YAKIMA REGIONAL CLEAN AIR AGENCY

Order of Approval Permit No. NSRP-19-DG-15

New Source Review Order Of Approval For Darigold Inc. For The Spray Dryer Damrow (total 19.5 MMBtu/hr, three burners, two primaries and one secondary) as a Modification to Permit NOC-ATF-WWF-01 to Include 6 Cyclones, 3 Baghouses and The Collecting Bins.

IN THE MATTER OF approving a project which establishes/modify a new air contaminant source at Darigold Inc., THIS ORDER OF APPROVAL IS HEREBY ISSUED TO:

Applicant/Permittee:	Darigold Inc. *Food Processing*
Located at:	400 Alexander Rd. Sunnyside, WA 98944
Contact off site:	Darigold Inc. Responsible Official: Doug Pettinger, Director, Environmental Compliance Todd Hughes, Senior EHS Analyst (208) 324-5390 Ext: 304
Contact on site:	Eric Palmer, Senior Environmental Manager. 425-606-0055. eric.plamer@darigold.com.

IN COMPLIANCE WITH PROVISIONS OF THE STATE OF WASHINGTON CLEAN AIR ACT (Revised Code of Washington (RCW) CHAPTER 70.94.152, WASHINGTON ADMINISTRATIVE CODE (WAC) 173-400-110 AND WAC 173-460-040.

ISSUE DATE: August 27, 2018

THIS ORDER OF APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

Construction/Modification of the equipment must be conducted in compliance with all data and specifications submitted with the New Source Review (NSR) application under which this Order of Approval (Order/ Permit) is issued unless otherwise specified herein. The conditions and limitations of this NSR Order are attached as follows:

1.0 Description of the Source

1.1 Darigold Inc., hereafter referred to as the Permittee, DG, the Facility or the Source is a food dairy processing Facility located at 400 Alexander Rd., Sunnyside, WA. The Facility produces whey and dry milk powder in addition to cheese. The Permittee submitted this New Source Review (NSR) application to modify the heat input values from the Damrow dryer (DRY-1) (Model F-9000 Filtermat Dryer from Damrow Company Inc.) that was permitted in 2001 with Permit number NOC-ATF-WFF-01, because the heat value of the Damrow dryer (DRY-1)was incorrectly misreported in the original application of 2001.

1.2 Product from the dryer is collected in the filtermat and controlled by six parallel cyclones (CYC-1 to CYC-6) and moves to three powder bins (BIN1, 2 and 3) via pneumatic conveyor (CNV1) or directly to tote bin (TBIN1) via the Auger (AG1). The exhaust flow from the cyclones goes through a heat exchanger and exits through the common stack DEP1. Bins also receive product from the Niro Dryer (DRY-2) shown in Figure 1. However, Niro Dryer (DRY-2) is out of commissions and the fuel line-natural gas is disconnected and blind flanged off, according to the Permittee. Hence, it shall never be used. If the Permittee decide to use Niro Dryer (DRY-2), they must go through the NSR permitting process prior to the start of operation.

1.3 The bins are controlled by polyester membrane filters and the exhaust is sent to stack DEP2 (Figure 1). The auger exhaust is controlled by a receiver baghouse (RBGH1) before being released to the atmosphere at DEP1. The product from the bins is moved to a packager through conveyor (CNV2). The packaging process is controlled by a receiver baghouse (RBGH2) and a final dust collector (DCBGH1) before it exhausts through stack DEP3 (Figure 1). Specifications of the equipment are shown in Table 1 below. A process flow diagram is shown in Figure 1 below.

1.4 Permit number NOC-ATF-WFF-01 reference two 800 Hp boilers which uses No 2. Diesel as a secondary fuel with a limit of 1,104,000 gallons per year. However, the two 800 Hp boilers were also permitted in 1994 with permit number NC-12-94. Therefore, some conditions of Order numbers NOC-ATF-WFF-01 and NC-12-94 are still valid and are not superseded by this Order of Approval (Order/Permit). Thus, this Order *does not supersede* Permits numbers NC-12-94 and NOC-ATF-WFF-01.

1.5 City of Sunnyside issued a Determination of Non-Significance (DNS) for this project dated back on February 1, 2001 (file number: #99-358).

1.6 The Damrow dryer (DRY-1) and all associated, identified and controlled equipment with it shall be operated in accordance with the new submitted NSR application to the Yakima Regional Clean Air Agency (YRCAA) dated June 23rd, 2015 and the conditions of this Order.

1.7 The Permittee submitted the specifications for the Damrow dryer (DRY-1) and all associated equipment with the NSR application and as such, specification shall be part of this Order.

1.8 Air emissions from this dryer operation are in form of Particulate Matters (PM_{10} and $PM_{2.5}$), Carbon Monoxide (CO), Carbon Dioxide (CO_2), Oxides of Nitrogen (NOx), Sulfur Dioxide (SO_2) and Volatile Organic Compounds (VOCs), some of which are Hazardous Air Pollutant (HAP) and Toxic Air Pollutant (TAP) in accordance with the Federal Clean Air Act (FCAA) and Washington Administrative Code (WAC 173-460-150), respectively.

2.0 Determinations

In relation to the above installation, YRCAA determines that, the Facility shall comply with the federal, state and local regulations and laws including but not limited to the following determination:

2.1 The Facility is located in an area that is in attainment with all criteria pollutants;

2.2 The Facility is not a major stationary source nor is this modification is subject to the Prevention of Significant Deterioration (PSD) permitting requirements of WAC 173-400-700 through 173-400-750;

2.3 This Facility is classified as Synthetic Minor as also indicated in Permit number NOC_ATF_WFF_01 based on the accepted limit specified in Permit NC-12-94. In the event this Facility becomes a Title V Source as defined by the Federal Clean Air Act, all applicable approval conditions in this Order and all issued Orders shall be part of the Title V Air Operating Permit (AOP).

2.4 This modification is subject to the NSR requirements of WAC 173-400-110 and WAC 173-460-040;

2.5 The Facility is subject to 40 CFR Part 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial -Institutional Steam Generating Units; and

2.6 The Facility is subject to WAC 173-400-099 – Registration Program and YRCAA Regulation 1, 4.01 – Registration Program.

THEREFORE, it is hereby ordered that the project as described above, in the NSR application, and in detailed plans, specifications and other information submitted in reference thereto, is **APPROVED** for operation, **PROVIDED** the specification submitted with the application and the following conditions are met:

3.0 Operating Approval Conditions

3.1 This Order is for Damrow spray dryer consist of three burners, two of which are primary (PBRN1 and PBRN2), and the third is the secondary burner (SBRN1)for a total of 19.5 MMBtu/hr.; including all associated processed equipment as described above which was installed in 1992 and permitted in 2001. This installation is located at 400 Alexander Rd., Sunnyside WA, in accordance with the plan and specifications submitted with the NSR application to YRCAA and also specified in Table 1 of this Order below.

3.2 Best Available Control Technology (BACT) shall be satisfied for any proposed new facility or modified air emission source to control air emissions. YRCAA finds BACT to be satisfied as follows:

3.2.1 An Operation and Maintenance (O&M) plan for the Damrow dryer (DRY-1) and all specified equipment in Table 1 shall be developed as specified in this Order and manufacturers recommended standards;

3.2.2 The Damrow dryer (DRY-1) must be operated as per manufacturer specifications and certification;

3.2.3 The burners for the Damrow dryer (DRY-1) shall meet the NOx limit specified with the NSR application and this Order.

3.2.4 TAPs air emissions shall always be below the Acceptable Source Impact Levels (ASIL);

3.2.5 Only natural gas shall be used as a fuel source for the dryer;

3.2.6 Air emissions from the Damrow dryer (DRY-1) and the process units shall meet the ASIL of WAC 173-460 and the National Ambient Air Standards (NAAQs) of 40 CFR Part 50 as specified in this Order;

3.2.7 The cyclones (CYC-1 to CYC-6), baghouse (RBGH1) and the burner shall not exceed an efficiency of at least 0.008 grain/dscf combined;

3.2.8 The bins (BINS1, 2, 3) filters efficiency shall be at least 99%; and

3.2.9 The dust control baghouse (DCBGH1) efficiency shall be at least 0.01grain/ dscf;

3.3 The Permittee must update the site-specific O&M plan for the Damrow dryer (DRY-1) and associated equipment. The O&M must be updated within 60 days of the issuance of this Order and shall include, but not be limited to the following:

3.3.1 The required scheduled lubrication of all moving parts of the dryer and associated equipment as specified by the equipment manufacturer ;

3.3.2 The manual cleanup of the dryer shall be specified in detailed in the O&M plan, including alternative solution if the opacity limit specified in this Order is not met.

3.3.3 The scheduled tune-up or inspection for all parts for wear and tear, or replacement, as specified by the equipment manufacturer; and

3.3.4 The scheduled calibration of process control instruments as specified by the equipment manufacturer shall be checked and maintained by the Permittee.

3.4 Opacity limit must be maintained and recorded for at minimum 6 months, from the issuance date of this Order once every week, while the Damrow dryer (DRY-1) in Operation. This opacity limit should include the period of the manual cleanup (of the stack) for the dryer during and after the first 6 months. If the opacity limit is not met, the Facility must find a sound engineering solution to the problem. The solution must be approved by YRCAA.

3.5 The O&M plan and all records including this Order and other Permits must be maintained at the Facility's site or accessible place when requested by the Air pollution Control Officer (APCO) or any YRCAA official staff during inspections or upon request in accordance with RCW 70-94-200 and regulations.

3.6 The dryer must be maintained and operated as per manufacturer specification. It shall be the responsibility of the Permittee to check and make sure that the dryer and all associated units are maintained and operated as per manufacturer specification and the O&M plan.

3.7 The stack height for the dryer must be at least 6 feet from the roof level and/or at least 3 feet above any peak height at the roof or any abstraction. The exhaust stack must discharge vertically to the atmosphere and use a Good Engineering Practice (GEP) and any weatherproof exhaust system (example is shown in Appendix B).

3.8 There must be no fallout or any fugitive emissions from the Facility beyond the property boundary in a quantity that interferes unreasonably with the use and enjoyment of the property owner upon which the material is deposited, or is detrimental to the health, safety or welfare of any person, or causes damage to any property or business.

3.9 This Order authorizes the modification of the equipment identified in Table 1 below, and *shall not supersede* those previously issued Orders except as specified in this Order.

Table 1: Authorized equipment list

Unit No	Unit Type	Manufacturer and Model Number	Capacity	Comments
DRY-1	Dryer	Damrow	--	Installed in 1992. To dry whey. Dried product goes to the Filtermat F-9000.
PBRN1	Burner for DRY-1	natural gas fired burner model NP-1	10 MMBtu/hr	20 ft long
PBRN2	Burner for DRY-1	natural gas fired burner model NP-1	6 MMBtu/hr	12 ft long
SBRN1	Secondary Burner for DRY-1	natural gas fired burner model NP-1	3.5 MMBtu/hr	7 ft long
AG1	Auger	--	--	Cooled product from the vibro fluidizer goes through the auger and is collected in TBIN1
TBIN1	Tote bin	--	--	Fugitive emissions
CYC-1 to CYC-6	Cyclones 1 to 6	Stainless steel	94,400 acfm 0.008 grain/scf	Control the captured whey product is sent to the filtermat FM1. Product goes to Bins 1, 2, 3. Exhaust goes to a heat exchanger (HE1) and released through the common stack DEP1.
RBGH1	Baghouse	--		The received powder controls emissions from AG1, and conveyors. Exhaust to the common stack DEP1.
BIN1, 2, 3	3 Powder bins	--	4,567 lb/hr for each bin	Shared with Niro dryer. (9000 lbs/hr and 4,700 lbs/hr from the Damrow and Niro respectively). Filters: 99% efficiency. Exhaust to stack DEP2
PAK1	Packager	--	13,700 lb/hr	Exhaust goes to DCBGH1
RBGH2	Baghouse	--	--	From the conveyor system CNV2. Exhaust to DCBGH1
DCBGH1	Baghouse	New York blower series 20 GI Fan DH Wheel	5,200 acfm 0.01 gr/scf	Exhaust to DEP3

4.0 General Approval Conditions

4.1 Modification of the above specified Damrow dryer (DRY-1) and all associated units in Table 1 must comply with all applicable federal, state, and local laws and regulations, including, but not limited to RCW 70.94 (Washington Clean Air Act), WAC 173-400 (General Regulations for Air Pollution Sources), 40 CFR Part 60 Subpart Dc – (Standards of Performance for Small Industrial-Commercial - Institutional Steam Generating Units) WAC 173-460 (Controls for New Sources of Toxic Air Pollutants) and YRCAA Regulation 1.

4.2 All plans, specifications, other information and any further authorizations or approvals or denials in relation to this project, shall be incorporated herein and made as part of YRCAA file.

4.3 Except as specified in this Order, any new or additional construction, modifications or alterations not covered in this review process which will affect air emissions from any equipment in this Facility are subject to a NSR permitting process before it takes place or construction starts as required by RCW 70.94.152, WAC 173-400-110 and WAC 173-460-040.

4.4 The YRCAA staff shall be allowed to inspect the Facility at reasonable times to inspect equipment and/or records specific to the control, recovery, or release of contaminants into the atmosphere, in accordance with RCW 70.94.200 and YRCAA Regulation 1.

4.5 Nothing in this approval shall be construed as preventing compliance with any requirement(s) of law including those imposed pursuant to the federal and state Clean Air Acts, and rules and regulations thereunder. Any violation(s) of such rules and regulations are subject to enforcement and penalty action in accordance with RCW 70.94.430 and YRCAA Regulation 1, Article 5.

4.6 This Order may be modified, suspended or revoked in whole or part for cause including, but not limited to, the following:

4.6.1 Violation of any terms or conditions of this authorization; or

4.6.2 If this authorization has been obtained by misrepresentation or failure to disclose fully all relevant facts.

4.7 The provisions of this authorization are severable and, if any provision or application of any provision of this authorization to any circumstance is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

4.8 Deviations from these conditions are violations subject to penalties in accordance with RCW 70.94.430 and 431, WAC 173-400-230 and YRCAA Regulation 1, Article 5, Section 5.02.

4.9 The requirements of this Order apply to the Facility owner and/or operator(s) and any contractor or subcontractor performing any activity authorized under this Order. Any person(s), including contractor(s) and subcontractor(s), not in compliance with the applicable Order requirements are in violation of State and Local laws and subject to appropriate civil and criminal penalties. The Facility owner and/or operator, and all contractor(s) or subcontractor(s) are liable for the actions and violations of their employee(s). Any violation committed by a contractor or subcontractor shall be considered a violation by the Facility owner and/or operator, and is also a violation by the contractor and/or any subcontractor(s).

5.0 Emission Limits

5.1 The annual maximum amount of air emissions from the units must not exceed the allowable air emissions shown in Appendix A.

5.2 The Permittee shall comply with all applicable general standards for maximum air emissions as specified in WAC 173-400-040, WAC 173-460 and WAC 173-400-075.

5.3 Only ultra-low sulfur of 0.15% by weight shall be used for the backup fuel for the two 800 Hp. Effective 2006, it became unlawful to use any diesel oil #2 with sulfur content greater than 0.15% by weight.

5.4 Within 120 days after the issuance of this Order, the Facility shall conduct a source test pursuant to 40 CFR Part 60, Appendix A, Method 7E for NO_x, Method 10 for CO, Methods 3 and 3A for O_2 and CO_2 in accordance with the limits specified in this Order. The source test may be conducted at DEP1 stack exhaust outlet, provided conveyor 1 (CNV1) is not operating during the source test and no other air emissions is diverted to DEP2.

5.5 Within 120 days from the issuance of this Order or earlier, with normal operation, a source test for fine particulate matter ($PM_{2.5}$) for the dryer (DRY1) at DEP1 stack out let as specified above shall be conducted in accordance with 40 CFR Part 60, Appendix A, Method 5 with Method 202 or 201A which include front and back half to demonstrate compliance with BACT determination above. If and when the combustion from the burner has its own exhaust stack, the back half may not be required.

5.6 The source test protocol shall be submitted to YRCAA at least 30 days prior to the source test date. Results of the source test must be submitted to the YRCAA within 45 days but shall not exceed 60 days after the source test date. The parameters and the protocol must not be changed or altered before the test without written approval from YRCAA.

5.7 Handwritten notes and calculation and the initial results from the source test, must be submitted (faxed, or emailed) to the agency upon the completion of the source test.

5.8 Every five years after the first source test date, the Permittee may be require to conduct a source test for $PM_{2.5}$ using 40 CFR Part 60 Appendix A, Method 202 or 201A with 202 front and back half for this dryer (DRY1). If and when the combustion from the burner has its own exhaust stack, the back half may not be required.

5.9 NOx emission limit shall not exceed 2.7 ppm from the dryer exhaust stack corrected to 19% O_2.

5.10 PM_{10} and $PM_{2.5}$ each shall not exceed 0.008 gr/dscf.

5.11 NOx shall not exceed 2.7 ppm, CO limit shall not exceed 42.5 ppm both corrected to 19% O2 from the dryer exhaust stack.

5.12 Stack Test results for NOx and CO shall be corrected to 19% O_2 as using the equation below. No correction should be made (but standard correction), if the stack O_2 concentrations greater than 19%.

$$Pollutant\ Conc.@\ 19\%\ O_2 = (Stack\ Pollutant\ Conc.) \times \left(\frac{20.9 - 19\%}{20.9 - Stack\ O_2\ Conc.}\right)$$

5.13 The final source test results must be reported to YRCAA in units of ppmvd and potential pounds per hour for each pollutant as appropriate to the pollutant tested.

5.14 Opacity as measured by 40 CFR Part 60, Appendix A, Method 9, July 1, 2004 from the common stack (DEP1) must not exceed five percent (5%). The 5% opacity from the dryer shall not be exceeded, except during periods of startup, shutdown or malfunction as provided in WAC 173-400-081. If the Permittee cannot meet the 5% opacity limit based on the manufacturer or design recommendation, YRCAA should be notified immediately which may result in opacity modification.

5.15 If opacity greater than the opacity limit, is observed, the Permittee shall immediately stop the dryer or any other peripheral unit to the dryer and take corrective action as directed in the O&M plan until visible emissions are below the opacity limit. Corrective actions may include the following:

5.15.1 Certify that the dyer and all included units in this Order is performing according to its design functions within the acceptable design parameters and is being operated according to O&M procedures. Therefore, it must be checked against any operational conditions that have resulted in compliance in the past. If the dryer is not performing according to design and O&M procedures, the Permittee must take corrective action within 48 hours to correct the problem; or

5.15.2 Conduct an opacity evaluation by a certified opacity reader in accordance with 40 CFR 60, Appendix A, Method 9 and such opacity evaluation shall be conducted within 48 hours to verify compliance with the opacity limit. If opacity is greater than the opacity limit, appropriate and timely corrective action must be taken no later than 48 hours to identify and correct the problem causing the opacity.

5.16 If and when Method 9 to be used but, the Permittee has no certified opacity reader on site, the Permittee should call YRCAA and will be advised accordingly.

5.17 The Permittee must also conduct visible emission inspections of the Facility at least once per month. Visible emission shall be within the appropriate limits indicated in this and other Orders.

6.0 Monitoring, Recordkeeping and Reporting Requirements

6.1 The Permittee shall keep all records including this Order on site. Records shall include, at minimum, the monthly number of hours of operation of all units, the yearly natural gas usage and the O&M items performed. Forms for record keeping must be designed by the Permittee and shall include the date and time of maintenance performed and the operator's name.

6.2 The required records, logs and a copy of the O&M plan for this Facility shall be kept on site and shall always be readily available, organized and accessible when requested by YRCAA personnel or during an inspection. The O&M plan shall be updated to reflect any changes in operating procedures and such changes shall be routinely implemented.

6.3 Records shall be maintained and kept at the site for any of the previous five years from any current date, and be made available to the APCO of the YRCAA or his designated staff during inspections or upon request.

6.4 Any application form, report, or compliance certification, monthly record and the annual consumption report submitted to YRCAA pursuant to this Order must be signed by a responsible official.

6.5 Total emissions for criteria pollutants, HAPs, TAPs and VOCs must be calculated and reported to YRCAA on an annual basis as specified in the annual registration provided by YRCAA to the Facility.

6.6 The Permittee shall log in the number of hours, the oil and gas usage for the 800 hp boilers (BLR1 and BLR2).

6.7 This Order and its conditions shall remain in effect in the event of any change in control or ownership of the Facility. In the event of any such change in control or ownership of the subject Facility, the Permittee shall notify the succeeding owner of the Order and conditions and shall notify the YRCAA of the change in control or ownership by filing an "Ownership or Name Change" form within fifteen (15) days of that change. The form can be obtained or requested from YRCAA's office.

6.8 Applicable laws and regulations may be superseded or revised without notice. It is the Permittee's responsibility to stay current with rules and regulations governing their business and therefore is expected to comply with all new rules and regulations immediately upon their effective date. Rules and regulation updates will be incorporated into existing Orders or upon renewal or modification of said Permits.

6.9 All air emissions from this Facility shall be in compliance with air emission standards at all times. It is the responsibility of the owner to make sure that air emissions are within all known rules and regulations.

6.10 The APCO or his designated official shall be allowed to enter the Facility at reasonable times to inspect for compliance with applicable regulations and the conditions of this Order pursuant to RCW 70.94.200.

6.11 Pursuant to RCW 70.94.152, this Order shall be void without full payment of all actual YRCAA cost within thirty days after the issuance date.

Anyone may appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process and applicable requirements is governed by Chapter 43.21B RCW. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB, P.O. Box 40903, Olympia, WA, 98504-0903. Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on YRCAA in paper form - by mail or in person. E-mail is not accepted.

DATED at City of Yakima, State of Washington on 27th of August, 2018.

PREPARED BY:

Hasan M. Tahat, Ph.D.
Compliance, Engineering and Planning Division Supervisor
Yakima Regional Clean Air Agency

REVIEWED BY:

Norman Hepner, P.E.,
Nth Degree Engineering Solutions

ISSUED BY:

Keith M. Hurley
Air Pollution Control Officer
Yakima Regional Clean Air Agency

Damrow Dryer Process

From the rest of the proces:

DEP 1 (cyclones CYC1-CYC6, RBGH1, except pollutants from natural gas combustion of the bu 0.033+0.004+0.017= 0.054

Cyclone 7 & 8+Baghouse+Venturi scrubber

Potential Emissions from the Damrow Dryer (DRY-1)

Operating Hours	8,760	hr/year
Natural Gas Heating Value [a]	1,020	Btu/scf
Maximum Heat Input Capacity	19.50	MMBtu/hr

0.034 MMscf/hr

Pollutant		Natural Gas Emission Factor (lb/MMscf)		Emission Rate (lb/hr)	Emission Rate (tpy)
PM_{10}	c,d	7.6	0.054	0.15	0.64
$PM_{2.5}$	c,d	7.6	0.023	0.15	0.64
SO_2	c	0.6		1.15E-02	0.09
NO_X	c	100		3.38	14.81
VOC	c	5.5		0.19	0.81
CO	c	84		2.84	12.44
HAPs				2.72E-03	1.19E-02
Benzene	d	2.1E-03		7.10E-05	3.11E-04
Formaldehyde	d	7.5E-02		2.54E-03	1.11E-02
Toluene	d	3.4E-03		1.15E-04	5.04E-04
CO2e	e			4,039.88	17,694.67
CO_2	f	116.98	(lb/MMBtu)	4,035.71	17,676.42
N_2O	f	2.20E-04	(lb/MMBtu)	7.61E-03	0.03
CH_4	f	2.20E-03	(lb/MMBtu)	0.08	0.33

0.054 **Total PM (tpy)**
0.69
0.69

[a] The natural gas heating value uses a typical heating value from AP-42.

[c] Emission factors for small boilers (<100 MMBtu/hr) are obtained from Table 1.4.1 and Table 1.4.2, AP-42 Chapter 1.4, Natural Gas Combustion. The uncontrolled NO_X emission factor.

[d] HAP emission factors are obtained from Table 1.4.3, AP-42 Chapter 1.4, Natural Gas Combustion. Only the species with emission factor ratings of C or higher are used to determine HAP emission rates from natural gas combustion.

[e] The GHGs emissions are calculated based on the Global Warming Potentials (GWP) provided in Table A-1 of 40 CFR 98.

CO_2	1
N_2O	298
CH_4	25

[f] The emission factors are obtained from 40 CFR 98 Subpart C, Tables C-1 and C-2, and converted to values in lb/MMBtu.

APPENDIX A
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						Emissions		
AP-42 Table 1.4	Averaging period	De minimis (lb/ period)	SQER (lb/ period)	ASIL (ug/m3)	EF (lb/MMSCF)	lb/hr	lb/24hr	lb/yr
Arsenic	yr	0.00291	0.0581	0.000303	2.00E-04			0.05926
acenaphthene					1.80E-06			0.00053
acenaphthylene					1.80E-06			0.00053
anthracene					2.40E-06			0.00071
Benzo(a)anthracen	yr	0.0872	1.74		1.80E-06			0.00053
Benzo(a)pyrene	yr	0.00872	0.174		1.20E-06			0.00036
Benzo(b)fluoranth	yr	0.0872	1.74		1.80E-06			0.00053
benzo(ghi)perylene					1.20E-06			0.00036
Benzo(k)fluoranth	yr	0.0872	1.74		1.80E-06			0.00053
Beryllium		0.004	0.08		1.20E-05			0.00356
Barium					4.40E-03			1.30369
Cadmium	yr	0.00228	0.0457	0.000238	1.10E-03			0.32592
Chromium 3%	yr	6.40E-05	0.00128	6.67E-06	1.40E-03			0.01244
Cobalt	24-hr	0.000657	0.013		8.40E-05		0.000068	
Copper	1-hr	0.011	0.219		8.50E-04	0.0000288		
chrysene					1.80E-06			0.00053
Dibenzo(a,h)anthra	yr	0.000872	0.0174		1.20E-06			0.00036
fluoranthene					3.00E-06			0.00089
fluorene					2.80E-06			0.00083
Indeno(123-cd)pyrene					1.80E-06			0.00053
Lead	yr	10			5.00E-04			0.14815
Manganese	24-hr		0.00526		3.80E-04		0.000308	
Mercury	24-hr		0.0118		2.60E-04		0.000211	
Molybdemum					1.10E-03			0.32592
Pyrene					5.00E-06			0.00148
Phenanathrene					1.70E-05			0.00504
Nickel					2.10E-03			0.62222
Selenium	24-hr	0.131	2.63		2.40E-05		0.000019	
Vanadium	24-hr	0.00131	0.0263		2.30E-03		0.001867	
Zinc					2.90E-02			8.59253
						TOTAL TAPs	without Lead	0.40600

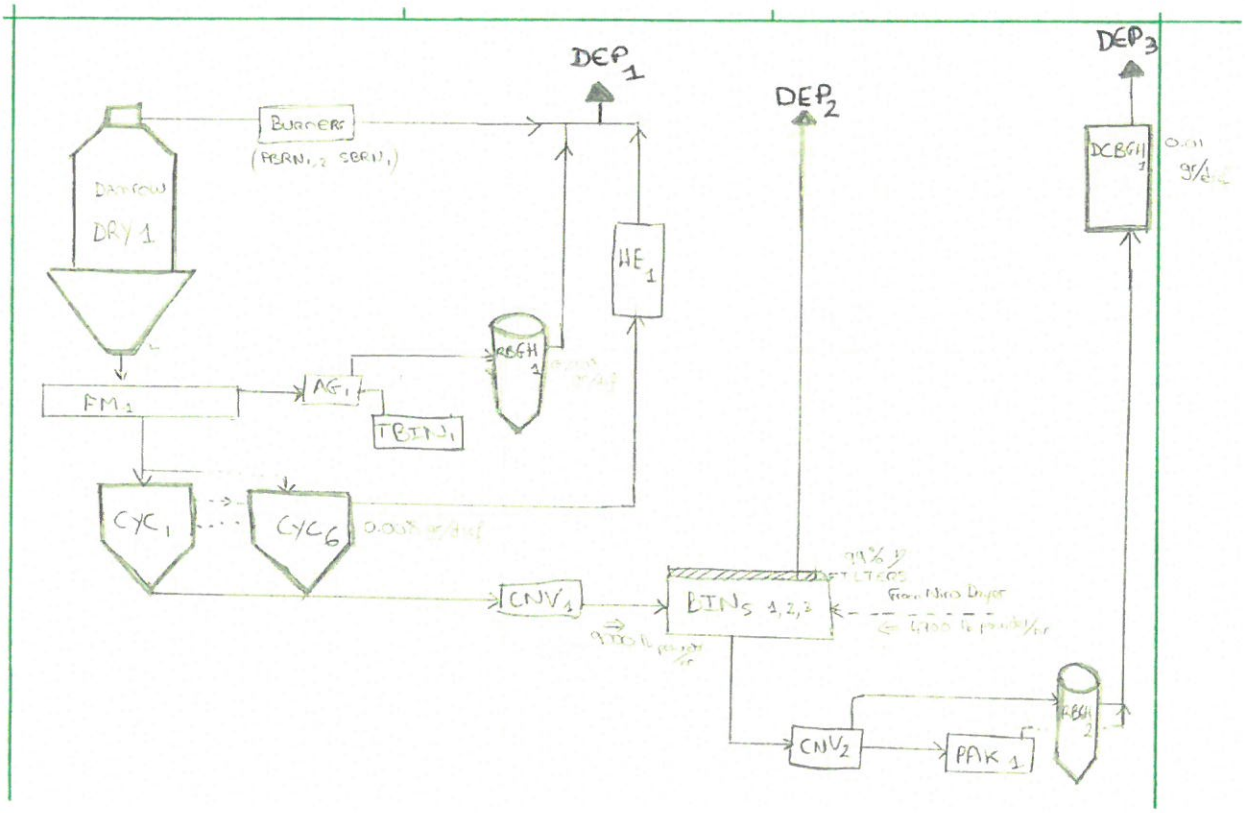


Figure 1: Process Flow Diagram for the Damrow Dryer (DRY-1)process

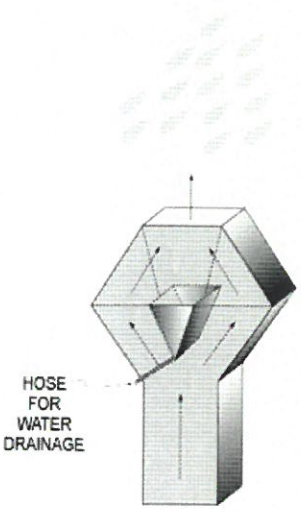
APPENDIX B: GENERAL REQUIREMENTS FOR RAIN CAPS AND EXHAUST STACKS

RAIN CAPS: Good engineering design for vertically oriented exhaust stacks in the Pacific Northwest generally includes some type of rain protection device or rain cap. These devices are designed to keep rain, moisture and animals (birds and squirrels) out of the stack. Exhaust stacks are part of most equipment that has an air discharge to the environment. Good air pollution practices require that any air discharge be directed in a vertical fashion to facilitate good dispersion of air and potential contaminants (including odorous substances). Including any type of device at the end of a stack that redirects the discharge air back toward the ground defeats the purpose of having an exhaust stack. Typical types of equipment that discharge air from facilities includes: paint spray booths or similar operations, combustion sources like boilers, internal combustion engines, roof vents, baghouses and cyclone separators. Moisture can have a detrimental effect on processes and machinery if allowed to enter the top of the stack. Therefore, proper design of rain caps should take into account not only protection of processes and equipment but also not hinder the vertical discharge of air from this equipment. There are many different types of rain caps provided by many different vendors. Examples of acceptable configurations are provided below in Figure 1. Many variations of these configurations exist and may be acceptable as well.

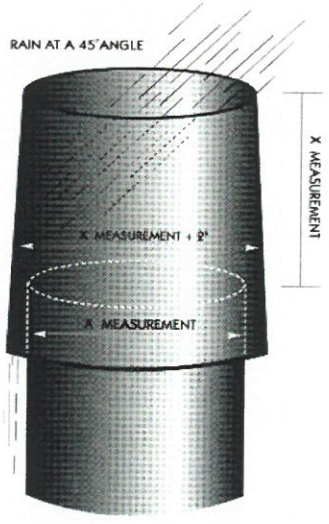
EXHAUST STACKS: Exhaust stacks shall be vertically discharged to the atmosphere. The discharge point of the exhaust system shall be located at least three feet above the peak height of surrounding roofs (six feet is preferable). There shall be no flow obstruction at the point of discharge that inhibits vertical dispersion (i.e., rain cap, elbow, etc.). Exhaust stack configurations designed to prevent rain infiltration are generally acceptable provided the configuration does not obstruct vertical discharge. Good Engineering Practice (GEP) shall be utilized when designing and installing stacks. Examples of acceptable rain cap configurations are provided below.

Acceptable types of weatherproof exhaust systems:

Hexagonal



Stack within a stack



Butterfly damper

Inverted cone