTMENTS (FT):** Specify the dimensions of the adsorber bed, either length, width, and height, or bed depth and radius in feet. The bed depth is the dimension parallel to the gas flow.

**METHOD OF ADSORPTION:** Indicate which method of adsorption this control device uses.

**TYPE OF ADSORPTION MATERIAL:** Provide the chemical composition of the bed material (e.g., powdered coal base activated carbon, granular wood base activated carbon, hydrous silicate, modified zeolite, clays, oxides, nutshell base activated carbon). Include manufacturer's literature if available.

**NUMBER OF COMPARTMENTS:** This is the number of compartments or beds into which the adsorber unit is divided. The gas flow can be cut off individually from these beds. Include all the beds that are in use.

**REGENERATIVE METHOD:** Indicate which method of regenerating the adsorption material is used by this control device.

**REGENERATIVE SCHEDULE:** Enter the maximum amount of time necessary to completely clean (desorption) the collecting material and the maximum amount of time necessary to saturate the material. If more than one pollutant is being collected, choose the maximum value for the above from the pollutants collected.

**HOW ARE EMISSIONS CONTROLLED DURING REGENERATION:** Emission control during the cleaning process can be accomplished by several methods. Briefly discuss how emissions are controlled while the adsorption material is regenerated.

**VOLATILE CONCENTRATIONS (PPMV):**

**ENTERING UNIT:** Specify the total VOC concentration of the gas stream entering the adsorber unit in the volume of VOC per million volumes of gas stream.

**LEAVING UNIT:** Specify the total VOC concentration of the gas stream leaving the adsorber unit.

**RELATIVE HUMIDITY OF AIR STREAM ENTERING UNIT:** Specify the relative humidity of the gas stream that enters the adsorber unit.

**ORIENTATION OF BEDS:** Specify whether the gas flow through the adsorption beds is in the vertical or horizontal direction.

**BREAKTHROUGH CAPACITY (LB. VAPOR/LB. ADSORBENT):** Provide the breakthrough capacity in pounds of vapor per pound of adsorbent. This is the capacity of the bed at which unreacted vapors begin to be exhausted.

**BREAKTHROUGH ALARM:** Indicate if a warning alarm is installed on the unit to sound an alert in the event the breakthrough capacity is exceeded.

**CYCLE TIME:** Specify the service time of the adsorber before breakthrough (include units).

**DESCRIBE MAINTENANCE PROCEDURES:** Provide a detailed explanation of the maintenance procedures used to ensure the unit is operating at maximum efficiency.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., inlet / outlet vapor concentrations, temperature, etc.) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Provide any calibration or maintenance activities and frequency. Describe quality assurance procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.

**ON A SEPARATE PAGE, SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

## INSTRUCTIONS FOR FORM C7

### C7 - CONTROL DEVICE (GASEOUS ABSORBER)

A gas absorber is a control device where one or more gaseous pollutants are removed by absorption with a liquid that it is brought in contact. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Give a detailed description of the gas absorber system used. Include information on specific nozzle type for spray towers, throat type and throat velocity for venturi scrubbers, or packing materials and packing length for packed-bed type absorbers. Also include the liquid distribution system, the mist elimination system, and any other relevant information. Attach a blueprint or diagram of the system along with the manufacturer's literature.

**POLLUTANT(S) COLLECTED -** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.

**PRESSURE DROP (IN. H<sub>2</sub>O):** Enter the minimum and maximum operating pressure drop across the device in inches H<sub>2</sub>O during normal operation needed to maintain the desired efficiency. A gauge indicating operating pressure must be installed and operational on this equipment at all times.

**WARNING ALARM:** Indicate if a warning alarm is installed on the unit to sound an alert in the event the pressure drop is outside the allowable range.

**INLET TEMPERATURE (°F):** Enter the minimum and maximum inlet temperature during normal operation.

**OUTLET TEMPERATURE (°F):** Enter the minimum and maximum outlet temperature during normal operation.

**INLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in actual cubic feet per minute during normal operation.

**TOTAL GAS PRESSURE (PSIG):** Specify the total inlet gas pressure in pounds per square inch (gauge).

**GAS DEW POINT (°F):** Enter the temperature at which the gas stream first changes into liquid phase.

**GAS VELOCITY (FT/SEC):** Enter the maximum gas velocity through the net column cross-sectional area.

**TYPE OF SYSTEM:** Specify type of gas absorbing system used (e.g., spray tower, cyclone spray chamber, packed columns, plate columns, venturi scrubber, sparging tank).

**PACKED COLUMN:** Complete this only if the absorbing system is classified as a packed column system. This absorbing process is a continuous operation where the gas and liquid phases flow through the system in a continuous manner with intimate contact throughout.

**TYPE OF PACKING:** Specify packing used in your packed tower (e.g., partition tricklers, pall rings, berl saddles, tellerettes).

**COLUMN LENGTH (FT):** Enter the length of the packed column.

**COLUMN DIAMETER (FT):** Enter the column diameter.

**PLATE COLUMN:** Complete this only if the absorbing system is classified as a plate column system. This absorbing process is a staged operation on plates or trays where the liquid and gas are contacted in stepwise fashion in the vertical cylinders.

**PLATE SPACING (INCHES):** Enter the distance between the plates in the absorbing tower.

**COLUMN LENGTH (FT):** Enter the length of the packed column.

**COLUMN DIAMETER (FT):** Enter the column diameter.

**ADDITIVE LIQUID SCRUBBING MEDIUM:** Specify what kind of liquid is used. Include the name of the additives (e.g., propanol, detergents, etc).

**PERCENT RECIRCULATED:** If the absorber is operated with recirculating slurries, specify the percentage of the liquid returned to the system.

**TOTAL LIQUID INJECTION RATE (GAL/MIN):** Enter the total volumetric flow rate of the liquid.

**MAKE UP RATE (GAL/MIN):** Specify the amount of new liquid that must be added to the system due to evaporation or discharge to a disposal system.

**FOR ADDITIVE (GAL/MIN):** Specify the amount of new additive(s) that must be added to the system due to evaporation or discharge to a disposal system.

**DESCRIBE MAINTENANCE PROCEDURES:** Provide a detailed explanation of the maintenance procedures used to ensure the unit is operating at maximum efficiency.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., magnahelics, temperature gauges, opacity monitors, etc) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Provide any calibration or maintenance activities and frequency. Describe quality assurance procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.

**SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

## INSTRUCTIONS FOR FORM C8

### C8 - CONTROL DEVICE (WET SCRUBBER)

Wet scrubbers are commonly used to separate particulates (sometimes gases) from an air stream. Scrubber liquids are introduced for particle collection. The system performance depends on the particle size of pollutant being collected. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Give a detailed description of the wet scrubber system used. Include information on specific nozzle type for spray towers, throat type and throat velocity for venturi scrubbers, or packing materials and packing length for packed-bed type scrubbers. Also include the liquid distribution system, the mist elimination system, and any other relevant information. Include manufacturer's literature.

**POLLUTANT(S) COLLECTED -** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.



**PRESSURE DROP (IN. H<sub>2</sub>O):** Enter the minimum and maximum operating pressure drop across the device in inches H<sub>2</sub>O during normal operation needed to maintain the desired efficiency. A gauge indicating operating pressure must be installed and operational on this equipment at all times.

**WARNING ALARM:** Indicate if a warning alarm is installed on the unit to sound an alert in the event the pressure drop is outside the allowable range.

**INLET TEMPERATURE (°F):** Enter the minimum and maximum inlet temperature during normal operation.

**OUTLET TEMPERATURE (°F):** Enter the minimum and maximum outlet temperature during normal operation.

**INLET AIRFLOW RATE (ACFM):** Enter the actual airflow rate in actual cubic feet per minute during normal operation.

**MOISTURE CONTENT (%):** Enter the percent moisture by weight of the control device's inlet and outlet air stream.

**THROAT VELOCITY (FT/SEC):** Enter the velocity of the air stream at the throat (or inlet) to the scrubber.

**THROAT TYPE:** Is the inlet to the scrubber a fixed or variable configuration?

**EMISSION STREAM MEAN PARTICLE DIAMETER (MICRONS):** Enter the average micron size of particles leaving the control device.

**TYPE OF SYSTEM:** Specify type of particulate scrubber system used (e.g., spray tower, cyclone spray tower, packed bed scrubber, tray-type scrubber, mechanically aided scrubber, venturi scrubber, orifice scrubber).

**TYPE OF PACKING USED IF ANY:** Specify packing used in your packed tower (e.g., partition tricklers, pall rings, berl saddles, tellerettes).

**ADDITIVE LIQUID SCRUBBING MEDIUM:** Specify what kind of liquid is used. Include the name of the additives (e.g., propanol, detergents, etc).

**PERCENT RECIRCULATED:** If the scrubber is operated with recirculating slurries, specify the percentage of the liquid returned to the system.

**TOTAL LIQUID INJECTION RATE (GAL/MIN):** Specify the total minimum and maximum volumetric flow rate of the liquid.

**FLOW RATE GAUGE INSTALLED:** Indicate if the control device has a gauge to indicate injection flow rate.

**MAKE UP RATE (GAL/MIN):** Specify the amount of new liquid that must be added to the system due to evaporation or discharge to a disposal system.

**FOR ADDITIVE (GAL/MIN):** Specify the amount of new additive(s) that must be added to the system due to evaporation or discharge to a disposal system.

**DESCRIBE MAINTENANCE PROCEDURES:** Provide a detailed explanation of the maintenance procedures used to ensure the unit is operating at maximum efficiency.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., magnahelics, temperature gauges, opacity monitors, etc) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Provide any calibration or maintenance activities and frequency. Describe quality assurance procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.

**SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION**

**SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

## INSTRUCTIONS FOR FORM C9

### C9 - CONTROL DEVICE (CONDENSER)

Condensers are generally used to remove volatile organic compounds (VOCs) by cooling the pollutant to below its saturation temperature and thereby effecting a phase change from VOC gas to VOC liquid. Separating the liquid from the gas removes a fraction of the VOC from the emission stream. The amount of VOC that remains in the gas stream as a vapor is a function of the temperature and the vapor-liquid equilibrium of the VOC. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**CONTROL DEVICE ID NO.:** Assign a unique control device ID number for this control device. This ID number must correspond to the ID number used for this control device on all other forms and all other references.

**CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S):** List all emission source ID numbers whose emissions are controlled by this device.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**POSITION IN SERIES OF CONTROLS:** If there are several devices operating in a series indicate in what position this device is located. If the exhaust air stream goes through this unit and then through a second unit, this would be number 1 of 2 units.

**MANUFACTURER:** Enter the manufacturer of the device.

**MODEL NO.:** Enter the model number of the device.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**DESCRIBE CONTROL SYSTEM:** Give a brief description of the control device. Include such information as other devices used in conjunction with this device, number of compartments, etc.

**POLLUTANT(S) COLLECTED -** Enter the pollutants being collected.

**CORRESPONDING EFFICIENCY (%):** Enter the collection efficiency of the control device for each pollutant collected.

**EFFICIENCY DETERMINATION CODE:** Enter the code to represent how efficiency was determined:

- 1 = Calculated (Attach all calculations to Form D6).
- 2 = Manufacturers specification (Enclose documentation).
- 3 = Source test (Attach documentation or reference test already submitted to WNCRAQA).
- 4 = Other (describe).

**BEFORE CONTROL EMISSION RATE (LB/HR):** Estimate the emissions entering the control device for each pollutant listed.

**AFTER CONTROL EMISSION RATE (LB/HR):** Estimate the emissions leaving the control device for each pollutant listed.

**EMISSION STREAM FLOW RATE (ACFM):** Enter the flow rate in cubic feet per minute of the emission stream exiting the condenser.

**INLET EMISSION STREAM TEMPERATURE (°F):** Enter the temperature in degrees Fahrenheit of the emission stream exiting the condenser.

**MOISTURE CONTENT OF EMISSION STREAM (%):** Enter the percent moisture of the emission stream exiting the condenser.

**TEMPERATURE OF CONDENSATION (°F):** Enter the temperature in degrees Fahrenheit of the condensed pollutant VOC.

**COOLANT USED:** Enter the type of coolant used to lower the pollutant emission stream to its saturation point.

**TEMPERATURE OF INLET COOLANT (°F):** Enter the temperature in degrees Fahrenheit of the coolant entering the condenser.

**COOLANT FLOW RATE (LB/HR):** Enter the flow rate in pounds per hour of the coolant.

**REFRIGERATION CAPACITY (TONS):** Enter the capacity of the condenser in standard ton rating.

**CONDENSER SURFACE AREA (FT<sup>2</sup>):** Enter the total surface area in square feet available for condensation of the pollutant.

**SPECIFIC HEAT OF POLLUTANT COLLECTED (BTU/LB/°F):** Enter the specific heat of the pollutant.

**HEAT OF VAPORIZATION OF COLLECTED POLLUTANT (BTU/LB-MOL):** Enter the heat of vaporization of the pollutant.

**DESCRIBE MAINTENANCE PROCEDURES:** Describe all maintenance procedures including methods used and frequency to detect leaks and holes.

**DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC.:** List any devices and / or gauges installed on the system (e.g., magnahelics, temperature gauges, opacity monitors, etc) that are used for demonstrating proper operation of control equipment or compliance with air quality standards. Describe any test ports available for inspectors to conduct measurements of temperature and pressure drop. Describe quality assurance procedures to assure all gauges are operating properly. Gauges, test ports, etc. not used for air quality purposes are not required to be described.

**SHOW BY DIAGRAM THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):** Provide a diagram of the control device and all accompanying emission sources (with ID numbers). Where possible, indicate flow rates, common manifolds, and other such information as may be necessary to understand the process.

# INSTRUCTIONS FOR FORM D1

## D1 - PRODUCT ANALYSIS WORKSHEET (VOC EMISSIONS)

Form D1 must be completed for each product use as requested in other parts of the permit application package. The product must be evaluated **AS APPLIED**. For example, a product is used as delivered from the supplier, is sometimes reduced with toluene before use, and is sometimes mixed with a catalyst before use. For this example, the products as applied would be considered three separate products and a D1 must be completed for each. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

Most of the information requested on Form D1 may be found in the product Material Safety Data Sheet (MSDS) that is available from the manufacturer or supplier. Keep in mind that the MSDS rarely includes a breakdown of all constituents therefore the MSDS cannot be substituted for form D1.

When constituents such as thinners or catalysts are added to the product the resulting mixture may have physical characteristics that differ from those listed on the MSDS.

**PRODUCT NAME, PRODUCT NO., MANUFACTURER, and SUPPLIER:** Identify the product used by trade name, number and manufacturer. If the product is not purchased directly from the manufacturer, identify the supplier.

**COATING ID NO.:** Assign a unique number to each product analysis. It must begin with a V followed by a unique number.

**LIST EMISSION SOURCE ID NO(S). WHERE PRODUCT IS USED:** Identify by emission source ID the emission sources where the product is used.

**DESCRIBE PRODUCT USE:** Describe briefly how the product is used (e.g., surface coating of metal furniture; blanket wash in offset lithographic printing process). If the product is used as an additive for other products, identify those products and the emission source IDs in which the products are used (e.g., reducer for Flat Black Enamel (V12) and PGP Green Enamel (V14), both used in emission sources ES-3, ES-4, and ES-5).

**PRODUCT DENSITY:** Weight (in pounds) of one gallon of product.

**VOLATILE DENSITY IN PRODUCT:** List density (in pounds per gallon and percent by weight) of volatile portion of product. Exclude water and exempt VOCs as listed in WNCRAQA Code 4.0901(28).

**SOLIDS DENSITY IN PRODUCT:** List density (in pounds per gallon and percent by weight) of solids portion of product.

**PRODUCT BREAKDOWN OF CONSTITUENTS:** This is always as applied.

**VOLATILE CONSTITUENTS:** This is a breakdown of all volatile organic compounds in the product AS APPLIED. Any VOCs (thinners, catalysts, etc.) added to the product before or during use must be included.

**CAS NO.:** List the Chemical Abstract Service Number for each constituent. If listing an additive with more than one constituent by trade name, enter "N/A" if there is no CAS NO.

**% BY WEIGHT IN PRODUCT:** Percent by weight of each volatile constituent in the product.

**FEDERAL HAP / NC TAP:** Indicate if the VOC is a federally regulated hazardous air pollutant (HAP) and / or state regulated toxic air pollutant (TAP).

**SOLIDS CONSTITUENTS:** This is a breakdown of all solids in the product AS APPLIED.

**CAS NO.:** List the Chemical Abstract Service Number for each constituent. If listing an additive with more than one constituent by trade name, enter "N/A" if there is no CAS NO.

**% BY WEIGHT IN PRODUCT:** Percent by weight of each solids constituent in the product.

**FEDERAL HAP / NC TAP:** Indicate if the solid is a federally regulated hazardous air pollutant (HAP) and / or state regulated toxic air pollutant (TAP).

**COMMENTS:** Provide any comments regarding the use of the product, such as at what operating conditions this particular formulation of the product is used.

# GENERAL INSTRUCTIONS FOR D2 FORMS

## WNCRAQA AIR TOXICS APPLICATION FORMS

These application forms are used for any of the following situations that include the emissions of one or more Toxic Air Pollutant(s) (TAP) listed in Section 17.0700 of the WNCRAQA Code:

1. New facilities according to WNCRAQA Code 17.0704,
2. Existing facilities according to WNCRAQA Code 17.0705,
3. Modifications according to WNCRAQA Code 17.0706.

New facilities and existing facilities summoned by the Director under a SIC call must complete a facility-wide evaluation for all TAPs that are or will be emitted from the existing or proposed facility, respectively. A D2-1 form must be filled out for each emission source. The total emissions of TAPs calculated must be summarized on form D2-2. Go to the instructions for the D2-1 and D2-2 forms below.

Existing facilities applying to modify an emission source must determine if the physical or operational changes being made will cause a net increase in emissions of any TAP or result in the emission of any TAP not previously emitted at this facility. If this happens, the applicant should use the potential emissions of the modified emission source, and any resultant increases from other emission sources, in a facility-wide evaluation for each TAP increased by the modification unless the applicant: requests permit limits (e.g. restricting the operation of the modified source so that actual emissions do not increase); offsets the emissions at the time of the modification; or completes a five-year netting exercise. Actual emissions prior to the modification are determined by reviewing the previous two years of operating data to determine the most representative emission rate from each emission source. Offsetting and netting are explained below.

In many cases, performing a facility-wide review of each TAP to determine if its emission rate falls below the de-minimis levels found in Section 17.0700 of the WNCRAQA Code may be the easiest and most economic manner to complete this application process. If the facility-wide emissions of a TAP fall below these de-minimis rates then no further analysis would be required for that TAP. However, if it is demonstrated that the facility-wide emissions of a TAP are greater than the de-minimis value(s), then an ambient air quality modeling analysis must be performed to determine if the ambient levels for that TAP are at or below the acceptable ambient levels found in Section 4.1100 of the WNCRAQA Code.

The applicant may do three things to avoid a facility-wide evaluation for any TAP initially showing an increase in emissions:

1. Offset the increase in emissions from the new / modified source by a physical / chemical modification to another emission source such that the net change from the immediate modification is less than or equal to zero. The offset must demonstrate actual emission decreases (not "permit only" decreases) that will occur after the date of submittal of this application.
2. Request permit conditions to either limit the emissions from the new source or reduce actual emissions from an existing source to pre-modification levels. This is similar to offsetting only you are using permit restrictions rather than actual physical or chemical changes to an emission source. In this case, recordkeeping and / or reporting requirements will be required.
3. Perform a facility-wide netting demonstration to show no net increase in each TAP over the previous five (5) years. Every emission source at the facility that has been modified within this time period must be evaluated for both increases and decreases. When compared to the increase in emissions of the TAP in the immediate modification, it must show a net change of zero (0) or less.

# INSTRUCTIONS FOR FORM D2-1

## D2-1 - TOXIC AIR POLLUTANT EMISSIONS SUMMARY

Use one form for each emission source. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**EMISSION SOURCE ID NO.:** Enter the unique emission source ID emitting the pollutants to be listed on this form. Each identification number must correspond to all references on other application forms.

**DESCRIBE EMISSION SOURCE:** Briefly describe this emission source as it relates to the emissions of TAPs. If any of the following are represented, the description shall be so indicated: boiler, internal combustion engine, kiln, flare, incinerator, oven, furnace, dryer, or heater. Include the model and rated capacity of any boiler or other combustion device in the description.

**PRIMARY AND SECONDARY CONTROL DEVICE:** Describe all control devices associated with this source.

**CONTROL ID NO(S).:** List the Identification numbers of all control devices associated with this source. Each device ID must correspond to all other references on other forms to this source.

**TOXIC AIR POLLUTANT (TAP):** List each TAP emitted from this source.

**CAS NO.:** For each pollutant, identify its CAS number as specified in WNCRAQA Code 17.0711.

**REQUESTED MAXIMUM EMISSIONS:** The requested maximum emission rates must have the same units as those in WNCRAQA Code 17.0711. For example, the emission standard for ammonia is a pounds per hour rate. Therefore, the requested emission rate for ammonia must be in lb/day.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**EMISSION FACTOR TYPE:** Enter one of the following numbers corresponding to the type of emission factor used in the calculations (Form D-6 must be used to show calculations):

- 1 = Emissions calculated based on source test or other emissions measurements.
- 2 = Emissions calculated based on material balance using engineering knowledge of the process.
- 3 = Emissions calculated based on AP-42 or EPA 450/2-90-011 or other EPA emission factor.
- 4 = Emissions calculated by engineering judgment. This factor must be approved by WNCRAQA prior to use.
- 5 = Emissions calculated based on a state or local agency emission factor.

**MODELING PARAMETERS:** This section should be completed **ONLY** if air dispersion modeling is required for one or more of the toxic air pollutants emitted from this source.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

**EXHAUST TEMPERATURE (°F):** Indicate the exit temperature of the exhaust gas in degrees Fahrenheit.



**EMISSION POINT DIAMETER (FT):** List the stack internal diameter in feet.

**EMISSION POINT HEIGHT (FT):** List the stack height in feet.

**EXIT VELOCITY (FT/SEC):** List the stack gas exit velocity in feet per second.

**RAIN CAP:** Indicate whether or not the stack is fitted with a rain cap.

**INDICATE THE PERMIT LIMITS YOU ARE REQUESTING AND THE MANNER THAT YOU WILL BE RECORDING, VERIFYING, AND / OR REPORTING THE CONDITIONS:** If you already have or are requesting enforceable permit limits for this emission source (e.g. hours of operation, material input rates, emission rates, etc.), identify these limits in this space. The requested emission rates must have the same units as those in WNCRAQA Code 17.0711. For example, the unit for the de-minimis emission rate for ammonia is in pounds per day (lb/day). Therefore, the requested emission rate for ammonia must be in lb/day and must be verifiable. Enter the recordkeeping procedures and / or reporting conditions that you are proposing to verify these limits.

## INSTRUCTIONS FOR FORM D2-2

### D2-2 - TOXIC AIR POLLUTANT NETTING WORKSHEET & FACILITY-WIDE EMISSIONS SUMMARY

This form is used as a netting analysis worksheet and as a facility-wide emissions summary for each toxic air pollutant (TAP). Therefore, one form D2-2 should be completed for each TAP. Items (1) through (6) need only be completed if the applicant is attempting to avoid a toxics evaluation by demonstrating that the proposed modification will not result in a net increase in toxic air pollutant emissions. Items (7), (8), and (9) must be completed if a toxics evaluation is required. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**TOXIC AIR POLLUTANT:** List the TAP that will be addressed by this form.

**CAS NO.:** For each pollutant, identify its CAS number as specified in WNCRAQA Code 17.0711.

**EMISSION SOURCE ID NO(S):** List the ID numbers of the sources that emit this TAP.

**(1) MODIFICATION INCREASES:** Calculate the total TAP increases from all the proposed modifications (Form D-6 must be used to show calculations).

**(2) MODIFICATION DECREASES:** Calculate the total TAP decreases from the proposed modification (Form D-6 must be used to show calculations).

**(3) NET CHANGE FROM MODIFICATION:** Subtract (2) from (1) to determine the net change in TAP emissions as a result of the proposed modifications.

If this number is zero (0) or negative (-), there is no net increase in TAP emissions from the proposed modification and no further toxics evaluation is required (i.e., items (4) through (9) should not be completed for this TAP).

If this number is positive (+), there is a net increase in emissions of this TAP and further review is necessary. Items (4) through (6) should be completed if the applicant is attempting to avoid a toxics evaluation by demonstrating that the proposed modification will not result in a net overall increase in toxic air pollutant emissions. Otherwise, go directly to items (7), (8), and (9).

**(4) CREDITABLE INCREASES:** Calculate the total creditable TAP increases over the previous five-year period. The increases should be the result of ACTUAL emission increments. Attach a D2-1 form and supporting documentation for each emission source at the facility and for each TAP.

**(5) CREDITABLE DECREASES:** Calculate the total creditable TAP decreases over the previous five-year period. The decreases should be the result of ACTUAL emission reductions. Attach a D2-1 form and supporting documentation for each emission source at the facility and for each TAP.

**(6) NET OVERALL CHANGE:** Subtract (5) from the sum of (3) and (4) to determine the net overall change.

If this number is negative (-), there is no net overall increase in emissions of this TAP and no further toxics evaluation is required (i.e., items (7), (8), and (9) should not be completed for this TAP).

If this number is positive (+), there is a net overall increase in emissions of this TAP and further review is necessary. Items (7), (8), and (9) should be completed to determine whether an air dispersion modeling analysis is required.

**(7) TOTAL FACILITY EMISSIONS:** If a facility-wide evaluation is required for this TAP, a form D2-1 is required to be completed for each emission source of this TAP. The total facility-wide emissions of this TAP are calculated by summing the emissions from each emission source for which a form D2-1 was completed.

**(8) WNCRAQA Code 17.0711 Level:** The emission level for each pollutant is found in WNCRAQA Code 17.0711.

**(9) IS AN AIR DISPERSION MODELING ANALYSIS REQUIRED:** Air dispersion modeling is required if the total facility-wide emission level (7) is greater than the WNCRAQA Code 17.0711 level (8). If this modeling analysis is required, complete stack parameters section of form D2-1 for each emission source that emits this TAP. Review the modeling plan requirements below.

**MODELING PLAN REQUIREMENTS:** Air toxic modeling requirements are contained in WNCRAQA Codes 4.1100 and 17.0709. Applicants submitting an air dispersion modeling analysis must first submit a modeling plan. The plan should be officially approved prior to the submittal of the modeling analysis. Contact WNCRAQA for further modeling guidance. The modeling plan should include the following information:

1. A diagram of the plant site, including locations of all existing and proposed stacks and associated building(s),
2. A list of on-site building dimensions (height, width, and length),
3. A diagram showing property boundaries, including a scale, key, and a North indicator,
4. The location of the site on a United States Geological Survey (USGS) map,
5. Calculation of Good Engineering Practice Stack Height for each stack,
6. Discussion of all aspects of the project not accounted for in a simple flat terrain model. These include cavity calculations, impact on rolling and complex terrain, building wake affects, and urban / rural considerations,
7. Discussion of reasons for model selections,
8. Discussion of meteorological data to be used, and
9. Any other pertinent information.

# INSTRUCTIONS FOR FORM D3-1

## D3-1 - SPECIFIC EMISSION SOURCE (EMISSION INFORMATION)

**NOTE:** Do not include the toxic air pollutant emissions regulated only by Section 4.1100 of the WNCRAQA Code. Such toxic air pollutant emissions should be included in form D2-1. Pollutants regulated or listed as hazardous air pollutants in Section 112(b) of the federal Clean Air Act should be included on this form.

This form is used to list emissions of all the regulated pollutants for each of the emission sources identified in Section B. A separate form D3-1 must be completed for each emission source. Title V facilities must complete a form D3-1 for each activity that is deemed insignificant due to size or production rate as defined in WNCRAQA Code 17.0503(8) and is listed on Form E2. This form and its attachments will be used for calculating actual and potential hourly and annual emissions. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**EMISSION SOURCE DESCRIPTION:** Complete this section for each emission source described on Form B and for the sources or groups of sources listed on Form E2.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**IS THIS SOURCE A FUGITIVE SOURCE:** Form D3-1 must also be completed for each fugitive source designated on Form A3, A4, or E3.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**POLLUTANT:** In addition to the criteria pollutants, enter every regulated air pollutant being emitted from this emission source (one pollutant per line).

**EMISSION FACTOR TYPE:** Enter one of the following numbers corresponding to the type of emission factor used in the calculations:

- 1 = Emissions calculated based on source test or other emissions measurements.
- 2 = Emissions calculated based on material balance using engineering knowledge of the process.
- 3 = Emissions calculated based on AP-42 or EPA 450/2-90-011 or other EPA emission factor.
- 4 = Emissions calculated by engineering judgment. This factor must be approved by WNCRAQA prior to use.
- 5 = Emissions calculated based on a state or local agency emission factor.

**LBS/HR POTENTIAL:** Calculate the potential emissions of each pollutant from this emission source based on the emission factor used for each pollutant.

*EXAMPLE: The AP-42 emission factor for emissions of SO<sub>2</sub> from distillate oil is 142S lbs/10<sup>3</sup> gal. of oil burned (where S = % sulfur in the fuel). Assume that the oil has a 0.5% sulfur content, a 33 million Btu/hour boiler is the emissions source, one (1) gallon of distillate oil has a heating value of 145,000 Btu, and WNCRAQA Code 4.0516 is the applicable regulation with a standard of 2.3 lb/million Btu.*

*The actual operating hours for this plant are 12 hours/day, 5 days/week, and 50 weeks/year. There are no hourly or annual fuel restrictions and there are no operating hour limits. When calculating the potential emissions, it is assumed that the boiler will be operated 24 hours per day for 365 days per year at the maximum heat input. The estimated potential SO<sub>2</sub> emissions are:*

$$(33 \text{ MMBtu/hour}) \times (1 \text{ gal}/0.145 \text{ MMBtu}) \times ([142\{0.5\} \text{ lbs}] / 1,000 \text{ gal}) = 16.16 \text{ lbs/hour.}$$

**LBS/HR ACTUAL:** Calculate the actual emissions of each pollutant from this emission source based on the emission factor used for each pollutant. If the above boiler is usually operated at 90% of the maximum heat input, the actual emissions would be 14.54 lbs/hr.

**LBS/YR POTENTIAL:** Calculate the potential emissions of each pollutant from this emission source based on the emission factor used for each pollutant.

*Using the above example and assuming the boiler normally operates at full capacity:*

$$(16.16 \text{ lbs/hour}) \times (8,760 \text{ hours/year}) = 141,562 \text{ lbs/year.}$$

**LBS/YR ACTUAL:** Calculate the actual emissions of each pollutant from this emission source based on the emission factor used for each pollutant.

*Using the above example and assuming the boiler normally operates at 75% capacity:*

$$(16.16 \text{ lbs/hour}) \times (0.75) \times (12 \text{ hours/day}) \times (5 \text{ days/week}) \times (50 \text{ weeks/year}) = 36,360 \text{ lbs/year.}$$

*Or, if there is a federally enforceable permitted fuel restriction of 1.4 million gallons of distillate No. 2 oil per year, then the potential emissions would be:*

$$(1,400,000 \text{ gallons/year}) \times (145,000 \text{ Btu/gallon}) \times (16.16 \text{ lbs/hour}) \times (1 \text{ hour}/33 \text{ MMBtu}) = 99,408 \text{ lbs/year.}$$

**COMMENTS:** Use additional pages if needed.

## INSTRUCTIONS FOR FORM D3-2

### D3-2 - SPECIFIC EMISSION SOURCE (REGULATORY ANALYSIS)

This form is to be used by non-Title V and Title V facilities to list all regulated pollutants, emission and operating limits, and applicable regulations for each pollutant for each emission source. **All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**EMISSION SOURCE DESCRIPTION:** Describe the emission source for which this form applies.

**EMISSION SOURCE ID NO.:** This form must be completed for each emission source listed on Form A3, A4, or E3.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**REGULATED POLLUTANT:** List all regulated pollutants for which this source is to be permitted.

**EMISSION AND OPERATING LIMITS:** Indicate all applicable regulatory emission limitations and operating restrictions, including work practice standards to be permitted for this pollutant (e.g., lbs/million Btu, lbs/hr, raw material input rate, etc.).

**APPLICABLE REGULATION:** List the regulation limiting the emissions and operating limits of this pollutant. All specific information that is necessary to determine applicability and compliance with all applicable State requirements and Federal requirements of the Clean Air Act shall be included. Any proposed exemptions from otherwise applicable requirements should be identified on this form. The applicable regulations to be listed here can generally be found in:

1. WNCRAQA Code Chapters 4 and 17. The majority of the applicable regulations will be found in these Chapters.
2. Section 111 or 112 of the federal Clean Air Act (with the exception of the risk management plan regulation under Section 112(r)).
3. Section 129 of the federal Clean Air Act for solid waste incineration.
4. Sections 183(e), 183(f), or 328 of the federal Clean Air Act.
5. Section 504(b) or 114(a)(3) of the federal Clean Air Act.
6. Part C of Title I of the federal Clean Air Act (national ambient air quality standards, increment standards, or visibility requirements) as applicable to temporary sources permitted pursuant to 504(e) of the federal Clean Air Act.

**COMMENTS:** Use additional pages if needed.

## INSTRUCTIONS FOR FORM D4

### D4 - EMISSION POINT SUMMARY

This form will be used to describe all of the emission points designated on forms A3, A4, and E3. Emission point parameters are needed for air dispersion modeling purposes, for determining operating parameters, and to help in determining the capacity of the equipment when making additional construction requests. Any information related to stack height regulations pursuant to WNCRAQA Code 4.0533 and section 123 of the Clean Air Act must also be submitted.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g., stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number.

**EMISSION POINT HEIGHT (FT):** Enter the height (feet) of this emission point from base (ground level at area below emission point) to the top of the emission point.

**EQUIVALENT DIAMETER (FT):** Enter the inside diameter of the emission point at its exit point. If the emission point is not round enter the equivalent diameter using the following equation:

$$2 \times L \times W / (L+W), \text{ where } L \text{ is the length and } W \text{ is the width.}$$

**TEMP. (°F):** Enter temperature of the emission point gas in Fahrenheit.

**VELOCITY (FT/SEC):** Enter the velocity in feet per second of the emission point gas emitted from the emission point. The following formula may be helpful in completing this section:

$$\text{Velocity (ft/sec)} = \text{flow rate (ACFM)} / [3.14 \times (\text{Equivalent Diameter}/2)^2 \times 60 \text{ sec/min}].$$

**FLOW RATE (ACFM):** Enter flow rate of the emission point gas in actual cubic feet per minute. The following formula may be helpful in completing this section:

$$\text{Flow rate (ACFM)} = \text{Velocity (ft/sec)} \times 3.14 \times (\text{Equivalent Diameter}/2)^2 \times 60 \text{ sec/min}.$$

**EMISSION POINT DIRECTION:** Enter one of the following:

- V = Vertical emission point
- H = Horizontal emission point
- D = Downturned emission point

**RAIN CAP:** Is there a rain cap or other type of obstruction at the emission point opening? Enter yes or no.

**COMMENTS** - Use additional pages if needed.

## INSTRUCTIONS FOR FORM D5

### D5 - FACILITY EMISSIONS SUMMARY / 112(r) APPLICABILITY

This form is used to total the emissions of all regulated air pollutants from all emission sources at this facility in order to evaluate annual emissions for applicability to state and federal regulations. In addition, this form is used to determine 112(r) applicability.

When determining the facility-wide potential emissions for Title V applicability purposes, fugitive emissions are required to be included if: (1) the fugitive emissions consist of criteria pollutants and the facility belongs to one of the 26 stationary source categories listed in 40 CFR 70.2, or (2) the fugitive emissions are from stationary source categories regulated by a standard promulgated under Section 111 (NSPS) or 112 (NESHAP, including Maximum Achievable Control Technology (MACT)) of the federal Clean Air Act, but only with respect to those air pollutants that have been regulated for that category, or (3) the fugitive emissions are HAPs (Hazardous Air Pollutants listed in Section 112(b) of the Clean Air Act).

Emissions from sources exempted from permitting because of category (WNCRAQA Code 17.0102(c)(1)) are not required to be included when determining the facility-wide potential emissions for Title V applicability purposes. However, potential emissions from emission sources exempted from permitting because of size or production rate (WNCRAQA Code 17.0102(c)(2)) must be included when determining the facility-wide potential emissions for Title V applicability purposes.

**All calculations, assumptions, analyses and other information used to support this form must be included on form D6.**

**POLLUTANT:** Bring forward all regulated pollutants from the D3-1 forms and summarize them on this form.

**CAS NO.:** Bring forward the CAS number for each regulated air pollutant. This is the Chemical Abstract Service Registry Number assigned to each constituent by the American Chemical Society.

#### **ANNUAL EMISSIONS IN LBS/YR:**

**ACTUAL:** For each pollutant total all of the calculated actual lbs/year for all of the emission sources entered on Form D3-1 and enter the sum here.

**POTENTIAL:** For each pollutant total all of the calculated potential lbs/year for all of the emission sources entered on Form D3-1 and enter the sum here.



# INSTRUCTIONS FOR FORM E1

## E1 - TITLE V INFORMATION

### **INDICATE IF YOUR FACILITY IS SUBJECT TO TITLE V BY CATEGORY OR BY EMISSION LEVEL:**

A facility may be subject to Title V requirements based on its source category classification or its emissions level as described in WNCRAQA Code 17.0502 and 40 CFR 70.3.

Source category facilities subject to Title V: All NSPS and NESHAP sources, including area sources, any source required to have a permit under parts C or D of Title I of the Act, or any source in a source category designated by the U.S. EPA as requiring a Title V permit. In Buncombe County, NSPS and NESHAP area source facilities are currently deferred from Title V applicability, pending the completion of a study by EPA to determine whether or not this deferral should be permanent. As new NSPS and Section 112(d) standards (MACT/GACT) are promulgated, each rule will state whether the area source category affected by the rule may continue to be deferred, will be permanently deferred or will require a Title V permit.

Emissions level facilities: Facilities with emission levels exceeding the major source definitions in 40 CFR 70.2 are subject to Title V requirements (i.e., all major sources are subject to Title V).

**IF SUBJECT BY CATEGORY, INDICATE THE CATEGORY:** Indicate which categories, as specifically designated by EPA, at your facility trigger the Title V permit requirements. If your facility is an NSPS or NESHAP area source that is currently deferred from Title V permit requirements, do not enter the category.

**IF SUBJECT BY EMISSION LEVEL, COMPLETE THE FOLLOWING:** List the pollutants at your facility which exceed the emission rates established for a major facility as defined in 40 CFR 70.2. Note that, EPA may also establish by rule, "lesser quantity" emission rates for certain hazardous air pollutants that also define a source as major. Also indicate the rate (including units) at which the pollutant is emitted from your facility.

**ARE YOU SUBJECT TO ANY CURRENT MAXIMUM ACHIEVABLE CONTROL TECHNOLOGIES (MACTs) OR FUTURE MACTs:** Indicate all promulgated MACTs or future MACTs for which your facility is subject or will be subject.

**LIST ANY ADDITIONAL REGULATIONS THAT ARE REQUESTED TO BE INCLUDED IN THE PERMIT SHIELD AND PROVIDE AN EXPLANATION FOR THE REQUESTED SHIELD:** All applicable regulations identified in the permit application will be included in the permit shield. List here any additional regulations that are requested to be included in the permit shield and provide an explanation (For more detail, see WNCRAQA Code 17.0512).

## INSTRUCTIONS FOR FORM E2

### E2 - TITLE V INSIGNIFICANT ACTIVITIES SUMMARY

WNCRAQA Code 17.0507(b) states that a Title V application shall identify insignificant activities because of size or production rates as defined in WNCRAQA Code 17.0503(8). However, the insignificant activities because of category as defined in WNCRAQA Code 17.0503(7) are not required to be identified in the application. Additionally, a D3-1 Form must be completed for each of the insignificant activities listed on this form.

#### **INSIGNIFICANT ACTIVITIES PER WNCRAQA CODE 17.0507(b):**

**DESCRIPTION OF EMISSION SOURCE:** Briefly describe the emission source for which exemption is allowed per 17.0507(b) as an insignificant activity (e.g., a 200 gallon organic liquid storage tank, emergency generator, etc.). These activities are defined in WNCRAQA Code 17.0503(8). If there are multiple identical emission sources qualifying for exemption (e.g., five (5) 200 gallon organic liquid storage tanks) indicate the number of these sources in the description.

**UNITS:** Enter the unit capacity that qualifies this emission source as an insignificant activity (e.g., less than 5 tons/yr, etc).

**BASIS FOR EXEMPTION:** Indicate the basis for which this emission source qualifies as an insignificant activity (e.g., emission level, etc). Again, these levels are defined in WNCRAQA Code 17.0503(8).

## INSTRUCTIONS FOR FORM E3

### E3 - EMISSION SOURCE LISTING (INITIAL / RENEWAL TITLE V FACILITY)

This form is to be used by existing Title V facilities for their initial and renewal permit applications. It is not required for subsequent permit modifications.

**EMISSION SOURCE ID NO.:** Enter a unique emission source ID number for each emission source for which application is made. Large groups of similar or co-located fugitive emission sources may be grouped together and be assigned a single ID number (e.g., valves, pumps, compressors, stockpiles = ID No. F195). It is recommended that each emission source ID number start with ES - \_\_\_\_, each fugitive emission source ID number with F - \_\_\_\_, each control device ID number with CD - \_\_\_\_, and each emission point ID number with EP - \_\_\_\_. Groups of identical emission sources can be listed on a single form B if all the emission source ID numbers are also listed on that form B (e.g., ID Nos. ES-1, ES-2, and ES-3).

**EMISSION SOURCE DESCRIPTION:** Describe each emission source for which application is made. For fugitive emissions, enter the appropriate equipment such as valves, pumps, compressors, etc.

**CONTROL DEVICE ID NO.:** Enter a unique ID number for each control device for which application is made. For multiple control devices on the same emission source, list in series according to the exhaust air stream direction (i.e., from the emission source to the final emission point). For multiple emission sources on the same control device, list the control device associated with each emission source and use the same control device ID number for each.

**CONTROL DEVICE DESCRIPTION:** Describe each control device to be permitted at this facility.

**EMISSION POINT ID NO.:** Enter a unique ID number for each emission point (e.g. stack, vent, etc.) associated with each emission source. Emission sources with a common emission point will have the same emission point ID number. For fugitive emissions enter "FUGITIVE".

## INSTRUCTIONS FOR FORM E4

### E4 - COMPLIANCE PLAN (METHOD OF COMPLIANCE)

This form must be completed for each pollutant from each permitted emission source. Therefore, the applicant must indicate the monitoring requirements, test methods, recordkeeping requirements, and reporting requirements for each pollutant listed on form D3-2 from each permitted emission source listed on a form B.

**EMISSION SOURCE ID NO.:** Transfer the emission source ID number from forms B.

**REGULATED POLLUTANT:** Identify a pollutant listed on form D3-2.

**APPLICABLE REGULATION:** Transfer the regulation to which this pollutant is applicable from form D3-2.

**ALTERNATIVE OPERATING SCENARIO (AOS) NO.:** If this is an alternative operating scenario rather than the primary operating scenario, specify the AOS number you assigned to this alternative operating scenario on form A5.

**MONITORING REQUIREMENTS:** As required by 40 CFR 70.5(c)(3)(v), the permit shall contain monitoring requirements to assure compliance with the permit terms and conditions. Where the applicable requirements do not require periodic testing or instrumental monitoring, periodic monitoring sufficient to yield reliable data indicating compliance with the permit condition may be required. Such monitoring requirements should be summarized in the appropriate areas below.

**IS COMPLIANCE ASSURANCE MONITORING (CAM - 40 CFR PART 64) APPLICABLE:** Check yes if CAM is required by 40 CFR Part 64. Check no if not required.

**IF YES, IS CAM PLAN ATTACHED:** If CAM is required, attach a CAM plan to this permit application.

**DESCRIBE MONITORING DEVICE TYPE:** Indicate the type of device that will be used to monitor the emission rate of this pollutant (if applicable).

**DESCRIBE MONITORING LOCATION:** Indicate the location of the monitoring device for this pollutant (e.g. inlet to emission point ID No. EP-254, exit from baghouse ID No. CD-423).

**OTHER MONITORING METHODS:** Describe those monitoring methods or procedures for which a specific monitoring device is not required (e.g. fuel sampling, visual inspection, supplier certification, etc.) which demonstrates compliance with the applicable requirement.

**DESCRIBE THE FREQUENCY AND DURATION OF MONITORING AND HOW THE DATA WILL BE RECORDED:** Describe, per the appropriate test method, the frequency of data collection for the pollutant.

**RECORDKEEPING REQUIREMENTS:** Where applicable, the permit may require the recording and retaining of the date, place, and time of any sampling measurement, the date(s) any sampling was performed, the company that performed any sampling, the analytical techniques used, the results of the analyses, and the operating conditions at the time of sampling. All records of required monitoring data and support information must be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application.

**DATA (PARAMETER) BEING RECORDED:** Enter all data and / or parameters to be recorded for this pollutant to ensure compliance with applicable regulations.

**FREQUENCY OF RECORDKEEPING:** Indicate the frequency of recordkeeping for the information describe above.

**REPORTING REQUIREMENTS:** Generally describe the information to be reported and the frequency of submittal sufficient to comply with the applicable requirements.

**GENERALLY DESCRIBE WHAT IS REPORTED:** Describe in what manner the data will be presented to EPA and / or WNCRAQA to indicate compliance for this pollutant.

**FREQUENCY:** Indicate the frequency of reporting for the information described above.

**TESTING:** This section must provide a description of or references to any applicable test method for determining compliance with each applicable requirement.

**SPECIFY REFERENCE TEST METHOD:** Briefly describe the test method(s) procedures to be used to ensure compliance to emission rates. Include the operation parameters under which the test will be performed.

**SPECIFY REFERENCE TEST METHOD CITATION:** Indicate the specific test method(s) as defined in the Code of Federal Regulations (40 CFR Part 60, Appendix A) to be used to ensure compliance to emission rates or alternative test methods as may be approved by the EPA.

**FREQUENCY:** Indicate the frequency of testing for the method(s) described above.

## INSTRUCTIONS FOR FORM E5

### E5 - TITLE V COMPLIANCE CERTIFICATION

**A Compliance Certification must be completed for each Title V permit application (not once for each emission source). If this information is not supplied, the application will be considered incomplete.**

Fill in the blanks with the company name, address, city, state, and air quality permit number (if existing). The name of the company must be the legal entity name as shown on Form A1.

**SCHEDULE FOR SUBMISSION OF COMPLIANCE CERTIFICATIONS DURING THE TERM OF THE PERMIT:** Fill in the frequency of submittal, which must be at least annually or more frequently if specified by an applicable requirement. In addition, fill in the beginning date of the submittal.

The applicant must certify that he complies with the requirements as specified in WNCRAQA Code 17.0520. This includes certifying to the truth, accuracy, and completeness of this application.

**THE UNDERSIGNED CERTIFIES UNDER THE PENALTY OF LAW THAT ALL INFORMATION AND STATEMENTS PROVIDED IN THE APPLICATION, BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, ARE TRUE, ACCURATE, AND COMPLETE:** This Compliance Certification must be signed and dated by a "responsible official" as defined in WNCRAQA Code 17.0520(b). Type or print the name and title of the responsible company official in the blank provided under the signature line. 40 CFR Part 70.2 defines a responsible official as meaning one of the following:

1. For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
  - a. The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars); or
  - b. The delegation of authority to such representatives is approved in advance by the permitting authority;
2. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
3. For a municipality, State, Federal, or other public agency: Either a principal executive officer or ranking elected official. A principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of EPA).

## INSTRUCTIONS FOR FORM E6

### E6 - COMPLIANCE SCHEDULE

This form is to be used for any requirement with which the facility does not comply. The applicant must describe how compliance will be achieved. The applicant must also outline a schedule of compliance by listing the step through which compliance will be achieved and the anticipated dates of completion for each step. This must be done for both promulgated and future regulations for which the facility may not be in compliance. If the facility is in compliance with all applicable requirements, this must be indicated on the form.

#### COMPLIANCE STATUS WITH RESPECT TO ALL APPLICABLE REQUIREMENTS:

**WILL EACH EMISSION SOURCE AT YOUR FACILITY BE IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS AT THE TIME OF PERMIT ISSUANCE AND CONTINUE TO COMPLY WITH THESE REQUIREMENTS:** Indicate the facility's compliance status with respect to all applicable requirements in effect at the time of permit issuance. Compliance requires that the facility be meeting ALL aspects of the applicable requirements and permit conditions including the operation of all necessary control equipment, the implementation of all required monitoring procedures, implementing operating restrictions (where applicable), and all other such activities required under the permit.

**WILL YOUR FACILITY BE IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS TAKING EFFECT DURING THE TERM OF THE PERMIT AND MEET SUCH REQUIREMENTS ON A TIMELY BASIS:** Indicate the facility's compliance status with respect to all applicable requirements which will become effective after permit issuance. Compliance requires that the facility meet ALL aspects of the applicable requirements and permit conditions including the operation of all necessary control equipment, the implementation of all required monitoring procedures, implementing operating restrictions (where applicable), and all other such activities.

- A. **IDENTIFY EMISSION SOURCE ID NO.:** Identify by ID number the emission source for which compliance will not occur at the time of permit issuance. Attach additional sheets as required if multiple sources will not be in compliance.
- B. **IDENTIFY APPLICABLE REQUIREMENT FOR WHICH COMPLIANCE IS NOT ACHIEVED:** Identify by specific regulation number the applicable requirement for which this emission source will not be in compliance.
- C. **NARRATIVE DESCRIPTION OF HOW COMPLIANCE WILL BE ACHIEVED WITH THIS APPLICABLE REQUIREMENT:** Describe in general the plan to bring the listed emission source into compliance with the applicable requirements.
- D. **DETAILED SCHEDULE OF COMPLIANCE (STEP(S) / DATE EXPECTED):** List the specific steps to be taken to bring the emission source into compliance with the applicable requirements. For each step, indicate the date of expected completion. The proposed schedule should resemble any judicial consent decree or administrative order to which the source is subject.
- E. **FREQUENCY FOR SUBMITTAL OF PROGRESS REPORTS (6 MONTH MINIMUM):** Subsequent reports on the progress of the compliance schedule must be submitted semiannually or more frequently. Indicate the submittal rate of progress reports for the previously described schedule of compliance.
- F. **STARTING DATE FOR SUBMITTAL OF PROGRESS REPORTS:** Indicate the initial date of submittal for the progress reports.

# **APPENDIX A**

## **Completeness Checklist**

### **AIR PERMIT APPLICATION COMPLETENESS CHECKLIST (Title V and non-Title V)**

The following information is being supplied to assist the applicant in determining Title V and non-Title V application completeness. Each application will be reviewed for completeness using the information below. **If any of the required information is not contained in the permit application package, the application may be returned as incomplete.**

#### **FOR TITLE V ONLY**

1. An application fee as required under Section 17.0200 of the WNCRAQA Code.
2. A financial qualification or substantial compliance statement (if required).
3. The appropriate number of copies of the application as stated in the application general instructions. More may be requested pursuant to WNCRAQA Code 17.0507(a) and (e).
4. Application forms signed as required by WNCRAQA Code 17.0520.

#### **FOR NON-TITLE V ONLY**

1. An application fee as required under Section 17.0200 of the WNCRAQA Code.
2. A financial qualification or substantial compliance statement (if required).
3. The appropriate number of copies of the application as stated in the application general instructions. More may be requested pursuant to WNCRAQA Code 17.0304(a) and 17.0305(b).
4. Application forms signed as required by WNCRAQA Code 17.0304(j).
5. The specific emission source reduction and recycling activities form A6.

#### **GENERAL INSTRUCTIONS**

1. Have the application forms been submitted in the arrangements specified in item number 3 of the General Instructions?

#### **FORM A1 - FACILITY INFORMATION**

1. Are all facility and owner names, addresses, and contact information completed?
2. Are the SIC codes and the facility coordinates included?
3. Is the type of application identified?
4. Are all flow charts, roof diagrams, plant layouts, plot plans, and area diagrams included?
5. Is the current / previous permit number indicated?
6. Has confidential information been properly submitted?
7. Did a responsible official sign the application?

#### **FORM A2 - NOTIFICATION / CHANGE FORM**

1. Has all the information for the administrative amendment, request for renewal, changes of ownership, relocation, and / or like for like replacement been submitted?

#### **FORM A3 - EMISSION SOURCE LISTING (EXISTING FACILITY)**

1. Has all the information needed to determine which equipment is new, modified, previously unpermitted, replaced and / or deleted?
2. Has a complete emission source description and ID number been submitted for each emission source?
3. Has a complete control device description and ID number been submitted for each control device?
4. Has each emission point been identified as fugitive or by ID number for each emission source?



#### **FORM A4 - EMISSION SOURCE LISTING (NEW FACILITY)**

1. Has a complete emission source description and ID number been submitted for each emission source?
2. Has a complete control device description and ID number been submitted for each control device?
3. Has each emission point been identified as fugitive or by ID number for each emission source?

#### **FORM A5 - EMISSION SOURCE / CONTROL DEVICE ALTERNATIVE OPERATING SCENARIOS**

1. Has a complete description of the alternative operating scenarios been provided?
2. Has a unique AOS number been specified for each alternative operating scenario?
3. Are all corresponding forms affected by the alternative operating scenario included in the application?

#### **FORM A6 - SPECIFIC EMISSION SOURCE (REDUCTION AND RECYCLING ACTIVITIES)**

1. Was a form A6 completed for each emission source for which this form is required?
2. Were the reduction and recycling activity codes identified for each pollutant?
3. Were the before activity and after activity emission rates quantified for all pollutants?

#### **FORM B - EMISSION SOURCE DESCRIPTION**

1. Has a form B been completed for each emission source?
2. Has each form B been completed to provide identification and description of the emission sources in sufficient detail to establish the basis for fees, regulatory applicability, and compliance with applicable requirements?
3. Has each form B been completed to provide process information (such as fuel type, fuel use, raw materials, production rates, and operating schedules, etc.) to the extent it is needed to determine or regulate emissions?
4. Has each monitoring device been described?
5. Has each requested state and federal enforceable limit been indicated?

#### **FORM C - CONTROL DEVICES**

1. Has a form C been completed for each control device?
2. Does the form C contain adequate control device descriptive parameters (e.g. air to cloth ratio, packed bed depth, etc.)?
3. Does the form C identify the emission source(s) controlled and the emission point ID numbers?
4. Does the form C provide an estimated control efficiency and calculations or references upon which such efficiencies are based?
5. Does the form C provide a schematic of the control device and its relationship with each emission source it controls?
6. Has each monitoring device been described?

#### **FORM D1 - PRODUCT ANALYSIS WORKSHEET (VOC EMISSIONS)**

1. Has a form D been completed for each solvent containing product utilized at the facility?
2. Has each constituent been identified for percent in product and percent in volatile?

#### **FORM D2-1 - TOXIC AIR POLLUTANT EMISSIONS SUMMARY**

1. Was a separate sheet submitted for each emission source emitting toxic air pollutant(s)?
2. For each pollutant, was the appropriate emissions unit selected as corresponding to WNCRAQA Code 17.0711?
3. For each toxic pollutant listed, was a separate D2-2 sheet submitted?

**FORM D2-2 - TOXIC AIR POLLUTANT NETTING WORKSHEET & FACILITY-WIDE EMISSIONS SUMMARY**

1. Was a separate sheet submitted for each toxic air pollutant?
2. For each pollutant, was the appropriate emissions unit selected as corresponding to WNCRAQA Code 17.0711?

**FORM D3-1 - SPECIFIC EMISSION SOURCE (EMISSION INFORMATION)**

1. Was a form D3-1 completed for each emission source?
2. Was the emission factor type identified for each pollutant?
3. Were the emission rates quantified for all pollutants?

**FORM D3-2 - SPECIFIC EMISSION SOURCE (REGULATORY ANALYSIS)**

1. Was a form D3-2 completed for each emission source?
2. Was all regulated air pollutants from each emission source identified?
3. Was all the emission and operating limits for each regulated pollutant specified?
4. Was the applicable regulation for each emission and operating limit cited?

**FORM D4 - EMISSION POINT SUMMARY**

1. Was each emission point represented?
2. Were all stack parameters identified for each emission point?

**FORM D5 - FACILITY EMISSION SUMMARY**

1. Were the total annual emissions correctly quantified?

**FORM D6 - TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION**

1. Were all engineering calculations to support all emission, control, and regulatory results provided in the application?

**FORM E1 - TITLE V INFORMATION (TITLE V ONLY)**

1. Does the application indicate why the facility is major for Title V, the category (if applicable), and/or the emission levels (if applicable)?
2. Does the application specify any MACTs to which the facility will be subject?
3. Does the application identify the regulations requested to be included in the permit shield?

**FORM E2 - TITLE V INSIGNIFICANT ACTIVITIES SUMMARY (TITLE V ONLY)**

1. Does the application list all insignificant activities per WNCRAQA Code 17.0507(b) and document the basis for such exemptions?

**FORM E3 - EMISSION SOURCE LISTING (INITIAL / RENEWAL TITLE V FACILITY) (TITLE V ONLY)**

1. Does the application list all the emission sources and control devices at the facility that are to be permitted?
2. Does the application adequately describe all emission sources and control devices and provide ID numbers?

**FORM E4 - COMPLIANCE PLAN (METHOD OF COMPLIANCE) (TITLE V ONLY)**

1. Does the application contain a form D3-2 for each regulated pollutant from each emission source?

2. Does the application adequately reference monitoring devices or compliance monitoring methods for each standard or limitation?
3. Does the application provide the frequency and the manner of data monitoring?
4. Does the application provide a reference test method for each regulated pollutant?
5. Does the application list all parameters being recorded and the frequency of recordkeeping?
6. Does the application describe the frequency and the contents of the reporting statement?

**FORM E5 - TITLE V COMPLIANCE CERTIFICATION (TITLE V ONLY)**

1. Was the form E5 completed and signed by a responsible official?

**FORM E6 - COMPLIANCE SCHEDULE (TITLE V ONLY)**

1. Were the two YES or NO questions on form E6 completed?
2. For sources that are not in compliance or will not be in compliance did the application:
  - (a) Identify the applicable requirement for which compliance is not achieved?
  - (b) Provide a narrative describing how compliance will be achieved?
  - (c) Include a detailed schedule of compliance that has an enforceable sequence of actions and milestones leading to compliance?
  - (d) Specify the frequency for submittal of progress reports and indicate the starting date for such submittals?