Order of Approval No. NSRP-03-BBBC-25

For modifications at an existing brewery facility to increase beer production, change the type of fuel previously permitted, and operate two additional natural gas-fired boilers and a baghouse used during the milling process (after the fact) (Facility – Wide).

IN THE MATTER OF approving a project at an existing air contaminant source at Bale Breaker Brewing Company, in Yakima, WA. THIS ORDER OF APPROVAL IS HEREBY ISSUED TO:

Applicant/Permittee:	Bale Breaker Brewing Company *Brewery / Beer Production*
Located at:	1801 Birchfield Road, Moxee, WA 98936
Contact:	Bale Breaker Brewing Company Attn: Kevin Quinn 1801 Birchfield Road Yakima, WA 98901 kquinn@balebreaker.com

IN COMPLIANCE WITH THE PROVISIONS OF THE REVISED CODE OF WASHINGTON (RCW) CHAPTER 70A.15 WASHINGTON CLEAN AIR ACT SECTION 2210, WASHINGTON ADMINISTRATIVE CODE (WAC) 173-400-110 and WAC 173-460-040.

ISSUE DATE: October 1, 2026.

THIS ORDER OF APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

Operation of the equipment must be conducted in compliance with all data and specifications, including all additional information submitted subsequent to the Notice of Construction (NoC) application under which this Order of Approval is issued unless otherwise specified herein. The conditions and limitations of this Order of Approval are attached as follows:

Yakima Regional Clean Air Agency

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1. GENERAL INFORMATION

1.1 Definitions

The following terms as used in this order shall be defined as set forth in this section except where otherwise defined at the time of use:

a. "**Acceptable Source Impact Analysis**" means a procedure that compares maximum incremental impacts to Ambient Air with applicable ASILs as defined in WAC 173-460-020(2) {app.leg.wa.gov/wac/default.aspx?cite=173-460-020}.

b. "**Acceptable Source Impact Level**" means a screening concentration of a Toxic Air Pollutant in the ambient air as defined in WAC 173-460-020(2) {app.leg.wa.gov/wac/default.aspx?cite=173-460-020} and set forth in WAC 173-460-150 {app.leg.wa.gov/wac/default.aspx?cite=173-460-150}.

c. "**Act of Nature**" means an event caused exclusively by natural forces such as an earthquake, flood, landslide, ice storm, volcanic eruption, or tornado.

d. "**Agency**" means the Yakima Regional Clean Air Agency.

e. "**Air Contaminant**" means dust, smoke, and other particulate matter, fumes, mist, vapor, gas, and/or odorous substance as defined in RCW 70A.15.1030(1) {app.leg.wa.gov/rcw/default.aspx?cite=70A.15.1030}.

f. "**Air Pollutant**" means Air Contaminant.

g. "**Air Pollution Control Officer**" means the individual appointed by an air pollution control authority board of directors to observe and enforce the provisions of the WCAA and all orders, ordinances, resolutions, or rules and regulations of the authority pursuant to RCW 70A.15.2300 {app.leg.wa.gov/rcw/default.aspx?cite=70A.15.2300}.

h. "**Ambient Air**" means the natural state of atmospheric air in the outdoor environment.

i. "**Applicant**" means the party having submitted a Notice of Construction to the YRCAA.

j. **"Attainment Area"** means a geographic area designated by EPA at 40 C.F.R. Part 81 as having attained the National Ambient Air Quality Standard for a given criteria pollutant as defined in WAC 173-400-030(10) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

k. "**Best Available Control Technology**" means an emission limitation based on the maximum degree of reduction for each regulated air pollutant determined by the Agency as defined in WAC 173-400-030(13) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

l. "**Best Available Control Technology for Toxics**" means the Best Available Control Technology as applied to Toxic Air Pollutants as defined in WAC 173-460-020(3) {app.leg.wa.gov/wac/default.aspx?cite=173-460-020}.

m. "**Best Available Retrofit Technology**" means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant emitted by an existing stationary facility as defined in WAC 173-400-030(14) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

n. "**British Thermal Unit**" means a quantity of heat approximately equal to 1,055 joules or 252 gram calories.

o. "**Business Day**" means any weekday (Monday through Friday) that is not an Agency holiday.

p. "**Calendar Day**" means any day that appears on a calendar including weekdays, weekend days, and holidays.

q. "**Code of Federal Regulations**" means the regulations issued by federal agencies under the authority of the USC.

r. "**Criteria Air Pollutant**" or "**Criteria Pollutant**" means any air pollutant set forth in 40 CFR 50 including carbon monoxide (CO), lead (Pb), particulate matter ($PM_{2.5}$ and PM_{10}), ozone (O_3), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) {www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-50?toc=1}.

s. "**Day**" means Calendar Day.

t. "**Ecology**" means the Washington Department of Ecology.

u. "**Emission Unit**" means any part of a Source that emits or has the potential to emit any pollutant subject to regulation under the FCAA or WCAA as defined in WAC 173-400-030(31) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

v. "**Emergency**" means a situation arising from a sudden and reasonably unforeseeable event beyond the control of the Permittee including an Act of Nature, war, terrorist attack, explosion, or civil unrest that requires corrective action to restore normal operation and results in an unavoidable increase in emissions. An emergency does not include situations resulting from improperly designed equipment, a lack of preventive maintenance, careless or improper operation, or operator error.

w. "**Environmental Protection Agency**" means the federal agency established to develop and enforce environmental protection standards consistent with national environmental goals pursuant to 42 USC 4321 {uscode.house.gov/view.xhtml?req=(title:42%20section:4321%20edition:prelim)}.

x. "**Excess emissions**" means emission of an air pollutant in excess of any emission limit established in this Order, including emission rates and visible emission limits.

y. "**Exterior Property Boundary**" means the combined outer property boundaries where the adjacent property is not in common ownership with that of the Facility.

z. "**Facility**" means the parcel, or contiguous parcels under the same or related ownership or control, upon which the proposed project is located.

aa. "**Federal Clean Air Act**" means the set of national laws enacted to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and provide assistance to State and local governments in connection with the development and execution of their air pollution prevention and control programs as set forth in 42 USC 85 {uscode.house.gov/view.xhtml?path=/prelim@title42/chapter85&edition=prelim}.

bb. "**Good Housekeeping**" means taking one or more actions—often in accordance with manufacturer or industry best practices—to reduce the quantity of organic compounds and/or odors emitted including, but not be limited to, the following: (i) preventing and promptly cleaning up spills; (ii) preventing evaporation (e.g. ensuring containers are properly sealed and not left open; and (iii) storing and disposing of waste materials in a manner that reduces or eliminates emissions.

cc. "**Hazardous Air Pollutant**" means any air pollutant set forth in 42 USC 7412 {uscode.house.gov/view.xhtml?req=(title:42%20section:7412%20edition:prelim)}.

dd. "**Major Source**" means any Stationary Source, or group of Stationary Sources belonging to a single major industrial grouping (i.e. have the same two-digit code) described in the *1987 Standard Industrial Classification Manual*, that meets the applicability criteria of a major source, as set forth in WAC 173-401-200(19) {app.leg.wa.gov/wac/default.aspx?cite=173-401-200} and 40 CFR 52.21(b)(1) {www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-52/subpart-A/section-52.21}.

ee. "**Major Stationary Source**" means Major Source.

ff. "**Minor Source**" means a Source that does not meet the applicability criteria of a Major Source as defined in applicable federal or state air quality regulations, including WAC 173-401-200(19) {app.leg.wa.gov/wac/default.aspx?cite=173-401-200} and 40 CFR 52.21(b)(1) {www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-52/subpart-A/section-52.21}.

gg. "**Modification**" means any physical change in, or change in the method of operating, a Stationary Source that increases the amount of any Air Contaminant emitted by such Source or results in the emission of any Air Contaminant not previously emitted consistent with the definitions set forth in RCW 70A.15.1030(16) {app.leg.wa.gov/rcw/default.aspx?cite=70A.15.1030} and 42 CFR 7411(a)(4) {uscode.house.gov/view.xhtml?req=(title:42%20section:7411%20edition:prelim)}.

hh. "**Momentary**" means temporary and continuing for a very short period of time (i.e. occurring briefly).

ii. "**National Ambient Air Quality Standards**" means the limits established by the U.S. Environmental Protection Agency for Criteria Pollutants pursuant to 42 USC 7409 {uscode.house.gov/view.xhtml?req=(title:42%20section:7409%20edition:prelim)}.

jj. "**New Source Review**" means an analysis conducted by the Agency of a proposed new Source (described in a Notice of Construction) consistent with the definition set forth in WAC 173-400-030 {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

kk. **"Nonattainment Area"** means a geographic area designated by EPA at 40 C.F.R. Part 81 as exceeding a National Ambient Air Quality Standard (NAAQS) for a given criteria pollutant. An area is nonattainment only for the pollutants for which the area has been designated nonattainment.as defined in WAC 173-400-030(58) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

ll. "**Notice of Construction**" means a written application submitted to the Agency for the construction of a new Source, the modification of an existing Source, or the replacement or substantial alteration of control technology at an existing Source consistent with the definition set forth in WAC 173-400-030(84) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

mm. "**Operations and Maintenance Plan**" means one or more documents for each Emission Unit, or group of operationally equivalent Emission Units, comprised of not less than: (i) Procedures for proper operation and maintenance of the Emission Unit and associated air pollution control device(s) necessary to comply with emission limits and other conditions, including maintenance schedules, control measures for fugitive emissions, fallout, and odors—when applicable, recordkeeping, and training; (ii) Corrective actions to be taken when required; (iii) Procedures to be used during inspection of the Emission Unit and/or air pollution control devices; (iv) Training; and (v) Recordkeeping.

nn. "**Order**" means this Order of Approval.

oo. "**Order of Approval**" means a regulatory order issued by a permitting authority to approve a Notice of Construction application (e.g. this document) as set forth in RCW 70A.15.2210(3) {app.leg.wa.gov/rcw/default.aspx?cite=70A.15.2210} and consistent with the definition set forth in WAC 173-400-030(64) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

pp. "**Owner/Operator**" means any person who owns, leases, operates, controls, or supervises a Source consistent with the definition set forth in 42 USC 7411(a)(5) {uscode.house.gov/view.xhtml?req=(title:42%20section:7411%20edition:prelim)}.

qq. "**Permittee**" means the party to whom an Order of Approval or Air Operating Permit is issued or any subsequent Owner/Operator of the Source.

rr. "**Pollution Control Hearings Board**" means the Washington State board granted jurisdiction to hear and decide appeals from air pollution control authorities pursuant to Chapter 43.21B RCW {app.leg.wa.gov/rcw/default.aspx?cite=43.21B}.

ss. "**Portable Source**" means a Source capable of being transported to various locations (e.g. portable crusher, portable asphalt plant) consistent with the definition set forth in RCW 70A.15.1030(75) {app.leg.wa.gov/rcw/default.aspx?cite=70A.15.1030}, excluding mobile sources (e.g. motor vehicles, non-road engines, non-road vehicles) as defined in 40 USC 51.50 {www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-A}.

tt. "**Potential to Emit**" means the maximum capacity of a source to emit a pollutant under its physical and operational design or any physical or operational limitation that is enforceable, excluding secondary emissions, consistent with the definition set forth in WAC 173-400-030(76) {https://app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

uu. "**Project**" means the construction or modification proposed in the Notice of Construction submitted by the applicant.

vv. "**Records**" means all reports, logs, notifications, written communications, and other documents and all sampling, monitoring, and other data, whether in paper or electronic form, required under this Order.

ww. "**Responsible Official**" means one of the following consistent with 40 CFR 70.2 {http://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-70/section-70.2}: (1) For a corporation, a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function; (2) For a partnership, a general partner; (3) For a sole proprietorship, the proprietor; or (4) For a municipality, state, federal, or other public agency, either a principal executive officer, ranking elected official, or for federal agencies, the chief executive officer for a principal geographic unit.

xx. "**Revised Code of Washington**" means the permanent laws enacted by the Washington State legislature {app.leg.wa.gov/rcw}.

yy. "**Small Quantity Emission Rate**" means a level of emissions below which dispersion modeling is not required to demonstrate compliance with acceptable source impact levels set forth in WAC 173-460-150 {app.leg.wa.gov/wac/default.aspx?cite=173-460-150} consistent with the definition set forth in WAC 173-460-020(7) {app.leg.wa.gov/wac/default.aspx?cite=173-460-020}.

zz. "**Source**" means all of the emission units, including quantifiable fugitive emissions, located on one or more contiguous or adjacent properties and under the control of the same person, or persons under common control, whose activities are ancillary to the production of a single product or functionally-related group of products as defined in RCW 70A.15.1030(23) {https://app.leg.wa.gov/rcw/default.aspx?cite=70A.15.1030}.

aaa. "**State Environmental Policy Act**" means the set of state laws enacted to prevent or eliminate damage to the environment and biosphere as set forth in Chapter 43.21C RCW {app.leg.wa.gov/rcw/default.aspx?cite=43.21C} and Chapter 197-11 WAC {app.leg.wa.gov/wac/default.aspx?cite=197-11}.

bbb. "**Stationary Source**" means a Source that is a building, structure, facility, or installation that emits or may emit any air contaminant consistent with the definition set forth in RCW 70A.15.1030(24) {app.leg.wa.gov/rcw/default.aspx?cite=70A.15.1030} and 42 USC 7411(3) {uscode.house.gov/view.xhtml?req=(title:42%20section:7411%20edition:prelim)}.

ccc. "**Synthetic Minor Source**" means a Source with a PTE limited below applicable thresholds by means of an enforceable order, rule, or approval condition consistent with the definition set forth in WAC 173-400-030(93) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

ddd. "**Toxic Air Pollutant**" means any pollutant set forth in WAC 173-460-150 {app.leg.wa.gov/wac/default.aspx?cite=173-460-150} consistent with the definition set forth in WAC 173-400-030(96) {app.leg.wa.gov/wac/default.aspx?cite=173-400-030}.

eee. "**Uncombined Water**" means water in a gaseous state that is not bound to a compound and does not contain dissolved solids (e.g. steam).

fff. "**Uniform Resource Locator**" means the address of a unique resource (e.g. document, page, image) available on the Internet, in the form *scheme://domain/path/parameters* (e.g. http://app.leg.wa.gov/rcw/default.aspx?cite=70A.15.2210) and commonly entered into the address bar of an "Internet browser" application. Also known as a "web address".

ggg. "**United States Code**" means the consolidation and codification of the general and permanent laws enacted by the Congress of the United States {uscode.house.gov}.

hhh. "**Volatile Organic Compound**" means a chemical that evaporates easily (e.g. paint, lacquer, solvent, adhesive).

iii. "**Washington Administrative Code**" means the regulations issued by state agencies under the authority of the RCW {app.leg.wa.gov/wac/default.aspx}.

jjj. "**Washington Clean Air Act**" means the set of state laws enacted to preserve, protect, and enhance the air quality for current and future generations as set forth in Chapter 70A.15 RCW {app.leg.wa.gov/rcw/default.aspx?cite=70A.15}.

kkk. "**Washington Department of Ecology**" means the state agency established to manage and develop the air and water resources of the state and to carry out a coordinated program of pollution control as set forth in Chapter 43.21A RCW {app.leg.wa.gov/rcw/default.aspx?cite=43.21A}.

lll. "**Written**" means a document, excluding voice mail, text, and electronic mail messages, comprised of visible letters and characters, signed by a Responsible Official, and provided to the recipient by hand delivery, the U.S. Postal Service, or a commercial carrier or delivery service.

mmm. "**Yakima Regional Clean Air Agency**" means the local air pollution control authority for Yakima County established pursuant to RCW 70A.15.1500 {app.leg.wa.gov/rcw/default.aspx?cite=70A.15.1500}.

nnn. "**YRCAA Regulation 1**" means the regulations adopted by the Board of Directors of the YRCAA pursuant to RCW 70A.15.2040(1) {app.leg.wa.gov/rcw/default.aspx?cite=70A.15.2040}.

1.2 Acronyms

The following acronyms as used in this order shall mean the terms set forth in this section and defined in the prior section:

a.	APCO	–	Air Pollution Control Officer
b.	ASIL	–	Acceptable Source Impact Level
c.	BACT	–	Best Available Control Technology
d.	BART	–	Best Available Retrofit Technology
e.	BTU	–	British Thermal Unit

f.	CAM	–	Compliance Assurance Monitoring
g.	CAP(s)	–	Criteria Air Pollutant(s)
h.	CFR	–	Code of Federal Regulations
i.	EPA	–	Environmental Protection Agency
j.	FCAA	–	Federal Clean Air Act
k.	HAP(s)	–	Hazardous Air Pollutant(s)
l.	NAAQS	–	National Ambient Air Quality Standards
m.	NESHAP	–	National Emission Standards for Hazardous Air Pollutants
n.	NO	–	Nitric Oxide
o.	NO_2	–	Nitrogen Dioxide
p.	NO_X	–	Nitrogen Oxides (includes NO and NO_2)
q.	NSR	–	New Source Review
r.	NSPS	–	New Source Performance Standards
s.	O&M	–	Operations and Maintenance
t.	Pb	–	Lead
u.	PCHB	–	Pollution Control Hearings Board
v.	$PM_{2.5}$	–	Particulate Matter less than 2.5 microns in diameter
w.	PM_{10}	–	Particulate Matter less than 10 microns in diameter (includes $PM_{2.5}$)
x.	PSD	–	Prevention of Significant Deterioration
y.	PTE	–	Potential to Emit
z.	RCW	–	Revised Code of Washington
aa.	SEPA	–	State Environmental Policy Act
bb.	SO_2	–	Sulfur Dioxide
cc.	SO_X	–	Sulfur Oxides (includes SO_2)
dd.	SQER	–	Small Quantity Emission Rate
ee.	TAP(s)	–	Toxic Air Pollutant(s)
ff.	tBACT	–	Best Available Control Technology for Toxics
gg.	TPY	–	Tons per year
hh.	URL	–	Uniform Resource Locator
ii.	USC	–	United States Code
jj.	VOC	–	Volatile Organic Compound
kk.	WAC	–	Washington Administrative Code
ll.	WCAA	–	Washington Clean Air Act
mm.	YR1	–	YRCAA Regulation 1
nn.	YRCAA	–	Yakima Regional Clean Air Agency

2. SOURCE DESCRIPTION

2.1 Bale Breaker Brewing Co., hereafter referred to as the Permittee, BBBC, the Facility or the source is a family-owned brewery in the Yakima Valley, located at 1801 Birchfield Road, Yakima, WA. The Facility grows their own hops, crafts beers, and sale hops to hops processing.

2.2 The Permittee submitted a Notice of Construction (NoC) application on April 3, 2025, (NSRP-03-BBBC-25), requesting approval for modifications at an existing brewery facility, permitted under Order of Approval (Order) NSRP-08-BBBC-12, to increase beer production and change the type of fuel used in the permitted boiler. The Permittee is also proposing to operate one additional silo, two additional natural gas-fired boilers, and a baghouse used during the milling process,

which are not covered in Order NSRP-08-BBBC-12. Figures 1 through 5 provide Google Earth views of the Facility showing the property boundaries, emission point stack locations, distances to property boundaries, building heights, and boiler stack.

2.3 The brewing process is composed of the following main stages: grain handling (malt receiving), malt milling operations, brewhouse operations, fermentation, aging or secondary fermentation, and packaging.

2.4 The Permittee produces beer using hops grown by the Permittee. The brewing process at the Facility is as follows: (1) Bulk and bagged malt are delivered and stored in silos and pallets racking, respectively. Air emissions from bulk malt receiving are controlled by filter socks installed on top of the silos. Hops are also delivered and stored. (2) The malt is milled in the mill room and conveyed through a closed disk conveyor system to the grist case, a holding vessel located above the mash/lauter tun (MLT). Air emissions from the malt milling operations are controlled by a baghouse. (3) The milled malt is mixed with hot water and mashed. The resulting wort is drained off of the grain bed and is moved into the brew kettle (BK) where it is boiled, and hops are added. The wort is then moved to the whirlpool (WP) to help separate solids. The hot wort is then run through a hop back (HB), a vessel that stores whole cone hops; hops are also added to the wort to impart the aroma and flavor. Then the wort is moved through a heat exchanger (HE) to cool down. (4) Once the wort is cooled it is moved to the fermentation tanks. (5) After fermentation the beer is carbonated and conditioned. (6) Then beer is packaged in either kegs or cans and (7) sold to distributors and retailers. Natural gas-fired boilers are used as part of the brewhouse operations. Natural gas-fired heaters are used to prevent freezing in the production area. The process flow diagram is shown in Figure 6. The numbered items in the figure correspond to the process description above.

3. DETERMINATIONS

3.1 The requested increase in beer production, along with the addition of new air emissions generating equipment and activities, and air emissions control equipment and measures not previously permitted in former Order NSRP-08-BBBC-12 at this Facility constitutes a modification of a stationary source that results in an increase in the Facility's potential to emit air contaminants. The project includes emissions of CAPs and TAPs, with projected emissions of TAPs exceeding applicable De Minimis exemption levels listed in WAC 173-400-110(5) Table 110(5). Therefore, the project is subject to New Source Review (NSR) and the Facility is required to obtain an Order pursuant to the Revised Code of Washington (RCW) 70A.15.2210, WAC 173-400-110 and WAC 173-460-040.

3.2 Air emissions associated with the brewing process include criteria air pollutants (CAPs), and volatile organic compounds (VOCs), some of which are classified as hazardous air pollutants (HAPs) and toxic air pollutants (TAPs), defined by the Federal Clean Air Act (FCAA) and Washington Administrative Code (WAC) 173-460-150, respectively.

3.3 This project is subject to the requirements of the State Environmental Policy Act (SEPA). For this project, SEPA review requirements were satisfied through an existing Mitigated Determination of Non-Significance (MDNS) issued by the City of Moxee with File Number ER-2015-04, on

August 14, 2015. The applicability of this MDNS to the proposed project was confirmed by the City of Moxee through its signature dated April 6, 2026.

3.4 A public notice for this NoC application was published on the YRCAA website on April 14, 2026, for a period of at least 15 days, pursuant to RCW 70A.15.2210 and WAC 173-400-171.

3.5 The Facility is located in an area designated as in attainment with all state and federal air quality standards for criteria pollutants, as defined in 40 CFR 81.348.

3.6 The Facility is deemed as an area source (minor source) based on potential emissions of CAPs and HAPs that fall below the threshold of a major source under Section 501 of the FCAA.

3.7 The Facility is not subject to the Compliance Assurance Monitoring (CAM) requirements pursuant to 40 CFR Part 64 as it is not a major stationary source.

3.8 The Facility is not subject to the Prevention of Significant Deterioration (PSD) permitting requirements under WAC 173-400-700 through 173-400-750, as it is not a major stationary source.

3.9 The natural gas-fired boilers used in the brewing process are not subject to the requirements of 40 CFR Part 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, pursuant to 40 CFR 60.40c(a), as the boilers have a heat capacity of less than 10 MMBtu/hr each.

3.10 The natural gas-fired boilers used in the brewing process are not subject to the requirements of 40 CFR Part 63 Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, pursuant to 40 CFR 63.11195(e), as the boilers are defined as a gas-fired boiler.

3.11 The Facility is subject to the requirements of RCW 70A.15.2210, WAC 173-400-113 and WAC 173-460-060, which require application of Best Available Control Technology (BACT) and toxic BACT (t-BACT) for air pollutants not previously emitted or for which emissions would increase as a result of the new source or modification. The Facility meets these requirements by employing BACT and t-BACT, provided the conditions set forth in this Order are met.

3.12 The Facility is subject to the requirements of WAC 173-460-040, as operation of the brewing process requires submittal of a NoC application under WAC 173-400-110, and pre-control emissions exceed the applicable de minimis emission threshold listed in WAC 173-460-150.

3.13 In accordance with WAC 173-460-080, an acceptable source impact level (ASIL) analysis was completed for this project. TAPs emissions were evaluated using the Small Quantity Emission Rate (SQER) screening method. After application of t-BACT, emissions of all TAPs were less than the SQER thresholds listed in WAC 173-460-150, thereby satisfying the ASIL requirement for those pollutants.

3.14 Air emissions associated with the brewing process are provided in Appendix A. Air emissions were calculated utilizing emission factors obtained from U.S. Environmental Protection Agency (EPA) "AP-42" along with equipment specifications and material throughput.

3.15 The Facility is subject to the annual Registration Program pursuant to WAC 173-400-099 and YRCAA Regulation 1, Section 4.01. The Facility will be classified and assessed fees according to the annual approved YRCAA registration classification.

3.16 This Order supersedes Order NSRP-08-BBBC-12 in its entirety.

THEREFORE, pursuant to the authority granted under Chapter 70A.15 RCW, YRCAA hereby issues this Order of Approval for the Notice of Construction submitted (including all detailed plans, specifications, and other information submitted) for this Facility, subject to the conditions that follow.

4. AUTHORIZED EQUIPMENT

4.1 This Order authorizes the installation and operation of the equipment listed in Table 1, and described below, at the location specified herein this Order, in accordance with the specifications submitted with the NoC application to YRCAA. Table 2 describes the Emission Unit (EU) specifications.

Table 1 – Authorized equipment

ID No. [1]	# of units	Air emissions generating equipment/activity	Associated air emissions control equipment/measure
EU1	2	Malt receiving in silos (Grain handling)	Silo filter sock (one sock per silo)
EU2	1	Grain mill (malt milling operations)	Baghouse
EU3	-	Brewing operations [2]	-
EU4	3	Boilers	Natural gas fuel
EU5	9	Heaters	Natural gas fuel

[1] EU stands for Emission Unit.
[2] For the purposes of this Order, "brewing operations" includes brewhouse operations, fermentation, aging or secondary fermentation, and packaging.

Table 2 – Equipment specifications

ID No.	Equipment/Activity	Manufacturer, Model, Serial #	Specifications
EU1	Silo 1	Meridian, 1220EWVIJBC, 602012 12037606	Maximum storage capacity = 68,000 lb Filter sock efficiency = 96-98% for $PM_{2.5}$.
	Silo 2	Meridian, 1220EWVIJBC, 6052002	Maximum storage capacity = 68,000 lb Filter sock efficiency = 96-98% for $PM_{2.5}$.
EU2	Grain mill	RMS, 9X6 Single Pair Brew Mill, unknown	Connected to a baghouse to control air emissions.
	Baghouse	Coperion Process Solutions LLC, 3 9RTC 3, 1 100210940-010-1	Airflow rate = 120 cubic feet per minute (cfm) Emission level = 0.01 grain per dry standard cubic foot (grain/dscf)

Table 2 – Equipment specifications (cont.)

ID No.	Equipment/Activity	Manufacturer, Model, Serial #	Specifications
EU3	Brewing operations	-	Includes mash tun, lauter tun, brew kettle, hot wort settling tank, trub vessel filling, fermenter venting, aging tank filling, keg filling lines and can filling lines.
EU4	Natural Gas-fired boiler	Parker Industrial boiler, 104-50, 60971	Size = 50 Hp Heat input = 2.1 MMBtu/hr
	Natural Gas-fired boiler	Cleaver Brooks boiler, CFH-700-20HP-15ST, 1620002010010	Size = 20 Hp Heat input = 0.79 MMBtu/hr
	Natural Gas-fired boiler	Parker Industrial boiler, 103-9.5, 53508	Size = 9.5 Hp Heat input = 0.398 MMBtu/hr
EU5	Heaters	Lennox, LF24-75A, unknown	Heat input = 0.075 MMBtu/hr each

5. EMISSION LIMITS

5.1 Air emissions from operation of equipment listed in Table 1 shall not exceed the emission limits shown in Table 3 in any consecutive 12-month period. These emission limits are based on potential to emit with control.

Table 3 – Brewing process emission limits

ID No.	Equipment	Pollutant(s)	Actual emission (tons/year)	Emission limit [1] (tons)
EU1	Silos	PM	5.40E-04	1.58E-03
		PM_{10}	1.36E-04	3.97E-04
		$PM_{2.5}$	2.38E-05	6.94E-05
EU2	Baghouse	$PM/PM_{10}/PM_{2.5}$	0.015	0.045
EU3	Brewing operations	$PM/PM_{10}/PM_{2.5}$	0.005	0.014
		VOC [2]	0.219	0.64
		H_2S	0.0002	0.0005
EU4 and EU5	Boilers and heaters	NOx	0.566	1.65
		CO	0.475	1.39
		$PM/PM_{10}/PM_{2.5}$	0.043	0.13

[1] Emission limit obtained from PTE/Allowable emission rates in Appendix A.
[2] The VOC emission limit represents the combined VOC emissions from pre-fermentation and post-fermentation processes. AP-42 Section 9.12.1 reports pre-fermentation VOC emissions as propane and post-fermentation VOC emissions as ethanol.

Table 3 summarizes the principal emission limits for this project. The complete list of air contaminants evaluated for this project for each EU and their corresponding allowable annual emission rates are provided in Appendix A. For pollutants not specifically identified in Table 3, the allowable emission rates in Appendix A constitute the applicable emission limits under this Order.

5.2 Visible emissions from equipment listed in Table 1 shall not exceed twenty percent (20%) opacity, excluding uncombined water vapor, for more than three (3) minutes in any one-hour period, as determined in accordance with Ecology Method 9A (Method 9A).

6. OPERATING LIMITS AND REQUIREMENTS

6.1 Beer production at this Facility shall not exceed a total of 2,172,480 gallons in any consecutive 12-month period.

6.2 Bulk malt receiving at this Facility shall not exceed a total of 1,576.80 tons per silo in any consecutive 12-month period.

6.3 The Permittee shall not conduct malt receiving operations into the silos, identified as EU1 in Table 1, unless the associated silo filter socks are properly installed, fitted and operational. The silo filter socks shall be used to control particulate matter emissions generated during bulk malt receiving operations. Bypassing the control equipment is prohibited.

6.4 The Permittee shall not conduct malt milling operations, identified as EU2 in Table 1, unless the associated baghouse is property installed, connected and operational. The baghouse shall be used to control particulate matter emissions generated during malt milling. Bypassing the control equipment is prohibited.

6.5 The baghouse shall be installed and physically connected to the malt milling system through ductwork designed to capture emissions at the point of generation during malt milling operations. Temporary connections, disconnected ductwork sections, bypassed systems, or incomplete emission capture components are prohibited during malt milling operations.

6.6 The baghouse shall be equipped with a pressure drop gauge capable of measuring the pressure differential across the filter system. The gauge must be properly installed and fully operational at any time the filtration system is in use. The gauge must be installed in a location that is easily visible and accessible to any person monitoring the pressure drop gauge.

6.7 The malt milling system shall not be operated unless the baghouse is fully operational and functioning within the acceptable pressure drop range as recommended by Coperion or the filter manufacturer.

6.8 The malt milling system shall not be operated if the baghouse is not properly maintained as recommended by Coperion or the filter manufacturer, or if the equipment is malfunctioning.

6.9 The Permittee shall clearly post or mark the acceptable pressure drop range for the baghouse in a location that is easily visible and accessible to any person monitoring the pressure drop gauge (e.g. on or beside the gauge). The posted range shall reflect the specification recommended by Coperion or the filter manufacturer. The posted range shall serve as a reference to identify when the system is operating outside of normal parameters.

6.10 The baghouse shall be equipped with manufacturer-specified filter media (e.g. cartridges) during operation of the malt milling system. The filter media shall be designed and rated by the

manufacturer to achieve a maximum outlet particulate matter concentration of 0.01 grains per dry standard cubic foot (gr/dscf).

6.11 The silos shall be equipped with silo filter socks that are designed and rated by the manufacturer to achieve a minimum $PM_{2.5}$ removal efficiency of 96%.

6.12 The baghouse shall be operated at an airflow rate not exceeding the value specified in Table 2, consistent with the equipment specifications submitted with the NoC application and emissions calculations evaluated in this Order.

6.13 All boilers and heaters permitted under this Order shall be fired on natural gas only and shall have a maximum rated heat input capacity that does not exceed the values specified in Table 2 for each specific unit.

6.14 Natural gas consumption for all boilers and heaters permitted under this Order shall not exceed a total of 346,953 therms during any consecutive 12-month period.

6.15 The Permittee shall develop, implement and maintain an Operations and Maintenance (O&M) plan for equipment listed in Table 1. The O&M plan must be based on the manufacturer's specifications, and be developed and implemented prior to or concurrent with initial operation of the equipment, but no later than sixty (60) days after issuance of this Order. It must include at minimum:

a. Startup, normal operation, shutdown procedures and operational parameters;

b. Frequencies of scheduled inspections, monitoring, calibrations, routine preventive and corrective maintenance procedures, including replacement or repair of equipment or parts subject to wear and tear;

c. A list of spare parts and tools maintained on site;

d. Emergency and malfunction contingency procedures, including descriptions of potential failure scenarios, immediate response actions, troubleshooting steps, incident reporting, and post-incident review;

e. Operator training and certification requirements specific to operation of the equipment listed in Table 1 and compliance with conditions in this Order; and

f. Recordkeeping procedures, including the types of records maintained at the Facility, the frequency of record generation, retention period, format (paper and/or electronic), and procedures for storage, retrieval, and availability of records to YRCAA upon request.

6.16 If the Permittee has already developed a facility-wide O&M plan including equipment previously permitted at the Facility, the plan must be updated to include the addition of the equipment listed in Table 1.

6.17 Any exhaust stack associated with equipment listed in Table 1 shall discharge vertically and unobstructed to the atmosphere. Rain caps, downward-facing discharges, or other obstructions that impede vertical exhaust flow are prohibited. Examples of weatherproof exhaust systems are shown in Appendix B.

7. MONITORING AND TESTING REQUIREMENTS

7.1 The Permittee shall monitor the pressure drop gauge for the baghouse during operation of the malt milling system. If the pressure drop is observed to be outside the acceptable operating range at any time during operation, the Permittee shall stop the affected operation and implement corrective actions in accordance with the O&M plan.

7.2 The Permittee shall log pressure drop readings from the baghouse gauge no less than once per calendar week during any week in which the malt milling system is operated. The acceptable pressure drop range, as recommended by the manufacturer and specified in the O&M plan, shall be clearly identified on the monitoring log. If the system is not operated during a calendar week, the log shall include an entry sufficient to determine that the system was not in operation.

7.3 The Permittee shall inspect the silo filter socks and baghouse filter media for signs of excessive wear, damage, or malfunction at manufacturer-recommended intervals. If no inspection interval is specified, inspections shall be conducted at least once per calendar month during operation.

7.4 The Permittee shall conduct a visible emissions determination of the silos and baghouse at least once per calendar month during normal operation and daylight hours using 40 CFR Part 60, Appendix A, Method 22 (Method 22). If visible emissions, excluding uncombined water vapor, are observed for more than three (3) minutes in any one-hour period, the Permittee shall investigate the cause and implement corrective actions as soon as practicable, but no later than twenty-four (24) hours after observation. If visible emissions persist following corrective action, an opacity determination shall be conducted using Method 9A by a certified reader. Following three (3) consecutive monthly determinations with no visible emissions observed, determination frequency may be reduced to once per calendar quarter. If visible emissions are subsequently observed, monthly monitoring shall resume.

7.5 If and when Method 9A is required to be conducted, and Method 9A evaluation indicates opacity exceeding any applicable limit in this Order, the Permittee shall stop the affected equipment and implement corrective actions in accordance with the O&M plan as soon as practicable but no later than twenty-four (24) hours after the exceedance event. The affected equipment shall not resume operation until compliance with applicable opacity limits has been restored.

7.6 If YRCAA requires source testing pursuant to WAC 173-400-105(4), the Permittee shall conduct testing sufficient to demonstrate compliance with applicable emission limits and control performance requirements set forth in this Order. Approved test methods are to be provided by YRCAA at the time testing is required.

8. RECORDKEEPING REQUIREMENTS

8.1 The Permittee shall maintain copies of the following documents on site at all times: this Order of Approval, the most current approved O&M plan, the manufacturer's operation and maintenance manuals for all permitted equipment and Safety Data Sheets (SDS) for all material processed in equipment listed in Table 1. These documents must be readily available, organized and accessible for review by YRCAA authorized staff during inspections or upon request, pursuant to RCW 70A.15.2500 and YRCAA Regulation 1.

8.2 The Permittee shall maintain all records required by this Order, including results of all required monitoring or testing and all required reports, as applicable, for a minimum of five (5) years from the date of generation. Records must be readily available, organized, easily auditable, and accessible for review by YRCAA authorized staff during inspections or upon request.

8.3 Recordkeeping forms must be designed by the Permittee and include at a minimum: the date, time, full printed name of the person performing the activity or observation and the activity result. The forms shall be designed to capture all applicable information required herein and may be electronic or hardcopy.

8.4 The Permittee shall maintain, at minimum, the following records on site:

a. Weekly pressure drop logs for the baghouse, including units of measurement, identification of the acceptable operating range, and documentation of periods when the equipment was not operated;

b. Total natural gas consumed by all boilers and heaters, totaled in any consecutive 12-month period;

c. Total bulk malt received in each silo, totaled in any consecutive 12-month period;

d. Baghouse filter media and silo filter socks replacement log, including documentation demonstrating that the replacement filter media meets required performance specifications;

e. Inspections, routine maintenance activities, and repairs to equipment listed in Table 1. These records shall include descriptions of work performed, and shall be sufficient to verify that equipment is being maintained and operated as recommended by the manufacturer;

f. Method 22 and Method 9A determination results;

g. Copies of notifications and reports submitted to YRCAA, including excess emission reports, deviations, malfunctions, or other permit-required events;

h. Operator training records, including training dates and names of trained personnel;

i. Annual O&M plan reviews and any updates made;

j. Documentation of manufacturer's serial numbers and any assigned equipment identification numbers for units listed in Table 1 where the serial number was initially identified as "unknown" or otherwise unavailable; and

k. Any deviations from Order conditions and corrective actions taken.

9. REPORTING REQUIREMENTS

9.1 The Permittee shall submit to YRCAA all source test results required by this Order, as applicable, within thirty (30) calendar days of test completion.

9.2 The Permittee shall notify YRCAA of any excess emissions, including opacity excess emissions, from the brewing process, by phone or electronic means, as follows:

a. As soon as possible, but not later than 12 hours after discovery, for excess emissions that represent a potential threat to human health or safety;

b. As soon as possible, but not later than 72 hours after discovery, for excess emissions for which the Permittee intends to demonstrate that the event was unavoidable pursuant to WAC 173-400-109; and

c. For all other excess emissions, no later than thirty (30) calendar days after the end of the month during which the event occurred.

9.3 The Permittee shall submit a written report to YRCAA for all excess emissions, consistent with WAC 173-400-108(3), no later than thirty (30) calendar days after the end of the month during which the event occurred.

9.4 If the Permittee intends to demonstrate that the excess emissions event was unavoidable under WAC 173-400-109, the report shall also include the information required under WAC 173-400-108(4).

9.5 The Permittee shall report any deviation from the conditions of this Order, other than excess emissions, to YRCAA in writing as soon as possible, but no later than thirty (30) calendar days after deviation discovery.

9.6 The Permittee shall submit its annual registration report to YRCAA on or before the date specified in the annual registration form. This report shall detail the operational information for the previous calendar year for equipment listed in Table 1, including total beer production, total natural gas consumption, total bulk malt received, total hours of operation, estimated air emissions, and any other information required by the annual registration form. All required registration fees shall be paid in full at the time of this submittal.

10. GENERAL REQUIREMENTS

10.1 Operation of equipment listed in Table 1 shall be conducted consistent with the NoC application, and all plans, data, specifications, and other information provided in reference thereto as submitted to the Agency except as otherwise specified herein.

10.2 Operation of equipment listed in Table 1 shall comply with all applicable federal, state, and local air pollution laws and regulations including, but not limited to, the Federal Clean Air Act (42 USC Chapter 85), Washington Clean Air Act (Chapter 70A.15 RCW), General Regulations for Air Pollution Sources (Chapter 173-400 WAC), Controls for New Sources of Toxic Air Pollutants (Chapter 173-460 WAC), and Yakima Regional Clean Air Agency Regulation 1, all as may be amended.

10.3 This Order does not grant permission to operate the Facility in the absence of any other permit required by law.

10.4 All air emissions generating equipment and activities, air emissions control equipment and measures, and monitoring equipment required, authorized, or described herein this Order shall be operated and maintained in accordance with manufacturer specifications, the O&M plan, and conditions of this Order, in a manner consistent with safety and good air pollution control practices, for minimizing the release of Air Contaminants from the Facility to the greatest extent reasonable possible. Determination of whether such operation and maintenance procedures are being used will be based on information available to YRCAA which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

10.5 The Permittee shall ensure personnel responsible for operating equipment listed in Table 1 are trained in proper operating procedures, required monitoring activities, and applicable requirements of this Order.

10.6 In addition to the periodic source testing required under this Order, if any, YRCAA may require additional source test for any equipment listed in Table 1, pursuant to WAC 173-400-105(4), to demonstrate compliance with applicable limits. YRCAA will notify the Permittee of the requirement and applicable test method in writing.

10.7 All plans, specifications, and other information submitted to, and any further authorizations, approvals, or denials issued by, the Agency in relation to this Facility shall be incorporated herein by reference and made a part hereof as is fully set forth in this Order.

10.8 Prior to any new or additional construction, modification, alteration, expansion, equipment installation, operating revision, or change in the limits set forth in this Order affecting the air emissions of the Facility, except as may be included in the Notice of Construction and covered by this Order, the Permittee shall submit a NoC application wherein all BACT and t-BACT requirements are satisfied pursuant to RCW 70A.15.2210, WAC 173-400-110 and WAC 173-460-040.

10.9 The Permittee shall submit notification to YRCAA in writing indicating that the O&M plan has been completed and is in place, no later than sixty (60) days after issuance of this Order.

10.10 The O&M plan shall be reviewed by the Facility at least annually and updated as needed to reflect any modification to the operating procedures, equipment or monitoring methods. The Permittee shall record the date of each annual O&M plan review and any updates made.

10.11 For any equipment listed in Table 1 where the manufacturer's serial number is listed as "N/A" or is otherwise unavailable, the Permittee shall provide in writing the manufacturer's serial number to YRCAA prior to initial operation of the equipment or within sixty (60) days of issuance of this Order, whichever occurs later. If a manufacturer's serial number is not present on the equipment, the Permittee shall permanently affix a unique, company-assigned identification number to the unit and ensure the identifier is used consistently in all records and documentation associated with this Order, and the Permittee shall maintain documentation of all serial numbers and assigned identifiers on-site.

10.12 Any application form, report, or compliance certification submitted to YRCAA pursuant to this Order must be signed by the responsible official.

10.13 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.

10.14 The Permittee shall prevent Air Contaminants and other fugitive emissions from migrating outside the Exterior Property Boundary of the Facility in sufficient quantity and/or duration as to be detrimental to the health, safety, or welfare of any person, cause injury to property, animals, or plants, or unreasonably interfere with the use and enjoyment of the property so affected.

10.15 The Permittee shall comply with all other standards for maximum air emissions including, but not limited to, those specified in WAC 173-400-040, 173-400-050, 173-400-060, 173-400-070, and 173-400-075.

10.16 The Permittee shall allow Agency staff to enter the Facility, at reasonable times, without notice, for the purpose of investigating conditions specific to the control, recovery, or release of air contaminants into the atmosphere and shall not obstruct, hamper, or interfere with any such inspection in accordance with RCW 70A.15.2500 and YRCAA Regulation 1 Section 2.01.

10.17 Nothing in this Order shall prevent or relieve compliance with the requirements of any applicable law or regulation including those set forth in the FCAA and WCAA.

10.18 Any violation(s) of the requirements in this Order are subject to enforcement and penalty action in accordance with RCW 70A.15.3150 and 3160, WAC 173-400-230 and YRCAA Regulation 1, Article 5.

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

a. Violating any of the conditions or requirements of this Order;

b. Providing any data, log, result, or other information, or making any statement, certification, or other representation, to the Agency pertaining to the project or Facility that is materially false; or

c. Altering any monitoring method, tampering with any monitoring equipment or sample, or interfering with any person responsible for monitoring, collecting, or analyzing emissions from the Facility so as to render the results of such monitoring, collection, or analysis inaccurate, incomplete, or unusable.

10.20 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.

10.21 Deviations from conditions in this Order may constitute violations subject to enforcement pursuant to RCW 70A.15.3150 and 3160, WAC 173-400-230, and YRCAA Regulation 1, Article 5.

10.22 All excess emissions from this Facility are considered violations of applicable emission standards and conditions in this Order.

10.23 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/or subcontractor(s), not in compliance with the applicable requirements in this Order 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).

10.24 It is the Permittee's responsibility to stay current, and comply, with all applicable laws, rules and regulations governing their business.

10.25 This Order and the requirements contained therein shall remain in effect in the event of any change in the control or ownership of the Facility. The Permittee shall provide a full and complete copy of this Order to any succeeding owner or controlling party of the Facility and submit a "Change of Ownership" (or subsequently adopted) form obtained from the Agency to the same within thirty (30) calendar days of any such change.

10.26 If the Facility permanently ceases operations, the Permittee shall submit a "Closure Notification" (or subsequently adopted) form obtained from the Agency to the same within ninety (90) calendar days of the Facility ceasing operations.

10.27 This Order is invalid without paying the complete appropriate and required fees to YRCAA, pursuant to RCW 70A.15.2210.

11. APPEALS

Any person with standing may appeal this Order to the PCHB. The appeal process and applicable requirements are governed by Chapter 43.21B RCW {app.leg.wa.gov/rcw/default.aspx?cite=43.21B} and Chapter 371-08 WAC {app.leg.wa.gov/wac/default.aspx?cite=371-08}.

11.1 Requirements

Any person appealing this Order must file a notice of appeal with the PCHB and serve the Agency with a paper copy of the appeal via delivery in person, postal mail, or common carrier within thirty (30) days of the date of receipt as set forth in RCW 43.21B.001(2) {app.leg.wa.gov/rcw/default.aspx?cite=43.21B.001}.

11.2 Instructions

Instructions regarding filing an appeal are available on the PCHB web site at eluho.wa.gov/boards/pollution-control-hearings-board/file-appeal (URL); by mail at PO Box 40903; Olympia, WA 98504-0903; or by calling 360-664-9160 (relay service for the hearing impaired is available by calling 711).

11.3 Additional Information

Additional information is available at the following URLs:

a. PCHB: eluho.wa.gov/boards/pollution-control-hearings-board.

b. PCHB Resources and Glossary: eluho.wa.gov/boards/pollution-control-hearings-board/resources-and-glossary.

c. Administrative Procedures Act (Chapter 34.05 RCW): app.leg.wa.gov/rcw/default.aspx?cite=34.05

Yakima Regional Clean Air Agency

DATED this 1st day of October, 2026.

PREPARED BY:

Dutsanee Luther

Dutsanee Luther
Air Quality Engineer
Yakima Regional Clean Air Agency

REVIEWED BY:

Elizel Reynoso
Permitting and Planning Division Supervisor
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TerraGraphics Environmental Engineering, Inc.
Yakima Regional Clean Air Agency

ISSUED BY:

Marc Thornsbury
Air Pollution Control Officer



Figure 1: Google Earth view of Bale Breaker Brewing Company showing property boundaries outlined in red.



Figure 2: Google Earth view of Bale Breaker Brewing Company showing approximate locations of emission point stacks.

Yakima Regional Clean Air Agency

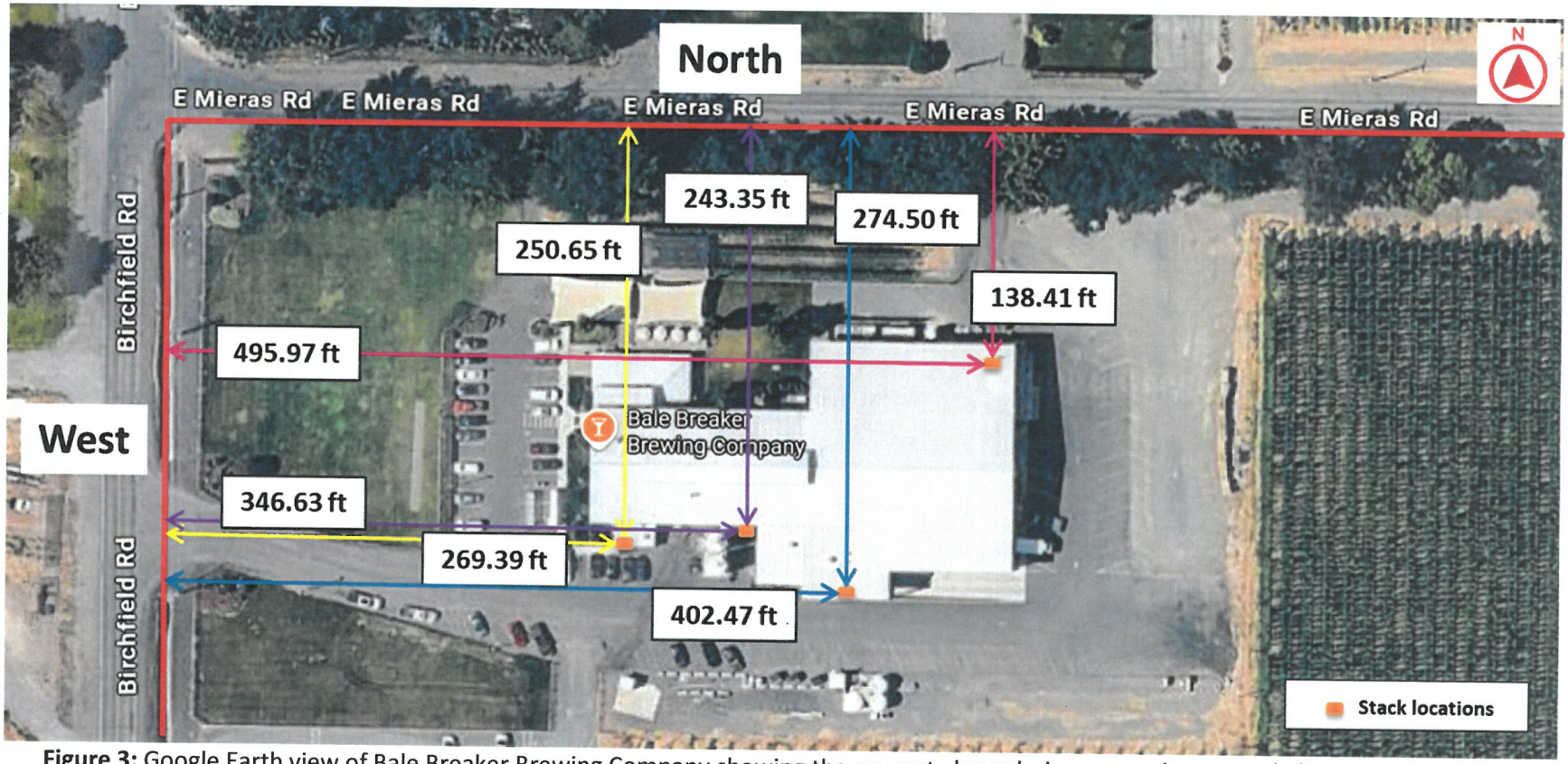


Figure 3: Google Earth view of Bale Breaker Brewing Company showing the property boundaries, approximate stack distances to property boundaries, and approximate locations of emission point stacks.

Yakima Regional Clean Air Agency

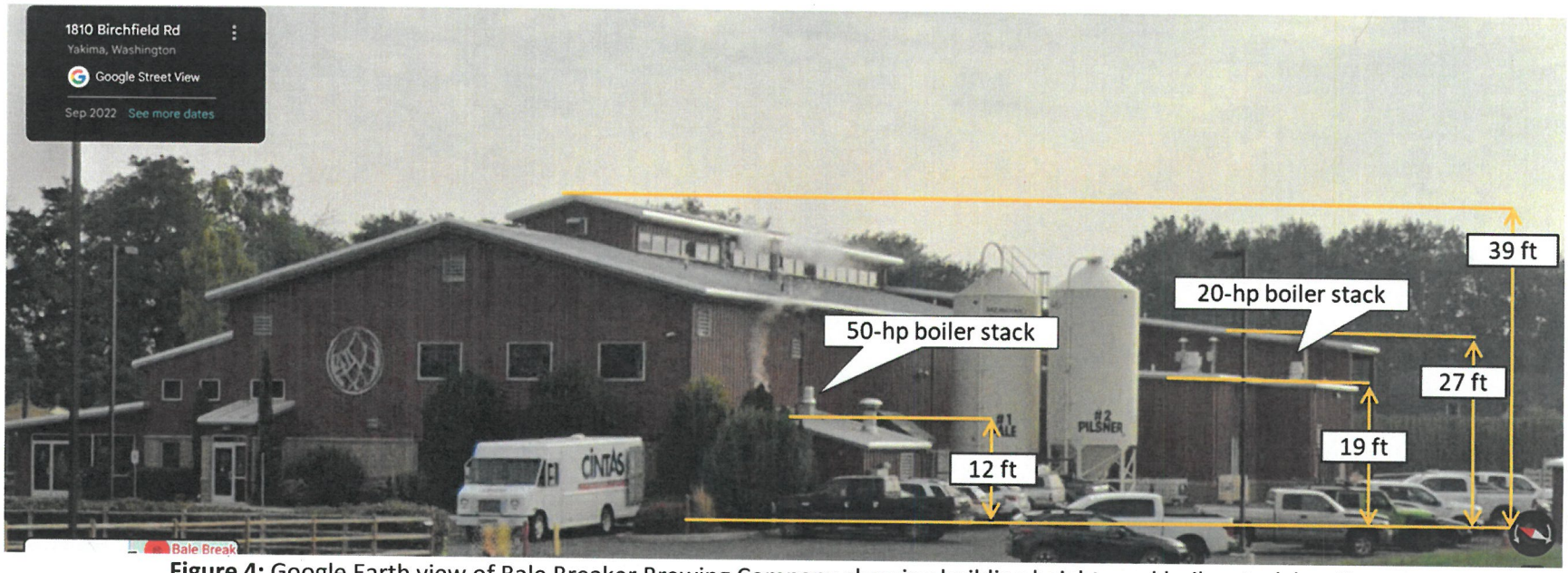


Figure 4: Google Earth view of Bale Breaker Brewing Company showing building heights and boiler stack locations.



Figure 5: Google Earth view of Bale Breaker Brewing Company showing building height and boiler stack location.

Yakima Regional Clean Air Agency

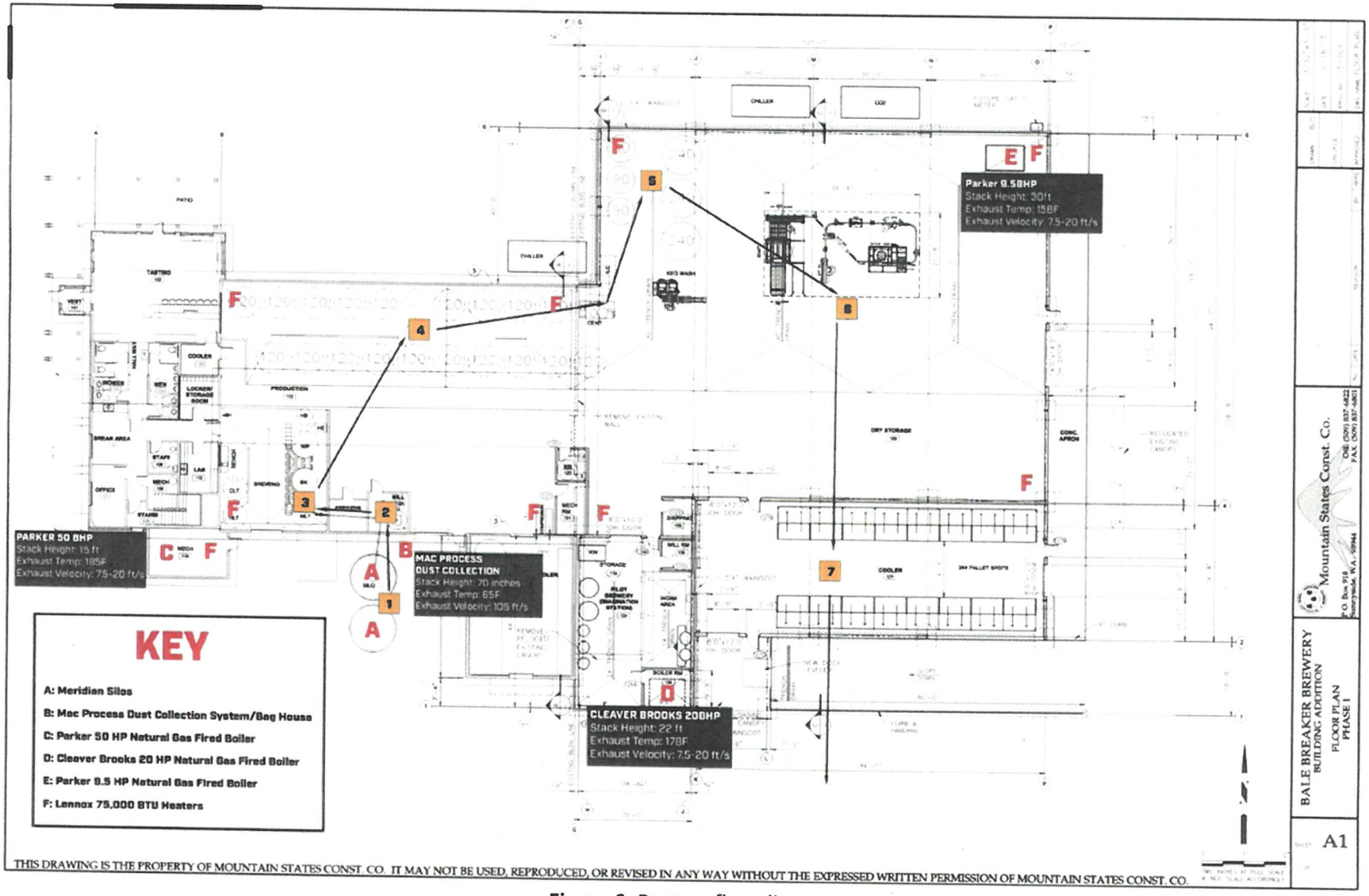


Figure 6: Process flow diagram.

Yakima Regional Clean Air Agency

Appendix A

AIR EMISSIONS ASSOCIATED WITH NSRP-03-BBBC-25

Malt receiving in silos (EU1)

Table A: Operating parameters		
Silo capacity	68,000	lb (each)
Grain deliveries	48,000	lb/delivery-silo

Table B: Actual silos filling rate (delivery)		
Summer [1]	1	delivery/2 weeks
	19.5	delivery/year
Winter	1	delivery/month
	3	delivery/year

[1] For conservative purposes, assumed to be all year-round, but winter.

Table C: Operating hours		
Actual [1]	3000	hours/year
PTE/Allowable	8760	hours/year

[1] Obtained by the Permittee as part of the Notice of Construction (NoC) application. 12 hours per day, 5 days per week, 50 weeks per year.

Table D: Actual annual material throughput [1]		
Summer	936,000	lb/yr-silo
Winter	144,000	lb/yr-silo
Total	1,080,000	lb/yr-silo
	540	ton/yr-silo

[1] Obtained from actual delivery rate and silo capacity.

Table E: Potential(PTE)/Allowable annual material throughput [1]		
Summer	2,733,120	lb/yr-silo
Winter	420,480	lb/yr-silo
Total	3,153,600	lb/yr-silo
	1,576.80	ton/yr-silo

[1] Calculated from actual annual material throughput and actual operating hours extrapolated to PTE/Allowable operating hours.

Table F: Filter parameters	
Control efficiency [1][2]	96%

[1] Silos are equipped with "filter socks", per Notice of Construction (NoC) application.

[2] Efficiency obtained from "Silo Filter Sock" specification, submitted with NoC application. For particulates from 1 to 10 micron, the efficiency rates from 96-98%. 96% used for conservative purposes.

Table 1: Emissions from silos filling

Unit	Unit model, Serial number	Pollutant	Uncontrolled emission factor (lb/ton) [1]	Actual Emissions [2]				PTE/Allowable Emissions [3]			
				Uncontrolled Emissions (lb/yr)	Uncontrolled Emissions (tpy)	Controlled Emissions (lb/yr)	Controlled Emissions (tpy)	Uncontrolled Emissions (lb/yr)	Uncontrolled Emissions (tpy)	Controlled Emissions (lb/yr)	Controlled Emissions (tpy)
Meridian Silo 1	1220EWVIJBC, 602012 12037606	PM	0.025	13.50	6.75E-03	0.54	2.70E-04	39.42	1.97E-02	1.58	7.88E-04
		PM_{10}	0.0063	3.40	1.70E-03	0.14	6.80E-05	9.93	4.97E-03	0.40	1.99E-04
		$PM_{2.5}$	0.0011	0.59	2.97E-04	0.02	1.19E-05	1.73	8.67E-04	0.07	3.47E-05
Meridian Silo 2	1220EWVIJBC, 6052002	PM	0.025	13.50	6.75E-03	0.54	2.70E-04	39.42	1.97E-02	1.58	7.88E-04
		PM_{10}	0.0063	3.40	1.70E-03	0.14	6.80E-05	9.93	4.97E-03	0.40	1.99E-04
		$PM_{2.5}$	0.0011	0.59	2.97E-04	0.02	1.19E-05	1.73	8.67E-04	0.07	3.47E-05

[1] Obtained from AP 42, Fifth Edition, Volume I Chapter 9.9: Grain Processing, Section 9.9.1 Grain Elevators & Processes. Table 9.9.1-1 for uncontrolled storage bin (vent).

[2] Calculated from actual annual material throughput, which is based on actual silos filling rate (delivery).

[2] Calculated from PTE/Allowable annual material throughput, which is based on PTE/Allowable hours of operation.

Table 2: Total emissions from silos filling

Pollutant	Actual		PTE/Allowable	
	Uncontrolled Emissions (tpy)	Controlled Emissions (tpy)	Uncontrolled Emissions (tpy)	Controlled Emissions (tpy)
PM	1.35E-02	5.40E-04	3.94E-02	1.58E-03
PM_{10}	3.40E-03	1.36E-04	9.93E-03	3.97E-04
$PM_{2.5}$	5.94E-04	2.38E-05	1.73E-03	6.94E-05

Appendix A

AIR EMISSIONS ASSOCIATED WITH NSRP-03-BBBC-25

Malt milling operations (EU2)

Table A: Operating hours	
Actual operating hours [1]	3000 hours/yr
Potential(PTE)/Allowable operating hours	8760 hours/yr

[1] Obtained by the Permittee as part of the Notice of Construction (NoC) application. 12 hours per day, 5 days per week, 50 weeks per year.

Table B: Baghouse specifications	
Manufacturer	Coperion Process Solutions LLC
Model	3 9RTC 3
Flow Rate	120 cfm
Emission rate of Dura-Life filter	0.01 grain/dscf
Emission rate of Dura-Life filter	1.43E-06 lb/dscf [1]

[1] Conversion from grains to pounds: 1 lb = 7,000 grains.

Table 1: Emission from baghouse

Pollutant	Actual Emission		PTE/Allowable Emissions	
	lb/year	ton/year	lb/year	ton/year
$PM/PM_{10}/PM_{2.5}$ [1]	30.86	0.015	90.10	0.045

[1] Conservatively assumed $PM=PM_{10}=PM_{2.5}$.

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Appendix A

AIR EMISSIONS ASSOCIATED WITH NSRP-03-BBBC-25

Brewing operations (EU3)

Table A: Actual malt beverages production [1]		
Actual gallons of finished beer	744,000	gals/yr
Actual operating hours	3,000	hours/yr

[1] Obtained from Notice of Construction (NoC) application. Actual hours of operation: 12 hours per day, 5 days per week, 50 weeks per year.

Table B: Potential(PTE)/Allowable malt beverage production [1]		
Potential gallons of finished beer	2,172,480	gals/yr
Potential/Allowable operating hours (PTE)	8760	hours/yr

[1] Calculated from actual malt beverage production and actual operating hours extrapolated to PTE/Allowable operating hours.

Table 1: Emissions from brewery process

	Emissions Factors (lb pol/ 1000 bbl beer)[1][2]				Actual Emissions (TPY)					PTE/Allowable Emissions (TPY)				
	PM [3]	CO_2	VOC	H_2S	PM [3]	CO_2	VOC (propane)	VOC (ethanol)	H_2S (TAPs)	PM [3]	CO_2	VOC (propane)	VOC (ethanol)	H_2S (TAPs)
Mash tun - Pre-fermentation [4]			0.054				0.000648					0.001892		
Lauter tun - Pre-fermentation [4]			0.0055				0.000066					0.000193		
Brew kettle - Pre-fermentation [4]	0.41		0.64		0.0049		0.0077			0.0144		0.0224		
Hot wort settling tank (whirlpool) - Pre-fermentation [4]			0.075				0.0009					0.0026		
Trub vessel filling - Pre-fermentation [4]			0.25				0.003					0.009		
Fermenter venting - Post-fermentation [5]		2100.00	2.00	0.015		25.2		0.024	0.00018		73.6		0.070	0.00053
Aging tank filling - Post-fermentation [5]		26.00	0.57			0.31		0.0068			0.91		0.0200	
Keg filling lines - Post-fermentation [5]		46.00	0.69			0.55		0.0083			1.61		0.0242	
Can filling lines - Post-fermentation [5]			14.00					0.17					0.49	
				TOTAL:	0.005	26.06	0.012	0.21	0.0002	0.014	76.11	0.04	0.60	0.0005

Emissions from brewery process items/year = ((744,000 gallons/yr)*(Emission Factor lb/1,000 bbl)*(1 bbl/31 gal))*(1/2000 tons/lb)

[1] AP 42, Fifth Edition, Volume I Chapter 9: Food and Agricultural Industries, Chapter 9.12.1 Malt Beverages - Table 9.12.1-2, https://www.epa.gov/sites/default/files/2020-10/documents/c9s12-1.pdf

[2] Emission factor units are lb of pollutant per 1,000 bbl of beer packaged, 1 bbl = 31 U.S. gallons

[3] For conservative purposes, all PM emissions assumed to be equal to PM_{10} and $PM_{2.5}$.

[4] VOC emissions as propane.

[5] VOC emissions as ethanol.

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Appendix A

AIR EMISSIONS ASSOCIATED WITH NSRP-03-BBBC-25

Boilers and Heaters (EU4 and EU5)

Table A: Boilers and heaters manufacturer specifications		
Boiler 50hp [1]	Parker Industrial boiler 2.1 MMBtu/hr	
Boiler 20hp [2]	Cleaver Brooks boiler 0.788 MMBtu/hr	
Boiler 9.5hp [3]	Parker Industrial boiler 0.398 MMBtu/hr	
Heaters (9 units)	Lennox heater 0.075 MMBtu/hr (each)	
Fuel	Natural gas	
Fuel heating value	1050	Btu/scf
Total maximum fuel input	3.96	MMBtu/hr

[1] Obtained from the Permittee as part of the notice of construction (NoC) application; Parker Boiler - Parker Industrial Horizontal Drum Steam Boiler 30-50 H.P. - Atmospheric Gas Fired, page 35 of 190.

[2] Obtained from the Permittee as part of the NoC application; Parker Boiler - Operation & Maintenance - Cleaver Brooks: Propane Fired Steam Boiler, page 13&14 of 342.

[3] Obtained from the Permittee as part of the NoC application; Parker Boiler - Parker Industrial Horizontal Drum Steam Boiler 7-25 H.P. - Atmospheric Gas Fired, page 41 of 104.

Table B: Actual operating hours [1]	
12	hours/day
250	days/year
3000	hours/year

[1] Obtained from Notice of Construction (NoC) application: 12 hours per day, 5 days per week, 50 weeks per year.

Table C: Potential(PTE)/Allowable operating hours [1]	
24	hours/day
365	days/year
8760	hours/year

[1] Operating hours conservatively assumed as continuous full-year operation (8,760 hours per year) to represent Allowable/Potential to Emit (PTE) emissions.

Table 1: Emissions from natural gas combustion

Pollutant	CAS No. [1]	Classification [2]	Emission Factor (lb/MMscf) [3]	Emissions (lb/hour)	Actual Emissions			PTE/Allowable Emissions			Averaging period (ave period) [4]	De Minimis (lb/ave period) [4]	SQER (lb/ave period) [4]	ASIL ($\mu g/m^3$) [4]	Permitting Required? > De Minimis?	Modeling Required? > SQER?
					(lb/day)	(lb/year)	(ton/year)	(lb/day)	(lb/year)	(ton/year)						
NOx [5]	10102-44-0	CAP/TAP	1.00E+02	3.77E-01	4.53E+00	1.13E+03	5.66E-01	9.05E+00	3.30E+03	1.65E+00	1-hr	4.60E-01	8.70E-01	4.70E+02	No	No
CO	630-08-0	CAP/TAP	8.40E+01	3.17E-01	3.80E+00	9.51E+02	4.75E-01	7.61E+00	2.78E+03	1.39E+00	1-hr	1.10E+00	4.30E+01	2.30E+04	No	No
Lead	7439-92-1	CAP/HAP/TAP	5.00E-04	1.89E-06	2.26E-05	5.66E-03	2.83E-06	4.53E-05	1.65E-02	8.26E-06	year	1.00E+01	1.40E+01	8.30E-02	No	No
$PM/PM_{10}/PM_{2.5}$ [6]	-	CAP	7.60E+00	2.87E-02	3.44E-01	8.60E+01	4.30E-02	6.88E-01	2.51E+02	1.26E-01	-	-	-	-	-	-
SO_2	7446-09-5	CAP/TAP	6.00E-01	2.26E-03	2.72E-02	6.79E+00	3.40E-03	5.43E-02	1.98E+01	9.91E-03	1-hr	4.60E-01	1.20E+00	6.60E+02	No	No
VOC	-	CAP (precursor)	5.50E+00	2.07E-02	2.49E-01	6.22E+01	3.11E-02	4.98E-01	1.82E+02	9.09E-02	-	-	-	-	-	-
TOC	-	-	1.10E+01	4.15E-02	4.98E-01	1.24E+02	6.22E-02	9.96E-01	3.64E+02	1.82E-01	-	-	-	-	-	-
CO_2	124-38-9	-	1.20E+05	4.53E+02	5.43E+03	1.36E+06	6.79E+02	1.09E+04	3.97E+06	1.98E+03	-	-	-	-	-	-
N_2O	10024-97-2	-	6.40E-01	2.41E-03	2.90E-02	7.24E+00	3.62E-03	5.79E-02	2.11E+01	1.06E-02	-	-	-	-	-	-
Methane	74-82-8	-	2.30E+00	8.68E-03	1.04E-01	2.60E+01	1.30E-02	2.08E-01	7.60E+01	3.80E-02	-	-	-	-	-	-
2-Methylnaphthalene	91-57-6	-	2.40E-05	9.05E-08	1.09E-06	2.72E-04	1.36E-07	2.17E-06	7.93E-04	3.97E-07	-	-	-	-	-	-
3-Methylcholanthrene	56-49-5	TAP	1.80E-06	6.79E-09	8.15E-08	2.04E-05	1.02E-08	1.63E-07	5.95E-05	2.97E-08	year	7.80E-04	1.60E-02	9.60E-05	No	No
7,12-Dimethylbenz(a)anthracene	57-97-6	TAP	1.60E-05	6.04E-08	7.24E-07	1.81E-04	9.05E-08	1.45E-06	5.29E-04	2.64E-07	year	6.90E-05	1.40E-03	8.50E-06	Yes	No
Acenaphthene	83-32-9	-	1.80E-06	6.79E-09	8.15E-08	2.04E-05	1.02E-08	1.63E-07	5.95E-05	2.97E-08	-	-	-	-	-	-
Acenaphthylene	208-96-8	-	1.80E-06	6.79E-09	8.15E-08	2.04E-05	1.02E-08	1.63E-07	5.95E-05	2.97E-08	-	-	-	-	-	-
Anthracene	120-12-7	-	2.40E-06	9.05E-09	1.09E-07	2.72E-05	1.36E-08	2.17E-07	7.93E-05	3.97E-08	-	-	-	-	-	-
Benzo(a)anthracene	56-55-3	TAP	1.80E-06	6.79E-09	8.15E-08	2.04E-05	1.02E-08	1.63E-07	5.95E-05	2.97E-08	year	4.50E-02	8.90E-01	5.50E-03	No	No
Benzene	71-43-2	HAP/TAP	2.10E-03	7.92E-06	9.51E-05	2.38E-02	1.19E-05	1.90E-04	6.94E-02	3.47E-05	year	1.00E+00	2.10E+01	1.30E-01	No	No
Benzo(a)pyrene	50-32-8	TAP	1.20E-06	4.53E-09	5.43E-08	1.36E-05	6.79E-09	1.09E-07	3.97E-05	1.98E-08	year	8.20E-03	1.60E-01	1.00E-03	No	No
Benzo(b)fluoranthene	205-99-2	TAP	1.80E-06	6.79E-09	8.15E-08	2.04E-05	1.02E-08	1.63E-07	5.95E-05	2.97E-08	year	4.50E-02	8.90E-01	5.50E-03	No	No
Benzo(g,h,i)perylene	191-24-2	-	1.20E-06	4.53E-09	5.43E-08	1.36E-05	6.79E-09	1.09E-07	3.97E-05	1.98E-08	-	-	-	-	-	-
Benzo(k)fluoranthene	207-08-9	TAP	1.80E-06	6.79E-09	8.15E-08	2.04E-05	1.02E-08	1.63E-07	5.95E-05	2.97E-08	year	4.50E-02	8.90E-01	5.50E-03	No	No
Butane	106-97-8	-	2.10E+00	7.92E-03	9.51E-02	2.38E+01	1.19E-02	1.90E-01	6.94E+01	3.47E-02	-	-	-	-	-	-
Chrysene	218-01-9	TAP	1.80E-06	6.79E-09	8.15E-08	2.04E-05	1.02E-08	1.63E-07	5.95E-05	2.97E-08	year	4.50E-01	8.90E+00	5.50E-02	No	No
Dibenzo(a,h)anthracene	53-70-3	TAP	1.20E-06	4.53E-09	5.43E-08	1.36E-05	6.79E-09	1.09E-07	3.97E-05	1.98E-08	year	4.10E-03	8.20E-02	5.00E-04	No	No
Dichlorobenzene [7]	25321-22-6	TAP	1.20E-03	4.53E-06	5.43E-05	1.36E-02	6.79E-06	1.09E-04	3.97E-02	1.98E-05	year	7.40E-01	1.50E+01	9.10E-02	No	No
Ethane	74-84-0	-	3.10E+00	1.17E-02	1.40E-01	3.51E+01	1.75E-02	2.81E-01	1.02E+02	5.12E-02	-	-	-	-	-	-
Fluoranthene	206-44-0	-	3.00E-06	1.13E-08	1.36E-07	3.40E-05	1.70E-08	2.72E-07	9.91E-05	4.96E-08	-	-	-	-	-	-
Fluorene	86-73-7	-	2.80E-06	1.06E-08	1.27E-07	3.17E-05	1.58E-08	2.54E-07	9.25E-05	4.63E-08	-	-	-	-	-	-
Formaldehyde	50-00-0	HAP/TAP	7.50E-02	2.83E-04	3.40E-03	8.49E-01	4.24E-04	6.79E-03	2.48E+00	1.24E-03	year	1.40E+00	2.70E+01	1.70E-01	Yes	No
Hexane	110-54-3	HAP/TAP	1.80E+00	6.79E-03	8.15E-02	2.04E+01	1.02E-02	1.63E-01	5.95E+01	2.97E-02	24-hr	2.60E+00	5.20E+01	7.00E+02	No	No
Indeno(1,2,3-cd)pyrene	193-39-5	TAP	1.80E-06	6.79E-09	8.15E-08	2.04E-05	1.02E-08	1.63E-07	5.95E-05	2.97E-08	year	4.50E-02	8.90E-01	5.50E-03	No	No
Naphthalene	91-20-3	HAP/TAP	6.10E-04	2.30E-06	2.76E-05	6.90E-03	3.45E-06	5.52E-05	2.02E-02	1.01E-05	year	2.40E-01	4.80E+00	2.90E-02	No	No
Pentane	109-66-0	-	2.60E+00	9.81E-03	1.18E-01	2.94E+01	1.47E-02	2.35E-01	8.59E+01	4.30E-02	-	-	-	-	-	-
Phenanathrene	85-01-8	-	1.70E-05	6.41E-08	7.70E-07	1.92E-04	9.62E-08	1.54E-06	5.62E-04	2.81E-07	-	-	-	-	-	-
Propane	74-98-6	-	1.60E+00	6.04E-03	7.24E-02	1.81E+01	9.05E-03	1.45E-01	5.29E+01	2.64E-02	-	-	-	-	-	-
Pyrene	129-00-0	-	5.00E-06	1.89E-08	2.26E-07	5.66E-05	2.83E-08	4.53E-07	1.65E-04	8.26E-08	-	-	-	-	-	-
Toluene	108-88-3	HAP/TAP	3.40E-03	1.28E-05	1.54E-04	3.85E-02	1.92E-05	3.08E-04	1.12E-01	5.62E-05	24-hr	1.90E+01	3.70E+02	5.00E+03	No	No

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Table 1: Emissions from natural gas combustion (cont.)

Pollutant	CAS No. [1]	Classification [2]	Emission Factor (lb/MMscf) [3]	Emissions (lb/hour)	Actual Emissions			PTE/Allowable Emissions			Averaging period (ave period) [4]	De Minimis (lb/ave period) [4]	SQER (lb/ave period) [4]	ASIL ($\mu g/m^3$) [4]	Permitting Required?	Modeling Required?
					(lb/day)	(lb/year)	(ton/year)	(lb/day)	(lb/year)	(ton/year)						
Arsenic	7440-38-2	HAP/TAP	2.00E-04	7.54E-07	9.05E-06	2.26E-03	1.13E-06	1.81E-05	6.61E-03	3.30E-06	year	2.50E-03	4.90E-02	3.00E-04	Yes	No
Barium	7440-39-3	-	4.40E-03	1.66E-05	1.99E-04	4.98E-02	2.49E-05	3.98E-04	1.45E-01	7.27E-05	-	-	-	-	-	-
Beryllium	7440-41-7	HAP/TAP	1.20E-05	4.53E-08	5.43E-07	1.36E-04	6.79E-08	1.09E-06	3.97E-04	1.98E-07	year	3.40E-03	6.80E-02	4.20E-04	No	No
Cadmium	7440-43-9	HAP/TAP	1.10E-03	4.15E-06	4.98E-05	1.24E-02	6.22E-06	9.96E-05	3.64E-02	1.82E-05	year	1.90E-03	3.90E-02	2.40E-04	Yes	No
Chromium(III) [8]	7440-47-3	HAP/TAP	1.34E-03	5.07E-06	6.08E-05	1.52E-02	7.61E-06	1.22E-04	4.44E-02	2.22E-05	24-hr	3.70E-04	7.40E-03	1.00E-01	No	No
Chromium(VI) [8]	18540-29-9	HAP/TAP	5.60E-05	2.11E-07	2.54E-06	6.34E-04	3.17E-07	5.07E-06	1.85E-03	9.25E-07	year	3.30E-05	6.50E-04	4.00E-06	Yes	Yes
Cobalt	7440-48-4	HAP/TAP	8.40E-05	3.17E-07	3.80E-06	9.51E-04	4.75E-07	7.61E-06	2.78E-03	1.39E-06	24-hr	3.70E-04	7.40E-03	1.00E-01	No	No
Copper	7440-50-8	TAP	8.50E-04	3.21E-06	3.85E-05	9.62E-03	4.81E-06	7.70E-05	2.81E-02	1.40E-05	1-hr	9.30E-03	1.90E-01	1.00E+02	No	No
Manganese	7439-96-5	HAP/TAP	3.80E-04	1.43E-06	1.72E-05	4.30E-03	2.15E-06	3.44E-05	1.26E-02	6.28E-06	24-hr	1.10E-03	2.20E-02	3.00E-01	No	No
Mercury	7439-97-6	HAP/TAP	2.60E-04	9.81E-07	1.18E-05	2.94E-03	1.47E-06	2.35E-05	8.59E-03	4.30E-06	24-hr	1.10E-04	2.20E-03	3.00E-02	No	No
Molybdenum	7439-98-7	-	1.10E-03	4.15E-06	4.98E-05	1.24E-02	6.22E-06	9.96E-05	3.64E-02	1.82E-05	-	-	-	-	-	-
Nickel	7440-02-0	HAP/TAP	2.10E-03	7.92E-06	9.51E-05	2.38E-02	1.19E-05	1.90E-04	6.94E-02	3.47E-05	year	3.10E-02	6.20E-01	3.80E-03	Yes	No
Selenium	7782-49-2	HAP/TAP	2.40E-05	9.05E-08	1.09E-06	2.72E-04	1.36E-07	2.17E-06	7.93E-04	3.97E-07	24-hr	7.40E-02	1.50E+00	2.00E+01	No	No
Vanadium	7440-62-2	TAP	2.30E-03	8.68E-06	1.04E-04	2.60E-02	1.30E-05	2.08E-04	7.60E-02	3.80E-05	24-hr	3.70E-04	7.40E-03	1.00E-01	No	No
Zinc	7440-66-6	-	2.90E-02	1.09E-04	1.31E-03	3.28E-01	1.64E-04	2.63E-03	9.58E-01	4.79E-04	-	-	-	-	-	-

[1] Chemical abstract service (CAS) number.

[2] Criteria air pollutant (CAP), hazardous air pollutant (HAP), toxic air pollutant (TAP).

[3] Obtained from AP 42, Fifth Edition, Volume I Chapter 1: External Combustion Sources, Section 1.4: Natural Gas Combustion. Tables 1.4-1, 2, 3 and 4.

[4] Obtained from WAC 173-460-150. Effective 12/23/19.

[5] Expressed as NO_2, which is a CAP and TAP. Emission factor obtained from Table 1.4-1 for small natural gas boiler (<100MMBtu/hr) - Uncontrolled.

[6] Conservatively assumed $PM=PM_{10}=PM_{2.5}$.

[7] Dichlorobenzene with CAS No. 25321-22-6 represents a mixture of dichlorobenzene isomers, including 1,4-Dichlorobenzene with CAS No. 106-46-7 which is a TAP.

[8] Emission factor listed in AP-42 includes Cr(III) and Cr(IV). EF was mulitplied by 96% to obtain EF for Cr(III) and 4% to obtain an EF for Cr(VI). Chromium Speciation obtained from "An Overview of Methods for EPA's National-Scale Air Toxics Assessment, January 31, 2011, OAQPS", Appendix D, page D-4, for SCC 10200603. See https://www.epa.gov/sites/production/files/2015-10/documents/2005-nata-tmd.pdf.

Table 2: Acceptable source impact level (ASIL) analysis for TAPs exceeding the SQER threshold.

Pollutants	CAS No. [1]	Classification [2]	Controlled allowable emissions (lb/yr)			Averaging Period (avg period) [3]	lb/hr for modeling			Modeled concentration ($\mu g/m^3$) [4]	ASIL ($\mu g/m^3$) [3]	Modeled concentration exceeds ASIL?
			50hp boiler	20hp boiler	9.5hp boiler		50hp boiler	20hp boiler	9.5hp boiler			
Chromium(VI)	18540-29-9	HAP/TAP	9.81E-04	3.68E-04	1.86E-04	year	1.12E-07	4.20E-08	2.12E-08	1.00E-06	4.00E-06	No

[1] Chemical abstract service (CAS) number.

[2] Criteria air pollutant (CAP), hazardous air pollutant (HAP), toxic air pollutant (TAP).

[3] Obtained from WAC 173-460-150. Effective 12/23/19.

[4] Calculated by multiplying the normalized AERMOD concentration for each boiler by the corresponding chromium (VI) emission rate.

Table 3: AERMOD modeling results. [1]

	Boilers		
	50hp boiler	20hp boiler	9.5hp boiler
Annual maximum concentration ($\mu g/m^3$)	5.38	6.76	5.54

[1] Modeling was performed using the AERMOD "Other" pollutant option, with chromium (VI) specified as the modeled pollutant and a normalized emission rate of 1 lb/hr for each boiler.

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Appendix B

GENERAL REQUIREMENTS FOR RAIN CAPS AND EXHAUST STACKS

1. 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.

2. 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 in Figure 1.

FIGURE 1: Acceptable types of weatherproof exhaust systems:

