



E. E. RUMBERGER
PITTSBURGH OFFICE

TO

1983 June 15

RE: ASBESTOS EXPOSURE AND POTENTIAL HEALTH HAZARD
Ref: I.H. Technical Bulletin No. 83-3 (Attached)

The need for greater control over potential exposures to asbestos is becoming more apparent. The attached Technical Bulletin, prepared by Joan Sander, outlines Alcoa's new policy on exposure levels and industrial hygiene precautions, and reiterates the Medical Department's program for medical surveillance.

Specific requirements are triggered by the Action Level, defined as 0.1 fiber/cc, and the new Alcoa Permissible Limit of 0.5 fibers/cc. At these relatively low concentration levels, the analytical method (P&CAM 239-asbestos fiber count) lacks a high level of precision due to inherent inaccuracies associated with the method. Therefore, a sampling strategy based on several samples should provide a characterization of job tasks, rather than basing decisions on a single sample. Likewise, professional judgment is advised for interpretation of results. Please call upon the Corporate Industrial Hygiene staff for assistance in this area.

Due to the serious health concerns associated with asbestos exposures, all potential exposures to asbestos fibers must be eliminated or controlled to the Alcoa Permissible Limit. Employee training, medical surveillance, routine air monitoring, and personal protective equipment are essential elements of such a control program. Please let us know if we can provide assistance with any aspect of asbestos replacement or control.

E. E. RUMBERGER

EER/eds
Attachment

Distribution:

I.H. Mailing List - I.H. Plant Contacts
Industrial Hygienists - International
I.H. Division - Pittsburgh & ATC
I.H. Technicians
Pittsburgh & ATC - General

APC 004457





Industrial Hygiene Technical Bulletin

No. 83-3

Date: 1983 June 15

RE: ASBESTOS EXPOSURES

Due to the very serious nature of asbestos exposure hazards, a closer look was taken at our policies and procedures for controlling such exposures. Starting in 1978, Alcoa implemented an Asbestos Replacement Program with the objective of making our operations as free of asbestos-containing materials as possible. While the program has met with considerable success, there are still some applications where acceptable substitutes have not been found. Likewise, we currently have numerous applications where asbestos products were used in past construction and are still in place. This situation may pose a potential health hazard in the event that asbestos-containing materials become capable of fiber release (i.e. due to deterioration, water damage, etc.), or during renovation or demolition activities.

The purpose of this technical bulletin is to clarify Alcoa's policy and procedures for job tasks involving exposures to asbestos fibers. It applies to both renovation or demolition of asbestos-containing materials, as well as routine or repetitive job tasks involving asbestos exposures. Attached please find a one page flow chart entitled "Asbestos Exposure Procedures" which summarizes the requirements outlined in the following text based upon job activity and air monitoring data.

I. DEFINITIONS

- A. "Asbestos fiber" means a fibrous form of asbestos longer than 5 microns with a length-to-diameter ratio of at least 5 to 1, and with a maximum diameter of 3 microns.
- B. "Friable asbestos" means any material that contains more than 1% asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.
- C. "Action Level" is defined as 0.1 fibers/cc (8 hour TWA). Medical surveillance, air monitoring and employee training requirements are triggered at the action level.
- D. "Alcoa Permissible Limit (APL)" is defined as 0.5 fibers/cc (8 hour TWA). Respiratory protection is required when exposures may exceed the APL. Likewise, a respiratory protection program (employee training, fit testing, medical approval, etc.) must be implemented.
- E. "Routine or Repetitive Job Tasks" means employees engaged in work activities involving exposures to asbestos fibers on an average frequency of an 8 hour shift per month or greater. (Examples include working with marinite headers, trough linings, thermocouple wire, brake lining, etc.).

ceive an annual medical examination. This periodic evaluation will include a questionnaire to elicit the symptomatology of respiratory disease, pulmonary function tests (FVC and FEV_{1.0}), and a chest roentgenogram. Employees should be notified of any abnormalities within 30 days of such a finding by the evaluating physician.

B. Employee Training

All employees exposed to asbestos concentrations above the action level shall receive annual training in the proper handling of asbestos. This program should include an explanation of the following:

- (1) The requirements outlined in this bulletin.
- (2) Hazardous properties of asbestos.
- (3) Work practices and engineering controls utilized to reduce exposures.
- (4) Safe work procedures for handling asbestos-containing materials.
- (5) The effectiveness of personal protective equipment.

Attendance at such training sessions should be documented and filed appropriately.

C. Air Monitoring

All tasks involving potential exposures to asbestos require baseline sampling. Routine air monitoring should be continued on a six month basis for routine or repetitive job tasks with asbestos concentrations at or above the action level. If exposure levels are found to be below the action level, air monitoring should be performed if process or product changes occur which might potentially increase the airborne fiber concentrations. If reliance on engineering controls is necessary to reduce exposures below the action level, annual monitoring should be performed to evaluate the effectiveness of the controls.

D. Respiratory Protection

Respirators are required of anyone performing a job task whose potential exposure to airborne asbestos fibers may exceed the APL. This would include all demolition/renovation activities, and may include routine or repetitive job tasks, depending upon industrial hygiene sampling data.

For exposures up to 10 fibers/cc, the following NIOSH approved respirators are acceptable for protection against asbestos fibers:

tos products have been found. Efforts to find replacements for the remaining applications will continue.

It is imperative that accurate records be kept to identify areas where asbestos-containing materials are being used, or have been used in past construction. To minimize potential health hazards associated with renovation or demolition of asbestos products, all maintenance projects should be reviewed for potential asbestos exposures prior to starting the job. If asbestos is suspected, the material should be treated as such unless laboratory analysis confirms otherwise. Samples of bulk material can be analyzed by Alcoa's Environmental Health Laboratory.

Asbestos materials in good condition which do not represent likely exposures should not be removed simply because they contain asbestos since doing so may present a greater hazard during the actual removal. However, a routine inspection program of the material should be implemented to insure that the situation does not change.

If you have any questions concerning the above, please do not hesitate to contact me.

JOAN E. SANDER

JES:sc

Distribution: I. H. Distribution List

I. H. Plant Contacts
Industrial Hygienists - International
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APC 004462

ASBESTOS EXPOSURE PROCEDURES

Job Activity

ROUTINE/REPETITIVE

RENOVATION/DEMOLITION

AIR MONITORING

$C < AL$

$AL \leq C < APL$

$C \geq APL$

RELY ON
ENGINEERING
CONTROLS?

YES

NO

• MONITOR ON ANNUAL BASIS
• NO FURTHER ACTION UNLESS PRODUCT OR PROCESS CHANGE

• MEDICAL SURVEILLANCE
• ROUTINE MONITORING (6 Mo. BASIS)
• EMPLOYEE TRAINING
• RESPIRATORY PROTECTION
• PROTECTIVE CLOTHING (AS NECESSARY)

• EPA NOTIFICATION PROCEDURES (CONTACT ENVTL. CONTROL ENGR.)
• MEDICAL SURVEILLANCE (AVG. FREQ. $\geq$ 8 HR. SHIFT/MO.)
• EMPLOYEE TRAINING
• RESPIRATORY PROTECTION
• PROTECTIVE CLOTHING (AS NECESSARY)
• DISPOSAL REQUIREMENTS (CONTACT ENVTL. CONTROL ENGR.)

AL (ACTION LEVEL) = 0.1 FIBERS/CC TWA
APL (ALCOA PERMISSIBLE LIMIT) = 0.5 FIBERS/CC TWA

FROM J. DAMIANO

INDUSTRIAL HYGIENE

H & S

Induc

Gene

TO DR. L. F. SCHALLER

LOCATION MEDICAL DIRECTOR

BDB

FE

TSB

RMJ

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JUN 23 1983

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cd

Mr. L. Wagner

Mr. E. E. Rumberger

Pittsburgh

1983 June 20

RE: INDUSTRIAL HYGIENE MONITORING AND TRAINING SCHEDULE

Per our discussion, I have completed a general monitoring and training schedule for Point Comfort Operations. The schedule is intended to complete our baseline exposure data for each job classification and meet our needs for education and training. The noise exposure evaluations of Maintenance personnel may support the relaxation of our rules and/or areas requiring hearing protection.

I will furnish each manager a brief outline of our schedule specific to their department. I plan to meet with each manager to solicit their views and answer any questions. The general outlines are attached. I am not planning to distribute our detailed monitoring schedule.

J. DAMIANO

JD/cmp

Attachments

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APC 004464



GENERAL MONITORING SCHEDULE

INDUSTRIAL HYGIENE DEPARTMENT

POINT COMFORT OPERATIONS

Schedule Prepared: 1983 May 09

Monitoring listed in order of priority.

1. Keebler-Thompson scaling mud tank operation, Clarification Department.
 - a. Full shift noise dosimeter monitoring in cab, two days.
 - b. Sample atmosphere of each tank where Keebler Thompson machine is used. Test for CO, NO2 and NO.
2. GEORGE S. boat operators, Neumin Production Company.
 - a. Full shift noise dosimeter monitoring each operator, two days.
3. Field Welders--Maintenance Department.
 - a. Monitor full shift exposure to welding fumes per schedule (attachment 1).
4. Machine Shop Welders--Maintenance Department.
 - a. Monitor full shift exposure to welding fumes and collect detector tube air samples per schedule (attachment 2). This schedule includes Machinists conducting metallizing.
5. Dust exposure monitoring--Raw Materials Department
 - a. Monitor ship unloading/transfer to storage of Boka' bauxite.
 - Monitor three days, full shift exposure to respirable dust, preferably days when bauxite is dry.Jobs to Monitor:
 - (1) Dozer and front end loader operators (bauxite piles).
 - (2) Raw Material Operators.
 - (3) Laborers (in ship holds).
 - (4) Conveyor Tender, No. 3 belt.
 - Collect one bulk sample each day.
 - Collect one seven (7) hour settled dust sample each day.
 - b. Monitor transfer of Boka' bauxite from R15/R16 to R25:
 - Monitor three days, full shift exposure to respirable dust.Jobs to Monitor:
 - (1) Dozer Operator (R15/R16).
 - (2) Tunnel Conveyor Operator.
 - (3) R-21 Crusher and Conveyor Operator.
 - (4) R-25 Conveyor Tender
 - Collect one bulk sample each day.
 - Collect one seven (7) hour settled dust sample each day.
6. Heater Cleaners--Digestion Department

Monitor four heater cleaners in R-42 one day for exposure to sulfuric acid mist; full shift monitoring; consider consecutive samples to determine peak exposures (i.e., adding acid to tanks).

APC 004465

7. Insulator Dust Exposure Monitoring--Maintenance Department

Days 1 and 2: Large asbestos removal job(s) - Full shift monitoring, each crew member for exposure to asbestos.

Days 3 and 4: Stripping insulation from loops and valves during overhaul of units R-30, R-31 R-32 or R-33. Full shift monitoring, each crew member for exposure to respirable dust.

Days 5 and 6: Applying insulation in R-30, R-31, R-32 or R-33 with considerable block insulation cutting on ground level. Full shift monitoring, each crew member for exposure to respirable dust.

8. Pitch and Dust Monitoring--Paste Plant

Days 1 and 2: Full shift monitoring; each Paste Plant employee for exposure to respirable dust.

Days 3 and 4: Full shift monitoring; each Paste Plant employee for exposure to total dust, BSF, and PPOM; with separate and consecutive air samples to determine peak exposures (i.e., opening mixer doors, etc.)

9. Fluoride and Dust Monitoring--Aluminum Fluoride and Hydrate Plant

For each job class, collect full shift exposure samples for total particulates, particulate fluoride and gaseous fluoride.

Job Classes:

a. Area Operator, Spar - 5 days

b. Area Attendant - 5 days

c. Area Operator, Aluminum Fluoride - 5 days

d. Bagger - 3 days bagging aluminum fluoride
2 days bagging C-30 hydrate

e. Packaging & Loading Fork Truck Operator
- 3 days bagging aluminum fluoride
2 days bagging C-30 hydrate.

10. Fluoride and Dust Monitoring--Maintenance Department

a. Overhauling kiln; full shift monitoring each member of crew for exposure to total particulates, particulate fluoride and gaseous fluoride.

b. Changing aluminum fluoride or spar dust collector bags--full shift monitoring for total particulate and particulate fluoride; two full days of monitoring with separate and consecutive air samples to determine peak exposures to dust.

11. Noise Dosimeter Monitoring--Field Maintenance Crews

a. Monitor full shift exposure to noise per schedule (attachment 3).

12. Noise Dosimeter Monitoring--Mobile Equipment Operator

- a. Monitor full shift exposure to noise with Metrosonics dosimeters per schedule to be prepared.

13. Painter Exposure to Isocyanates--Maintenance Department

Collect 15 minute air samples for isocyanates mist and vapor.

Days 1 and 2: Painters applying polyurethane foam to mud tanks.

One breathing zone sample, opening drums, assembling system.

Four breathing zone samples, spraying polyurethane.

Four area samples, at perimeter of roped area, downwind.

Days 3 and 4: Painters applying selected polyurethane paints.

One breathing zone samples, opening drums, assembling system.

Four breathing zone samples, spraying paint.

Four area samples, at perimeter of roped area, downwind.

14. Asbestos Dust Exposure--Garage and Diesel Repair Shop

- a. Brake Repair: Full shift monitoring mechanic, one day.

- b. Clutch Repair: Full shift monitoring mechanic, one day.

15. Machinist Dust Exposure--R-148 Machine Shop. Pump Repair area

Days 1 and 2: Monitor three Machinists full shift exposure to respirable dust.

Days 3 and 4: Monitor three Machinists full shift exposure to asbestos; collect short term consecutive samples to determine peak exposures to asbestos.

J. DAMIANO

1983 May 13

JD:vh

POINT CONF/ OPERATIONS

ATTACHMENT #1
FIELD WELDERS - MAINTENANCE DEPARTMENT
FUME EXPOSURE MONITORING SCHEDULE

Work Group and Supervisor	Total Welders	Day:	Number of Employees to Monitor Per Day								
			1	2	3	4	5	6	7	8	9
Capital Area Gerald Carter's Field Pool Welders, 54E	5		5								
Bobby Kelley's Welders, B13	5		5								
Carl Mauer's Welders, B13	4			4							
Archie Massoletti's Welders, B13	5				5						
Area I Sonny Matus' Welders, R35	5					5					
Area II Benny Conrad, R136	2							2			
Bobby Fagg, R136	1							1			
Area III Ronnie Squyres, R10	1								1		
Cleon Johnson, R325	1								1		
Leo Morish, R325	1								1		
Kerry Keller, Smelting	1								1		
Kiln and Converter Overhaul, Tentatively June 06-07	?								1-2	1-2	

NOTES:

1. Describe jobs completed, approximate duration, type, and quantity of electrodes used.
2. Indicate if Welder worked with a Pipefitter or Maintenance Mechanic.

APC 004468

ATTACHMENT #2
MACHINE SHOP
PERSONAL MONITORING PLAN

Sampling fumes: Full shift in breathing zone, cassette in helmet.

Sampling gases: Grab samples with detector tubes for ozone (O3), carbon monoxide (CO), nitric oxide (NO) and nitrogen dioxide (NO2). Samples taken in front of helmet or on shoulder as close to breathing zone as possible.

Monitoring notes: - Describe Process: Oxy-acetylene cutting, plasma arc cutting, gouging electrode, shielded metal arc welding (SMAW), metal inert gas (MIG), tungsten inert gas (TIG), submerged arc welding, brazing, silver soldering, babbitting and metallizing.

- Identity and quantity of rod or wire used.
- Mixture of shielding gas.
- Description of work joined or cut.
- Location; description of ventilation.
- Current(amps), arc voltage, AC/DC?
- Respiratory protection used, if any.
- Type of flux applied, if any.

Metallizing

- Full shift personal monitoring of Machinist for total fumes and selected metals (i.e. nickel, chromium, cobalt and others).
- In addition, spot checks with Drager tubes for CO, NO and NO2.

Monitoring:

2 days using Metco 31C-NS powder.

2 days using Matcoloy #5 wire.

1 day using Matcoloy #2 wire.

1 day using Sprasteel LS wire.

1 day using Sprababbitt A.

- During each day include one area monitor in the nearby pump repair area.

Shielded Metal Arc Welding

E6010 Lincoln Electric Fleetweld 5P

- 5 full shift samples for total fumes with detector tube checks for O3, NO and NO2.

E7018 Lincoln Jet LH-70 or Airco E7018

- 5 full shift samples for total fumes, fluorides (gaseous and particulate) with detector tube measurements for O3, NO and NO2.

E7024 Lincoln Jetweld 1

- 5 full shift samples for total fumes with detector tube checks for O3, NO and NO2.

Airco 388 (Metal Overlay)

- 1 full shift sample for total fumes, chromium, molybdenum, and manganese with detector tube checks for O3, NO and NO2.

Inconel SMAW (Inco A, Huntington #132 and others)

- 2 full shift samples for total fumes, nickel, chromium and manganese with detector tube checks for O3, NO and NO2.
- 2 full shift samples for hexavalent chromium.

Stainless Steel SMAW (Teledyne McKay E309 and others)

- 2 full shift samples for total fumes, nickel, chromium, manganese, with detector tube checks for O3, NO and NO2.
- 2 full shift samples for hexavalent chromium.

Monel SMAW (Huntington #5, 190, 134 and 187)

- 2 full shift samples for total fumes, nickel, chromium, copper, and manganese with detector tube checks for O3, NO and NO2.
- 2 full shift samples for hexavalent chromium.

Cutting Processes

Manual oxy-acetylene metal cutting

- 2 full shift samples for total fumes with detector tube checks for CO, NO and NO2.

Automatic oxy-acetylene metal cutting

- 3 full shift samples for total fumes with cutting station area detector tube checks for CO, NO and NO2.
- Concurrent area monitoring near cutting station for total fumes.

Plasma Arc Cutting, no water table used.

- 1 full shift sample for total fumes with cutting station area detector tube checks for CO, NO and NO2.
- Concurrent area monitoring for total fumes near cutting station.

Arcair Gouging Electrode

- 1 full shift sample for total fumes with detector tube measurements for CO, NO and NO2.

MIG Welding

Steel with Airco A681 wire.

- 3 full shift samples for total fumes with detector tube checks for O3, NO and NO2.

Aluminum

- 3 full shift samples for total fumes with detector tube checks for O3, NO and NO2.

TIG Welding

Aluminum

- 2 full shift samples for total fumes with detector tube checks for O3, NO and NO2.

Stainless or Inconel

- 2 full shift samples for total fumes, chromium and nickel with detector tube checks for O3, NO and NO2.

Kiln Overlay

Mr. Dale Stover to contact Joe Damiano to observe this operation.
Fluorides will evolve from this automatic submerged arc welding process.

Submerged Arc Welding (Track machine in R-148 shop)

- 1 full shift sample for total fumes, manganese and fluorides with detector tube checks for O3, NO and NO2.

Brazing

- 1 Full shift sample for total fumes, copper and zinc.

Silver Soldering

- 2 full shift samples for total fume, lead, tin and antimony. Check HCl with detector tubes if Kester paste flux is used.

Babbitting

- 2 full shift samples for Welders and assistant Metal Workers for total fumes, lead, tin, antimony and copper.

APC 004471

**ATTACHMENT #3
FIELD MAINTENANCE NOISE DOSE METER MONITORING SCHEDULE**

Job Group	Total Empl.	Number of Employees to Monitor Per Day														Total Employees To Monitor
		Day:	1	2	3	4	5	6	7	8	9	10	11	12		
Capital Area																
Pipefitters	24		5											5		15
Inst./Elect. Technicians	18			5								5				10
Maint. Mechanics	17				5								5			10
Painters	16					5										10
Field Welders (B13)	14						5									5
Field Pool Welders (B54E)	5							5								5
Helpers	3								3							3
Process Maint. Operators	2								2							2
Services Area		Day:	13	14	15	16	17									
Inst./Elect. Technicians	16		5			1										6
Insulators	11			5												6
Masons	11				5											5
Carpenters	6					4										4
Others	9						4									4
Area I		Day:	18	19	20	21	22	23	24							
Pipefitters	23		5				5		2							12
Maint. Mechanics	20			5				5								10
Inst./Elect. Technicians	13				5				3							8
Welders	5						3									3
Yard Laborers	2						2									2
Area II		Day:	25	26	27	28										
Maint. Mechanics	11		5													5
Pipefitters	11			5												5
Inst./Elect. Technicians	11				5											5
Welders	3						3									3
Yard Laborers	1						1									1
Area III		Day:	29	30	31	32	33	34								
Maint. Mechanics	23		5				2	3								11
Pipefitters	11			5												5
Inst./Elect. Technicians	11				5											5
Welders	4					4										4
Yard Laborers	3						3									3
Helpers	2							2								2
Garage Auto Mechanics	16	Day:	35	36												10
			5	5												

APC 004472

INDUSTRIAL HYGIENE MONITORING AND TRAINING
MAINTENANCE

- Objectives:
1. To evaluate and manage employee exposures.
 2. To inform employees of pertinent health concerns and precautionary work practices.

1983 Third Quarter

- . Welders:
 - . Evaluate welding fume exposures, all welding processes, and work groups.
 - . Respirator training and fit testing.
- . Insulators: Evaluate dust exposures during selected jobs; update of old data.
- . Painters: Evaluate isocyanate vapor levels during application of polyurethane foam; air sampling data needed to assess continued need for "cool hat" respiratory protection.

1983 Fourth Quarter

- . Mobile Equipment Operators: Conduct thorough dosimeter evaluations of noise levels in vehicles; may recommend need for hearing protection or noise controls.
- . Field Maintenance Work Groups: Conduct thorough dosimeter evaluations of noise exposures (179 samples); test results may suggest relaxation of rules and/or areas requiring hearing protection.

1984

- . Masons: Evaluate dust exposures during selected jobs.
- . Area III: Conduct comprehensive urinary fluoride survey.
- . Review health related Job Safety Analyses.
- . Suggested employee training programs:
 1. Hazardous Materials
 2. Hearing Conservation

J. DAMIANO:cmp
1983 June 20

APC 004473

INDUSTRIAL HYGIENE MONITORING AND TRAINING
ALUMINA AND CHEMICALS POWERHOUSE

- Objectives: 1. To evaluate and manage employee exposures.
2. To inform employees of pertinent health concerns and precautionary work practices.

1983 Third Quarter

- . Review and update areas requiring hearing protection.

1983 Fourth Quarter

- . No activities

1984

- . Suggested employee training programs:
 - 1. Hazardous Materials
 - 2. Hearing Conservation
- . Review health related Job Safety Analyses.

J. DAMIANO:cmp
1983 June 20

APC 004474

INDUSTRIAL HYGIENE MONITORING AND TRAINING
OIL AND GAS DIVISION

- Objectives: 1. To evaluate and manage employee exposures.
2. To inform employees of pertinent health concerns and precautionary work practices.

1983 Third and Fourth Quarters

- . No activities

1984

- . Suggested employee training (Lavaca Pipeline Company employees) programs:
 - 1. Respiratory Protection for Asbestos
 - 2. Hazardous Materials
 - 3. Hearing Conservation
- . Review health related Job Safety Analyses.

J. DAMIANO:cmp
1983 June 20

APC 004475

INDUSTRIAL HYGIENE MONITORING AND TRAINING

ALUMINA PLANT

- Objectives: 1. To evaluate and manage employee exposures.
2. To inform employees of pertinent health concerns and precautionary work practices.

1983 Third Quarter

- . Clarification Department: Continue to evaluate mud tank atmosphere during use of Keebler Thompson descaling machine.
- . Raw Materials Department: Evaluate dust exposure for each job R-10 to R-25. Routine air sampling; update of old data.

1983 Fourth Quarter

- . Digestion Department: Evaluate Heater Cleaner exposure to sulfuric acid mist.

1984

- . Review and update areas requiring hearing protection.
- . Review health related Job Safety Analyses.
- . Suggested employee training program:
 - 1. Hearing Conservation

J. DAMIANO:cmp
1983 June 20

APC 004476

INDUSTRIAL HYGIENE MONITORING AND TRAINING
ALUMINUM FLUORIDE AND HYDRATE PLANT

- Objectives: 1. To evaluate and manage employee exposures.
2. To inform employees of pertinent health concerns and precautionary work practices.

1983 Third Quarter

- . Provide employee training program, "Hearing Conservation and Respiratory Protection"; eight sessions scheduled in August.

1983 Fourth Quarter

- . Monitor fluoride and dust exposure for each job class. Routine air sampling; update of old data.

1984

- . Review and update areas requiring hearing protection.
- . Provide comprehensive urinary fluoride survey in April.
- . Review health related Job Safety Analyses.
- . Participate in Project Safety Review, "Conversion of Cryolite Plant to C-30 Hydrate Production".
- . Suggested employee training programs:
 - 1. Hazardous Materials
 - 2. Results of Urinary Fluoride Survey/Hearing Conservation

J. DAMIANO:cmp
1983 June 20

APC 004477

INDUSTRIAL HYGIENE MONITORING AND TRAINING
PASTE PLANT

- Objectives: 1. To evaluate and manage employee exposures.
2. To inform employees of pertinent health concerns and precautionary work practices.

1983 Third Quarter

- . Monitor pitch and dust exposure for each job class. Routine air sampling; update of old data.

1983 Fourth Quarter

- . No activities

1984

- . Review and update areas requiring hearing protection.
- . Review health related Job Safety Analyses.
- . Suggested employee training programs:
 - 1. Coal Tar Pitch Volatiles
 - 2. Hearing Conservation

J. DAMIANO:cmp
1983 June 20

APC 004478

POINT COMFORT OPERATIONS

INDUSTRIAL HYGIENE MANUAL

PRIVILEGED AND
CONFIDENTIAL

1983 NOVEMBER

PREPARED BY:

JOSEPH DAMIANO

APC 004480

POINT COMFORT OPERATIONS
INDUSTRIAL HYGIENE MANUAL

1.0 GENERAL

- Industrial Hygiene Policy
- Industrial Hygiene Objectives

2.0 EXPOSURE EVALUATION

- Urinary Fluoride Monitoring
- Confined Space Testing

3.0 HAZARDOUS MATERIALS CONTROL

4.0 HEALTH HAZARD CONTROL

- Asbestos Control
- Protective Coveralls

5.0 RESPIRATORY PROTECTION

- Jobs Requiring Respiratory Protection

6.0 HEARING CONSERVATION

- Areas and Jobs Requiring Hearing Protection
- Approved Hearing Protectors
- Alcoa Standard 30.3.3: "Preparation of Noise Control Worksheet"
- Alcoa Standard 30.3.2: "Sound Level Requirements for Purchase, Lease, or Rental of Vehicles"

7.0 RADIATION CONTROL

8.0 HEAT STRESS

9.0 SANITATION

4.0 HEALTH HAZARD CONTROL

4.1 General

Engineering controls are preferred to work practice or personal protective equipment controls because they control at or near the problem source. Engineering controls include: (1) technical innovations, substituting less hazardous processes, equipment, or materials for more hazardous ones; (2) isolation of employees by means of automation, or employee/equipment enclosures; and (3) general and/or local exhaust ventilation. These controls must be properly selected, designed, and monitored to ensure acceptable performance.

4.2 Exhaust Ventilation

Air contaminants can be effectively controlled by applying exhaust ventilation at a point as close to the emission source as possible. The effectiveness of exhaust systems should be inspected at installation and periodically thereafter. This may be accomplished through the use of static pressure gauges or other instrumentation.

4.3 Work Practice Controls

Work Practice Controls are the procedures and precautions outlined in our Job Safety Analyses. A good example is minimizing dust exposure by wetting down asbestos lagging on a steam pipe before removal. All new health related JSAs should be reviewed by the Industrial Hygienist.

4.4 Personal Hygiene

Attention to personal hygiene is always necessary. Consideration should be given to:

- . rules on eating, drinking, and smoking.
- . carrying food or tobacco into the work area.
- . special shower or washing facilities.
- .. clothing and footwear.

4.5 Respiratory Protection

In the control of harmful exposure to air contaminants, the use of respirators should be limited to:

- . operations where engineering controls are not feasible or are in the process of implementation.

- maintenance, repair, and overhaul operations.
- emergencies; for example, fire fighting or response to a chlorine leak.

Respirators are the least reliable method of controlling airborne exposures; they should be considered a last resort. The use of respirators is subject to the Respiratory Protection Program, Section 5.0.

4.6 Skin Protection

Personal protective equipment is often necessary to avoid skin contact with harmful materials. This equipment can include slicker suits, gloves, coveralls, head covers, foot covers, or boots.

4.7 Protective Coveralls

Protective coveralls are recommended for controlling exposures in certain maintenance related jobs. The intent is to minimize contamination of personal garments in order to:

- reduce dusting where dust inhalation or ingestion (subsequently, during a meal) is a concern. Examples include fluoride, asbestos, silica, and oxalate dust.
- avoid skin contact where adverse skin reactions or skin absorption is a concern. Examples include epoxy paints, coal tar pitch, and polychlorinated biphenyls (PCBs).
- avoid carrying a harmful material home. Examples include asbestos and PCBs.

Protective coveralls are recommended for the following jobs:

1. Servicing equipment heavily contaminated with fluorspar or aluminum fluoride dust; for example, air lance cleaning/ servicing dust collectors.
Coverall: Regular Tyvek
2. Servicing equipment heavily contaminated with dry sodium oxalate; for example, oxalate scaling in R-45.
Coverall: Regular Tyvek
Caution: Wet oxalate requires a slicker suit.
3. Servicing equipment heavily contaminated with lime dust; for example, servicing dust collectors.
Coverall: Regular Tyvek
4. Servicing equipment heavily contaminated with coal tar pitch; for example, servicing dust collectors.
Coverall: Regular Tyvek

5. Removing, mixing, or applying insulations and refractories containing free silica or asbestos. (This includes much of the work done by Masons and Insulators.)
Coverall: Regular Tyvek
6. Sandblasting
Coverall: Regular Tyvek
7. Mixing and spraying paints, tar coatings, and polyurethane foam.
Coverall: Regular Tyvek
8. Mixing and spraying insecticides and herbicides.
Coverall: Polyethylene Coated Tyvek
9. Draining askarel (PCBs) from electrical equipment; servicing a PCB spill.
Coverall: Saranex Laminated Tyvek

4.8 Asbestos Control

All new pipe and vessel insulation is asbestos free. A substantial portion of the equipment in the plant, however, is lagged with old asbestos insulation. There is a continuing need to remove this material for necessary equipment maintenance and repair.

The following procedure must be followed by all employees involved in removing insulation:

- . To avoid unexpected/unnecessary asbestos exposure, assume that all insulation contains asbestos.
- . A small sample of the insulation should be submitted to the Industrial Hygiene Department for microscopic analysis. Information on whether or not the insulation contains asbestos will be provided.
- . Before demolition or insulation removal is started, all employees must be protected by approved respirators and proper protective clothing; i.e., disposable coveralls, gloves, head and foot covering, etc.
- . Signs should be posted cautioning other personnel of asbestos in the area. Signs can be obtained from the tool cribs.
- . Red flagged barricade tape should be put up around areas being stripped. Tape should be put up approximately 10-15 ft upwind and 50 ft downwind.
- . Dampen insulation if conditions permit.

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- . Red flagged barricade tape should be put up around areas being stripped. Tape should be put up approximately 10-15 ft upwind and 50 ft downwind.
- . Dampen insulation if conditions permit.

Do we do this
or just for the
"big" jobs?
Do we dampen
as often as
we could?

- Place waste material in plastic bags, tie or seal bags, and dispose of materials in the special red Dumpsters.
- Follow good housekeeping practices.

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- Follow good housekeeping practices.

Could we
do better? [
How - examples

5.0 RESPIRATORY PROTECTION

5.1 Objective

Every feasible effort shall be made to provide a work environment free from hazardous concentrations of air contaminants or an oxygen deficiency. This shall be accomplished by material substitution, acceptable engineering controls, or work practice controls. When this objective cannot be met by the foregoing, then respiratory protection shall be provided in accord with the provisions of this program.

5.2 Responsibilities

The Point Comfort Respiratory Protection Program is administered by a "Program Director". This responsibility is assigned to the Senior Industrial Hygiene Technician, Leroy Wagner.

Employees

- . Employees shall use respiratory protection in accord with applicable operating instructions.
- . Employees shall report to the Medical Department any personal physical condition which may prevent the use of respiratory protection.

Supervision

- . Supervision shall ensure that only those employees (1) trained in the proper use of respirators and (2) having passed qualitative fit tests where required engage in the operations requiring respiratory protection (including emergency operations). The operations requiring respiratory protection are listed in Section 5.4. Refresher training shall be given every two years or more frequently if recommended by the Program Director.
- . Supervision shall assure that employees use respiratory protection in accord with applicable operating instructions. (See Section 5.3.)

Industrial Hygiene Department

- . The Program Director shall specify the type of respirator to be used for each operation requiring respiratory protection. Section 5.4 is the current list of operations requiring respiratory protection.
- . The Program Director is responsible to train and fit test each employee using respiratory protection. The Program Director shall maintain the following records for each employee required to use respiratory protection:

- outlines of training sessions attended, employee signatures, and dates
- outcome of qualitative fit test (only required for negative pressure respirators)
- other restrictions, such as eye glasses or beards.
- . The Program Director shall conduct frequent random inspections to assure that respirators are properly used, cleaned, and maintained.

Medical Department

- . The Medical Department shall select the methods for, coordinate, and maintain surveillance of each employee. The medical surveillance will help to determine through:
 - medical evaluations (including a medical history, physical examination, and lung function tests) those employees for whom respiratory protective devices are contraindicated or who require restrictions.
 - biological monitoring those employees who, despite the provisions of the program, indicate excessive exposure.
- . The Medical Department shall report to departmental supervision and the Program Director the names of employees with restrictions and employees disapproved from using respiratory protection.

5.3 Operating Instructions

- . A respirator shall not be worn if facial hair comes between the sealing periphery of the face piece and the face; or if facial hair interferes with valve function. A person who has hair (stubble, sideburns, beard) which passes between the face and the sealing surface of the respirator face piece shall not be permitted to wear a respirator.
 - This rule applies to disposable dust masks, cartridge respirators, gas masks, and the self-contained breathing apparatus; it does not apply to powered air purifying respirators (Racal Airstream Helmet) or constant flow air line respirators (cool hats).
- . No employee requiring the use of glasses (corrective lenses) shall use a full face piece respirator unless the employee is provided with special lenses for the face piece that will not break the facial seal or the employee can safely do his work temporarily without glasses.

- . Employees shall inspect their respirators prior to each use. Repairs shall only be made by employees trained in the use and care of respirators. Worn or broken parts shall be replaced from the manufacturer's parts list. Broken parts shall not be repaired. Substitution of parts from a different model respirator invalidates approval of the device.
- . Employees shall perform a "negative" and/or "positive" pressure fit test before each use of a respirator.
- . Employees shall clean and sanitize their respirators at the end of each day's use. After sanitizing, each respirator shall be inspected prior to storage.
- . Respirators shall be stored in sealed plastic bags in a clean safe location with the face piece and exhalation valve resting in a normal position.
- . Compressed Breathing Air:
 - In Point Comfort Operations, the concentration of carbon monoxide (CO) in the plant compressed air system is not expected to exceed the OSHA standard, 20 ppm, at any time. The air compressors located in R-110, Building 51, and the Gas Plant are lubricated with ML-925, a triaryl phosphate. The flash point for this material is 450°F. Each compressor is equipped with a temperature monitor and alarm sounding at 330°F. Overheating air compressors will be taken out of service before the lubricant will decompose producing carbon monoxide. Refer to Alcoa Material Safety Data Sheet Number 114 on ML-925.
 - In order to ensure that accumulated lubricant and water condensate is purged, employees shall open the valves on the air line manifolds, laterals, and water condensate traps in the area of work.
 - A standard compressed breathing air filtration train shall be used:
 - ° Air liquid trap--used and maintained per letter from L. W. Brast, 1982 November 30
 - ° Norgren particulate prefilter--check and clean prior to each day's use (Stores Stock No. 270-347-0018)
 - ° Wilkerson oil prefilter--change prior to each day's use (Stores Stock No. 690-821-0003)
 - ° Bullard organic vapor cartridge--change quarterly (Stores Stock No. 690-290-0531)
 - Oxygen shall not be used.

. Respirators for Atmospheres Immediately Hazardous to Life or Health:

- In emergency operations where the wearer could be overcome by a toxic or oxygen deficient atmosphere (i.e., fires) in the event of respirator failure, the emergency plan, operating procedure, or JSA shall specify at least one additional standby person with a suitable self-contained breathing apparatus (SCBA) at the nearest fresh air base for emergency rescue.
 - ° Communications (visual, voice, or signal line) should be maintained between both or all individuals present.
 - ° Planning should be such that one individual will be unaffected by any likely incident and will have the proper rescue equipment to be able to assist the others if necessary.
- Employees expected to use a self-contained breathing apparatus (i.e., Fire Brigade members) shall maintain full expertise in the use of this equipment. Refresher training shall be conducted by the Fire Brigade Coordinator to maintain this expertise.
- Respirators maintained for emergency use shall be inspected monthly and after each use. The respirator shall be tagged with a record of inspection dates and findings.

5.4 Operations Requiring Respiratory Protection

<u>Operation</u>	<u>Air Contaminant</u>	<u>Respirator</u>	<u>Stores Stock No.</u>
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Point Comfort and Northern Railway Co.

Spray cleaning locomotive generator	Chlorinated Solvent Mixture		None
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Neumin Oil & Gas

Removing asbestos insulation	Asbestos Dust	3M8710	220-683-0010
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Alumina Plant - Raw Materials

There are a variety of jobs in Raw Materials that may or may not require respiratory protection depending on the bauxite dust level. These jobs include cleaning ship holds, air lance cleaning equipment, operating a dozer on bauxite piles, and tending conveyors. Respiratory protection should be selected based upon experience and advice from industrial hygiene personnel.

Damp Bauxite	Not Necessary		
Moderately Dusty	3M8710		220-683-0010
Highly Dusty	Racal AH-5 Airstream Helmet or 3M Whitecap Cool Hat	220-536-0001 (Parts in Stores) 690-290-5006 (Parts in Stores)	

Alumina Plant - Clarification

Servicing hydrochloric acid spill	Hydrogen Chloride Gas	3M8725	220-679-8725
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Alumina Plant - Precipitation

Precipitator tank scaling, batch sections 2-4	Alumina Dust	3M8710 or Racal AH-5 Airstream Helmet	220-683-0010 220-536-0001
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Alumina Plant - Calcination

Servicing dust collector	Alumina Dust	Racal AH-5 Airstream Helmet	220-536-0001
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Refining Powerhouse

None

Aluminum Fluoride and Hydrate Plant

Air lance cleaning dust collector from outside bag house	Alumina, Fluorspar, and/or Aluminum Fluoride Dust	3M8710	220-683-0010
Air lance cleaning equipment in general	Alumina, Fluorspar, and/or Aluminum Fluoride Dust	3M8710	220-683-0010
Cleaning spar tunnel	Fluorspar Dust	3M8710	220-683-0010
Blowing convertor bed with air lance	Alumina, Fluorspar, and/or Aluminum Fluoride	3M8710	220-683-0010
Entering spar dryer	Fluorspar Dust	3M8710	220-683-0010
Unloading spar rail car, opening hopper	Fluorspar Dust	3M8710	220-683-0010
Scrubber shut down, general HF protection	Hydrogen Fluoride Gas	3M9906	220-679-9906
Rodding gyp cone	Hydrogen Fluoride Gas	3M9906	220-679-9906
Charging converter with fluoride and hydrate at startup	Alumina and Aluminum Fluoride Dust	3M8710	220-683-0010
Operating Tennent floor sweeper; discharging collector bag	Alumina and Aluminum Fluoride Dust	3M8710	220-683-0010

Paste Plant

Unloading coke to storage, B-52	Coke Dust	3M8710	220-683-0010
Unloading ECC to storage, B-53	Coal Dust	3M8710	220-683-0010
Cleaning mixer vent pipes and SC2 screws	Coal Tar Pitch Volatiles	3M8710	220-683-0010
Operating Kent mill, grinding ECC	Coal Dust	3M8710	220-683-0010
Working around extruders	Coal Tar Pitch Volatiles	3M8710	220-683-0010

Servicing dust collectors	Coke, Coal, and Coal Tar Pitch	Racal AH-5 Airstream Helmet	220-536-0001
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Maintenance - General

Servicing dust collectors	Varies with system	Racal AH-5 Airstream Helmet	220-536-0001
Spraying herbicides and insecticides	Varies with product	3M8725 Mask w/ 3M8752 Prefilter Prefilter Holder	220-679-8725 220-679-8752 220-679-8733
Welding or air arc cutting in R-84 convertor	Iron, Nickel and Chromium Fumes	Racal AH-17 Airstream Helmet or Racal AH-17 Supplied Air Helmet	Special Order Special Order

Maintenance - Insulators

Removing asbestos insulation	Asbestos Dust	3M8710	220-683-0010
Spraying Seal Perm or Seal Coat	Solvent Vapor and Asphalt Mist	MSA Comfo II w/GMC Cartridge and Mist Pre-filter or 3M8725 Mask w/3M8732 Pre-filter Assembly	Comfo II Facepiece: 220-681-0001 Sm 220-681-0002 Md 220-681-0003 Lg GMC Cartridge: 220-681-0005 MSA Prefilter (10 Sets/Box) 220-681-5667 MSA Prefilter Cover (2 Required) 220-681-8844 220-679-8725 220-679-8732 Prefilter Holder 220-679-8733

Maintenance - Painters

Abrasive blasting	Silica Dust	3M Whitecap Cool Hat	690-290-5006
Confined space painting and fibreglassing	Solvent Vapor and/or Mist	3M Whitecap Cool Hat	690-290-5006
Mixing and spraying polyurethane paints and foam insulation	Isocyanates	3M Whitecap Cool Hat	690-290-5006

Spray painting and fiberglassing	Solvent Vapor and/or Mist	Same selection as Insulators spraying Seal Perm or Seal Coat	
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Maintenance - Masons

Dumping and mixing dry refractories	Silica, Varies with product	3M8710	220-683-0010
Gunnitting refractory	Silica, Varies with product	3M Whitecap Cool Hat	690-220-5006
Removing refractories, general	Silica, Varies with product	3M8710	220-683-0010
Removing refractories, in confined space	Silica, Varies with product	3M Whitecap Cool Hat	690-220-5006
Grinding asbestos linoleum	Asbestos Dust	3M8710	220-683-0010

Fire Brigade

Fire Fighting	Carbon Monoxide and Smoke	Scott Air Pak (Pressure Demand)	Located on fire trucks and in fire stations
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DISTRIBUTION

Mr. R. G. Sheppard
Mr. J. I. Badgett
Mr. H. E. Lewis
Mr. J. G. Nelson
Mr. K. W. Ryan
Mr. E. J. Perez
Mr. H. G. Elrod
Mr. J. C. Mayfield
Mr. J. H. Hutchins
Mr. N. V. Lubbers
Mr. J. E. McConnell
Mr. H. M. Stellman
Mr. G. Flores
Mr. T. A. Innes
Mr. N. E. Myers
Mr. R. L. King
Mr. D. D. Hinds
Mr. R. E. Ustruck
Mr. M. T. Simons

Managers

Mr. H. W. Cooper
Mr. R. C. Flourney
Mr. W. H. Floyd
Mr. D. R. Grundhoefer
Mr. R. C. Hiserodt
Mr. J. L. Minter
Mr. J. L. Palmer
Mr. J. Ramos
Mr. R. R. Ripley

Handwritten:
Listed in 1

5. Removing, mixing, or applying insulations and refractories containing free silica or asbestos. (This includes much of the work done by Masons and Insulators.)
Coverall: Regular Tyvek
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The following procedure must be followed by all employees involved in removing insulation:

- . To avoid unexpected/unnecessary asbestos exposure, assume that all insulation contains asbestos.
- . A small sample of the insulation should be submitted to the Industrial Hygiene Department for microscopic analysis. Information on whether or not the insulation contains asbestos will be provided.
- . Before demolition or insulation removal is started, all employees must be protected by approved respirators and proper protective clothing; i.e., disposable coveralls, gloves, head and foot covering, etc.
- . Signs should be posted cautioning other personnel of asbestos in the area. Signs can be obtained from the tool cribs.
- . Red flagged barricade tape should be put up around areas being stripped. Tape should be put up approximately 10-15 ft upwind and 50 ft downwind.
- . Dampen insulation if condition permit.

Handwritten: 100

APC 004497

- . Place waste material in plastic bags, tie or seal bags, and dispose of materials in the special red Dumpsters.
- . Follow good housekeeping practices.

APC 004498



MATERIAL SAFETY DATA SHEET

No. 40

HAZARD CHARACTERISTICS

- ☐ Flammable ☐ Combustible
☐ Corrosive ☐ Explosive
☐ Water Reactive ☐ Radioactive
☐ Oxidizer ☐ Chemically Reactive

Toxic By:

- ☒ Ingestion
☒ Inhalation
☐ Absorption

PRODUCT ASBESTOS

Phone No.

Date: 81-10-21

For Internal Company Use Only -
Not To Be Distributed Outside The Company**Section I. MATERIAL DESCRIPTION**

Material Name: ASBESTOS
Chemical Name & Formula: Chrysotile ($H_4Mg_3Si_2O_9$) and Amphibole
Other Designation: Amosite
Corporate Stock No.:
Manufacturer:

Section II. INGREDIENTS

Chrysotile (Serpentine Asbestos)
Hydrated Magnesium Silicate (95% of commercial asbestos is this type)

Amphibole Asbestos - Silicates of iron, calcium and magnesium with little water. Grey-brown color. Fibers have harsh, brittle acicular texture.

%

HAZARD DATA

8-hr. TWA* (OSHA)
2 Fibers/cc of air which are greater than 5 microns length.

OSHA ceiling TLV: 10 Fibers per cc of air

*OSHA has proposed this value be reduced to 0.5 fibers/cc.

Section III. PHYSICAL DATA

Physical Form: Fibrous minerals
Boiling Temp.:
Freeze-Melt Temp.:
Vapor Pressure:
Evaporation Rate:
Specific Gravity:
Density:
Solubility in H_2O : Greyish-white fibers
Color:
Odor:

Section IV. FIRE AND EXPLOSION DATA

Flashpoint	Auto-Ignition Temp.	Flammability Limits in Air	Lower	Upper
Non-combustible				

Highly resistant to heat and fire.

Section V. REACTIVITY DATA

Chrysotile: Resistant to degradation by alkaline attack.
Amosite: Heat resistance superior to chrysotile.
Crocidolite (Blue): More resistant to acid attack than the above two. These asbestos materials are stable and relatively inert. In some situations, asbestos can maintain its integrity at temperatures up to 1700°C (3092°F).

APC 004499

Section VI. HEALTH HAZARD INFORMATION TLV TWA (8 HR) 2 fiber/cc 5 μ m length

The health hazard with asbestos arises from minute fibers which have been statistically shown to have produced lung cancer in asbestos workers after prolonged exposure. Asbestos tape, especially when unsized, will shed fibers on handling. Tape must be handled in such a way that the rate of air-borne fiber generation and the ventilation provided interact to keep the 8 hour TWA and ceiling concentrations below the established legal limit. Plant air sampling and analysis are required to insure conformance. Respiratory protection is required for conditions in which the 8 hour TWA or ceiling concentrations is exceeded. Good hygiene practices should be observed to avoid ingestion of asbestos fibers.

Ingestion of asbestos may lead to cancer of the digestive tract. Suspected exposures should be reported to the Industrial Hygiene Department. Special concern exists during demolition and delagging work which may release large quantities of asbestos dust in the air. Asbestos is a progress disease which may develop fully in 7-9 years and cause death as early as 13 years after first exposure.

Section VII. SPILL, LEAK & DISPOSAL PROCEDURES

Wear dust mask, gloves and disposable paper suit when working in area having excessive asbestos dust concentration. Contact Industrial Hygiene group for air monitoring. Scrap asbestos should be disposed in sealed plastic bags in steel drums. Drums must be marked with special asbestos label and shipped to approved disposal site. For clean-up use special vacuum sweeper to avoid air or water-borne hazards from minute asbestos fibers.

Section VIII. SPECIAL PROTECTION INFORMATION

General ventilation and local exhaust ventilation must be adequate to keep asbestos fiber concentrations in work place air below the TWA and ceiling TLV limits. Use NIOSH approved respiratory protection where the TLV concentration is or may be exceeded. The selection of appropriate respiratory protection (dust mask, self-contained breathing apparatus, supplied-air respirator, etc.) should be based on the actual or potential concentration present. Respiratory apparatus is required for worker protection under conditions in which the 8 hour TWA is exceeded. It is suggested that workers regularly handling large amounts of asbestos should frequently launder outer work clothing and should shower after work before changing into street clothing.

Section IX. SPECIAL PRECAUTIONS & COMMENTS

Dust mask and disposable coveralls must be worn when working with asbestos. All contaminated disposable clothing and asbestos containing wastes must be placed in sealed plastic bags and disposed in steel containers.

Asbestos workers who are also smokers have a substantially increased health risk from lung cancer from asbestos exposure as compared to non-smokers.

D.O.T. Requirements

ORM-C

Section X. REFERENCES

ASTM No.: D2100

Chemical Abstracts No.:

CMA Chemical Safety Data Sheet No.:

NFPA Guides No.:

NSC Data Sheets:

Supplier Product Literature:

Other: Pg. 545 OSHA Manual 2206, Subpart Z 1910.1001

Other: (1) Journal of Hazardous Material
Vol. 3, No. 2 (1979) 125-147
Review of Asbestos Substitutes
In Industrial Applications
(2) ACW Safety Data Sheet

APC 004500



POINT COMFORT OPERATI

Revision Date: _____

Department _____

Occupation: _____

Procedure/Page No. JSA/C-7

Job Title _____

Employee Participants: _____

Prepared By: _____

Request Personal Protective Equipment:

Mitts (Circle one or more)

(1) Observe the job

(2) Discuss it with operator

(3) Draw on your own knowledge

SEQUENCE OF BASIC JOB STEPS

Describe what is done without detail. Not too broad-not too fine. List the natural steps of the job. Most jobs can be listed in 12 or less steps.

POTENTIAL ACCIDENTS OR HAZARDS

What can happen at each step? List according to accident type.

SB Struck By
CB Caught Between
FI Caught In
FA Struck Against
CO Caught On
SO Strain/Overexertion
E Exposure

RECOMMENDED SAFE PROCEDURE

Describe specific procedures in detail for each step and any hazards. Question the basic job method. Try to develop a reduction idea. People? Process? Product?

3.

3.3 CW - Caustic and acids.

3.3 When stripping leaking or soaked caustic or acid lines, wear disposable hood (air supply unit upon request), rain suits, rubber boots, rubber gloves, and if air supply unit is not used, goggles must be worn.

3.4 CB - Chemical and thermal burns.

3.4 When stripping insulation or insulation jacketing covered with pitch, goggles, disposable suits, dust masks, cotton gloves, hoods must be worn (air supply unit upon request).

3.5 E - Nuisance dust.

3.5 When stripping fiberglass, mineral wool and foam glass insulation which create excessive dust, wear disposable paper suits, goggles, gloves and dust mask (air supply unit if requested).

3.6 F - Trip, slip and stumble.

3.6 Be aware of uneven walking conditions. Be alert when working on top of pipe racks, vessels, scaffolding and ladders. DO NOT work off wet scaffolding. Always tie off when working above 8 ft. Practice good housekeeping at all times.

3.7 SA, CO - Protruding objects.

3.7 Be aware of protruding objects, such as insulation pins, studs, and miscellaneous objects.

JSA/C-7(3)

APC 004501



POINT COMFORT OPERATI.

Revision Date:

JSA/C-7

Procedure/Page No.

Occupation:

Department:

Prepared By:

Employee Participants:

Job Title:

Required Personal Protective Equipment:

Method (Circle one or more)

(1) Observe the job

(2) Discuss it with operator

(3) Draw on your own knowledge

SEQUENCE OF BASIC JBS STEPS

Describe what is done without detail. Next two broadest and two fine. List the natural steps of the job. Most jobs can be listed in 12 or less steps.

POTENTIAL ACCIDENTS OR HAZARDS

SB Struck By
 (C) Conducted By
 SA Struck Against
 CB Caught Between
 TI Trapped In
 CD Caught On
 F Fall
 SO Struck/Overexertion
 E Exposure

RECOMMENDED SAFE PROCEDURE

Describe specific precautions in detail for each step and each hazard. Question the basic job method. Try to develop cost reduction ideas. People/Process/Product?

3. Removal of old deteriorated insulation.

3.1 CB - Body burns.

3.1 When possible, give piping and vessels enough time to cool off, before performing work. When working around high temperatures, gloves and long-sleeved shirts or portable sleeves must be worn to protect hands and arms.

3.2 E - Asbestos

3.2 When determining if material is asbestos, a small sample of the material will be analyzed by the Industrial Hygiene Department. If an analysis cannot be made immediately, treat material as if it is indeed asbestos and follow these procedures:

When removing asbestos-type materials, gloves, disposable paper suits, disposable asbestos masks or approved respirators must be worn. Place signs cautioning personnel of asbestos in area and set up red-flagged barricade tape around area being stripped (approximately 10 to 15 ft. up wind and 50 ft. downwind). Place waste material in plastic bags and dispose in special asbestos dumpster (red color and labeled "Asbestos").

To out away asbestos insulation, use a sharp knife. DO NOT break it off using a hammer. This will cause air borne dust.

JSA/C-7(2)