ARCO Marine, Inc. Internal Correspondence

Date: March 16, 1988

Subject: ASBESTOS INSPECTION/ARCO ANCHORAGE

From/Location: David Sucharski

To/Location: Master/ARCO ANCHORAGE

PLAINTIFF'S EXHIBIT
ARCO 40

Enclosed please find four (4) copies of my memo describing the findings of the asbestos inspection of ARCO ANCHORAGE. Please post this memo on the ship's bulletin boards and take appropriate steps to ensure that it is brought to the crew's attention.

DBS:dd

cc: S. Factor
Capt. R. W. Lawlor
A. M. MacGillivray
X. J. Padilla
P. Persaud
J. L. Sullivan

Date: March 16, 1988

Subject: ASBESTOS INSPECTION/ARCO ANCHORAGE

From/Location: David Sucharski

To/Location: Master
ARCO ANCHORAGE

The ARCO ANCHORAGE was surveyed for asbestos exposure by Dan Napier & Associates Industrial Hygiene on 14 January 1988. Both dust and air samples were taken. His report states:

> "The bulk samples taken in the crew's quarters did not contain detectable levels of asbestos."
>
> "The air monitoring samples were evaluated by optical microscopy (PLM) and electron microscopy (EM). The test results did not indicate any airborne fiber levels."

Because the ship has material which contains asbestos, mainly the ceiling and bulkhead panels and some deck insulation, we will continue to monitor for asbestos in the future and keep you informed. Anyone who wishes further information should contact the ARCO Transportation Industrial Hygienist, Ms. Pamela Persaud (213-590-4465) or me (213-590-4527).

DBS:dd

DAN NAPIER & ASSOCIATES
INDUSTRIAL HYGIENE

DAN NAPIER, M.S., C.I.H., C.S.P.
ROBIN EKROOT, M.S.

15342 HAWTHORNE BOULEVARD, SUITE 207
LAWNDALE, CALIFORNIA 90260-2105
TELEPHONE 213-644-1924

Pamela Persaud
ARCO MARINE TRANSPORTATION
300 Oceangate
Long Beach, California

January 20, 1988

Dear Ms. Persaud;

This letter will confirm our meeting on January 14, 1988, at that time we reviewed your vessel the Arco Anchorage with David Sucharski. During the meeting we conducted an asbestos survey. The result of that meeting is summarized here, and specific results of laboratory findings are submitted on the attached form.

The bulk samples taken did not contain detectable levels of asbestos. The air monitoring samples were evaluated by optical microscopy (PLM) and electron microscopy (EM). The EM work has not been returned, and appropriate conclusions will be made as they are received.

The vessel is fire protected in the living quarters with a cement asbestos paneling. The paneling is cracked at the corners and indicates damage in areas that have been removed for normal shipboard maintenance and modification. The panels as such do not present a serious hazard unless the are made to be friable, through mechanical abrasion or fracturing. The study is not conclusive as the levels should be evaluated at a worst case situation. A worst case situation would be assumed during heavy sea conditions. Air monitoring conducted during winter sea conditions should serve to document the worst case situation. At this time there are no indications of an asbestos exposure related to occupancy on this vessel. We did observe that the dust and dirt levels were high and could obscure an effective air quality study.

The next meeting has not been scheduled, however should any questions arise please call me.

Respectfully Submitted

Dan Napier

SURVEY SUMMARY

The following items are submitted for your approval and implementation. The test result is described and a recommended action is suggested. Safety is a responsibility of your management. Our work is intended to assist you. Recommendations are developed from conditions observed at the time of our visit. They do not necessarily include every possible loss potential, code violation, or exception to good practice. This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products or conditions. As a mutual protection to clients, the public and us, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us.

Exposure: Employees modify and drill the living quarters panels to fix decorations, devices etc to the wall and ceiling. These penetrations can create a asbestos fiber spill.

Recommendation: Provide a guideline for any penetration, modification of the living quarters area.

Exposure: The panels sometimes fracture and old wall penetrations can flake off asbestos containing material.

Recommendation: Provide HEPA Vacuum equipment for use on a daily basis to ensure that the asbestos material is not becoming entrained in the housekeeping equipment.

Exposure: The vessels contain asbestos panels that may become friable during the life of the ship. The sea conditions and the age of the vessel may tend to create an exposure condition.

Recommendation: Conduct air monitoring onboard the vessel during a sea voyage in conditions that would develop a worst case situation.

Exposure: The vessels contain asbestos panels that may become friable during the life of the ship. The ship has several potential asbestos sources, gaskets, living Quarters wall and ceiling panels, and lagging that may have been overlooked during previous mitigation projects.

Recommendation: Develop a management program to control and identify asbestos containing materials and provide a clear protocol to mitigate exposure. That is properly use, dispose of or control asbestos containing materials.

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Sample Data Sheet Fibers In Air

January 14, 1988 Sample Number: AT37361

Location of Study: ARCO Marine, Inc.
Address: 300 Oceangate
Long Beach, CA 90802-434
Blank Control value 0.010

This blank correction has been averaged with other blanks and used to correct the submitted values

The microscopist was Faith V. Ujda
The Industrial Hygienist was Pamela Persaud

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Sample Data Sheet Fibers In Air

January 14, 1988 Sample Number: AT37363

Location of Study: ARCO Marine, Inc.
Address: 300 Oceangate
Long Beach, CA 90802-4341
Area of study: Fireman/water tender, upper deck (Anchorage)

This was a FIXED site study. The monitor was placed in a representative air parcel in the normal breathing zone.

NIOSH method # 7400 Revision 5/15/85 was used as the standard analytical procedure. A 25 millimeter cellulose ester filter 1.2 micron pore size was used as collection media. It was protected with a conductive cowl. A Nikon Phase Contrast Labophot Microscope with a Walton-Beckett graticule was used to analyze the filter media.

The personal breathing zone was monitored with a Wilrun 13081
A rotameter # 1 calibrated against a primary standard on 11/20/87
was used before and after the sample to estimate the air volume.
The sample was started at 8:40 hours. The starting flow rate was 11000 ml/min.
The test was stopped at 11:54 hours. The ending flow rate was 10500 ml/min.
The average flow rate was 10750.00 ml/minute. The total time was 194 minutes
the total volume was 2085.50 liters.

Analysis found a total of 0.095 fibers per field.
Time Weighted Average of 0.002 fibers per cubic centimeter
was extrapolated for the area. The quantification limit for this study
is calculated at 0.002. The method (7400) indicates that the absolute
limit is 0.01 fibers per cubic centimeter.

This analytical work was completed at Dan Napier & Associates.
The microscopist was Faith V. Ujda.
The Industrial Hygienist was Dan Napier MS, CIH.

The workers in the area were exposed to 1.1 percent of a
daily allowed exposure.

The detection level, 0.002 is greater than the measured level. Since this information must be considered, the above calculations were based on the detecion level 0.002 f/cc and not on the calculated level, 0.002 f/cc.

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Sample Data Sheet Fibers In Air

January 14, 1988 Sample Number: AT37364

Location of Study: ARCO Marine, Inc.
Address: 300 Oceangate
Long Beach, CA 90802-4341
Area of study: Chief engineers office (Anchorage)

This was a FIXED site study. The monitor was placed in a representative air parcel in the normal breathing zone.

NIOSH method # 7400 Revision 5/15/85 was used as the standard analytical procedure. A 25 millimeter cellulose ester filter 1.2 micron pore size was used as collection media. It was protected with a conductive cowl. A Nikon Phase Contrast Labophot Microscope with a Walton-Beckett graticule was used to analyze the filter media.

The personal breathing zone was monitored with a
A rotameter # 1 calibrated against a primary standard on 11/20/87
was used before and after the sample to estimate the air volume.
The sample was started at 8:49 hours. The starting flow rate was 13000 ml/min.
The test was stopped at 11:19 hours. The ending flow rate was 12500 ml/min.
The average flow rate was 12750.00 ml/minute. The total time was 150 minutes
the total volume was 1912.50 liters.

Analysis found a total of 0.170 fibers per field.
Time Weighted Average of 0.004 fibers per cubic centimeter
was extrapolated for the area. The quantification limit for this study
is calculated at 0.002. The method (7400) indicates that the absolute
limit is 0.01 fibers per cubic centimeter.

This analytical work was completed at Dan Napier & Associates.
The microscopist was Faith V. Ujda.
The Industrial Hygienist was Dan Napier MS, CIH.

The workers in the area were exposed to 2.1 percent of a
daily allowed exposure.