**AXALTA COATING SYSTEMS**
**OPERATING PROCEDURE**

***SDS for any hazardous material(s) used in this procedure are available via computer.***

***SOC & Design Basis Database***
***Safety and Environmental Controls***

# TITLE: TITLE V FG-RESIN CATHODIC MALFUNCTION ABATEMENT PLAN (MAP)

**Date of ISSUE: 10/13/2006**

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Revision History

Revised 10/13/06 – Changed Normal and Malfunction Operating Range; Updated to reflect new permit # and increased attention to condenser temperature/operation

12/11/07 Revised to include method for assuring rupture disc integrity. Added Oxygen level operating limits to Table 1
Revised 7/18/08 to update Appendix A Compliance Plan and Tables 1 through 4 to better reflect MACT system operating conditions

Revised 10/28/08 to update and clarify Table 1 and to add steam system operating conditions and malfunction ranges
Revision 3/6/09 to update Table 1 - removed HX pressure differential as process parameter; added Reactor 1D to rupture disk list and reference burst sensor project. Table 3 reference increased inspections and burst sensor project

7/31/09 Revised to document completed installation of burst sensors and alarm, pre-condenser flow meter, and refrigerant temperature monitor. Updated process owner title and criteria listed in Tables 1 and 3. Coolant flow rate removed from Table 1, covered by coolant flow alarm. Added detonation arrestors and new steam system parts

Revision 7/7/10 – updated Tables 1 and 3 to include newly installed pressure transmitters and flow measurement devices. 12/20/10 updated Table 2 per 2nd party audit finding.

Revision 2/22/11 – Updated and added a link to the Table 4 Parts list.

Revision 2/13/12 – Updated area Lead and responsibility; added one-pass strip process summary description;

Revision 4/4/2013 – Removed one pass strip summary as this process is being used only on an intermittent basis at this time.

11/12/2013 – added Vapor Phase saturation curve to document

7/2014 – Updated document to reflect current conditions

11/2014-(T. ALEXANDER) out for review/replaced doc.
11/24/14 – RM review not complete due to missing Tables 1, 2, & 3 from this AOP. Please, resend to the author (Molly Dwinnells) for updates.

1/2015 (T. ALEXANDER) ADDED ATTACHMENT 2

4/2016 T. GLEASON (Page 6 Description minor change)

Revision History

8/2017-(T. Alexander) out for review-minor changes by reviewers
8/2018 (T.Alexander) out for review
2/2020 (T. Alexander) out for review-n changes per reviewers.
11/2021 (T. Alexander) out for review
11/2021 T Kashat - no changes. Be sure this is set to renew Oct 1, 2022, and annually.
2/2022 (T. Alexander) requested by T. Kashat
2/24/2022 (T. Kashat) updated IP21 Control Tags in Table 1

## I. Purpose

This Malfunction Abatement Plan (MAP) has been developed to meet the requirements of the Axalta Coating Systems - Mt Clemens Plant (the facility) Renewable Operating Permit MI-ROP-A3569 and is required as part of FG-RESIN-CATHODIC Flexible Group Conditions.

The Title V permit states: "The permittee shall not operate FG-RESIN-CATHODIC unless a malfunction abatement plan (MAP) for the FC-RESIN-CATHODIC MACT condenser system, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained." The requirement for a MAP is driven by Michigan Air Pollution Control Rules R 336.1910 and R 336.1911.

### Scope Site Overview Description

SRN A3569
Primary SIC 2851; Secondary SIC 2821
Primary NAIC 325510; Secondary NAIC 325211

Axalta Coating Systems, LLC is located in Macomb County and manufactures automotive body paints and resins. Both solvent-based and water-based products are manufactured at the facility. Epoxy, urethane and acrylic resins are manufactured in 5 reactors. Dispersions and other intermediates are manufactured, stored or further processed in tanks or containers and are later used for making OEM (original equipment manufacturing) automotive paints and primers. Varying technologies are used to manufacture OEM automotive paints and resins ranging from controlled reactions (resin manufacture) to mechanical dispersing of pigments in liquid (dispersion manufacture) and finally some mixing of intermediates and liquid raw materials in vessels (paint manufacture). Finished products include solvent and water-based paints used for e-coating, basecoat, primer, color coat, and clear coat automotive finishes.

### Cathodic Resin Manufacturing Description

Cathodic Resin Manufacturing - Typical process steps include 1) load reactants to the reactor and charge tanks, 2) heat reactor to polymerization temperature, 3) add reactants to build polymer, 4) cool resin in thin tank and 5) filter resin and sent to storage tanks.

- Reactor 1D is used for the manufacture of intermediates used in OEM Paint manufacturing
- Reactor 5 system is used to manufacture diketamine, and urethane-based resins.
- Reactor 7 and 8 - E-Coat/Cathodic Resin production are a two (2) reactor processes that produce E-coat/Cathodic resins and intermediates.

- Cathodic Stripper - A plate pack stripping unit that removes the solvent (mainly MIBK) used in the manufacture of the Cathodic resins (Reactor 7 and 8) from the final resin product. A typical vacuum stripping process involves the following steps:

    1. Unstripped resin is circulated through a heat exchanger that is under vacuum.
    2. The heated resin passes through the separation vessel, which allows the solvents contained in the resin to vaporize and separate from the resin.
    3. The vapors are condensed and collected in a receiver tank while the resin product is returned to the original hold tank.

**Pollution Control Equipment Description**

A MACT (Maximum Achievable Controllable Technology) VOC condenser system controls Volatile Organic Carbon (VOC) emissions from associated resin reactors (resin mix tank RR-1D, reactors 5, 7 and 8) and from the Cathodic stripping process. The system is designed to capture and condense VOC emissions from epoxy/urethane resin manufacturing. VOC emissions are vented from the process vessels and are collected in a common vent header. The vent header transports the emissions to a water chilled pre-condenser which removes a majority of the water vapor and other emissions by condensation (approximately 79% removal). The emissions then proceed to two refrigerated (Dynalene) condensers (in parallel) to condense the remainder of the MACT Vent Header emissions. These two condensers (HX-28 and HX-29) alternate in operation such that one of the condensers is in a defrost cycle while the other is in operation to prevents frost from building up and plugging the condensers. The remaining emissions (mainly nitrogen) proceed through an induction fan and are exhausted through a stack. All condensate is gravity drained to a pair of 575-gallon portable tanks that are emptied as needed based on liquid level in the tote. This document and associated tables describe the key system variables that are monitored to assure proper control device operation.

**Attachment 1** is a vapor phase saturation curve that is vapor pressure vs exhaust gas temperature curve which is used for determining the maximum condenser exhaust gas temperature to be maintained to assure proper control device efficiency.

**Attachment 2:** Click link below to see Malfunction Abatement Plan Tables 1-3

ENV_P033 MAP Tables 1-3

**Key Process Parameters to be monitored**

**Table 1** describes the key system variables in the MACT VOC condenser system that are monitored to assure proper operation of the control device, the methods of monitoring key system variables, normal operating range of these variables, malfunction ranges and suggested corrective actions, procedures, or operational changes in event of a malfunction.

AspenOne IP21 is used to track and monitor the operating variables. The system sends automated e-mail alarms to a team of personnel critical to maintaining this system if any of the defined operating variable are outside of defined parameters. The alarm response team typically includes the environmental coordinator, maintenance personnel and/or management familiar with the system and resin area operations management and resin operations engineering staff. The alarms are set at an operating level that is well below any potential deviations from MI-ROP-A3569 so that responding teams have time to trouble shoot and employ corrective procedures before a deviation of permit parameters occurs.

**Table 1** also describes the level to which the alarm has been set and some suggested corrective action procedures or operational changes to make in the event of an alarm to help mitigate any issues before a malfunction or deviation can occur.

**MACT VOC condenser system Preventive Maintenance Plan**

The resin area manager(s) and Resin maintenance coordinator are responsible for overseeing the inspection, maintenance, and repair of air cleaning devices.

**Table 2** lists the MACT VOC Condenser system items or conditions that shall be inspected, lists inspection and maintenance requirements and establishes a suggested inspection and maintenance frequency.

**Table 3** identifies the major replacement parts that shall be maintained in inventory for quick replacement as necessary.

**Vapor Pressure Saturation Curve (Information prepared by James J. Grant, Dupont Engineering Technologies)**

An analysis was completed using process simulation modeling (Aspen+ with validated thermodynamic methods and vapor-liquid / vapor-liquid-liquid equilibria) to determine the amount of solvent which could be recovered as a function of temperature. Since MIBK was the single biggest contributor to HAPS emissions from the resin area, the calculations were focused on condensation of this single component.

The attached chart shows the effective partial pressure of MIBK above the condensate for a refrigerated vent condenser over the temperature range of -30°C to 20°C when operated with a saturated vapor inlet. The fractional removal figures that are indicated are for comparison to a 15°C saturated vapor at the inlet to the refrigerated condenser. The current saturated vapor discharges can be anywhere from 15°C to 30°C depending on the ambient conditions, so the actual fractional removal compared to existing operations will be substantially higher than shown on the chart, owing to the steep slope of the vapor pressure vs temperature curve.

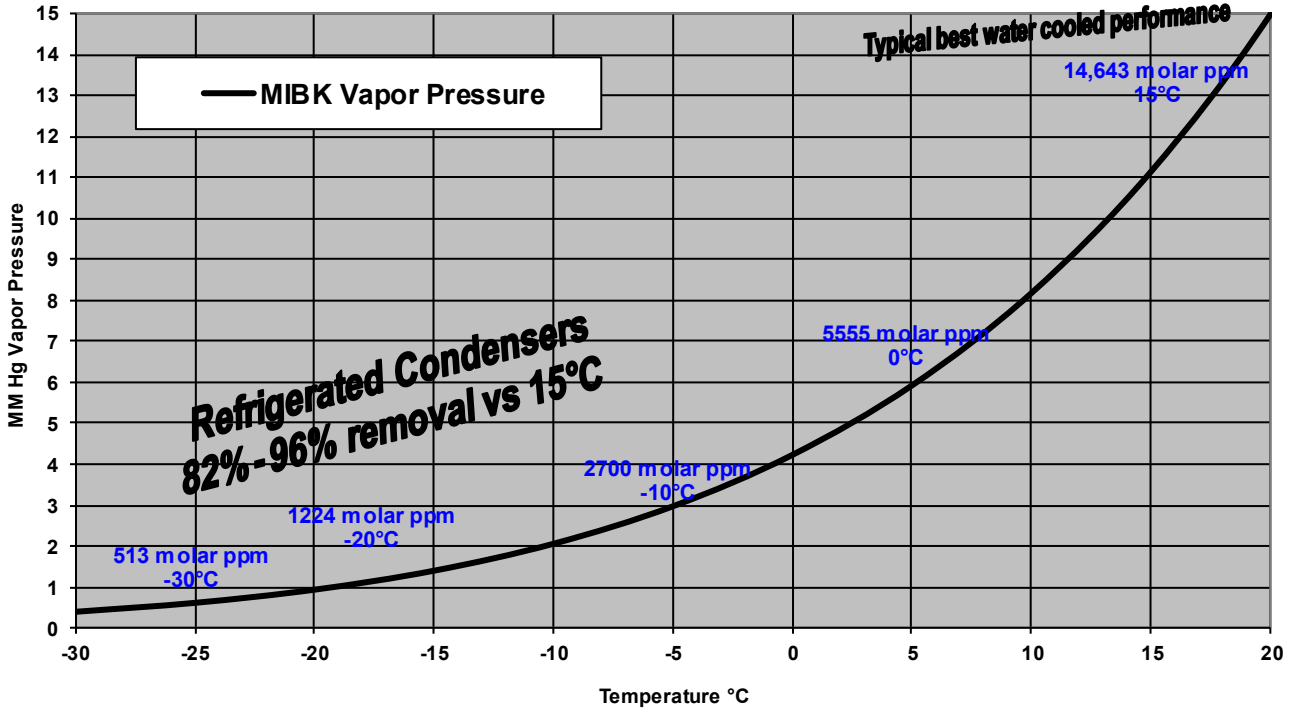
**Design Basis and Operations Monitoring for Achieving Success**

To facilitate good operation of the refrigerated vent condenser it was necessary to provide a pre-condenser to remove bulk solvent and water from the vent stream. The design basis for bulk solvent and water removal is a vapor discharge temperature of approximately 16°C to make use of the site chilled water capacity. The pre-condenser will remove up to 90% of the inlet MIBK when the inlet vapor consists of 40°C nitrogen saturated with water and MIBK and will discharge a two liquid phase mixture.

The refrigerated vent condensers, having had the inlet moisture load reduced to below 1% by weight, will be able to operate approximately 8 hours before frost buildup causes a rise in discharge temperature and pressure drop across the unit. Two units are operated in alternating freeze/thaw cycles to allow continuous solvent removal from the resin area vents. The operating unit will be put into thaw mode and vent gas re-routed to the clean unit when the discharge temperature reaches approximately -10°C (82% MIBK removal vs 15°C saturation condition - 98% vs 40°C saturation condition) or the pressure drop exceeds 6" water column across the unit.

The design basis for the vent condensers is based on the peak flow of nitrogen, saturated at 18.3°C with MIBK and water and a discharge temperature of less than -30C. The MIBK removal, as measured above and beyond that removed in the pre-condenser, will be 82% - 96% with a discharge temperature range of -10°C to -30°C. The total MIBK removal from the resin area vent streams under peak conditions of saturated 40°C vapor will range from 94% - 99%. When the inlet to the pre-condenser is not saturated there will be a reduction in condenser efficiency, however the bulk of the emissions from the resin area come from saturated vapors in the range of 25°C-40°C.

**MIBK Vapor Pressure MM Hg and**
**Corresponding Vapor Phase Saturation Concentrations**



# TABLE 1: MACT VOC Condenser Sytem Key Process Parameters to be Monitored for Malfunction Abatement

Mt. Clemens Title V Compliance System (MS Explorer only) aspenONE.IP21

| Critical Operating Variable Name | Critical Operating Variable Function | Methods of Monitoring | Tag number | Normal Range | Malfunction Range | Alarm Setting (Set below malfunction/deviation level in order to allow for trouble shooting) | Suggested corrective action procedures or operational changes in the event of an alarm to mitigate prior to malfuction or deviation |
|---|---|---|---|---|---|---|---|
| **Data below found in Monthly Value Report on Title V website** | | | | | | | |
| Chilled water Temperature, FG-RE | Measures MACT precondenser chilled water temperature - report consists of one reading every 15 minutes averaged | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | CCR8.10:12TV.PV | 41-46.4 degrees F | >48.2 degrees F | Will alarm when monthly 15 minute averages are <48 degrees F (9degrees C) | |
| PT-253 Vent Header Pressure in H2O avg | MACT Vent header pressure monitor measures back pressure or negative pressure at reactor vessels - report consists of one reading every 15 minutes averaged | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | CMACT22:3PV.PV | </= -0.01 in WC | >0 in WC | Will alarm if >0.00 inches WC (also a report in monthl value reports) | Contact powerhouse maintentance for possible lack of flow or plugging in vent header |
| MACT precondenser Flow Rate | Measures flow rate in water in precondenser | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | CMACT22:17.FV.PV | 48-64 gpm | <29 gpm | Will alarm if <29 gpm | Contact powerhouse maintenance for possible plugging of precondenser water flow |
| MACT Control efficiency | Control efficiency is affected by condenser out gas temperature. This report/alarm combination calculates control efficiency from combined HX condens outgas temp on a continuous basis | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | Env_MACT_Ctrl_Eff | 87-98 | 83.81% | Alarm at 85.07% | Contact powerhouse maintentance for possible steam leak from defrost steam system; |
| Exhaust Gas Temperature (TEA 251) | Measures condenser vent gas temp - exhaust in exit stack HX-28 | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | CMACT.22:20TI.PV | 40-44 degrees F | >46 degrees F | Alarm at >28 degrees F | Contact powerhouse maintentance for possible steam leak from defrost steam system; |
| Exhaust Gas Temperature (TEA 266) | Measures condenser vent gas temp - exhaust in exit stack HX-29 | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | CMACT.22:22TI.PV | 40-44 degrees F | >46 degrees F | Alarm at >28 degrees F | Contact powerhouse maintentance for possible steam leak from defrost steam system; |
| MACT tank rupture disk process upset | Monitors for failure of rupture disks | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | CMACT10:40YE.ST1 | No alarm=0 | Alarm=1 | Alarm=1 | Check with resin operations manager (s) for process upsets |
| HX-28 Temp not cooled below 200 | Report alarm combination that monitors exhaust gas to detect any issues with defrost cycle on condensers. Will alarm if condenser temp does not cool to proper temp after defrost cycle and HX is "turned on" or in cooling mode (indicating too much steam is being applied) | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | CMACT.22:21TI.PV | Cools to <200 degrees F once thaw cycle is complete and HX is on | >200 degrees F for more than 120 minutes after HX is on | Alarm at >200 for 110 minutes | Contact powerhouse maintentance for possible steam leak from defrost steam system; |
| HX-29 Temp not cooled below 200 | Report alarm combination that monitors exhaust gas to detect any issues with defrost cycle on condensers. Will alarm if condenser temp does not cool to proper temp after defrost cycle and HX is "turned on" or in cooling mode (indicating too much steam is being applied) | IP 21 electronic monitor/ report compination with alarm on IP21/Title V Site | CMACT.22:23TI.PV | Cools to <200 degrees F once thaw cycle is complete and HX is on | >200 degrees F for more than 120 minutes after HX is on | Alarm at >200 for 110 minutes | Contact powerhouse maintentance for possible steam leak from defrost steam system; |
| MACT VENT HEADER FAN MONITOR | monitors proper movement of air through vent header | Mt. Clemens Title V CM-Records -IP 21 tag exists to show system operating. Monthly report on Title V compliance webpage shows monthly average. Monthly average must be within parameters end of month for compliance | CM Records/CM-Resin and Monthly average report CMACT 22:3PV.PV | No alarm | Alarm=1 | Will alarm if >0.00 inches WC (also a report in monthl value reports) | |
| DYNALENE SUPPLY TEMP >0 | Continuous monitors of refrigerator temperature averages to ensure proper refrigeration pump and compressor operation. Refrigeration unit for cooling condensers. Thiere is an in-place back up compressor | Mt. Clemens Title V CM-Records MACT Dynalene supply temp must be <14 15min monthly average. This tag will alarm is the Dynalene temp is >0degrees F for more than 60 minutes. | CM Resin CM_MACT.22.18.TV.ALM, CM Records CM-Resin Monthly average report CMACT22:18 TI.PV Dynalene supply temp TT-A322 monthly averag | negative 18 degrees F | >14F for more than 15 min | >10 degrees F or Alarms if Dynalene temp reaches and maintains 0 degree temp for one hour. | Call powerhouse maitenance personnel, Check for possible Refirgerator or pump failure |
| HX-28 Daily Pct Update Alarm | monitors continuous measurement of MACT HX exhaust gas | Mt. Clemens Title V CM-Records - To monitor that the device monitors on a "continuous basis" (an instantaneous data point recorded at least every 15 minutes for at least 90% of the operating time during an operating calendar day. | CMACT.22:20TI.PV.D | Data point is collected at least 15 minues for at least 90% of time during an operating day | <90% | Alarm at 80% | |
| HX-29 Daily Pct Update Alarm | monitors continuous measurement of MACT HX exhaust gas | Mt. Clemens Title V CM-Records - To monitor that the device monitors on a "continuous basis" (an instantaneous data point recorded at least every 15 minutes for at least 90% of the operating time during an operating calendar day. | CMACT.22:22TI.PV.D | Data point is collected at least 15 minues for at least 90% of time during an operating day | <90% | Alarm at 80% | |
| Pressure Differential, HX-28 | monitors pressure in condenser to ensure that condenser is not iced or plugged | Mt. Clemens Title V CM-Records - To monitor that the device is not plugged with ice | HX-28_Pdrop | | x <= 15 Indicates plugged condenser. | Alarm at <= 12 | Alarm Indicates possible icing and Plugged condenser. Alarms sent to Pwer services Check with power services to confirm system OK |
| Pressure Differential, HX-29 | monitors pressure in condenser to ensure that condenser is not iced or plugged | Mt. Clemens Title V CM-Records - To monitor that the device is not plugged with ice | HX-29_PDrop | | x <= 15 Indicates plugged condenser. | Alarm at <= 12 | Alarm Indicates possible icing and Plugged condenser. Alarms sent to Pwer services Check with power services to confirm system OK |

# TABLE 2: MACT VOC Condenser System Malfunction Abatement Preventative Maintenance Plan

All manufacturers instructions are housed in offices of Maintenance Engineering Department

| Equipment Number/Part Number | Equipmen Description | Preventative Maintenance Description | Maintenance Plan number | Frequency | Permit Reference (if applicable) | Permit language (if applicable) |
|---|---|---|---|---|---|---|
| 40089134/ 40088931 | Condenser exhaust outlet temperature probe | Inpect, repair and Calibraate condenser exhaust outlet temperature probe ( TEA 251 and TEA A2566) per manufacturer instructions | 90390212 , 90390211 | At least 180 days following the most recent calibration date | FG-RESIN-CATHODIC 47 of 73 R336.1910 | 2. The permittee shal equip and maintain the FG-RESIN-CATHODIC MACT condenser system with a device for measuring and recording exhaust gas temperature. This device must accomplish the following: 1) have a measurement sensativity of 1% of the temperature (expressed in degrees F) recorded or 1 degree F, whichever is greater 2) be calibrated at least in 180 days following the most recent calibration date |
| 40089159 | Condenser pressure differential | Inspect and repair per manufacturer instructions | 17217 | Annual | NA | NA |
| 40042108 | Pre-condenser – Chilled water inlet temperature probe (HX8400) | Inspect per SAP preventive maintenance plan[1] | 15761 | Annual | NA | NA |
| 40089130 | Vent Header Pressure Differential (Before MACT equipment) | Inspect per SAP preventive maintenance plan[1] | 16608 | Annual | NA | NA |
| 40089136 | Vent Header Pressure Transmitter to Aspentech | Inspect per SAP preventive maintenance plan[1] | | Annual | | |
| 40089117, 40089118 | Condensed water freezing; Vent header from Hold tanks to control equipment. (Vent header A 64 and A65) | Back-pressure at hold tank conservation vents and annual inspection during cold. | 90390867, 90390868 (16678) | Cold Weather | NA | NA |

# TABLE 3: MACT VOC Condenser System Malfunction Abatement Spare Parts list

| Supplier | Manufacturer | QTY | Part |
|---|---|---|---|
| American Controls | Wilden | 1 | Rebuild kit for Wilden Pump Model P-200/SPPP/TS/TF/STF/697 9 (pump P-A78) |
| McJunkin | ASCO | 1 | ASCO solenoid valve EF8327G041 (used in various locations) |
| ABB | ABB | 1 | ABB/2600T Pressure transmitter model 264HS-G-L-B-H-1-E6-D7-B2-S1-I2-N2 (used in various locations) |
| ABB | ABB | 1 | ABB/2600T Pressure transmitter model 264HS-P-L-B-H-1-E6-D7-B2-S1-I2-N2 (used in various locations) |
| ABB | ABB | 1 | ABB/2600T Pressure transmitter model 264DS-B-S-L-B-2-H-1-E6-D7-B2-S1-I2-N2 (used in various locations) |
| New York Blower c/o Mutimer Co. | Allen Bradley | 1 | Variable Frequency Drive Allen Bradley Model 1336 Plus II, to be used with fan EF-A30 |
| New York Blower c/o Mutimer Co. | | 1 | set of belts for EF-1 (please confirm belt model #) |
| New York Blower c/o Mutimer Co. | | 1 | set of belts for EF-2 (please confirm belt model #) |
| New York Blower c/o Mutimer Co. | | 2 | set of belts for EF-A30 (please confirm belt model #) |
| New York Blower c/o Mutimer Co. | New York Blower | 1 | complete replacement fan and motor for EF-A30-2 process exhaust fan (see project purchase order specifications and proposal to order custom replacement) |
| Endress & Hauser | Endress & Hauser | 1 | Level Switch model FTL51-R GM2 CB 4 E5 Y (used in various locations) |
| Endress & Hauser | Endress & Hauser | 1 | Level Transmitter model FMR240-S 3 K 2 GNJ A A 4 Y (used in various locations) |
| Xchanger Inc | Xchanger Inc. | 1 | pre-condenser HX-A27 core (coils) see project purchase order specifications and proposal to order custom replacement |
| Xchanger Inc | Xchanger Inc. | 1 | Condenser core HX-A28 & HX-A29 (steam coils) C-075 (steam) coil (changed from copper tubes to 304 ss tubes). |
| Xchanger Inc | Xchanger Inc. | 1 | condenser core HX-A28 & HX-A29 (cooling coils) see project purchase order specifications and proposal to order custom replacement |
| BS& B Safety Systems c/o North American Machine | BS & B | 2 | 6" rupture disk with burst alert (see project purchase order specifications and proposal to order custom replacement) type AV, 2psig burst pressure. Replacement for DR-A16 |
| BS& B Safety Systems c/o North American Machine | BS & B | 4 | 12" rupture disk with burst alert (see project purchase order specifications and proposal to order custom replacement) type AV, 10psig burst pressure. Replacement for DR-A59 |
| F.S. Welsford Co. | F.S. Welsford Co. | 1 | Sight glass PT #6" EFI W-5000 (replacement for SG-A64 and SG-A65) |
| FES Systems | FES Systems | | Refrigeration machine spare parts |
| FES Systems | FES Systems | 2 | part 20.90.235 shaft seal replacement set |
| FES Systems | FES Systems | 2 | part 20.38.128 oil pump filter |
| FES Systems | FES Systems | 2 | part 20.38.128 suction oil filter |
| FES Systems | FES Systems | 2 | part 20.38.124 discharge oil filter |
| FES Systems | FES Systems | 1 | part 05284091-R05 solenoid vavle with strainer |
| FES Systems | FES Systems | 2 | part 05356091-R11 1/2" rupture disc 350# |
| FES Systems | FES Systems | 1 | part 05356091-R12 1/2" rupture disc 300# |
| FES Systems | FES Systems | 2 | part 05356091-R13 pressure gauges |
| FES Systems | FES Systems | 1 | part 05356091-R14 1" rupture disc 300# |
| FES Systems | FES Systems | 1 | part MKC2-120-CB coil 120v/60 |
| FES Systems | FES Systems | 1 | part ME10S250 solenoid valve, 5/8 ODF |
| FES Systems | FES Systems | 1 | part 100-C09D10 contactor |
| FES Systems | FES Systems | 1 | part 193-EA1FB solid state overload relay |
| FES Systems | FES Systems | 1 | part TH1A41180 relay, delay, 120v |
| FES Systems | FES Systems | 1 | part TS24110 interval timer, 120v 10sec |
| Proconex | Fisher | | Steam pressure regulator PRV-A281 spare parts |
| | | 1 | Fisher 95H pressure regulator 1", 100psig inlet, 50psig outlet - complete |
| | | 1 | 1E398046172 orifice |
| | | 1 | 1E398146172 plug, valve |
| | | 1 | 1E398535132 bushing |
| | | 2 | 1E399236012 Diagphragm |

# TABLE 3: MACT VOC Condenser System Malfunction Abatement Spare Parts list

| Supplier | Manufacturer | QTY | Part |
|---|---|---|---|
| | | 1 | 1E3993X0012 gasket |
| Proconex | Fisher | | Nitrogen pressure regulators 1" ACE 95 (3 locations) - spare parts |
| | | 1 | GC070173X02 o-ring |
| | | 1 | GC070234X72 diaphragm, main |
| | | 1 | GC070427X02 gasket, actuator |
| | | 1 | GC070428X02 gasket, yower |
| | | 1 | GC071101X02 diaphragm, rolling |
| | | 1 | 1C415706992 o-ring |
| | | 1 | 1C782206992 o-ring |
| | | 2 | 1D2888X0032 o-ring |
| | | 2 | 1F115306992 o-ring |
| | | 1 | 1H991206992 o-ring |
| | | 1 | 10A0042X052 o-ring |
| Apollo | Apollo | 1 | 1" steam ball valve (88A series) for FV-A259, FV-A260. (Changed filler material to virgin TFE) |
| Automax | Automax | 1 | Actuator for above ball valve. (Changed elastomers to viton, old one ok though) |
| Spirax-Sarco | Spirax-Sarco | 1 | 1/2" FT14 - 4.5 steam trap for STM-501 through 504. |
| **Detonation Arrestors** | | | |
| Protectoseal F26000 | Protectoseal F26000 | 1 | KT-A15 (Knock-out Tank) 2" DA directly connects to MACT header |
| Protectoseal F26000 | Protectoseal F26000 | 1 | 7NCT (Catch Tank 7) 3" DA directly connects to MACT header |
| Protectoseal F26000 | Protectoseal F26000 | 1 | TT8 (Thin Tank 8) 4" DA directly connects to MACT header |
| Protectoseal F26000 | Protectoseal F26000 | 1 | TT71 (Thin Tank 71) 6" DA directly connects to MACT header |
| Protectoseal F26000 | Protectoseal F26000 | 1 | TT7N (Thin Tank) 4" DA directly connects to MACT header |
| Protectoseal F26000 | Protectoseal F26000 | 1 | HT71 (Hold Tank 71) 6" DA directly vents to MACT header + 6" CV to atmosphere |
| Protectoseal F26000 | Protectoseal F26000 | 1 | HT81 (Hold Tank 81) 6" DA directly vents to MACT header + 6" CV to atmosphere |
| Protectoseal F26000 | Protectoseal F26000 | 1 | HT82 (Hold Tank 82) 6" DA directly vents to MACT header + 6" CV to atmosphere |
| Protectoseal F26000 | Protectoseal F26000 | 1 | HT83 (Hold Tank 83) 6" DA directly vents to MACT header + 6" CV to atmosphere |
| Protectoseal F26000 | Protectoseal F26000 | 1 | WT73 (Acid Charge Tank to TT71) 2" DA directly connects to MACT header |
| Protectoseal F26000 | Protectoseal F26000 | 1 | CT84 (Acid Charge Tank to TT8) 2" DA directly connects to MACT header |
| Protectoseal F26000 | Protectoseal F26000 | 1 | RT8700 (Waste collection tank from Stripper) 2" DA directly connects to MACT header |