

Interoffice Memorandum

TO (Name and Location)	DATE
Mr. J. N. Gann	June 22, 1976
FROM (Name and Location)	REFERENCE NO.
C. J. Duey	CJD-199-76

File
DSHA

Subject: Manpower and Equipment for Measuring Air Contaminants in the Work Place

**PLAINTIFF'S
EXHIBIT**
CEL -134

Mr. J. M. Ramey has proposed a company program for measuring base levels for all possible air contaminants in the work place. This program (Phase I) is supposed to be completed by July 1, 1977. An initial outline of the work required to meet this objective was given in CJD-198-76. There is a lot of work to be done and the project will require a chemist full time in order to finish on schedule. I estimate that about 25% of my time will be required during this period to train the chemist in sampling techniques, analyses, recordkeeping, method development, etc. Considerably more than 25% of my time would be required during the early part of the project. This would cause what I understand to be unacceptable delays in the CHOX modelling program that we are conducting with CCCTC and which is one of the company's key technical objectives. We need to work out a plan to supplement my efforts on the air contaminants project during its early stages.

This project will add unplanned expenses to the lab budget. An estimate of these expenses is:

Operating Supplies

Detector Tubes, Absorption Tubes, Filters, \$500.
Impingers, etc.

3 Personnel Sampling Pumps 750.

Outside Services

Contract Analyses, Asbestos, etc. 300.

Most of these expenses will occur in 1976.

The project will require a dedicated research quality GC. The GC should have FID, AFID, and EC detectors available for measuring specific types of impurities. A dual channel recorder would be very desirable for analysing a sample simultaneously with two detectors. The GC would not have to be tied to the PACE computer, since hand calculations would not normally be time consuming. (This GC might also be useful for EPA type studies of trace (ppb) impurities in air and water samples.) A Bendix Flasher or equivalent will probably also be required for flashing samples from adsorption tubes to the GC. Estimated costs for these instruments are on the following page.

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June 22, 1976

VA 2740 GC	
ALTP and FID	\$5140
ECD (Tritium)	820
AFID	365
Flow Diverters	318
Flow Splitter (50:50)	200
TOTAL	<u>\$6843</u>
Dual Pen Recorder	1885
Bendix Flasher	1000

Early approval of the GC is desirable to prevent delay of the project and to complete the project on schedule.

C. J. Duey
C. J. Duey

ic

cc: Messrs. P. E. Hime
D. H. Miller
L. E. Hackfeld
J. M. Ramey - NYO
C. H. Laubly - NYO
B. J. Bland - CCCTC
J. W. Dunn - CLP
W. H. Meyer - Bishop
W. H. Tuke - Pampa

File: 71

005938

Interoffice Memorandum

TO (Name and Location)	Mr. C. J. Duey - Bay City	DATE	July 20, 1976
FROM (Name and Location)	E. S. Ramey - CCCTC	REFERENCE NO.	ESR-291-76

Analysis of Bay City Plant Insulation Samples/Asbestos

Enclosed is the asbestos data for the five insulation samples you sent to me. Samples 1 and 2 did not contain asbestos. Samples 3, 4, and 5 did contain asbestos.

These identifications were made on the Scanning Electron Microscope (SEM) by Dr. P. B. DeGroot. A report detailing the SEM method for asbestos identification will be completed soon.

Any additional identification of these samples such as trade names, source, installation date, etc may be of value to me and our air monitoring chemists at the other Celanese Chemical Company plants.

If we can be of additional help with analytical problems, let us know.

ESR:eem

cc: Mr. R. M. Guedin - CCCTC
Dr. R. F. Stubbeman - CCCTC
Dr. B. J. Bland - CCCTC
Dr. P. B. DeGroot - CCCTC
Mr. J. Hawthorne - CCCTC
Mr. J. M. Ramey - NYO
Mr. C. Laubly - NYO
Ms. S. L. White - Bay City
Ms. Ann Retherford - Bishop
Mr. R. E. Green - Clear Lake
Mr. M. R. Stenzel - Pampa



005939

IS THERE ANY ASSISTANCE PROGRAM?

 $\mathbb{R}^n$ (After)

11/11/11

JAMES DEWEY 272
395

PBD-180-76

cc: Mr. R. M. Guedin - CCCTC
Dr. R. F. Stubbeman - CCCTC
Dr. B. J. Bland - CCCTC
Mr. E. S. Ramey - CCCTC
Mr. J. P. Hawthorne - CCCTC
Mr. J. M. Ramey - NYO
Mr. C. Laubly - NYO
Ms. S. L. White - Bay City ✓
Ms. Ann Retherford - Bishop
Mr. R. E. Green - Clear Lake
Mr. M. R. Stenzel - Pampa

~~CJO~~
~~JNC~~
JLW return

Jim, these were
Bay City samples
that safety
needed an
identification on
CJO

005941

Interoffice Memorandum

TO (Name and Location)	DATE
Mr. R. M. Guedin - CCCTC	August 17, 1970
FROM (Name and Location)	REFERENCE NO.
P. B. DeGroot - CCCTC	PBD-180-76

Use of SEM/XES to Identify Asbestos in Insulation

SUMMARY

Scanning Electron Microscopy and X-ray Energy Spectroscopy were used to identify asbestos in samples of insulation. SEM/XES is a rapid, fairly simple method of identifying asbestos fibers as small as fractions of a micrometer in diameter. Asbestos minerals can be distinguished by morphology and relative Fe, Mg, Ca, Al and Si content as measured by XES.

Uniterms

Asbestos
Insulation
X-ray
SEM

005942

INTRODUCTION

At the request of Mr. E. S. Ramey, I have examined five samples of insulation with Scanning Electron Microscopy and X-ray Energy Spectroscopy (SEM/XES) techniques. The purpose was to determine if asbestos was present, and to find out whether SEM/XES methods could detect asbestos easily in such materials.

CONCLUSIONS

Asbestos of two or three different types was easily detected by SEM/XES methods in three of the five samples. Results matched expectations as to which samples contained asbestos. Both the appearance in the SEM and the elemental composition determined by XES are necessary to identify asbestos.

RESULTS AND DISCUSSION

Qualitative observations on the appearance and a summary of elemental compositions are given for each sample in the Table. This data has been reported in ESR-291-76 (1). The three asbestos-containing samples (3-5) appear to be mixtures of asbestos with a material resembling glass fibers or glass wool in composition (but not in appearance). Sample 2 appears to be mostly glass-like fibers and particles. This is probably a raw mineral rather than a fused product like glass. Sample 1 consists of thin plates or flakes of a silica-alumina containing some K and Na.

Photomicrographs and X-ray spectra are shown in Figures 1-5. A brief discussion and interpretation of these data for each sample follows:

Sample 1 (Figure 1). The flakes seen in the photomicrographs range in size from a few μm to about 50 μm . Many of them are partially transparent. This puts an upper limit of about 50 nm on their thickness (1, pp 12-13). The XES spectrum is also shown in the figure.

Sample 2 (Figure 2) - Small agglomerates of fine particulate matter are interspersed with ribbon-like fibers. These flat fibers are about 10-30 μm in width. The photomicrograph taken with a 1 KeV beam (very low electron penetration) shows that the surface of these fibers is also covered with fine particulate material. As the XES spectrum shows, the elemental compositions of the two forms are virtually identical.

and sample preparation, each laboratory would have to produce its own compositional diagram using known materials. Fortunately, most of the asbestos used commercially is chrysotile, which is easily identified by its serpentine strands and high Mg/Fe ratio.

Sample preparation required simply picking up some of the material on double-sided tape affixed to an SEM stub, then coating the surface lightly with carbon in a vacuum evaporator. The carbon coating was kept thin to improve X-ray detectability. The resulting rather low conductivity limited high magnification resolution somewhat.

Instrumental conditions were those routinely employed in our laboratory, i.e. a beam energy of 20 KeV, secondary electron photomicrographs, and 30° sample tilt.

Peter B. De Groot

PBD:eem

REFERENCES

1. Hayat, M. A., ed., "Principles and Techniques of Scanning Electron Microscopy," Vol I, Van Nostrand Reinhold, New York, (1975).
2. Walker, C. W., G. G. Paulson, and R. E. Ferrell, Proc. of the 32nd Annual Meeting of the Electron Microprobe Society of America, 1974, 524-25.
3. McCrone, W. C. and J. G. Delly, The Particle Atlas Vol III. Ann Arbor Science Publishers, Inc., Ann Arbor MI. 1975. 627-28.

005944

August 17, 1976

TABLE I

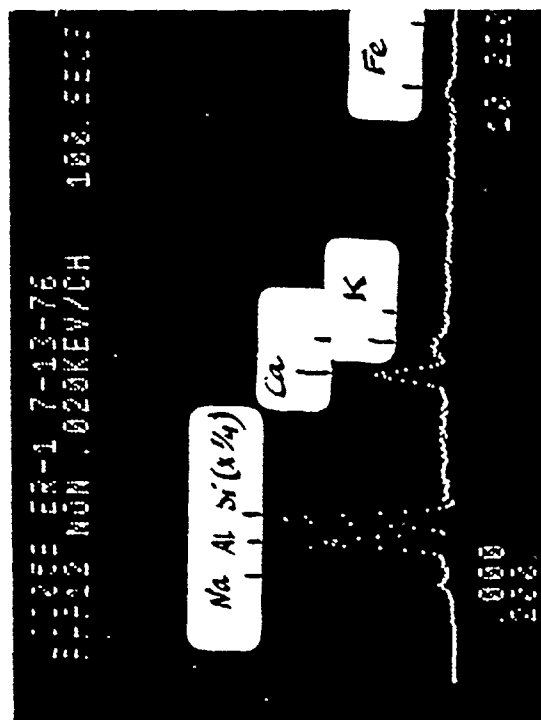
CHARACTERIZATION OF INSULATION SAMPLES BY APPEARANCE IN THE
SEM AND BY ELEMENTAL COMPOSITION

Sample No.	Form of Material	Identification of Material	Elements Found by XES			
			Major	Minor	Trace	
1	Thin flakes	?	Si, Al	K, Na	Fe	
2	Long flat fibers Fine particles	? ?	} Ca, Si	Al	Fe, Cr?	
3	Long round very fine fibers	Asbestos (Amosite and/or Anthrophyllite?)		Mg, Mn, Al	--	
	Clumps of short, fine fibers	?	Ca, Si	Al	--	
4	Bundles of long, fine fibers	Asbestos (Chrysotile)	Si, Ca, Mg	Al, Fe	--	
5	Fine particles	?	Si, Ca	Na, Al	S, Fe	
	Bundles of long, fine fibers	Asbestos (Amosite or Crocidolite)	Fe, Si	Mg	Al	
	Clumps of very fine particles	?	Si, Ca	--	Na	

005945

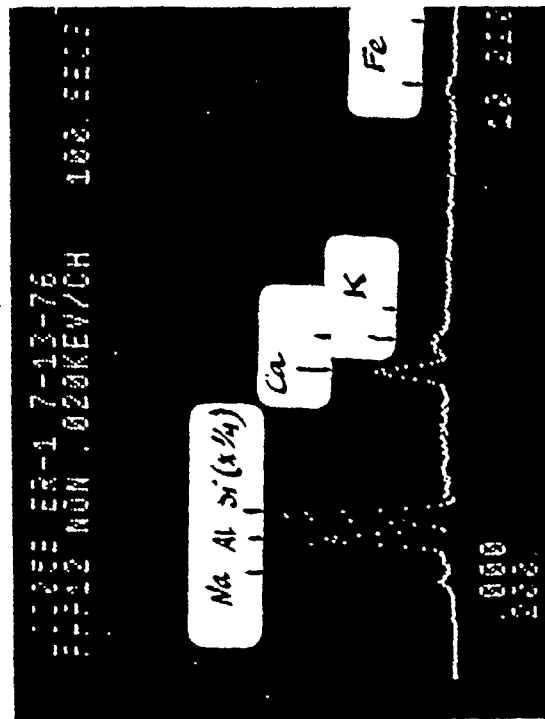
August 17, 1976

FIGURE 1
SECONDARY ELECTRON PHOTO MICROGRAPHS AND XES SPECTRUM
INSULATION SAMPLE NO. 1

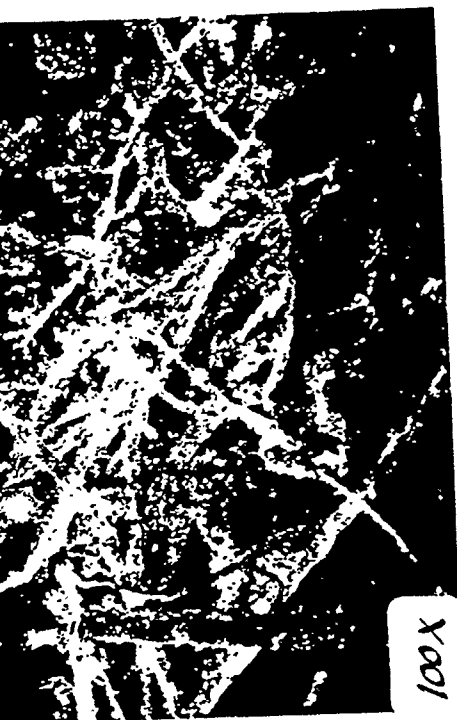


005946

FIGURE 1
SECONDARY ELECTRON PHOTOMICROGRAPHS AND XES SPECTRUM
INSULATION SAMPLE NO. 1



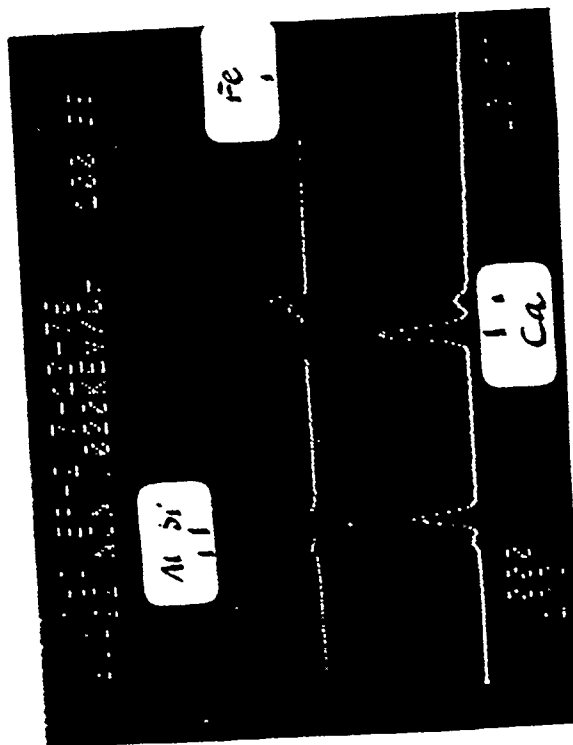
August 17, 1976



1 KeV Beam



20 KeV Beam



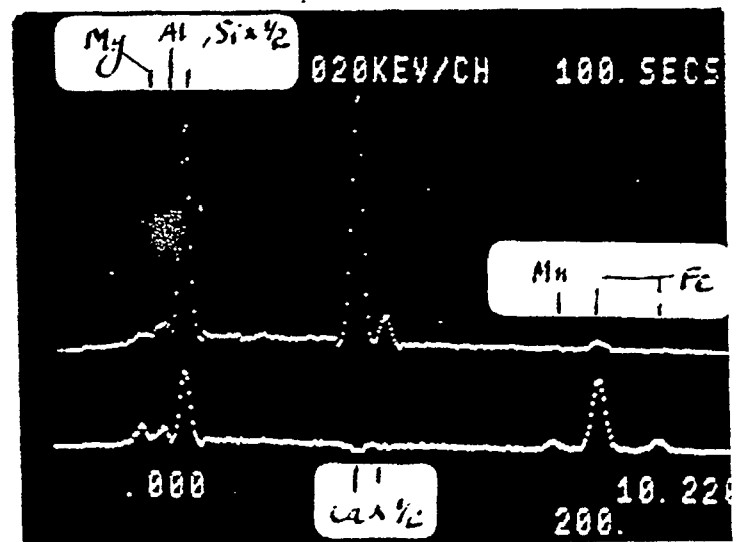
XES Spectrum, Area A Above

XES Spectrum, Area B Above

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FIGURE 3

SECONDARY ELECTRON PHOTOMICROGRAPH AND XES SPECTRA
INSULATION SAMPLE NO. 3



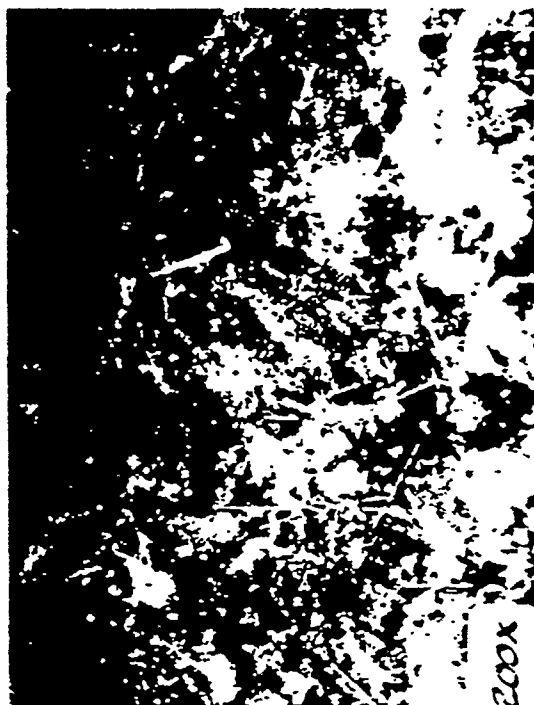
Top - XES Spectrum, Area B

Bottom - XES Spectrum, Area A

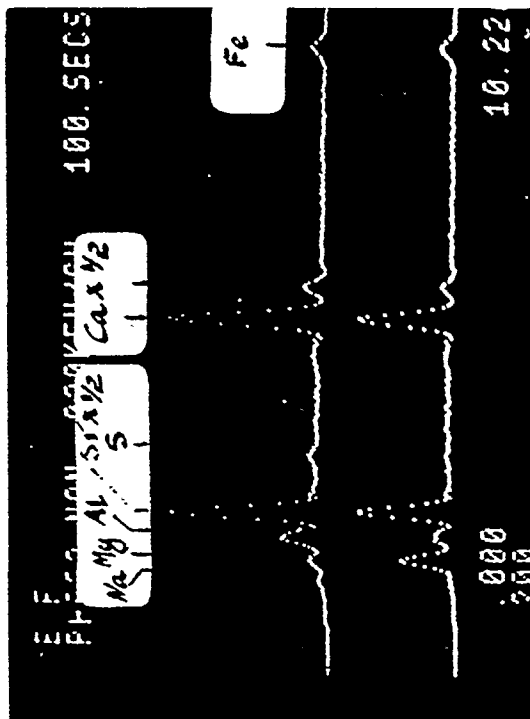
August 17, 1976



14X



200X



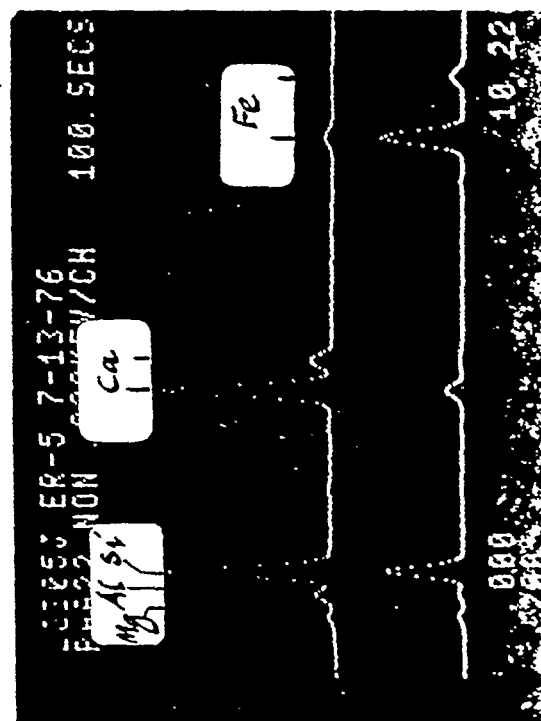
XES Spectrum of particles (out of photomicrograph field of view).

XES Spectrum of fiber area highlighted above

August 17, 1976

FIGURE 5

SECONDARY ELECTRON PHOTO MICROGRAPHS AND XES SPECTRA
INSULATION SAMPLE NO. 5



XES spectrum, area A above

XES spectrum, area B above

005950

 CELANESE
CHEMICAL COMPANY
JLW-2-76
September 22, 1976

Ms. Betty S. O'Shea
National Loss Control Service Corp.
Environmental Science Laboratory
Long Grove, Illinois 60049

Dear Ms. O'Shea:

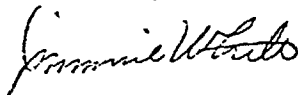
Enclosed you will find four cartridges for asbestos fiber counts, each containing a 0.8 micron filter paper. They are labeled as follows:

1. Blank -- An unused filter paper (#913762 is this blank's number).
2. #913761 -- An asbestos sample, with 48 l of air at a rate of 1.6 l/min.
3. #914761 -- As asbestos sample, with 56 l of air at a rate of 1.6 l/min.
4. "Asbestos" -- An asbestos sample with 48 liters of air at 1.6 l/min. (does not have a number).

We would like to order 20 asbestos filter cartridges for future use. I would like to know, if we use your cartridges, will it be necessary to mail in a blank? Also, is there any special consideration that I should know about storage?

Thank you very much.

Sincerely,



Jimmie White

JW/jg
Enclosures

005951

Interoffice Memorandum

(Name and Location) J. M. Ramey - NYO	DATE 10-6-76
(Name and Location) J. L. White and C. J. Duey - Bay City	REFERENCE NO. JLW-4-76, CJD-202-76

SUBJECT: Status of Bay City Plant Industrial Health Program

Method Development

Preliminary work has been concentrated on method development. TWA methods have been developed or adapted for methanol, cyclohexane, cyclohexanone, cyclohexanol, and various dust samples. Charcoal absorption is being adapted for most remaining organic vapors. Silica gel absorption is being adapted for amines and appears to be satisfactory.

Methods for oil mist measurement have been reviewed. Several analytical techniques have been used (UV absorption, fluorescence, gravimetric, etc.), for this analysis. We would like to hear comments from the other locations before we decide on a method.

Future work will include development of a TWA method for NO, NO₂, and HNO₃. Available methods appear to be quite time consuming.

Sample Collection

A list of samples collected and results obtained is attached. Most of the samples were taken on the outside operator with the greatest potential for exposure. Mechanic samples and upset condition samples will be taken when the opportunity arises. Several asbestos samples have been taken and sent to National Loss Control for analysis. We expect these samples to be in compliance. About 15-20 percent of the samples required for the first phase have been taken. We expect to complete this phase by July 1977.

Problem Areas

The Nylon Salt Unit outside operator is occasionally exposed to methanol vapors exceeding the eight hour PEL and/or exceeding the proposed 15 minute excursion limit of 1040 mg/m³. Operations and Engineering are working to solve this problem.

A sample taken on the Nylon Salt Bagger showed 16 mg/m³ nylon salt dust versus a PEL of 10 mg/m³ for nuisance dust. Actual exposure is essentially nil since the worker wears a dust mask. This will not be a problem if the SCP allows the flexibility of using a dust mask for short-term exposures.

Exposures to about 100 ppm HMI occur when loading hot HMI into tank cars. A heat exchanger has been installed to cool the HMI before loading. We will sample at the next opportunity to see if this solves the problem.

UNITERMS

OSHA

Status

Bay City

005952

Administrative Procedures

BCP has reviewed the administrative procedures draft in JMR-178-76. Comments and suggested changes follow.

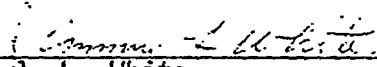
1. No changes.
2. No changes.
3. Comment -- Standard report forms should be clear to the average worker so that the form can be copied and posted in the work area.
4. Comments -- BCP agrees with the filing system recommended except for keeping files in the work area. We doubt that work area files could be kept current and accurate. Should a second file be kept on microfilm or computer as a backup for IR files?

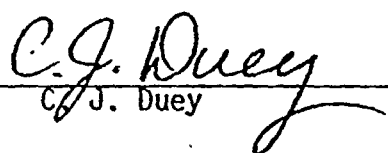
BCP plans to file shift schedules for recording work assignments of employees.

5-1. Suggested Revision -- If measurements show that a substance is present in the workplace air at a level that in the Laboratory's judgment would pose a serious risk to the employee's health, the Unit Supervisor should be notified immediately and corrective action taken. Also, the Area Superintendent, Safety Supervisor, and Plant Manager's Safety Committee will be notified immediately. The Safety Supervisor will formally notify the Division Industrial Hygienist.

5-2. Suggested Revision -- Copies of all completed Industrial Hygiene Monitoring forms will be posted in the affected work area for 10 days to permit employees to review test results.

5-3. No change.


J. L. White


C. J. Duey

JLW/CJD/jg
Attachments

cc: D. H. Miller
J. N. Gann
K. A. Dunn
R. C. Reitz
B. J. Bland - CCCTC
E. S. Ramey - CCCTC
R. E. Green - CLP
A. E. Retherford - Bishop
M. R. Stenzel - Pampa
Central Files - CCCTC

File: 71-1

005953

Bay City Plant Laboratory

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OBJECTIVE	STARTING DATE EST.COMP.DATE	PROJECT TITLE - ASSIGNEE(s) - PROGRESS SUMMARY																																				
Achieve 1976 standard efficiencies and advance technology base for long range process improvements.		Component Analyses, in Support of Vapor Liquid Equilibrium Data on HDO Distillation Towers, Complete -- Hassloch -- Data compiled and letter written on comprehensive analyses on all streams in HDO distillation section on fresh ester and heavy ends rerun. Emphasis was on verifying the vapor pressure curves previously generated for heavy end components (including CyOC6) in MAH-25-76 or JSA-45-76. Indications are that the vapor pressure curves previously generated under forced laboratory conditions were verified by the analyses of the unit sample.																																				
Minimize lost time injuries, doctor cases, and fire experiences. Continue progress toward OSHA compliance with emphasis on identification and elimination of harmful chemical exposures.	July 1976 July 1977 9-23-76	OSHA-Airborne Contaminant Survey and Analytical Development -- White -- An analytical procedure has been adapted for the OSHA analysis of ammonium meta vanadate. GC analysis is being developed for the OSHA analysis of amines in Ammonolysis. The Varian 2700 GC has been received and is being installed and checked out by Varian. One of two additional low volume sampling pumps has been received. The new equipment will increase the number of samples taken and do away with a GC availability bottleneck. September Meeting of Industrial Health Specialists -- White -- A meeting was held September 23rd to discuss the progress of the Industrial Health Specialists at each of the chemical plants and the Tech Center. There was also a workshop on administrative procedures related to OSHA. Mr. Douglas Chang of New York issued a sample toxicological summary that will be prepared for all Celanese products.																																				
	July 1976 July 1977	Monitor Employee Exposure to Hazardous Chemicals to Insure Continued Compliance with Existing Laws -- White -- <table><thead><tr><th>DATE</th><th>UNIT</th><th>SAMPLE TYPE</th><th>SUBSTANCE</th><th>MEASURED AMOUNT OF SUBSTANCE</th><th>PEL</th></tr></thead><tbody><tr><td>9-8</td><td>NS-Bagging</td><td>Personal</td><td>Nuisance Dust (Nylon Salt)</td><td>16 mg/m³</td><td>10 mg/m³</td></tr><tr><td>9-13</td><td>Lab-ADA Bench</td><td>Personal</td><td>Nuisance Dust (Adipic)</td><td>2 mg/m³</td><td>10 mg/m³</td></tr><tr><td>9-7</td><td>NS</td><td>Personal</td><td>Methanol</td><td>35 mg/m³</td><td>260 mg/m³</td></tr><tr><td>9-8</td><td>NS</td><td>Personal</td><td>Methanol</td><td>33 mg/m³</td><td>260 mg/m³</td></tr><tr><td>9-8</td><td>NS</td><td>Personal(1)</td><td>Methanol</td><td>292 mg/m³</td><td>1040 mg/m³</td></tr></tbody></table>	DATE	UNIT	SAMPLE TYPE	SUBSTANCE	MEASURED AMOUNT OF SUBSTANCE	PEL	9-8	NS-Bagging	Personal	Nuisance Dust (Nylon Salt)	16 mg/m ³	10 mg/m ³	9-13	Lab-ADA Bench	Personal	Nuisance Dust (Adipic)	2 mg/m ³	10 mg/m ³	9-7	NS	Personal	Methanol	35 mg/m ³	260 mg/m ³	9-8	NS	Personal	Methanol	33 mg/m ³	260 mg/m ³	9-8	NS	Personal(1)	Methanol	292 mg/m ³	1040 mg/m ³
DATE	UNIT	SAMPLE TYPE	SUBSTANCE	MEASURED AMOUNT OF SUBSTANCE	PEL																																	
9-8	NS-Bagging	Personal	Nuisance Dust (Nylon Salt)	16 mg/m ³	10 mg/m ³																																	
9-13	Lab-ADA Bench	Personal	Nuisance Dust (Adipic)	2 mg/m ³	10 mg/m ³																																	
9-7	NS	Personal	Methanol	35 mg/m ³	260 mg/m ³																																	
9-8	NS	Personal	Methanol	33 mg/m ³	260 mg/m ³																																	
9-8	NS	Personal(1)	Methanol	292 mg/m ³	1040 mg/m ³																																	

005954

Bay City Plant Laboratory

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OBJECTIVE	STARTING DATE EST. COMP. DATE	PROJECT TITLE - ASSIGNEE(S) - PROGRESS SUMMARY
	July 1976 July 1977	Note: (1) This is a 15 minute sample taken while the operator was washing down the continuous centrifuge. Only a few samples were taken because of the plant shutdown during September. <u>Asbestos Sampling</u> -- <u>White</u> -- Each time insulation is removed or cut, an air sample is taken on the operator. The analysis for asbestos is done by National Loss Control Service Corporation and results are expected for next month's report.
Support the MMRT program.	1-1-76 12-31-76	Improve the Lab Library and Other Data Retrieval Systems -- <u>Brast</u> -- An account has been set up with the Library of Congress to purchase library catalog cards for our books. (We'll let them do the book filing for us). Other library equipment ordered to organize non-bound journals. Work is continuing.

005955

Bay City Plant Laboratory

-10-

OBJECTIVE	STARTING DATE EST. COMP. DATE	PROJECT TITLE - ASSIGNEE(S) - PROGRESS SUMMARY
Minimize Lost Time. Injuries, Doctor Cases, and Fire Experiences. Continue Progress Toward OSHA Compliance with Emphasis on Identification and Elimination of Harmful Chemical Exposures.	July 1976 July 1977	OSHA - Airborne Contaminant Survey - White - A GC and additional personal sampling pumps have been ordered for measuring potential employee exposure to chemicals. A revised filing system for OSHA documents has been started in the laboratory. OSHA and NIOSH analytical procedures are being learned.
	July 1, 1976 July 1, 1977	July Meeting of Industrial Health Specialists - White - Meetings are being held at the various plants to insure that we are using the best technology available and are not duplicating analytical development. The first meeting was held in Corpus Christi on July 2, 1976 and the next meeting will be held in Pampa on September 23, 1976.
	July 1976 July 1977	Monitor Employee Exposure to Hazardous Chemicals to Insure Continued Compliance With Existing Laws - White -

DATE	UNIT	SAMPLE TYPE	SUBSTANCE	MEASURED AMOUNT OF SUBSTANCE	TLV
7-6	NS	Personal	Methanol	13 mg/m ³	260 mg/m ³
7-22	NS	Personal	Methanol	80 mg/m ³	260 mg/m ³
7-29	NS	Personal	Methanol	380 mg/m ³	260 mg/m ³
7-29	NS	Personal (1)	Methanol	3,250	1040 mg/m ³
8-4	NS	Personal	Methanol	197 mg/m ³	260 mg/m ³
8-4	NS	Personal (1)	Methanol	730 mg/m ³	1040 mg/m ³
8-12	NS	Personal	Methanol	89 mg/m ³	260 mg/m ³
8-12	NS	Personal (1)	Methanol	1186 mg/m ³	1040 mg/m ³
8-20	Adipic	Personal	Cyclohexanone	< 1 ppm	50 ppm
			Cyclohexanol	< 1 ppm	50 ppm
8-26	Shipping	Personal	Adipic Acid	4 mg/m ³	10 mg/m ³
				(Reported as Nuisance Dust)	

Note: (1) These are 15 minute samples taken while the operator was washing down a centrifuge. NIOSH has proposed a 15 minute excursion limit of 1040 mg/m³ for methanol.

005956

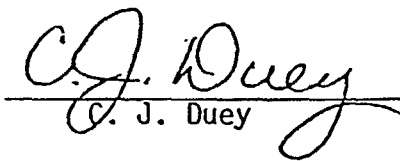
Interoffice Memorandum

TO (Name and Location)	Dr. J. L. Sadler	DATE	11-23-76
FROM (Name and Location)	C. J. Duey	REFERENCE NO.	CJD-204-76

SUBJECT: Analysis for Asbestos in Bay City Insulation

Six samples of insulation are being sent to you to determine if they contain asbestos. They were taken from bins in our warehouse inventory and are labelled according to the bin from which they were taken.

If a sample contains asbestos, we will dispose of the insulation in the corresponding bin so that it will not be used in the plant.


C. J. Duey

CJD/jg

cc: E. S. Ramey, CCCTC
W. D. Sutherland
J. L. White

File: 71-1

005957

JLW-7-76
December 7, 1976

Ms. Betty O'Shea
National Loss Control
Service Corporation
Long Grove, Illinois 60049

Dear Ms. O'Shea:

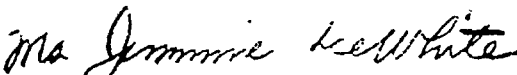
We received the results from the asbestos analysis, sent to us by you on October 13, 1976. However, we have not, as of yet, received the twenty asbestos filter papers we requested at that time. Also, we still would like to know if there are any special considerations necessary for the storage of future asbestos cartridges.

Enclosed you will find four cartridges for asbestos fiber counts, each containing a 0.8 micron filter paper. They are labeled as follows:

- | | |
|-----------------|-------------------------------------|
| 1. 12-1-76-2 | Blank. Unused filter paper. |
| 2. 12-1-76-1 | Asbestos sample with 11.2 l of air. |
| 3. 10-21-1976-1 | Asbestos sample with 27.2 l of air. |
| 4. 01460 | Asbestos sample with 24.0 l of air. |

Each of the above samples were taken at a flow rate of 1.6 l/min.

Sincerely,


Jimmie Lee White

JLW/jg
Enc.

005958

Office Memorandum

Name and Location) J. M. Ramey	DATE December 22, 1976
Name and Location) J. L. White	REFERENCE NO. JLW-8-76

SUBJECT: Industrial Health Monthly Monitoring Summary

Attached is a summary of the monitoring of various airborne substances throughout the Bay City Plant. This table contains information beginning in April, 1976 and continuing to December, 1976.

Jimmie L. White
J. L. White

JLW/sls

cc: Mr. R. C. Reitz - Bay City
Mr. J. N. Gann "
Mr. B. J. Bland - CCCTC
Mr. E. S. Ramey "
Mr. D. Barrett "
Ms. A. E. Retherford - Bishop
Mr. R. E. Green - Clear Lake
Mr. M. R. Stenzel - Pampa

File 71-1

005959

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No.	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure (Mg/M3)	Acceptable TWA (Mg/M3)	Ceiling Level (Mg/M3) (Duration in Minutes)	Highest Detected Concentration (Mg/M3)	Comments
	12/15/76	Laboratory	Area Sample	---	Hexamethylene Diamine	Drager Ammonia Color Detector Tubes		Not Established	Not Established	Less Than 25	---
	12/15/76	Traffic	David Hinton 452-34-9569 Ron Kennedy 449-66-5811	To load a Rail car with HMMA	Hexamethylene Diamine	Silica Gel Tubes Modified NIOSH Method S142	1	Not Established	---	---	Mr. Kennedy Received the pump from Mr. Hinton midway the sample period
	12/13/76	Traffic	Leland Owen 459-20-2948	To load a Rail Car with HMI	Hexamethylene Diamine	Silica Gel Tubes Modified NIOSH Method S142	<2	Not Established	---	---	A cooling condenser had been added to the loading tank
	12/9/76	Nylon Salt	John Merek 463-88-1838	NS Operator	Methanol	Silica Gel Tubes Modified NIOSH Method S59	187	260	1040 (15)	67	---
	12/9/76	Cyclohexane Oxidation	Area Sample	---	Carbon Monoxide	Drager Carbon Monoxide Color Detector Tubes	Not Applicable	55	400 (15)	Less Than 11	---

005960

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M3	Acceptable TWA (1) Mg/M3	Ceiling Level Mg/M3 (Duration in Minutes)	Highest Concentration Mg/M3 Detected	Comments
	12/2/76	Nylon Salt	A. B. Allen 452/66/5430	NS Operator	Methanol	Silica Gel Tubes Modified NIOSH Method S59	23	260	---	---	A new Employee
	12/1/76	Traffic	David Hinton 452/34/9569	To load a Rail Car with HMI	Hexa-methylene-imine	Silica Gel Tubes Modified NIOSH Method S142	<2	Not Established	---	---	---
	11/24/76	Nylon Salt	Santos Estraca 458-60-3567	NS Operator	Methanol	Silica Gel Tubes Modified NIOSH Method S59	199	260	1040 (15)	174	---
	11/23/76	Nylon Salt	Joe Ybarra 449-04-5322	Maintenance (Replace a chute on M266)	Methanol	Silica Gel Tubes Modified NIOSH Method S59	264	260	---	---	---
	11/22/76	Laboratory	Carl Rhymes 452-60-7261	Analyst	Pyridine	Silica Gel Tubes Modified NIOSH Method S142	7	15	---	---	---

005961

JLM-8 INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TMA Exposure Mg/M ³	Acceptable TMA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes) (1)	Highest Detected Concentration Mg/M ³	Comments
	11/18/76	Laboratory	Sylvester Longoria 462-64-4004	Analyst	Organic Substance	Charcoal Tubes Modified NIOSH Method S19	None Detected	---	---	---	The hood was in use the entire time of sample period.
	11/18/76	Nylon Salt	Charles Talbot 457-08-7107	NS Operator	Methanol	Silica Gel Tubes Modified NIOSH Method S59	110	260	1040 (15)	542	---
	11/11/76	Nylon Salt	Mary Crawford 450-70-1203	NS Operator	Methanol	Silica Gel Tubes Modified NIOSH Method S59	138	260	---	---	---
(1)	11/10/76	Ammo-Hydro	Ron Burrow 451-80-8982	AH Operator	Hexamethylene Diamine	Silica Gel Tubes Modified NIOSH Method S142	Less Than 1.5	Not Established	---	---	---
(2)	11/10/76	Ammo-Hydro	Ron Burrow 451-80-8982	AH Operator	Hexamethylene Diamine	Silica Gel Tubes Modified NIOSH Method S142	Less Than 1	Not Established	---	---	---

005962

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M ³	Acceptable TWA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes)	Highest Concentration Detected Mg/M ³	Comments
	11/4/76	Nylon Salt	Craig Eversole 467-94-0208	Operator	Methanol	Silica Gel Tubes Modified NIOSH Method 559	42	260	---	---	---
(1)	11/3/76	Cyclohexane Oxidation	Area Sample	---	Carbon Monoxide	Carbon Monoxide Color Detector Tubes	Less Than 11 mg/m ³	55	---	---	---
(2)	11/3/76	"	"	---	"	"	Less Than 11 mg/m ³	55	---	---	---
(3)	11/3/76	"	"	---	"	"	Less Than 11 mg/m ³	55	---	---	---
(1)	11/2/76	Ammo-Hydro	Elgin Widemon 464-80-1632 (Arthur Bros)	To Add Copper Chromite to the Catalyst Mix vessel	Copper	5 micron (PVC) Filter Paper MSA Model G Pump at 1.6 l/min	.04	1	---	---	---

005963

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M ³	Acceptable TWA (1) Mg/M ³	Celling Level Mg/M ³ (Duration in Minutes)	Highest Concentration Mg/M ³ Detected	Comments
(2)	11/2/76	Ammo-Hydro	Elgin Wideman 464-80-1632 (Arthur Bros)	To Add Copper Chromite to the Catalyst mix vessel	Chromium	5 micron (PVC) Filter Paper MSA Model G Pump at 1.6 l/min	.03	1	---	---	---
(1)	11/2/76	Ammo-Hydro	A. C. Symmank 450-66-6751	Maintenance Repaired the Catalyst Pumps.	Copper	5 micron (PVC) Filter Paper MSA Model G Pump at 1.6 l/min	.4	1	---	---	---
(2)	11/1/76	Ammo-Hydro	"	"	Chromium	"	.3	1	---	---	---
	11/1/76	Nylon Salt	Craig Eversole 467-94-0208	NS Operator	Methanol	Silica Gel Tubes Modified NIOSH Method S59	134	260	---	---	---
	11/1/76	Utilities	Jim Reddoch 450-66-6360	To unload a Truck of CaO	Calcium Oxide	5 micron (PVC) Filter Paper MSA Model G Pump at 1.6 l/min	5	5	---	---	---

005934

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

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Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TMA Exposure Mg/M ³	Acceptable TMA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes) (1)	Highest Concentration Detected Mg/M ³	Comments
	10/21/76	Nylon Salt	Eddie Jenkins 452-74-6851	Maintenance Repairing M 266	Methanol	Alumina Tubes Modified NIOSH Method S59	174	260	1040 (15)	1992 (42 min)	The sample was longer than the 15 min. excursion
	10/21-76	Nylon Salt	Roger Schnieder 454-02-9196	NS Operator	Methanol	Alumina Tubes Modified NIOSH Method S59	44	260	1040 (15)	813	
(1)	10/21/76	Vinyl Acetate	Grant Miller 448-30-6676	VA Operator	pBenzo- quinone	5 micron (PVC) Filter Paper MSA Model G Pump 1.6 l/min	None detected	.4	---	---	---
(2)	10/21/76	Vinyl Acetate	"	"	Hydro- quinone	"	None detected	2	---	---	---
(3)	10/21-76	"	"	"	Manganese Acetate	"	Less Than 1	5	5	---	---

005965

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Page 8

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M ³	Acceptable TWA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes) (1)	Highest Detected Concentration Mg/M ³	Comments
	10/21/76	Adipic Acid	Manuel Figueror, Jr. 463-48-0376	To Bag Adipic Acid (Arthur Bros)	Adipic Acid	5 micron (PVC) Filter Paper MSA Model G Pump 1.6 l/min	4	10	---	---	Measured For Total Dust
	10/20/76	Ammo-Hydro	James Harris 461-54-8016	To Add Filter Aide to mix vessel	Silica	"	0.9	3	.05 (15)	29 (15)	A dust mask was used and the Filter is usually mechanically handled
(1)	10/18/76	Nitric	Area Sample	---	NO _x	Drager Color Detector NO _x gases tubes	.9	9	---	---	Taken near C70
(2)	10/18/76	"	"	---	"	"	4	9	---	---	Taken near E70
(3)	10/18/76	"	"	---	"	"	16	9	---	---	Taken near PT176

005966

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M ³	Acceptable TWA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes)	Highest Concentration Mg/M ³	Comments
(4)	10/18/76	Nitric	Area Sample	---	NO _x	Dräger Color Detector NO _x gases Tubes	18	9	---	---	Taken near Pt176
	10/15/76	Vinyl Acetate	Victor Skrabanek 451-70-1388	VA Operator	Vinyl Acetate	Charcoal Tubes Modified NIOSH Method S19	42	Not Established	---	---	ACGIH has Recommended A PEL of 30mg/m ³
	10/15/76	Adipic Acid	O. C. Howard 458-62-3886	Adipic Acid Operator	Adipic Acid Dust	5 micron (PVC) Filter Paper MSA Model G Pump at 1.61/min	4	10	---	---	Measured for Total Dust
	10/13/76	Nylon Salt	Charles Talbot 457-08-7107	NS Operator	Methanol	Alumina Tubes Modified NIOSH Method S59	172	260	1040 (15)	103	---
	10/11/76	Utilities	William Warner 463-46-3707	Utilities Operator	Calcium Oxide	5 micron (PVC) Filter Paper MSA Model G Pump at 1.61/min	Less Than 1	5	---	6	The Dust Scrubber was Inoperative

005967

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. - (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M ³	Acceptable TWA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes) (1)	Highest Concentration Detected Mg/M ³	Comments
	10-8-76	Utilities	Jim Reddoch 450-66-6360	Utilities Operator	Calcium Oxide	5 micron (PVC) Filter Paper MSA Model G Pump at 1.61/min 3 (27min)		5	---	---	---
	10/7/76	Nylon Salt	Roger Schneider 454-02-9196	NS Operator	Methanol	Alumina Tubes Modified NIOSH Method S59	32	260	---	---	---
(1)	10/4/76	Armo-Hydro	Elgin Widemon 464-80-1632	To Add Copper Chromite to the Catalyst mix vessel	Copper	5 micron (PVC) Filter Paper MSA Model G Pump at 1.61/min	.4	1	---	---	---
(2)	10/4/76	"	"	"	Chromium	"	.3	1	---	---	---
	10/1/76	Adipic Acid	Kenneth Tyler 450-06-7995	AA Operator	Ammonium Meta Vanadate	5 micron (PVC) Filter Paper MSA Model G Pump at 1.61/min	---	0.5	0.5	<0.5	The sample time was 15 min.

005968

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

JLW-8.

Sequence No.	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M3	Acceptable TWA(1) Mg/M3	Ceiling Level Mg/M3 (Duration) (1)	Highest Concentration Detected Mg/M3	Comments
1	10-1-76	Armo-Hydro	Helen Svoboda 467-56-6420	AH Operator	Diols	Charcoal tubes Modified NIOSH method S19	None detected	Not established	--	--	--
2	10-1-76	"	"	"	Alcohols	"	None detected	Not established	--	--	--
	9-14-76	Arthur Bros.	Bill Hunt 516-30-5364	To remove asbestos linings	Asbestos	.8 micron filter paper National Loss Control Service Corp.	Less than 1 fiber/cc	2 F/cc	--	--	The sample time was 35 min.
	9-13-76	Laboratory	Carl Rhymes 452-60-7261	Analysis Adipic Acid Samples	Adipic Dust	5 micron (PVC) filter paper MSA Model G Pump at 1.6 l/min.	2	10	--	--	--
	9-13-76	Arthur Bros.	Bill Hunt 516-30-5364	To remove asbestos insulation	Asbestos	.8 micron filter paper National Loss Control Service Corp.	Less than 1 fiber/cc	2 fiber/cc	--	--	The sample time was 15 min.

005969

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M ³	Acceptable TWA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes)	Highest Concentration Mg/M ³ Detected	Comments
	9-8-76	Nylon Salt	Craig Eversole 467-94-0208	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	49	260	1040	292	--
	9-8-76	Nylon Salt	Frances Nelson 449-08-3271	NS Operator		5 micron (PVC) filter paper MSA Model G Pump at 1.6 l/min.	16	10	--	--	A dust mask was used during the bagging of Nylon Salt
	9-7-76	Nylon Salt	Kenneth Tyler 450-06-7995	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	35	260	--	--	--
	9-2-76	Arthur Bros.	Bill Hunt 516-30-5364	To remove asbestos insulation	Asbestos	.8 micron filter paper National Loss Control Service Corp.	Less than 1 fiber/cc	2 fiber/cc	--	--	The sample time was 6 min.
	8-26-76	Nylon Salt	Charles Talbot 457-08-7107	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	19	260	--	--	--

005970

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

JLM-8

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure H ₂ /M ₃	Acceptable TWA (1) H ₂ /M ₃	Ceiling Level H ₂ /M ₃ (Duration in Minutes) (1)	Highest Concentration H ₂ /M ₃ Detected	Comments
	8-26-76	Traffic	Reymundo Longoria 457-44-4171	Pillar Pacing Adipic Acid	Adipic Acid Dust	5 micron (PVC) filter paper MSA Model G Pump at 1.6 l/min.	4	10	--	--	--
1	8-20-76	Adipic Acid	O.C. Howard 458-62-3886	AA Operator	Cyclo- hexanol	Charcoal tube NIOSH method S54	50	200	--	--	--
2	"	"	"	"	Cyclo- hexanone	Charcoal tube NIOSH method S19	50	200	--	--	--
	8-17-76	Adipic Acid	Area Sample	--	Ammonium- meta- vanadate	5 micron (PVC) filter paper MSA Model G Pump at 1.6 l/min.	--	0.5	0.5	< 0.5	2-minute job and 2-minute sample
	8-16-76	Analyzer Laboratory	Area Sample	--	Silica	5 micron (PVC) filter paper MSA Model G Pump at 1.6 l/min.	.3	10	--	--	--

005971

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TMA Exposure Mg/M3	Acceptable TMA (1) Mg/M3	Ceiling Level Mg/M3 (Duration in minutes)	Highest Concentration Mg/M3 Detected	Comments
1	8-16-76	Cyclo-hexane Oxidation	Jesse Constanco 458-96-9714	CHOX Operator	Cyclo-hexane	Charcoal tubes NIOSH method S28	Less than 3.5	1050	--	--	--
2	"	"	"	"	Cyclo-hexanol	Charcoal tubes NIOSH method S54	4	200	--	--	--
3	"	"	"	"	Cyclo-hexanone	Charcoal tubes NIOSH method S19	Less than 4	200	--	--	--
	8-12-76	Nylon Salt	Dan Barosh 460-78-2451	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	89	260	1040 (15)	1186	--
	8-12-76	Cyclo-hexane Oxidation	Area Sample	--	Carbon Monoxide	Kitagawa color detector tubes	--	55	None detected	--	--

005972

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M ³	Acceptable TWA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes)	Highest Concentration Mg/M ³ Detected	Comments
	8-4-76	Nylon Salt	Mary Crawford 450-70-1203	NS Operator	Methanol	Alumina tubes Modified NIOSH Method S59	152	260	1040 (15)	562	--
	7-30-76	"	Roger Schneider 454-02-9196	"	"	"	70	260	--	--	--
	7-29-76	"	"	"	"	"	460	260	1040 (15)	3250	--
1	7-28-76	Cyclohexane Oxidation	Area Sample	--	Carbon Monoxide	Carbon Monoxide Kitagawa tubes color detectors	--	55	400 (15)	164	This sample was taken from the vent on top of the analyzer room
2	"	"	"	--	"	"	--	55	400 (15)	44	This sample was taken from the upstairs analyzer room

005973

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M ³	Acceptable TWA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes) (1)	Highest Concentration Mg/M ³	Comments
	7-22-76	Nylon Salt	Kenneth Tyler 450-06-7995	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	80	260	--	--	--
	7-19-76	Utilities	William Warner 463-46-3707	U Operator	Calcium Oxide	5 micron filter papers MSA Model G Pump at 1.6 l/min.	7	5	--	--	--
1	7-19-76	"	Area Sample	--	"	"	0.6	5	--	--	--
2	"	"	Area Sample	--	"	"	4	5	--	--	--
	7-6-76	Nylon Salt	Wilbert Talafuse 462-44-3413	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	13	260	--	--	--

005974

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

JLW-8

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TMA Exposure Mg/M ³	Acceptable TMA (1) Mg/M ³	Ceiling Level Mg/M ³ (Duration in Minutes) (1)	Highest Concentration Mg/M ³ Detected	Comments
	6-24-76	Nylon Salt	Mary Crawford 450-70-1203	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	13	260	--	--	--
	6-17-76	Nylon Salt	C. W. Emerson 453-24-4710	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	6	260	--	--	The unit was down; this info is a background level
	6-10-76	Nylon Salt	Kenneth Tyler 450-06-7995	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	18	260	--	--	--
	6-3-76	Nylon Salt	Robert Gatica 467-84-7698	NS Operator	Methanol	Alumina tubes Modified NIOSH method S59	20	260	--	--	--
	5-26-76	Nylon Salt	John Marek 463-88-1838	"	"	"	38	260	--	--	--

005975

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

JLW-8

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Mg/M3	Acceptable TWA (1) Mg/M3	Ceiling level Mg/M3 (Duration in Minutes) (1)	Highest Concentration Detected Mg/M3	Comments
	5-20-76	Nylon Salt	Craig Eversole 467-94-0208	NS Operator	Methanol	Alumina tubes Modified NIOSH method SS9	33	260	--	--	--
	5-17-76	"	Thomas Orsak 453-66-8011	Work on centrifuge in Salt unit Maint.	"	"	3087 (30 min.)	260	1040 (15 min.)	--	--
	5-10-76	"	Kenneth Tyler 450-06-7995	NS Operator	"	"	548	260	--	--	The afternoon sample of Mr. Tyler
	5-10-76	"	"	"	"	"	732	260	--	--	The morning sample of Mr. Tyler
	4-30-76	"	David Carroll	"	"	"	374	260	--	--	The afternoon sample of Mr. Carroll

005976

INDUSTRIAL HEALTH MONTHLY MONITORING SUMMARY

Sequence No. (Where Applicable)	Date	Unit	Employee Name (Social Security Number)	Job Description	Contaminant Monitored	Monitoring Method	8-Hour TWA Exposure Hr/M3	Acceptable TWA (1) Hr/M3	Ceiling Level Hr/M3 (Duration in Minutes)	Highest Concentration Detected Hr/M3	Comments
	4-30-76	Nylon Salt	David Carroll	NS Operator	Methanol	Alumina tubes (3x2 gm sections) MSA Model G Pump	519	260			The morning sample of Mr. Carroll
	4-22-76	"	Dan Barosh 460-78-2457	"	"	"	150	260			The morning sample of Mr. Barosh
	4-22-76	"	Dan Barosh 460-78-2457	"	"	"	33	260			The afternoon sample of Mr. Barosh

005977