



Organization Resources
Counselors, Inc.

Memorandum

July 22, 1987

To: ORC Occupational Safety and Health Group
ORC Occupational Safety and Health Physicians Group
ORC Occupational Safety and Health Lawyers Group
ORC Asbestos Data Collection Task Force

From: Darrell K. Mattheis

Subject: Participation In ORC Asbestos Data Collection Project.

BACKGROUND

Responding to the publication by OSHA of its two new Asbestos Standards, the ORC Asbestos Task Force requested in January of 1987, that ORC form a Task Force to facilitate the collection of high quality airborne asbestos monitoring data. This data would establish a solid, factual, basis for the prediction of probable concentrations of airborne asbestos fibers generated by particular kinds of jobs, both for individual companies and across industries. "Objective data" meeting the requirements of OSHA, could then be used, legally, to reduce the amount of monitoring required to be in compliance with OSHA requirements.

THE PROBLEM

However, OSHA has ruled that records of airborne asbestos concentrations generated by particular operations, compiled prior to the publication of the new OSHA Asbestos Standard on June 20, 1986, do not meet the criteria for "objective data". OSHA made this ruling because they were not collected and analyzed using the new NIOSH (7400) method, and thus would not be comparable to newer data.

TASK FORCE GOALS

It is the intention of the Task Force to collect high quality data on the actual concentrations of airborne asbestos fibers generated by particular jobs. This data base, meeting OSHA "objective data" requirements, and crossing many industries, may then be used to reasonably evaluate the potential concentration of asbestos fibers a given task may generate.

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THE NEED

At present there are approximately 12 ORC members committed to participate in this project. For the greatest credibility and impact the Task Force would like to have at least 20 companies participating.

We urge you to read the attached detailed report on the project and consider the benefits of participating.

MORE INFORMATION

We have attached here for your interest detailed descriptions of every phase of the project, including the sampling data and background sheets. If you have questions this material cannot answer please give us a call!

HOW TO JOIN THE PROJECT

All that is necessary is a letter to ORC indicating that your company wants to participate in the Asbestos Data Collection Project.

COSTS

The costs are \$1600.00 per participating company for the first year. This covers all costs of the project. ORC receives no money from this project.

STARTING DATE FOR THE ASBESTOS DATA COLLECTION PROJECT

The project will begin August 24, 1987 and continue to the end of August 1988. If there is enough interest and additional companies wanted to participate, it could be extended for another year.

We need your participation for a statistically significant and credible project and encourage you to join the project. If you should have any questions, give me a call at 202-737-6330.

Daniel K. Matthews

INTRODUCTION TO THE
ORC ASBESTOS DATA COLLECTION PROJECT

PURPOSE

To build a data base on the levels of airborne asbestos fibers generated during the completion of a variety of routine jobs in the chemical, petrochemical, telecommunications, manufacturing, and utility industries.

HOW THE PROJECT WILL WORK

Industrial hygiene monitoring data, and background information on each job monitored (where asbestos is present) will be collected on a special form and sent to ORC. ORC will remove company identification, and transmit the forms to a contractor who will enter the data into the data base. The contractor will perform statistical calculations, analyze the data, and make available reports for participating members.

INTENDED USE

This data base is intended to allow the participating companies to meet the requirements of the Occupational Safety and Health Administration for "objective data". The source of the data will be kept confidential with only ORC retaining knowledge of it.

METHODS

The intent is to monitor a variety of separate jobs, to establish a TWA exposure for each job, and record a thorough description of the kind of operation performed. We anticipate the participation of companies from the chemical, petrochemical, manufacturing, telecommunications and utilities industries. For the purposes of this study we are less concerned with the overall exposure of the individual (8 hour TWA) than we are with the actual fiber concentrations generated by each specific task.

THE BENEFITS

* This "objective data" should provide participants with a valid data base upon which to base a decision not to monitor each individual on a small job involving asbestos, so long as standard company procedures, which have been documented in this study, are followed.

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* Each company participating in the study can benefit from information on the average concentrations of asbestos fibers generated by particular kinds of jobs, accomplished by different companies, in a variety of industries. The key is that all the participating companies have agreed, before starting the project, to record data using the same forms, and according to the same rules. Companies not part of the study, can only use the data in a general way, because their own data would not have been collected following the rules of the study.

* In the telecommunications industry this data base can help document the kinds of exposures that can be expected in routine telephone and cable installation jobs where asbestos is present. Protective measures appropriate to the known hazard can then be put in place to meet the requirements of the OSHA standard, and adequately protect workers.

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TIME FRAME FOR THE PROJECT

The project will begin on August 24, 1987 and continue to the end of August 1988. If there is interest and additional companies want to participate, it could be extended for another year.

COSTS OF THE PROJECT

The minimum number of participating companies necessary for the project to go forward is ten, and the minimum costs would be \$1600. per company. This would cover the project up to 5000 samples entered into the data base. For a more detailed breakdown on costs see the costs sheet included here.

HIGH CREDIBILITY NECESSARY

The requirements that OSHA is establishing for the collection of this "historical objective data" are strict. Therefore, for the data base to be credible and thus usable, all data must be collected in strict accordance with the rules of the study.

If we accurately collect monitoring data relating to levels of airborne asbestos fibers generated during certain operations, it can be used with confidence to meet our obligations under the OSHA Asbestos Standards. If we do not make every effort to be as accurate as possible in this study, we will be wasting both our money and our time.

REQUIREMENTS OF THE STUDY

The following are the general requirements that all participants in the study have been asked to meet in order to insure the smooth functioning and high quality of the study:

1. This study will require that participating companies monitor (on a random basis) a significant number (to be determined internally) of their employees engaged in activities where they may potentially be exposed to airborne asbestos fibers.

It is important that everything possible be done to avoid selection bias in the study. One way that a random selection could be achieved, would be to record for the study, all jobs with asbestos exposure that occurred during a pre-set time period. ORC believes that this approach affords the most expedient and effective means of achieving the randomness necessary to give the study a high level of credibility.

2. Information will be collected for each operation monitored, recorded on the ORC forms, and send to ORC in a timely fashion.

3. The data base development, data entry, and analysis of results will be done by a contractor, selected by ORC and approved by the Task Force, at a price agreed upon by the Task Force.

5. The cost of the study will be divided equally among those participating in the study.

6. Each participating company will receive a block of numbers that are reserved for its use. These numbers will be used sequentially to identify the sampling data sheets.

7. Each sheet will contain ACM exposure data for one person performing one task.

8. For each job an actual TWA and 8 hour TWA will be calculated.

9. All participants will follow the relevant requirements of the OSHA Construction Asbestos Standard (1926) or the General Industry Asbestos Standard, 1910.1001.

10. All participants agree that sampling data will be for those doing "hands-on" work, not supervisors or observers.

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11. All participants agree that all analytical work done for the purposes of this study will be performed by laboratories certified under the existing Proficiency Analytical Testing (PAT), or the American Industrial Hygiene Association (AIHA) Asbestos Accreditation Program.

12. Where possible, the data collection forms should be filled out by industrial hygienists using their organizations monitoring data forms.

13. The sampling data forms will be signed by the person filling them out. The company name and address and a phone number for the person signing the sheet should be included. All company and personal identification will be removed from sheets prior to their transmittal to the contractor.

14. Where reasonable, a certain amount of third party, (contractor/consultant) monitoring should be done as part of the study and identified as such on the data sheet.

15. Each participating company should submit once, a separate company cover sheet to ORC. This sheet will include overall information about the percent of the potentially exposed employee population that was monitored, the total number of employees monitored, how jobs entered into the study were selected, and the total number of employees in the corporation. This sheet will remain with ORC.

16. The company cover sheet should discuss how jobs enter the system, and how the particular job site and individual(s) who do the work are chosen. This needs to be done to document the method used internally to obtain a representative selection of samples.

17. Detailed data from this study will be available only to those organizations that participated in the study.

18. Companies not having participated in the study initially, but wishing to have access to detailed data from the study after it is completed, must agree to do a certain minimum amount of sampling using the agreed upon task force protocol and data collection forms, the results to be entered into the data base.

19. Once the information on the sampling data sheets has been entered into the data base, a summary of the compiled data will be provided to participating companies. Participants will have access to the original data, except for company names, through ORC.

20. The final results of the study will be written up and, upon review and majority approval of the task force, they will be submitted for publication to the AIHA Journal.

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Sampling Data Sheets

Two sets of sampling data sheets will be used; one intended for use in "small jobs" as defined by OSHA, and the other for primary removal, demolition and renovation.

Small jobs would include a variety of work in all industries represented in the study, where the removal of asbestos was incidental to the accomplishment of the job. Large jobs would include those where asbestos is being removed from buildings, where asbestos containing pipe insulation is be removed and will be replaced with other insulation and other operations where the removal of asbestos is the main purpose of the job.

Each set of sampling data sheets will have three pages of questions designed to collect background data, one air sampling data sheet to record the actual monitoring data, and five pages of instructions related to filling out the sampling data sheets.

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Cost Estimates for Data Collection and Analysis for Asbestos
Project:

(* Based on 5,000 samples)

Data Entry

Low estimate of entry time; 10 min.

Per sheet cost:

\$ 3.33

x 5,000.00

Total cost:

\$16,650.00

High estimate of entry time; 12 min.

Per sheet cost:

4.00

x 5,000.00

Total cost:

\$20,000.00

Data Management

Logging:

1,000.00

Data Quality Audits:

5% of recorded data

1,500.00

Programming**

2,000.00

Program Management

Ad Hoc Reports:

2,000.00

Estimated total for 5,000 sheets:

at 10 minute entry time:

\$23,150.00

at 12 minute entry time:

\$26,500.00

** fixed cost i.e., all other costs will vary proportionally with
the number of samples entered.

ASBESTOS SAMPLING DATA SHEET

Small Jobs

ORC Asbestos Data Collection Project

Please Use Red Ink to Complete the Form

1. SHEET NUMBER _____

2. TASK (REMOVAL OF ACM IS NOT
PRIMARY GOAL)

a. TASK DESCRIPTION
(CHECK ONE PER SAMPLING
ACTIVITY)

- ☐ Open ceiling tiles
- ☐ Remove cable cover
- ☐ Cable maintenance
- ☐ Splicing cable
- ☐ Pulling cable
- ☐ Task clean-up
- ☐ Equipment installation
- ☐ Equipment removal
- ☐ Brake work
- ☐ Clutch work
- ☐ Gasket work
- ☐ Boiler maintenance
- ☐ Pipe maintenance
- ☐ Valve maintenance
- ☐ Other equipment maintenance

- ☐ Shipwork _____
- ☐ Other _____

b. ACM ACTIVITY RESULTING
FROM TASK
(CHECK ALL THAT APPLY)

- ☐ Wetting
- ☐ Removal
- ☐ Bagging
- ☐ Transportation
- ☐ Drilling/cutting/grinding
- ☐ Incidental disturbing
- ☐ Other _____
- ☐ None

c. ACM FORM

(CHECK ALL THAT APPLY)

- ☐ Sprayed on insulation
- ☐ Troweled on insulation
- ☐ Equipment insulation
- ☐ Boiler insulation
- ☐ Pipe insulation (g.t. 12" diameter)
- ☐ Pipe insulation (l.t. 12" diameter)
- ☐ Pipe fittings
- ☐ Transite Pipe
- ☐ Floor tiles
- ☐ Ceiling tiles
- ☐ Roofing
- ☐ Transite Board
- ☐ Asbestos cement
- ☐ ACM fabricated items
- ☐ Other _____

d. ACM LOCATION

(CHECK ALL THAT APPLY)
(Telecom/Utility Specific)

- ☐ Above hung ceiling
- ☐ Beams/columns
- ☐ Crawl space
- ☐ Tunnel
- ☐ Manhole
- ☐ Cable vaults
- ☐ Piping
- ☐ Other

e. LOCATION OF JOB WITH
RESPECT TO ACM

(Telecom/Utility Specific)

- ☐ Adjacent to
- ☐ On
- ☐ Through
- ☐ Other _____

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ORC Asbestos Data Collection Project

SHEET NUMBER _____

f. DISTANCE TO ACM
(Telecom/Utility Specific)

- ☐ <1 ft.
- ☐ 1-3 ft.
- ☐ 3-5 ft.
- ☐ 5-10 ft.
- ☐ 10-20 ft.
- ☐ >20 ft.

3. TYPE OF ASBESTOS
(INDICATE % IF KNOWN)

- ☐ _____% amosite
- ☐ _____% chrysotile
- ☐ _____% crocidolite
- ☐ Unknown

4. ACM CONDITION

- ☐ Loose friable
- ☐ Hardened/non-friable
- ☐ Encapsulated

5. ACM DISTURBED

- ☐ Yes ☐ No

6. ESTIMATED AMOUNT OF ACM REMOVED

- _____square feet
- _____cubic feet
- _____linear feet
- _____pipe diameter
- ☐ unknown
- ☐ none

7. OTHER FIBROUS MATERIALS PRESENT

- ☐ Yes ☐ No ☐ Unknown

8. PHYSICAL CONDITIONS

- a. ☐ Indoor
 ☐ Outdoor
- b. ☐ Elevated
 ☐ Ground level
 ☐ Below ground
- c. Temp. of Equipment
 (if applicable)
 ☐ approximately ambient
 ☐ above ambient
 ☐ below ambient
- d. Air Temperature
 (when task begun)
 ☐ >32°F
 ☐ <32°F
 Air Temperature
 (when task completed)
 ☐ >32°F
 ☐ <32°F
- e. Wind speed
 (if applicable)
 _____mph

9. STRUCTURE OWNERSHIP

- ☐ Company Owned
- ☐ Leased
- ☐ Customer Premise

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ORC Asbestos Data Collection Project

SHEET NUMBER _____

10. STRUCTURE

(COMPLETE EITHER A OR B)

a. Type of Building (CHECK ONE)

- ☐ School
- ☐ Hospital
- ☐ Office
- ☐ Telecom Central Office
- ☐ Warehouse
- ☐ Factory
- ☐ Garage
- ☐ Residential

b. Structure If other than building (specify, ex. tower, boiler, etc.)

- ☐ Glove bag
- ☐ HEPA vac
- ☐ Wet wipe
- ☐ Alternate route (telecom/utility)
- ☐ Removal of entire structure
- ☐ Mini Enclosure
- ☐ Other
- ☐ None

12. SAMPLING/ANALYTICAL METHOD

- ☐ Appendix A OSHA Standard
- ☐ Appendix A OSHA Standard;
(37 mm cassette)
- ☐ Confirmatory Analysis
(by SEM, TEM, XRD, PLM)
- ☐ Other _____

11. CONTROL METHODS

(CHECK ALL THAT APPLY)

- ☐ Enclosure (without negative pressure)
- ☐ Enclosure (with negative pressure)
- ☐ Power tool with HEPA exhaust ventilation
- ☐ Local exhaust ventilation with fiber capture
- ☐ Wetting agent

13. SAMPLING COMPLETED BY

- ☐ In-house
- ☐ Contractor
- ☐ Third-party contractor

14. PRIOR KNOWLEDGE OF PRESENCE OF ACM?

- ☐ Yes ☐ No ☐ Unknown

15. REMARKS

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AIR SAMPLING DATA
ORC Asbestos Data Collection Project

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SHEET NUMBER _____

1. Cassette #: * _____

(One worker only; One task only)

* If more than one cassette is used for the same task number each separately but combine the data for the questions b

2. Date of Sample: ____/____/____
(month) (day) (year)

3. Sample duration: (minutes) _____

4. Fiber Concentration: (f/cc) _____

5. Fiber Count: (f/100 fields) (if available) _____

6. Actual TWA Exposure: _____

7. 8 hour TWA Exposure: _____

8. Pump flow rate: (ltr/min) Pre-sample _____ Post-sample _____

Date Checked Pre: ____/____/____ Post: ____/____/____
(month) (day) (year) (month) (day) (year)

9. Pump Serial Number _____

10. Worker ID (if applicable): _____

11. Upset conditions ☐ Yes ☐ No

Comments (spills, unplanned events, etc.)

Signature/title of person filling out form

Print name in full: _____ Phone No. _____

Company name (print) _____

City _____ 377846 _____ State _____

INSTRUCTIONS FOR FILLING OUT ASBESTOS SAMPLING DATA SHEET
FOR SMALL JOBS

1. Sheet Number

The sheet number will be preassigned.

2. Task

The Asbestos Sampling Data Sheet is to be completed only for jobs in which removal of asbestos containing material (ACM) is not the primary goal.

a. Task Description

What is the nature of the actual work being performed? Check the one entry which best describes the task.

b. ACM Activity Resulting from Task

What was done in regard to actually working with or handling the acm:

c. ACM Form

What is the form of the ACM encountered on the task? Check all that apply.

Questions 2(d), 2(e) and 2(f) are to be completed only by telecommunications and utility industry employees.

d. ACM Location

Where is the specific location of the ACM encountered on the task?
Check all that apply.

e. Location of Job with Respect to ACM

Where, in relation to the ACM, is the task being performed?

f. Distance to ACM

What is the distance between the site of the task and the ACM. If the distance varies, indicate the average distance.

3. Type of Asbestos (Indicate % if known)

What type of asbestos is present - amosite, crocidolite, chrysotile, unknown?

Check all that apply and, if possible, indicate the percentage of amosite, crocidolite, and/or chrysotile present in the ACM.

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4. ACM Condition

Is the material being removed loose, crumbly, - does it flake off, when worked with; is it hard to the touch; or has it been encapsulated with another material?
Check the appropriate box.

5. ACM Disturbed?

Was the ACM disturbed during the task.
Check the appropriate box

6. Amount of Asbestos Removed During Sample

How much asbestos was removed if any? Estimate in lengths of pipe removed, square feet of boiler insulation, or tiles etc. Fill in the appropriate amount.

7. Other Fibrous Materials Present

Are fibrous materials other than asbestos present?
Check the appropriate box.

8. Physical Conditions

a. Location

Is the task being performed indoors or outdoors?
Check the appropriate box.

b. Elevation

Is the task being performed at ground level, above ground level or below ground?
Check the appropriate box.

c. Temperature of Equipment

If the task involves working on equipment that has ACM content, indicate the temperature of the equipment.

d. Air Temperature

Indicate whether the temperature is above or below freezing when the task is started and whether it is above or below freezing when the task is completed
Check the appropriate box.

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9. Structure Ownership

Is the task being performed on a company owned premise, company leased premise, or customer owned premise? This question addresses premise ownership only. Ownership of the ACM equipment or materials being worked on (i.e. phone company cables etc.) is not the focus of this question. Check the appropriate box.

10. Structure

Complete only section a) - type of building or section b) type of structure if other than a building. Do not complete both sections.

a. Type of Building

If in a building, in what type of building is the task being performed?
Check the appropriate box.

b. Structure if Other than a Building

If other than a building, identify the type of structure the task is being done in, or on (ex., tower, boiler, etc.)

11. Control Methods

What method(s) are being used to minimize the release or generation of airborne asbestos fibers?
Check all that apply.

12. Sampling/Analytical Method

What method is being used to analyze samples for the presence of asbestos, and if that test indicates the presence of asbestos, what kind of confirmatory analysis is performed?
Check the appropriate box or identify alternate method of analysis.

13. Sampling Completed By:

Was the sampling done by company employees, by an outside consultant/contractor hired by the company, or by a third party hired by the company's outside contractor?
Check the appropriate box.

14. Prior Knowledge of Presence of ACM:

Was there knowledge of the presence of ACM before the task was begun?
Check the appropriate box.

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Each Task is to be Monitored from Start to Finish for the Purposes of this Survey

B. AIR SAMPLING DATA

1. Cassette #, One Worker Only, One Task Only

Each cassette should be given a distinct identification number. If more than one cassette is used for a single task, record a separate number for each cassette in this space, combine the data for the separate cassettes and record the data requested below for the task. Indicate the reason for using more than one cassette in the comment section.

2. Date of Sample:

Enter month, day and year.

3. Sample Duration (Minutes)

Sampling should begin when the task is initiated and end when the task is completed. The sample duration should be identical to the duration of the task.

4. Fiber Concentration

Record the fiber concentration (fibers per cc) as determined from the laboratory analysis. Use "GT" and "LT" for "greater than" and "less than" (respectively). If the sample filter is overloaded, note GT before the result.

5. Fiber Count (f/100 fields)

Enter fibers/100 fields fiber count if this information is available or obtainable.

6. Actual TWA Exposure

What was the time weighted average exposure for the duration of the job. This is to be determined from the information provided in numbers 3 (sample duration) and 4 (fiber concentration) above.

7. 8 Hour Time Weighted Average Exposure

If more than one sample was taken on a person during a shift, a time weighted average should be calculated using the below formula:

$$\frac{C_1T_1 + C_2T_2 + \dots + C_nT_n}{T_1 + T_2 \dots T_n}$$

Cn = the fiber concentration for sample n
Tn = the sample duration for sample n

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7. 8 Hour Time Weighted Average Exposure (Cont.)

In extrapolating from an acm exposure period of less than 8 hours to an 8 hour time period, assume zero exposure during the time in which no acm task is being performed and no sampling for acm is being done.

8. Pump Flow Rate: (Liters/Min)

The pump flowrate should be the averaged flowrate as determined by calibration with a primary standard such as a bubble tube. Enter the date the pre-sample and post-sample flow rate was checked.

9. Pump Serial Number:

Enter the pump serial number

10. Worker ID:

Enter the worker identification number, if any, used by your company.

11. Upset Conditions

Was there a greater than normal exposure to asbestos due to an unplanned event? Specify the event in the comments section. Mark the appropriate box.

DKM/20

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