AIR EMISSION PERMIT NO. 09700025- 003

IS ISSUED TO

Genmar Industries

LARSON-GLASTRON BOATS INC
700 Paul Larson Memorial Drive
Little Falls, Morrison County, MN 56345

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date
Total Facility Operating Permit	6/15/1995
Major Amendment	6/23/1999
Major Amendment	01/14/2000

This permit authorizes the Permittee to operate and modify the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Major Amendment to a Part 70 permit

Construction and Operation Issue Date: June 23, 2000

Operating Conditions Issue Date: August 21, 2000

Expiration: September 28, 2003
Title I Conditions do not expire.

Ann Foss
Rodney E. Massey, P.E.
District Director
South District

for Karen A. Studders
Commissioner
Minnesota Pollution Control Agency

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NOTICE TO THE PERMITTEE:

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Certain requirements which have been determined not to apply are listed in Table A of this permit.

FACILITY DESCRIPTION:

Larson proposed to construct and operate advanced engineered composite process cells (VEC^{TM} cells) for the manufacture of come of the fiberglass boat parts in closed molds instead of the typical open molds that they are now using. This permit allows the installation of six of the cells. Two were previously permitted as synthetic minor for NESHAPs 112(g) purposes. This permit removes those restrictions as the facility has chosen to perform a MACT analysis. The MACT determination applies not only to the four new cells, but the two previously permitted cells as well.

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.

Subject Item: **Total Facility**

What to do	Why to do it
A. VOC/PM/PM10 FLEX CAP EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 90 tons/year using 12-month Rolling Sum on a monthly basis as specified below in Equation 1.	Title I Condition: Limit to avoid major source and modification classification under 40 CFR pt. 52.21.
Equation 1: PM = [(PfgEFfg) + (PgcCgc((100 - TEgc) / 100)((100 - %control) / 100)) + (PpCp((100 - TEp) / 100)((100 - %control) / 100)) + (PfngEFfng) + (PfpEFfp)] x (0.0005) Where, Pfg = amount of fiberglass purchased for spray-up operations, lb/month EFfg = PM emission factor from fiberglass chopping process, 0.005 percent weight Pgc = amount of gelcoat purchased, lb/month Cgc = percent composition of PM in Pgc as applied, 70 percent weight TEgc = gelcoating transfer efficiency, 45 percent Pp = amount of paint purchased, lb/month Cp = percent composition of PM in Pp as applied, 55 percent weight TEp = painting transfer efficiency, 30 percent	Title I Condition: Recordkeeping for limit to avoid major source and modification classification under 40 CFR pt. 52.21.
and where, Pfng = amount of natural gas burned as delivered/purchased, MM cf/month EFfng = PM emission factor for natural gas burning furnaces, 6.2 lb/MM cf Pfp = amount of propane burned as delivered/purchased, M gal/month EFfp = PM emission factor for propane burning furnaces, 0.6 lb/M gal %control = control efficiency of the particulate control equipment with 100% capture 0.0005 = conversion factor, ton/lb	Title I Condition: Recordkeeping for limit to avoid major source and modification classification under 40 CFR pt. 52.21 (continued).
Particulate Matter < 10 micron: less than or equal to 90 tons/year using 12-month Rolling Sum on a monthly basis as specified below in Equation 2.	Title I Condition: Limit to avoid major source and modification classification under 40 CFR pt. 52.21.
Equation 2: PM10 = [(PfgEFfg) + (PgcCgc((100 - TEgc) / 100)((100 - %control) / 100)) + (PpCp((100 - TEp) / 100)((100 - %control) / 100)) + (PfngEFfng) + (PfpEFfp)] x (0.0005) Where, Pfg = amount of fiberglass purchased for spray-up operations, lb/month EFfg = PM10 emission factor from fiberglass chopping process, 0.005 percent weight Pgc = amount of gelcoat purchased, lb/month Cgc = percent composition of PM10 in Pgc as applied, 70 percent weight TEgc = gelcoating transfer efficiency, 45 percent Pp = amount of paint purchased, lb/month Cp = percent composition of PM10 in Pp as applied, 55 percent weight TEp = painting transfer efficiency, 30 percent	Title I Condition: Recordkeeping for limit to avoid major source and modification classification under 40 CFR pt. 52.21.
and where, Pfng = amount of natural gas burned as delivered/purchased, MM cf/month EFfng = PM10 emission factor for natural gas burning furnaces, 6.2 lb/MM cf Pfp = amount of propane burned as delivered/purchased, M gal/month EFfp = PM10 emission factor for propane burning furnaces, 0.6 lb/M gal %control = control efficiency of the particulate control equipment with 100% capture 0.0005 = conversion factor, ton/lb	Title I Condition: Recordkeeping for limit to avoid major source and modification classification under 40 CFR pt. 52.21 (continued).
Volatile Organic Compounds: less than or equal to 245 tons/year using 12-month Rolling Sum on a monthly basis as specified below in Equation 3.	Title I Condition: Limit to avoid major source and modification classification under 40 CFR pt. 52.21.

Equation 3: VOC = [((UrCrEFrs) + (UrCrEFrcm) + (PgcCgcEFgcvsom) + (PgcCgcEFgcnvsom) + (Pgc2Cgc2EFgccm)+ (PpCp) + (PhpChpEFhp) + (VOCff) + (PmCm) + (PfngEFfng) + (PfpEFfp)] x(0.0005) Where, Ur = amount of VOC containing resin as used by process, lb/month Cr = percent composition of VOC in Ur as applied, percent weight EFrs = emission factor for spray layup of non-vapor-suppressed resin as referenced in Appendix A of this Permit, or latest EPA-approved emission factor, as appropriate (lb/lb monomer) EFrcm = emission factor for closed molding of non-vapor-suppressed resin as referenced in Appendix A of this Permit, or latest EPA-approved emission factor, as appropriate (lb/lb monomer)	Title I Condition: Limit to avoid major source and modification classification under 40 CFR pt. 52.21.
and where, Pgc = amount of VOC containing gelcoat as delivered/purchased for open mold application, lb/month Cgc = percent composition of VOC in Pgc as applied, percent weight Pgc2 = amount of VOC containing gelcoat as delivered/purchased for closed mold application, lb/month Cgc2 = percent composition of VOC in Pgc2 as applied, percent weight EFgcvs = emission factors for spray layup of open mold vapor-suppressed gelcoat as referenced in Appendix A of this Permit or latest EPA-approved emission factor, as appropriate (lb/lb monomer) EFgcnvs = emission factors for spray layup of open mold non-vapor-suppressed gelcoat as referenced in Appendix A of this Permit or latest EPA-approved emission factor, as appropriate (lb/lb monomer) EFgccm = emission factor for spray layup of closed mold gelcoat as referenced in Appendix A of the Permit or latest EPA-approved emission factor, as appropriate (lb/lb monomer)	(continued from above)
and where, s: spray layup application cm: closed molding application vs: vapor-suppressed nvs: non-vapor-suppressed	(continued from above)
and where, Pp = amount of VOC-containing paint as delivered/purchased, lb/month Cp = percent composition of VOC in Pp as applied, percent weight Php = amount of VOC-containing hand-applied putty as delivered/purchased, lb/month Chp = percent composition of VOC in Php as applied, percent weight EFhp = emission factor for non-vapor-suppressed hand layup of putty, 0.13 lb/lb monomer VOCff = amount of fugitive VOC emissions from foam seat process, lb/month Pm = amount of miscellaneous VOC-containing materials as delivered/purchased, lb/month Cm = percent composition of VOC in Pm as applied, percent weight Pfng = amount of natural gas burned as delivered/purchased, MM cf/month EFfng = emission factor for natural gas burning furnaces, 2.784 lb/MM cf Pfp = amount of propane burned as delivered/purchased, M gal/month EFfp = emission factor for propane burning furnaces, 0.5lb/M gal 0.0005 = conversion factor, lb/ton	(continued from above)
The Permittee shall calculate the 12-month Rolling Sum each month for PM, PM10 and VOC emissions. The calculations must be completed by the 15th day of each month for the preceding month. The 12-month Rolling Sum shall be calculated by adding the total emissions of the current month (in tons) to the sum of the previous eleven months' total emissions (in tons).	Title I Condition: Monitoring for limit to avoid classification as a major source or modification under 40 CFR Section 52.21 and 40 CFR pt. 51, Appendix S, where applicable
For the first 11 months after this permit is issued, the Permittee shall calculate the 12-month Rolling Sum using the previous 11 months of monthly fuel and materials used or purchased (determined prior to permit issuance). All calculations and usages shall be based on verifiable records maintained by the Permittee.	Title I Condition: Monitoring for limit to avoid classification as a major source or modification under 40 CFR Section 52.21 and 40 CFR pt. 51, Appendix S, where applicable
The Permittee shall not begin construction of any single project or projects that are connected or phased which will cause a total increase in actual emissions of greater than 99 tons per year VOC without first getting a permit amendment to authorize the project. Connected and phased have meanings as defined in Minn. R. 4410.0200, subps. 9(b) and 60. Such projects(s) may require the completion of an Environmental Assessment Worksheet prior to the amendment being issued.	Minn. Stat. 116D.04, subd. 2b. Minn. R. 4410.3100, subp. 1
B. NESHAP REQUIREMENTS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

The Permittee shall comply with the Maximum Acheivable Control Technology (MACT) Standard for Fiberglass Boat Manufacturing scheduled for promulgation November 15, 2000.	40 CFR pt. 63
The Permittee shall not "construct or reconstruct" a major source of hazardous air pollutants as defined in 40 CFR part 63, subpart B, section 63.2 without first obtaining a preconstruction permit.	Title I Condition: Limit to avoid 40 CFR part 63, Sections 63.40 to 63.44 and Minn. R. 7007.3010.
C. OPERATIONAL REQUIREMENTS	hdr
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the Administrator or citizens under the Clean Air Act..	Minn. R. 7030.0010 - 7030.0080
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16	Minn. R. 7007.0800, subp. 16
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
D. NOTIFICATION REQUIREMENTS	hdr
Shutdowns: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdowns: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: In the event of any deviation, as defined in part 7007.0100, subpart 8a, which could endanger human health or the environment, notify, orally or by facsimile, the commissioner or the state duty officer as soon as possible after discovery of the deviation. Within two working days of the discovery, submit to the commissioner a written description of the deviation stating: A. the cause of the deviation; B. the exact dates of the period of the deviation, if the deviation has been corrected; C. whether or not the deviation has been corrected; D. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and E. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7007.0800, subp. 6(A) and Minn. R. 7019.1000, subp. 1
See Table B for additional notification requirements.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

E. MONITORING REQUIREMENTS	hdr
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued. This requirement shall apply to the monitoring equipment used for weight measurement on the facility's base resin tanks which includes sight glasses, flow meters and/or scales.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment. This requirement shall apply to the equipment used for monitoring the weight of base resin in the facility's resin storage tanks which includes sight glasses, flow meters and/or scales.	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system	Minn. R. 7007.0800, subp. 4(D)
F. RECORDKEEPING REQUIREMENTS	hdr
Equipment List: The Permittee shall maintain a written list of all emission units on site that are not insignificant activities. The list shall include the type of equipment; identifying number; dates of installation, modification and/or reconstruction; and reference to applicable Standards of Performance for New Stationary Sources (40 CFR pt. 60) and National Emission Standards for Hazardous Air Pollutants (40 CFR pt. 63).	Title I Condition: Record keeping for limit to avoid classification as a major source or modification under 40 CFR Section 52.21 and 40 CFR pt. 51, Appendix S, where applicable
Updating the Equipment List: The list shall be updated to include new or modified equipment before making a change. New emission units may be installed if they are of a type already listed in this permit, and existing units may be modified or moved, without obtaining a permit amendment, provided total facility emissions remain within the limits specified in the permit.	Title I Condition: Record keeping for limit to avoid classification as a major source or modification under 40 CFR Section 52.21 and 40 CFR pt. 51, Appendix S, where applicable
Record keeping: The Permittee shall maintain records of the total amount of resins used during each month of operation as specified below in Resin Usage: Equation 4, based on sight glass, flow meter or scale readings. These records shall be used to calculate the monthly totals and 12-month rolling sums as required by other parts of this permit.	Title I Condition: Record keeping for limit to avoid classification as a major source or modification under 40 CFR Section 52.21 and 40 CFR pt. 51, Appendix S, where applicable.
Resin Usage: Actual resin usage each month shall be determined using Equation 4 below. Equation 4: Ur = Urst + Urdp - Urlo Where, Ur = total amount of VOC-containing resin as used, lb/month Urst = quantity of resin inventoried at the start of each month using flow meter, sight glass or scale readings for each storage tank, lb/month Urdp = quantity of resin delivered to the facility during the month based upon delivery and/or purchase records, lb/month Urlo = quantity of resin left over at the start of the following month using flow meter, sight glass or scale readings for each storage tank, lb/month	Title I Condition: Record keeping for limit to avoid classification as a major source or modification under 40 CFR Section 52.21 and 40 CFR pt. 51, Appendix S, where applicable
Record keeping: The Permittee shall maintain records of the total amount of all VOC containing material, other than resins, used each month based on purchase records. These records shall be used to calculate the monthly totals and 12-month rolling sums as required by other parts of this permit.	Title I Condition: Record keeping for limit to avoid classification as a major source or modification under 40 CFR Section 52.21 and 40 CFR pt. 51, Appendix S, where applicable
Record keeping: For PM/PM10, and VOC, the solids and VOC content of purchased materials shall be determined by the Material Safety Data Sheet (MSDS) provided by the supplier for each material used. If a material content range is given on the MSDS, all compliance calculations must use either the highest number in the range, or the Permittee shall obtain a certification from the supplier as to the accuracy of the MSDS, and the material's exact solids and VOC content shall be used. Other methods approved by the MPCA may be used to determine the material content. The Division Manager reserves the right to require the Permittee to take samples of the materials, and to conduct analysis of material content using EPA reference methods. If an EPA reference method is used for material content determination, the data obtained shall supercede the MSDS.	Title I Condition: Record keeping for limit to avoid classification as a major source or modification under 40 CFR Section 52.21 and 40 CFR pt. 51, Appendix S, where applicable
Record keeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007. 1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes. The Permittee is not required to keep records for modifications defined as "Insignificant Activities Not Required to Be Listed" under Minn. R. 7007.1300, subp. 2.	Minn. R. 7007. 0800, subp. 5(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
G. REPORTING REQUIREMENTS	hdr
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H)	Minn. R. 7007.1400, subp. 1(H)
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
See Table B for additional reporting requirements.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Subject Item: **GP 001 Post-1968 Indirect Heating (Bldg. Furnaces)**

Associated Items:

EU 001 Plant 1 Furnace 1
EU 002 Plant 1 Furnace 2
EU 003 Plant 1 Furnace 3
EU 005 Plant 1 Furnace 5
EU 006 Plant 1 Furnace 6
EU 007 Plant 1 Furnace 7
EU 008 Plant 1 Furnace 8
EU 009 Plant 1 Furnace 9
EU 010 Plant 1 Furnace 10
EU 011 Plant 1 Furnace 11
EU 012 Plant 1 Furnace 12
EU 013 Plant 1 Furnace 13
EU 014 Plant 1 Furnace 15
EU 015 Plant 1 Furnace 16
EU 016 Plant 2 Furnace 1
EU 017 Plant 2 Furnace 2
EU 019 Plant 2 Furnace 4
EU 020 Plant 2 Furnace 5
EU 021 Plant 2 Furnace 6
EU 022 Plant 2 Furnace 7
EU 028 Plant 3 Furnace
EU 029 Plant 4 Furnace
EU 030 Plant 5 Furnace 1
EU 031 Plant 5 Furnace 2
EU 032 Plant 6 Furnace
EU 035 Warehouse 2 Furnace 1
EU 036 Warehouse 2 Furnace 2
EU 037 Warehouse 3 Furnace 1
SV 001
SV 002
SV 003
SV 005
SV 006
SV 007
SV 008
SV 009
SV 010
SV 011
SV 012
SV 013
SV 014
SV 015
SV 016
SV 017
SV 019

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Associated Items: SV 020
SV 021
SV 022
SV 028
SV 029
SV 030
SV 031
SV 032
SV 035
SV 036
SV 037

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input . This limit applies to each emission unit in this group individually.	Minn. R. 7011.0515, subp. 1 Minn. R. 7011.0550
Opacity: less than or equal to 20 percent ; except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60-minute period, and a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60-minute period. This limit applies to each emission unit in this group individually.	Minn. R. 7011.0515, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Subject Item: **GP 002 Pre-1968 Indirect Heating (Bldg. Furnaces)**

Associated Items: EU 004 Plant 1 Furnace 4

EU 018 Plant 2 Furnace 3

EU 023 Plant 2 Furnace 8

EU 024 Plant 2 Furnace 9

EU 025 Plant 2 Furnace 10

EU 026 Plant 2 Furnace 11

EU 027 Plant 2 Furnace 12

EU 033 Windshield Shop Furnace 1

EU 034 Windshield Shop Furnace 2

EU 038 Warehouse 3 Furnace 2

SV 004

SV 018

SV 023

SV 024

SV 025

SV 026

SV 027

SV 033

SV 034

SV 038

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input . This limit applies to each emission unit in this group individually.	Minn. R. 7011.0510, subp. 1 Minn. R. 7011.0545
Opacity: less than or equal to 20 percent ; except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60-minute period, and a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60-minute period. This limit applies to each emission unit in this group individually.	Minn. R. 7011.0510, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Subject Item: **GP 003 Panel Filters**

Associated Items: CE 001 Mat or Panel Filter

CE 002 Mat or Panel Filter

CE 003 Mat or Panel Filter

CE 004 Mat or Panel Filter

CE 005 Mat or Panel Filter

CE 006 Mat or Panel Filter

CE 007 Mat or Panel Filter

CE 008 Mat or Panel Filter

CE 009 Mat or Panel Filter

CE 010 Mat or Panel Filter

CE 011 Mat or Panel Filter

CE 012 Mat or Panel Filter

CE 013 Mat or Panel Filter

CE 014 Mat or Panel Filter

CE 015 Mat or Panel Filter

CE 016 Mat or Panel Filter

CE 017 Mat or Panel Filter

CE 018 Mat or Panel Filter

CE 019 Mat or Panel Filter

CE 020 Mat or Panel Filter

What to do	Why to do it
Control Equipment Efficiency: The panel filters must at all times attain at least 92% control efficiency for PM and PM10.	Minn. R. 7011.0700, subp 1 and Minn. R. 7007.0800, subp. 14 to avoid major sources classification under 40 CFR pt. 70.2
Control Equipment Monitoring: The panel filters' alignment and condition (saturation, tears, holes) shall be monitored every 24 hours if in operation.	Minn. R. 7011.0075, subp. 2(F) Minn. R. 7007.0800, subp. 4
Control Equipment Recordkeeping: The panel filters' alignment and condition (saturation, tears, holes) shall be recorded every 24 hours if in operation.	Minn. R. 7011.0075, subp. 2(H) Minn. R. 7007.0800, subp. 5
Control Equipment Maintenance: The Permittee shall maintain an inventory of spare parts that are subject to frequent replacement, as required by the manufacturing specifications.	Minn. R. 7011.0075, subp. 2(A)
Control Equipment Maintenance: The Permittee shall train staff on the operation and monitoring of the panel filters and troubleshooting, and train and require staff to respond to indications of malfunctioning equipment. Torn or plugged filters shall be replaced immediately.	Minn. R. 7011.0075 subp. 2(B)
Control Equipment Maintenance: The Permittee shall maintain a record of parts replaced, repaired, or modified for the previous five years.	Minn. R. 7011.0075 subp. 2(I)
The Permittee may replace listed emission units, move emission units or add new emission units to those listed in GP 003, provided PM and PM less than 10 microns emissions are tracked according to Table A, Section A, Emission Limits; and Table A, Section F, Recordkeeping Requirements. All replaced or added emission units must meet the requirements for GP 003.	Title I Condition: Limit to avoid classification as major source or modification under 40 CFR Section 52.21.

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Subject Item: **GP 004 Resin Spray Guns**

Associated Items:
EU 040 Spraygun 002 (resin)
EU 041 Spraygun 003 (resin)
EU 044 Spraygun 006 (resin)
EU 045 Spraygun 007 (resin)
EU 046 Spraygun 008 (resin)
EU 049 Spraygun 011 (resin)
EU 050 Spraygun 012 (resin)
EU 051 Spraygun 013 (resin)
EU 053 Spraygun 015 (resin)
EU 055 Spraygun 017 (resin)
EU 056 Spraygun 018 (resin)
EU 057 Spraygun 019 (resin)
EU 058 Spraygun 020 (resin)
EU 059 Spraygun 021 (resin)
EU 061 Spraygun 023 (resin)
EU 064 Spraygun 026 (resin)
EU 065 Spraygun 027 (resin)
EU 066 Spraygun 028 (resin)
EU 067 Spraygun 029 (resin)
EU 070 Spraygun 032 (resin)
EU 071 Spraygun 033 (resin)
EU 072 Spraygun 034 (resin)
EU 073 Spraygun 035 (resin)
SV 045
SV 046
SV 047
SV 069
SV 070
SV 071
SV 072
SV 073
SV 074
SV 075
SV 076
SV 077
SV 078
SV 079
SV 080
SV 081

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A); Minn. R. 7011.0730 and 7011.0735
Opacity: less than or equal to 20 percent .	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

The Permittee may replace listed emission units, move emission units or add new emission units to those listed in GP 004, provided VOC, PM and PM less than 10 microns emissions are tracked according to Table A, Section A, Emission Limits; and Table A, Section F, Recordkeeping Requirements. All replaced or added emission units must meet the requirements for GP 004.	Title I Condition: Limit to avoid classification as major source or modification under 40 CFR Section 52.21.

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Subject Item: **GP 005 Gelcoat Spray Guns**

Associated Items:

EU 042 Spraygun 004 (gelcoat)
EU 043 Spraygun 005 (gelcoat)
EU 052 Spraygun 014 (gelcoat)
EU 054 Spraygun 016 (gelcoat)
EU 060 Spraygun 022 (gelcoat)
EU 062 Spraygun 024 (gelcoat)
EU 063 Spraygun 025 (gelcoat)
EU 076 Spraygun 038 (gelcoat)
EU 077 Spraygun 039 (gelcoat)
EU 078 Spraygun 040 (gelcoat)
EU 106 31 Gelcoat Touch-up Guns
EU 113 Spraygun 41 (gelcoat)
EU 114 Spraygun 42 (gelcoat)
EU 115 Spraygun 43 (gelcoat)
EU 116 Spraygun 44 (gelcoat)
EU 118 Spraygun 45 (gelcoat)
EU 119 Spraygun 46 (gelcoat)
EU 120 Spraygun 47 (gelcoat)
EU 121 Spraygun 48 (gelcoat)
EU 123 Spraygun 49 (gelcoat)
EU 124 Spraygun 50 (gelcoat)
EU 125 Spraygun 51 (gelcoat)
EU 126 Spraygun 52 (gelcoat)
EU 128 Spraygun 53 (gelcoat)
EU 129 Spraygun 54 (gelcoat)
EU 130 Spraygun 55 (gelcoat)
EU 131 Spraygun 56 (gelcoat)
EU 133 Spraygun 57 (gelcoat)
EU 134 Spraygun 58 (gelcoat)
EU 135 Spraygun 59 (gelcoat)
EU 136 Spraygun 60 (gelcoat)
EU 137 Spraygun 61 (gelcoat)
EU 139 Spraygun 62 (gelcoat)
EU 140 Spraygun 63 (gelcoat)
EU 141 Spraygun 64 (gelcoat)
SV 045
SV 046
SV 047
SV 054
SV 056
SV 057
SV 058
SV 059
SV 060
SV 061

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Associated Items: SV 062
SV 064
SV 065
SV 066
SV 067
SV 068
SV 069
SV 070
SV 071
SV 072
SV 073
SV 074
SV 075
SV 076
SV 077
SV 078
SV 079
SV 080
SV 081

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A); Minn. R. 7011.0730 and 7011.0735
Opacity: less than or equal to 20 percent .	Minn. R. 7011.0715, subp. 1(B)
The Permittee may replace listed emission units, move emission units or add new emission units to those listed in GP 005, provided VOC, PM and PM less than 10 microns emissions are tracked according to Table A, Section A, Emission Limits; and Table A, Section F, Recordkeeping Requirements. All replaced or added emission units must meet the requirements for GP 005.	Title I Condition: Limit to avoid classification as major source or modification under 40 CFR Section 52.21.

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Subject Item: **GP 006 Paint Spray Guns**

Associated Items: EU 074 Spraygun 036 (paint)
EU 075 Spraygun 037 (paint)
EU 081 Spraygun 100 (paint)
EU 082 Spraygun 101 (paint)
EU 083 Handheld Spraygun (paint)
EU 084 Handheld Spraygun (paint)
EU 085 Handheld Spraygun (paint)
EU 086 Handheld Spraygun (paint)
EU 087 Spraygun 201 (paint)
EU 088 Spraygun 202 (paint)
SV 045
SV 046
SV 047
SV 050
SV 055
SV 063
SV 069
SV 070
SV 071
SV 072
SV 073
SV 074
SV 075
SV 076
SV 077
SV 078
SV 079
SV 080
SV 081

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A); Minn. R. 7011.0730 and 7011.0735
Opacity: less than or equal to 20 percent .	Minn. R. 7011.0715, subp. 1(B)
The Permittee may replace listed emission units, move emission units or add new emission units to those listed in GP 006, provided VOC, PM and PM less than 10 microns emissions are tracked according to Table A, Section A, Emission Limits; and Table A, Section F, Recordkeeping Requirements. All replaced or added emission units must meet the requirements for GP 006.	Title I Condition: Limit to avoid classification as major source or modification under 40 CFR Section 52.21.

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Subject Item: **GP 007 Miscellaneous Emission Sources**

Associated Items:
EU 090 Glue gun 101
EU 091 Glue gun 102
EU 092 Glue gun 103
EU 093 Glue gun 104
EU 094 Glue gun 105
EU 095 General Solvent Cleaning
EU 097 Gluebooth 001
EU 098 Gluebooth 002
EU 099 Hand-applied glue
EU 100 Glue gun 605
EU 101 Glue gun 606
EU 102 Glue gun 607
EU 103 Glue gun 608
EU 104 Glue gun 609
EU 105 Glue gun 610
SV 046
SV 047
SV 050
SV 051
SV 052
SV 053
SV 054
SV 055
SV 064
SV 065
SV 066
SV 067
SV 068
SV 069
SV 070
SV 071
SV 072
SV 073
SV 074
SV 075
SV 076
SV 077
SV 078
SV 079
SV 080
SV 081

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A); Minn. R. 7011.0730 and 7011.0735

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Opacity: less than or equal to 20 percent .	Minn. R. 7011.0715, subp. 1(B)
The Permittee may replace listed emission units, move emission units or add new emission units to those listed in GP 007, provided VOC, PM and PM less than 10 microns emissions are tracked according to Table A, Section A, Emission Limits; and Table A, Section F, Recordkeeping Requirements. All replaced or added emission units must meet the requirements for GP 007.	Title I Condition: Limit to avoid classification as major source or modification under 40 CFR Section 52.21.

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Subject Item: **GP 010 VEC Cells**

Associated Items: EU 113 Spraygun 41 (gelcoat)
EU 114 Spraygun 42 (gelcoat)
EU 115 Spraygun 43 (gelcoat)
EU 116 Spraygun 44 (gelcoat)
EU 117 Boat Mold Process Cell 01
EU 118 Spraygun 45 (gelcoat)
EU 119 Spraygun 46 (gelcoat)
EU 120 Spraygun 47 (gelcoat)
EU 121 Spraygun 48 (gelcoat)
EU 122 Boat Mold Process Cell 02
EU 123 Spraygun 49 (gelcoat)
EU 124 Spraygun 50 (gelcoat)
EU 125 Spraygun 51 (gelcoat)
EU 126 Spraygun 52 (gelcoat)
EU 127 Boat Mold Process Cell 03
EU 128 Spraygun 53 (gelcoat)
EU 129 Spraygun 54 (gelcoat)
EU 130 Spraygun 55 (gelcoat)
EU 131 Spraygun 56 (gelcoat)
EU 132 Boat Mold Process Cell 04
EU 133 Spraygun 57 (gelcoat)
EU 134 Spraygun 58 (gelcoat)
EU 135 Spraygun 59 (gelcoat)
EU 136 Spraygun 60 (gelcoat)
EU 137 Spraygun 61 (gelcoat)
EU 138 Boat Mold Process Cell 05
EU 139 Spraygun 62 (gelcoat)
EU 140 Spraygun 63 (gelcoat)
EU 141 Spraygun 64 (gelcoat)
EU 142 Spraygun 65 (gelcoat)
EU 143 Boat Mold Process Cell 06

What to do	Why to do it
These units are subject to requirements set under the preconstruction program required by 40 CFR 63, Subpart B. As such, the units are also subject to any applicable requirements in 40 CFR 63, Subpart A, General Conditions.	40 CFR 63.43
OPERATIONAL REQUIREMENTS	hdr
HAPs - Total: less than or equal to 33 percent by weight of gel coat, based on a 12 month rolling average.	40 CFR 63.43
HAPs - Total: less than or equal to 35 percent by weight of resin, based on a 12 month rolling average.	40 CFR 63.43
MONITORING AND RECORDKEEPING	hdr
Certified MSDS sheets shall be obtained from the vendor for each type of catalyst, resin, and gel coat, or batch tickets shall be obtained for each shipment of catalyst, resin, or gel coat.	40 CFR 63.43
Each month, by the 15th of the month, the applicant shall calculate the average HAP content of the catalyst, resin, and gel coat purchased for the previous month.	Minn. R. 7007.0800, subp. 4
Each month, by the 15th of the month, the applicant shall calculate the average HAP content of the catalyst, resin and gel coat for the past 12 months.	Minn. R. 7007.0800, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A); Minn. R. 7011.0730 and 7011.0735
Opacity: less than or equal to 20 percent .	Minn. R. 7011.0715, subp. 1(B)

TABLE B: SUBMITTALS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

Permit Technical Advisor
Permit Section
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:
- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

Supervisor
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility

TABLE B: RECURRENT SUBMITTALS

06/23/00

Facility Name: Larson-Glastron Boats Inc

Permit Number: 09700025 - 003

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report period of each calendar year covers January 1 - June 30. The second report period of each calendar year covers July 1 - December 31. If no deviations have occured, the Permittee shall submit the report stating no deviations.	Total Facility
Annual Report	due 30 days after end of each calendar year following Permit Issuance . This report must include the 12 month rolling sum of VOCs, PM and PM10 emitted.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner. The report covers all deviations experienced during the calendar year.	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner.	Total Facility
Equipment List	due 30 days after end of each calendar year following Permit Issuance to be submitted with the Compliance Certification. This report shall describe changes made to the stationary source without applying for an amendment. Such changes may include installation of new emission units of the same type described in this permit, and modification of emission units.	Total Facility

APPENDIX MATERIAL
Facility Name:Larson-Glastron Boats Inc
Permit Number: 09700025-003

APPENDIX A

Facility Name: Larson-Glastron Boats Inc
Permit Number: 09700025-002

Table 1 – Emission Factors for Compliance Demonstration
(lb/lb of monomer)

Process	Non-Vapor-Suppressed	Vapor-Suppressed
Spray layup of resin	0.11	0.08
Spray layup of gelcoat	0.50	0.36
Closed molding of resin	0.01	0.01
Spray layup of gelcoat, closed mold	0.40	

Insignificant Activities Required to be Listed:

VEC™ Cell Sheer Tank, 1431 gallons
Resin Tank 1, 5000 gallons
Resin Tank 2, 5000 gallons
Day Tank, 2637 gallons

These tanks are insignificant under Minn. R. 7007.1300, subp. 4
The tanks are subject to Minn. R. 7011.0715

TECHNICAL SUPPORT DOCUMENT
For
DRAFT AIR EMISSION PERMIT NO. 09700025-003

This technical support document is for all the interested parties of the draft permit. The purpose of this document is to set forth the legal and factual basis for the draft permit conditions, including references to the applicable statutory or regulatory provisions.

1. General Information

1.1. Applicant and Stationary Source Location:

Owner and Operator Address	Facility Address (SIC Code: 3732)
Genmar Industries, Inc. 100 South 5th Street, Suite 2400 Minneapolis, MN 55402 (612)337-1859	Larson/Glastron Boats, Inc. 700 Paul Larson Memorial Drive Little Falls, Minnesota 56345 (320) 632-5481

1.2. Description of the facility

Larson/Glastron (Larson) manufactures fiberglass cruisers and sport boats. In its predominant method of boat manufacture, Larson uses non-atomized spray guns to apply non-vapor suppressed fiberglass resin and gel coat to open molds. Other emission emitting activities include gluing, woodworking, and assembly. Natural gas fired make-up air units provide building heat.

In a previous permit, Larson accepted federally enforceable synthetic minor limits of 90 tons per year for PM and PM10, and 245 tons per year for volatile organic compounds (VOCs) to remain a non-major source under 40 CFR 52.21.

1.3 Description of any changes allowed with this permit issuance

This permit authorizes the construction and operation of six VEC^{TM} cells and associated equipment to produce fiberglass boat parts. The VEC^{TM} cells are a closed mold resin application technology. As stated above, the company currently uses an open mold process for resin application.

The existing facility is a listed source category under 40 CFR Part 63, and will be subject to the NESHAP for boat manufacturing when promulgated. Though the closed mold technology produces much lower emissions than the open mold process, potential emissions from the VEC cells themselves exceed the thresholds of 10 tons per year of a single HAP, and 25 tons per year of all HAPs combined. Therefore, the cells are considered a major source under 40 CFR 63.40 and require preconstruction review as mandated by the Clean Air Act, Section 112(g).

Previously, the source was permitted to install two of the VEC^{TM} cells. At that time, Larson considered the cells to be experimental technology, and was unsure that this method of production would work in its process. Closed mold resin application for boat hulls of the size that Larson is producing had not been successfully demonstrated. Larson has since proven that the technology is feasible for its process and wishes to produce boat parts for boats in its sport boat line.

The permit for the existing cells established limits on HAP emissions such that the 10/25 thresholds would not be exceeded, and no case by case MACT determination was performed when that permit was issued.

Now, due to the success of the technology, the company plans to install as many as six of the VEC^{TM} cells and is proposing the technology itself as MACT for this source type. Because this permit specifies a maximum available control technology for all cells, including the two previously permitted, the synthetic minor restrictions have been removed from the permit.

The previously issued permit also established restrictions to limit potential emissions from the entire source to 245 tons per year. The permit requires that Larson use agreed upon emission factors to calculate its actual emissions to demonstrate compliance with the limit.

This permit changes some of the factors used in those calculations. The MPCA found in a review of technical information regarding emission factors for fiberglass boat production that the factors previously used overestimate emissions from the closed molding process. Accordingly, the factors used in the compliance demonstration have been reduced.

1.4. Facility Emissions:

Table 1. Potential Emissions Of Each VEC^{TM} Cell:

EU #	SV#	PM tpy	PM10 tpy	SO2 tpy	NOx tpy	CO tpy	VOC tpy	Pb tpy	Single HAP tpy	All HAPs tpy
113-142	65-76	3.58	3.58	Na	Na	Na	26.1	Na	23.6	26.1

.

Table 2. Potential Emissions Of All VEC^{TM} Cells:

EU #	SV#	PM tpy	PM10 tpy	SO2 tpy	NOx tpy	CO tpy	VOC tpy	Pb tpy	Single HAP tpy	All HAPs tpy
113-142	65-76	21.5	21.5	Na	Na	Na	157	Na	142	157

2. Regulatory and/or Statutory Basis

Summary Regulatory and/or Statutory Basis of the Emission or operational Limit

Regulatory Overview of Facility

*EU, GRP, or SV #	Applicable Regulations	Comments:
EU113-EU142 Spray guns and process cells	40 CFR 63.40 – 63.44 Minn. R. 7011.0715	Part 63, Subpart B – Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Section 112(g) Standards of Performance for Post 1969 Industrial Process Equipment

3. Technical Information

Regulatory Applicability:

New Source Performance Standards: There are no federal new source performance standards under 40 CFR Part 60 for this type of unit.

Minnesota Performance Standards: The VEC^{TM} cells are subject to Minn. R. 7011.0715, Standards of Performance for Post-1969 Industrial Process Equipment

Federal New Source Review: Larson is a synthetic minor facility as a result of permit conditions in its existing Title V permit. This amendment changes the factors that are used in calculating the emissions from the closed molding process to demonstrate compliance with the total facility emissions cap of 245 tons VOC. The resin application emission factor in the previously issued permit for vapor suppressed closed molding was 2% of the monomer, and the emission factor for non-vapor suppressed closed molding was 3%. Both of those factors have been changed to 1%. A discussion of the basis of the factor that most accurately represents emissions from the closed molding process is discussed in the attached MACT determination.

This permit also includes a different emission factor for the gel coating volatiles. The existing permit requires Larson to use a factor of 50% of available VOCs to estimate emissions from the spray lay-up of gelcoat. The factor in the permit has been changed to 40%.

Testing by the National Marine Manufacturers Association (NMMA) contained in a report dated August 1997 (Attachment 10), showed that total emissions from gel coat spray lay-up ranged from approximately 40 to 50% for process' in which the gel coat was allowed to completely cure in an open mold. This report was the basis for setting the emission factor at 50% in the previously issued permit.

However, measurements performed by the NMMA not only quantified emissions from gel coating in total, but as a function of time. Evaporative emissions were tracked for almost three hours after beginning spray application of the gel coat during several tests. (See John Stelling's Technical Paper; Attachment 11.) All tests performed show an initial maximum emission rate occurring within 30 minutes or so of beginning gel coat application. Emissions fall off exponentially after that peak. Larson has proposed a lower emission factor because in its process, the evaporative process is truncated when the mold is closed. Molds are closed 16 to 28 minutes after completion of gel coat application.

In his paper, Stelling quantified the percentage of total emissions at 12 minutes after spray completion, and 17 minutes after spray completion. At 12 minutes after closure, 75.5%, 61.7%, and 68.4% of the total gel coat emissions had volatilized from the three types of boat parts tested. At 17 minutes after closure, 80.4%, 67.2%, and 72.9% of the gel coat emissions had volatilized.

Stelling uses the data to develop emission factors for these gel coat operations where the evaporation process is truncated by mold closure within 12 to 16 minutes. On page 4 of his paper (Attachment 12), he uses the 12 minute test results, the 17 minute test results and all boat parts to develop an emission factor or 35%.

On page 5, Stelling develops factors for molds closed at other times. Larson has stated that the average time to mold closure after completion of gel coat application is 16 to 28 minutes with an average of 22 minutes. Stelling has calculated a factor of 36.2% at 17 minutes and 40.4% at 27 minutes.

Larson argues that Stelling's factors are too high for its process, since it lays in a fiberglass blanket over the gel coat within a few minutes of completing application, and that this fiberglass blanket serves as a relatively impermeable layer during a large part of the time between spray completion and mold closure. Larson asked that the emission factor be set at 35%.

The MPCA agrees that the fiberglass blanket may indeed inhibit the evaporation of the volatiles from the gel coat, but in the absence of further information, cannot quantify the amount of inhibition with any certainty. Therefore, it cannot be used in the compliance demonstration calculations for the total facility emissions cap.

The MPCA believes that an emission factor of 40% more accurately depicts emissions from Larson's process, than 50%. It is possible that the VEC^{TM} cell gel coat emissions are lower than 40%, but the MPCA would like to see testing completed to quantify any lower factor used. Should Larson choose to complete testing in support of a lower emission factor, it may ask that its permit be amended to incorporate the lower factor.

Environmental Review: Minnesota Rules require an environmental assessment worksheet to be completed for the project if potential emissions increase are above 100 tons per year. Potential VOC emissions from the VEC^{TM} cells are 157 tons. However, potential emissions from the entire facility are limited by the total facility cap of 245 tons per year. That cap still remains in place. Past actual emissions were 215 tons last year. Because the permit caps emissions at 245

tons per year, future potential emissions minus past actual emissions are less than 100 tons per year. Emissions from the new VEC™ cells exceeding 30 tons per year must be offset somewhere else at the plant so that the facility cap is not violated. Therefore, Larson is not required to complete an environmental assessment worksheet for this project.

NESHAPs: This is a listed source category and a MACT standard is being developed by U.S. EPA at this time for fiberglass boat manufacturers. The facility will be subject to that standard when promulgated.

NESHAP 112(g) Preconstruction Review: As stated above, this project was subject to the preconstruction review requirements mandated by Section 112(g) of the Clean Air Act. The entire summary of MACT approval is included in the attachments.

The conclusion of the Agency's review of the proposed MACT is that it meets the requirements specified in the Code of Federal Regulations. Larson has proposed closed molding technology for resin application, and low HAP content resin and pigmented gel coats. Requirements for the use of those have been incorporated into the permit.

4. Conclusion

Based on the information provided by Larson, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 09700025-001 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Jenny L. Reinertsen, Dave Crowell

Attachments:

1. MACT Proposal
2. AP42, Table 4.4.2
3. EPA AP42 Update dated March 3, 1999
4. Memo from Tom John to Jerry Kissel at the Florida EPA
5. Calculations
6. EPA List of Facilities Rated For Gel Coat Emission Factors
7. EPA List of Facilities Rated for Resin Application Emission Factors
8. Proposed Boat Neshap Summary
9. Memo From Madeleine Strum, USEPA: Summary of Findings from the Boat Manufacturing Presumptive MACT Process; Styrene Emission Control Options
10. NMMA Report Results
11. Estimated Emission Reductions From Closing Molds After Gelcoating, John Stelling

1. MACT Proposal

Maximum Achievable Control Technology (MACT) Determination
Larson/Glastron Boats, Inc.
Little Falls, Minnesota

Larson/Glastron Boats, Inc., (Larson) proposes to construct and operate virtual engineered composite process cells (VEC^{TM} cells) for the manufacture of certain fiberglass boat parts in closed molds instead of the typical open mold process generally used in fiberglass boat manufacture.

The closed-mold process involves coating the open mold with a layer of gel coat, placing precut fiberglass sheets into the mold, closing the mold and pumping resin directly from the storage reservoir into the closed mold. This replaces one to three resin spray guns per unit. The process still requires up to four spray guns per unit to apply gel coat to allow use of different colors. Each cell has one pump for gel coat application, allowing for the use of one gun only at any given time. Ventilation systems equipped with panel filters externally exhaust emissions from gel coat spraying and other activities. Each closed-mold cell uses electric heat to maintain resin temperature and to aid curing.

Larson estimates the annual potential emissions from the six VEC^{TM} cells to be:

Pollutant	Potential Emissions Per Cell (tons/year)	Potential Emissions All Cells (tons/year)	MACT Significant Emission Rate (tons/year)
Styrene	23.6	142	10
Total HAPs	26.1	157	25

40 CFR 63, Subpart B requires preconstruction review and determination of maximum achievable control technology (MACT) for the construction of major sources of hazardous air pollutants (HAPs).

Date of Receipt of MACT Proposal: January 2000

MACT proposed by applicant:

- The use of closed-mold technology for application of production resins
- The use of styrene production resins that contain a maximum weighted average of 35% total HAP content, based on Manufacturer's Safety Data Sheets (MSDS), with compliance determined on a 12-month rolling average.
- The use of pigmented gel coats with a maximum weighted average of 33% HAP content, with compliance determined on a 12-month rolling average

MACT Determination Procedure:

As stated above, this project was subject to the preconstruction review requirements mandated by Section 112(g) of the Clean Air Act. The requirements for the procedure and content of a case by case MACT analysis are codified at 40 CFR 63.43(d) and (e). First, in a MACT Determination four general principals must be met, the first being:

Principle 1, 40 CFR 63.43(d)(1)

> *The MACT emission limitation or MACT requirements recommended by the applicant and approved by the permitting authority shall not be less stringent than the emissions control which is achieved in practice by the best controlled similar source, as determined by the permitting authority.*

Resin Application MACT Determination

It is the Agency's finding that Larson's proposed closed molding control strategy meets or exceeds this principle. Attached to the permit technical support document is the Production Resin Draft Summary Table (Attachment 7). That table shows that the best controlled similar facility, Tracker Marine in Clinton, MO is using low HAP content resins, 34.2%, and non-atomized equipment for application. In fact, the best controlled 12% of production resin facilities are all using similar technology, with the HAP content of the resin being somewhat higher than at Tracker Marine.

There are two possibly better controlled sources, Bombardier and Corsair, that use a thermal oxidizer and vacuum bag, respectively, but these facilities are producing products that are smaller than the boat hulls Larson produces. Those companies are producing personal watercraft (small jet boats), or trimorans that are much smaller units, either in diameter, or both length and diameter, and the production process is much more easily enclosed or bagged. Bombardier is the only capture and control system in the industry and was set up specifically for controlling emissions from small jet boat production. Therefore, the Agency agrees with Larson's assertion that these are not similar facilities.

The emission factor given by EPA for Tracker Marine's open mold production method is 80 pounds per ton. This translates to about 11% of available volatiles. For closed molding, AP42 Section 4.4 predicts that emissions will be, at most, 3% of available volatiles, giving an emission rate of 21 pounds per ton of resin.

Most of the AP42 factors in Section 4.4, Emission Factors for Polyester Resin Plastic Products Fabrication were rescinded by EPA. In an update on its web site dated March 3, 1999 located in place of Section 4.4, EPA suggests using one of three other sources for emission factors. Those other sources, however, do not address the closed molding process for boat manufacture. Most of EPA's discussions and dispute with the existing Section 4.4 emission factors focus on the underestimation of emissions from spray and hand lay up open molding methods. The closed molding factors presented in section 4.4 have not been disputed by EPA.

Whether or not the emissions from closed molding for large objects such as boat hulls are as high as Section 4.4 predicts is arguable. There are those who believe that they substantially overestimate emissions, by several orders of magnitude, in fact.

As a result, debate has taken place over the correct factors to use when considering closed molding for large boat manufacturers. Evidently, the existing AP42 closed molding factors were developed for relatively small object manufacturers, (sinks, countertops, etc.) and do not accurately depict emissions from a similar technology used with the much larger boats. With the larger objects, the surface area is lower per unit volume of resin, and the amount of exposure and handling that the resin sees in the process is less.

Attached to the technical support document for the air emission permit is a memo from Tom John Engineering to Jerry Kissel at the Florida Department of Environmental Protection (Attachment 4) that includes a description of the differences in the manufacturing process of small objects and larger objects, like boats. The memo also contains calculations. These calculations were submitted to the state of Florida in support of a similar permitting action in Florida. In his memo, Mr. John discusses, at great length, the differences in the closed molding process (VEC^{TM}) that Larson is proposing and the processes used in the development of the existing AP42 closed molding factors. The conclusion of that memo is that the more accurate emission factor for resin application in boat hull manufacture is 0.0000156 pounds hap per pound resin, or 0.0312 pounds per ton. This is, obviously, much lower than the AP42 factor of 21 pounds hap per ton resin.

In her memo dated January 15, 1997, Madeline Strum from the Coating and Consumer Products Group, Emissions Standards Division at the U.S. EPA (Attachment 9), discusses appropriate emission factors to use when ranking facilities during the MACT development process for this source category. She discusses four types of closed molding; vacuum bagging, vacuum assisted resin transfer molding, (VARTM), resin transfer molding (RTM), and compression molding using sheet molding compound. None are exactly like the process that Larson has proposed.

Larson believes that the process most similar to the Pyramid Process is the VARTM process. The processes are described in detail in the memo, and the MPCA agrees with Larson that the entirely enclosed VARTM process most closely resembles the Pyramid Process.

Testing of the emissions from the VARTM process has been performed. The memo states that those results indicate that emissions are 0.02 percent of the available styrene, rather than 3 percent as given in AP42. This factor is not as low as the theoretical factor derived in Tom John's memo, but shows that tremendous emission reductions are possible by moving from an open mold application technology to a closed one.

To determine which boat manufacturers in the EPA P-MACT database were the best controlled facilities, the EPA ranked the facilities using emission factors developed as a result of its studies that are discussed in Ms. Strum's memo. For closed molding, the emission factor that U.S. EPA has settled on to estimate emissions from closed molding is 1% of available styrene. (See page 8 of the memo.) This appears to be a conservative estimate for an entirely closed process, as the testing performed by TPI, Inc. indicated that emissions were 0.02% of available styrene.

Because EPA has chosen to use this factor of 1% in its ranking of facilities nationally, and because it appears to be a conservative estimate, the MPCA accepts the emission factor for closed molding resin application of 1%. That emission factor has been used in calculating

potential emissions from the VEC™ cells and will also be used in the facility's compliance demonstration calculations for its new source review synthetic minor limit.

Whichever factor for closed molding is most accurate, it is clear that the closed mold process that Larson proposes emits less than that of the best controlled similar source, and the MPCA accepts Larson's proposal as MACT. It appears that emission reductions from the best controlled similar process will be from approximately 75 to 80 lb/ton of resin, to lower than 7 lb/ton, an emission reduction of more than 90%.

Gel Coat Application MACT Determination

The boat hull manufacture process not only consists of the resin and fiberglass portion of the process, but the gel coating process. Larson has proposed a maximum HAP content of 33% for the gelcoat used. This is the proposal for MACT in the draft NESHAP. Attached is a table showing the best controlled similar operations in the country. Carver Boat Corp. is using pigmented gel coats with a hap content of 32.2%. The next best controlled source is Grady White with a pigmented gel coat content of 34.2%. As such, the current draft NESHAP from EPA specifies that MACT for pigmented gel coats is a 33% HAP content.

The MPCA concludes that Larson's proposal of a 33% hap content constitutes MACT.

Principle 2, 40 CFR 63.43(d)(2)

> *Based on available information, as defined in this subpart, the MACT emission limitation and control technology (including any requirements under paragraph (d)(3) of this section) recommended by the applicant and approved by the permitting authority shall achieve the maximum degree of reduction in emissions of HAP which can be achieved by utilizing those control technologies that can be identified from the available information, taking into consideration the costs of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements associated with the emission reduction.*

The closed molding process proposed by Larson, the "Pyramid Process", is inherently lower emitting than other closed molding processes.

As described in the memo from Tom John, the process flow for typical closed or semi-closed composites fabrication begins with the transfer of resin to a mixing vessel, usually from drums. The mixing of the resin is then performed by an impeller, usually without a cover on the vessel. The resin is manually smoothed over an open mold, and then the plug is inserted, closing the mold.

This scenario is very different from the Pyramid process. With the Pyramid process, tank filling, mixing, and transfer to the mold are all closed processes, and one would intuitively expect substantially lower emissions. Theoretical calculations performed by Mr. John support that expectation, and are included in the attachments.

The MPCA believes that with the totally enclosed process for resin application that Larson is proposing is consistent with this principle of MACT.

Principle 3: 40 CFR 63.43 (d)(3)

> *The applicant may recommend a specific design, equipment, work practice, or operational standard, or a combination thereof, and the permitting authority may approve such a standard if the permitting authority specifically determines that it is not feasible to prescribe or enforce an emission limitation under the criteria stet forth in section 112(h)(2) of the Act.*

The MPCA does not believe that it is reasonable to set an emission limit on this process, and as allowed by the above section of the rules, has specified the control technology and work practices in the permit, rather than an emission limit.

Principle 4: 40 CFR 63.43 (d)(4)

> *If the Administrator has either proposed a relevant emission standard pursuant to section 112(d) or section 112(h) of the Act or adopted a presumptive MACT determination for the source category which includes the constructed or reconstructed major source, then the MACT requirements applied to the constructed or reconstructed major source shall have considered those MACT emission limitations and requirements of the proposed standard or presumptive MACT determination.*

The MPCA knows of no such determinations.

<u>MACT Determination:</u>

The following operational requirements will be inserted into the applicant's permit:

(1) The maximum content of HAPs within the resin shall be 35% based on a 12 month rolling average,
(2) The maximum content of HAPs within the gel coat shall be 33% based on a 12 month rolling average.

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The following compliance demonstration requirements shall be inserted into the applicant's permit:

(1) MSDS certification sheets or batch sheets shall be obtained from the vendor for each type of catalyst, resin, and gel coat,
(2) Each month, by the 15th of the month, the applicant shall calculate the average HAP content of the catalyst, resin, and gel coat for the previous month,
(3) Each month, by the 15th of the month, the applicant shall calculate the average HAP content of the catalyst, resin, and gel coat for the past 12 months,

(4) Records shall be kept for five years of all MSDSs, monthly averages, and 12 month rolling averages.

The applicant is also required to comply with all applicable requirements contained in 40 CFR 63, Subpart A.

2. AP42, Table 4.4.2

3. EPA AP42 Update dated March 3, 1999

4. Memo from Tom John to Jerry Kissel at the Florida EPA

5. Calculations

6. EPA List of Facilities Rated For Gel Coat Emission Factors

7. EPA List of Facilities Rated for Resin Application Emission Factors

8. Proposed Boat Neshap Summary

9. Memo From Madeleine Strum, USEPA: Summary of Findings from the Boat Manufacturing Presumptive MACT Process; Styrene Emission Control Options

10. NMMA Report Results

12.Stelling Engineering: Estimated Emission Reductions From Closing Molds After Gelcoating

The following calculations are for the tanks associated with the VEC™ cells. The calculations were provided to verify that the emissions from them are insignficant.