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B.F.GOODRICH CHEMICAL COMPANY
Inter-Organization Correspondence

April 1, 1975

To: J.M. Hyslop
P.J. Koska
C.C. Lee
J.J. Palkovic
Y. Paquet
G.R. Pavlovic
E.S. Victoria
A.S. Widzer

Attached are the minutes for the VCI usage efficiency meeting held on March 18 and 19, 1975, at Louisville, Kentucky.

E.R. Clayson
E.R. Clayson

ERC:cj

Attachment

cc: J.A. Brooks-J.B. Canella
A.W. Clements-E.L. Beeler-W.D. Robb-R.K. Miller
C.B. Cooper-M.D. Tawney-A.W. Otto
J.J. Dunn
C.R. Flynn - *J.E. Shoop*
E.W. Harrington-T.R. Linak-G.D. Schaaf
F.E. Krause
P.H. Lawrence-P.A. Wagner-H.E. Barrett-S.S. Michels
R.N. Rylands-R.S. Mather-R.W. McKay
A.R. Webber-J.W. Goetsch-W.A. Reed

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MINUTES

VINYL CHLORIDE USAGE EFFICIENCY MEETING

MARCH 18 AND 19, 1975, AT LOUISVILLE, KENTUCKY

Those in Attendance:

D.F. Baker	- Australia
E.L. Beeler	- Long Beach
J.B. Canella	- Shawinigan
P.J. Koska	- Pedricktown
P.H. Lawrence	- Louisville
C.C. Lee	- Niagara
Y. Paquet	- Shawinigan
G.R. Pavlovic	- ALGC
E.S. Victoria	- Long Beach
A.S. Widzer	- Louisville
E.R. Clayson	- Cleveland

1.0 GENERAL

Phil Lawrence addressed his remarks of welcome to the Group. The gist of his remarks, after the amenities, was the challenge to meet the new EPA goal of reduced VCM emissions to the atmosphere and via the water effluent. A general discussion of this challenge followed and the present goal of 400 ppm VCM in the stripped slurry was proposed to the Group.

1.1 The effect of UPS-1 on improved VCM efficiency at each plant.

1.11 Avon East: 1-2% increase under normal conditions.

Avon West: Not known. Some coarse charges and low rates have been encountered.

1.12 Long Beach: Not known. This technique involves more coarse charges, more technical coverage and lowered charge size.

1.13 Louisville: Not known. However, with pre-emulsified Methocel fewer coarse charges have been encountered. Conversion is 80-85% and better efficiency is expected.

1.14 Pedricktown: Not known. Many coarse charge problems have been encountered.

1.15 Henry: Not known. They have been charging cold water instead of hot water in order to get rid of coarse charges.

We can't really isolate the effects of UPS-1 and steam sparging until all of the attendant problems have been resolved.

1.2 There was a general discussion of current plant VCM efficiencies and the need for these values to increase. The problem of the production unit efficiencies being lower when the tank farm discrepancies were included, was discussed. It was suggested that the Plant Manager and other Managers involved be notified, by the plant representative, so that this problem would be better defined. Hopefully, a solution would then be found. The following 1975 VCM usage efficiency goal was submitted for each plant (these are the same as the 1975 PEP No. 1 goals):

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Avon Lake G.C.	- 96.0
Henry	- 96.0
Long Beach	- 97.4
Louisville	- 95.8
Pedricktown	- 96.0
Australia	- 96.0+
Niagara	- 97.0
Shawinigan	- 96.0

It was agreed that the progress toward these goals would be reviewed every two months via the PIP reports.

- 1.3 The group agreed to meet every four months instead of every three months. The overlapping of the efficiency and environmental areas was discussed. It was the consensus of the group that more could be accomplished by keeping the group small. This problem should be studied further -- perhaps an annual gathering of both groups would be appropriate. It was agreed that the problem would be discussed with the Plant Managers by the various representatives and with Mr. Harrington, if necessary.

An estimate of the time applied by each representative, is as follows:

Avon Lake G.C.	- 30%
Henry	- 15%
Long Beach	- 30%
Louisville	- 40%
Pedricktown	- 40%
Australia	- 10%
Niagara	- 40%

These values appear to be on the low side.

- 1.4 A discussion was held concerning the current improvement in the reduction of VCM venting incidences in excess of 500 lbs. It is believed that this improvement is due to increased care and attention, relief valve installation on poly vent lines, poly pressure alarms and the necessity of convening a board of inquiry for each venting in excess of 500 lbs.

2.0 LONG BEACH - E.L. BEELER & E.S. VICTORIA

- 2.1 Blend tank level, residence time and dryer inlet temperature were found, by the PIC group, to be the most important variables with respect to the reduction of RVC in the product. With a blend tank slurry temperature of 180°F, the resin reflectance drops to 91-92%. The recovery procedure is to heat the poly to 220°F and, 25 minutes later, steam sparge the knock-out tank. The extra quantity of VCM recovered in this manner should be known in April. It is interesting to note that the VCM efficiency for the first half of March was 98.4%.
- 2.2 They started costing with a 3% solution of Code 10B but have since reduced the concentration to 0.5%. The polys are clean and the incidence of lumps is minimal. Therefore the necessity of operating the delumper is minimal. However, the use of the delumper will probably be necessary in order to ensure "clean" feed to the stripping column.

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2.3 See 2.1

- 2.4 Pit resin in the amount of 30,000 lbs. has been dried and sold during the last six months. With the use of Code 10B resin losses to the pit have been reduced almost to zero.
- 2.5 Loss data is being updated, at present, in line with the material balance effort. This updating should be complete by the end of April.
- 2.6 Some of the polys using Code 10B have gone through 125 batches without HRC or entry.

3.0 LOUISVILLE - A.S. WIDZER

- 3.1 They were using Duraseals on their second stage compressor in Bldg. 111 rated at 40 psi. These were changed to 100 psi seals using a quench collar to prevent overheating. This installation is presently under study.
- 3.2 This vent gas recovery condenser will be used as a spare. This project has priority No. 18 and is presently on hold.
- 3.3 Plant 2 is connected to the 6-inch parallel VCM recovery line. Plant 1 will be connected as soon as a plant shutdown can be taken -- probably in April.
- 3.4 & 3.5 HRC cleanings and resin from the knock-out tank in Bldg. 18 are not now being collected due to current business conditions. Attempts are being made, through the use of Code 10B, to reduce this resin loss.
- 3.6 Level alarms have been installed on Nos. 1 and 2 Aerotec hoppers in Bldg. 112. These devices prevent resin loss to the atmosphere. (Art Widzer will find out what type of device is being used, as well as send the details to Cleveland for subsequent distribution to other plants).
- 3.7 The recovery pump seal water was switched from D.M. water to Zeolite water.
- 3.8 Vinyl latex strippers are being installed and the latex is being stripped to less than 100 ppm RVCM.
- 3.9 Work continues with the paste stripping system. The current two-stage stripping set up has given slurry RVCM values in the order of 500 ppm. Further refinements, to the system are planned.

A run of dilute paste slurry (in at 11% solids and out at 2-5% solids) was made with the sieve tray column in Bldg. 15. The results were not too encouraging.

- 3.10 They are currently heating the contents of the pearl resin blowdown tank in Bldgs. 1 and 111 to 210°F and 195°F, respectively. The time to reach these temperatures is about 30 minutes.

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4.0 NIAGARA CHEMICAL - C.C. LEE

4.1 The effect of recovery time at 190°F is as follows:

<u>103EP</u>		<u>103EP F-76</u>	
<u>Time</u>	<u>RVCN</u>	<u>Time</u>	<u>RVCN</u>
<u>Mins.</u>	<u>PPM</u>	<u>Mins.</u>	<u>PPM</u>
0	420	0	63
15	320	15	51
30	150	30	53
45	60	45	40

The final product contained less than 10 ppm RVCN.

- 4.2 Installation of the DV80 rupture discs on 10, 3300 gallon polys is complete. There hasn't been a single failure in three months.
- 4.3 The bromagin agitation in the blowdown tanks is operating well with settling no longer a problem.
- 4.4 Facilities for NO shortstopping are being installed.

5.0 HENRY - J.J. PALKOVIC

- 5.1 Due to the press of other business the MIS group will not have the standardized efficiency calculation program ready much before year-end.
- 5.2 Credit for short-weight VCM cars should be used at all plants for calculating VCM usage efficiency. This is only being done at ALGC at present.
- 5.3 The program to replace the rodding device, on VCM cars, with level indicators will be complete by October.
- 5.4 The Calvert City railroad scale will be calibrated by the U.S. Bureau of Standards car, in the near future.
- 5.5 The proposed changes in the tank farm piping to allow VCM recovery from lines and strainers, will be complete by May.
- 5.6 It is expected that the VCM efficiency will increase by having the OVA helper check inbound VCM cars for leaks. He is also checking to see that the pearl resin final recovery vacua are consistently less than 20 in. of mercury.
- 5.7 The water piston program is currently set up for one poly. This technique is estimated to save 10-12 lbs. of VCM per charge.
- 5.8 Dispersion coagulum grinding is successful with Geon 120X283 but not with Geon 121, due to the fact that sheets of Geon 121 buildup break off and plug the inlet to the grinder.
- 5.9 The pH of the Geon 128 sope has been raised from the 8.6-9.2 to the 9.8-10.0 range. It is believed that this helps to reduce coagulum but there is little hard data to substantiate this at present. This is being pursued.

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- 5.10 Geon 128 was being stripped at 170°F and now is at 190°F without any serious quality problems.
- 5.11 It is proposed that the 10,000 gallon tank, in the poly area, be used to receive and recover all possible waste streams.
- 5.12 It is planned to use one point of a Bendix THA to measure the VCM in the vent stack. A Pitot tube will be used to measure the flow: thus the AVCM will be monitored.

6.0 AVON LAKE GENERAL CHEMICAL - G.R. PAVLOVICIC

- 6.1 An A.R. for a Yarway mass flow meter, to measure resin transfer, will be submitted by the end of March.
- 6.2 The dust monitor system developed mechanical problems. The instrument appears to be too delicate for production operation. Other instruments are being considered.
- 6.3 The blowdown tank steam sparging system has just been completed in the Geon West pearl area. Initially, data is being collected at 190°F.
- 6.4 Paste bagging spills do not appear to be much of a problem now.
- 6.5 The drying of reclaimed paste pit resin at the Cincinnati Chemical Co. was not too successful. They tried to spray dry the material but there were too many lumps in it.
- 6.6 Poly 210 in Geon East was up to charge number 78 without opening, due to the use of Code 10B. It is expected that all Geon East polys will be operated in the closed mode by year-end.
- 6.7 It is expected that the double duplex VCM transfer pump, at the tank farm, will soon be replaced by a centrifugal pump.

7.0 PEDRICKTOWN - P.J. KOSKA

- 7.1 & 7.5 The flow meter on the VCM vent stack gives good accuracy.

The recovery system is now venting about 11,000 lbs./month. After the vent condenser is installed the vent rate is expected to be 3,000 lbs./month, maximum.

- 7.2 They are planning to use the computer to monitor the VCM to the atmosphere through the vent stack. It is planned to have this job completed by July, 1975.

- 7.3 The recovery and steam sparging system operation is as follows:

When the system pressure reaches 80 psig the temperature of the slurry is raised to 160°F and when the system pressure drops to 50 psig, the temperature is raised to 220°F where it remains for about 10 minutes. The blowdown tank is recovered to 15 in. of mercury. The final slurry RVCM is 500-800 ppm (dry basis).

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- 7.4 Between November, 1974, and December, 1974, inclusive, the average billed weight of VCM tank cars was 800 lbs. per car more than received, consistently.
- 7.5 See 7.1
- 7.6 The updating of current VCM and PVC losses is in process.

8.0 AUSTRALIA - D.F. BAKER

- 8.1 Last year's efficiency was 95%. This is not considered to be good and the 1975 goal is 96+%. At present the pearl slurry RVCM is 15,000 ppm average (D.B.) at 130°F without steam sparge. With steam sparging an increase of the VCM efficiency to 96.5% is anticipated. A trial run at 185°F gave an RVCM of 3000 ppm (D.B.).
- 8.2 It is estimated that there is a loss of 0.25-0.5% in total VCM efficiency through the recovery vent. This vent recovery system is being redesigned to reduce losses to the atmosphere.
- 8.3 Resin losses at the blowdown tank slurry pumps amount to 0.25-0.5% in efficiency. These resin losses are in the form of lumps.
- 8.4 They are endeavoring to quantify vent stack losses.
- 8.5 A preliminary investigation is being made into the stripping of dispersion resins.

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RESIDUAL VCL CONTENT
OF FINISHED PVC PRODUCTS

DISTRIBUTION

David Brooks
E. R. Clayson
A. W. Clements
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