



Air Products and Chemicals
INC.

ESCAMBIA PLANT
INTEROFFICE MEMORANDUM

To: Distribution

Date: 6 November 1980

From: D. C. Fec

Copies: R. L. Duggan
R. E. Jones
T. J. Regan

Re: Amines Vent Gas Burning
Process Hazards Review

Please attend a Process Hazards Review on Amines Vent Gas Burning in the B&W Boiler, held on Wednesday, November 12 at 9:30 a.m. in the Old Administration Building, upstairs conference room. Attached is an updated PID for your review before the meeting.

D. C. Fec
D. C. Fec

DCF:dl

*Attached drawings

Distribution:

J. Adams
R. B. Chandler *
D. R. Emert*
J. R. Evers*

D. W. Henn*
W. T. Johnson*
J. R. Walsh *

AP00036320



ESCAMBIA PLANT
INTEROFFICE MEMORANDUM

To: Distribution

Date: 26 November 1980

From: D. C. Fec

Copies: R. B. Chandler
G. D. Cooper
R. L. Duggan
R. E. Jones
T. J. Regan

Re: No. 1 Nitric Acid
Process Hazards Review

Please attend a Process Hazards Review on No. 1 Nitric Acid, held December 3, 4 and 5 from 8:00 a.m. - 4:00 p.m. in the Old Administration Building, upstairs conference room.

D. C. Fec

DCF:dl

Distribution:

J. Adams
W. M. Brown
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W. D. Henry
H. H. Newsom

AP00036321

(Air Products)

Date 3 October 1980

INTEROFFICE
MEMORANDUM

Subject PHR Teams

To Distribution

From M. R. Chmura

(Location, Organization, or Department)

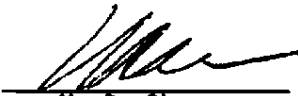
Chem Mfg - Trexlertown

(Location, Organization, or Department)

DISTRIBUTION:

R. R. Baker
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~~W. J. Jones~~
A. K. McMillan
R. W. Ormsby
G. E. Pareja

Please consider attached memo from J. Sykes when you are assembling PHR Teams for reviews scheduled at your facility.


M. R. Chmura

MRC/na

Attachment

RECEIVED

OCT 6 1980

R. E. JONES

(320)

AP00036322

Date 30 September 1980

INTEROFFICE
MEMORANDUM

Subject Process Hazards Reviews

To M. R. Chmura

Chemicals Manufacturing

(Location, Organization, or Department)

From J. A. Sykes

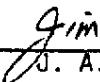
Ind. Chem. Technology

(Location, Organization, or Department)

cc: ICT Management

Using Table 1 of your 25 September memo on "Schedule-Process Hazards Reviews Chemicals Group - Existing Facilities", I have recommended staff or contacts within Industrial Chemicals Technology for providing technical representation to the PHR teams.

Please keep me informed of the teams and technical staff needs to carry out these PHRs.



J. A. Sykes

JAS/st

Attachment

(320)

AP00036323

SCHEDULE FOR PROCESS HAZARDS REVIEWS
CHEMICALS GROUP - EXISTING FACILITIES
25 SEPTEMBER 1980

<u>Facility/Process/Product</u>	<u>Dates Scheduled</u>	
Escambia - Area "B" (AN, Urea, etc.)	15 - 17 Oct. 80	* see Bill Muzzafro.
South Brunswick - Ethylene Handling, Raw Material Handling, Balance of Plant	27 - 31 Oct. 80	
Escambia - Methanol Project	28 - 31 Oct. 80	* Joe Goll
Escambia - Higher Amines, Amines Storage and Handling	10 - 14 Nov. 80	* Larry Baggio
Calvert City - Pipeline Systems	10 - 14 Nov. 80	
Escambia - Nitric Acid #1 (1)	1 - 5 Dec. 80	* Mike Tierrefloer
Escambia - Methanol (existing) (2)	8 - 12 Dec. 80	* Joe Goll
Calvert City - PVOH	12 - 16 Jan. 81	
Escambia - Ammonia (2)	2 - 6 Feb. 81	* Joe Goll
Paulsboro - Catalyst Plant, Utilities and Waste Treatment	2 - 6 Feb. 81	
Escambia - Nitric Acid #2 (1)	2 - 6 Mar. 81	* Mike Tierrefloer
Escambia - Ammonia Recovery and Storage	4 - 8 May 81	* Joe Goll
Calvert City - Emulsions (Remainder of Plant = A.F. #1 and #2)	15 - 19 Jun. 81	
Escambia - Boilers and Utilities	6 - 10 Jul. 81	
Pasadena Nitric Acid (1)	13 - 17 Jul. 81	* Mike Tierrefloer
Escambia - Waste Treatment	13 - 17 Jul. 81	* Jerry Casey
Pasadena - Pipelines, Strippers and Utilities	10 - 14 Aug. 81	* Bill Muzzafro or Delegate.
Calvert City - Boilers and Utilities	10 - 14 Aug. 81	
Cleveland - RP, Methanol Handling, Utilities and Storage	24 - 28 Aug. 81	
Pasadena TDA	7 - 11 Sep. 81	* Bill Muzzafro or Delegate.

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(2)

Facility/Process/Product

Dates Scheduled

Calvert City - Catalyst Plant

7 - 11 Sept. 81

Escambia - Methylamines

7 - 11 Sept. 81

Joe Gull or David
Kaye.

City of Industry - Total Plant

14 - 18 Sept. 81

On Hold:

Calvert City - PVC

Escambia - PVC

Notes: (1) Use common team members
(2) Use common team members

AP00036325



Air Products and Chemicals
INC.

ESCAMBIA PLANT

INTEROFFICE MEMORANDUM

To: R. E. Jones

Date: 4 December 1980

From: D. D. Hurder

Copies: G. D. Cooper W0/A
L. S. Forester W0/A

Re: Process Hazards Review
No. 2 Amines Plant

Attached is a copy of the recommendation section of the process hazards review. Please review the recommendations and relay any questions or comments you may have so they can be addressed by the hazards review committee. A formal transmittal of the recommendation will be made after your comments have been addressed.

The recommendations are rated on a priority basis of 1 to 5 with 1 being items of highest priority. The severity of a hazard has been rated as high, medium or low, where:

High Severity	A hazard which may cause a lost time accident or an excessive property loss.
Medium Severity	A hazard which may cause damage to equipment or an injury other than lost time.
Low Severity	A hazard which may cause minimal property damage.

The probability of a hazard has also been rated as high, medium or low, where:

High Probability	A hazard which has occurred in the past or requires only one primary cause.
Medium Probability	A hazard which requires a combination of two primary causes.
Low Probability	A hazard which requires a combination of three or more primary causes, or one or more secondary causes.

D. D. Hurder

DDH:ms

AP00036326

Category: ☒ Equipment Changes ☐ Procedural Changes, Inspection & PM Items ☐ Eng Studies ☐ Rejected

Status as of December 1, 19 80

Page 1 of 3 Pages

Action Items from Hazard Review							Action Status				
Item No.	Hazard	Severity	Probability	Priority	Action	Responsibility	Recommendations	Initial Completion Date	Forecast Completion Date	Remarks (Include Estimated Costs)	Management Action Needed
1	Chemical release resulting from incomplete combustion of an uncontrolled surge to the flare.	M	H	1		Emert	Install a properly designed flare with adequate safety controls.	12/81		\$50,000	
2	Vehicles driving over the flare line could cause the line to rupture.	H	M	1		Emert	Barricade the make shift road passing over the flare line.	3/81		No cost	
3	High temperatures in the gas fired heater could cause coil failure.	H	M	1		Emert	Upgrade the heater controls to meet minimum requirements.	12/81		\$20,000	
4	The vent line on storage tanks 68202, 205, and 206 can be blocked in, eliminating any means for pressure relief.	H	M	1		Emert	Remove the block valve between the tank and the seal pot.	5/81		No cost	
5	Vessel rupture of the low pressure absorber.	H	M	1		Emert	Pressure rate the low pressure absorber and install a relief valve.	12/81		\$2,000	
6	The recirculation line between the low pressure absorber cooler and its absorber can be blocked in causing overpressure in the cooler.	H	L	2		Emert	Remove the block valve between the cooler and the low pressure absorber.	6/81		No cost	
7	600 psi steam can be added to the separation column reboiler causing vessel rupture.	H	M	2		Emert	Remove the 600 psi jumper line or rerate the reboiler to 600 psi.	12/81		A new reboiler rated at 600 psi is on order.	

AP00036327

AP00036328

 Category: ☒ Equipment Changes ☐ Procedural Changes, Inspection & PM Items ☐ Eng Studies ☐ Rejected

 Status as of December 1, 80
 Page 2 of 3 Pages

Action Items from Hazard Review							Action Status				
Item No.	Hazard	Severity	Probability	Priority	Action	Responsibility	Recommendations	Initial Completion Date	Forecast Completion Date	Remarks (Include Estimated Costs)	Management Action Needed
8	Cooling water on exchangers can be blocked in causing over pressure and possible rupture of the lines and/or exchangers.	H	L	2		Emert	A relief valve should be placed on the cooling water lines for all exchangers.	12/81		\$5,000	
9	Loss of the nitrogen blanket on the 116 tanks could cause a vessel to collapse from vacuum.	H	M	2		Emert	Provide vacuum relief for all 116 tanks.	12/82		\$30,000	
10	Vacuum can cause collapse of tank 68213.	H	M	3		Emert	Provide vacuum relief for tank 213.	12/82		\$2,000	
11	Uncontrolled fire in the gas fired heater.	H	M	3		Emert	Install a steam snuffer in the gas fired heater.	12/81		\$20,000	
12	A flame can back up the vent of the product storage tanks.	H	L	3		Emert	Install flame arresters on all storage tank vents to the atmosphere.	12/81		\$25,000	
13	Pump/motor failure can cause overheating and possible fire in process lines.	H	L	3		Emert	Install discharge pressure gauges on all pumps.	12/81		\$10,000	
14	Vehicles in the area could strike equipment located adjacent to the roadway.	M	L	3		Emert	Install an access gate on the road by the converter.	5/81		No cost	
15	Inadequate dykes may not restrain a liquid spill.	M	L	4		Emert	All dykes that are not in good repair should be upgraded.	12/82		\$50,000 + on-going major maintenance.	
16	Employee exposure to hazardous process chemicals.	M	M	4		Emert	All sight glasses should have drains and all pressure gauges should have bleeds.	12/82		\$10,000	

Status as of December 1, 1980
Page 3 of 3 Pages

Action Items from Hazard Review				Action Status		
Hazard	Severity	Probability	Priority	Responsibility	Recommendations	Initial Completion Date
17 Vibration of the pipes near the vent separator can cause material failure.	M	L	5	Emert	Adequate supports should be installed to prevent excessive vibration.	6/81
						Forecast Completion Date
						Remarks (Include Estimated Costs)
						Management Action Needed

AP00036329

Category: ☐ Equipment Changes ☒ Procedural Changes, Inspection & PM Items ☐ Eng Studies ☐ Rejected

Status as of December 1, 1980

Page 1 of 1 Pages

Action Items from Hazard Review							Action Status				
Item No.	Hazard	Severity	Probability	Priority	Action	Responsibility	Recommendations	Initial Completion Date	Forecast Completion Date	Remarks (Include Estimated Costs)	Management Action Needed
1	Chemical release due to incomplete maintenance	M	M	3		Emert	All work permits should be signed by production personnel after visual inspection and approval of the work.	1/81		No cost	
2	Lack of operator knowledge about the fire water system could delay efforts to control a fire or chemical spills.	M	M	2		Emert	A diagram of the fire water protection system should be posted in the control room and covered in shift safety meetings.	3/81		No cost	
3	A chemical release can result from poor welds on pipes and equipment.	M	M	3		Emert	A small percentage of all new maintenance welds should be x-rayed.	1/81		\$5,000/year	
4	A hydrogen leak in the area of the gas fired heater could cause an explosion.	H	L	3		Emert	All flanges in the immediate vicinity of the gas fired heater should be bubble tested for leaks while on nitrogen during start-up.	1/81		No cost	
5	Chemical spills or unwanted chemical mixing could occur from an incorrectly turned blind.	M	L	5		Emert	A blind list should be prepared and a systematic method of changing lines during turnaround should be studied.	6/81		No cost	
6	The dirt and sand that is covering the sleeper racks by the 10 track loading rack can accelerate corrosion and cause a chemical spill.	L	M	4		Emert	The sleeper racks should be kept clean of dirt and sand.	6/81		No cost	

AP00036330

Category: ☐ Equipment Changes ☐ Procedural Changes, Inspection & PM Items ☒ Eng Studies ☐ Rejected

Status as of December 1, 1980

Page 1 of 3 Pages

Action Items from Hazard Review							Action Status				
Item No.	Hazard	Severity	Probability	Priority	Action	Responsibility	Recommendations	Initial Completion Date	Forecast Completion Date	Remarks (Include Estimated Costs)	Management Action Needed
1	Overpressure in vessels causing rupture.	H	H	1		Forester	The relief valve sizing verification program should be instituted. This should include checks of relief valve piping supports, outlet piping and valve sizes.	12/82		No cost	
2	It may be possible for process chemicals to back up into the nitrogen system.	H	M	2		Emert	A hazards review should be performed on the nitrogen system.	12/81		No cost	
3	It was not known if the distillation columns are vacuum rated.	H	L	3		Cooper	All columns should be checked for vacuum rating.	6/81		No cost	
4	Uncontrolled fire in the area.	H	L	4		Henry	Review the fire water protection for the area.	3/81		No cost	
5	Internal vessel fire from a static charge	H	L	4		Cooper	a) Determine if all top loading storage tanks are equipped with dip tubes and install where needed. b) The grounding system in the plant should be checked to insure that all equipment is properly grounded. c) Determine the conductivity for the major No. 2 plant chemicals.	6/81		No cost	
6	A hydrogen release from the recycle compressor could be ignited by an internal combustion engine in the area.	H	L	3		Emert	The procedure for allowing internal combustion engines in the area should be reviewed.	6/81		No cost	

AP00036331

Category: ☐ Equipment Changes ☐ Procedural Changes, Inspection & PM Items ☒ Eng Studies ☐ Rejected

Status as of December 1, 19

Page 2 of 3 Pages

Action Items from Hazard Review							Action Status			
Item No.	Hazard	Severity	Probability	Priority	Action	Responsibility	Recommendations	Initial Completion Date	Forecast Completion Date	Remarks (Include Estimated Costs)
7	The high pressure absorber knockout pot is rated at a lower pressure than the high pressure absorber and must be pressure relieved through the high pressure absorber.	H	L	3		Cooper	Upgrade the knock out pot to the same pressure rating as the high pressure absorber.	3/81		No cost
8	The lines in the vicinity of the high pressure absorber can be overpressured if during shut-down the lines were closed and the caustic feed left on.	M	L	4		Cooper	Insure that the caustic line pressure does not exceed 330 psi.	6/81		No cost
9	The pressure rating of the ammonia column preheater bonnet, and channel cover was not known.	M	L	4		Cooper	Determine the pressure rating of the channel and bonnet.	6/81		No cost
10	The alkyl preheater must be vented through the alkyl vaporizer in the event of an overpressure.	H	L	4		Cooper	Determine if a relief valve is required for the alkyl preheater.	3/81		No cost
11	Imbrittlement of the coil in the gas fired heater can cause a line rupture.	H	L	4		Emert/ Dean	Investigate the possibility of hydrogen imbrittlement. For IBN production determine if there is any possibility of zinc imbrittlement being caused by the zinc oxide catalyst.	6/81		\$5,000
12	The compressor can overheat and bind up from a loss of cooling water.	M	L	4		Cooper	Investigate a cooling water failure for the compressor.	6/81		No cost

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Category: ☐ Equipment Changes ☐ Procedural Changes, Inspection & PM Items ☒ Eng Studies ☐ Rejected

Status as of December 1, 1980

Page 3 of 3 Pages

Action Items from Hazard Review							Action Status				
Item No.	Hazard	Severity	Probability	Priority	Action	Responsibility	Recommendations	Initial Completion Date	Forecast Completion Date	Remarks (Include Estimated Costs)	Management Action Needed
13	An overpressure may occur in the vessels due to the heat of mixing of two chemicals.	H	L	5		Cooper	Quantify the heat of mixing for the major chemicals used in the No. 2 plant.	6/81		No cost	
14	A flammable atmosphere could occur in the equilization tanks after a dehydration column upset.	M	L	5		Cooper	Quantify the possibility of a flammable atmosphere being formed.	12/81		No cost	
15	Catalyst dust during converter charging could be toxic or cause an explosive atmosphere.	H	L	5		Cooper	Investigate the toxicity of the catalyst dust and the possibility of a dust explosion.	12/81		No cost	

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