PLAINTIFF'S EXHIBIT
CAP-172

AMERICAN SMELTING AND REFINING COMPANY
Department of Environmental Sciences
Salt Lake City, Utah

Plant: CAPCO - Ragland | Survey Date: November 20-22, 1974

Field Work: J. P. Sieverson | Report Date: January 20, 1975

ENVIRONMENTAL SURVEY

I. OPERATING CONDITIONS

Operations were normal during the survey.

II. SAMPLING PROCEDURES

A. Air:

1. Individual and stationary asbestos fiber samples were collected with M.S.A. personal monitoring pumps equipped with open-face Millipore filters (0.8 micron pore size). The asbestos fibers were counted using a Zeiss phase-contrast microscope, according to methods specified in the NIOSH criteria document.

2. An individual dust and fume sample was collected with an M.S.A. personal monitoring pump equipped with closed-face (plastic cover in place and inlet plug removed) Millipore filters (0.8 micron pore size). This filter was weighed to check total particulate loading.

B. Noise:

Noise measurements were taken with a B&K Model 2205 Sound Level Meter using the "A" scale and "slow" response setting. The meter was calibrated with a standard noise source before and after each set of measurements.

C. Water:

Water samples were collected from six locations:

1. Discharge before going to settling ponds.

2. Discharge after treatment, sampled near CAPCO property line (just above railroad culvert).

3. Discharge just above confluence with Trout Creek (½ mile from plant).

4. Trout Creek above confluence with discharge (at railroad bridge).

5. Trout Creek below confluence with discharge.

6. Discharge from Hydrotest machine.

All water samples were analyzed for total suspended solids and number of asbestos-like fibers.

III. SAMPLING RESULTS

A. Air:

1. Asbestos Monitoring

a. Employee Samples

Employee Name and No.	Job Title	Sampling 1974 Date	Sampling Time (Min.)	Asbestos Fiber Count Based on Sampling Time (>5 u/cm^3 air)
J. Jones #196 (Respirator worn)	Fiber Charger (1)	11/21 (day)	92	8.1 *
J. Jones #196 (Respirator worn)	Fiber Charger (2)	11/21 (day)	9	15.0 **
C. Scott #48 (Respirator worn)	Fiber Charger (3)	11/21 (afternoon)	44	15.1 **
J. Looney #38 (Respirator worn)	Laborer (4)	11/21 (afternoon)	45	1.0
M. Ford #215 (No respirator)	Flextester	11/21 (day)	176	0.4
C. Johnson #12 (No respirator)	Flextester	11/21 (afternoon)	44	1.8 (5)
C. Wolfe #228 (No respirator)	Hydro Operator	11/21 (day)	59	0.4

a. Employee Asbestos Monitoring Samples (con't.)

Employee Name and No.	Job Title	Sampling 1974 Date	Sampling Time (Min.)	Asbestos Fiber Count Based on Sampling Time (>5μ /cm³ air)
J. Jackson #205 (No respirator)	Coupling Tester	11/21 (day)	86	0.7
W. Morgan #243 (No respirator)	Lathe Operator	11/21 (day)	51	0.2
W. Echols #218 (Respirator worn)	Coupling Lathe Operator	11/21 (day)	80	0.7
B. Kay #33 (Respirator worn)	Small Coupling Lathe Operator	11/21 (day)	85	1.0
A. Kay #193 (No respirator)	Coupling Cut-off	11/21 (day)	80	2.1
C. Alverson #148 (No respirator)	Tap Coupling Operator	11/21 (day)	89 (6)	4.7
H. O'Donnell #141 (No respirator)	Cut-off Saw Operator	11/21 (day)	80	3.2
D. Kay #200 (No respirator)	Cut-off Saw Operator	11/21 (afternoon)	31	9.9 *
S. Rich #220 (7)	Cut-off Saw Helper	11/21 (day)	98	4.5 (7)
D. Kay #235 (No respirator)	Cut-off Saw Helper	11/21 (afternoon)	28	3.7

Footnotes for Employee Asbestos Monitoring Sampling Data:

* Exceeds OSHA 8-hour time-weighted average (TWA) exposure to asbestos of 5.0 fibers > 5 μ long per cm^3 of air.

** Exceeds OSHA ceiling concentration (not be be exceeded during an 8-hour shift) for asbestos of 10.0 fibers > 5 μ long per cm^3 of air.

(1) Dumped 4 Kollergang charges during sampling period; each charge consisting of 2½ bags of blue asbestos and 6½ bags of white asbestos.

(2) 1 Kollergang charge.

(3) 2 Kollergang charges.

(4) Worked around pipe machine and shot blaster.

(5) Did some handgrinding during sampling time.

(6) Includes 15-minute break during sampling period.

(7) Cleaned dust collector. Wore respirator while cleaning but not around saw.

OSHA Standard for Asbestos:

8-hour time-weighted average (TWA) Airborne Concentration	= 5.0 fibers > 5 μ long per cm^3 of air
Ceiling Concentration (not to be exceeded)	= 10.0 fibers >5 μ long per cm^3 of air

1. Asbestos Monitoring

b. Stationary Sample

Area	Location	Sampling 1974 Date	Sampling Time (Min.)	Asbestos Fiber Count Based on Sampling Time (>5u/cm^3 air)
Fiber Warehouse	On pallet east of unloading area	11/21 (day)	90	16.6

2. Personal Monitoring

Employee Name and No.	Job or Operation	Sampling 1974 Date	Sampling Time (Min.)	Analysis	Conc'n. (mg/m^3)
J. Looney #38	Laborer around pipe machine and shot blaster	11/21 (afternoon)	159	Total Particulate	2.0

OSHA Standard for nuisance particulate: 15.0 mg/m^3 as an 8-hour time-weighted average

B. Noise Measurements:

Area	Location	Noise Level (dBA)	OSHA Permissible Noise Exposure Duration per day (Hrs/Min)*
Coupling Lathes	Six feet east of north lathe - not running	89	9/11
	Two feet north of electic motor for hydraulic control of lathes	95	4/0
	Small coupling lathe - operator's station while cutting	88	10/34
	Coupling cut-off - operator's station	89	9/11

D: Noise Measurements (cont.):

Area	Location	Noise Level (dBA)	OSHA Permissible Noise Exposure Duration per day (Hrs/Min)
Cut-off Saw	Operator's Station - while cutting	91	6/58
	Operator's Station- not cutting	86-88	13/56-10/34
	Helper's station - while cutting	98	2/50
	Helper's station - not cutting	86-88	13/56-10/34
Boiler Area	Near column with chart paper storage	86	13/56
Hyster Front End Loaders	Hyster hauling mandrels - at idle	87	12/8
	Hyster hauling mandrels - at ¼ throttle	92	6/4
	Small hyster hauling couplings- at idle	89	9/11
	Small hyster hauling couplings- at ¼ throttle	96	3/29
Pipe Lathe Dust Collector	Ground floor with hopper vibrators on	96	3/39
	Shaking floor with hopper vibrators on (operator's station)	104	1/9

* Permissible exposure limits taken from Proposed OSHA Noise Standard, as published in the October 24, 1974, Federal Register. The exposure limits are the same as the existing OSHA Standard, except that additional time limits are proposed for employee exposures between 85-89 dBA.

C. Water Sampling

Sample Location	Suspended Solids (mg/l)	Asbestos-like fibers * (10^6 fibers/liter)
1. Discharge before settling ponds	3900	1,370
2. Discharge after settling ponds (just above railroad culvert)	184 (95% removal)	0.7 (99% removal)
3. Discharge ten feet above confluence with Trout Creek	111	1.4
4. Trout Creek above confluence (at railroad bridge) Heavy oil sheen observed on surface of creek.	3	5.7
5. Trout Creek below confluence. Oil sheen still present.	6	0.5
6. Discharge from Hydrotest machine. Heavy oil sheen observed.	386	2.6

* Positive identification of fibers (observed during microscopic counting) as being asbestos cannot be made. Only fibers longer than five microns were counted.

IV. COMMENTS

A. OSHA

1. Asbestos

This plant has never had an OSHA industrial hygiene or safety inspection.

The sampling results show that most employee exposures are below the present OSHA asbestos standard of 5 fibers/cm^3. One area which does not comply with the 5 fiber standard is fiber charging. The employee charging asbestos fiber apparently receives exposures above the OSHA ceiling limit.

A stationary sample taken near the work area also shows a high concentration of asbestos fiber. The exposure may be the result of inadequate ventilation for the bucket elevator, numerous broken bags of white asbestos in the warehouse, and/or poor housekeeping around the warehouse. The air velocity at the face of the hood for the bucket elevator should be checked with the Alnor velometer (available in the lab). The average face velocity should exceed 100-150 fpm. The problem of broken bags may be resolved by requesting the use of stronger bags or by wrapping the shipping pallets with plastic at Lake Asbestos.

All sampling results should now be compared against the 2 fiber limit which is effective July 1, 1976 -- a scant 18 months away. The sampling results indicate a number of exposures exceeding the 2 fiber limit (for 1976):

a. Fiber charger -- this has been discussed previously. The operator wears a respirator when charging.

b. Tap coupling operator -- This operation appeared to be adequately ventilated. Further samples should be collected to determine the source of the exposure. The sample may have been "salted." The operator does not wear a respirator, but should be required to do so unless future samples fall below the 2 fiber limit

c. Cut-off saw operator and helper -- Ventilation in this area appeared to need improvement. Neither man was observed to wear a respirator around the saw. Respirators should be required until future samples fall below the 2 fiber limit.

d. Coupling cut-off lathe -- Housekeeping was poor in this area. Employees work on a mound of asbestos cuttings. The operator did not wear a respirator but should be required to do so. Ventilation for the various coupling lathes appeared inadequate and should be improved. One operator was observed to cut very dry couplings on the small coupling lathe resulting in excessive fugitive emissions. The plan has an area with water sprays to keep couplings wet, and the operators should be instructed to return dry couplings to this area and work only with wet couplings.

e. Flextester -- This exposure is probably related to the amount of handgrinding done during the shift. The handgrinder is not presently ventilated. Furthe sampling is needed.

OSHA has a number of specific requirements for asbestos operations, in addition to the employee exposure standards already discussed. Some of these requirements are being complied with, such as:

a. Change rooms are available.

b. Requirements for six-month environmental or personal monitoring surveys and associated record-keeping are met. Plant personnel make regular surveys using two M.S.A. pumps, which are calibrated before and after each survey. The D.O.E.S lab presently counts the asbestos samples, however, the CAPCO Van Buren plant has received the necessary equipment and will soon be capable of counting samples from Ragland. Samples should be cross-checked with the D.O.E.S. lab to insure quality control.

   The results of some past surveys have been reported as eight-hour TWA exposures, based on the assumption that the employee received no additional exposure to asbestos fiber after the sampling period. This assumption is not valid at CAPCO properties because employees are continually exposed during their shift to various levels of airborne asbestos fibers. Eight-hour exposures can be constructed if a series of samples is taken at the various working and resting areas used by an employee during his shift, and the time at each area is recorded. Plant personnel may wish to do this for the fiber charger operator.

c. Caution signs are posted around areas which may exceed the 5 fiber limit, and, preferably, should be posted in areas which may exceed the 2 fiber limit. The signs should be mounted in a conspicuous place. A sign at the entrance to the fiber warehouse was not mounted but was sitting on a horizontal steel beam.

d. Annual medical exams are given to all employees. The exam should include a chest x-ray, respiratory disease history, and prescribed pulmonary function tests.

Some OSHA requirements have not been met, or compliance is questionable, such as:

a. Local exhaust ventilation and dust collection systems should be checked for conformance with ANSI standard Z9.2-1971, "American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems." A reference copy is available from D.O.E.S but the plant engineer should obtain a personal copy.

The plant has received three used baghouses from a closed mine and plans to install the baghouses to increase ventilation volumes. These new collection systems should also conform to the ANSI standard.

Machine operators should be trained to use the ventilation properly. For example, the big M.O.A. lathe was not working, but the ventilation pick-up was open. Dampers should be installed at each station, and operators trained to shut off ventilation to unused machinery.

b. A respirator program meeting ANSI standard Z88.2-1969, "American National Standards Practices for Respiratory Protection," needs to be established. A reference copy is available from D.O.E.S., but a copy should be ordered for the plant.

The plant makes three respirators available:

1) 3M #8710 Disposable
2) Welsh #7406
3) GlenAire #BM-21A-83

Of these three, only the 3M #8710 is shown as approved respiratory protection against asbestos on the list of NIOSH Certified Protective Equipment. The Welsh #7506 (as opposed to the #7406 used in the plant), equipped with #7500-4 cartridges and #7500-6 filters, is also NIOSH-approved for respiratory protection against asbestos-containing dusts. It is important to use such "Certified" equipment to avoid a citation by an OSHA safety inspector.

OSHA also requires "the maintenance of an historic file" in connection with the respirator program, but the documents needed in the file are not defined. This requirement may refer only to regular inspection of emergency-type respirators. The ASARCO Safety Department may have more information on this requiremen

Respirator use observed during the survey was poor. Employees did not appear to have been adequately trained in the proper use, fit, or care of their respirators. Respirator use should be required of any employee whose job involves exposures greater than 2 fibers/cm^3 until improved ventilation is installed, engineering or process changes are made, and/or further sampling shows exposures fall below the 2 fiber limit.

c. Two separate clothes lockers need to be provided for each employee.

d. Employees presently take their clothing home for laundering. OSHA requires that contaminated clothing be transported in sealed, impermeable bags, which are properly labeled. An in-plant laundry should be considered to prevent any future liability over alleged family exposures.

e. All hand-operated and power-operated tools, which may produce or release asbestos fibers resulting in an excessive employee exposure, should be provided with local exhaust ventilation. This would apply to the handgrinder used on the pipe finishing line and, possibly, some shop tools. The lathes and other major pipe finishing tools already have exhaust ventilation.

f. Housekeeping needs improvement. OSHA requires that all external surfaces be maintained free of accumulations of asbestos fibers if, with their dispersion, there would be an excessive concentration. The large amounts of asbestos used in the plant combined with the many finishing operations, such as lathing, sawing and grinding, make compliance with this requirement extremely difficult. Piles of loose asbestos waste were noted on the pipe finishing line and around the lathes. Increasing air velocities at ventilation points (to pick up a greater amount of wastes) by installing the three additional baghouses should help the housekeeping problem. Assignment of more employees to housekeeping may also be necessary.

   Employees involved with housekeeping should be advised to wet down the waste, whenever possible, to prevent dusting during handling. For example, one employee was observed during the survey to vigorously shovel dry asbestos waste into an open skip for disposal. The shoveling resulted in dusty fugitive emissions. The employee wore a respirator, but other employees in the area did not.

g. Asbestos waste should be disposed of in properly labeled, sealed, impermeable bags (or other containers) unless the plant is prepared to show OSHA that any reasonably foreseeable handling of the waste will not result in airborne concentrations of asbestos exceeding the OSHA standard.

   Most of the waste from cleaning the baghouses or housekeeping around the plant is dumped into open skips and thence into a dump truck for disposal.

Waste bags from the fiber charging area are put in large plastic bags for disposal.

h. The fiber charger operator (or any other employee receiving exposures in excess of the ceiling level of 10 fibers/cm3) should wear coveralls, head and foot coverings, and gloves to comply with OSHA.

i. Any employee found to have been exposed to concentrations above 5 fiber/cm^3 should be notified in writing. The CAPCO Van Buren plant has a standard form which is signed by the employee. Ragland personnel may wish to use the same form. This notification should be given to the exployees found to have received excessive exposures, as reported in this survey. OSHA requires notification of the employee within 5 days after finding an exposure above the standard.

j. Medical exams should also be given within thirty days after the initial employment or termination of any employee exposed to airborne asbestos fibers.

2. Dust

The one sample taken for dust exposure was well within OSHA standards. However, the sample did not cover the dustiest portion of the shot blaster operation. This job should be resampled using pre-weighed filters (available from D.O.E.S.) to determine compliance with the OSHA nuisance dust standard.

Possible employee exposures to dusts from unloading or handling silica flour and cement dust should be checked.

3. Noise

The noise exposure of the helper around the cut-off saw probably exceeds permissible levels. Because increased ventilation for the saw is indicated, any new or changed enclosure should include sound absorption material, such as glass wool and/or Acoustilead, to reduce sound levels. The helper should wear hearing protection until sound levels fall below 90 dBA.

Hyster drivers may also receive excessive noise exposures. Improved mufflers should be installed on the various loaders.

The laborer who cleans the pipe lathe dust collector should wear hearing protection while cleaning. Engineering controls may not be necessary because one man shakes the bags for ten minutes about 3-4 times per shift, and his exposure may fall within the permissible exposure time.

The possibility of excessive noise levels around the three additional baghouses should be considered. Locating the baghouses inside the main building may not be desirable.

All noise exposures can be checked more thoroughly using noise dosimeters (available from D.O.E.S.) if desired.

The Ragland plant owns and operates a Beltone manual audiometer (Model 90) and an I.A.C. testing booth. The audiometer was last calibrated in December, 1974. Pre-employment and annual audiograms for employees working in noisy areas are given by an office employee trained as an audiometric technician. All audiograms are reviewed by a consulting audiologist, Dr. Sataloff in Philadelphia, Pennsylvania. The new OSHA noise standard will require pre-employment audiograms and annual audiograms for all employees exposed to 85 dBA or greater sound levels. The plant does not presently have a sound level meter, but these instruments are available from D.O.E.S. or can be purchased. Regular sound level surveys should be made.

4. Lab

Lab personnel use hydrochloric acid to clean glassware. Acid mist is exhausted by a kitchen-type hood mounted over the sink. The air flow appeared inadequate. A lab-type hood with a minimum face velocity of 100-150 fpm should be installed.

The Corning atomic absorption instrument is not presently vented. If the A.A. is used often, ventilation should be provided.

The lab has a safety eyewash bottle station and safety shower. Lighting was good.

5. Safety

This plant does not employ a professional safety and/or environmental specialist. The plant has a need for regular safety inspections to insure compliance with OSHA safety requirements. A joint program with the Van Buren plant may be possible.

The plant should obtain Material Safety Data Sheets from suppliers of all chemicals used around the plant if the chemical composition is unknown or proprietary. An example is the KYSO EP Machine Oil (from Standard Oil) used to lubricate pipe ends for the hydrotest machine. These Safety Data sheets should be reviewed for handling problems and ventilation needs.

6. Employee Smoking

Employees were observed to smoke on the job at the Ragland Plant. The effects of smoking and exposure to airborne asbestos fiber are considered to be synergistic, resulting in a higher risk of disabling illness for asbestos workers who smoke. For this reason, the Ragland Plant should prohibit smoking on the job and should also consider an anti-smoking campaign in the work force. A smoking history should be included as part of the pre-employment and annual medical exams. Selection of new employees should include a preference for non-smokers, assuming that anti-discrimination laws would not be violated.

B. Water Treatment

The plant has two discharges:

1. A discharge from the hydrotest machine flows along the south side of the building and thence into a ravine on land belonging to the cement plant (next door). This discharge reportedly enters the settling ponds for the cement plant. The discharge is quite oily and contains suspended solids in excess of most water standards. An NPDES discharge permit has not been sought because the discharge runs into the cement plant's settling ponds. The legal responsibility for this discharge should be clarified.

2. A discharge from the batch mixing area flows into two small concrete settling ponds and thence into Trout Creek via an open ditch. An NPDES permit was sought for this discharge, and a proposed permit was received at the plant during the survey. The permit contained troublesome effluent limitations on oil and grease, total suspended solids content, and pH. Revisions for the permit are being pursued. The plant has plans to recycle this discharge, and construction is underway.

   The muck removed from the settling ponds is now piled around the ponds. The muck should be buried in a landfill. The recycling program should include provision to cover the existing piles and reclaim the land around the settling ponds.

The reduction of asbestos-like fibers in Trout Creek below the plant effluent cannot be explained. The D.O.E.S. results should be interpreted with caution because large dilutions are needed in order to count the fibers, and fibers cannot be positively identified as asbestos. D.O.E.S. has contacted Central Research to determine the feasibility of using electron microscopy and electron, or x-ray, diffraction to positively identify, count and classify asbestiform fibers in air and water samples.

C. Air Pollution

This plant is located near a small rural-type community. There are a few residences near the plant. A cement plant with uncontrolled particulate emissions is adjacent to the plant. Local concern over air pollution is virtually all directed towards the cement plant. An electrostatic precipitator was under construction at the cement plant. There is also a brick factory within 1/2 mile of the plant. Air pollution emission controls at the brick factory are unknown.

The plant has a number of baghouses, some of which exhaust within the main building. Two baghouses are located outside the main building on the south side. No baghouses had visible emissions.

This plant should be regulated by EPA under the NESHAP Program (National Emission Standards for Hazardous Air Pollutants) as is the Van Buren plant. However, it is not known whether the Ragland plant has ever submitted the required information (a detailed source report) to EPA. The deadline was July 6, 1973. Plant management personnel should determine whether the Ragland plant has complied with the NESHAP requirements. If not, legal assistance from the New York office should be requested before taking any formal action.

At the present time, NESHAP requires only a source report and allows no visible emissions. NESHAP has not set allowable emission standards for asbestos because toxic levels are difficult to delineate and because sampling and analytical techniques for source emissions are presently lacking for asbestos. The Stanford Research Institute has recently published a "Survey of Manual Methods of Measurement of Asbestos, Beryllium,...in Stationary Source Emissions" which details a source sampling method involving electron microscopy. A source sampling evaluation has never been done, nor has any ambient air monitoring been conducted. Such monitoring is desirable if methods of analysis can be successfully developed. NESHAP may eventually become involved in solid waste disposal to preclude fugitive emissions of asbestos.

The installation of three additional baghouses may require modification, construction, and/or operating permits from the EPA/NESHAP program and/or the State agency responsible for air pollution control. Plant management should check on the necessity of obtaining these permits.

D. Solid Waste

Solid wastes are disposed of in a semi-landfill operation at a large ravine west of the plant site. This operation should be converted to a sanitary landfill. State agency permits may be necessary.

Local residents were observed to enter the dump, presumably for scavenging purposes. This area should be fenced and posted to keep out unauthorized personnel.

There is also an abandoned dumping area north of the employee parking lot. All wastes in this dump should be covered; and the land should be reclaimed, if possible.

V. RECOMMENDATIONS

A. Steps should be taken to reduce all employee asbestos exposures below the 2 fiber limit effective in July, 1976. Such steps should include improved ventilation, better housekeeping, process or engineering changes, and further sampling to document all reductions.

B. Immediate action should be taken to reduce the exposure of the fiber charger operator. Until this exposure is reduced, the operator should wear whole body clothing, as required by OSHA.

C. Compliance with the EPA/NESHAP program should be determined as soon as possible. Legal assistance from the New York office may be needed.

D. The legal responsiblity for the discharge from the Hydrotest machine should be clarified.

E. Ventilation in some areas of the plant appeared inadequate, but the installation of three additional baghouses should improve ventilation. However, the installation of the baghouses should be checked for conformance with the cited ANSI standard; necessary permits from EPA/NESHAP and/or the state air pollution agency may be needed; and the siting of the baghouses should take into consideration the possible noise problem caused by hopper vibrators.

F. All existing ventilation and dust collection systems should be checked for conformance with the ANSI ventilation standard

G. Machine operators should be trained to use exhaust ventilation properly.

H. A respirator program (meeting the ANSI standard for respiratory protection) should be established. All respirators should be BuMines, or NIOSH, certified for respiratory protection against asbestos.

Enforcement of the respirator program by supervisory personnel should be improved. Although not required by OSHA, all employees exposed to airborne asbestos fibers over the 2 fiber limit should wear respirators until further sampling shows that their exposures fall below the 2 fiber limit.

I. Smoking on the job should be prohibited, and an anti-smoking campaign in the work force should be considered. A smoking history should be included as a part of the pre-employment and annual medical exams. Selection of new employees should include a preference for non-smokers.

J. Plant personnel should continue to make regular environmental surveys for asbestos exposures. The D.O.E.S. lab will continue to count the asbestos samples until the Van Buren lab is ready to make counts. Samples should be periodically cross checked with the D.O.E.S. lab. All sample results should be reported to D.O.E.S.

The plant personnel should consider more extensive sampling, sampling more often than the required six months, and constructing 8-hour time-weighted average exposures for certain jobs or employees (as noted in the comments).

K. Housekeeping will need improvement to keep external surfaces free of asbestos fibers.

Employees involved with housekeeping should be advised to wet down the wastes, whenever possible, to prevent dusting during handling.

L. Loose asbestos waste should be placed in plastic bags or other containers for disposal. This requirement could be avoided if a sampling program can be instituted which shows that handling of the waste does not result in excessive concentrations of airborne asbestos.

M. Caution signs should be conspicuously posted around areas which may exceed the 5 fiber limit, and the plant should consider posting caution signs around areas which may exceed the 2 fiber limit.

N. Two separate clothes lockers need to be provided for each employee.

O. An in-plant laundry should be considered to prevent any future liability over alleged family exposures. In the meantime, clothing taken home by employees for laundering should be placed in plastic bags which have the proper caution labels.

P. All hand-operated and power-operated tools should be provided with local exhaust ventilation, as discussed in the comments.

Q. Any employee found to have been exposed to concentrations of asbestos fiber above 5.0 fiber/cm^3 should be notified in writing.

R. Medical exams should be given to new and terminated employees.

S. Employee exposures to dust around the shot blaster and dust from unloading or handling silica flour and cement dust need to be evaluated.

T. The presence of asbestiform fibers in water needs to be studied further, as well as the collection of stack or ambient air samples for asbestos.

U. The hearing conservation program should continue and should include annual audiograms for all employees exposed to sound levels over 85 dBA, as well as pre-employment audiograms. Periodic surveys of sound levels around the plant should be made. Sound level meters and an octave-band analyzer are available from D.O.E.S. The audiometer should continue to be calibrated annually. Hearing protection devices should be made available to all employees; and their use should be enforced in areas where permissible noise exposures are exceeded until the necessary engineering controls can be installed, such as sound absorption material around the cut-off saw and improved mufflers for the various loaders.

V. A hood should be installed in the laboratory to exhaust acid mist from the use of hydrochloric acid.

Ventilation should be provided for the Corning atomic absorption unit if it is used often.

W. Material Safety Data Sheets should be obtained for proprietary chemicals or chemicals and solvents of unknown composition.

X. The recycling of the discharge from the batch mixing area should move ahead as fast as possible. Revisions for the proposed NPDES permit should be pursued.

Y. Muck from the settling ponds should be buried in approved landfill. The area around the settling ponds should be covered and reclaimed, if possible.

Z. The existing waste disposal site should be converted to a sanitary landfill. State-issued permits may be necessary.

AA. The waste disposal site should be fenced and posted to keep out unauthorized personnel.

BB. An abandoned dumping area near the employee parking lot should be covered and the land reclaimed, if possible.

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