SWCAA
Southwest Clean Air Agency

TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit ADP 19-3372R1
ADP Application CL-3106

Norwesco, LLC
SWCAA ID - 2296

Final Issued: March 4, 2021

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Southwest Clean Air Agency

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Abbreviations

acfm	actual cubic feet per minute
ADP	Air Discharge Permit
AP-42	Compilation of Emission Factors, AP-42, Fifth Edition, Volume 1, Stationary Point and Area Sources – published by the US Environmental Protection Agency
BACT	Best available control technology
Btu	British thermal unit
Btu/gal	Heat content expressed in British thermal units per gallon
CAS #	Chemical Abstracts Service registry number
cfm	Cubic feet per minute
CPM	Condensable particulate matter
CFR	Code of Federal Regulations
CO	Carbon monoxide
dscfm	Dry standard cubic feet per minute
EPA	U.S. Environmental Protection Agency
ft^2	Square feet
g/hp-hr	Grams per horsepower hour
gr/dscf	Grains per dry standard cubic foot (68 °F, 1 atmosphere)
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
$lb/10^3$ gal	Pounds per thousand gallons
$lb/10^6$ scf	Pounds per million standard cubic feet
lb/MMBtu	Pounds per million British thermal units
lb/yr	Pounds per year
MMBtu/hr	Millions of British thermal units per hour
MSDS	Material Safety Data Sheet
NO_x	Nitrogen oxides
oz/yd^2	Once per square yard
PM	Total particulate matter (includes both filterable and condensable particulate matter as measured by EPA Methods 5 and 202)
PM_{10}	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (includes both filterable and condensable particulate matter as measured by EPA Methods 5 and 202)
$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (includes both filterable and condensable particulate matter as measured by EPA Methods 5 and 202)
ppm	Parts per million
ppmv	Parts per million by volume
ppmvd	Parts per million by volume, dry
psig	Pounds per square inch, gauge
RCW	Revised Code of Washington
SQER	Small Quantity Emission Rate listed in WAC 173-460
SO_2	Sulfur dioxide
SWCAA	Southwest Clean Air Agency
TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
T-BACT	Best Available Control Technology for toxic air pollutants
tpy	Tons per year
VOC	Volatile organic compound
WAC	Washington Administrative Code

1. FACILITY IDENTIFICATION

Applicant Name:	Norwesco, LLC
Applicant Address:	4365 Steiner Street, St. Bonifacius, MN 55375
Facility Name:	Norwesco, LLC
Facility Address:	3860 Grant Road, Washougal, WA 98671
Contact Person:	Matt Hill, Safety & Environmental Director
SWCAA Identification:	2296
Primary Process:	Plastic Rotational Molding
SIC/NAICS Code:	3082 / 326121
Facility Classification:	Natural Minor

2. FACILITY DESCRIPTION

Norwesco, LLC (Norwesco) operates a rotational molding facility that produces polyethylene tanks for agricultural, water, closed-top industrial and below ground septic and cistern applications. Tanks produced at the facility range in capacity from 12 to 15,000 gallons. All tanks are produced with a single rotational molding oven. Auxiliary support equipment includes two outdoor resin storage silos and an electric plastics grinder.

3. CURRENT PERMITTING ACTION

This permitting action is in response to a request to Reopen for cause due to a material mistake discovered in the permit. SWCAA sent a letter to Norwesco on July 22, 2020 stating that the agency plans to reopen the permit to correct the following mistake:

- The emission monitoring appendix previously specifies correction to 3% excess oxygen. Emission limits were reviewed and approved based on 18% excess oxygen. The emission monitoring appendix and permit Condition 2 were revised.

The current permitting action modifies emission limits for the facility's rotational molding oven.

ADP 19-3372 will be superseded in its entirety by this permitting action.

4. PROCESS DESCRIPTION

4.a Material Handling and Storage (*existing*). Bulk resin beads are pneumatically unloaded from rail cars to a grinder that reduces the beads to a fine material. Ground material is pneumatically transferred to one of two resin silos. Material stored in the silos is augered to various rotational molds. A cartridge-style dust collector is used to control particulate matter emissions from material grinding and pneumatic transfer. Plastic tanks and/or parts are occasionally chipped and ground for re-use.

4.b Rotational Molding (*existing*). A single natural gas fired rotational molding oven is in operation at the facility. Steel molds are filled with resin and heated in the oven to ~650 degrees Fahrenheit. Over time the resin melts and fuses into a solid layer of plastic. Continuous mold rotation facilitates uniform distribution of the resin within the interior of the mold. Rotation is continued outside the oven under a water spray to facilitate cooling and solidification. The mold is then opened, and the formed vessel is removed. Raw vessels are trimmed and minimally processed to obtain the finished product.

4.c Auxiliary Production Activities (*existing*). Auxiliary activities at the site include grinding and chipping of plastic for reuse, plastics welding and solvent cleaning of tools. A diesel storage tank is maintained on-site to fuel fork-

lifts used at the facility. Natural gas space heating is used to heat the office space and is used to heat the process building sufficient to prevent freezing conditions.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a Material Storage and Handling (*existing*). Two vertical silos store bulk resin beads prior to use in the molding process. Resin beads are pneumatically unloaded from rail cars, ground, and then transferred to storage. Stored material is augered from the silos to the rotational molds.

Silo Make / Model:	Wheatland Bins / 12617E
Silo Capacity:	2,521 cubic feet (each)
Silo Dimensions:	12' 6" diameter, 17' tall straight wall

Emission Control Equipment (*existing*). The storage silos and resin grinder are vented to a baghouse for the control of particulate matter emissions.

Baghouse Make / Model:	FARR Dust Collection Products / Tenkay Model 6D
Baghouse Serial Number:	97DC24162
Baghouse Style:	Cartridge / reverse flow cleaning
Filter Area:	1,500 ft^2
Number of Filter Cartridges:	6
Maximum Airflow:	5,100 scfm @ 3" w.c.
Exhaust Stack:	12" dia, exhausts vertically through building roof at ~31 ft above ground level

5.b Rotational Molding Oven (*existing*). One natural gas fired molding oven is used to make plastic tanks/vessels.

Oven Make / Model:	Custom built
Burner Make / Model:	Eclipse / RAH 480
Burner Fuel:	Natural gas
Burner Capacity:	4.8 MMBtu/hr
Exhaust Stack:	15" dia, exhausts vertically through building roof at ~33 ft above ground level

5.c Insignificant Emission Units. The following pieces of facility equipment have been determined to have insignificant emissions, and are not registered as emission units:

- Building Comfort Heating (*existing*). Less than 1 MMBtu/hr of natural gas fired space heating is in use at the facility (one home-sized furnace for the office, two roof-mounted area heaters in the process area).

- Plastics Welding (*existing*). A hand-held ultrasonic tool is used primarily for tank repair. In addition, some minor spot welding of items such as tank dividers may be conducted. This activity is conducted in an open area with a ceiling fan that is turned on as necessary. Welding is expected to produce negligible amount of emissions at this facility.

- Solvent Parts Cleaner (*existing*). A small cabinet-sized ZEP hydrocarbon solvent cleaner is used to clean tools or parts as necessary. The solvent is filtered and re-used.

5.d Equipment/Activity Summary.

ID No.	Generating Equipment/Activity	# of Units	Control Measure/Equipment	# of Units
1	Material Handling	3	Dust Collector	1

	(2 Resin Silos, Grinder)		(FARR - 5,100 cfm)	
2	Rotational Molding Oven (Eclipse - 4.8 MMBtu/hr)	1	Natural Gas, Proper Combustion Controls	1

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from the rotational molding operation consist of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM) sulfur dioxide (SO_2), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

6.a Material Handling (*existing*). Emissions from the material handling dust collector are calculated from rated flowrate, a maximum PM exhaust concentration of 0.005 gr/dscf, and 8,760 hr/yr of operation. All PM is assumed to be $PM_{2.5}$.

Pollutant	Flowrate (cfm)	Exhaust Concentration (gr/dscf)	Hours of Operation	Emissions	
				(lb/hr)	(tpy)
$PM/PM_{10}/PM_{2.5}$	5,100	0.005	8,760	0.22	0.96

6.b Rotational Molding (*modified*). Plastic resin is not expected to decompose to any great extent during the molding process. Combustion of natural gas is assumed to be the only source of emissions from oven operation. Emissions from oven operation are calculated from a rated capacity of 4.8 MMBtu/hr, 8,760 hr/yr of operation and applicable emission factors. Emission factors for NO_X and CO represent maximum ongoing emission levels based on manufacturer's data and molding oven monitoring results and correspond to 18 ppmv NO_X and 41 ppmv CO, corrected to 18% O_2. All other emission factors are taken from EPA AP-42, Section 1.4 *Natural Gas Combustion* (7/98). All PM is assumed to be $PM_{2.5}$.

Pollutant	Emission Factor (lb/MMBtu)	Emissions (tpy)
NO_X	0.1336	2.81
CO	0.1847	3.88
VOC	0.0054	0.11
SO_2	0.0006	0.013
$PM/PM_{10}/PM_{2.5}$	0.0075	0.16
Benzene	$2.06*10^{-6}$	0.09 lb/yr
Formaldehyde	$7.35*10^{-5}$	3.1 lb/yr

6.c Emissions Summary/Facilitywide Potential to Emit.

Pollutant	Emissions (tpy)	Project Increase (tpy)
NO_X	2.81	0.51
CO	3.88	2.02
VOC	0.11	0.0
SO_2	0.013	0.0
Lead	0.0	0.0
PM	1.12	0.0
PM_{10}	1.12	0.0

$PM_{2.5}$	1.12	0.0
TAP	0.002	0.0
HAP	0.002	0.0

Pollutant	CAS Number	Category	Facilitywide Emissions (lb/yr)	Incremental Increase (lb/yr)	WAC 173-460 SQER (lb/yr)
Benzene	71-43-2	HAP/TAP A	0.09	0	20
Formaldehyde	50-00-0	HAP/TAP A	3.1	0	20

7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

7.a Revised Code of Washington (RCW) 70.94.141 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act [RCW 70.94] and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

7.b RCW 70.94.152 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.

7.c Washington Administrative Code (WAC) 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety. SWCAA implements WAC 173-460 as in effect on August 21, 1998.

7.d WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.

7.e SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

7.f SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.

7.g SWCAA 400-060 "Emission Standards for General Process Units" prohibits particulate matter emissions from all new and existing process units in excess of 0.1 grains per dry standard cubic foot of exhaust gas.

7.h SWCAA 400-110 "New Source Review" requires that an Air Discharge Permit Application be filed with SWCAA, and an Air Discharge Permit be issued by SWCAA, prior to establishment of the new source, emission unit, or modification.

7.i SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:

(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
(2) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
(3) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
(4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(5) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

8.a BACT – Rotational Molding Oven. The proposed use of low sulfur fuel (natural gas), annual emission monitoring, and proper combustion controls has been determined to meet the requirements of BACT for the types and quantities of emissions from the rotational molding oven at this facility.

Other Determinations

8.b Prevention of Significant Deterioration (PSD) Applicability Determination: The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.

8.c Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

9.a TAP Small Quantity Review. The modification proposed will not affect the type or quantity of TAP emissions from facility operations. This permitting action will not change the previously approved ambient impact of Norwesco's facility.

Conclusions

9.b Operation of the molding oven and material handling, as proposed, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.c Operation of the molding oven and material handling, as proposed, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" (as in effect 8/21/98) or WAC 173-476 "Ambient Air Quality Standards" to be violated.

9.d Operation of the molding oven and material handling, as proposed, will not cause a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 19-3372R1 to correct a material mistake discovered following the issuance of the previous permit. ADP 19-3372R1 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a Supersession of Previous Permits. ADP 19-3372R1 supersedes ADP 19-3372 in its entirety.

10.b General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application CL-3106. Permit requirements established by this action are intended to implement BACT, minimize emissions, and assure compliance with applicable requirements on a continuous basis. Emission limits for approved equipment are based on the maximum potential emissions calculated in Section 6 of this Technical Support Document.

10.c Monitoring and Recordkeeping Requirements. ADP 19-3372R1 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements. Specific requirements are established for hours of operation, fuel consumption and periodic emission monitoring.

10.d Reporting Requirements. ADP 19-3372R1 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for hours of operation, fuel consumption, and emission monitoring results. Reports are to be submitted on an annual basis.

10.e Emission Limits. Visible emissions from the material handling dust collector and rotational molding oven exhaust systems have been limited to zero percent opacity, consistent with proper operation. No change has been made to approval conditions for other units at the facility.

10.f Operational Limits. The molding oven has been limited to natural gas fuel only. Exhaust from the molding oven is required to discharge vertically above building roof height.

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.

11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

12. EMISSION MONITORING AND TESTING

12.a Emission Monitoring - Rotational Molding Oven. Permit requirements for the rotational molding oven require annual emission monitoring for the purpose of monitoring future performance and assuring compliance with applicable emission limits. All emission monitoring shall be conducted in accordance with the provisions of ADP 19-3372R1, Appendix A.

13. FACILITY HISTORY

13.a Previous Permitting Actions. SWCAA has previously issued the following Permits for Norwesco's facility in Washougal:

Date	Application Number	Permit Number	Purpose
11/20/2019	CL-3106	19-3372	Modification of emission limits for an existing rotational molding oven
11/27/2017	CL-3031	17-3253	Installation of replacement burner in rotational molding oven.
8/21/2007	CL-1777	07-2742	Installation of rotational molding oven and two bulk resin storage silos.

13.b Compliance Status. A search of source records on file at SWCAA did not identify any outstanding compliance issues at this facility.

14. PUBLIC INVOLMENT OPPORTUNITY

14.a Public Notice for Permit Reopening. Public notice following the request to reopen the permit was published on the SWCAA internet website for a minimum of (15) days beginning on July 22, 2020.

14.b Public Comment. SWCAA did not receive specific comments, a comment period request or any other inquiry from the public regarding this ADP permitting action. Therefore, no public comment period was provided for this permitting action.

14.c State Environmental Policy Act. This project is exempt from SEPA requirements pursuant to WAC 197-11-800(3) since it involves only minor modification of existing approval conditions and does not involve material expansions or changes in use. SWCAA issued a SEPA Exempt determination for this permitting action identified as SWCAA 21-007 dated March 4. 2021.