



RECEIVED

MAY 26 1988

Print & Enc

Date: May 25, 1988
Subject: ARCO Anchorage Asbestos Air Sampling Results
From/Location: P. Persaud, LAC1413
To/Location: J.M. Goodsir, CE&O, ARCO Anchorage

**PLAINTIFF'S
EXHIBIT**

ARCO 44

As per your request please find enclosed a copy of the report of results for the air sampling which was conducted on the ARCO Anchorage on January 14, 1988. The results indicated that there was no detectable concentration of airborne asbestos present in the air at the time of monitoring. It should be noted that generation of free airborne asbestos fibers in the work or accomodation spaces may only occur if proper procedures are not followed during maintenance or construction activities.

I apologise for the misunderstanding which occurred with your original request. Please feel free to contact me if you have any further questions or require additional information.

PP

cc: S.M. Menkus
D.B. Sucharski
X.J. Padilla
J.B. Beal
Master, ARCO Anchorage

DAN NAPIER & ASSOCIATES
INDUSTRIAL HYGIENE

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

4005 CATHANN STREET
TORRANCE, CALIFORNIA 90503-6911
TELEPHONE 213-316-1058

Pamela Persaud
ARCO MARINE TRANSPORTATION
300 Oceangate
Long Beach, California 90802

March 14, 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.

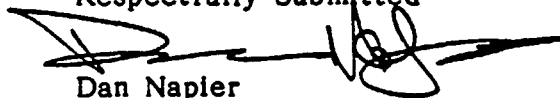
The following items are submitted for your approval and implementation. The test result is described and a recommended action is suggested. Safety is a responsibility of your management. Our work is intended to assist you. Recommendations are developed from conditions observed at the time of our visit. 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.

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

The vessel is constructed with asbestos containing components, as such mechanical abrasion of the transite panels or any modification of the vessel must be done under controlled circumstances. An asbestos management plan must be developed to insure that the vessel is not modified nor that any fiber release is permitted to occur. Air monitoring of all normal shipboard conditions must be conducted on a regular basis. The crews should be provided with an orientation program to insure that they do not create fiber releases by improper or unauthorized work practices.

Please call me should you have any questions or need any other information.

Respectfully Submitted



Dan Napier

DAN NAPIER & ASSOCIATES
INDUSTRIAL HYGIENE

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

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

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 detection level 0.002 f/cc and not on the calculated level, 0.002 f/cc.

DAN NAPIER & ASSOCIATES

INDUSTRIAL HYGIENE

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

5342 HAWTHORNE BOULEVARD, SUITE 207
LAWNDALE, CALIFORNIA 90260-2105
TELEPHONE 213-644-1924

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.

ARCO Marine, Inc.
 Subsidiary of Atlantic Richfield Company
 Procedure Manual

EM. Number 8-16	<u>ASBESTOS</u>		Issue date: July 31, 1984 Rev. date: Rev. nr.:
--------------------	-----------------	--	--

8-16-2			
<u>ANCHORAGE/JUNEAU/FAIRBANKS</u>			
<u>ENG. NO.</u>	<u>TITLE</u>	<u>SYSTEM</u>	<u>MATERIAL</u>
NA634-377-1	Machinery/Piping Insulation	Insulation	- "Carey Temp" (Perlite with binders and inorganic fibers) (Phillip Carey) (Asbestos free) or - "Thermo 12" (Calcium Silicate) (Johns-Manville) (Asbestos free) - Fiberglass (Owens Corning) - Foam Glass (Cellulated Glass type) (Pittsburgh Corning) - Polyurethane (Low Temperature)
		Pads	- Fiberglass cloth with quilted fiberglass
		Lagging	- Fiberglass cloth
Hopeman Bros.	Joiner Insulation	Insulation	- 1.6" Fiberglass semi-rigid (Owens Corning) or equal - Reefed Bulkhead (Eco-asbestos)
Hopeman Bros.	Joiner Details	Bds. and Linings	- Melamine veneered to incombustible core (MA SPEC 32 MAS Type 11 Class 3) Marinite 36 (Johns-Manville) (Asbestos) or equal
		Ceilings	- 3/16" Marine veneer (Johns-Manville) (Asbestos)
NA634-234	Deck Coverings	Insulation	- Magnesite - Subkote - Thermo Bestos (Asbestos -Calcium Silicate) (Johns-Manville) or equal
		Coverings	- Vinyl Asbestos - Scotex
<u>ALASKA/CALIFORNIA</u>			
408-526-001	Machinery/Piping Insulation	Insulation	- Calcium Silicate - Mineral fiber - Fiber glass - Cellulated Glass - Plastic Foam (Elastomeric)