

HENRY GEON VINYL DIVISION
TEMPORARY INSTRUCTION MEMO

T.I.M. - 172
PCH

TO: Poly Building Operators & Foremen

DATE: March 21, 1988

SUBJECT: COARSE CHARGE RECOVERY PROCEDURE

- A. In many cases, a coarse charge can be recognized in the first or second hour of reaction by an abnormally low dip in the cooling water temperature. A temperature chart showing this is attached.
- B. A sure sign of a coarse charge is a pressure rise not caused by a hydroful condition which is not accompanied by a temperature rise. check for a hydroful situation, shut off the quick fill. If the pressure continues to rise and you have checked to make sure the agitator is on, the charge is coarse. A temperature and pressure chart showing this situation is attached.
- C. Once it has been determined that a charge is coarse, it should immediately be shortstopped with 5 gallons of BPA. A rise of 5°F. on the poly jacket temperature is a good indication that the charge has been killed. If the charge doesn't die out, add 5 more gallons of BPA. If it still doesn't die out, contact the Foreman. It is extremely important to kill the reaction as soon as possible. If it is allowed to react, the charge may set up which will make more work to dispose of the charge.
- D. After the charge is dead, force it hydroful and then drop it to the Blowdown Tank.
- E. Recover the charge through the Blowdown Tank to 20 psi. Rinse the poly until you have a 10°F. temperature rise to check that the poly is empty.
- F. Close recovery valve on Blowdown Tank and slowly open recovery valve on poly.
- G. Recover the poly to the vacuum side.
- H. Contact Downstairs Recovery Operator to open steam valve on bottom of Blowdown Tank. Constant monitoring of the Blowdown Tank pressure is required any time steam is added to the Blowdown Tank. If the Blowdown Tank pressure goes above 100 psi, immediately shut off the steam.

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- I. The Downstairs Recovery Operator will complete the stripping of the charge and then notify the Upstairs Recovery Operator when the poly is ready for steam sweeping.
- J. An alternative procedure is to recovery the charge through the Blowdown Tank. To do this, close the poly bottom valve and drop line block valve. Close the recovery valves on all other Blowdown Tanks open to the recovery compressor being used for this service. Close the separator bottom valve.
- K. Contact Downstairs Recovery Operator to set the interstage on the appropriate compressor to full vacuum. The upstairs controller for the compressor interstage must also be set down to full vacuum. The Downstairs Recovery Operator will complete the recovery of the charge.

K. W. Prather

KWP:hh

attachments

copies: Panel Room
Foremen's Office
Tech Office
Super Tech (2)
O/H Log
Central File

HENRY GEON VINYL DIVISION
TEMPORARY INSTRUCTION MEMO

T.I.M. - 173
PCH

TO: Pearl Charge Operators

DATE: March 21, 1988

SUBJECT: MISCHARGE RECOVERY PROCEDURE

- A. If the poly was overcharged with water and the problem was noted before VCL addition, the following procedure should be used:
 1. Open vinyl block valve and pressure poly to 20 psi.
 2. Check Blowdown Tank empty, inform Downstairs Recovery Operator, and then open bottom valve and drop line block valve to drop water to the Blowdown Tank.
 3. Follow normal poly rinse procedure depending whether or not poly is to be opened.
- B. If the poly was mischarged with VCL (recipe $\pm$ 2%) in the poly, the following procedure should be used:
 1. Shortstop the charge with BPA.
 2. For all charges except X500, the charge will be dropped to the Blowdown Tank and stripped through the column to the Blend Tank.
 - a. Check recycle tank level. DO NOT drop charge unless level is below 60%.
 - b. Check Blowdown Tank empty, inform Downstairs Recovery Operator, and then open bottom valve and drop line block valve.
 - c. Follow normal poly rinse procedure depending whether or not poly is to be opened.
 - d. Suspension resin charges should be recovered to 20 psig in the Blowdown Tank before transferring to the feed tank.
 - e. Blending resin charges should be recovered to less than 5 psig in the Blowdown Tank and heated to 100°F. before pumping to the column. DO NOT circulate the charge when recovering Blowdown Tank #1.

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- f. If the Blowdown Tank temperature drops below 50°F., add steam to heat the contents to 100°F. Constant monitoring of the Blowdown Tank pressure is required whenever steam is added to the Blowdown Tank. If the Blowdown Tank pressure goes above 100 psig, immediately shut off the steam.
- 3. X500 charges will be stripped in the Blowdown Tank and drained to the sewer.
 - a. Check Blowdown Tank empty, inform Donstairs Recovery Operator, and then open bottom valve and drop line block valve.
 - b. Recover the charge to 20 psi in the Blowdown Tank.
 - c. Switch recovery to poly recovery and recover the charge to the vacuum side.
 - d. Contact Downstairs Recovery Operator to turn steam on to bottom of Blowdown Tank. Constant monitoring of the Blowdown Tank pressure is required any time steam is added to the Blowdown Tank. If the Blowdown Tank pressure goes above 100 psi, immediately shut off the steam.
 - e. Charge will be heated to 200°F.
 - f. Close recovery valve and block valve in the drain line.
 - g. The poly may now be opened and checked for vinyl.

K. W. Prather

KWP:bh

attachments

copies: Panel Room
Foremen's Office
Tech Office
Super Tech (2)
O/H Log
Central File

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Chemical Group

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MANUFACTURING PROCEDURE

PROCESS STEP Pearl Charge Procedure (Mischarge Recovery Procedure)			
PRODUCT(S)		PLANT Henry, Illinois	DEPT. NAME/NO. 5536
PROCEDURE NO. PCH 12 Section 17-0		DATE 07/10/87	REFERENCE NO. PCH-11

- e. Blending resin charges should be recovered to less than 1 psig in the Blowdown Tank and heated to 100°F. before pumping to the column. DO NOT circulate the charge when recovering Blowdown Tank #1.
 - f. If the Blowdown Tank temperature drops below 50°F., add steam to heat the contents to 100°F. Constant monitoring of the Blowdown Tank pressure is required whenever steam is added to the Blowdown Tank. If the Blowdown Tank pressure goes above 100 psig, immediately shut off the steam.
3. X500 charges will be stripped in the Blowdown Tank and drained to the sewer.
- a. Check Blowdown Tank empty, inform Downstairs Recovery Operator, and then open bottom valve and drop line block valve.
 - b. Recover the charge to 20 psi in the Blowdown Tank.
 - c. Switch recovery to poly recovery and recover the charge to the vacuum side.
 - d. Contact Downstairs Recovery Operator to turn steam on to bottom of Blowdown Tank. Constant monitoring of the Blowdown Tank pressure is required anytime steam is added to the Blowdown Tank. If the Blowdown Tank pressure goes above 100 psi, immediately shut off the steam.
 - e. Charge will be heated to 200°F.
 - f. Close recovery valve and block valve in the drain line.
 - g. The poly may now be opened and checked for vinyl.

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REASON FOR ISSUE New Procedure		ORIGINATED BY Procedure Review Team	DATE 07
A P P R O V A L S	Manufacturing/Production Manager <i>E.L. Rye</i>	Area Tech Rep <i>K. Baether</i>	<i>F. Mattingly</i>
	General Foreman <i>J.R. Hoffman</i>	Originator <i>R. Keim</i>	<i>R.E. Mac</i>
	Safety Engineer <i>K. W. Miller</i>	Originator <i>S. Macintosh</i>	<i>A. L. L.</i>

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MANUFACTURING PROCEDURE

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PROCESS STEP Pearl Charge Procedure (Coarse Charge Recovery Procedure)			
PRODUCT(S)		PLANT Henry, Illinois	DEPT. NAME/NO. 5536
PROCEDURE NO. PCH 12	Section 18-0	DATE 07/10/87	REFERENCE NO. PCH-11

COARSE CHARGE RECOVERY PROCEDURE

- A. In many cases, a coarse charge can be recognized in the first or second hour of reaction by an abnormally low dip in the cooling water temperature. A temperature chart showing this is attached.
- B. A sure sign of a coarse charge is a pressure rise not caused by a hydroful condition which is not accompanied by a temperature rise. To check for a hydroful situation, shut off the quick fill. If the pressure continues to rise and you have checked to make sure the agitator is on, the charge is coarse. A temperature and pressure chart showing this situation is attached.
- C. Once it has been determined that a charge is coarse, it should immediately be shortstopped with 5 gallons of BPA. A rise of 5°F. on the poly jacket temperature is a good indication that the charge has been killed. If the charge doesn't die out, add 5 more gallons of BPA. If it still doesn't die out, contact the Foreman. It is extremely important to kill the reaction as soon as possible. If it is allowed to react, the charge may set up which will make more work to dispose of the charge.
- D. After the charge is dead, force it hydroful and then drop it to the Blowdown Tank.
- E. Recover the charge through the Blowdown Tank to 20 psi. Rinse the poly until you have a 10°F. temperature rise to check that the poly is empty.
- F. Close recovery valve on Blowdown Tank and slowly open recovery valve on poly.
- G. Recover the poly to the vacuum side.

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REASON FOR ISSUE New Procedure		ORIGINATED BY Procedure Review Team		DATE 07/
A P P R O V A L S	Manufacturing/Production Manager <i>D. P. Rys</i>	Area Tech Rep <i>R. C. Brath</i>	<i>D. J. Mettling</i>	
	General Foreman <i>J. P. Hoffman</i>	Originator <i>R. Herink</i>	<i>R. E. Zwick</i>	
	Safety Engineer <i>K. J. Willy</i>	Originator <i>J. Macchioni</i>	<i>G. L. Lister</i>	

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MANUFACTURING PROCEDURE

PROCESS STEP Pearl Charge Procedure (Coarse Charge Recovery Procedure)		
PRODUCT(S)	PLANT Henry, Illinois	DEPT. NAME/NO. 5536
PROCEDURE NO. PCH 12 Section 18-0	DATE 07/10/87	REFERENCE NO. PCH-11

- H. Contact Downstairs Recovery Operator to open steam valve on bottom of Blowdown Tank. Constant monitoring of the Blowdown Tank pressure is required anytime steam is added to the Blowdown Tank. If the Blowdown Tank pressure goes above 100 psi, immediately shut off the steam.
- I. The Downstairs Recovery Operator will complete the stripping of the charge and then notify the Upstairs Recovery Operator when the poly is ready for steam sweeping.
- J. An alternative procedure is to recover the charge through the Blowdown Tank. To do this, close the poly bottom valve and drop line block valve. Close the recovery valves on all other Blowdown Tanks open to the recovery compressor being used for this service. Close the separator bottom valve.
- K. Contact Downstairs Recovery Operator to set the interstage on the appropriate compressor to full vacuum. The upstairs controller for the compressor interstage must also be set down to full vacuum. The Downstairs Recovery Operator will complete the recovery of the charge.

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REASON FOR ISSUE New Procedure		ORIGINATED BY Procedure Review Team	DATE 07
APPROVALS	Manufacturing Production Manager <i>[Signature]</i>	Area Tech Rep <i>[Signature]</i>	<i>L. F. Mattingly</i>
	General Foreman <i>[Signature]</i>	Originator <i>[Signature]</i>	<i>[Signature]</i>
	Safety Engineer <i>[Signature]</i>	Originator <i>[Signature]</i>	<i>[Signature]</i>

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MANUFACTURING PROCEDURE

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PROCESS STEP Pearl Charge Procedure (Mischarge Recovery Procedure)		
PRODUCT(S)	PLANT Henry, Illinois	DEPT. NAME/NO. 5536
PROCEDURE NO. PCH 12 Section 17-0	DATE 07/10/87	REFERENCE NO. PCH-11

MISCHARGE RECOVERY PROCEDURE

- A. If the poly was overcharged with water and the problem was noted before VCL addition, the following procedure should be used:
1. Open vinyl block valve and pressure poly to 20 psi.
 2. Check Blowdown Tank empty, inform Downstairs Recovery Operator, and then open bottom valve and drop line block valve to drop water to the Blowdown Tank.
 3. Follow normal poly rinse procedure depending whether or not poly is to be opened.
 4. Since Blending resin charges are not pressured up with VCL, an overcharge of water may be sewered.
- B. If the poly was mischarged with VCL (recipe $\pm$ 2%) in the poly, the following procedure should be used:
1. Shortstop the charge with BPA.
 2. For all charges except X500, the charge will be dropped to the Blowdown Tank and stripped through the column to the Blend Tank.
 - a. Check recycle tank level. DO NOT drop charge unless level is below 60%.
 - b. Check Blowdown Tank empty, inform Downstairs Recovery Operator, and then open bottom valve and drop line block valve.
 - c. Follow normal poly rinse procedure depending whether or not poly is to be opened.
 - d. Suspension resin charges should be recovered to 20 psig in the Blowdown Tank before transferring to the feed tank.

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REASON FOR ISSUE New Procedure		ORIGINATED BY Procedure Review Team	DATE 07/11
A P P R O V A L S	Manufacturing Production Manager <i>[Signature]</i>	Area Tech Rep <i>[Signature]</i>	<i>[Signature]</i>
	General Foreman <i>[Signature]</i>	Originator <i>[Signature]</i>	<i>[Signature]</i>
	Safety Engineer <i>[Signature]</i>	Originator <i>[Signature]</i>	<i>[Signature]</i>

The following is all the info that I could get dealing with R/V and R/D

R/D Schedule-

Polys - are changed out on a 5 month schedule supposedly.

The other critical equipment except for the WWHT are fitted with a Gaydos indicator between R/D and R/V that detect R/D malfunction.

*We have the weekly check list performed on all Gaydos indicators (copy of checklist.

R/V Schedule

Blowdown Tanks - R/V inspected on a two year program. Also the R/D are changed at this time.

Slurry Stripping Columns - R/V inspected on a two year program with an accompanying R/D replacement

Burp Tank - 4" Yearly R/V check, R/D replacement

Waste Water Stripping Column - R/V inspected on a two year program with an accompanying R/D replacement.

VCL Recycle Tank - Yearly R/V inspection; at the same time a R/D change

R/V Alone - Yearly inspection on equipment in vinyl service which only have a R/V, no R/D

BF Goodrich Chemical Group OPERATING PROCEDURE

BFG-15626-A

PROCESS STEP

RELIEF VALVES AND RUPTURE DISC PROCEDURE

PROCEDURE NO.	DATE	REFERENCE NUMBER	PLANT	DEPT NAME/NO
SA-1D	10/29/85	SA-1C 9/79	HENRY	SAFETY

PURPOSE

The purpose of this procedure is to provide safe control of pressure or vacuum within the code rating of a vessel or equipment.

Relief Valves and/or Rupture Discs must be installed on any equipment or vessel (including pipelines) where a condition of excessive pressure or vacuum could cause personal injury or property damage.

INSTALLATION REQUIREMENTS

- A. All new or revised installations (including revised pressure settings) must be approved in writing by the Safety Department, the Area Manager, and the Plant Engineer.
- B. Any block valve installed on the inlet of a Relief Valve or Rupture Disc must be approved by the Safety Department and the Plant Engineer and must meet I.R.I. Standards.
- C. Under no circumstances will a block valve be installed on the outlet of any Relief Valve or Rupture Disc used as a primary relieving device.
- D. A primary Relief Valve or Rupture Disc shall have a relieving pressure no greater than the safe operating pressure of the vessel or equipment it protects.
- E. Any installation requiring double Rupture Disc assembly or a Rupture Disc in series with a Relief Valve will require an approved indicator and venting device to prevent pressure buildup between the relieving devices.
- F. Relief Valves removed from service must not be reused without testing.

RECORD REQUIREMENTS

- A. The Maintenance Department will record all Relief Valves installed in the Plant and will maintain an up-to-date history file of all repairs or tests performed on that valve.

REASON FOR ISSUE Update Procedure		ORIGINATED BY J.P. Griffin	DATE 10/29/85
A P P R O V E	PLANT MGR	MAINT SUPV ENGINEER	
	PLT ENGINEER	SAFETY ENGINEER	
	PC MFG MGR	GEON MFG MGR	
	CPO MFG MGR		

NGC 01695

BFGoodrich Chemical Group OPERATING PROCEDURE

BFG-15626-A

PROCESS STEP

RELIEF VALVES AND RUPTURE DISC PROCEDURE

PROCEDURE NO	DATE	REFERENCE NUMBER	PLANT	DEPT. NAME/NO
SA-10	10/29/85	SA-1C 9/79	HENRY	SAFETY

- B. There shall be a card file for each individual Relief Valve, showing pertinent information as to manufacturer, kind, type, serial number, style, size, maximum working pressure, relieving pressure, blowdown pressure free discharge area, purchase order number, date installed and location. Each time a safety valve is inspected, the date, inspector's name and inspection remarks shall be recorded on the card.
- C. A record of all Rupture Discs installed in the Plant will be maintained in the Plant Engineer's office and in the Department area installed.
- D. The Rupture Disc record should include but not be limited to:
1. Vessel name, process, and flow sheet description.
 2. Vessel pressure rating (from ASME data plate).
 3. Rupture Disc size, type, pressure rating, and material of construction.
 4. Replacement history.
- E. All records will be audited annually by the Safety Department.

TESTING REQUIREMENTS

- A. It is the responsibility of each department or project engineer to insure that all new Relief Valves are tested before installation.
- B. Based on historic data, Relief Valves may have a testing interval up to three years.
- C. Each year the Maintenance Department will provide each area department with a list of all Relief Valves requiring testing during that year.
- D. It is the responsibility of each department to insure that all Relief Valves are tested as scheduled.
- E. It is a Plant goal that no Relief Valve shall go untested longer than three months after test date.
- F. Any Relief Valve more than six months overdue for testing will be removed from service and will be tested regardless of process interruptions.

REASON FOR ISSUE Update Procedure		ORIGINATED BY J.P. Griffin	DATE 10/29/85
A P P R O V E	PLANT MGR	MAINT SUPV ENGINEER	
	PLT ENGINEER	SAFETY ENGINEER	
	PC MFG MGR	GEON MFG MGR	
	CPD MFG MGR		

NGC 01696

BF Goodrich Chemical Group OPERATING PROCEDURE

BFG-15626-A

PROCESS STEP

RELIEF VALVES AND RUPTURE DISC PROCEDURE

PROCEDURE NO	DATE	REFERENCE NUMBER	PLANT	DEPT. NAME/NO
SA-10	10/29/85	SA-10 9/78	HENRY	SAFETY

- G. The Maintenance Department will include in the Monthly Progress Report a Relief Valve Testing Status Report showing valve status by department.
- H. Minimum test requirements for Relief Valves:
1. Inspect valve parts for corrosion and general condition.
 2. Check valve relieving pressure.
 3. Check inlet lines clear.
 4. Check outlet lines clear.
 5. Check flame arrestor if there is one on the Valve Relief line.
 6. Make a positive leak check.
 7. After the Relief Valve has been tested and reinstalled, it will be painted. The color will be changed each year for identification purposes.
- I. Rupture Disc installations should be visually inspected for damage or buildup at least annually by the responsible department.
- J. Notification of replacement of a Rupture Disc should be recorded in the department's file and notification sent to the Plant Engineer.

REASON FOR ISSUE Update Procedure		ORIGINATED BY J.F. Griffin	DATE 10/29/85
A P P R O V E	PLANT MGR	MAINT SUPV ENGINEER	
	PLT ENGINEER	SAFETY ENGINEER	
	PC MFG MGR	GEON MFG MGR	
	CPD MFG MGR		

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MANUFACTURING PROCEDURE

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PROCESS STEP Downstairs Pearl Recovery Procedure (Tower Cooling Water Valve Operation)		
PRODUCT(S)	PLANT Henry, Illinois	DEPT. NAME/NO. 5536
PROCEDURE NO. DPR 8	DATE	REFERENCE NO. DPR-7

TOWER COOLING WATER VALVE OPERATION

Two valve actuators have been installed on the 24" and 22" gate valve located in the pit outside Building 731 Office. These actuators will be used to open and close the valves during normal and emergency operations. These actuators are driven by electric motors and the switches for operation are located on a post just west of the pit. These actuators will shut off automatically in the full open and full closed position. This is done by counting the number of revolutions of the valve shaft and as a safety feature the valve will stop when a sufficient amount of torque is seen by the motor.

The actuators will open or close the valves in 3-4 minutes and it takes 177 revolutions of the valve stems to go from full open to full closed or vice versa. Due to the location of the valves, it is somewhat difficult to view the rotation of the valve stems. If entry to the cooling water valve pit is needed, an Entry Permit will have to be issued.

NOTE: DO NOT ENTER PIT WITHOUT AN ENTRY PERMIT!

Due to the size of these valves there will be a tremendous amount of force on one side of the gate if you do not have equal pressure on both the tower and chilled water systems. In order to have the valves work, these pressures should be near equal so the valves will work easily.

The following is a step by step procedure to follow when switching cooling and chilled water valves:

1. Determine the need - do not delay.
2. Have an Entry Permit issued as soon as you see the need, as you will probably need to enter the pit.

REASON FOR ISSUE New Procedure		ORIGINATED BY Procedure Review Team		DATE
A P P R O V A L S	Manufacturing/Production Manager	Area Tech Rep		
	General Foreman	Originator		
	Safety Engineer	Originator		

NGC 01698

Downstairs Pearl Recovery Procedure (Tower Cooling Water Valve Operation)

Henry, Illinois

5536

DPR 8

DPR-7

3. If one system is down and one is running, you will have to equalize the pressure on both sides of the valve. Do this by shutting down the system that is running.
4. One man should enter the pit now with one man outside to operate the switches.
5. Activate the switches now to either open or closed on the valves.
6. Check with the man in the pit to see if the valve stems are rotating.
7. If valve stems are not rotating, shut off switches and have the man in the pit operate the valves manually just enough to get the gate off the seats. Once this is done, activate the switches again and let the valves open or close.
8. While these valves are actuating, open or close the manual valves on the chilled water system which have a hand wheel located on top of the cooling water pit cover.
9. After 3-4 minutes the actuators will shut off and the valves will be fully opened or fully closed. There is a light located near the switch and it indicates green if valves are open and red if valves are closed.
10. Once the valves are opened, the cooling pumps can be started.

Once per week these valves should be tested. This will give everyone a chance to operate the valves and uncover possible problems which may arise from the valves. To do the test, simply open the valve until it is off the seats and then closed again.

New Procedure

Procedure Review Team

NGC 01699

Downstairs Pearl Recovery Procedure (Tower Cooling Water Valve Operation)

Henry, Illinois

5536

DPR 8

DPR-7

The electrical breakers are located in the Poly Building MCC and these breakers are powered by the Poly Building emergency generator during a power failure.

If you have a problem with the valve actuators, you will need to notify either an electrician or general maintenance for repairs and adjustments.

NOTE: Remember that a VESSEL ENTRY PERMIT IS REQUIRED during pit entry by any personnel.

New Procedure

Procedure Review Team

NGC 01700