

H B

508

# 2

Drafted, but never discussed

Original sponsors: Cowdery and Liska

1 IN THE HOUSE

BY THE LABOR AND  
COMMERCE COMMITTEE

2 SENATE CS FOR HOUSE BILL NO. 508 (L&C)  
3 IN THE LEGISLATURE OF THE STATE OF ALASKA  
4 THIRTEENTH LEGISLATURE - SECOND SESSION  
5 A BILL

6 For an Act entitled: "An Act relating to the plumbing code."

7 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

8 \* Section 1. AS 18.60.705 is amended to read:

9 Sec. 18.60.705. PLUMBING CODE. Except for provisions incon-  
10 sistent with AS 18.60.706, the [THE] Department of Labor shall adopt,  
11 as the official minimum plumbing code for the state, the Uniform  
12 Plumbing Code, 1982 [1979] edition, adopted at the 52nd [49TH] Annual  
13 Conference, October 1981 [SEPTEMBER, 1978], International Association  
14 of Plumbing and Mechanical Officials, chs. 1 - 13 and appendices,  
15 useful tables, and installation standards, but excluding Part I,  
16 Administration, pages 1a - 6a, all of subsection (e) and its excep-  
17 tion, and the second and third sentences of part (a) of sec. 1004,  
18 ch. 10, page 75, and subject to AS 18.60.710 - 18.60.740.

19 \* Sec. 2. AS 18.60 is amended by adding a new section to read:

20 Sec. 18.60.706. PLUMBING MATERIALS AND INSTALLATION. (a)  
21 Drainage systems in the state may not be made of extra strength vitri-  
22 fied clay or vitrified clay materials.

23 (b) Galvanized wrought iron, galvanized steel pipe,  
24 Acrylonitrile-Butadiene-Styrene (ABS) pipe, or Polyvinyl Chloride  
25 (PVC) pipe may not be used underground and shall be installed not less  
26 than six inches above ground.

27 (c) ABS or PVC pipe is limited to residential construction of not  
28 more than 25 feet in pipe stack height and of pipe thickness no less  
29 than schedule 40 iron pipe size standard steel pipe. ABS or PVC pipe

1 may not penetrate any one hour fire wall unless the pipe is sleeved  
2 with at least 20 gauge metal for six inches or more beyond the wall or  
3 changed to schedule 40 galvanized drainage, waste and vent copper or  
4 cast iron pipe to a metal trap connection.

5 \* Sec. 3. AS 18.60.740(i) is amended to read:

6 (1) "code" means the Uniform Plumbing Code, 1982 [1979]  
7 edition, adopted at the 52nd [49TH] Annual Conference, October 1981  
8 [SEPTEMBER 1978], International Association of Plumbing and Mechanical  
9 Officials as modified by AS 18.60.705 and 18.60.706;  
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IN THE SENATE

BY P. FISCHER

SUBSTITUTE FOR  
SENATE BILL NO. 214 / HB508

IN THE LEGISLATURE OF THE STATE OF ALASKA  
THIRTEENTH LEGISLATURE - SECOND SESSION

A BILL,

For an Act entitled: "An Act relating to the plumbing code."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

\* Section 1. AS 18.60.705 is amended to read:

Sec. 18.60.705. PLUMBING CODE. The Department of Labor shall adopt, as the official minimum plumbing code for the state, the Uniform Plumbing Code, 1982 [1979] edition, adopted at the 52nd [49TH] Annual Conference, October 1981 [SEPTEMBER, 1978], International Association of Plumbing and Mechanical Officials, chs. 1 - 13 and appendices, useful tables, and installation standards, but excluding Part I, Administration, pages 1a - 6a, all of Subsection (e) and its exception, as well as the second and third sentences of Part (a) of Section 1004, Chapter 10, Page 75, and subject to AS 18.60.710 - 18.60.740. The following amendments to said code shall be adopted:

Provided by Dwight Perkins  
Plumbing Union

- In Chapter 4, Page 37, Section 401(a) and (b), shall be amended by deletion of the words "extra strength vitrified clay pipe" and "vitrified clay".

- In Chapter 4, Page 37, Section 401(a), subparagraphs number (1),(2) and (3), shall be deleted and will be replaced by the following words:

"1. No galvanized wrought iron or galvanized steel pipe or ABS or PVC shall be used under ground, but all such pipe shall be kept at least six inches above ground.

2. ABS or PVC installations shall be limited to residential construction not over 25 feet in stack height. ABS and PVC shall be no less than Schedule 40 iron pipe size standard steel pipe thickness. ABS or PVC shall not penetrate any one hour wall unless it is sleeved with a minimum of 20 gauge metal for a distance of six inches beyond the wall or changed to Schedule 40 galvanized DWV copper or cast iron pipe to a metal trap connection."

- In Chapter 5, Page 45, Section 503(a), subsection number (2), shall be deleted and replaced with the following words:

"2. ABS or PVC installations shall be limited to residential construction not over 25 feet in stack height. ABS and PVC shall be no less than Schedule 40 iron pipe size standard steel pipe thickness. ABS or PVC shall not penetrate and one hour wall unless it is sleeved with a minimum of 20 gauge metal for a distance of six inches

beyond the wall or changed to Schedule 40 galvanized DWV  
copper or cast iron pipe to a metal trap connection."

\* Sec. 2. AS 18.60.740(1) is amended to read:

(1) "code" means the Uniform Plumbing Code, 1982 [1979] edition, adopted at the 52nd [49TH] Annual Conference, October 1981 [SEPTEMBER 1978], International Association of Plumbing and Mechanical Officials as modified by AS 18.60.705;

of the Administrative Authority no supply system is evident, special appliances vacuum breakers.

ly connected to a sewer connected to the inlet side of a trap and shall vacuum breaker installed at least six aspirator unit. The discharge pipe designed for free flow and shall airgap.

Water Over 160°F (71°C) shall be of at temperatures of one hundred re without rendering any portion of

connections shall be protected by an force as set forth in subsection (o) of

in cases where it is impractical to ins on the domestic water line, the be considered a non-potable water outlets shall be connected to the or back-siphonage from the non-ic water line shall be prevented by or by a tank having a pump for domestic water inlets to the non-an approved airgap as required is impractical to install tanks, as pressure type backflow or back-be installed as follows:

to gravity or a vacuum within the pressure type vacuum breaker unit or tion device shall be installed in the

breaker unit shall be installed at a nes (.3 m) above the highest tank, the non-potable water. Other apes shall be installed in a manner ve Authority, but in no case less ve the surrounding ground or floor. ve to steam boilers, pumps, etc., the non-potable water line, an apce shall be installed in the supply device shall be installed at least e surrounding ground or floor.

ns of the non-potable water line d portions shall be properly ider- to the Administrative Authority. ater line which may be used for shall be posted: DANGER —

(p) Vacuum breakers shall be located outside any enclosure or hooded area containing fumes that are toxic or poisonous.

#### Section 1004—Materials

(a) Water pipe and fittings shall be of brass, copper, cast iron, galvanized malleable iron, galvanized wrought iron; galvanized steel, lead or other approved materials. Asbestos-cement, PB, PE, or PVC water pipe manufactured to recognized standards may be used for cold water distribution systems outside a building. PB water pipe and tubing may be used for hot and cold water distribution systems within a building. All materials used in the water supply system, except valves and similar devices shall be of a like material, except where otherwise approved by the Administrative Authority.

(b) Cast iron fittings up to and including two (2) inches (50.8 mm) in size, when used in connection with potable water piping shall be galvanized.

(c) All malleable iron water fittings shall be galvanized.

(d) Piping and tubing which has previously been used for any purpose other than for potable water systems shall not be used.

(e) Approved plastic materials may be used in water service piping, provided that where metal water service piping is used for electrical grounding purposes, replacement piping therefore shall be of like materials.

Exception: Where a grounding system, acceptable to the Administrative Authority is installed, inspected and approved, metallic pipe may be replaced with non-metallic pipe.

#### Section 1005—Valves

(a) Valves up to and including two (2) inches (50.8 mm) in size shall be brass or other approved material. Sizes over two (2) inches (50.8 mm) may have cast iron or brass bodies. Each gate valve shall be a full-way type with working parts of non-corrosive material.

(b) A fullway valve controlling all outlets shall be installed on the discharge side of each water meter and on each unmetered water supply. Water piping supplying more than one building on any one premises shall be equipped with a separate fullway valve to each building, so arranged that the water supply can be turned on or off to any individual or separate building; provided however, that supply piping to a single family residence and building accessory thereto, may be controlled on one valve. Such shut-off valves shall be readily accessible at all times. A fullway valve shall be installed on the discharge piping from water supply tanks at or near the tank. A fullway valve shall be installed on the cold water supply pipe to each water heater at or near the water heater. A fullway valve shall be installed for each apartment or dwelling of more than one (1) family. In lieu of the main supply shut-off in each apartment, individual shut-off valves may be provided at each fixture.

(c) All valves used to control two (2) or more openings shall be fullway gate valves or other approved valves designed and approved for the service intended.

Uniform Plumbing Code

## CHAPTER 4

### DRAINAGE SYSTEMS

#### Section 401—Materials

(a) Drainage piping shall be cast iron, galvanized steel, galvanized wrought iron, lead, copper, brass, ABS, PVC, extra strength vitrified clay pipe, or other approved materials having a smooth and uniform bore, except that:

(1) No galvanized wrought iron or galvanized steel pipe shall be used underground and shall be kept at least six (6) inches (152.4 mm) above ground.

(2) ABS and PVC DWV piping installations shall be limited to those structures where combustible construction is allowed.

(3) No vitrified clay pipe or fittings shall be used above ground and shall be kept at least twelve (12) inches (.3m) below ground.

(b) Drainage fittings shall be of cast iron, malleable iron, lead, brass, copper, ABS, PVC, vitrified clay, or other approved materials having a smooth interior waterway of the same diameter as the piping served and all such fittings shall conform to the type of pipe used.

(1) Fittings on screwed pipe shall be of the recessed drainage type. Burred ends shall be reamed to the full bore of the pipe.

(2) The threads of drainage fittings shall be tapped so as to allow one fourth (1/4) inch per foot (20.5 mm/m) grade.

#### Section 402—Fixture Unit Equivalents

The unit equivalent of plumbing fixtures shown in Table 4-1 shall be based on the size of the trap required, and the unit equivalent of fixtures and devices not shown in Table 4-1 shall be based on the rated discharge capacity in GPM (gallons per minute) (liters per second) in accordance with Table 4-2.

Maximum trap loadings for sizes up to four (4) inches (101.6 mm) are as follows:

|        |              |           |
|--------|--------------|-----------|
| 1 1/4" | - (31.8 mm)  | — 1 unit  |
| 1 1/2" | - (38.1 mm)  | — 3 units |
| 2"     | - (50.8 mm)  | — 4 units |
| 3"     | - (76.2 mm)  | — 6 units |
| 4"     | - (101.6 mm) | — 8 units |

Exception on self-service laundries.

#### Section 403—Size of Drainage Piping

(a) The minimum sizes of vertical and/or horizontal drainage piping shall be determined from the total of all fixture units connected thereto, and additional, in the case of vertical drainage pipes, in accordance with their length.

(b) Table 4-3 shows the maximum number of fixture units allowed

| Max. Lengths (feet)<br>(m) | 45<br>13.7 | 60<br>18.2 | 75<br>22.8 | 90<br>27.4 | 120<br>36.5 | 150<br>45.7 | 180<br>54.7 | 210<br>64.5 | 250<br>76.2 | 300<br>91.2 | 350<br>106.6 | 400<br>121.9 | 450<br>137.2 | 500<br>152.4 | 550<br>167.6 | 600<br>182.9 | 650<br>198.1 | 700<br>213.4 | 750<br>228.6 | 800<br>243.8 | 850<br>259.1 | 900<br>274.3 | 950<br>289.6 | 1000<br>304.8 |  |
|----------------------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--|
| (See Note)                 |            |            |            |            |             |             |             |             |             |             |              |              |              |              |              |              |              |              |              |              |              |              |              |               |  |

- 1 Excluding trap arm.
- 2 Except sinks and urinals.
- 3 Except six-unit traps or water closets.
- 4 Only four (4) water closets or six-unit traps allowed on any vertical pipe or stack, and not to exceed three (3) water closets or six-unit traps on any horizontal branch or drain.
- 5 Based upon one-fourth (1/4) inch per foot (20.9 mm/m) slope.

NOTE: The diameter of an individual vent shall not be less than one and one-fourth (1 1/4) inches (31.8 mm) nor less than one-half (1/2) the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Tables 4-1 and 4-2. Not to exceed one-third (1/3) of the total permitted length of any vent may be installed in a horizontal position. When vents are increased one (1) pipe size for their entire length, the maximum length limits specified in this table do not apply.

# CHAPTER 5

## VENTS AND VENTING

### Section 501—Vents Required

Each plumbing fixture trap, except as otherwise provided in this Code, shall be protected against siphonage and back pressure, and air circulation shall be assured throughout all parts of the drainage system by means of vent pipes installed in accordance with the requirements of this chapter and as otherwise required by this Code.

### Section 502—Vents Not Required

(a) Where permitted by the Administrative Authority, vent piping may be omitted on an interceptor when such interceptor acts as a primary settling tank and discharges through a horizontal indirect waste pipe into a secondary interceptor. The second interceptor shall be properly trapped and vented.

(b) Traps serving sinks which are part of the equipment of bars, soda fountains and counters, need not be vented when the location and construction of such bars, soda fountains and counters is such as to make it impossible to do so. When such conditions exist, said sinks shall discharge by means of approved indirect waste pipes into a floor sink or other approved type receptor.

### Section 503—Materials

(a) Vent pipe shall be cast iron, galvanized steel, galvanized wrought iron, lead, copper, brass, ABS, PVC or other approved materials, except that:

(1) No galvanized wrought iron or galvanized steel pipe shall be used underground and shall be kept at least six (6) inches above ground.

(2) ABS and PVC DWV piping installations shall be limited to those structures where combustible construction is allowed.

(b) Vent fittings shall be cast iron, galvanized malleable iron or galvanized steel, lead, copper, brass, ABS, PVC, or other approved materials, except that no galvanized malleable iron or galvanized steel fittings shall be used underground and shall be kept at least six (6) inches (152.4mm) above ground.

(c) Changes in direction of vent piping shall be made by the appropriate use of approved fittings and no such pipe shall be strained or bent. Burred ends shall be reamed to the full bore of the pipe.

Bill No. House Bill 508

Date May 9, 1984

Title "An Act relating to the Plumbing Code."

Contact: Eileen Plate  
465-2700  
Bob Bacolas  
465-4870

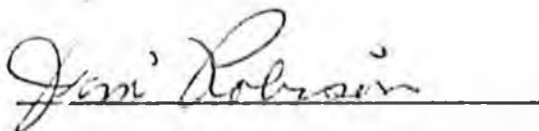
Every three years, the International Association of Plumbing and Mechanical Officials revises its minimum standards for the installation of plumbing to incorporate technological advances. The 1982 code described in this bill is the most recent effort in this regard. The 1979 code presently in effect for the State of Alaska is therefore outdated and will not be reprinted by the International Association of Plumbing and Mechanical Officials.

Adoption of the 1982 Uniform Plumbing Code would bring Alaska's minimum standards into conformity with those commonly accepted and used by industry across the nation. The latest edition of the Uniform Plumbing Code is also commonly adopted by political subdivisions in the state as the minimum standards enforced under their building inspection programs.

Since the time the 1982 code was adopted by the International Association of Plumbing and Mechanical Officials, a number of water quality, worker safety and fire safety questions have been posed nationally concerning 1982 code provisions which permit the use of plastic pipe (section 401 of chapter 4 dealing with drainage systems and section 1004 of chapter 10 dealing with water distribution). This concern also exists in Alaska, and no doubt will be brought out in the hearings on House Bill No. 508. Although the Department supports adoption of the 1982 code at this time, should it be determined in the course of the hearings that there are compelling reasons to prohibit the use of plastic pipe, we would not have any strong objection to the specific questioned sections being excluded from the State's minimum plumbing standards.

House Bill No. 508 would not have any fiscal impact on the Department of Labor.

APPROVED:

  
\_\_\_\_\_

Updated

**POSITION PAPER/**Department of Labor

Bill No. Senate Bill 214

Date April 12, 1983

Title "An Act relating to the Plumbing Code."

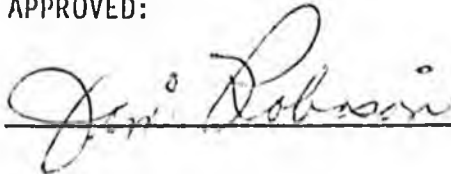
Contact: Judy Knight  
465-2700  
Bob Bacolas

Every three years, the International Association of Plumbing and Mechanical Officials revises its minimum standards for the installation of plumbing to incorporate technological advances. The 1982 code described in this bill is the most recent effort in this regard. The 1979 code presently in effect for the State of Alaska is therefore outdated and will not be reprinted by the International Association of Plumbing and Mechanical Officials.

Adoption of the 1982 Uniform Plumbing Code would bring Alaska's minimum standards into conformity with those commonly accepted and used by industry across the nation. The latest edition of the Uniform Plumbing Code is also commonly adopted by political subdivisions in the state as the minimum standards enforced under their building inspection programs.

The Department of Labor support passage of this bill. It would not have any fiscal impact.

APPROVED:

  
\_\_\_\_\_

STATE OF ALASKA 1984 LEGISLATIVE SESSION  
FISCAL NOTE

Revision Date: \_\_\_\_\_

REQUEST

Bill/Resolution No.: HB 508  
 Title: "An Act relating to the plumbing code"  
 Sponsor: Rep. Cowdery/Rep. Liska  
 Requestor: House Labor/Commerce  
 Date of Request: January 18, 1984

FISCAL DETAIL

Agency Affected: Labor  
 Program Category Affected: Public Protection  
 BRU, Program or Subprogram(s) Affected: Labor Standards & Safety

EXPENDITURES/REVENUES: (Thousands of Dollars)

|                       | FY 84 | FY 85 | FY 86 | FY 87 | FY 88 | FY 89 |
|-----------------------|-------|-------|-------|-------|-------|-------|
| OPERATING             |       |       |       |       |       |       |
| 100 PERSONAL SERVICES |       |       |       |       |       |       |
| 200 TRAVEL            |       |       |       |       |       |       |
| 300 CONTRACTUAL       |       |       |       |       |       |       |
| 400 SUPPLIES          |       |       |       |       |       |       |
| 500 EQUIPMENT         |       |       |       |       |       |       |
| 600 LAND & STRUCTURES |       |       |       |       |       |       |
| 700 GRANTS, CLAIMS    |       |       |       |       |       |       |
| 800 MISCELLANEOUS     |       |       |       |       |       |       |
| TOTAL OPERATING       | 0     | 0     | 0     | 0     | 0     | 0     |

|         |  |  |  |  |  |  |
|---------|--|--|--|--|--|--|
| CAPITAL |  |  |  |  |  |  |
|---------|--|--|--|--|--|--|

|         |  |  |  |  |  |  |
|---------|--|--|--|--|--|--|
| REVENUE |  |  |  |  |  |  |
|---------|--|--|--|--|--|--|

FUNDING: (Thousands of Dollars)

|               |   |   |   |   |   |   |
|---------------|---|---|---|---|---|---|
| GENERAL FUND  | 0 | 0 | 0 | 0 | 0 | 0 |
| FEDERAL FUNDS |   |   |   |   |   |   |
| OTHER         |   |   |   |   |   |   |
| TOTAL         |   |   |   |   |   |   |

POSITIONS:

|           |  |  |  |  |  |  |
|-----------|--|--|--|--|--|--|
| FULL-TIME |  |  |  |  |  |  |
| PART-TIME |  |  |  |  |  |  |
| TEMPORARY |  |  |  |  |  |  |

SOURCE OF FUNDS TO OFFSET FISCAL IMPACT OF BILL:

ANALYSIS: Attach a separate page for analysis

Prepared By: Robert J. Bacolas, Sr. Phone: 465-4870  
 Division: Labor Standards & Safety Date: \_\_\_\_\_

Approved by Commissioner: Jim Robinson Date: 1/26/84  
 Agency: Labor

LEG:A:31  
 Distribution (by Agency preparing fiscal note):  
 Legislative Finance  
 Legislative Sponsor  
 Requestor  
 Office of Management and Budget  
 Impacted Agency(ies)

12/1/83

\* SEE ALSO SB 214



## Plastic Pipe and Fittings Association

999 N. Main Street • Glen Ellyn, IL 60137 • Phone: 312/858-6540

May 12, 1984

Chairman and Members  
Senate Labor and Commerce Committee  
State of Alaska  
Juneau, Alaska

Reference: House Bill No. 508  
An Act relating to the Plumbing Code

Dear Senators;

We thank you for the opportunity to present data to the Government of Alaska in support of expanding the use of plastic piping for plumbing. Regrettably, our presence at your hearing on May 10th was limited by our departure time from Juneau, and this letter is to respond to issues raised by others present at the hearing.

We certainly admit to Mr. Vein's claim that our Association is actively involved in the support of plastic piping all across the United States. The right to free enterprise in construction is subject to proper regulation and PPFA does offer facts to support technological advancements in the field of plumbing. We believe these products go beyond just meeting minimum regulatory powers - States and Cities across the Nation accept plastic piping because they equal or exceed other materials available to the consumer.

This can be supported by our responding to misrepresentations created from the film shown at your Hearing. It is not just the International Association of Plumbing and Mechanical Officials that have studied and rejected that attack. Last year, at the Annual Conference of the International Conference of Building Officials, for four days this film's advocates encouraged all the Building Officials present to enjoy hospitality and view the film. Then, at the Code Change Session, when they were asked to limit the use of plastic piping, the Officials voted overwhelmingly (approximately 140 to 8) to reject the arguments being made by using the film. Why? We believe it is vital to your Committee and to the Government of Alaska to understand why, and believe we can show you how better safety in construction is promoted by better products, in this instance, plastic piping.



## Plastic Pipe and Fittings Association

999 N. Main Street • Glen Ellyn, IL 60137 • Phone: 312/858-6540

May 12, 1984, page two

We refer you to Attachment One to this letter. IFT, Inc.'s letter and attachments are on the code change and the film promoted by our opposition, and subsequently considered and rejected by IAPMO and ICBO. Such activities have also been rejected by the other model building and plumbing code bodies.

The actions mentioned above by model code bodies occurred in previous years. As technology changes, the code bodies review and act upon new code changes. Earlier this month, at an ICBO Fire and Life Safety Committee Meeting held in Minneapolis, in the debates to consider amendments affecting penetrations of fire-protective walls and floors by plastic or metal plumbing piping, an Underwriter's Laboratory Representative remarked the codes would be better off with a non-metallic penetration than with a metallic. Your Committee, in the interest of providing safer buildings in Alaska, may wish to hear more about this, as there is test data to support the above remark.

As to the remarks of a representative of a not-for-profit health organization we believe he claimed we misrepresented the NIOSH Health Report from Boston, concerning a positive link to acute symptoms. Our copy submitted to you speaks clearly on the lack of a definite link. As to work exposure, containers for products used in assembling plastic as well as other plumbing piping carries instructions to workers.

Finally, were surprised by Mr. Vein's remarks about the effects of root cutters on plastic pipe and believe such assaults were put to rest years ago. Please see Attachment Two, a reprint from the August, 1968 issue of the Southern Building magazine.

We thank you for the opportunity to present facts about plastic piping, and ask that you enact usage of the 1982 Uniform Plumbing Code as published.

Sincerely

A handwritten signature in dark ink, appearing to read 'Jack Lancaster', is written over the typed name.

Jack Lancaster  
Field Representative

CC: Richard W. Church  
Executive Director, PPFA

New address, 800 Roosevelt Road, Building C, Suite 20



CONSULTING SERVICES IN MATERIALS PERFORMANCE AND FIRE TECHNOLOGY

September 23, 1983

Mr. Richard Church  
Executive Director  
Plastic Pipe & Fitting Association  
999 N. Main Street  
Glen Ellyn, Illinois 60137

RE: IFT 82-45

SUBJECT: Uniform Plumbing Code .  
Change #54 - Sect. 401 (a) 2\*  
64 - Sect. 503\*

The code change referenced above is unnecessary. Interpretations of the code have been clear concerning inclusion of combustible components in differing types of construction for many years.\*\* The prescriptive nature of the suggested change goes against the positive trend toward performance based code development and is prejudicial when one considers the nature of combustible materials permitted in Types 1 through 5 Fire Resistive construction and Type 5 Non-Rated.

With regard to the "recent full-scale U.B.S. Standard No.43-1 fire test" referred to in the code change referenced above, a few comments are in order. Although this test was apparently conducted in accordance with U.B.C. Standard No. 43-1 in terms of time-temperature curve, the standard itself in no way controls design or construction detailing of the specimen. In the case of the Goldberg-Plumbers Union fire test, the specimen had several deficiencies in construction which were designed to cause premature failure.

In the way of description, one side of the specimen was framed in 2"x 4" and the other with 2"x 6" lumber. It was said to have been designed to simulate an intermediate story in a multi-story wood frame building with portions of unaffected floors above and below the simulated "fire" floor.

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\* Ref: ICBO, 1983. Building Standards Pt. III - Code Change Agenda (July-August 1983) P. 15.

\*\*See attached excerpt from "A Code Official's View of Requirements for Noncombustible Building Materials" by J.E. Bihr in Ignition, Heat Release and Non-Combustibility of Materials, ASTM STP 502. P 3-10 (1972).

## ATTACHMENT ONE

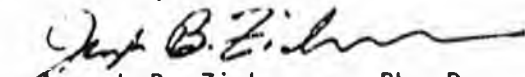
ABS plumbing assemblies containing 3" and 4" pipe were preconstructed and inserted in square or rectangular notches (see attached photo) cut in the test wall. Maximum pipe size for the 2"x 4" framed section was 3", with 4" being used on the side framed in 2" x 6". Certain details simulating the multi-story framing (especially the upper story) appeared non-standard as did the notches cut at simulated floor/ceiling interfaces which were not firestopped as required by UBC Section 2516.f.2.D. (attached). Following insertion of piping, a single steel strap was nailed over each notched opening in plates and studs. Notch details can be seen in the attached photo.

The test fixture included neither assemblies of cast iron pipe nor PVC although the code change would affect use of the latter product. Additionally, given the non-standard fire stopping details, as well as the reported ability of back-to-back metallic pipes penetrating fire walls to demonstrate temperatures in excess of those permitted by U.B.C. 43-1 on the back, unexposed face, the test results are of extremely limited value. Additionally, the use of 5/8" gypsum wallboard complicates interpretation of results, inasmuch as the use of this finish material implies one-hour, combustible fire-resistive construction, although the plumbing and notching details are not consistent with this type of construction.

Perhaps most important, installation of plastic pipe without mitigating, fire stopping devices (such as back-packing, use of heat shields, etc.) which have demonstrated successful performance according to the ASTM E-119 standard is against all recommendations of the plastic pipe industry and constitutes a misuse of the product designed to result in misleading test data. Another example of this intended misuse can be seen in the installation of 3" pipe and fittings in a 2"x 4" test wall section. Such fittings have outside diameters in excess of the 3½" lumber dimension and their use is not recommended in walls framed with 2"x 4" lumber for both fire safety and noise reduction reasons. In addition, in practise such use will cause bulges and stresses in the wall board.

These test results are invalid in that they neither simulate properly constructed one-hour F.R. combustible construction nor are represented as type 5 N.R. construction. The use of such test results to support a prescriptive code change is improper and reflects badly on the proponents. Fire performance of plastic pipe should be judged in concert with the accepted performance standards in place in the Uniform Building and Plumbing Codes when considered for use in fire resistive buildings.

For IFT, Inc.

  
Joseph B. Zicher, Ph. D.

JBZ:mw

J. E. Bihr<sup>1</sup>

## A Code Official's View of Requirements for Noncombustible Building Materials

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REFERENCE: Bihr, J. E., "A Code Official's View of Requirements for Noncombustible Building Materials," *Ignition, Heat Release, and Noncombustibility of Materials. ASTM STP 502*, American Society for Testing and Materials, 1972, pp. 3-10.

ABSTRACT: The traditional definition of *noncombustible* has given way to a performance oriented approach. Comparing the various model code treatments, it is apparent that they are leading this trend. The motivation stems from the development of new products such as plastics and composites as well as the ability to significantly change the combustible characteristics of older products such as wood. Potential heat tests appear to be a realistic method of separating materials with respect to levels of combustibility.

KEY WORDS: flammability, burning rate, fire tests, building codes, fire resistant coatings, construction materials, building boards

THE EXCERPT PRESENTED BELOW IS TAKEN FROM PAGES SEVEN AND EIGHT OF THE ARTICLE CITED AND ABSTRACTED ABOVE.

The model codes all classify basic types of construction in a nearly identical manner, contrary to the statements of those who haven't taken the trouble to closely examine them. The higher (more resistive) types require exterior walls of noncombustible construction. Yet, the codes are pragmatically oriented and all accept materials which will not detract from overall performance. The use of building paper, for example, to effect weather resistance has been logical. There is no doubt that buildings must resist the constant effects of weather while still being able to withstand the possibility of a sometime fire. Another code reality is the universal acceptance of interior combustible finishes such as paper or vinyl faced gypsum wallboard, wood paneling, wall paper, and vinyl coverings, all of which are designed to be applied over noncombustible or fire-resistive substrates or both. ICBO has accepted the use of fire-retardant treated wood for the framing within fire-resistive interior walls of Type I and II buildings, the high-rise type of structure characterized by fire-resistive protection of key elements such as the structural frame, bearing walls, and floors. In recommending this, the Code Changes Committee reasoned that general room fires would not penetrate the fire protective membrane until the content fire had reached significant levels. They also recognized the relative contribution of framing to the anticipated fire load in a building.

Wood stud walls and bearing partitions shall not support more than two floors and a roof unless an analysis satisfactory to the building official shows that shrinkage of the wood framing will not have adverse effects upon the structure nor any plumbing, electrical, mechanical systems nor other equipment installed therein due to excessive shrinkage or differential movements caused by shrinkage. The analysis shall also show that the roof drainage system and the foregoing systems or equipment will not be adversely affected or, as an alternate, such systems shall be designed to accommodate the differential shrinkage or movements.

(e) **Floor Framing.** Wood-jointed floors shall be framed and constructed and anchored to supporting wood stud or masonry walls as specified in Chapter 23.

(f) **Fire and Draft Stops.** 1. **General.** In exposed combustible construction, firestopping and draftstopping shall be installed to cut off all concealed draft openings (both vertical and horizontal) and shall form an effective barrier between floors, between a top story and a roof or attic space, and shall subdivide attic spaces, concealed roof spaces and floor-ceiling assemblies. The integrity of all fire and draft stops shall be maintained.

2. **Fire stops, where required.** Firestopping shall be provided in the following locations:

A. In concealed spaces of stud walls and partitions, including furred spaces, at the ceiling and floor levels and at 10-foot intervals along the length of the wall.

**EXCEPTION:** Fire stops may be omitted at floor and ceiling levels when approved smoke-actuated fire detectors are installed at these levels.

B. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings;

C. In concealed spaces between stair stringers at the top and bottom of the run and between studs along and in line with the run of stairs if the walls under the stairs are unfinished;

D. In openings around vents, pipes, ducts, chimneys, fireplaces and similar openings which afford a passage for fire at ceiling and floor levels, with noncombustible materials.

3. **Fire stop construction.** Except as provided in Item D above, firestopping shall consist of 2 inches nominal lumber or two thicknesses of 1-inch nominal lumber with broken lap joints or one thickness of 1/2-inch plywood with joints backed by 1/4-inch plywood.

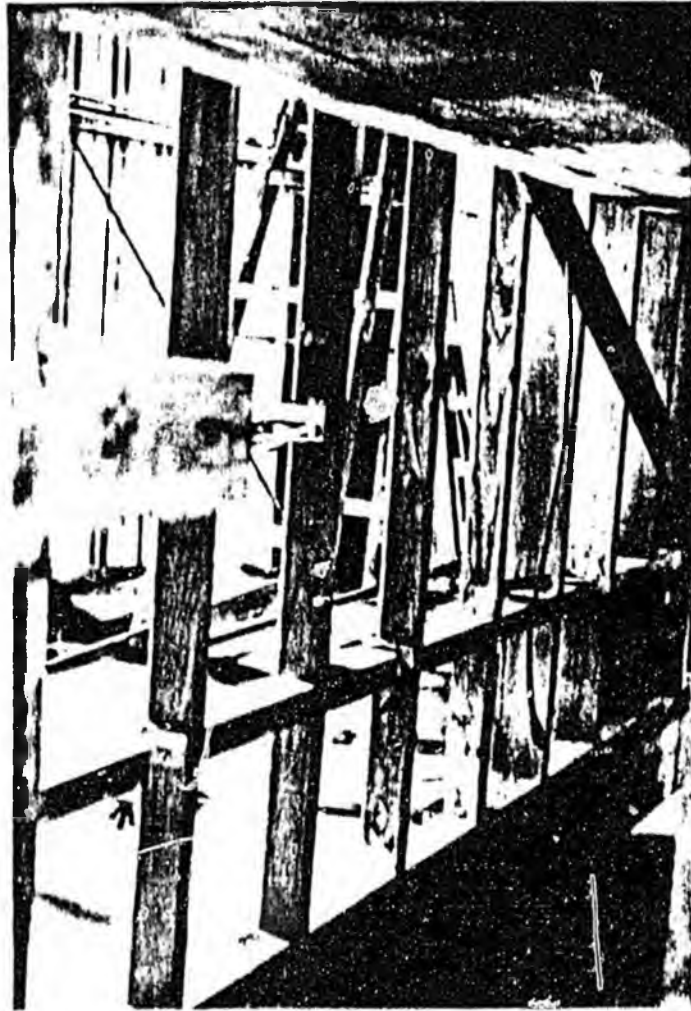
Fire stops may also be of gypsum board, cement asbestos board, mineral wool or other approved materials securely fastened in place.

Walls having parallel or staggered studs for sound transmission control shall have fire stops of mineral wool or other approved nonrigid material.

4. **Draft stops, where required.** Draftstopping shall be provided in the following locations:

A. **Floor-ceiling assemblies.** (i) **Single-family dwellings.** When there is usable space above and below the concealed space of a floor-ceiling assembly in a single-family dwelling, draft stops shall be installed so that the area of the

ATTACHMENT ONE



TEST ASSEMBLY PRIOR TO INSERTION OF PIPE AND INSTALLATION OF WALLBOARD. NOTE NOTCHES (ARROWS) IN SIMULATED FLOOR PLATES WHICH WERE NOT FIRE STOPPED AS REQUIRED BY UBC SECT. 2516.F.2.0

# Lafayette (La.) Tests ABS-DWV

Confronted by the conflicting claims of the Plastic Pipe Institute and their competitors the City of Lafayette (La.) decided to resolve the issue by conducting its own tests.

In a joint effort by the City of Lafayette and the Acadian Home Builders Association a bath mock-up was erected and during June subjected to a series of tests equivalent to a "lifetime of use". Mr. Ed Dauphin's report to the Lafayette Plumbing Board follows in its entirety:

Mr. C. C. Hargis, Chairman  
Lafayette Plumbing Board  
Lafayette, Louisiana 70501

Dear Mr. Hargis:

On or about May 20th, a mock-up of a pier type bathroom was constructed and furnished to the test site by Mr. Harry Hebert of Harry Hebert Homes. Mr. Hebert engaged a licensed plumber to install a typical bath plumbing for drain waste and vent according to Code, using A.B.S. Plastic Pipe bearing the specification, A.B.S., CS-270-65, DWV. The installation included, in addition, a two-inch trap of this material. I personally witnessed the installation. The entire mock-up was allowed to remain exposed to the weather until June 11th, at which time we proceeded with the chemical test.

I secured, from a local janitorial supply house, a complete representation of all chemicals sold by the schools and commercial establishments. These chemicals included solvents used to clean porcelain, unstop drains and to dissolve stoppage in sanitary sewers. These various solutions contained Caustic Potash, Sodium Potash, Inhibited Hydrogen Chloride, Sulfuric acid, and Hydrochloric acid. In addition, I purchased, from an A & P Food Store, all of the common household chemicals offered by them for the purpose of cleaning, unstopping and disinfecting drains in homes. They consisted of Lye, Drano, Sani-Flush, etc.

At 1:55 P.M., on June 11th, we proceeded with the chemical test. The following members of the Plumbing Board were present: Mr. C. C. Hargis, Mr. Rene A. Peltier and Mr. A. J.

Szabo. Also in attendance was Mr. Harry Hebert and myself. The test consisted of stopping the main drain at the location of the last bend before the exit hole. Again, stopping the main drain just before the second section joining the Plastic "P" Trap and stopping in the flow within the bend of the "P" Trap. Material used for stoppage consisted of cotton batting, boiled in a solution of 50% hoglard and 50% paraffin wax. The open end of the main drain was plugged with a regular plumber's drain plug. The ambient temperature was in the high 80's. We poured into the toilet approximately one quart of water, then added one quart of Drain-Lite.

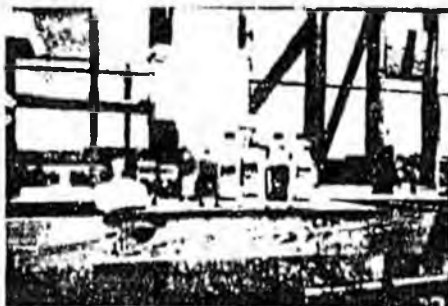
The first plug was not secure and we lost the material. We corrected this and repeated the test. As we waited for reactions in one area, we added other solutions and agents in other areas that had been plugged, until all of the various chemicals had been tried.

Please note, in each case where chemicals were introduced into the system, the amounts were from twice to three times as much as recommended by the manufacturers.

Into the two-inch drain, we poured approximately one-half pint of water, then added Lye, Drano, Sani-Flush and Caustic Potash crystals. The reaction was of a violent nature, to the extent that water was boiled out of the top of the drain several inches higher than the top of the drain. The temperature of the section of the trap, containing the solution, was very high, high enough to cause severe burns to the hand and remained in this condition till we left the test site at approximately 2:45 P.M.



Mr. Ed Dauphin, Director of Inspections, placed three stoppages of cotton batting impregnated with hoglard and paraffin wax.



Total tests—household cleaners from super market—professional cleaners from plumbers supply house.



Cleanest bowl in town.



Greater quantities than recommended used.



Tests carefully recorded.



Nov. how did they do this?

PLEASE NOTE: THE FOLLOWING PAGES WERE TREATED  
AS A UNIT IN THE ORIGINAL DOCUMENT

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HEALTH HAZARDS ASSOCIATED

WITH PLASTIC PIPE

A STATUS REPORT

OF

THE CALIFORNIA PIPE TRADES COUNCIL

OF

THE UNITED ASSOCIATION OF JOURNEYMEN

AND APPRENTICES OF THE PLUMBING AND PIPE FITTING

INDUSTRY OF THE UNITED STATES AND CANADA

PREPARED BY:

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Sept. 1981

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- EXHIBIT 2. Summary of Major Findings, "Health Hazards Associated With the Use of Plastic Pipe" Interim Report. California State Department of Health Services. April 29, 1980.
- EXHIBIT 3. Letter of Deputy Chief for Health, Division of Occupational Safety and Health Administration, California Department of Industrial Relations to California Commission on Housing and Community Development, March 5, 1981, correcting misleading statements of the Plastic Pipe and Fitting Association (PPFA).
- EXHIBIT 4. Letter of Alexandra Levine, M.D., Lymphoma-Leukemia Program, University of Southern California Medical Center, October 3, 1981, describing research on lymphoma and plumbers.

- EXHIBIT 5. "Impurities Detected in ABS, PVC and CPVC Plastic Pipe." California Analytical Laboratories, Inc. November 12, 1980.
- EXHIBIT 6. (a) Resolution of the California Consumer Advisory Council, February, 1980.
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- (c) Letter of the Center for Law in the Public Interest to California Commission on Housing and Community Development, November, 1980.
- (d) Letter of Women For to Commission on Housing and Community Development, October, 1980.
- EXHIBIT 7. "Discussion and Conclusions," Final Report on Potential Health Hazards Associated With the Use of Plastic Pipe in Potable Water Systems. California Department of Health Services, October 17, 1980.
- EXHIBIT 8. Letter of California State Department of Health Services to the National Association of Plumbing, Heating, Cooling Contractors, (PHCC) February 2, 1981.
- EXHIBIT 9. Letter of Director, California State Department of Consumer Affairs to Commission on Housing and Community Development, November 21, 1980, on risks of cancer for consumers who drink water from plastic pipe.
- EXHIBIT 10. California Analytical Laboratories report on chemicals in polybutylene pipe, December 31, 1980.
- EXHIBIT 11. Addendum document published by the United States Environmental Protection Agency (EPA) entitled "Priority Review Level 1 - Di- (2-ethylhexyl) Phthalate (DEHP)," December 1980.
- EXHIBIT 12. California Analytical Laboratories report on chemicals in polybutylene pipe as flexible fixture connectors, March 18, 1981.

- EXHIBIT 13. Letter of California State Department of Health Services to Commission on Housing and Community Development, January 28, 1981, regarding polybutylene posing a potential health hazard to consumers.
- EXHIBIT 14. "Analysis of Polybutene Pipe Leachate For Selected Organic Species" by Radian Corporation presented to: Shell Development Company. March 1981.
- EXHIBIT 15. "Review and Evaluation of Radian Corporation's 'Analysis of Polybutene Pipe Leachate For Selected Organic Species.'" California Analytical Laboratories. April, 1981.
- EXHIBIT 16. Letter of Staff Toxicologist to attorney for Shell Chemical regarding the possible presence of BHT and alkylbenzene sulphonate in PB pipe, June 15, 1981.
- EXHIBIT 17. Letter of Director, California State Department of Housing and Community Development to Commission on Housing and Community Development, April, 1981.
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- EXHIBIT 19. News Accounts, San Francisco Chronicle, Sacramento Bee, April 21, 1981.
- EXHIBIT 20. Letter of general counsel for the California Building Standards Commission regarding the relationship between the California Building Standards Law and the California Environmental Quality Act (CEQA). July 21, 1981.

(NOTE: Additional information on these Exhibits may be obtained by contacting the law offices of LEONARDINI & FATHY, 400 Capitol Mall, Suite 221, Sacramento, California, 95814-4480, (916) 441-4405.)

PART ONE: SUMMARY OF HEALTH ISSUES

## INTRODUCTION

Thousands of pages have been written on the advantages and disadvantages associated with plastic pipe. The debate normally concerns its effectiveness and usefulness as a new product. Most recently, issues have focused on human health hazards and potential long-range environmental dangers. With this type of dispute the problems surrounding plastic pipe involve a staggering level of scientific abstraction. Public officials and policy makers (usually not scientists by training) oftentimes are faced with a morass of scientific jargon, chemical formulae and mathematical probabilities. Such scientific disputes, if taken out of context, can be an obstacle to the appropriate protection of the health and safety of the general public.

The following paper is a short summary of the main health and environmental issues in the plastic pipe dispute. It includes documents of policy makers, environmental scientists and health officials that comment upon the proper health and safety approach to the issue, all of which documents are part of the Public Record of the California Housing Commission. These documents illustrate that scientific assertions of the petrochemical industry, when analyzed by independent testing agencies, do not overcome the threat of severe safety risks, health risks and environ-

mental contamination that may arise from the use of plastic pipe.

Lastly, this paper documents the extreme peril of relying upon media presentations and press packages of the Plastic Pipe and Fitting Association (PPFA).

The reader should carefully note the serious need for policy decisions with regard to plastic pipe that reflect truly unbiased research and independent analysis.

FIRE SAFETY

In early 1980, the California State Fire Marshal, at the specific request of the California Legislature, (ACR 98), analyzed and evaluated every major scientific document on "the potential flammability of plastic pipe and the fire hazards associated with its use." It concluded:

"In multi- (3 or more) story fire-rated construction, additional in-depth fire testing is necessary to (a) ensure that plastic pipe will not contribute to unusual fire spread; (b) that the toxicity generated by the combustion of plastic pipe will not extend beyond the area of initial exposure in quantities sufficient to prove hazardous." ("Fire Hazards of Plastic Pipe" State Fire Marshal. May 1980.)

The State Fire Marshal was particularly concerned at the time with "through-penetrations" of fire-rated walls by a combustible material and by the loading of plastic pipe, i.e., "stacking", in high-rise construction.

His concern proved to be prophetic after the tragic fire at the MGM Las Vegas in November 1980. News accounts

and independent investigations on the Nevada fire led the State Fire Marshal to conclude: "... plastic pipe may have played a contributing role in...(the) tragic fire...in Las Vegas, and many news accounts describe the precise problems I alluded to in my reports to the (State Housing) Commission." (See Exhibit 1.) The Fire Marshal went on to "strongly recommend" specific research and standards evaluation prior to any approval of plastic pipe for high-rise construction.

## II

### HEALTH HAZARDS FOR WORKERS

In May 1980, the California Department of Health Services did the first compilation of medical literature and research data on the potential hazards to workers when exposed to the wide variety of toxic chemicals found in plastic pipe and glues. As with the State Fire Marshal, the Health Department's effort was the first major push by an independent governmental agency to fully evaluate heretofore disparate and complex chemical data. Their conclusions (see Exhibit 2) are wide-sweeping and "suggest the possibility of serious and previously unrecognized health effects among workers who install plastic pipe....Consequently, it is not clear that such pipe can be used safely under present conditions."

Unfortunately, but not unexpectedly, the petrochemical industry deliberately misrepresented the major findings of the Health Department, specifically Cal/OSHA. The Plastic Pipe and Fitting Association (PPFA) went to such an extreme in twisting and contorting the facts on plastic pipe that on March 5, 1981, the Deputy Chief for Health of the California State Occupational Safety and Health Administration wrote to the California Housing Commission to correct

the false information. "...The PPFA has inappropriately extracted parts of our overall study, developed misleading statements and made these available to the press." (Exhibit 3.) Dr. Wade continued, "...we carefully identified what is known of the real and potential toxicity of these materials as well as the areas where we have inadequate information." He re-emphasized the importance for "all interested parties" to look at the evidence collected "in total" as presented in the May 1980 report.

The California Health Department in November 1980, publicly testified on the relevance of its May 1980 "Interim Report":

"We think further study is urgently needed about the possibility that some events in and around the construction of pipes, particularly, and the pipes that we have been studying may be associated with increases of cancer in workers, particularly lymphomas.... We also have a long list of adverse effects." (Reporter's Transcript, Commission on Housing and Community Development Hearing, November 24, 1980, p. 70.)

The health survey of plumbers in California reported, among other things, 54 lymphomas out of approximately 10,000 respondents. This staggeringly high rate of lymphoma drew the specific attention of the USC Medical School where the country's foremost research in lymphoma is being conducted.

In late 1980, Alexandra Levine, M.D., after an analysis of the biological slides and medical records of the first five cases submitted to the medical school, commented: "It is noteworthy to me that all five of these patients with documented diagnosis of lymphoma have had quite extensive exposure to plastic materials which were used during the course of their work." (Exhibit 4.)

In sum, the medical research conducted by the California Health Department, the Occupational Safety and Health Administration, USC Medical School and others, clearly documents the potential for serious, long-range health problems from worker exposure to plastic pipe and its glues.

### III

#### ENVIRONMENTAL CONTAMINATION

Perhaps the most frightening aspect of the multi-faceted issues with plastic pipe concerns general environmental contamination. The toxic chemicals in plastic pipe and its cement solvents appear to be capable of leaching into the environment and thereby causing unalterable damage to our plants, our aquatic life, and our food chain.

For example, a study done by the California Analytical Laboratories and reviewed by the State Department of Health Services, documents the previously unknown presence of "impurities" in plastic pipe. The impurities include known carcinogens such as chloroform, benzene, DEHP, acrylonitrile, and styrene, as well as other toxic chemicals on the EPA list of priority pollutants. (Exhibit 5.) This poses not simply a human health risk to workers who install plastic pipe, but as discussed in more detail below, to consumers who drink water from plastic pipe. Furthermore, it points to a definite risk to the environment generally from the waste discharge of water flowing through plastic pipes. The subject chemicals will add to the existing load of pollutants known to have serious environmental effects because they display all of the characteristics of such chemicals: they can be accumulated in living organisms

and food chains, and may be widely dispersed in the environment.

Policy makers may find it helpful to reflect on the numerous requests from public interest groups -- consumer groups, environmental coalitions, womens groups, public interest lawyers -- who have called for comprehensive analysis and evaluation of these potential long-range contamination factors before plastic pipe use is allowed to expand.

(Exhibit 6.)

IV

PLASTIC PIPE FOR POTABLE WATER

(Poly Vinyl Chloride [PVC]  
and Chlorinated Poly Vinyl Chloride [CPVC])

In the course of its exhaustive research of the scientific literature on plastic pipe, the California Department of Health Services found a previously unheralded article indicating that plastic pipe leaches its solvents into the drinking water. To confirm the potentially incalculable health consequences of this article, the Department of Health Services commissioned the Montgomery Testing Laboratory to conduct the first government sanctioned study to measure the amount of solvents that leached into drinking water from plastic pipe.

The landmark Montgomery test is highly controversial because it simply provides raw test data. Moreover, because the simulated pipe configuration test incorporated an arguably improperly designed pipe "fitting density," experts in the State Department of Health Services estimate the possibility of a 50 percent sampling error. That is, the results of the Montgomery tests may be understated by as much as 50 percent ("Final Report on Potential Health Hazards Associated with the Use of Plastic Pipe in Potable Water System," Department of Health Services, p. 16).

Yet, even with a conservative evaluation of the data, alarming interpretations result. The Department of Health Services stated in their final report:

"With the possible exception of the leaching of the phthalates (DEHP), the principal public health finding of this study is the possibility of excessive amounts of solvents and carbon tetrachloride, chloroform and tetrachlorethene accumulating during the stagnant period between initial installation of plastic pipe and occupation of the dwelling." (Exhibit 7.)

The other conclusions in the final report of the Department of Health Services are tremendously complex and must be viewed in their proper context. For example, extensive "flushing" of the system "may" decrease the risk of abuse from the solvents leaching into the water. However, some of the so-called "volatile organic" chemicals in plastic pipe itself "can accumulate in chlorinated water" notwithstanding the flushing requirement. (See Exhibit 7, p. 35.) One of these chemicals (carbon tetrachloride) was present in the water at 10 times the EPA action level. Other equally dangerous chemicals (chloroform, tetrachloroethylene, DEHP) found at equally high and dramatic levels may not be reduced by flushing. For example, the Department stated:

"Because the possibility exists that some of these elements (carbon tetrachloride, chloroform, and tetrachloroethylene, DEHP) may be coming from the pipes themselves, particularly plasticizers, there is every possibility that they could build up on a longer interim after the initial flushing."

(Reporter's Transcript, Commission on Housing and Community Development Public Hearing, November 24, 1980, p. 76.)

So damaging were the findings of the Montgomery tests and the Department of Health Services' evaluation, that the Plastic Pipe and Fitting Association (PPFA) proceeded to initiate a nationwide media strategy to "explain" the results.

In a January 19, 1981, letter from the National Association of Plumbing, Heating, Cooling Contractors (PHCC) to Dr. Marc Lappe', California Department of Health Services, the PHCC Technical Director complained to the California Health Department as to the reliability of the PPFA's explanation that the Health-commissioned tests showed plastic pipe and its glues were safe. The Contractors had received a number of inquiries from their members concerning the trustworthiness of the Plastic Pipe and Fitting Association's news accounts. The Technical Director of the Contractors requested back-up support information from the Plastic Pipe and Fitting Association. The information provided by the plastic pipe industry apparently

was so poorly drafted, with unsigned reports, and missing data, that the Contractors decided to request review from the California Department of Health Services. In asking for Health Department reviews, the Contractors commented: "It is interesting to note how your report is reworded (by PPFA) or interpreted to mean something rather different from what was generated by your organization."

The California Health Department response (Exhibit 8) to the Contractors' request was directly to the point. According to Health, the Plastic Pipe Association's reports were "flawed," "incomplete" and "do not reflect accurately our own interpretation of the findings." The California Health Department reached "totally different conclusions regarding potential risks than did this (unidentified industry group of toxicologists) review committee." The PPFA press release was "factually in error and seriously misleading regarding our findings."

In particular,

1. "PPFA did not submit Table 19 of the Montgomery Study to PHCC which "contained the highest readings on chemicals of concern to us, and substantially changed our analysis of the final results. (Table 19 attached for comparison.)"
2. PPFA's characterization that "solvent levels did not exceed safety values "severely distort(s)"

the actual findings of the (Montgomery) Report." Specifically, the Health Department found that "solvent levels did exceed recommended (safety) values..."

3. Contrary to PPFA assertions that some chemicals found in the Montgomery tests were not found in the pipe but were induced from sloppy laboratory procedures, the Health Department stated "we resolved (that) issue...by repeat testing and concluded that the evidence pointed to the pipes or a combination of pipes and solvents as the source of DEHP and not laboratory artifact."

In a nutshell, the California Health Department found that the Plastic Pipe and Fitting Association had seriously misrepresented the real health and safety dangers with drinking water coming from plastic pipe.

As with the worker safety question, the plastic pipe industry again distorted, misrepresented, and inaccurately quoted California governmental reports on health and safety to the extent that each of these governmental agencies had to specifically correct the record. It is no wonder that the Director of the California Department of Consumer Affairs recommended:

"It would be unwise to decide now to expose Californians in their homes to what may be an extremely serious health hazard." (Exhibit 9.)

POLYBUTYLENE PIPE FOR POTABLE WATER

Since the Montgomery test for plastic pipe drinking water safety was based on the hypothesis that solvents used to cement these plastic pipes leached toxic chemicals into the drinking water, the Department of Health Services did not request a study of polybutylene (PB) as this pipe does not require solvents for installation.

Yet because polybutylene is part of the generic plastic pipe grouping, it may have many of the same additives, stabilizers and plasticizers as PVC, CPVC and ABS.

In early 1981, the California Department of Consumer Affairs petitioned the State Housing Commission requesting the same stringent testing for PB as the Commission mandated for CPVC and PVC. In this context, the California Health Services Department analyzed the first research conducted on PB pipe itself. The results were alarming. (See Exhibit 10.)

In particular, the tests conducted by the California Analytical Laboratories found 50-500 ppm (parts per million) of DEHP (a known animal carcinogen) in the pipe itself. The United States Environmental Protection Agency (EPA), in a document published at the end of 1980 entitled "Priority Review Level 1 - Di-(2-ethylhexyl) Phthalate (DEHP)," recommends "appropriate action(s) under the Toxic Substance

Control Act, section 6 to prevent or reduce the carcinogenic risks from exposures to DEHP." (page 129).\* Subsequent tests on other polybutylene pipe used for flexible connections to plumbing fixtures also found DEHP. (Exhibit 12.)

The results were all the more disturbing because the representative of Shell Chemical Company had testified on the public record that polybutylene pipe did not contain DEHP. The combination of Shell's apparent discrepancy in testimony and the data developed by California Analytical Laboratories finding DEHP, led the Department of Health Services to state:

"It is disturbing that the (State Housing) Commission was given such apparently misleading testimony (by Shell), since the potential leaching of this compound (DEHP) if present in the type of polybutylene used for potable water poses a potential health hazard to consumers."  
(Exhibit 13.)

The Department of Health Services went on to conclude that "obviously this situation deserves immediate at-

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\* The same EPA document reviewed the DEHP data from the Montgomery Tests on PVC and CPVC. (The test on PB had not been completed.) This document commented: "these data represent the most reliable data on levels or potential levels in drinking water from DEHP containing plastic pipe."  
(Exhibit 11.)

tention because of the health risks at stake."

To counter this substantive finding, Shell Chemical Company commissioned a first test to be conducted by Radian Labs of Austin, Texas. (Exhibit 14.) While purporting to show the absence of DEHP or any other toxic chemicals, the company's first test was so flawed as to be of little value. (Exhibit 15.)

At the April 20, 1981 public hearing before the California Housing Commission, the representative from the State Department of Health Services stated unequivocally that the chemical found by the California Analytical Labs was "without question" DEHP. Furthermore, the Health Department spokesperson specifically identified a three-member panel within the Health Department which had reviewed the California Analytical Laboratories Test. This impartial panel found the test to comply with strict EPA testing protocols and to be scientifically valid. The Health Department went on to assert that DEHP was also found, in smaller amounts, in Shell's own tests of the PB pipe conducted by Radian Labs.

Presumably embarrassed by the results of its first test, Shell Chemical Company conducted a second test on its product through the Radian Lab. Unfortunately for the industry, the second test revealed "unknown" chemicals that "have to be evaluated," according to the April 20, 1981

testimony of the Department of Health Services.

In a June 15, 1981 letter, the Department of Health Services expressed "cause for concern" to Shell with the chemicals BHT and alkylbenzene sulphonate, both of which were found in the Radian Lab tests.

"Recent studies have shown that chronic, relatively low level ingestion of BHT can lead to reduced weight gain, increased liver size and raised serum cholesterol in a number of separate animal tests. Other studies have shown reduced litter size following exposure during embryonic development." (Exhibit 16.)

As of this writing, no additional information has been supplied on these chemicals for the Housing Commission's public record.

In conclusion, the Housing Commission agreed with the Department of Health Services, their own Director of the State Department of Housing and Community Development (Exhibit 17), and the Director of the State Department of Consumer Affairs (Exhibit 18) that polybutylene should not be authorized for use until the plastic pipe is thoroughly and impartially studied. (Exhibit 19.)

## VI

### CONCLUSION

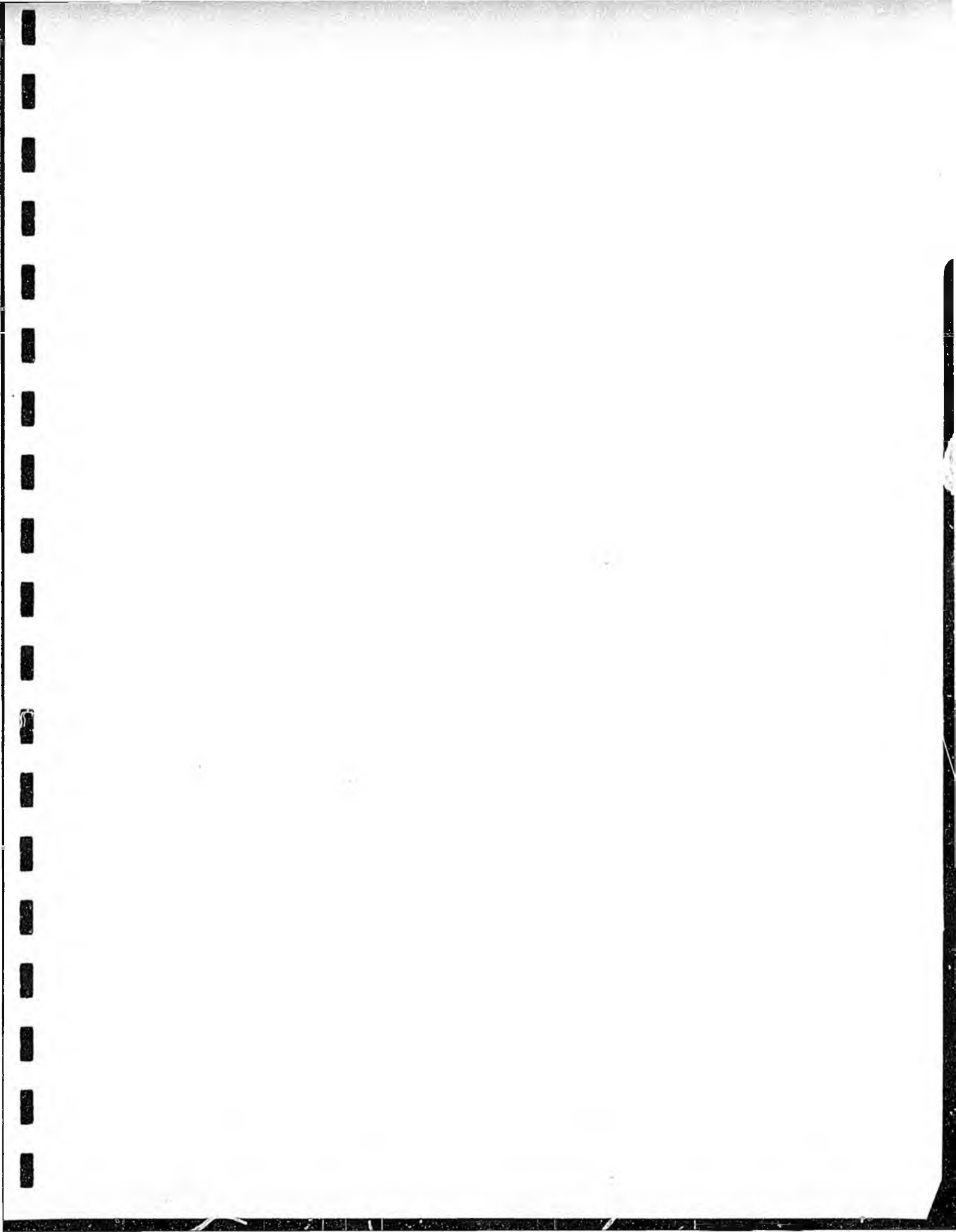
It is now clear that every major California state governmental agency that has an interest in construction, including the State Department of Consumer Affairs, the State Department of Health Services, the State Department of Housing, the State Occupational Safety and Health Administration and the State Commission on Housing and Community Development, all advocate comprehensive analysis and evaluation of plastic pipe through the rigorously scientific and public procedures of the California Environmental Quality Act (CEQA) before any expansion of use is permitted. To do otherwise violates California law:

"An adopting agency cannot avoid compliance with CEQA by adopting a 'model' code by reference where the code contains material that was previously found to be subject to CEQA. To do otherwise would violate both the State Building Standards Law and the California Environmental Quality Act." (Exhibit 20.)

Furthermore, major health, consumer and environmental interest groups, specifically the Sierra Club, the

Consumer Advisory Council, Women For, the Center for Law in the Public Interest, have unanimously called for plastic pipe to be scrutinized for long-range health and environmental contamination before plastic pipe is permitted for widespread use.

PART TWO: EXHIBITS



## STATE FIRE MARSHAL

7171 BOWLING DRIVE, SUITE 800  
SACRAMENTO, CALIFORNIA 95823

(916) 322 2370  
ATSS 492 2370



March 31, 1981

Myron Moskowitz, Chairman  
Commission on Housing and  
Community Development  
921 Tenth Street  
Sacramento, California 95814

Dear Mr. Moskowitz:

I have been informed that the Commission on Housing and Community Development has decided to conduct an Environmental Impact Report (EIR) for ABS and PVC when used for drain and waste piping. I believe that the EIR presents our best opportunity to study many of the fire-related issues I spoke of in my May 1980 paper, "Fire Hazards of Plastic Pipe", and I would strongly recommend that the Commission address fire safety as part of its report. I would further recommend that a study of vent piping be included as well.

As the enclosed articles suggest, plastic pipe may have played a contributing role in last November's tragic fire at the MGM Grand Hotel in Las Vegas, and many news accounts describe the precise problems I alluded to in my reports to the Commission. Further, my office is presently reviewing all available documentation on the fire, and I am reconvening a Task Force to evaluate the whole question of fire safety in high rise buildings. The findings of the EIR would be of great help in that review.

In short, I think we have an excellent opportunity, through the EIR, to look objectively at the fire safety issues raised by the proposed increased use of plastic pipe. I hope you agree.

Sincerely,

A handwritten signature in dark ink, appearing to read "Philip C. Favro".

PHILIP C. FAVRO  
State Fire Marshal

PCF:cog

Enclosure

## Report: Hundreds Of Violations Fueled Tragedy At MGM

LAS VEGAS, Nev. (UPI) — Hundreds of building code violations that contributed to the intensity of the MGM Grand Hotel fire have been found by investigators, the Clark County Building Department reported Wednesday.

Eighty-four people died in the blaze that sent killing smoke and gases through the 25-story tower on the Las Vegas strip Nov. 21, forcing about 4,500 guests to flee.

Most of the victims died from smoke inhalation and the Building Department report blamed hotel construction, which did not meet county codes, for the rapid spread of smoke and fire.

"Code violations exist throughout the complex and hundreds contributed adversely to the life safety of the occupants," Building Department Director Robert Weber said in the preliminary report.

The four-page document represented 600 hours of inspections of the hotel and reviews of building plans, Weber said.

The document described structural irregularities that drew smoke up elevator shafts, stairwells and through every floor of the resort.

Holes in air shafts and ducts that lacked fire dampers provided smoke and flames avenues of escape, it said.

The report pinpointed other violations, including improperly ventilated air shafts, holes in corridor fire walls, plastic pipes, and large holes cut into interior stairways.

The design of some hotel safety systems, including exits, emergency lighting and signs, were in violation of county codes, according to the report.

"Sign visibility, illumination and mounting for proper viewing and shortage of directional signs were extensively inadequate," the report said.

Stairways, exits and corridors were improperly constructed and not protected by adequately fire-resistant materials, and the resort lacked smokeproof stairways required for buildings more than 75 feet tall.

MGM Grand spokesman Bill Bray said management would have no comment until they examined the report.

Another report, released by the Clark County Fire Department, said the blaze was caused by a short circuit behind the wall of a serving station near the delicatessen, not in the ceiling of the restaurant as originally believed.

The report said the fire probably burned for two to three hours before it was discovered.

The first employee to notice the flames immediately turned to leave the room and report the blaze, but was knocked to the floor by a backdraft, the Fire Department report said.

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The first employee to notice the flames immediately turned to leave the room and report the blaze, but was knocked to the floor by a backdraft, the fire department report said.

The employee grabbed a fire hose and tried to extinguish the blaze, but he was knocked to the floor by a second backdraft, and remained unconscious for two or three minutes, the report said.

# A Fire Dissected: What Caused MGM Grand Blaze

LAS VEGAS—It was a splashy production, worthy of its movie-maker parent, Metro-Goldwyn-Mayer—literally dripping in glitter and glamor and sparkle.

No expense was spared to offer the finest decorations, the richest appointments, the ultimate in opulence in the 26-story hotel-casino—the largest in the world when it opened in 1973.

But like a Hollywood movie set, everything at the MGM Grand Hotel was not what it seemed to be. The ornate polished wood trim was not all wood, the gleaming marble not all marble, the imported crystal chandeliers not all crystal. Many items, in fact, were flammable plastic.

The casino was so loaded with synthetics and structural quirks that it produced the most intense fire many investigators said they had ever encountered. It was, one fire official said, "a torch waiting to go off."

On the morning of Nov. 21, it did.

What began as a minor fire near the kitchen area became a 1,500-degree inferno. Within minutes, virtually everything in the 50,000-square-foot casino was con-

sumed. Smoke and toxic fumes surged into the adjoining high-rise hotel, turning rooms, corridors, elevators and stairwells into gas chambers.

Eighty-four persons died. It was the second deadliest hotel fire in U.S. history. And, along with a rapidly spreading blaze that killed 26 persons in a New York

When fire raced through the MGM Grand Hotel in Las Vegas a month ago today, it left behind piles of ashes, rubble and questions. In this special report, Times Staff Writers Bob Senter, Gaylord Shaw and Ronald L. Soble examine how the second-worst hotel fire in U.S. history occurred in a building that had been certified as safe.

hotel conference center two weeks later, the Las Vegas fire raised disturbing questions about a patchwork regulatory system intended to ensure fire safety.

Owners of the MGM Grand said the hotel was designed and built to comply with all building codes and fire regulations in force in 1973. On-site building in-

spectors said construction work met the codes, and fire inspectors said they discovered no major problems before the disaster.

How, then, did fire and smoke spread so rapidly through a structure certified as safe?

Since the fire one month ago today, Times reporters have examined thousands of pages of documents and interviewed scores of witnesses, fire experts, public officials and hotel employees. The inquiry found that:

—Half to three-fourths of the casino's furnishings and decorative trim was made of plastic or other synthetics, one investigator estimated. These petroleum-based substances burned so intensely that temperatures within the casino were roughly three times greater than the volcanic heat that scorched the slopes of Mt. St. Helens last spring.

—Although such high-occupancy buildings are supposed to be designed to retard the spread of fire and smoke, the design of the MGM Grand appears to have aided the spread of flames and allowed smoke to billow uncontrollably throughout the hotel.

—Sprinklers protected some restaurants, show rooms and the hotel's shopping arcade—and halted the fire there—but did not extend a few extra feet into the delicatessen, where the fire started, or into the casino, where it expanded.

—No fire-resistant barriers to contain the flames were installed in the casino's cavernous attic, which was crisscrossed by flammable plastic plumbing and wiring. The barriers would have made it harder to use the attic as an "eye in the sky" to spy on casino cheaters and would have dammed up part of the hotel's heating and air-conditioning system.

—Several investigators said that (1) the air-conditioning system did not have a sensor, which they interpreted the building code as requiring, to shut it down automatically and thus avoid the spread of smoke; (2) vents atop elevator shafts and stairwells appeared to be inadequate; (3) a vertical ventilation shaft in the core of the hotel helped carry smoke into corridors, and (4) louvers above guest room doors allowed smoke from the

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corridors to enter the rooms.

—Construction of the building was rushed. It opened 18 months after groundbreaking, a remarkable feat for a structure containing 2½ million square feet. In the "fast-track" construction process, some corners were cut as dozens of subcontractors drew their own designs and selected their own construction methods. The reason for the hurry, said the president of the supervising construction firm, was "so you can make money sooner."

—On-site inspectors for the county building department did not report design or construction problems that figured in the disaster. The department's director—who resigned in 1976 during a grand jury investigation of irregularities in construction of other hotel-casinos—took no action on a fire official's suggestion that sprinklers be required throughout the MGM Grand. The director repeatedly sparred with fire officials over trying to pressure other hotel-casinos into upgrading their fire safety equipment.

—County fire marshals found a host of safety discrepancies in the MGM's kitchens this year, but failed to follow through fully on their investigation. Only three inspectors are assigned to police 29 hotel-casinos on the Strip. At MGM Grand they missed what fire officials characterized as serious code violations.

—Some hotel employees said they never received training on what to do in case of fire, and investigators said no printed fire instructions were given to guests or posted in rooms. The hotel's fire alarm never sounded before it was destroyed by the fire. To screen out false alarms, one investigator said, the system was set up so that it would not ring immediately.

#### Possible Code Violations

Since the fire, dozens of lawsuits seeking hundreds of millions of dollars in damages have been filed against MGM, and local prosecutors have been studying whether charges should be filed. Clark County Dist. Atty. Robert J. Miller said his office would decide within a few weeks whether to pursue criminal or civil actions. "We're looking into possible code violations," he said, specifically mentioning "holes in walls" in stairwells.

The prosecutor was referring to the post-fire discovery, reported by Clark County Fire Chief Roy L. Parrish and other investigators, of five openings that had been cut in stairwell walls. Under the building codes, such openings are prohibited because these walls are supposed to be built to resist fire for at least two hours.

"There were many, many code violations," said a high-ranking investigator after touring the building. "Some were serious and some were not so serious."

Among other potential violations cited by investigators were a lack of roof hatches for interior stairwells, inadequate firewalls between kitchen and casino areas, use of the wrong type of gypsum board to line an exitway near the casino, impro-

per attachment of a sprinkler in one stairwell and too few exits for the huge casino.

Investigators said it is difficult to trace responsibility for the possible code violations or for the design features and construction problems that have been identified as contributing to the disaster. This is because of numerous building changes that have taken place in the seven years since the hotel opened and because the "fast-track" construction method meant scores of subcontractors shared major responsibility for construction details.

The hotel's chief executive officer, Fred Benninger, declined a request for an interview. The chief architect, Martin Stern Jr. of Beverly Hills, and the project architect, Joel Bergman, also declined to discuss their work. Because official investigations are continuing, fire officials also are guarded in what they say about the MGM blaze. But Chief Parrish told The Times.

"It was a textbook fire that, given the right circumstances and conditions—which existed in this particular building—caused the rapid spread. . . .

"What I mean is, a textbook fire could be set up under laboratory conditions to do that, or it could mean it does not necessarily have to be a laboratory situation. It's something that we know that under the right conditions could happen. And it did."

#### Same Building Code Involved

Parrish said the same circumstances exist in other buildings "in other cities—it's a fact."

Indeed, experts say the same basic building code in effect in Clark County at the time the MGM Grand was constructed also was in effect in hundreds of other local jurisdictions across the country.

While there are no uniform federal standards for construction—it is a process which, like licensing automobiles, is left to state and local authorities—an estimated 18,000 jurisdictions have adopted much of the language in one of the four model building codes written by regional or national organizations.

In some cases, local officials set tougher standards than those outlined in the model codes. This has happened in Los Angeles where, for example, sprinklers are required in all new buildings over three stories and where many existing high-rise buildings have had to install basic fire safety features.

But, the sponsors of the model codes acknowledge, the most serious problems come in the enforcement of the standards. "No code is worth a plugged nickel if it isn't enforced, and that's what's happening in too many places," one official said.

The two recent major hotel fires brought orders from the governors of both New York and Nevada for a re-examination of the adequacy of their states' codes. Clark County is moving to require all existing hotel casinos to install sprinklers—as is now required in new construction—but many experts doubt there will be significant changes elsewhere.

Gordon Vickery, head of the U.S.

Fire Administration, said a federally imposed system of building standards is unlikely. "I don't think with the current political climate that it's in the cards," he said.

Vickery said there are more than 12,000 hotel and motel fires a year, causing \$90 million damage and claiming an average of 160 lives. "We usually lose people by ones and twos," he said, "and the public doesn't pay much attention until disasters like these come along."

The Las Vegas tragedy apparently began in one short stretch of the 1,895 miles of wiring—equal to the distance from Las Vegas to Detroit—which was installed throughout the complex. Investigators theorize that the wiring in the delicatessen, which was closed at the time, overheated and began arcing, and that for some reason circuit breakers did not shut off the current. Unnoticed, heat began building up from the small, smoldering fire in the wall and ceiling cavity.

#### Looked for Fire Extinguishers

Shortly after 7 a.m., Jack Kenigson, a retired Redwood City, Calif., car dealer, entered the coffee shop and ordered breakfast. Before his food arrived, several waitresses rushed from the kitchen yelling: "Get the hell out!" Kenigson said he fled just in front of a "tremendous cloud of black smoke . . . (and) a big ball of flame."

Dave Beshoar and Kurt Schleuter also fled the coffee shop. But the two members of the Western Springs, Ill., firefighting force did not just run for the exits. They scurried up and down a nearby hallway

looking for fire extinguishers. Finally, as the fire got too intense, they ran toward an open emergency door.

"I was looking back toward the casino floor," recalled Beshoar later. "There were employees still out there and other guards carrying drop (cash) boxes were running out the door. Suddenly there was a loud click, like a circuit breaker cutting out, and the lights went out in the casino. All of a sudden the heat started pouring out like a blast furnace. You could see the flames rolling out of the deli at the ceiling level toward the casino. That's when we left."

#### Preliminary Findings Discussed

The casino's ruins still were smoldering when the first of what would become an army of investigators arrived. Vickery's U.S. Fire Administration recruited a 12-man team of experts to supplement local and state probes. Then several dozen other investigators—many considered among the nation's top authorities in reconstructing the cause and spread of fires—spent days inspecting the hotel and casino after being retained by lawyers in behalf of fire victims.

The experts are awaiting the results of chemical and other sophisticated tests on materials they collected at the scene, but a number of them discussed their preliminary findings on a not-for-attribution basis.

They all agreed that the fire started in the deli area and smoldered for hours before breaking into the casino. Once that happened, according to one expert's reconstruction, the flames quickly reached a 40-foot-long plastic awning stretching above the Parisian Bar. That awning, he said, "burned like gasoline."

The casino's red-painted ceiling tiles, witnesses reported, also seemed to burn vigorously. One investigator said the tiles were a combustible type of fiberboard, and another said they were "unrated"—meaning they had not been classified for fire resistance.

Also spurring the fire spread was the ceiling's decorative trim. The trim looked like ornately carved, highly polished wood, but several investigators said it actually was rigid polyurethane, a cellular plastic commonly known as urethane.

#### Urethane Used Widely

(Urethane has come into widespread use in the last two decades—not only in construction as trim and insulation but, in its flexible form, as a soft padding used in furniture and mattresses. The substance is a major concern of fire officials because some formulations burn hotter than wood and twice as fast, melting and flowing as a flaming liquid and generating dense smoke and toxic gases. Although its flammability problems were becoming well known to architects and builders in the early 1970s, building codes

placed no restrictions on its use as decorative trim when the MGM Grand was constructed.)

At the same time flames were beginning to sweep along the casino's ceiling, investigators said, fire also was spreading in the attic-like area between the casino ceiling and the roof. There, catwalks, television cameras and two-way mirrors had been installed so security personnel could monitor the gamblers below. And there also, according to several sources, a network of pipes had been suspended from metal hangers to drain rain water from the casino's nearly flat roof. Two 12-inch pipes apparently extended almost the full length of the casino attic, intersected by a series of 4-inch pipes. Like the trim on the other side of the ceiling, these pipes were plastic.

#### Pipes Released Smoke, Gas

More precisely, investigators said the pipes were of a formulation known as ABS, an abbreviation for acrylonitrile-butadiene-styrene. When such pipe burns, according to a National Science Foundation report published last year, "it releases relatively large quantities of smoke and gases . . . it provides heat for increasing the intensity of the fire . . . it may provide a path for flame spread along its surfaces and . . . it may leave open holes at wall or ceiling penetrations . . . (which) could provide a route for passage of hot flame and gases between rooms."

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One nationally recognized fire expert said such plastic pipe above a ceiling could "spread the flames like a rain of fire."

Every official and private investigator interviewed by The Times said there was no evidence that any "fire stops" had been built in the attic space, which covered an area nearly 500 feet long, more than 100 feet wide and at least 12 feet high. Fire stops are partitions of fire-resistant materials, such as gypsum wallboard, which are designed to slow the spread of fire.

#### Fire Stops Not Required

But they apparently were not required by building codes at the time the MGM Grand was built, and court documents indicate that—rather than install sheet-metal ducts—the designers decided to rely on the cavity between the ceiling and the roof as a huge "plenum" to recirculate air for heating and air conditioning.

If fire stops had been erected, the attic could not have been used to convey air. And it would have been more difficult to use the space for the security catwalks, the plumbing pipes and the extensive network of electrical and communications cables—most believed to have been insulated with polyvinyl chloride (PVC), another plastic that in some formulations emits toxic fumes when exposed to fire.

Thus, flammable plastics lined both sides of the casino ceiling. Missing from the ceiling, though, were the small, inconspicuous sprinkler heads that could have doused the fire before it became a major conflagration.

#### Parts of Complex Had Sprinklers

Parts of the MGM Grand complex did have sprinklers—the small membership-only casino set aside for high rollers on the 26th floor; the stage areas of the show rooms where big name entertainers performed; the arcade where expensive shops beckoned conventioners and tourists; even the Barrymore Room, a restaurant that adjoined the deli area where the fire started.

One veteran fire investigator was appalled when he discovered that sprinklers stopped a few feet from the fire's origin. "If they had spent a few hundred dollars to extend the piping for sprinklers, they would have put it out in the first five minutes," he said.

Hotel officials said at a news conference two days after the fire that they had met or exceeded sprinkler requirements in the building code when the hotel-casino was constructed.

In early 1980, when the corporation began work on renovation of parts of the first floor of the existing building and construction of an addition, the architect made clear that he had no intention of adding sprinklers to the casino.

In a letter last Feb. 25 to the county building department, Fred D. Anderson of Stern architectural firm said

construction would be sprinklered but that "remodeled areas on the first floor . . . will remain as they are . . ."

"By copy of this letter to Chief (Fire Marshal) Jim Barrett, I am requesting that he acknowledge that there

is no legal requirement to separate or add fire sprinklers to the existing facilities," Anderson concluded, underlining the word "legal."

But at least one expert instrumental in drafting the building code adopted by Clark County three years be-

fore the MGM Grand opened said it was his intention that fire sprinklers be required for casinos.

John G. Degenko of Glendale, a retired Los Angeles fire official who now is a fire protection engineer and  
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# MGM: More Died of Smoke Inhalation Than of Burns

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consultant, in 1969 drafted an amendment to the uniform building code requiring sprinklers in exhibition halls and similar areas with more than 12,000 square feet of floor space. The revised code was adopted by the International Conference of Building Officials that year—and by Clark County in 1970.

## Casino Not Referred to in Code

The word "casino" was not specifically used in the revised code, and the district attorney's office recently ruled that the 1970 code did not mandate casino sprinklers. Nonetheless, Degenkolb said "I know what I meant when I wrote it. My firm recollection is that we intended it to apply to casinos. As far as I'm concerned it was completely understood that a casino over 12,000 square feet should be sprinklered."

Whatever the understanding of national building code authors, the MGM Grand casino was not sprinklered at breakfast time Nov. 21 when flames broke out of the restaurant area and spread unchecked through the gambling palace.

The blaze reached the "flashover" stage—the point where a fire begins to feed on its own gases and expands explosively—just as the first firefighters arrived from a station directly across the street from the hotel. One firefighter said he was confronted by "a huge fireball" and another said flames were spreading "like a blowtorch." By several accounts, it took from one to three

minutes for the entire casino—an area half again as large as a football field—to become totally involved in the fire.

Urethane foam padding in furniture, felt table tops and expanses of flocked wallpaper all "contributed to the intense fire," one official's report said. Another investigator estimated that 50% to 75% of the furniture, fixtures and other materials in the casino were synthetic, many of which burn readily.

Out of the 84 persons who perished, only eight died of burns in the casino or the hotel's first floor. One woman jumped to her death, and all the others died of smoke inhalation, most of them in rooms, corridors or stairwells on the upper floors of the hotel.

It is the rapid spread of lethal smoke that most disturbs some investigators, who since the fire have sought clues to why and how it happened.

## Shaft Supplied Air to Corridors

Two investigators said they found that at least one of the 12-inch plastic drain pipes in the ceiling was routed near a ventilation shaft located behind the elevator bank adjoining the casino. They said this led them to believe that as the pipe burned and melted, it spread toxic fumes into the shaft, which extended vertically to the top floor.

The shaft, they said, apparently was designed to supply air to corridors in the three wings of the T-shaped high-rise. From the corridor, air was drawn into guest

rooms through louvers above each door, they added. While these louvers were equipped with devices intended to snap them shut in the presence of fire, they were not activated by smoke alone—meaning that they remained open and provided a ready conduit for smoke to move from the hallways to the guest rooms.

The high-rise elevator shafts themselves also were cited as conduits for smoke by Emmet D. Condon, deputy chief of the San Francisco Fire Department, in a report he made Dec. 8 after inspecting the hotel.

## Some Pipe Chases Improperly Sealed

The shafts, he wrote in the document obtained by The Times, acted "as conduits from the casino area charging the upper floors with smoke. . . . The eight high-rise elevators serving the upper floors had a three-eighths inch gap around the doors which amount to an area over four square feet on each floor through which toxic smoke and gases penetrated. . . ."

In addition, Condon reported, "some vertical pipe chases (for plumbing and electrical conduits) had not been properly sealed where they penetrated floors" and thus allowed smoke to rise in the building.

Two of the six stairways "had holes cut through the walls in five places that permitted the passage of smoke and toxic gases to upper floors," he wrote, and the bottom five floors of one stairwell were lined with a wall-board that was not rated as adequate for fire protection. The three stairways in the interior of the building also

had no access to the roof and "extremely limited" ventilation at the top, Condon's report said.

"The recirculating air-conditioning system was also carrying smoke into guest rooms" because it was not turned off when the fire began, he said.

Although the fire itself was confined to the casino and the second floor of one of the hotel's three 26-story wings, "the heat of the smoke and gases that traveled from the casino area up through the hotel was of such intensity that sprinklers in a small casino on the top floor" turned on automatically, Condon wrote.

## A Building in a Hurry

From its conception, the MGM Grand was a building in a hurry. Even though it was, at the time, the largest hotel ever constructed, the 2,100-room facility threw its doors open to the public less than 16 months after the first piece of structural steel was laid in place.

So fast and furious was the pace of construction that the work started long before the plans were complete. There was no firm budget for the project until three months before opening day, according to court testimony of Benninger, the MGM chairman.

In a 1978 trial of a lawsuit filed by MGM against one of the project's subcontractors, Benninger testified that the Dec. 5, 1973, MGM Grand opening was nearly seven months ahead of the original premiere date.

At times 1,000 persons were working for the project's nearly 100 subcontractors. Such a massive work force was designed to speed the building to completion, but it also appeared to create confusion.

Court testimony indicated that workers were tripping

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over each other. One subcontractor complained that he had to keep six to eight men working full time just moving his construction materials around so they would not be in the way of other workers. The same subcontractor also contended that pressure to finish the building was so great that his crews assigned to erect the outside shell of the building often were hampered by work already done on the interior—the reverse of the normal construction process.

The reason behind the hurried pace was simple—money.

As Benninger acknowledged in a 1977 deposition, all the "subs" were pressured to finish quickly. "Why?" he was asked. "Well," he replied, "... the carrying costs of construction are horrendous, so therefore, you want to finish as soon as possible."

Stuart J. Mason, president of the construction firm that supervised the entire project, put it even more succinctly in his deposition in the same case. Asked why it was important for the MGM to open on schedule, Mason replied, "So you can make money sooner."

#### Profit 1st Full Year

And make money the hotel did. In 1974, the first full year of operation for the MGM Grand, it turned a net, after-tax profit of \$6.5 million. For the year that ended last Aug. 31, the Las Vegas MGM Grand and its sister, the MGM Grand in Reno, tallied an after-tax profit of \$33.9 million.

Everything about the MGM project implied speed—even the name of the construction process, "fast-tracking."

In fast-tracking, the building starts going up before the plans have been made final. In fact, the definitive building plans are drawn not by the architect or builder, but by many of the subcontractors.

As Mason explained in court testimony, the architect in a fast-track project draws up a set of general plans and specifications for what he wants accomplished and then leaves it up to subcontractors to decide exactly how to do it.

#### Subcontractors Get End Result

"What we basically give them is the end result of the criteria that we want," explained Mason, president of the Las Vegas-based Taylor Construction Co. "We don't tell them how to get there necessarily. Like on air conditioning we would say, 'We want this room to maintain 75 degrees and the room next to it 72 degrees.' We list all the rooms . . . and it is up to them to design the type of system that is going to achieve what we want."

While the subcontractors' plans were required to be submitted to the chief architect for approval, fast-tracking in a project such as the MGM Grand means that there would be, in effect, dozens of architects designing different parts of the building.

Although Mason declined to discuss the MGM project with *The Times* "on the advice of my attorney," a source close to the Taylor firm said fast-tracking could help cut six to nine months off the normal construction time for a project of the MGM's magnitude.

Fast tracking was not unique to the MGM Grand. In court, Mason testified that his company had used it in

building several Nevada hotel-casinos, including King's Castle in Lake Tahoe (now called The Hyatt Lake Tahoe), MGM's Reno hotel and the Las Vegas Hilton, originally named the International when it was built in the late 1960s by elusive financier Kirk Kerkorian and Benninger, his right-hand man. Kerkorian, who owns nearly half of all MGM stock, sold the huge International before effectively taking control of MGM.

Mason said his firm was linked up with the same architect, Martin Stern Jr. AIA Architect and Associates of Beverly Hills, in designing the four facilities.

Bergman, 44, Stern's chief deputy on the Las Vegas MGM Grand, no longer works for Stern. He was reached in Atlantic City, N.J., where he is an architect for the Golden Nugget casino that opened Dec. 9. "It's a sensitive issue and I think you know that," he said, referring all questions to Stern.

"I do not want to seem uncooperative," Stern said in a prepared statement read over the telephone by his secretary. "But I believe that it is inappropriate to comment at this time."

#### MGM Tried to Cut Costs

Appearing opulent, almost extravagant, on the outside, MGM attempted to cut costs and construction time in several ways. For example, it was cheaper to use the huge attic above the casino as a passageway for heated and cooled air rather than to install sheet-metal ducts through the attic to conduct the air. The lack of fire barriers, which could not have been installed in the attic if it was to be used as an air path, helped spread the fire, investigators have said.

Other cost-cutting attempts boomeranged years before the fire. In one instance, MGM hired a California firm called Imperial Glass Co. to build a curtain wall, the glass and metal outer shell of the hotel. The architect's specifications called for structural tests to be conducted on a small mock-up of the wall before the entire structure was erected.

But in an effort to cut costs and speed construction time, MGM and Imperial agreed to eliminate the mock-up, according to records from a lawsuit involving the two firms. After much of the curtain wall was built, it was discovered that it was leaky and not structurally sound, problems that might have been caught early if the originally specified mock-up had been built and tested, testimony in the case indicated.

#### MGM Fired Company

MGM eventually fired Imperial and hired another firm to repair and complete the work, but it cost the hotel more than twice the original price to get the curtain wall up.

Another attempted cost-cutting move involved the decision to substitute a relatively new exterior wall-board system called Rescon to cover the outside walls of the structure instead of the plaster coating called for in the original design.

In testimony in a lawsuit involving Rescon, MGM Chairman Benninger said he agreed to the switch because he was told the new product was cheaper. However, other testimony indicated that neither Taylor Construction Co., the managing contractor for the entire

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Los Angeles Times

## MGM: What Caused Las Vegas Hotel Fire

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hotel project, nor the subcontractor who was to install the Rescon, ever checked to see whether the material had been used on a high-rise building before it had not.

Not long after the hotel opened, the Rescon coating started to crack and fell off the building in several places. Again, repairs to the Rescon alone more than doubled the original cost of the job.

Other evidence presented at the Rescon trial showed that MGM managed to chip a few thousand dollars off here and a few thousand there by deleting other construction materials originally called for in the architect's specifications. In one instance, one work change order called for a savings of \$3,000 by eliminating one layer of gypsum board from walls on three building stair towers. In case of a fire in a stairwell, extra layers of gypsum board could serve to help delay its spread.

Gypsum board also was deleted from the plenum, or attic, area above the casino, testimony showed. George Norms, who served as project supervisor for Taylor on the MGM, testified that the hotel later suffered from draft problems near some attic areas where the insulating gypsum board would have been.

There were other headaches for MGM management and construction personnel. For example, many of the furnishings were weeks late in arriving or were damaged when they were received. According to one affidavit filed in a lawsuit by an electrical subcontractor against MGM, some of the light fixtures ordered by the hotel were difficult to install because "manufacturers' installation and assembly data were sometimes not available and sometimes not printed in English, being either in Portuguese or Italian."

Please see MGM, Page 21

## MGM: 'Fast-Track' Construction Used

Continued from 23rd Page

Still, despite all the delays and problems with erecting the outer shell of the building, it managed to open before the big Christmas and New Year's holiday seasons in December—months before the original target date. No matter that the hotel was only partly completed on opening day, with the honored guests finding chunks of plaster adorning the halls and rooms. The pool, theaters, many guest floors and other hotel features were not finished for several months.

During and after construction of major buildings in Las Vegas, problems have plagued the inspection processes. In fact, in a town where everyone gives odds, the odds are currently stacked against any sort of thorough, periodic inspection of the dozens of large hotels that line the Strip, according to one high-level Clark County fire official who asked that his name not be used.

Giving one of those "little cities" the weeks or months a thorough going-over would take is "impossible" for one man, but—given current staffing levels in the department—it is something for which a single inspector is responsible, the official said.

Fire Chief Parrish plans to ask the county commission to let him hire five additional inspectors. But for now, the department will have to make do with its current force of 11 inspectors—including three rookies and only two men who have ever attended a fire-training seminar.

Only three of the 11 inspectors are specifically assigned to do the thorough, floor-by-floor, inspections of the 29 major Strip area hotels and their maze of shops, restaurants, casinos and guest rooms.

Armed with briefcases bulging with code books, tape

Please see MGM, Page 25

## MGM: 29 Hotels Have 3 Inspectors

Continued from 241b Page

measures, flashlights and other tools of the trade—but no formal safety check lists—it takes three weeks, on the average, to walk through a major Strip hotel. It takes another week to compile the report. More follow-up time may be necessary to make certain violations are corrected.

Because the inspection force was stretched so thin, Fire Department officials last year decided to emphasize the inspection of newly built hotels rather than spend the bulk of their time checking existing ones.

"It's easier to make recommendations on new buildings being constructed," one fire official explained. "But once a building is built what can you do (to upgrade it)?"

As a result, in 1980, only 10 of the Strip's 29 major hotels will have received full Fire Department inspections, *The Times* learned. In those hotels thoroughly checked, 90% of the fire safety code discrepancies were corrected, a department source said.

Only partial checks were done on the other 19 hotels—including the MGM. Kitchens were inspected and guest rooms randomly checked. Show room inspections were just beginning. But the wide-open casinos had not been checked for fire safety violations.

### Inspector's Power Limited

Even when uncovering a condition he believes to be unsafe, a fire inspector here has only limited power to force the hotel to fix the problem. Though the inspector works for the Fire Department, it is the Building Department that has the power to crack down on a hotel—either by levying a fine or by hauling its management into court. High-ranking Fire Department sources said that, until two years ago when former Building Director John Pisciotta resigned under the cloud of a grand jury investigation into his conduct in office, the two agencies were locked in frequent battles over how stringently to interpret building and fire code requirements. Pisciotta routinely argued in favor of less stringent code interpretations, the source said.

Even today, in an era of more amicable relations between the two departments, the process of correcting problems can be painfully slow. To get around the bureaucratic roadblock, inspectors sometimes try to bluff hotels into upgrading equipment.

### Complaints Outlined

Such was the case last April 28 when David Lovelace, a 34-year-old fire inspector with two years experience, wrote an eight-page letter to Paul Ross, the MGM Grand's general manager, citing dozens of fire safety "discrepancies" in the hotel's kitchens. The problems included out-of-position sprinkler nozzles in the hotel's main kitchen, a large hole in the wall in another kitchen, and no maximum occupancy signs in several restaurants, including the coffee shop near where the fire is believed to have started. Lovelace also slapped the hotel with a myriad of citations intended to require a significant upgrading of fire protection for cooking equipment.

In a follow-up letter to Ross on June 11, Lovelace declared that only minor violations had been corrected and that only "20% of the original discrepancies have been corrected." The remaining violations, however, "are life safety hazards and must be corrected as soon as possible," he said.

Interviewed recently about the violations, Lovelace said technicians in the building code would have made it difficult to go to the mat with MGM and force the hotel to make corrections. Because the equipment was certified as proper when it was installed, Lovelace would have had to prove that it had been altered or modified subsequently. To prove that, he would have needed the original installation manuals for the equipment. But he could not obtain them from either the hotel or the manufacturer.

MGM did not buy his bluff. The equipment had not been upgraded by the time the fire broke out, although



JOE KENNEDY / Los Angeles Times

Bradford M. Bowker, now retired, was chief on-site inspector during MGM Grand's construction.

investigators have not linked faulty kitchen facilities with the blaze.

Fire officials lament that, more often than not, citations recommending major safety revisions in existing facilities are brushed aside by managers who argue that their hotels fully complied with all code requirements when they were granted occupancy permits by the Building Department and allowed to open for business. Therefore, they should not be made to comply with new, tougher restrictions put into effect after the hotels opened, the managers argue.

The Fire Department has only minimal involvement in inspecting a building as it goes up. The brunt of that job falls to the Department of Building and Zoning, which was under the control of Pisciotta when the MGM Grand was built.

Most building inspectors in Clark County are hired on an ad hoc basis to work on a specific construction job. Though their paychecks come from the Building Department, the department is reimbursed by either the contractor or owner of the building being erected.

### 8 Inspectors Worked on Hotel

Such was the case on the MGM project, where eight inspectors worked at various times. The chief of the crew was Bradford M. Bowker, a retired Navy rear admiral. At 75 and retired two years from the inspecting business, he is still proud of the work he and the other inspectors did on the MGM Grand.

One of Bowker's subordinates, Jerry F. Hansen, an electrical inspector, said that as far as he could remember everything he checked during construction was up to code.

In fact, said Hansen, who left the department shortly after Pisciotta, the MGM Grand was "on a par" with other hotels built in that period.

Pisciotta, a native New Yorker, resigned in January,

1978, after eight years as building director. He left in the midst of a county grand jury investigation into alleged misconduct in the building and electrical inspections on two new hotels called the El Inca and the Mardi Gras. The grand jury probe was dropped not long after Pisciotta's resignation. That came only days after Clark County Manager Richard Bunker wrote the county counsel that Pisciotta's handling of the two hotel inspections was in itself "sufficient for his discharge."

**Financial Role a Target**

Documents obtained by The Times indicated that a key target of the grand jury probe was Pisciotta's financial interest and partnership role in companies developing the two casinos.

As Building Department chief, Pisciotta had overall responsibility for approving most phases of the construction process, including making certain all plans and revisions were up to code.

Pisciotta, 44, now a private contractor, refused to answer the questions of Times reporters, but he told the Las Vegas Sun shortly after the Nov. 21 fire that he believed the hotel was "one of the best (construction) jobs I've seen."

"I've got nothing to be ashamed of," he told the Sun. "I have nothing to hide. There was no problem at the MGM."

When he resigned his county post, he declared he had been hounded out of office "for nothing other than po-

litical reasons." Two weeks later, he invoked his Fifth Amendment protection against self-incrimination and refused to answer the grand jury's questions.

In the month since the MGM Grand fire, the hotel owner and others—contractors, subcontractors, county officials—have been named in a rash of suits filed on behalf of victims by some of the nation's best-known plaintiff lawyers. These include James L. Fetterly of Minneapolis, who has won several major fire catastrophe cases, Stanley Chesley of Cincinnati, who was a lead attorney in suits stemming from the Beverly Hills, Ky., supper club fire disaster, and Wendell H. Gautbler, a Louisiana lawyer who pressed cases stemming from a rash of grain elevator explosions.

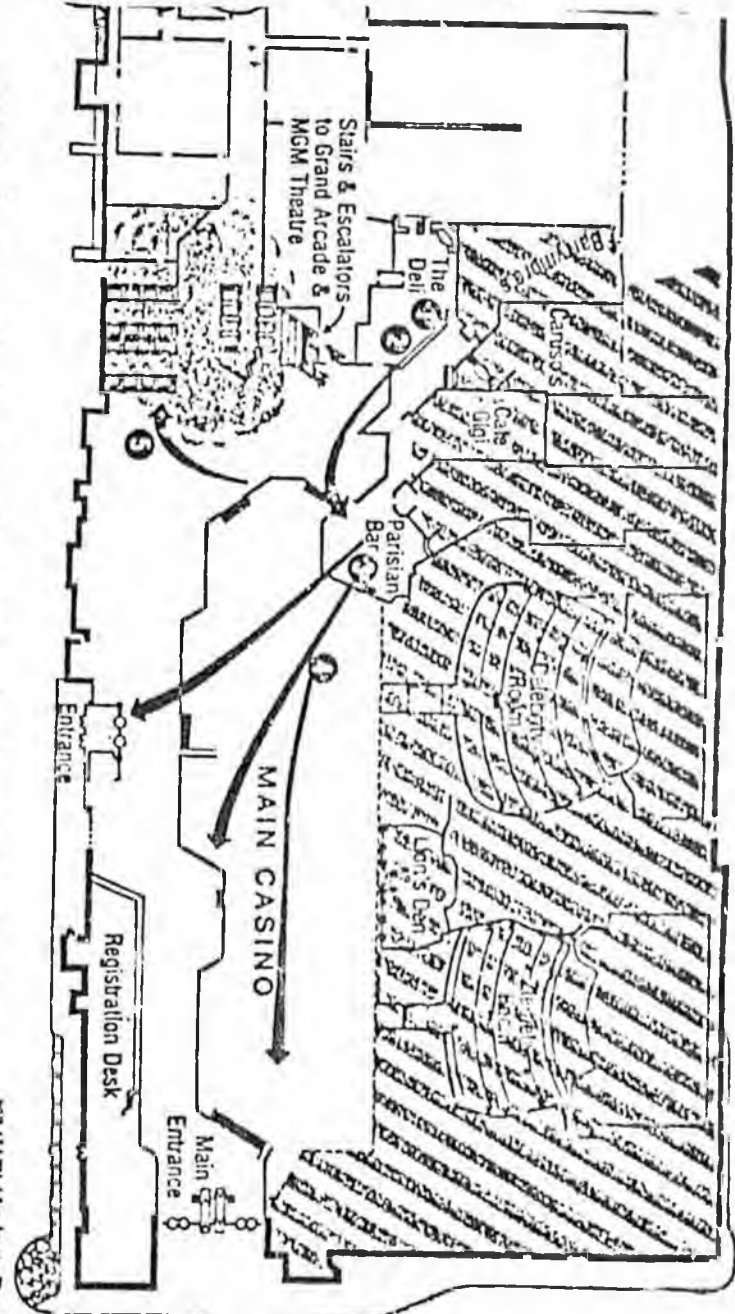
Faced with the litigation, MGM officials told stockholders at the company's annual meeting last week that they would not discuss the "cause and spread of the fire."

But president Alvin Benedict said management "will leave no stone unturned" to reopen the hotel by mid-summer. All subcontractors will be required to work on an "expedited schedule," including two 10-hour daily shifts, he said.

Every guest room will be equipped with sprinklers and fire and smoke detection systems. Benedict said, assuming stockholders that the reopened hotel "will be regarded as the safest, as well as the most beautiful resort hotel casino in the world. . . ."

A partial floor plan of the hotel, races spread of the fire from where it started (1) in the Deli; (2) initial path of flame moved toward Parisian Bar (3) where it caught a plastic awning on fire; (4) The DeDon

spread rapidly along ceiling of the casino, through ducts and pipes in attic area. Smoke moved into elevators and ventilation shafts (5), and into hotel above. Striping indicates areas with sprinklers.



9

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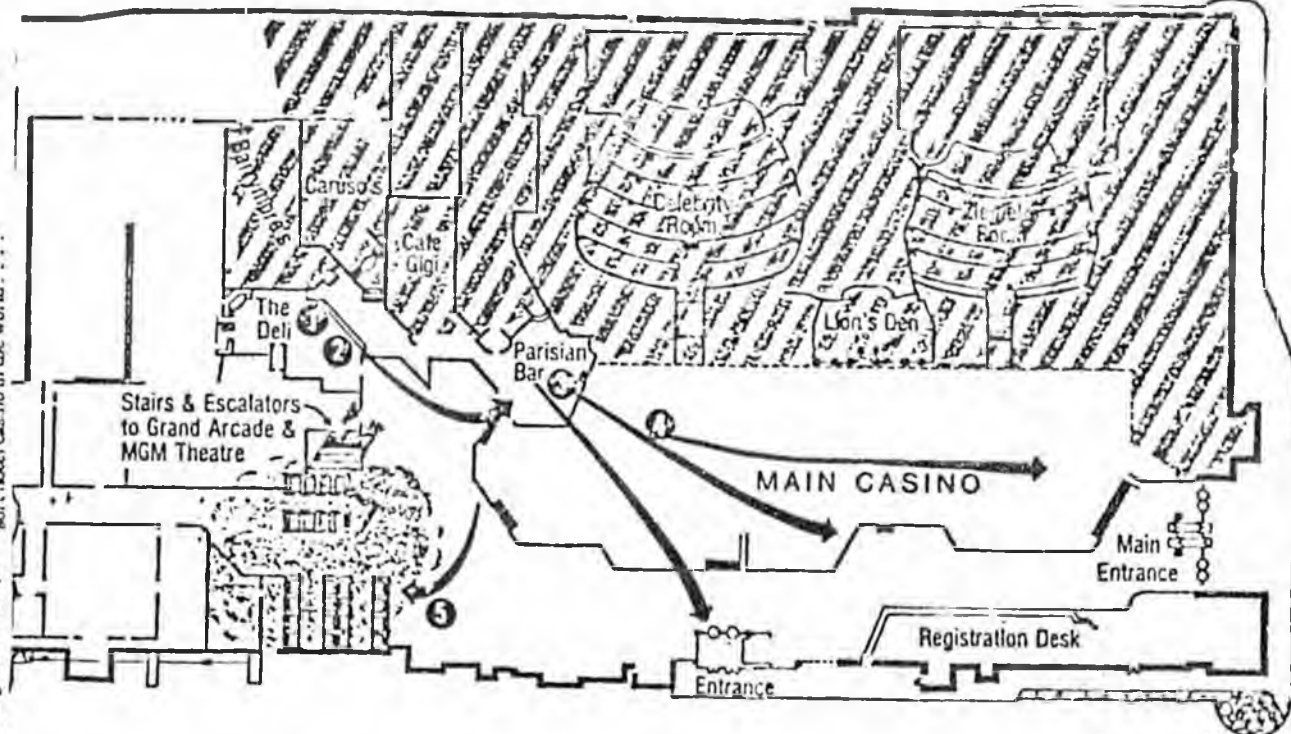
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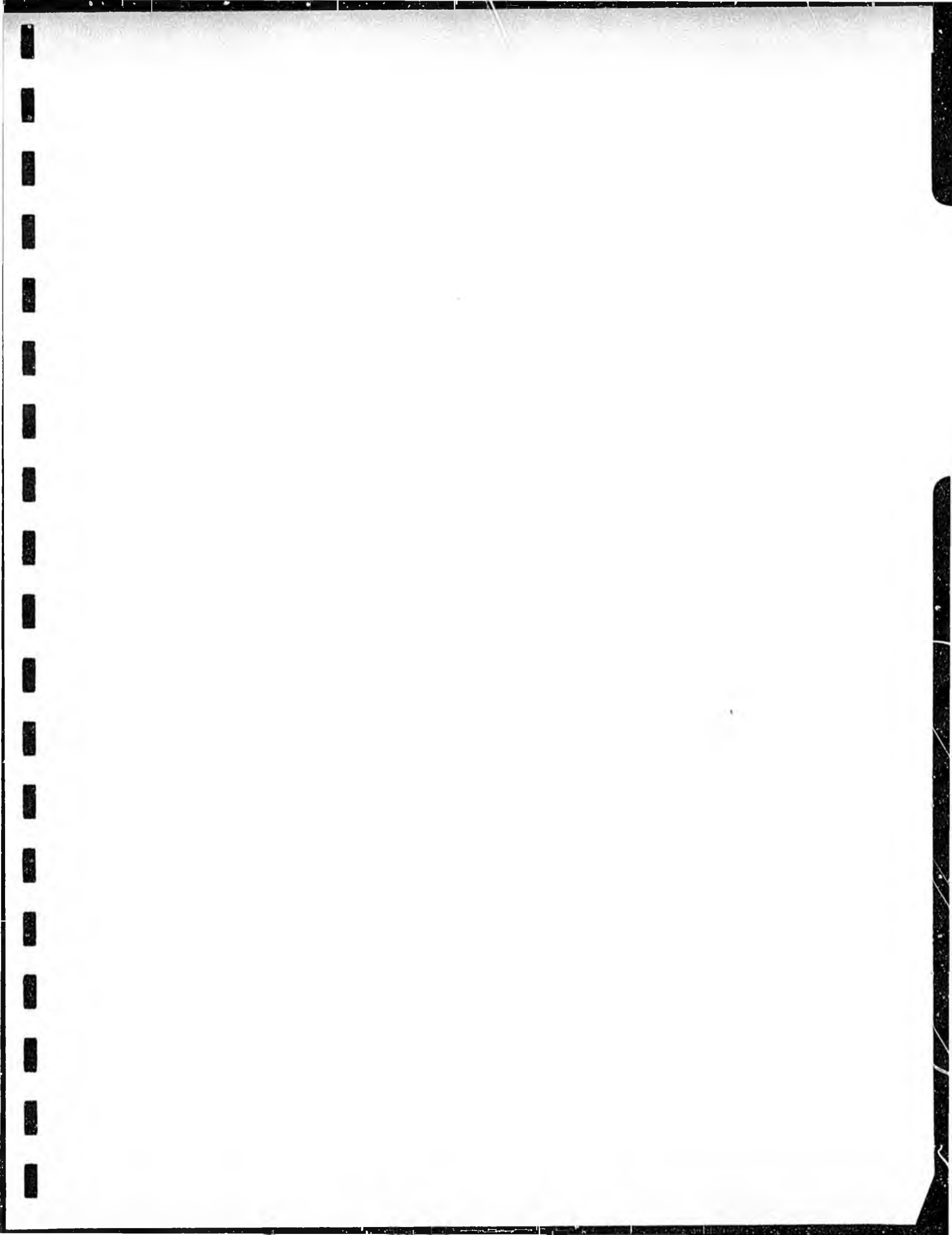
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A partial floor plan of the hotel traces spread of the fire from where it started (1) in the Deli. (2) Initial path of flame moved toward Parisian Bar (3) where it caught a plastic awning on fire. (4) The fire then

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BOB ALLEN / Los Angeles Times



HEALTH HAZARDS ASSOCIATED WITH  
THE USE OF PLASTIC PIPE

Interim Report

Prepared by the  
Hazard Alert System  
Epidemiologic Studies Laboratory  
Department of Health Services

April 29, 1980

## 1. Summary of Major Findings

The Hazard Alert System of the Department of Health Services has conducted four related studies of possible hazards associated with plastic pipe work:

- 1) an evaluation of the available literature on the toxicity of the major solvents used by workers in joining plastic pipe;
- 2) an assessment of the risk posed by plastic pipe work on job sites;
- 3) a review of the existing epidemiological studies of pipefitters; and
- 4) an analysis of the acceptability and significance of a current UCLA health survey of pipefitters.

### Solvents

The available literature indicates that the solvents used in fitting plastic pipe fall into three general categories:

- I. those with relatively low human risk, that can be used safely in open or well-ventilated areas with minimal personal (eg. skin) protection;
- II. those with moderate risk that may pose potential health problems; and
- III. those with high risk that can cause skin damage, organ injury, and may be associated with cancer or birth defects.

Methyl ethyl ketone (MEK) falls into the first category; tetrahydrofuran (THF) and cyclohexanone in the second; and dimethylformamide (DMF) the third.

### Work Sites

Cal/OSHA investigations revealed excessive and near-limit inhalation exposures to MEK in some finishing operations with ABS pipe. Extensive dermal exposure to MEK-containing solvents was also observed, and considered a potentially serious problem since rapid skin absorption of MEK occurs.

Absorption through unprotected hands of THF, cyclohexanone and DMF is also clearly possible since manufacturers' brochures show PVC glues being handled without glove protection. Dermal exposure to these last two solvents in particular is considered a health risk since skin-absorbed cyclohexanone causes cataracts in susceptible animals, and DMF can<sup>cause</sup> liver damage to workers and birth defects in animals at relatively high doses. Finally, in the case of these studies, several samples of solvent cement were found to be inadequately labelled as to their actual contents.

#### Epidemiological Studies

A NIOSH-sponsored study measuring cancer mortality among a large number of plumbers and pipefitters has found a significant excess of cancer of the esophagus, lymphatic system, larynx and lung. Confirmation of a trend for excess diagnoses of cancer of the larynx was obtained in an independent study conducted among contemporary California pipefitters by the Department of Health Services' Resource for Cancer Epidemiology. However, adequate tests have not been performed to establish a link between these excessive cancer rates and occupational exposure to a specific causative agent or agents.

#### Health Survey

Preliminary data from a UCLA pipefitters' health survey indicates that workers report signs of pathology--particularly red or reddish-brown urine--in direct proportion to the number of years that they have worked with plastic pipe. Occurrence of a cluster of kidney disorders that may be related to these signs also appear to be associated with the length of plastic pipe exposure, although these self-reported findings require medical verification and a more appropriately designed study before the results can be considered definitive. Other reported symptoms, notably sinus, skin and

respiratory problems as well as possible excess rates of cataract formation and skin cancer have not yet been adequately evaluated.

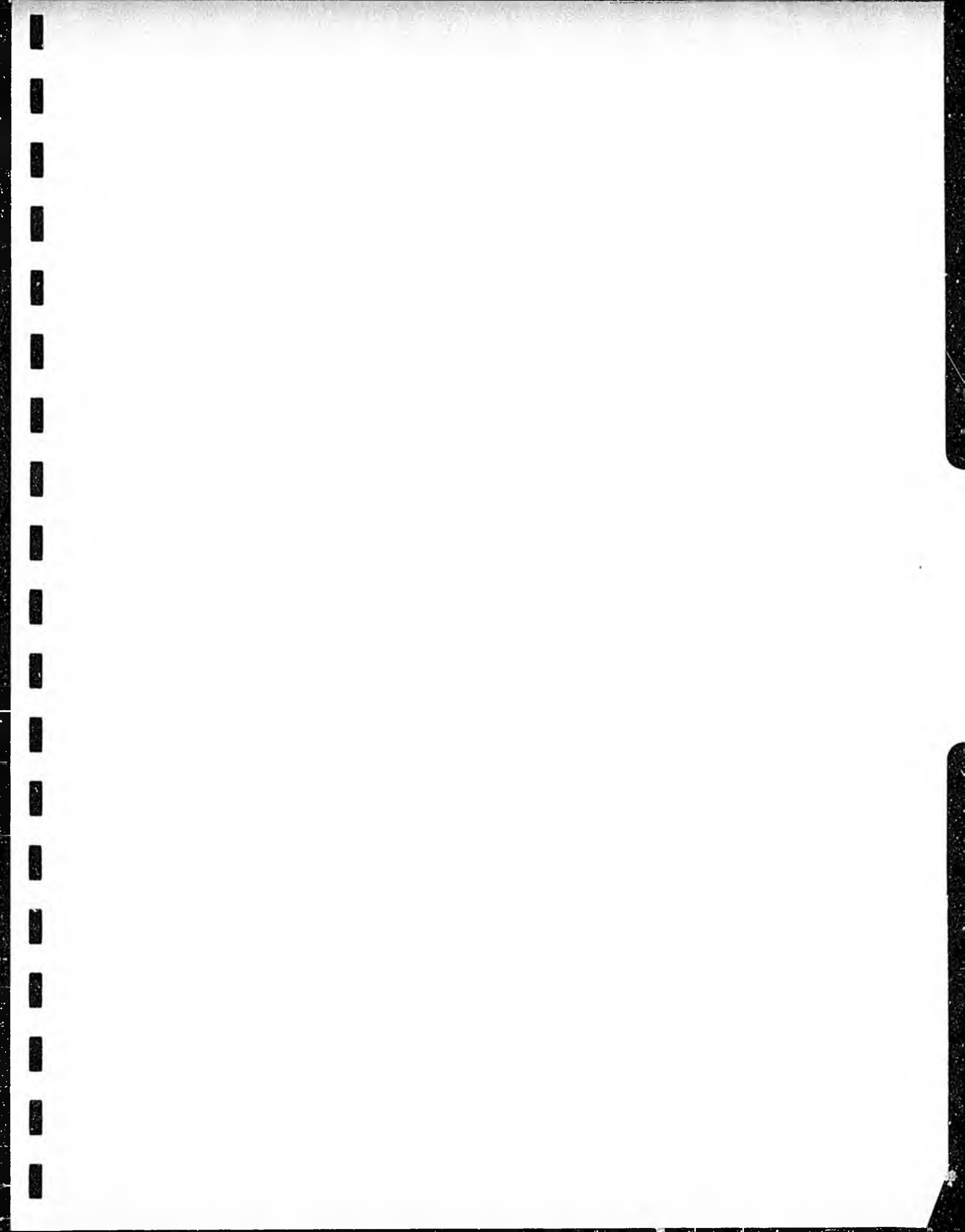
In spite of methodological inadequacies, such data suggest the possibility of serious and previously unrecognized health effects among workers who install plastic pipe. Consequently, it is not clear that such pipe can be used safely under present conditions. Until the full extent of health risks posed by solvent or other plastic pipe-related exposure is resolved, HALTS proposes the following interim steps to minimize undue worker exposure:

- 1) the Commission should recommend limitations on the use of solvent-cemented pipe that must be installed under conditions of inadequate ventilation;

- 2) the Commission should consider issuing regulations that limit the use of cyclohexanone and DMF containing glues, so that single-solvent glues, particularly those that use MEK, are used preferentially to combination types; and

- 3) the Commission should take steps necessary to require manufacturer labeling so that products are accurately identified with regard to contents and the possible health hazards associated with their use.

Because of the risk of increasing exposures to products that may be responsible for adverse health effects among workers, HALTS recommends that no decision be made at the present time that would lead to the expanded use of plastic pipe.



DEPARTMENT OF INDUSTRIAL RELATIONS

DIVISION OF OCCUPATIONAL SAFETY AND  
HEALTH ADMINISTRATION525 GOLDEN GATE AVENUE  
SAN FRANCISCO

192-177-A

ADDRESS REPLY TO  
P O BOX 803  
SAN FRANCISCO, CALIF 94101

March 5, 1981

Date: 3/16/81

CC: Commissioners  
Kerin  
Reynaga  
Smart  
King  
Johnson  
Dryer  
Nichols  
Sung  
FileMyron Moskovitz, Chairman  
Commission on Housing and  
Community Development  
921 - 10th Street  
Sacramento, CA 95814

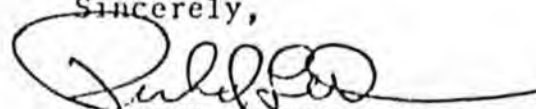
Dear Mr. Moskovitz:

It has come to our attention through press clippings and announcements (attached), subsets of the DIR/DHS joint study on plastic pipe solvents are being taken out of context. It appears that the PPFA has inappropriately extracted parts of our overall study, developed misleading statements and made these available to the press.

The Department would like to re-emphasize the importance of the Commission and all interested parties to look at the evidence collected in total, as presented by the Cal/OSHA-DHS interim report presented to your Commission on May 1, 1980 and as presented at hearings by Dr. Marc Lappe. In that report we carefully identified what is known of the real and potential toxicity of these materials as well as the areas where we have inadequate information. One of the areas of greatest uncertainty is related to dermal absorption rates and resulting toxicity. As a follow-up to these issues, we are continuing our research in collaboration with the University of California Medical School at San Francisco. Results of these tests should add new evidence in these matters.

This Department will carefully monitor the utilization of information presented by all parties and will be prepared to make public comments as to the appropriate interpretation of our findings.

Sincerely,

  
RICHARD L. WADE, PH.D., M.P.H.  
DEPUTY CHIEF FOR HEALTHcc: Art Carter, Chief  
Don Vial, Director

---

## Plastic Pipemen Hail Results Of Cal Fume Tests

SAN FRANCISCO — Workplace exposure to the possibly harmful cements used in conjunction with plastic pipe — even under "worst case" conditions — has been found to be well within California's "permissible exposure" levels, declares the Plastic Pipe & Fittings Assn.

PPFA says that a special study was conducted by the Cal OSHA Health Targeting Unit and the California Dept. of Health Services. That study, declares PPFA, found that the exposure of plumbers to both fumes and contact with the cement itself appeared to be minimal.

State technicians conducted their measurements in Los Angeles on July 18 and 29, days chosen because of unusually "poor" weather condi-

(Cont. Page 4, Col. 5)

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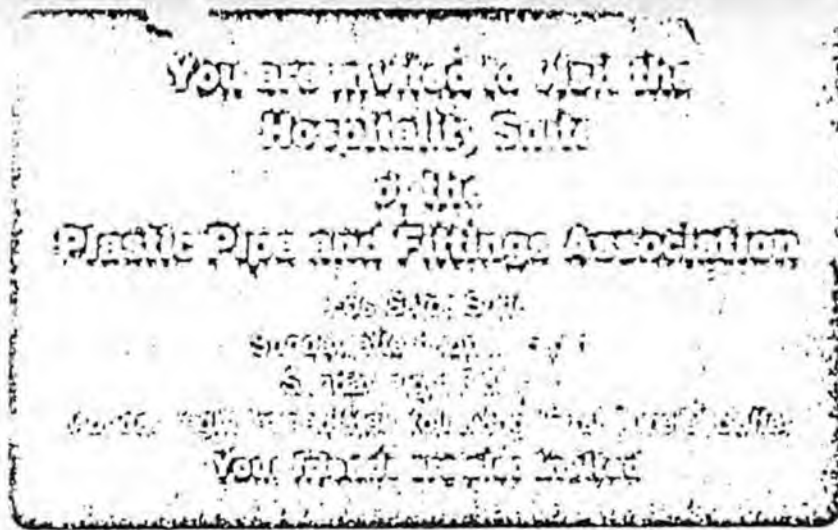
tions.

On those days a high pressure system centered itself over Los Angeles giving rise to an average high temperature of 102 degrees accompanied by air quality poor enough to qualify for issuance of a Stage-Two smog alert.

Three different work sites were monitored, each involving workmen bent in, to some degree, with cement fumes. In all cases, according to the report, "inhalation exposure measured was not in excess of Cal/OSHA standards." Dermal exposure was said to be present but difficult to measure while ingestion was found to be "remote."

The "worst case" measurements, argues PPFA, support its contention that solvent cements used to join plastic plumbing elements pose little hazard when properly used. And, in fact, they may constitute less of a threat to plumber health than the smoke and fumes that attend the older methods of joining metal plumbing, adds PPFA.

---



## Some of the many benefits of using plastic pipe and fittings:

**Corrosion Resistant:** Plastic piping is prescribed in many areas of the country because of its high resistance to aggressive water and soils.

**Energy Savings:** In 1977, 56 million barrels of oil were saved because of the use of plastic pipe instead of other materials. Additionally, in hot water distribution systems, plastic piping serves as an insulator to reduce heat loss.

**Cost Savings:** \$200 to \$1500 can be saved per dwelling, according to the California Housing and Community Development Commission staff, by using plastic pipe and fittings in residential and apartment construction. Comparable savings can be realized for commercial and institutional construction.

**Proven Performance:** Plastic DWV has been used for 25 years with excellent field performance. Plastic water piping has been used for over 15 years with similar results. Both systems are covered by ASTM specifications and are tested against those standards by a certification program.

### What About Solvent Leaching?

Data in a draft report prepared by James M. Montgomery Consulting Engineers for the Department of Health Services show that plastic pipe provides safe transport of potable water. Plastic potable water piping can aid communities in meeting stringent EPA regulations for drinking water.

### Fire Problems?

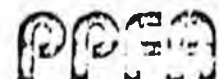
"Use of plastic pipe in non-fire-rated construction, whether in residential, commercial, or industrial occupancies, does *not* present an unusual fire risk," according to the California State Fire Marshall's Office.

### Workplace Exposure?

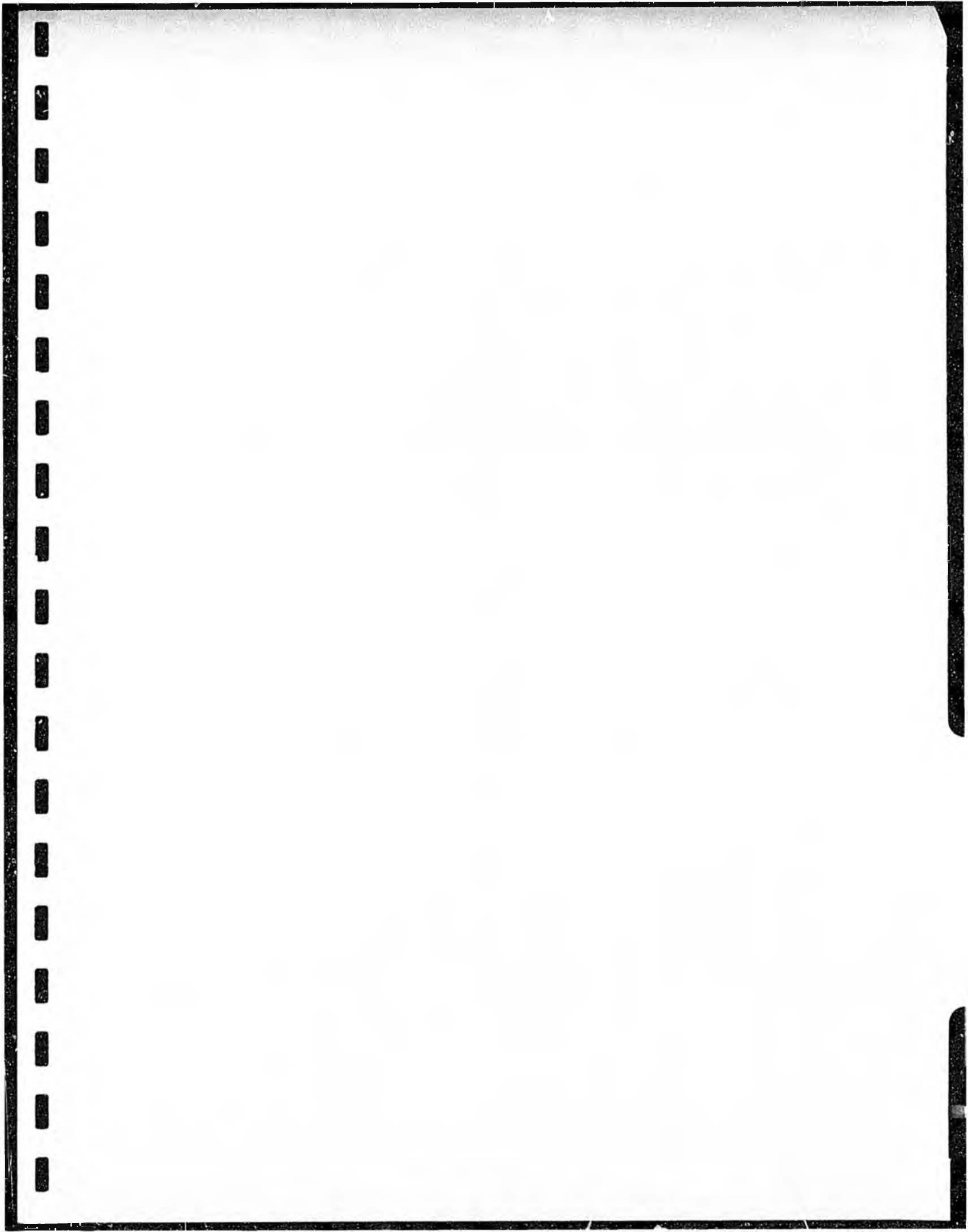
Current "worst-case" studies show no excessive exposure to workers.

### Want to Know the Facts?

Stop by the Los Gatos Suite, (600 Building, 3rd floor) Sunday afternoon (3-5 p.m.) or Sunday or Monday night. We look forward to seeing you there.



999 N. Main Street  
Glen Ellyn, IL 60137  
Area Code 312/858-6540



Department of Health Services  
Los Angeles County - University of Southern California  
Medical Center

BERNARD M. ARVALO  
Executive Director

SIR BERNSTEIN, M.D.  
Medical Director

FOTINE D. O'CONNOR, R.N.  
Director, Nursing Services  
and Education



Affiliated with  
UNIVERSITY OF  
SOUTHERN CALIFORNIA

SCHOOL OF MEDICINE  
SCHOOL OF DENTISTRY  
SCHOOL OF PHARMACY

October 3, 1980

To Whom It May Concern:

I am currently an Assistant Professor of Medicine at Los Angeles County-University of Southern California Medical Center, and am in charge of the Adult Clinical Lymphoma-Leukemia Program at this Institution. In that capacity, I was contacted by Dr. Brian Dolan regarding several cases of lymphoma occurring in patients who have been employed as plumbers in the past.

I have had the opportunity to review the material on five of the patients with whom Dr. Dolan is working. Interestingly, all five patients are confirmed as having malignant lymphoma. Moreover, all patients at this time have the same pathologic type, which is termed small cleaved follicular center cell lymphoma (Lukes-Collins), or poorly differentiated lymphocytic lymphoma (Rappaport). It is noteworthy to me that all five of these patients with documented diagnoses of lymphoma have had quite extensive exposure to plastic materials which were used during the course of their work.

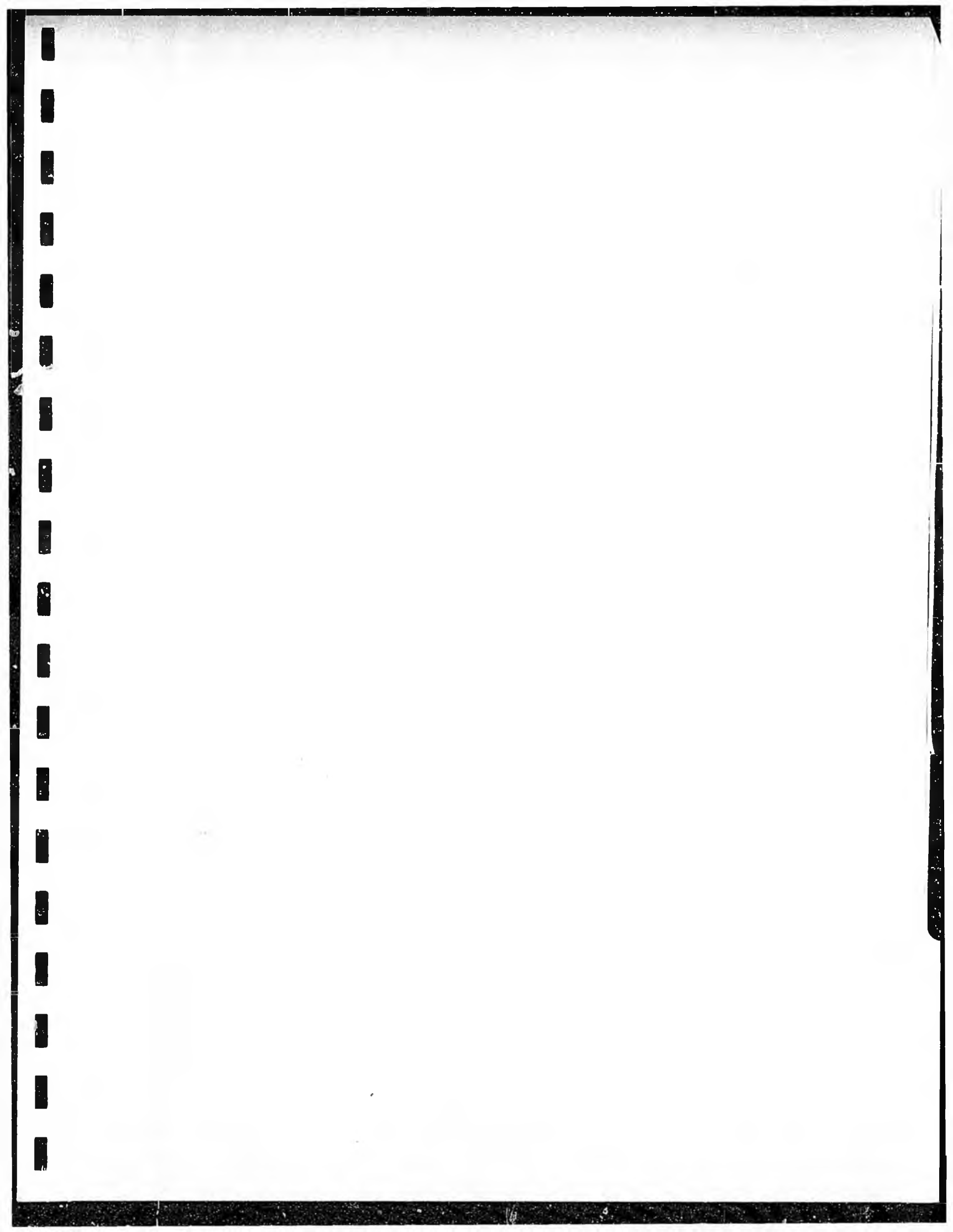
We are currently involved in a large study during which we will obtain all of the pathologic material from all of the patients involved. This material will be reviewed closely by myself, as well as Dr. Lukes and the Hematopathology section at Los Angeles County-USC Medical Center. Our clinical information will also be collected and collated. It is my opinion at this time, that a further study into this problem is warranted, since lymphoma in general is quite infrequent in the population, and since rather significant numbers of patients in this very preliminary study have already been confirmed as truly having malignant lymphoma.

If you have further questions, or require further information, please do not hesitate to call upon me.

Sincerely,

Alexandra M. Levine, M.D.  
Assistant Professor of Medicine  
Director, Adult Hematologic Neoplasia Service  
Lymphoma-Leukemia Program

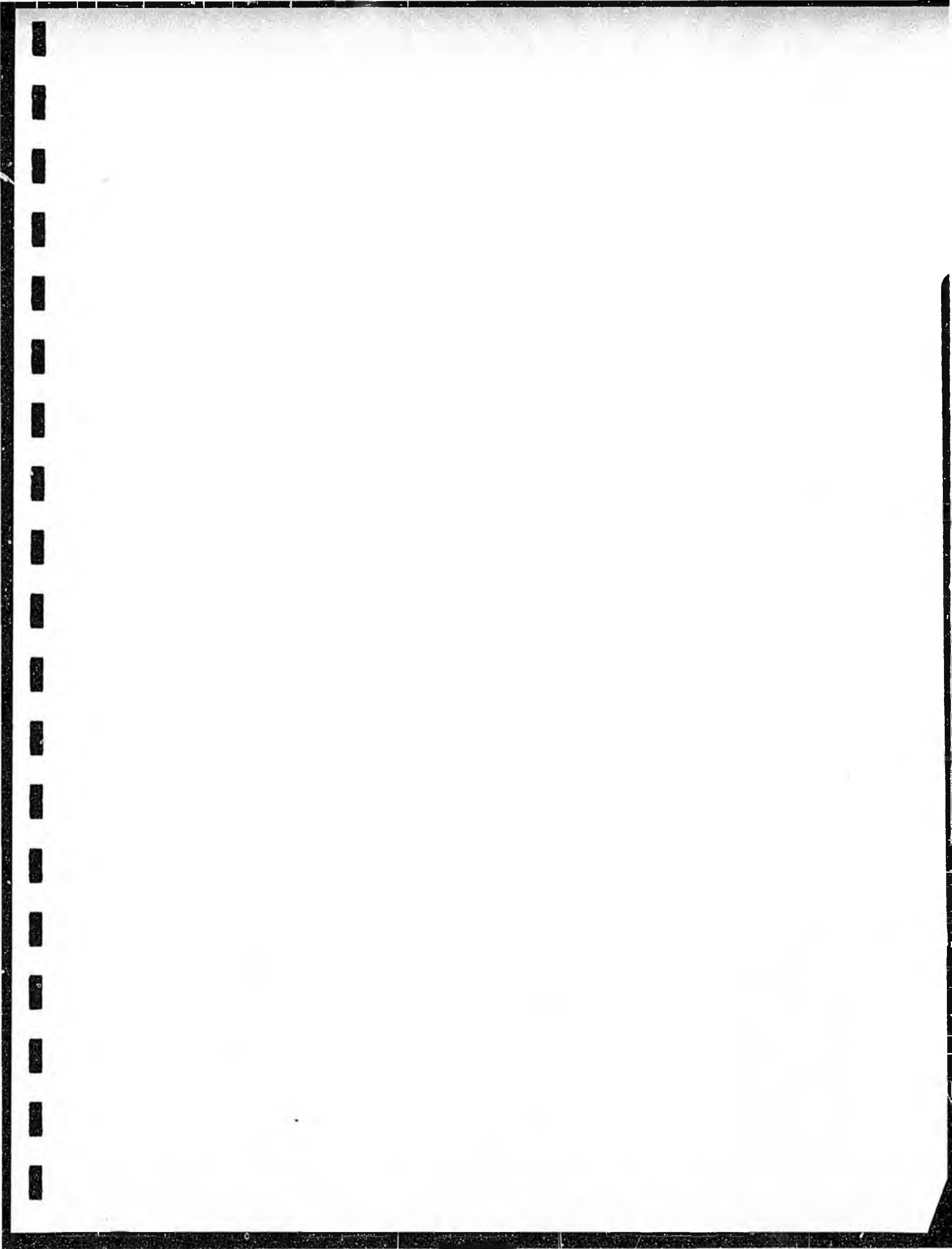
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IMPURITIES DETECTED IN ABS, PVC, AND CPVC PLASTIC PIPE

| <u>SAMPLE IDENTIFICATION</u>   | <u>COMPOUNDS FOUND</u>   |
|--|--|
| <u>Acrylonitrile-butadiene-styrene (ABS)</u><br>Gable Plastics<br>Spartan Plastics | dichloromethane<br>acrylonitrile<br>methyl cyclopropane<br>benzene<br>tetrachloroethene<br>toluene<br>4-ethenyl cyclohexene<br>ethyl benzene<br>methylethyl benzene<br>hexane<br>styrene<br>propyl benzene<br>1-methylethenyl benzene<br>unsaturated alkanes<br>2,6-bis(1,1-dimethylethyl)<br>-4-methyl phenol<br>heptyl phenol<br>unknown (several) |
| <u>Polyvinyl Chloride (PVC)</u><br>Pacific Western<br>Extruded Plastics Co.        | dichloromethane<br>bromochloromethane<br>trichloroethene<br>toluene<br>bis 2-ethylhexyl phthalate DEHP<br>unknown (many)   |
| <u>Chlorinated Polyvinyl Chloride (CPVC)</u><br>GSR                                | dichloromethane<br>chloroform<br>hexane<br>tetrachloroethene<br>toluene<br>pentachloroethane<br>hexachloroethane<br>bis 2-ethylhexyl phthalate DEHP<br>alkanes (several)<br>unknown (several)  |

Source: California Analytical Laboratories, Inc. 11/12/80.





## CONSUMER ADVISORY COUNCIL

1020 N STREET, SACRAMENTO, CALIFORNIA 95814  
PHONE: (916) 322-0548

February 11, 1980

Mr. Myron Moskovitz, Chairman  
Commission on Housing and  
Community Development  
921 Tenth Street  
Sacramento, CA 95814

Dear Chairman Moskovitz:

The attached resolution by the Consumer Advisory Council is an expression of our concern associated with unlimited use of PVC pipes and the potential threat this brings to the health and safety of California Consumers.

The Council is a 7-member committee appointed by the Governor mandated to make recommendations in the consumer interest. It is the Council's contention that further testing of PVC pipes and the solvents used to join them is warranted. It is in the consumers interest that all feasible avenues of investigation be explored into potential health hazards associated with these products carrying drinking water before regulations for their use are promulgated.

We ask that the attached resolution be formally entered into the record and that all haste be taken on the part of the Commission on Housing and Community Development to join the Consumer Advisory Council in holding hearings to solicit input from consumers as to their views in this issue. Thank you for your attention in this matter.

Sincerely,

LYNN MORRIS  
Executive Secretary

cc: Donald Turner, Director, Commission on Housing  
and Community Development  
Assemblyman Louis Papan  
Alice Lytle, Secretary, State & Consumer Services  
Agency  
Alan Stein, Secretary, Business & Professions Agency  
Richard B. Spohn, Director, Department of Consumer  
Affairs  
Ron Gordon, Chief, Division of Consumer Services, DCA  
Joanne McNabb, Consumer Liaison Officer, DCA



## CONSUMER ADVISORY COUNCIL

1020 N STREET, SACRAMENTO, CALIFORNIA 95814



WHEREAS the Consumer Advisory Council is mandated by law to study, promote and protect the interests of consumers,

WHEREAS the Consumer Advisory Council is sensitive to the possibility that some products may represent a serious health threat to consumers,

WHEREAS at least one of the principal elements of plastic water pipe and its glues is identified as a human carcinogen by the Occupational Carcinogens Control Act of 1976, Health and Safety Code Section 24200, et seq.

WHEREAS the Department of Health Services has adopted the position that it cannot support the use of PVC pipe until it is shown that solvents used to join PVC pipes do not enter drinking water in amounts significant to health, and

WHEREAS the Commission on Housing and Community Development has pending before it a proposal permitting the unlimited use of plastic pipe in California construction,

BE IT HEREBY RESOLVED that the Consumer Advisory Council :

- (1) endorses the passage of ACR 98 (Papan) in order to permit knowledgeable health experts to study potential health risks arising from plastic pipe before its unrestricted use in consumer water systems is approved.
- (2) urges the Commission of Housing and Community Development to forego acting on the plastic pipe proposal before it has exhausted all reasonable avenues of medical investigation into potential health threats arising from the unrestricted use of plastic pipe, and
- (3) requests the Commission on Housing and Community Development to join with the Consumer Advisory Council in the holding of public hearing to actively solicit the input of consumers as to their views concerning the wisdom of now permitting the unrestricted use of plastic pipe.

ADOPTED: February 8, 1980  
San Diego, CA

SIERRA  
CLUB



530 Bush Street San Francisco, California 94108 (415) 981-8634

November 21, 1980

Myron Moskowitz, Chairman  
Commission on Housing and Community Development  
921 Tenth Street  
Sacramento, CA 95814

Dear Chairman Moskowitz:

The Sierra Club has had an opportunity to review the recent report from the California Department of Health Services on the use of plastic pipe in potable water systems.

According to the underlying data in that report, toxic chemicals on the Environmental Protection Agency list of priority pollutants appear in water contained in plastic pipe. I am referring in particular to chloroform, carbon tetrachloride and tetrachloroethene. Additionally, a common plasticizer, DEHP, which is now thought to be carcinogenic, appears in water transmitted by plastic pipe. For the protection of human health, it is critically important to remove these substances from drinking water. Undertaking an activity which apparently would add these toxic pollutants to drinking water requires careful and complete environmental justification.

The Sierra Club believes that the material presented to the Commission in the report from the Department of Health Services more than adequately discloses the existence of potential human health hazards and adverse environmental impacts so that an environmental impact report must be prepared.

According to the water quality criteria promulgated by the Environmental Protection Agency under Section 304(a) of the Clean Water Act, extremely minute quantities of these substances can have serious toxic effects on a chronic basis. Given the toxicity of these substances and the difficulty of removing plastic pipe once installed, the Commission is contemplating action which could have a significant and virtually irreversible effect on the environment. Even if the law did not require it, wisdom surely dictates that a full and complete environmental evaluation be made in advance of such a decision.

Very truly yours,

Carl Pope  
Director of California Affairs

cc: Members of the Commission  
Tom Johnson

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**CENTER FOR LAW  
IN THE PUBLIC INTEREST**

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JOEL R. MEYNOLDS

November 21, 1980

California Commission on  
Housing and Community  
Development  
921 Tenth Street  
Sacramento, CA 95814

Dear Chairman Moscovitz and Members of the Commission:

The Center for Law in the Public Interest urges this Commission not to adopt regulations approving the use of plastic pipe in potable water systems in residential, commercial, and business structures in California without prior preparation of a full environmental impact report ("EIR") as required by the California Environmental Quality Act. (Cal. Pub. Res. Code §§ 21000 et seq., "CEQA.")

CEQA requires that a public agency, before undertaking any discretionary project which is not categorically exempt from CEQA, must conduct an "initial study" to determine whether the proposed project "may have a significant effect on the environment." (Pub. Res. Code § 21081; 14 Cal. Admin. Code § 15080.) In carrying out the "initial study," the public agency must exercise "careful judgment . . . based to the extent possible on scientific and factual data." (14 Cal. Admin. Code § 15081(a).) The agency must consider "both primary or direct and secondary or indirect consequences" of the project. (14 Cal. Admin. Code § 15081.)

Only if, as a result of the "initial study," the agency determines that a project clearly "will not have a significant effect on the environment," that "no significant environmental effects would occur" as a result of the project, should the agency prepare a "negative declaration" instead of an EIR. (14 Cal. Admin. Code §§ 15080, 15083.) "[W]henver it can be fairly argued on the basis of substantial evidence that the

project may have a significant effect on the environment," or "there is serious public controversy concerning the environmental effects of a project," an EIR must be prepared. (14 Cal. Admin. Code § 15084.) Examples of effects which would be considered "significant effects on the environment" include where a project would (a) substantially degrade water quality; (b) contaminate a public water supply; (c) create a public health hazard or a potential public health hazard. (14 Cal. Admin. Code §§ 15000 et seq., Appendix G.)

The EIR is the "heart" of CEQA because it ensures that relevant environmental data are considered by the agency prior to its decision to approve the project, before the environmental changes have reached "ecological points of no return." (County of Inyo v. Yorty, 32 Cal.App.3d 795, 810 (1973); No Oil, Inc. v. City of Los Angeles, 13 Cal.3d 68, 84 (1975).) In light of CEQA's legislative intent "to afford the fullest possible protection to the environment" (Friends of Mammoth v. Bd. of Supervisors, 8 Cal.3d 247, 259 (1972)), the California Supreme Court has interpreted Pub. Res. Code § 21151 as imposing a "low threshold requirement for preparation of an EIR." (No Oil, Inc. v. City of Los Angeles, supra at 84.)

A substantial body of scientific evidence has been developed since the Commission first prepared a negative declaration in February, 1978, on the use of plastic pipes. Studies have been done both on the health effects of installation of plastic pipe on the workers who install it, as well as on the health effects on the public caused by the leaching of plastics and solvents into the water system. 1/

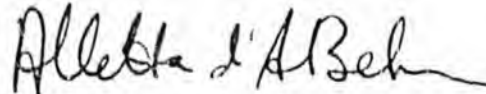
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1/ See, e.g., three reports prepared on the potential health hazards of use of polyvinyl chloride plastic pipe systems (CPVC and PVC pipe) by the State's Hazard Evaluation System (Feb. 14, 1980; Apr. 29, 1980; and Oct. 17, 1980); May 1980 Fire Marshal report on potential flammability of plastic pipe and fire hazards associated with its use; Preliminary Survey of Chemical Composition, Contamination and Associated Health Hazard of Plastic Pipe for Potable Water Supply, Thomas Reid Associates (Nov. 14, 1980); Plastic Pipes Study, James Montgomery Consulting Engineers, Inc. (Aug. 1980).

California Commission on  
Housing and Community Development  
November 21, 1980  
page 3

Together, the findings of these reports far exceed the "low threshold" for preparation of an EIR. These reports show, at the very least, that there exists "serious public controversy" concerning the health effects of the use of plastic pipe, and, at most, that very serious harmful effects to human health and the environment will result from the unrestricted use of plastic pipe in California. Therefore, the Commission must prepare an EIR on the potential health and environmental effects of unrestricted use of PVC, CPVC, ABS and polybutylene pipe in California before approving such use of plastic pipe.

Respectfully,



Alletta d'A. Belin

Ad'AB:pmk

# women for:

continuing volunteer support and action for issues, candidates and legislation of our choice on local, state and national levels

October 20, 1980

Mr. Myron Moskowitz, Chairman  
Commission on Housing and Community Development  
921 Tenth Street  
Sacramento, California 95814

Dear Mr. Moskowitz:

WOMEN FOR:, an organization of over 2,000 people, opposes the unrestricted use of plastic pipe in residential dwellings in California until their use is scientifically proven to be safe.

We are concerned by the results of research at UCLA School of Public Health and by Montgomery testing laboratories which indicate that solvents and glues used to connect pipe do pose a possible health hazard.

At this time in history when cancer incidence is increasing, when we know that a majority of cancers are caused by exposure to toxins, when the public is already exposed to toxins in food additives, pesticide residue on food, and in our air and water, we can ill afford another possible source of such exposure to be sanctioned by government.

We are an organization of women, most of whom are mothers and so have a special concern for children. Children, especially infants, are more susceptible to the effects of carcinogens than are adults. When you analyze the data on the amounts of solvent that leach into water, please note if the effects on infants and children have been considered.

Please give this entire matter your most thoughtful and cautious consideration. The health and welfare of the citizens of California are at stake.

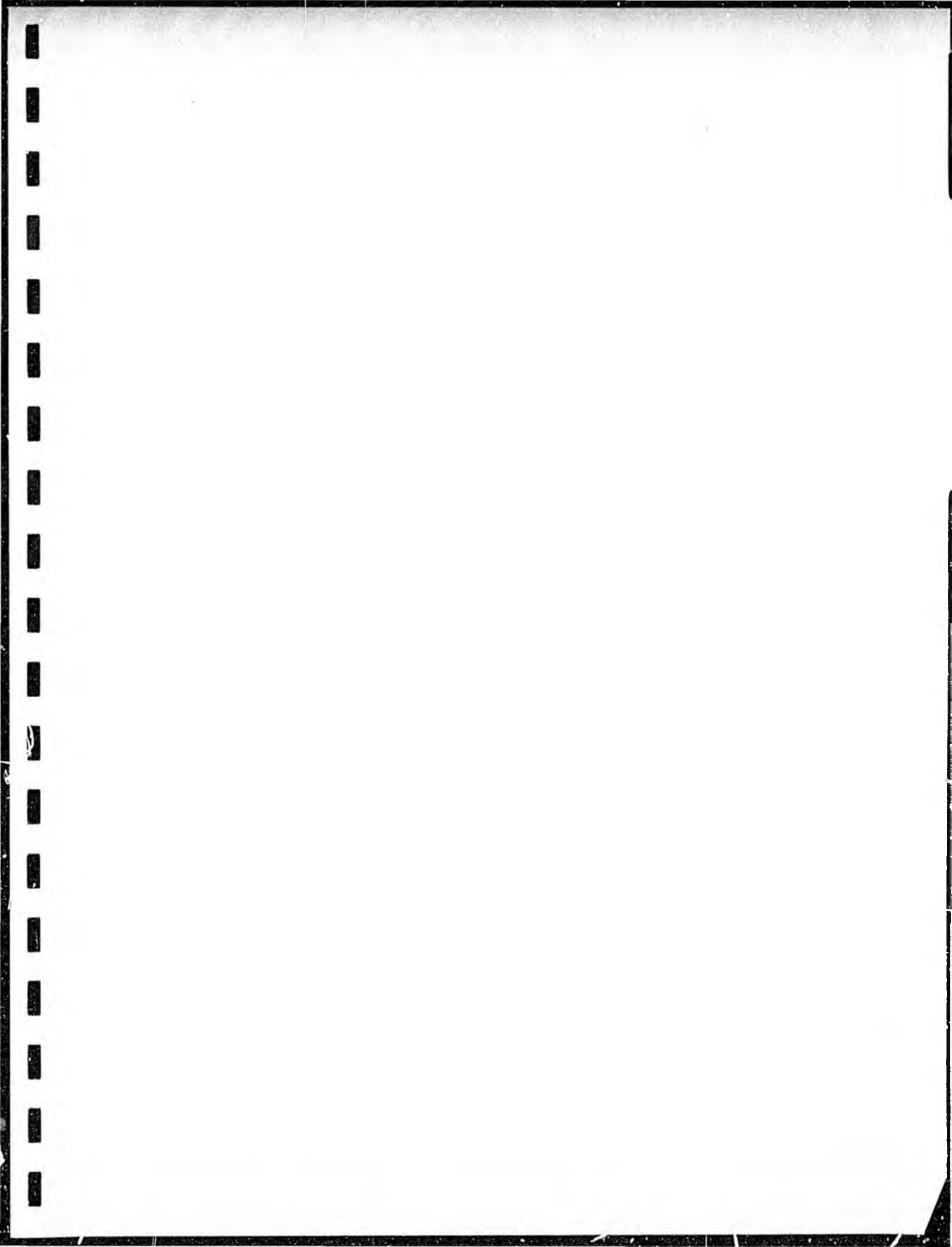
Sincerely,

*Georgia Mercer*  
Georgia Mercer  
Coordinator

8913 West Olympic Boulevard • Beverly Hills • California 90211 • 213 / 657 7411

COORDINATOR: Georgia Mercer • ASSISTANT COORDINATORS: Marilyn Kizzel • Lorette North • TREASURER: Edith Schwan • ASSISTANT TREASURER: Ann Rubin • RECORDING SECRETARY: Gita Egan • SPECIAL ADVISOR: Sylvia Braerman • SPECIAL PROJECTS: MILDRED ROSEN • ROSALIND ANDERSON • EDITORIAL: COLLEEN TAYLOR • BELLY LESSNER • SELECTING COMMITTEE: Mary Ann • VIBRA: ANNE • BELLY ANDERSON • JILL BARAN • BETTE BARR • ELOYSIE BERMAN • MURIEL BLANK • GAIL BRANTON • PASQUA BROWN • COOPERATORS: NORA CRANTON • IRAN DIAMOND • NORMA FURCH • ROSE MARIE EPSTEIN • MAURIE FINE • MARILENE FURCHMAN • CAITIE GARDNER • NAOMI GARDNER • HONORIS GREEN • LAYE HALEY • BILLIE HEUER • MARGO HELLER • MARYA HERRMAN • ROSA HERRMAN • TERRY HOFFMAN • GRACE JACOBI • PHYLLIS KAHAN • HELEN KILMURPHY • LUCY LASTER • CHARLOTTE LEVINE • LIZA LINDEN • IDA MATHIS • DORIS MEYER • SARAH MOSKOWITZ • ROSE MARY NASTAVA • ADRIE OHLERT • NANCY PRINCE • M. ROSENBERG • JOAN RUBIN • MAY ROSENBERG • PEGGY SAFERSTEIN • CAROL SCHIFFER • BEATRICE SHAPIRO • IRAN SHERIDAN • LILIANA STARR • JEAN STRAUSS • IRAN TAYLOR • WANDA • MIRIAM WEST • JOAN ZUCKERT • SUPERVISING COUNCIL: ROSE GAILLE GILBERT • LINDA HALL • MARYA HERRMAN • JOAN RUBIN • BEATRICE KATH • BESSIE SELIGMAN • ANN SHAW

cc: 10/23 Myron, JACK. (FCA) (9/3)



(FINAL REPORT ON POTENTIAL HEALTH  
HAZARDS ASSOCIATED WITH THE USE  
OF PLASTIC PIPE IN POTABLE WATER  
SYSTEMS. CALIFORNIA DEPARTMENT OF  
HEALTH SERVICES, OCTOBER 17, 1980.)

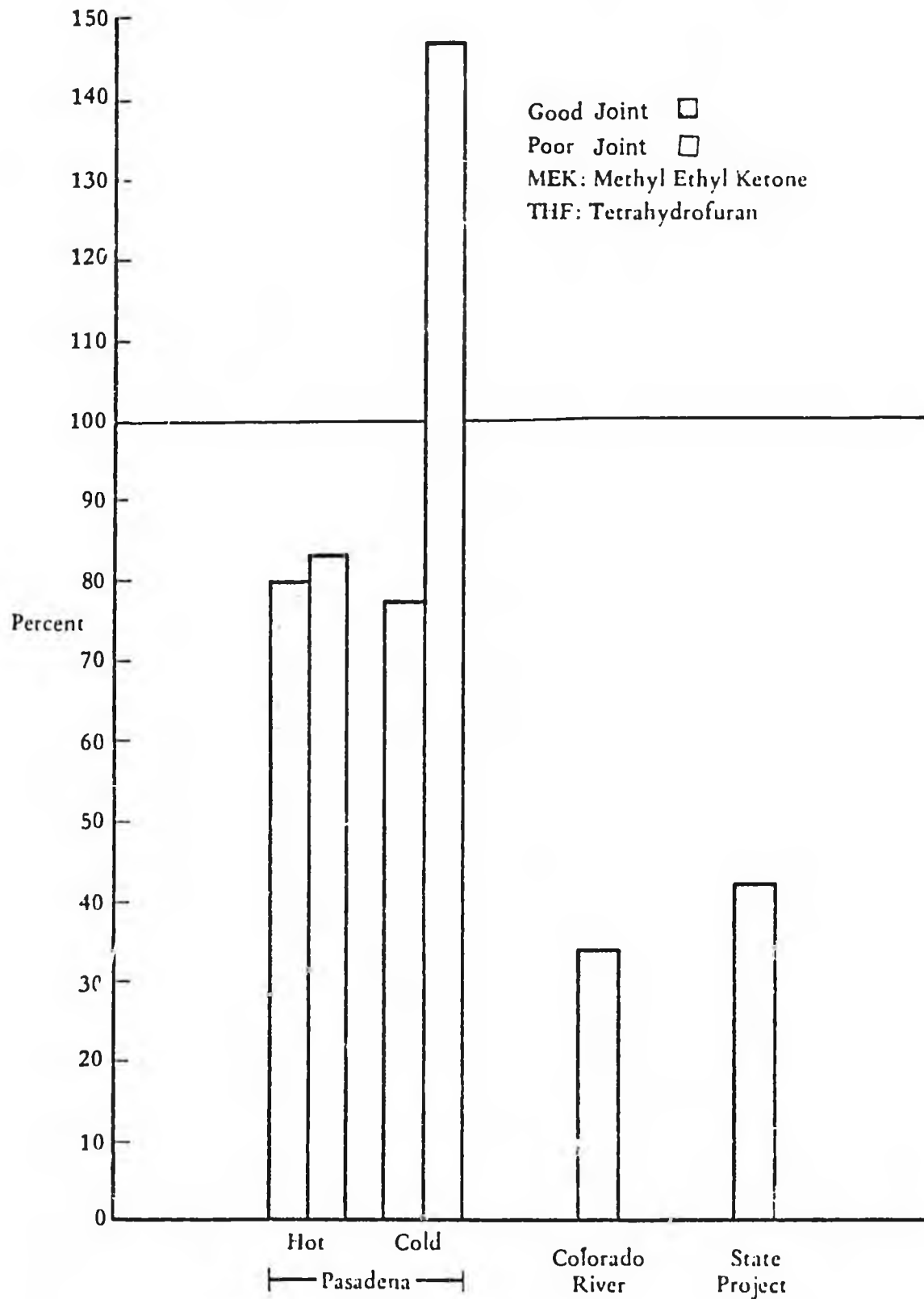
V. DISCUSSION AND CONCLUSIONS

With the possible exception of the leaching of the phthalates, the principal public health finding of this study is the possibility of excessive amounts of solvents and carbon tetrachloride, chloroform and tetrachlorethene accumulating during the stagnant period between initial installation of plastic pipe and occupation of the dwelling. On two occasions, solvents were found in excess of the proscribed amount for short-term

\* Data from the National Toxicology Center released on 10-15-80 (after this report was written) establish that the Bis compound (DEHP) is carcinogenic in rats and mice (see Appendix XI for calculations relative to human health consequences).

Chart 3

SOLVENT CONCENTRATIONS IN WATER FROM STATIC TEST SYSTEMS  
MEF, THF, and Cyclohexanone Combined for Additive Toxicity,  
Expressed as Percent of Proposed Combined STMAC



maximum exposures. As shown on Graph 1, both THF and DMF exceeded the short-term maximum acceptable concentrations suggested by the Hazard Evaluation System. While this finding was present only for poorly jointed pipes (THF) and one outdoor system using Colorado water (DMF), the likelihood exists that the combined toxicity of the potentially neurotoxic solvents could exceed the limits suggested by HES. As shown on Chart 3, (p. 31) the combined concentrations of the major solvents come to within 75 and 80 percent of the suggested STMAC. Assuming a combined fitting density and sampling error of  $\pm 50$ , percent these values might actually be above the suggested STMAC.

The extent of the hazard posed by solvent contaminants may actually be underestimated by these figures. Calculations for a "worst case" scenario (see Appendix IV) demonstrate the highest likely doses of solvent that might be ingested from stagnant water in newly-plumbed houses. In the "worst case" (ingestion of powdered infant formula prepared with tap water) the suggested STMACs are greatly exceeded by measured values—as much as 20-fold in the case of THF from CPVC pipe with poor joints using cold Pasadena water (see Table 3-2, p. 93). The highest level of DMF (PVC pipe, good joints, Colorado River water), 4.3 mg/L, also exceeds the "worst case" suggested STMAC of 0.2 mg/L by 21-fold, suggesting a substantial potential hazard for infants in newly-plumbed unflushed homes.\*

We have reached the following conclusions about solvent toxicity:

- 1) Within 1-2 days of installation of PVC or CPVC and for up to at least 2 weeks following, a high probability exists for one or more solvents (depending on the primer/solvent cement used) to reach levels in water that might result in adverse health effects when ingested;

\* Unpublished data furnished to HES by the Pipe Trades Council regarding freshly installed CPVC pipe at a new hospital in Sacramento (Comm. from California Analytical Laboratory to Ray Leonardini, June 10, 1980) provides further confirmation that stagnant water in freshly installed pipe can exceed the suggested STMACs. These data are presented in Appendix VIII, Table 1 to demonstrate the real-world possibility of the solvent build-up and depletion we have described in laboratory simulations. Since they were not gathered under our supervision they are not presented along with the results we have verified; nor are they taken as evidence of the prevalence of excessive leaching since the conditions under which the samples were taken remain unknown and simultaneous controls were not included in the determination.

- 2) If adequate flushing of the piping system is performed, substantial re-accumulation of solvent concentrations to potentially toxic levels is unlikely; and
- 3) Normal water usage is likely to prevent the build-up of toxic levels of any of the major solvents.

The remaining question concerning the solvent contaminants is whether or not consumers are likely to drink water that has been standing in freshly installed pipe. The answer hinges in part on the pre-occupancy activities at a housing site that are likely to tap or bleed water for construction or testing purposes and thus flush the system of rapidly-leached solvents. A substantial amount of water is flushed through new structures by plumbing inspection procedures (Comm. from Norman J. Latter, Director of Standards for the International Association of Plumbing and Mechanical Officials to Mr. Jim Blumenkranz, September 10, 1980). Mr. Latter estimated that each plumbing fixture is filled and drained at least twice during an inspection. As a result, substantially more water (in the order of 200 gallons or so) than was flushed in our laboratory simulation systems may be expected to be flushed through the plumbing systems of an average residential household before occupancy (based on a toilet capacity of at least five gallons, and shallow fills of ancillary systems such as bath tubs, sinks, etc.) Additional water is also used during construction for washing up, preparing cement on site, and other activities, though only a single outlet might be turned on, leaving stagnant water in other parts of the system. Various sources estimate the amount of water used in these procedures as 900-1,000 gallons. (A copy of one such communication is attached as Appendix VIa). Nevertheless, we believe that a potential hazard to on-site workers and new occupants remains in any newly constructed dwelling because of variations in "standard" procedures and job-site activities that might otherwise flush the system adequately.

Lastly, we must address the potential problem of compounds that may leach more slowly from the plastic pipe material itself. Two such compounds were detected in the course of this analysis, dibutyl phthalate and bis-(2-ethyl hexyl) phthalate. Unlike the major ingredients of solvent cements, these substances appear to migrate more

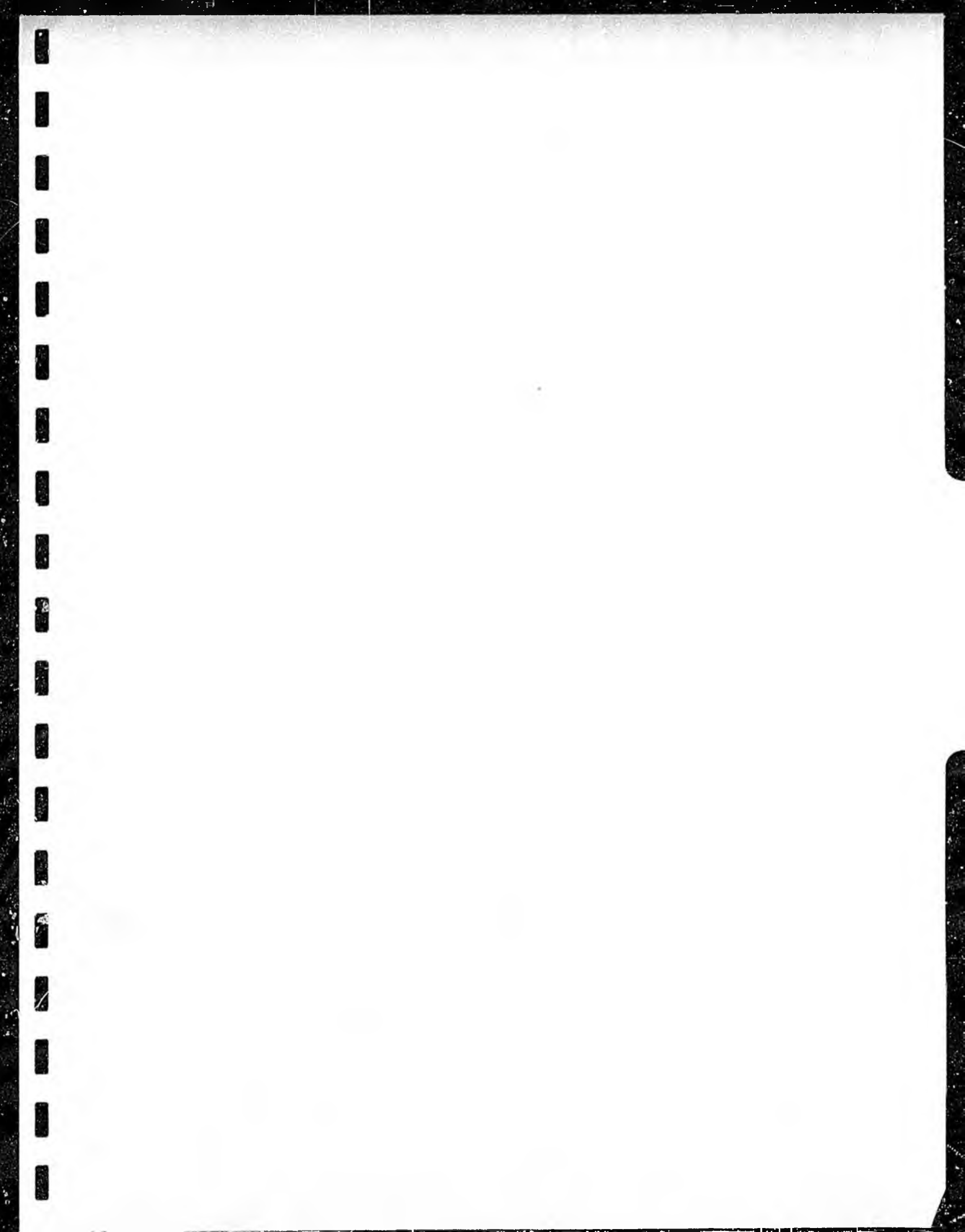
ALASKA LEGISLATURE COMMITTEE FILES 1983 - 1984 86 / 2

27 28 SLC HB 508 (FILE 2)

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slowly into water after days or weeks of pipe use, and to be independent of whether the initial joint was "good" or "bad". Specifically, as shown in Chart 2 (p. 30) and Montgomery Tables 3-8 through 3-12, a general trend is evident for the increased appearance of these compounds with time, whereas the solvent concentrations tend to diminish with time.

The full extent of the possible health effects of these two compounds is undetermined. A summary of the available literature study is included as Appendix VII. This initial review suggests that little human health hazard is posed by the compounds at the levels we have measured. Accumulations 2-3 times above those detected in our model systems might pose a hazard, since adverse reproductive effects and cancer have been reported at high doses (see Appendix VII and X). Since our simulation study showed little or no phthalates after 30 days of "normal" use, we are fairly confident that they are not a source of concern under normal use conditions. Since these relatively insoluble compounds appear to migrate from the pipe itself it is possible that appreciable build-ups could occur if the plumbing systems were left stagnant for a protracted period. This possibility indicates the need for formal notice to a home owner to take minimal precautions on re-entering a house in which the plumbing system has been out of use for a prolonged period.



## DEPARTMENT OF HEALTH SERVICES / DEPARTMENT OF INDUSTRIAL RELATIONS

1101 BERKELEY WAY  
BERKELEY, CA 94704  
(415) 540-2115



February 2, 1981

Patrick J. Higgins  
Technical Director  
National Association of  
Plumbing, Heating, Cooling Contractors  
1016 20th Street, N.W.  
Washington, DC 20036

Dear Mr. Higgins:

Thank you for your letter of January 19 inviting me to clarify the record on plastic pipe evaluations performed by this office and subsequent policy statements released by the Department of Health. Taking your attachments in order, I have the following comments:

a. Purported Chapter 3, RESULTS section of the Montgomery Report

This section is actually the findings of the preliminary Montgomery report. As stated in the first line, it includes only tables 3-1 through 3-16, in fact there were 19 tables in the final report. Table 19 in particular, contained the highest readings on chemicals of concern to us, and substantially changed our analysis of the final results. (Table 19 attached for comparison).

b. Toxicological Analysis

This analysis was presented to us as an unsigned and unreferenced memo from John Stohlton at the end of September before the final Montgomery data were available for review. It is flawed, incomplete and does not reflect accurately our own interpretation of the findings, even from the preliminary material we had for review. Specifically, we found that solvent levels did exceed recommended values for some of the static tests (refer to our report of October 17, 1980). This analysis and the accompanying "RESULTS" section severely distort the actual findings of the report.

c. Summary Analysis Final Report by HFSIS

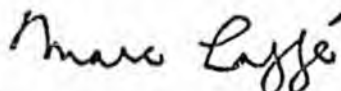
This analysis reflects the opinion of an unidentified industry group of toxicologists concerning our interpretations of the same data. We would have much preferred an independent analysis of the data itself. As it is, this so-called summary analysis contains both comment and recapitulation of selected aspects of our report. It is not an accurate description of our findings. We expressed considerable concern about the finding of excess levels of chloroform and carbon tetrachloride (data presented in Appendix 11 of our report). Specifically, we stated (p. 37) that "The significance of these recommendations is underscored by the discovery of excessive amounts of volatile organics in pipes..." Additionally, as you can see from page 11 of our executive summary, section B. Consumer Health, we reached totally different conclusions regarding potential risks than did this review committee; we were clearly convinced that the risks were real and needed to be abated. We also resolved the issue of phthalates by repeat testing and concluded that the evidence pointed to the pipes or a combination of pipes and solvents as the source of DEMP and not laboratory artifact.

d. News Release of October, 8, 1980

This release is factually in error and seriously misleading regarding our findings: we did not find that "in all cases the levels of solvent were well below the 'Suggested No Adverse Response Levels'..."; quite the contrary, the excesses we did find were taken as indicative of the need to require further flushing to reduce the levels to our proposed limits. Moreover, by mixing the Task Force findings with our own, the news release leaves the possible impression that we are the "task force" in question, when in fact they are an industry group whose findings differ significantly from our own.

Lastly, the executive summary that you sent to me is indeed the summary that is in the final report and reflects the conclusions of the Department of Health Services as a whole. Perhaps you could allude to this summary and the present letter as a way of setting the record straight. I strongly believe that it needs this type of action, and leave it to your obvious concern for objectivity and the truth to determine its exact content.

Sincerely,



Marc Lappe, Ph.D.

Chief

Hazard Evaluation System &  
Information Service

ATTACHMENTS

cc: Ephraim Kahn, M.D., Chief  
Epidemiological Studies Section  
Kathleen Acree, M.D., Chief  
Preventive Medical Services Branch



NATIONAL ASSOCIATION OF PLUMBING • HEATING • COOLING CONTRACTORS

1016 20th STREET N.W., WASHINGTON, D.C. 20038 • (202) 331-7875

January 19, 1981

Dr. Marc Lappe  
Chief of Hazard Evaluation  
System and Information Service  
Department of Health Service Department  
of Industrial Relations California  
2151 Berkeley Way  
Berkeley, California 94704

Dear Dr. Lappe:

With regard to the issue of the use of plastic pipe in potable water systems, I would like to reiterate the concern of our association in the presentation of the facts issued by your department as to the dangers of solvent cements in plastic piping systems for potable water use. As I stated in our telephone conversation, there was a press release issued by the Plastic Pipe Fittings Association which stated entitled "Plastic Solvents Passed Health Tests". Our association printed this press release which prompted one of our local associations to complain as to the reliability of the report data. Further investigation into the article prompted us to contact your office at the request of Chuck Lott, Executive Director of our Oregon state association. We also contacted the source of the press release, the Plastic Pipe and Fittings Association of Glen Ellyn Illinois to receive additional information relative to their analysis of your toxicological report.

The following materials have been forwarded to our offices from PPFA regarding the total issue of the safety of plastic pipe potable water systems. The first item identified by the letter "A" at the top of the report, apparently is a chemical analysis of the analytical tests conducted by Montgomery Laboratories. As item A appears incomplete and the necessary tables for item A are not attached, therefore, we cannot draw any conclusions or derive any information from this material. Item "B", appears to be a toxicological analysis of the Montgomery report. This analysis was prepared by a toxicological task force representing the Plastic Pipe and Fittings Association. The PPFA representatives apparently analyzed the Montgomery findings and generated their own conclusions. Item "C" is a summary analysis also prepared by the PPFA toxicological task force reflecting their conclusions of your report entitled the "Final Report on the Potential Health Hazards Associated with the Use of Plastic Pipe in Potable Water Systems". This task force's conclusions relative to your report are issued in item C. It is interesting to note how your report is reworded or interpreted to mean something rather different from what was generated by your organization.

Dr. Marc Lappe  
January 13, 1981  
Page Two

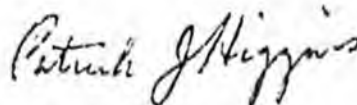
Finally, in item "D", we see the press release circulated to the industry relative to plastic pipe solvents entitled, "Plastic Pipe Solvents Pass Health Tests". It was from this press release that we received so many controversial letters.

You will note sequentially that items "A" and "B" were first to be released in September of 1980, item "D" apparently was generated from items "A" and "B" and released on October 8th of 1980. Item "C" was generated in November of 1980.

We are very concerned to hear your comments relative to items "B", "C", and "D". From your conversation, you appear to be rather distressed at the possibility of misrepresentation of information by PFFA. It is our prime concern to set the record straight, therefore, we would appreciate your comments on items "B", "C" and "D". If such findings are a misrepresentation of the facts, we would like to publish your comments in our monthly newsletter to "right the wrong". We appreciate any and all additional background information so that we can produce a factual report which relates the truth of the matter.

We thank you for your concern about and prompt attention of our requests and we look forward to working with you and your organization in the resolution of this issue.

Best personal regards,



Patrick J. Higgins  
Technical Director

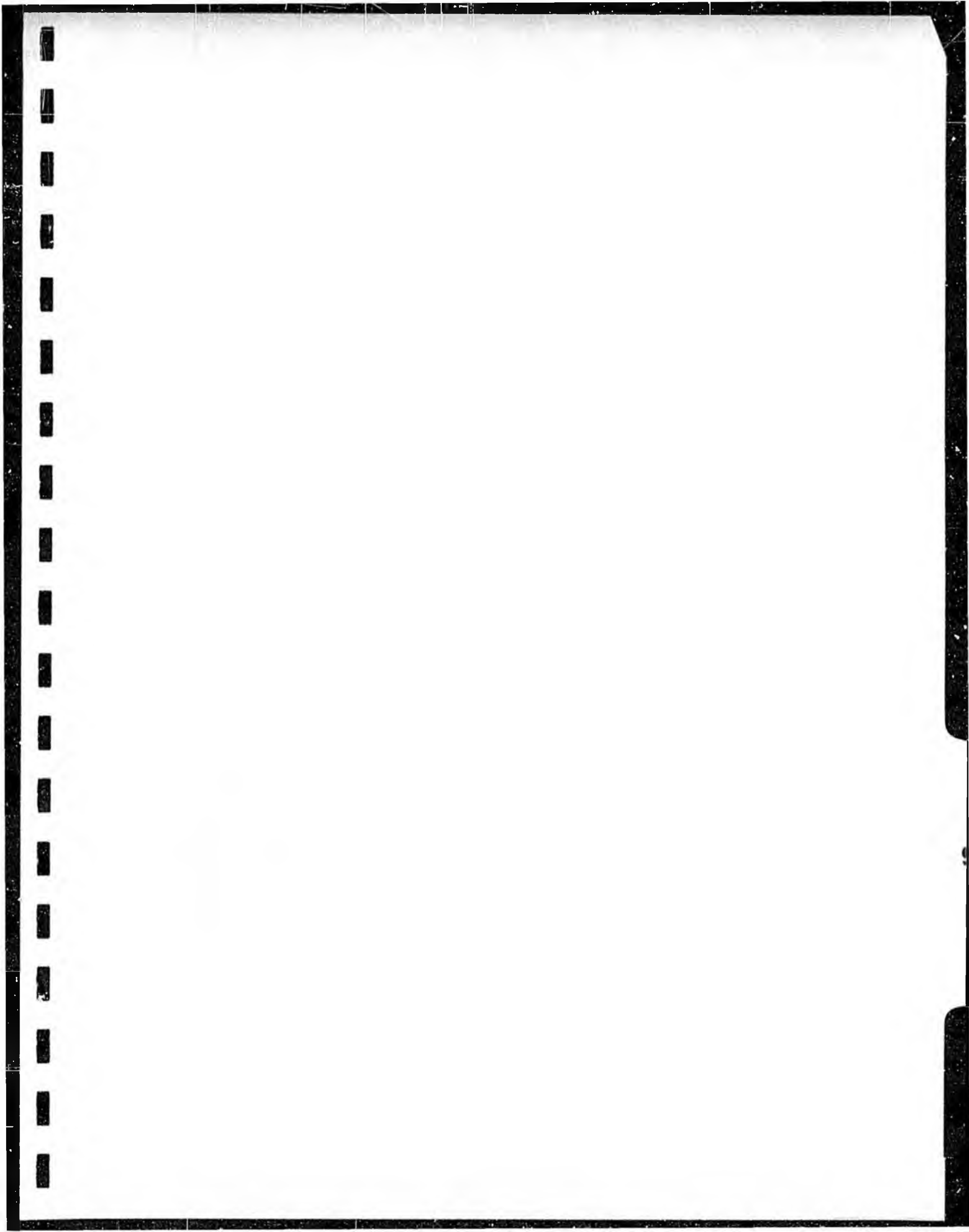
Enclosures

cc: A. T. Strother  
Don Paull  
Con Mahoney  
Stuart Minor  
The NAPHCC Technical Committee

PJH:jsj  
T81005

**TABLE 3-19**  
**VOLATILE HALOGENATED COMPOUNDS IN TWO WEEKS STATIC SAMPLES**

| System/Joint/Water      | CONCENTRATION (µg/l) |                      |                      |           |                      |                   |                 |
|-------------------------|----------------------|----------------------|----------------------|-----------|----------------------|-------------------|-----------------|
|                         | Chloroform           | Dichlorobromomethane | Dibromochloromethane | Bromoform | Carbon Tetrachloride | Tetrachloroethane | Trichloroethene |
| CPVC/Good/Hot Pasadena  | 92                   | 3.0                  | 2.4                  | 0.7       | 32                   | 9.7               | 0.7             |
| CPVC/Poor/Hot Pasadena  | 69                   | 3.3                  | 3.0                  | 1.3       | 21                   | 5.4               | 0.3             |
| CPVC/Good/Cold Pasadena | 78                   | 3.5                  | 2.9                  | 0.9       | 32                   | 7.6               | 0.7             |
| CPVC/Poor/Cold Pasadena | 146                  | 3.3                  | 2.6                  | 0.8       | 50                   | 7.5               | 0.7             |
| PVC/Good/State Project  | 3.1                  | 0.2                  | 0.1                  | ND        | 0.4                  | 0.1               | 4.0             |
| PVC/Good/Colorado River | 25                   | 12                   | 11                   | 2.4       | 0.5                  | 0.1               | 1.1             |





(916) 445-4465  
1020 N STREET, SACRAMENTO, CALIFORNIA 95814



November 21, 1980

Myron Moskovitz  
Chairman  
Commission on Housing  
and Community Development  
921 Tenth Street  
Sacramento, California 95814

Dear Chairman Moskovitz:

I am writing to urge the Housing and Community Development Commission not to authorize the expanded use of any kind of plastic pipe at your meeting next Monday, but rather to prepare an Environmental Impact Report before deciding whether or not to approve the use of the pipe for residential drinking water.

The Department of Health Services report, which has been available for analysis for only a few weeks, provides clear evidence of health hazards: toxic and carcinogenic chemicals were found at dangerous levels in water in plastic pipes. Furthermore, the report provides no statistically significant evidence that its proposed flushing procedure would reduce the levels of toxic contaminants in water in plastic pipes.

Of far greater import, however, is new information from the federal Environmental Protection Agency (EPA) which establishes a very high level of cancer potential in three carcinogens found in water in plastic pipes. After finding that no amount of these chemicals (chloroform, carbon tetrachloride, and tetrachloroethylene) is safe for humans to drink, the EPA has recently established final impact measurements for use in establishing standards for water quality. The EPA levels will be published in the Federal Register next week.

The average amounts of these carcinogens reported by Health Services as present in water in two kinds of plastic pipe are 433 times greater than the EPA level for chloroform, 85 times greater for carbon tetrachloride, and 9 times greater for tetrachloroethylene. Based on these figures, we can expect at least 1,476 new cancer cases in California in the next five years caused by these three carcinogens alone, if all new homes and mobile homes contain the kind of pipe in the Health Services study. This is of course a very conservative estimate, since it does not take into account the cumulative effects of these substances when combined as they are in pipes with other chemicals.

We do not yet have complete or totally conclusive data on the health

November 21, 1980

hazards of using plastic pipe for domestic water supply. The study analyzed in the Health Services report is limited to only two kinds of plastic pipe and has statistical features that make analysis of the significance of its findings difficult. Furthermore, there is no scientific information on polybutylene pipe and available information on Acrylonitrile-Butadiene-Styrene (ABS) pipe suggests that it is unsuitable for potable water in any circumstances.

As Director of Consumer Affairs, I share the Housing Commission's concern for meeting the need for affordable housing in California. It is the responsibility of government agencies like the Commission to encourage technological developments and other means of alleviating the housing crisis. Government must not, however, put aside its responsibility to protect the public health and safety. In light of the new information before us, it would clearly be unwise to decide now to expose Californians in their own homes to what may be an extremely serious health hazard. The best means for providing the Commission with the further information necessary to make a responsible policy decision is an Environmental Impact Report. My legal staff advises me that the California Environmental Quality Act requires an EIR in this instance. Preparing an EIR now, before plastic pipe is put to this new use, would be far less costly and cumbersome than having to remove the pipes after they are installed in homes.

I urge your caution and prudence in this matter.

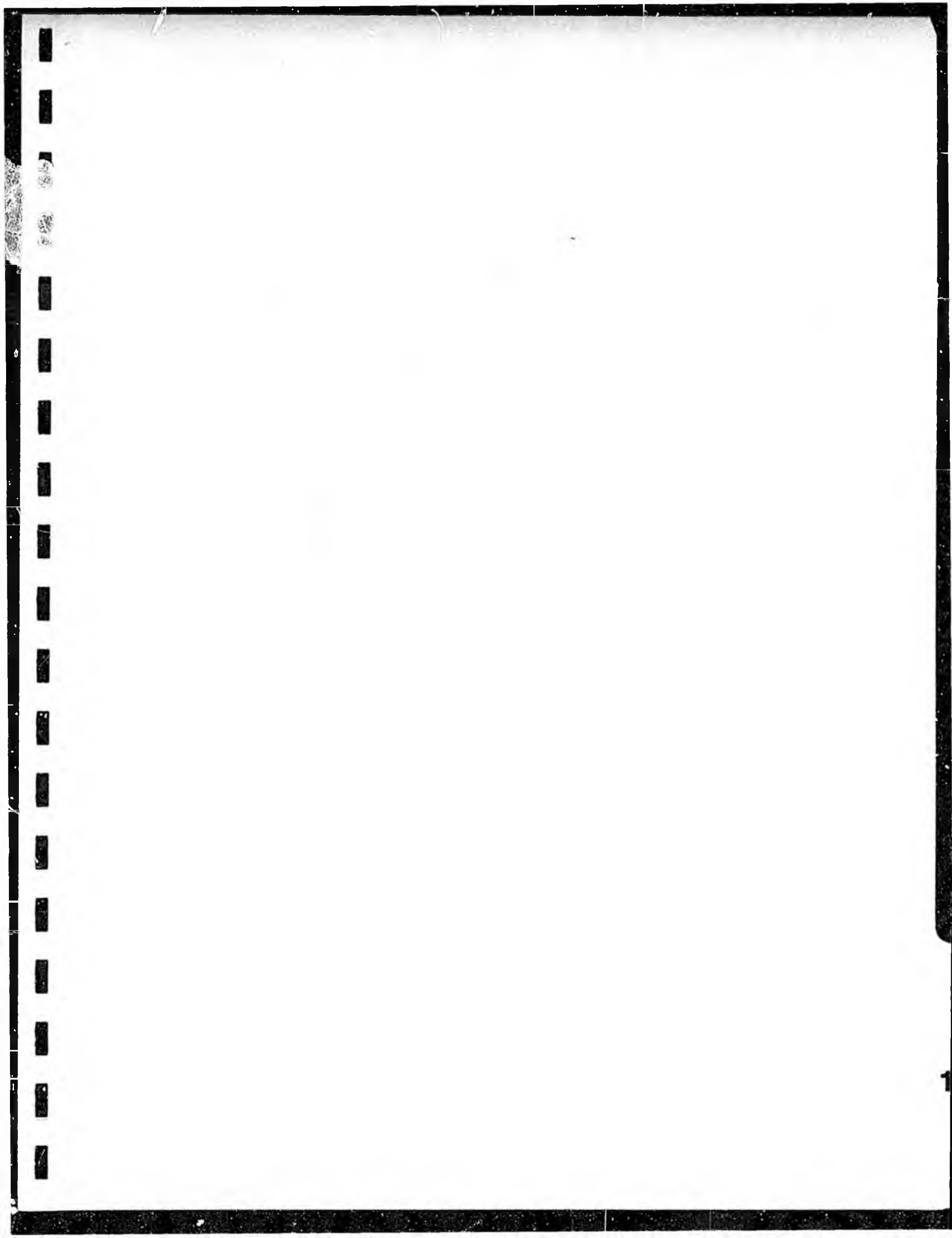
Sincerely,



RICHARD B. SPOHN  
Director

RBS:jmc

cc: Commissioners  
I. Donald Turner



PAUL A. TAYLOR, PhD  
PRESIDENT

WILLIAM J. WILSON, PhD  
VICE PRESIDENT

LEONARD E. COOPER, PhD  
VICE PRESIDENT

BURTON A. WILSON, PhD  
SECRETARY/TREASURER

## California Analytical Laboratories, Inc.

401 NORTH 16th STREET  
SACRAMENTO CALIFORNIA 95811  
(916) 444-9602

December 31, 1980

Lab No. 12343

Received: 11/17/80

Mr. Raymond Leonardini  
Attorney at Law  
717 "K" St., Suite 510  
Sacramento, CA 95814

Dear Mr. Leonardini:

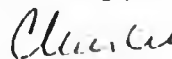
Attached are the results of our GC/MS analysis of two polybutylene pipe samples received at CAL from a representative of the City of Sacramento Public Works Department and logged under CAL I.D. 12343.

The method of sample preparation and the GC/MS techniques were essentially the same as those employed for the previous analyses of PVC, ABS and CPVC pipe (refer to CAL report of 12 November, 1980, CAL I.D. 12295 and 12298).

Over fifteen components were identified and their levels in the pipe samples estimated. It must be emphasized that the levels are rough estimates only.

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

Sincerely,



Charles J. Soderquist, PhD  
Vice President  
Agricultural and Environmental Chemist

CJS/slh

## California Analytical Laboratories, Inc.

401 NORTH 16th STREET  
SACRAMENTO CALIFORNIA 95814  
(916) 444-9602

December 31, 1980  
Lab No. 12343  
Received: 11/17/80

Mr. Raymond Leonardini  
Attorney at Law  
717 "K" St., Suite 510  
Sacramento, CA 95814

Two lengths of polybutylene pipe for analysis.

Sample I.D.

1. Westpro Bluetube 1-37-7 AWWA C902 BJO 52 1" CTS PB 2110 SDR 13.5 160 PSI @ 73°F D2666
2. 1" CTS PB 2110 SDR 13.5 160 PSI D2666 Westpro ColFlare

The pipe samples were prepared for analysis as follows: Each piece was cleaned with a mild detergent solution to remove grease, oil or tape from the outside surface, rinsed with copious amounts of tap water and allowed to dry.

Subsamples were obtained by boring a series of 3/8-inch cores from each piece at least six inches in from the end. The turnings were collected on a piece of hexane rinsed aluminum foil. The drill bit was rinsed with acetone and hexane and dried between samples. The drill was run at low speed so that very thin turnings were obtained.

Standard CAL 40 mL vials which had been rinsed with methanol, baked at 110° overnight and capped with a teflon-lined septum were charged with about 1 gram (weighed exactly) of sample; three such vials were obtained per composite. Two of these were held for VOA GC/MS analysis. To the third was added 10 mL of hexane (Baker Resianalyzed Grade); these were shaken and held under ambient conditions overnight for Base/Neutral GC/MS analysis.

Volatile organic compounds were determined by placing five mL portions of "clean" water (spiked with 100 ng of a deuterated standard) in the vials containing plastic pipe shavings. The vials were allowed to stand for 48 hours prior to analysis. At the time of analysis, the vials were purged for 15 minutes with 40 mL per minute of helium and trapped on a Tenax-silica gel trap. During the purge, the vial was immersed in an 80°C water bath. The trapped organics were desorbed into the GC/MS system and analyzed. Results are prefixed by a V in Table I.

Semi-volatile organic compounds were determined by injection of an aliquot of the hexane extract of the shavings; this constituted the Base/Neutral fraction


Raymond Leonardini  
Lab No. 12343  
December 31, 1980  
page 2

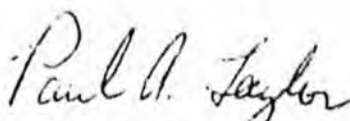
(prefixed by B in Table I).

Levels of identified compounds were estimated by comparison to the known levels of deuterated internal standards added before analysis. The reported levels are to be considered as rough estimates only.

Results are presented in Table I.

All raw GC/MS data will be retained at CAL for your future use.

  
Charles J. Soderquist, PhD  
Vice President  
Agricultural and Environmental Chemistry

  
Paul A. Taylor, PhD  
President

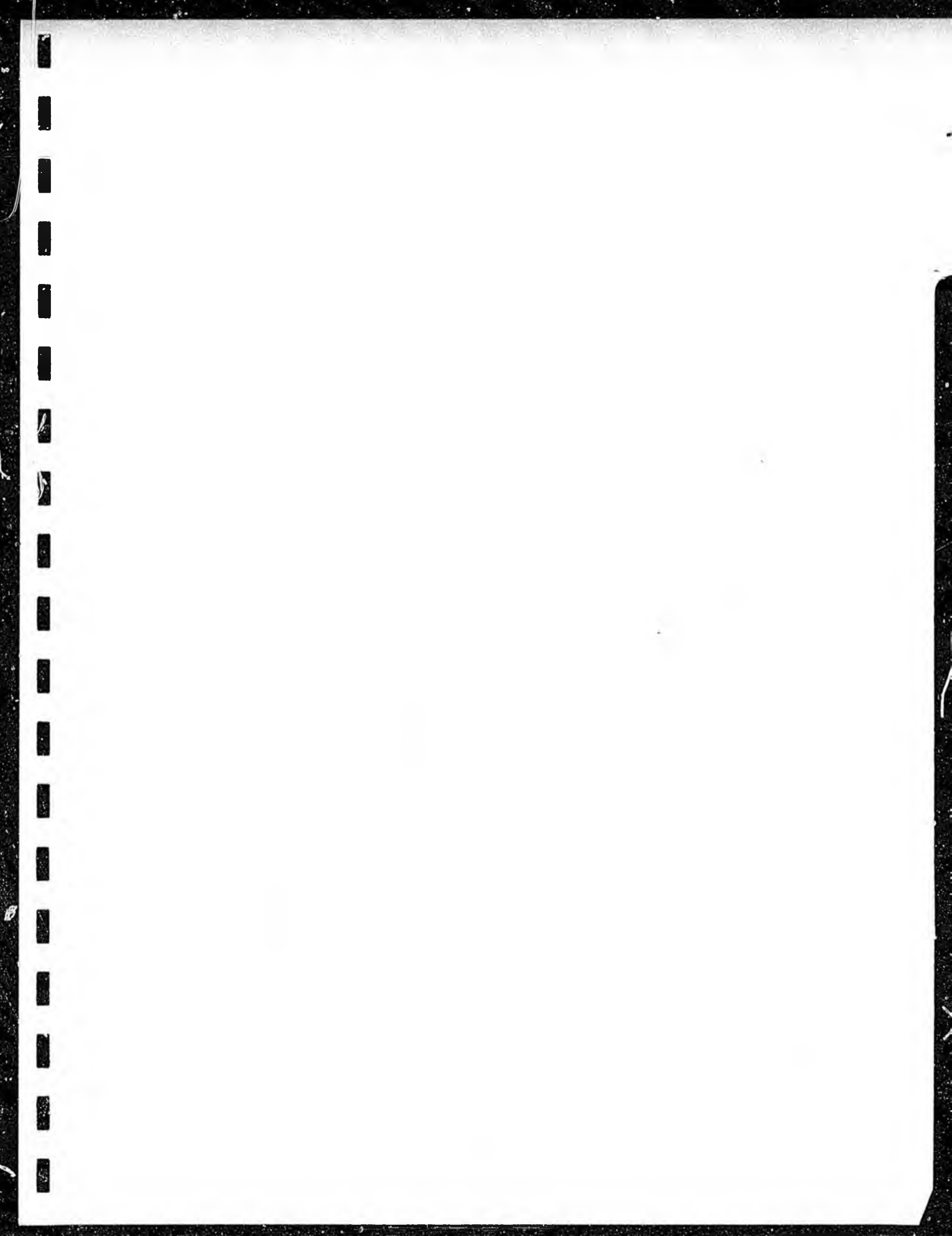
  
Michael J. Mille, PhD  
Director of GC/MS Services

CJS/PAT/MJM/1sh

TABLE I

| Sample                                    | Compound                              | GC/MS reference scan no. <sup>a</sup>                               | Estimated level, ppm (mg/kg) |
|---|---------------------------------------|---|------------------------------|
| 12343-1                                   | butene                                | V72   | 0.1-1.0                      |
|   | acetone                               | V92   | 0.5-5.0                      |
|   | diethyl ether                         | V160  | 0.01-0.1                     |
|   | methyl cyclopentane                   | V226  | 0.1-1.0                      |
|   | methyl cyclohexane                    | V324  | 1-10                         |
|   | 3-methyl hexane                       | V373  | 1-10                         |
|   | 3-ethyl-3-methyl pentane              | V366  | 1-10                         |
|   | heptane                               | V437  | 1-10                         |
|   | 5 alkanes (>C <sub>16</sub> )         | B407, B421, B479<br>B496, B647                                      | 100-1000 total               |
|   | butylated hydroxy toluene (BHT)       | B533  | 50-500                       |
|   | bis (2-ethylhexyl)phthalate<br>(BEHP) | B633  | 50-500                       |
| a C <sub>18</sub> -C <sub>19</sub> alkene | B681                                  | 5000-50,000   |                              |
| 12343-2                                   | acetone                               | V93   | 0.5-5.0                      |
|   | diethyl ether                         | V161  | 0.05-0.5                     |
|   | methyl cyclohexane                    | V325  | 0.5-5.0                      |
|   | 2,3,3-trimethyl hexane                | V388  | 0.5-5.0                      |
|   | 10 alkanes (>C <sub>16</sub> )        | B388, B407, B420,<br>B478, B488, B507,<br>B540, B549, B596,<br>B646 | 100-1,000 total              |

NOTES: <sup>a</sup> V = Volatile Organic fraction, B = Base/Neutral (hexane-extracted) fraction.



OFFICE OF PESTICIDES AND TOXIC SUBSTANCES, U.S. ENVIRONMENTAL  
PROTECTION AGENCY

(November 28, 1980)

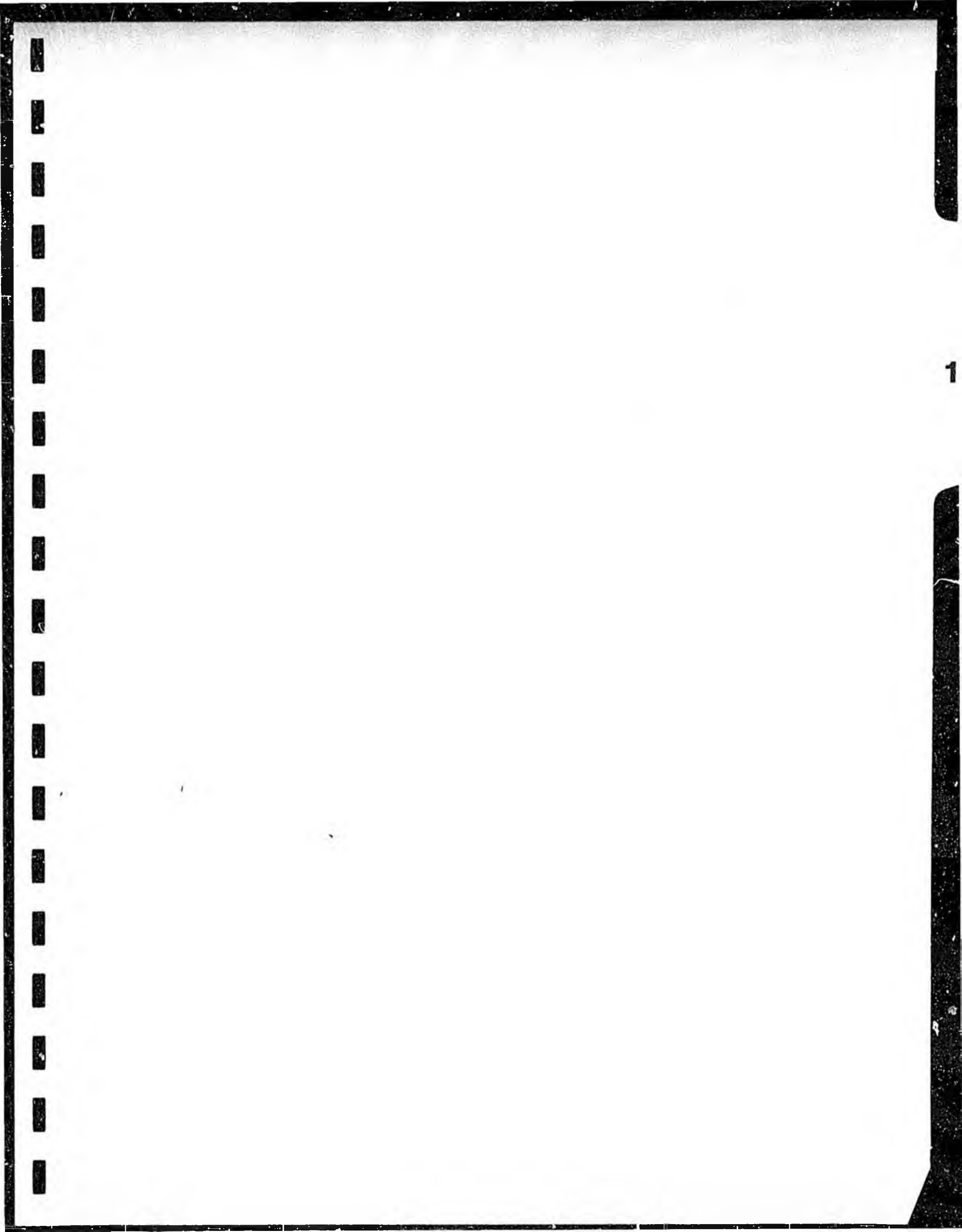
Addendum

Priority Review Level I - Di-(2-ethylhexyl) Phthalate DEHP

After this assessment was completed, Assessment Division received information from the California Department of Health Services, and from representatives of the Plumbers Union concerning actual and projected levels of DEHP in drinking water resulting from the migration of DEHP from plastic water pipe.

Water pipe made from polyvinyl chloride (PVC) and chlorinated polyvinyl chloride (CPVC) and plasticized with DEHP is in common usage and is rapidly replacing copper pipe in new home construction. While the California studies were primarily concerned with solvents used to join the pipe together, data were developed from conditions simulating use situations that indicated that DEHP may be present at up to 246 ppb in drinking water. Limited evaluations of measured levels in drinking water supplies of new homes were up to 110 ppb. These levels are considerably higher than previously recorded for drinking water and represent a risk of  $9.4 \times 10^{-5}$  and  $2.9 \times 10^{-5}$  respectively.

The DEHP levels reported in these studies varied considerably. Factors such as the physical and chemical properties of the water, dwell time, and analytical methodology frequently lead to discrepancies in reported levels for DEHP. However, these data represent the most reliable data on levels or potential levels in drinking water from DEHP containing plastic pipe.



PAUL A. TAYLOR, Ph.D.  
PRESIDENT

CHARLES J. SODERQUIST, Ph.D.  
VICE PRESIDENT

ANTHONY S. WONG, Ph.D.  
VICE PRESIDENT

RUBY A. ULRICH  
SECRETARY/TREASURER

## California Analytical Laboratories, Inc.

401 NORTH 16th STREET  
SACRAMENTO, CALIFORNIA 95814  
(916) 444-9602

March 18, 1981  
Lab Nos. 12752/12754  
Received: 3/3/81

Ray Leonardini  
717 "K" St., Suite 510  
Sacramento, CA 95814

Four pipe and fixture connector samples were received from Mr. John Gorman to be analyzed for organic constituents.

| <u>CAL I.D.</u> | <u>Sample Description</u>   |
|-----------------|---|
| 12752-1         | gray fixture connector, PB2110--QEST-H-PB2100-NSF-PW FDR 11-180°F 100 psi ASTM-D-3309 PAS CERT- (unreadable)-B137.80 1/4 CTS-062 080279 |
| 12752-2         | gray fixture connector, PB2110-IAPMO UPC PB2110-SDR11-1 BSF-pw 1/4 X 3/8-180°-100 psi-D3309-CSA-CERT                                    |
| 12754-1         | gray pipe, PB2110--QEST-H-IAPMO-UOC-PB2110-SDR11-NSF-pw 3/8 X 1/2 180°-100 psi-D-3309-CSA-CERT-B137.8 1/23/77                           |
| 12754-2         | black pipe, PB2110--NSF pw ASTM-D3309 100 psi-(unreadable)-180°F-122 1106C-(unreadable)-1/2" CTS SDR-11 P                               |

Sample Preparation: Samples 12752 and 2-foot lengths of samples 12754 were cleaned with detergent, rinsed with copious amounts of water and air dried. Representative subsamples were obtained by filing with a coarse rasn. Each subsample was rinsed with hexane and portions then placed in clean sample tubes with 5 mL of hexane (-a series) and with benzene (-b series). Identical tubes were filled with the same solvents (both were Nanograde quality) to serve as controls. The samples were held under ambient conditions for five days (for GC/MS) and for an additional five days until selective detector GC analysis was made.

Analysis I--GC/MS. Just prior to analysis by gas-chromatography mass-spectrometry (GC/MS), a 1.0 mL aliquot of the extract was removed and spiked with D-10 anthracene as an internal standard. A 5 µL portion was then injected and processed per the EPA Priority Pollutant (B/N fraction) protocol. Compounds were identified by computer searches of an EPA library, and quantities were estimated by comparison to the known amount of D-10 anthracene added.

Only the hexane extracts (-a series) were analyzed by GC/MS. The hexane blank was clean.

Ray Leonardini  
Lab Nos. 12752/12754  
March 18, 1981  
page 2

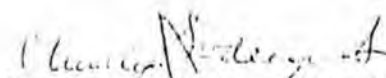
II. Specific-detector GC. Sample extracts were examined by electron-capture gas chromatography (ECD-GC) and thermionic-specific gas chromatography (TSD-GC); these detectors are generally selective for halogenated and nitrogen and/or phosphorus organics, respectively, although ECD-GC is suitable for the determination of phthalate ester plasticizers.

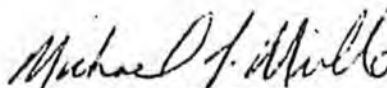
Results: The GC/MS analyses indicated that all four samples were qualitatively similar in that a series of C<sub>21</sub>-C<sub>31</sub> hydrocarbons was present in each; their total concentration was estimated to be in the 500-2,500 ppm (mg/Kg) range. Butylated hydroxytoluene (BHT) was present in each sample at the 10-50 ppm level. Bis (ethylhexyl) phthalate (DEHP) was also found at varying levels in each sample as indicated in Table I.

The TSD-GC analyses indicated that no nitrogen or phosphorus containing organic compounds, which were amenable to GC analysis, were present above 10 ppm.

The ECD-GC analyses indicated that DEHP was present in all samples. Identification and quantitation was based on co-chromatography with an authentic DEHP reference standard. Results are summarized in Table I.

Results of Table I should be considered as minimum values since the efficiency of extraction with either solvent is not known and is probably less than 100%.

  
Charles J. Soderquist, PhD  
Vice President  
Agricultural and Environmental Chemistry

  
Michael J. Mille, PhD  
Director of GC/MS Services

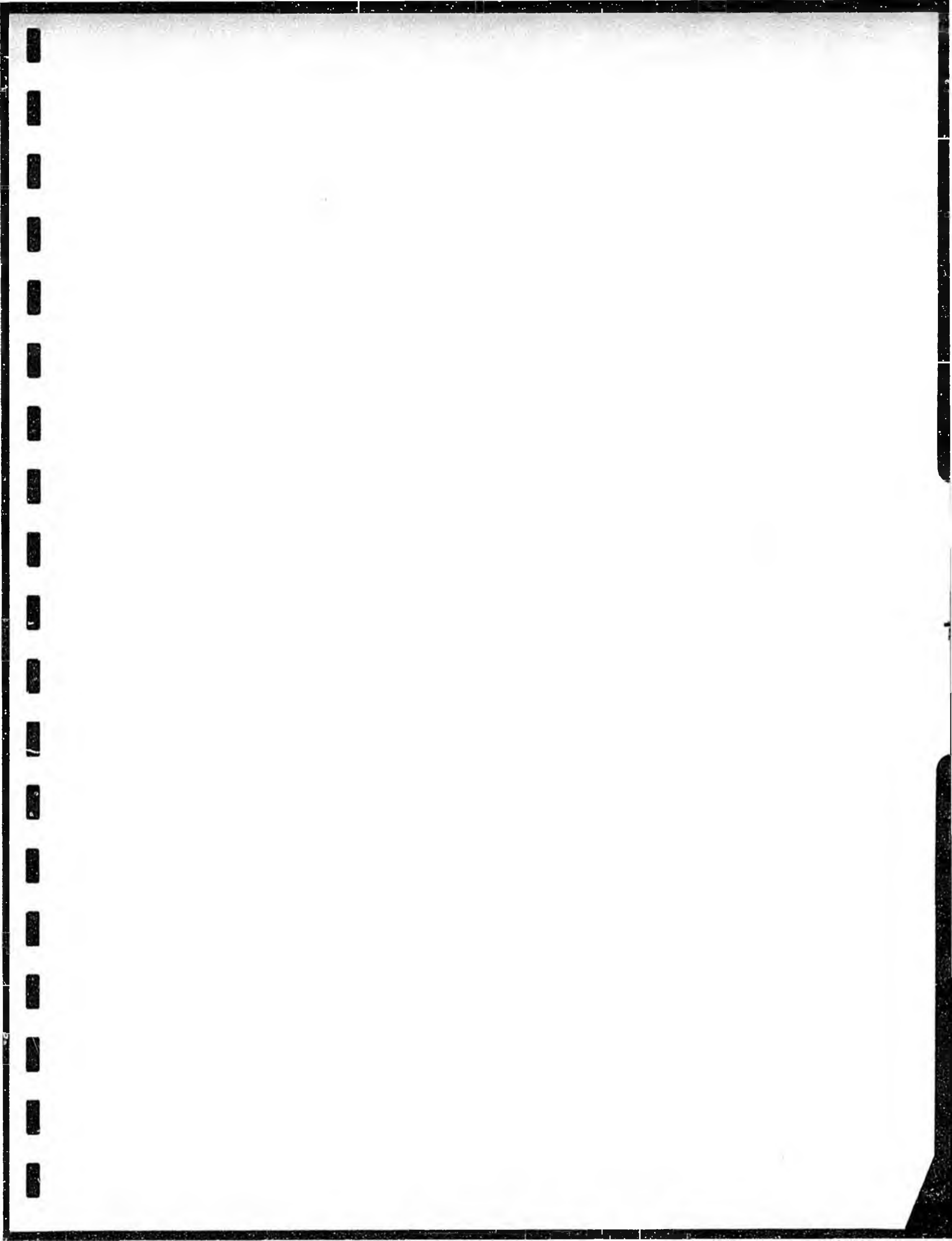
CJS/slh

Ray Leonardini  
Lab Nos. 12752/12754  
March 18, 1981  
page 3

TABLE I

| <u>Sample</u> | <u>Extractant</u> | <u>ppm DEHP found (mg/Kg)</u> |                 |
|---------------|-------------------|-------------------------------|-----------------|
|               |                   | <u>by ECD-GC</u>              | <u>by GC/MS</u> |
| 12752-1a      | Hexane            | 4.0                           | 4.5             |
| -1b           | Benzene           | 5.0                           | n.m.            |
| -2a           | Hexane            | 0.8                           | 0.6             |
| -2b           | Benzene           | 0.7                           | n.m.            |
| 12754-1a      | Hexane            | <u>&gt;20</u>                 | 32              |
| -1b           | Benzene           | <u>&gt;20</u>                 | n.m.            |
| -2a           | Hexane            | 1.8                           | 2.1             |
| -2b           | Benzene           | 1.4                           | n.m.            |

n.m. = not measured



DEPARTMENT OF HEALTH SERVICES/DEPARTMENT OF INDUSTRIAL RELATIONS

2151 HERRLEY WAY  
BERKELEY, CA 94704  
(415) 540-2115



January 28, 1981

Mr. Myron Moskowitz  
Chairman  
Commission on Housing &  
Community Development  
2371 Luvice St.  
Berkeley, CA 94707

Dear Mr. Moskowitz:

I just received a preliminary analysis of polybutylene pipe performed by the California Analytical Laboratories, Inc. (Lab. No. 12343) that contains disturbing data in light of public comments by Steve Pregrun of Shell in response to my questioning about possible contamination of polybutylene.

Specifically, Mr. Pregrun stated that polybutylene does not use plasticizers (p. 74 of the hearing record for 11/24/80). On Table 1, note that Cal Labs found 50-500 ppm of DEHP (DEHP or diethylhexylphthalate) a plasticizer singled out in my unit's final report because of its carcinogenicity in animal testing. It is disturbing that the Commission was given such apparently misleading testimony, since the potential leaching of this compound, if present in the type of PB used for potable water, poses a potential health hazard to consumers.

Obviously, this situation deserves immediate attention because of the health risk at stake. I would be happy to discuss this situation further with regard to the requirement for an EIR.

Sincerely,

Marc Lappe, Ph.D.  
Chief  
Hazard Evaluation System &  
Information Service

Enclosure

NL:vk

cc: Ephraim Kahn, M.D.  
Kathleen Acree, M.D.

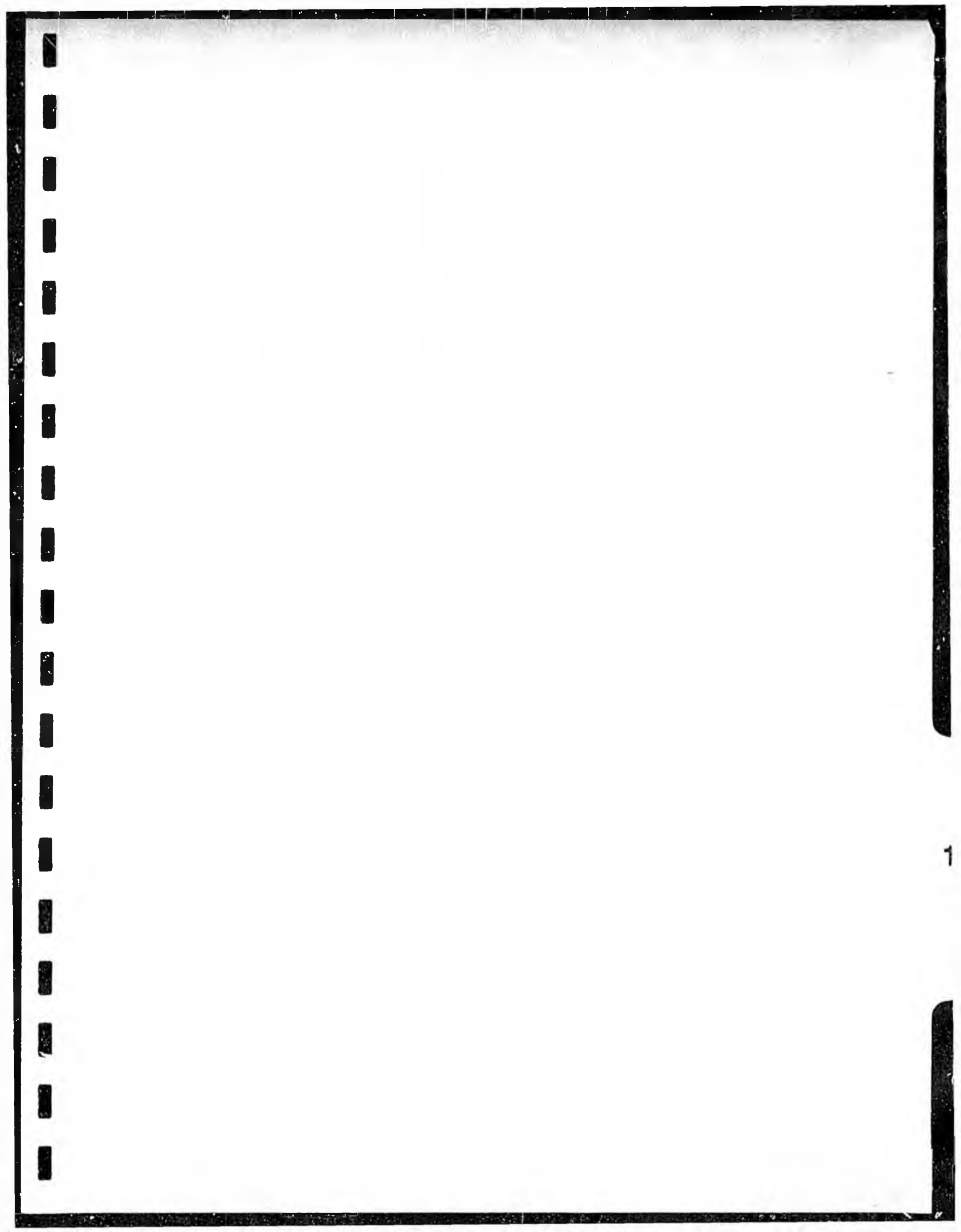
**RECEIVED**  
FEB 4 1981

Dept. of Consumer Affairs  
**EXECUTIVE OFFICE**  
**SACRAMENTO**

TABLE I

| <u>Sample</u>                             | <u>Compound</u>                       | <u>GC/MS reference scan no.</u> <sup>a</sup>                        | <u>Estimated level, ppm (mg/kg)</u> |
|---|---------------------------------------|---|-------------------------------------|
| 12343-1                                   | butene                                | V72   | 0.1-1.0                             |
|   | acetone                               | V92   | 0.5-5.0                             |
|   | diethyl ether                         | V160  | 0.01-0.1                            |
|   | methyl cyclopentane                   | V226  | 0.1-1.0                             |
|   | methyl cyclohexane                    | V324  | 1-10                                |
|   | 3-methyl hexane                       | V373  | 1-10                                |
|   | 3-ethyl-3-methyl pentane              | V386  | 1-10                                |
|   | heptane                               | V437  | 1-10                                |
|   | 5 alkanes (>C <sub>16</sub> )         | B407, B421, B479<br>B496, B647                                      | 100-1000 total                      |
|   | butylated hydroxy toluene (BHT)       | B533  | 50-500                              |
|   | bis (2-ethylhexyl)phthalate<br>(BEHP) | B633  | 50-500                              |
| a C <sub>18</sub> -C <sub>19</sub> alkene | B681                                  | 5000-50,000   |                                     |
| 12343-2                                   | acetone                               | V93   | 0.5-5.0                             |
|   | diethyl ether                         | V161  | 0.05-0.5                            |
|   | methyl cyclohexane                    | V325  | 0.5-5.0                             |
|   | 2,3,3-trimethyl hexane                | V388  | 0.5-5.0                             |
|   | 10 alkanes (>C <sub>16</sub> )        | B388, B407, B420,<br>B478, B488, B507,<br>B540, B549, B596,<br>B646 | 100-1,000 total                     |

NOTES: <sup>a</sup> V = Volatile Organic fraction, B = Base/Neutral (hexane-extracted) fraction.



Radian # 225-065

# Analysis of Polybutene Pipe Leachate For Selected Organic Species

March, 1981

Presented to:

Shell Development Company  
Westhollow Research Center  
Houston, TX

**RADIAN**  
CORPORATION



Radian Contract No. 225-065-07

ANALYSIS OF POLYBUTENE PIPE LEACHATE  
FOR SELECTED ORGANIC SPECIES

12 March 1981

Presented to:

Shell Development Company  
Westhollow Research Center  
3333 Highway 6 South  
Houston, Texas 77082

Prepared by:

Radian Corporation  
P. O. Box 9948  
Austin, Texas 78766

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1.0 INTRODUCTION

This report summarizes Radian's results from the determination of various organic species in four polybutene pipe leachate samples. The samples were analyzed for organic priority pollutants and other specific organic compounds.

This report contains in Section 2.0 Results, and in subsequent sections, a discussion of analytical methodology, sample control and quality assurance/quality control. A discussion of the results is presented in Section 5.0.

2.0 RESULTS

The results from the analyses of the organic priority pollutants and the specific organic compounds requested are summarized in Table 2-1. No other priority pollutants or specific organic compounds were detected in the samples. Table 2-2 summarizes the required sensitivity limit for these species in water according to the methodology employed. In order to obtain this sensitivity limit for the weakly responding compounds, the analytical instrumentation conditions are adjusted such that most of the compounds can be detected at concentrations well below the required limits. For example, the values for toluene reported are below this required sensitivity limit. Although the identification of this compound was done with a high degree of certainty, the quantitative measurement is less precise at these low concentrations.

The mass spectral data files were also examined to determine what other organic compounds were present. During this examination three deuterated compounds were detected in the base/neutral extract. Subsequent conversation with Shell personnel indicated that these compounds were spiked into the water before the leaching study as a quality control indicator. The concentration and percent recovery of these spikes is presented in Table 2-3.

The mass spectral data files were also searched for the following specific organic species:

| <u>VOA Fraction</u> |                          | <u>Base/Neutral Fraction</u>               |
|---------------------|--------------------------|--|
| tetrahydrofuran     | methyl cyclopentane      | alkanes - C <sub>10</sub> -C <sub>30</sub> |
| dimethyl formamide  | methyl cyclohexane       | butylated hydroxy                          |
| methylethyl ketone  | 3-methyl hexane          | toluene (BHT)                              |
| cyclohexanone       | 3-ethyl-3-methyl pentane | alkenes C <sub>15</sub> - C <sub>20</sub>  |
| butene              | heptane                  |  |
| diethyl ether       | 2,3,3-trimethylhexane    |  |

With the exception of tetrahydrofuran none of these species were found in any of the samples.

TABLE 2-1. RESULTS FROM ANALYSIS OF SHELL SAMPLES

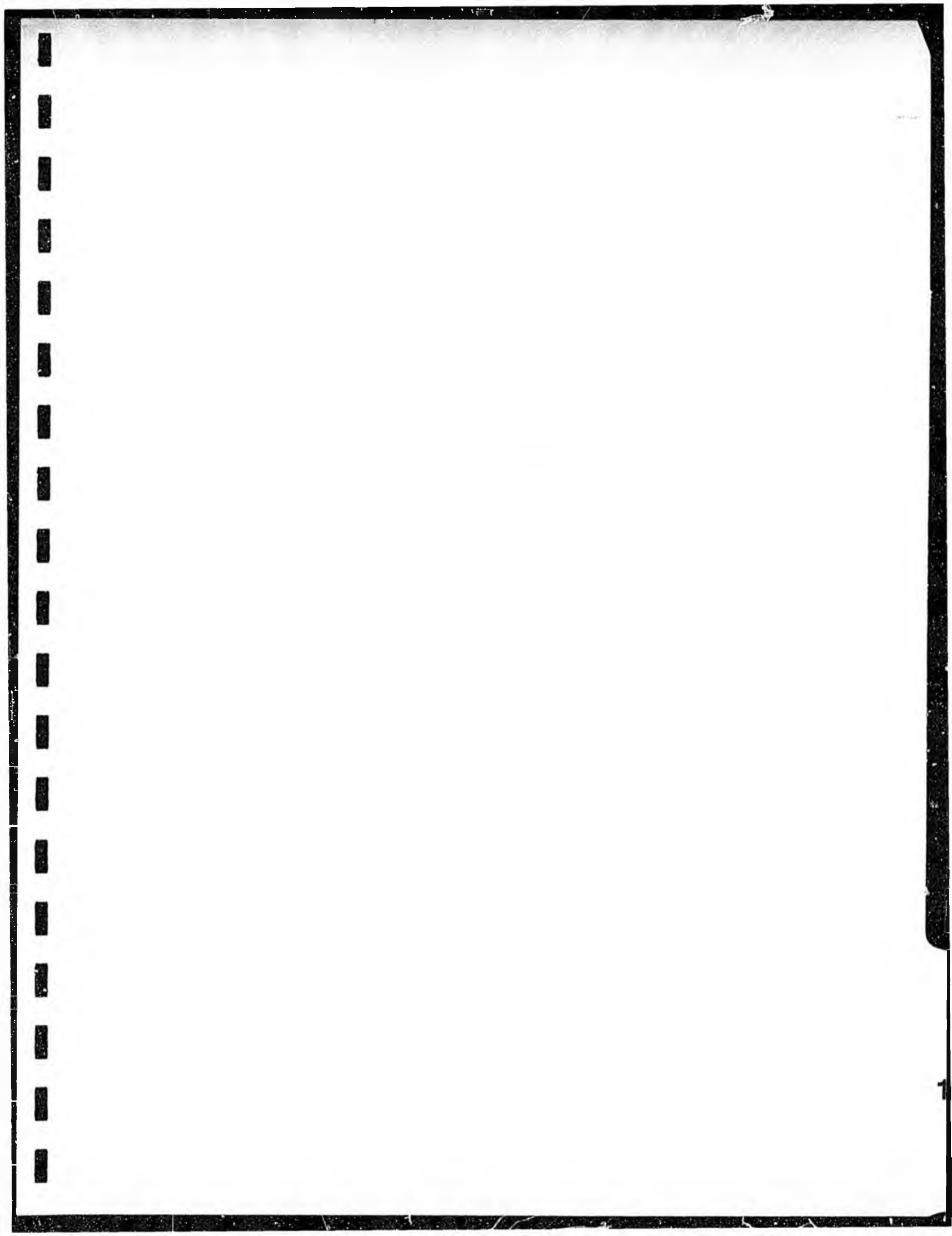
| Pollutant   | Concentration, mg/L <sup>total</sup> |                  |              |                           |
|---|--------------------------------------|------------------|--------------|---------------------------|
|   | 180°                                 | Room Temperature | Control 180° | Control, Room Temperature |
| I. Volatile Fraction  |                                      |                  |              |                           |
| Methylene chloride  | .028                                 | .023             | .018         | .016                      |
| Tetrahydrofuran*  | .072                                 | .063             | .029         | .036                      |
| Toluene   | .002                                 | ND               | .002         | .002                      |
| II. Base/Neutral Fraction   |                                      |                  |              |                           |
| No Priority Pollutants Detected/No Specific Organic Pollutants Detected |                                      |                  |              |                           |
| III. Acid Fraction  |                                      |                  |              |                           |
| No Priority Pollutants Detected/No Specific Organic Pollutants Detected |                                      |                  |              |                           |

\*Not a priority pollutant. Compound was on list of specific organic pollutants.

TABLE 2-2. SENSITIVITY LIMITS FOR  
ORGANIC PRIORITY POLLUTANTS

| Pollutant                      | Limit (mg/L) | Pollutant   | Limit (mg/L) |
|--------------------------------|--------------|---|--------------|
| <b>I. VOLATILE COMPOUNDS</b>   |              | <b>III. BASE/NEUTRAL COMPOUNDS</b>                        |              |
| 1V Acrolein                    | 0.1          | 1B Acenaphene   | 0.01         |
| 2V Acrylonitrile               | 0.1          | 2B Acenaphthylene   | 0.01         |
| 3V Benzene                     | 0.01         | 3B Anthracene   | 0.01         |
| 4V bis(Chloromethyl)ether      | 0.01         | 4B Benzidine  | 0.01         |
| 5V Bromoform                   | 0.01         | 5B Benzo(a)anthracene                                     | 0.01         |
| 6V Carbon tetrachloride        | 0.01         | 6B Benzo(a)pyrene   | 0.01         |
| 7V Chloro benzene              | 0.01         | 7B 3,4-Benzofluoranthene                                  | 0.01         |
| 8V Chlorodibromomethane        | 0.01         | 8B Benzo(g,h,i)perylene                                   | 0.025        |
| 9V Chloroethane                | 0.01         | 9B Benzo(k)fluoranthene                                   | 0.01         |
| 10V 2-Chloroethylnvinyl ether  | 0.01         | 10B bis(2-chloroethoxy)methane                            | 0.01         |
| 11V Chloroform                 | 0.01         | 11B bis(2-chloroethyl)ether                               | 0.01         |
| 12V Dichlorobromomethane       | 0.01         | 12B bis(2-chloroisopropyl)ether                           | 0.01         |
| 13V Dichlorodifluoromethane    | 0.01         | 13B bis(2-ethylhexyl)phthalate                            | 0.01         |
| 14V 1,1-Dichloroethane         | 0.01         | 14B 4-bromophenyl phenylether                             | 0.01         |
| 15V 1,2-Dichloroethane         | 0.01         | 15B Butyl benzyl phthalate                                | 0.01         |
| 16V 1,1-Dichloroethylene       | 0.01         | 16B 2-chloronaphthalene                                   | 0.01         |
| 17V 1,2-Dichloropropene        | 0.01         | 17B 4-chlorophenyl phenyl ether                           | 0.01         |
| 18V 1,2-Dichloropropylene      | 0.01         | 18B Chrysene  | 0.01         |
| 19V Ethylbenzene               | 0.01         | 19B Dibenzo(a,h)anthracene                                | 0.025        |
| 20V Methyl bromide             | 0.01         | 20B 1,2-Dichlorobenzene                                   | 0.01         |
| 21V Methyl chloride            | 0.01         | 21B 1,3-Dichlorobenzene                                   | 0.01         |
| 22V Methylene chloride         | 0.01         | 22B 1,4-Dichlorobenzene                                   | 0.01         |
| 23V 1,1,2,2-Tetrachloroethane  | 0.01         | 23B 3,3'-Dichlorobenzidine                                | 0.01         |
| 24V Tetrachloroethylene        | 0.01         | 24B Diethyl phthalate                                     | 0.01         |
| 25V Toluene                    | 0.01         | 25B Dimethyl phthalate                                    | 0.01         |
| 26V 1,2-trans-Dichloroethylene | 0.01         | 26B Di-n-butyl phthalate                                  | 0.01         |
| 27V 1,1,1-Trichloroethane      | 0.01         | 27B 2,4-Dinitrotoluene                                    | 0.01         |
| 28V 1,1,2-Trichloroethane      | 0.01         | 28B 2,6-Dinitrotoluene                                    | 0.01         |
| 29V Trichloroethylene          | 0.01         | 29B Di-n-octyl phthalate                                  | 0.01         |
| 30V Trichlorofluoromethane     | 0.01         | 30B 1,2-Diphenyl hydrazine<br>(as Azobenzene)             | 0.01         |
| 31V Vinyl chloride             | 0.01         | 31B Fluoranthene  | 0.01         |
| <b>II. PESTICIDES</b>          |              | 32B Fluorene  | 0.01         |
| 1P Aldrin                      | 0.01         | 33B Hexachlorobenzene                                     | 0.01         |
| 2P α BHC                       | 0.01         | 34B Hexachlorobutadiene                                   | 0.01         |
| 3P β BHC                       | 0.01         | 35B Hexachlorocyclopentadiene                             | 0.01         |
| 4P γ BHC                       | 0.01         | 36B Hexachloroethane                                      | 0.01         |
| 5P δ BHC                       | 0.01         | 37B Indeno(1,2,3-c,d)pyrene                               | 0.025        |
| 6P Chlordane                   | †            | 38B Isophorone  | 0.01         |
| 7P 4,4'-DDT                    | 0.01         | 39B Naphthalene   | 0.01         |
| 8P 4,4'-DDE                    | 0.01         | 40B Nitrobenzene  | 0.01         |
| 9P 4,4'-DDD                    | 0.01         | 41B N-Nitrosodimethylamine                                | †            |
| 10P α-endosulfen               | 0.01         | 42B N-Nitrosodi-N-propylamine                             | 0.01         |
| 11P β-endosulfen               | 0.01         | 43B N-Nitrosodiphenylamine<br>(detected as diphenylamine) | 0.01         |
| 12P Endosulfen sulfate         | 0.01         | 44B Phenanthrene  | 0.01         |
| 14P Endrin                     | 0.01         | 45B Pyrene  | 0.01         |
| 15P Endrin aldehyde            | 0.01         | 46B 1,2,4-Trichlorobenzene                                | 0.01         |
| 16P Heptachlor                 | 0.01         | <b>IV. ACID COMPOUNDS</b>                                 |              |
| 17P Heptachlor epoxide         | 0.01         | 1A 2-chlorophenol   | 0.025        |
| 18P PCB-1242                   | †            | 2A 2,4-Dichlorophenol                                     | 0.025        |
| 19P PCB-1264                   | †            | 3A 2,4-Dimethylphenol                                     | 0.025        |
| 20P PCB-1221                   | †            | 4A 2,6-Dinitro-o-cresol                                   | 0.250        |
| 21P 2,4-D232                   | †            | 5A 2,4-Dinitrophenol                                      | 0.025        |
| 22P PCB-1248                   | †            | 6A 2-Nitrophenol  | 0.025        |
| 23P PCB-1260                   | †            | 7A 4-Nitrophenol  | 0.025        |
| 24P PCB-1016                   | †            | 8A p-Chloro-m-cresol                                      | 0.025        |
| 25P Toxaphene                  | †            | 9A Pentachlorophenol                                      | 0.025        |
|                                |              | 10A Phenol  | 0.025        |
|                                |              | 11A 2,4,6-Trichlorophenol                                 | 0.025        |

\*EPA has not yet published determination limits for these pollutants.



PAUL A. TAYLOR, Ph.D.  
PRESIDENT

CHARLES J. SODERQUIST, Ph.D.  
VICE PRESIDENT

ANTHONY S. WONG, Ph.D.  
VICE PRESIDENT

RUBY A. ULRICH  
SECRETARY/TREASURER

## California Analytical Laboratories, Inc.

401 NORTH 16th STREET  
SACRAMENTO, CALIFORNIA 95814  
(916) 444-9602

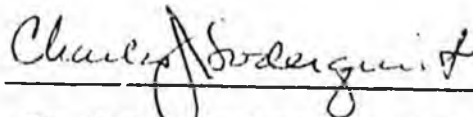
REVIEW AND EVALUATION

OF

RADIAN CORPORATION'S

(Under Contract for:  
Shell Development Company)

"ANALYSIS OF POLYBUTENE PIPE LEACHATE  
FOR SELECTED ORGANIC SPECIES" March 1981



Charles J. Soderquist, Ph.D.

April 1981

## INTRODUCTION

At the request of Mr. Raymond Leonardini, California Analytical Laboratories, Inc. (C.A.L.) has prepared a brief review and evaluation of the Radian Corporation's "Analysis of Polybutene Pipe Leachate for Selected Organic Species," March 1981. Radian's report was conducted under a contract with Shell Development Company.

While the Radian report is the core document, it cannot be adequately and properly evaluated without reference to the March 13, 1981, letter of S.E. Pregon, Staff Business Representative, Polybutylene Department, Shell Chemical Company, to the Chair of the California Commission on Housing and Community Development. As a result, analysis and evaluation of this letter is also included.

## RADIAN REPORT

The Radian report ("Analysis of Polybutene<sup>1/</sup> Pipe Leachate For Selected Organic Species," March 1981) is typical of that expected from an analytical laboratory. The inclusion of Quality Assurance/Quality Control data (Tables 4-1 and 4-2) and the acceptable recovery of spiked surrogates (Table 2-3) indicates that adequate VOA, Base/Neutral, and Acid fraction GC-MS analyses were performed.

In brief, we find little fault with the Radian data as stated. Radian received certain water samples from an unknown water system, drawn by an unknown separate entity (apparently Shell), and used a standard EPA approved protocol (the standard protocol also used by C.A.L. and other labs for GC-MS analysis). The problem, if there is one, is in what Radian did not report. The inadequacy of the study, in other words, is not in the reporting of the data. Rather it is in the lack of any information regarding the methods of obtaining the leachates.

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1. The terms "polybutene" and "polybutylene" are interchangeable from a chemical viewpoint. Whether or not this reflects actual differences in the constituent elements or functions of the chemical, e.g. potable water piping vis a vis piping for other purposes, is not known.

For example, we note that the Priority Pollutant List (of 112 selected pollutants) has been used by both Radian and C.A.L. mainly because of its convenience. That is, the protocol has been validated (under EPA sanction) to yield acceptable results, using routine methodology for 112 industrial compounds. There is no objective reason to suspect that any of these Priority Pollutants would be present in polybutylene (or any other) plastic pipe. The list was designed as a screen for industrial chemical plant effluents, not potable drinking water transport devices.

The potential presence of plastic pipe additives (stabilizers, etc.) which are not amenable to this general (GC-MS) technique has not been successfully explored since independent investigators have not had access to manufacturing data. In other words, the method of sample preparation (e.g., the extraction technique) and the style of contaminant identification (GC-MS or others) is dependent, to a certain extent, on some prior knowledge of the potential contaminants.

Organotin compounds, for example, are known additives in some types of plastic pipe, yet their presence or absence would not be indicated by the Priority Pollutant GC-MS technique. Knowledge of the possible presence of organotin compounds would allow development of analytical methodologies consistent with assessment of their "leachability" into potable water.

One final comment, minor though troubling, on the Radian report itself. It is uncharacteristic of an analytical laboratory to use the terms "ultratrace" and "insignificant in terms of potential health effects." (Report p. 11) As to the former term, it is a relative term and unscientific. It connotes impressions inappropriate in data reporting.<sup>2/</sup> As to the latter terms, analytical chemists are not qualified to render such medical judgments.<sup>3/</sup>

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2. For example, 0.072 mg/L THF is labelled "ultratrace," yet is 7 times greater than their presumed detection limit.

3. The toxicity questions and health-effect value judgments are reserved, appropriately, for epidemiologists, pathologists and the like.

SHELL CHEMICAL LETTER OF MARCH 13, 1981

With the absence of the expected scientific explanation in the Radian report, it becomes necessary to review Shell's letter to the Housing Commission wherein some scientific details are given.<sup>4/</sup>

The Material Studied by Radian. At the outset, note that no experimental details of the materials used to leach the pipe are provided. More fundamentally, "water extractable material" (first sentence of Shell's letter) is vague and ambiguous. Since Radian did not construct the pipe experiment, does this terminology mean Radian received the water or some other "extractable material"?

Moreover, assuming Radian received water samples from certain pipe from Shell, what are the characteristics of the pipe itself? Is PB 4127 the same grade as PB 2110? Is it used for potable water? Was the manufacturing (extrusion) process conducted by Shell or an independent manufacturer?

Experimental Procedure. A number of questions should be answered before any useful scientific conclusions can be drawn on the validity of the water samples.

- 1) Was the pipe-to-water ratio consistent with expected consumer use ratios?
- 2) Was the pipe leached in a sealed container (to prevent loss of volatiles)?
- 3) What was the quality of the water?
- 4) Were the leachates delivered to Radian in glass containers? Sealed? With headspace? Bubbles?
- 5) Were samples transported in cold and amber bottles to prevent decomposition? Ambient and in clear glass?

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4. Please note, however, the letter is written by a "Staff Business Representative" of the Shell Chemical Company. His scientific credentials are not stated. Moreover, it is unusual that the protocol described by this gentleman was not described by Radian. Apparently, though not stated in either document, some lab other than Radian constructed the pipe experiment.

Letter Item 1

"Five days" is not necessarily an "extended period" of time. By comparison, the Montgomery Study of PVC and CPVC for potable water designed multiple holding periods, up to 90 days.

Although unclear in the letter, the likelihood that the client (Shell) and not the independent contract laboratory (Radian) performed the leach procedure raises serious questions about the overall credibility of the study.

Letter Item 2

This item states that the methods were "proven capable of identifying materials at concentrations of one part per billion (ppb)." This is in direct contradiction to the actual Radian report wherein the lowest detection limit noted (Table 2-2) is 10 ppb (0/010 mg/L, ppm).

C.A.L. employs the same GC-MS technique using in-house GC/MS systems for our existing EPA contracts and for our polybutylene research.

Letter Item 3

EPA methods 624 and 625 utilize the same measurement techniques employed by C.A.L. during its pipe study.

Letter Item 4

See the discussion under the Radian test for Priority Pollutants. Note, however, that it is just as scientifically valid to theorize that such contamination resulted from ubiquitous chemical contamination in the manufacturing process.

Letter Items 6, 7, 8

Regarding these questions raised as to the source of DEHP found in the PB pipe by C.A.L., volumes could be written. In the C.A.L. report to Mr. Leonardini (C.A.L. ID # 12343, completed 31 December 80), a summary of the extraction procedure was provided. While the report did not mention the use of reagent "controls," adequate controls were included in the procedure as they are in all analytical work at C.A.L., and in any competent laboratory. C.A.L. is well aware of the ubiquitous

nature of phthalate ester plasticizers, notably DEHP. As mentioned before, stronger scientific hypotheses could be suggested for manufacturing contamination of phthalates in the Shell manufacturing process (or the pipe extrusion process) than in the laboratory context. Given the large amount of DEHP sold annually (2 billion pounds) contamination is indeed more likely at the chemical factory site than the analytical chemist test tube.

# Shell Chemical Company

A Division of Shell Oil Company



One Shell Plaza  
P.O. Box 2463  
Houston, Texas 77001

March 13, 1981

Mr. Myron Moskovitz, Chairman  
Commission on Housing and Community Development  
921 Tenth Street  
Sacramento, CA 95814

Dear Mr. Moskovitz:

As a followup to our meeting of February 23, 1981, we have enclosed data developed on water extractable material leached from PB 4127 polybutylene pipe. We will attempt to summarize the position of Shell Chemical Company on the reason, procedure, and conclusions derived from the analysis.

There have been repeated claims by the California Pipe Trades Council that polybutylene might contain chlorinated hydrocarbons, aromatic hydrocarbons, phthalate plasticizers, or polychlorinated biphenyls and might leach these materials into potable water. Two separate tests have been conducted which challenge all of these allegations. The tests were conducted by Radian Corporation of Austin, Texas, at Shell's request and by California Analytical Laboratories, Inc. for the California Pipe Trades Council.

Let us first discuss the Radian report (copy enclosed) and its findings. Radian is a recognized EPA contractor and often performs analyses of trace contaminants in water for various governmental agencies as well as private industry.

- 1) Polybutylene, PB 4127 pipe, produced from commercial lot No. 10APP016, was cut up and allowed to soak in pure water for five days at temperatures of 73°F and 180°F. This set of conditions was chosen in order to test the pipe under environmental conditions similar to its intended service use. The steps of cutting the pipe and soaking for an extended period were intended to maximize the amount of any extractable materials in the aqueous phase.
- 2) The water leachate was then analyzed by the most sophisticated chemical techniques (i.e., GC/MS). These methods were proven capable of identifying materials at concentrations of one part per billion (ppb).
- 3) The water was analyzed using procedures for water as suggested by the Environmental Protection Agency Methods 624 and 625 as published in the Federal Register on December 3, 1979.
- 4) The data were analyzed for any evidence of the 112 materials listed on the federal Priority Pollutants list. Three materials were found at ultra trace contamination levels in the pipe extract. These are common laboratory contaminants and may have come from a source other than the pipe leachate. (See Table 2-1.)

- 5) No trace of any of the alleged carcinogenic materials suggested as possible pollutants by the California Pipe Trades Council were found in the water extract -- meaning that a homeowner would not be exposed to any hazardous materials as a result of having a polybutylene plumbing system. The same statement, of course, cannot be made for metal pipes.
- 6) California Analytical Laboratories, Inc., under the sponsorship of the California Pipe Trades Council, conducted a separate test under conditions which differed in protocol from the Radian procedure. Nevertheless, they were also unable to find any of the many carcinogens which were alleged to exist in polybutylene plumbing pipe. None of the materials claimed to be found by California Analytical Laboratories, Inc. (Table I, Letter of Dr. M. Lappe to the Commission on January 28, 1981) were found in the Radian extraction test.

The basic difference in methodology was that Radian used a water leachate study to represent conditions the pipe would see in service. California Analytical Laboratories, Inc. used large volumes of solvent with small amounts of pipe, thus magnifying the effect of any trace contaminants which might occur in the solvent. Necessary controls to correct for such contamination, if performed at all, were not indicated in the report.

- 7) California Analytical Laboratories, Inc. did claim to find an estimated 50 - 500 ppm of DEHP in their polybutylene extract. Shell maintains that no DEHP is used to produce our pipe resin and, in addition, it is not used for the production or installation of PB pipe. We suggest that whatever was found was not introduced by Shell or our customers and is most likely a result of outside contamination or laboratory procedure.
- 8) As a point of information, an estimated two billion pounds of DEHP was sold in the U.S. during the past five years. This has gone into numerous applications such as shower curtains, seat covers, umbrellas, paper tissue, and notably, scientific laboratory tubing; but none has been used for PB pipe production. It is entirely conceivable, in fact, that the DEHP "found" by California Analytical Laboratories, Inc. was likely contamination from a source within their laboratory.
- 9) As additional backup, we plan to pick up random samples of PB 4127 pipe during the week of March 30, 1981, from various northern California suppliers. These will be tested as a composite sample, to represent a cross section of PB manufacturers. These samples will then be tested in accordance with protocol specified in the Radian report (hopefully prior to the April 20, 1981, meeting).

We invite the California Pipe Trades Council to assist in the sample gathering so they may obtain representative specimens for any further tests they may wish to conduct.

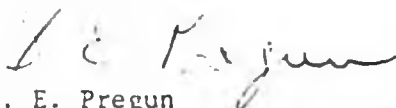
We feel the information already developed clearly indicates that polybutylene plumbing pipe not only does not present a health hazard; in fact, it is now

Mr. Myron Moskowitz, Chairman

3

clearly demonstrated to be less of a concern than any approved piping material. We see no need for this Commission to require an Environmental Impact Report -- rather, it seems, continued delay poses a risk to the health of the consumers of California by depriving them of the opportunity to use this new material.

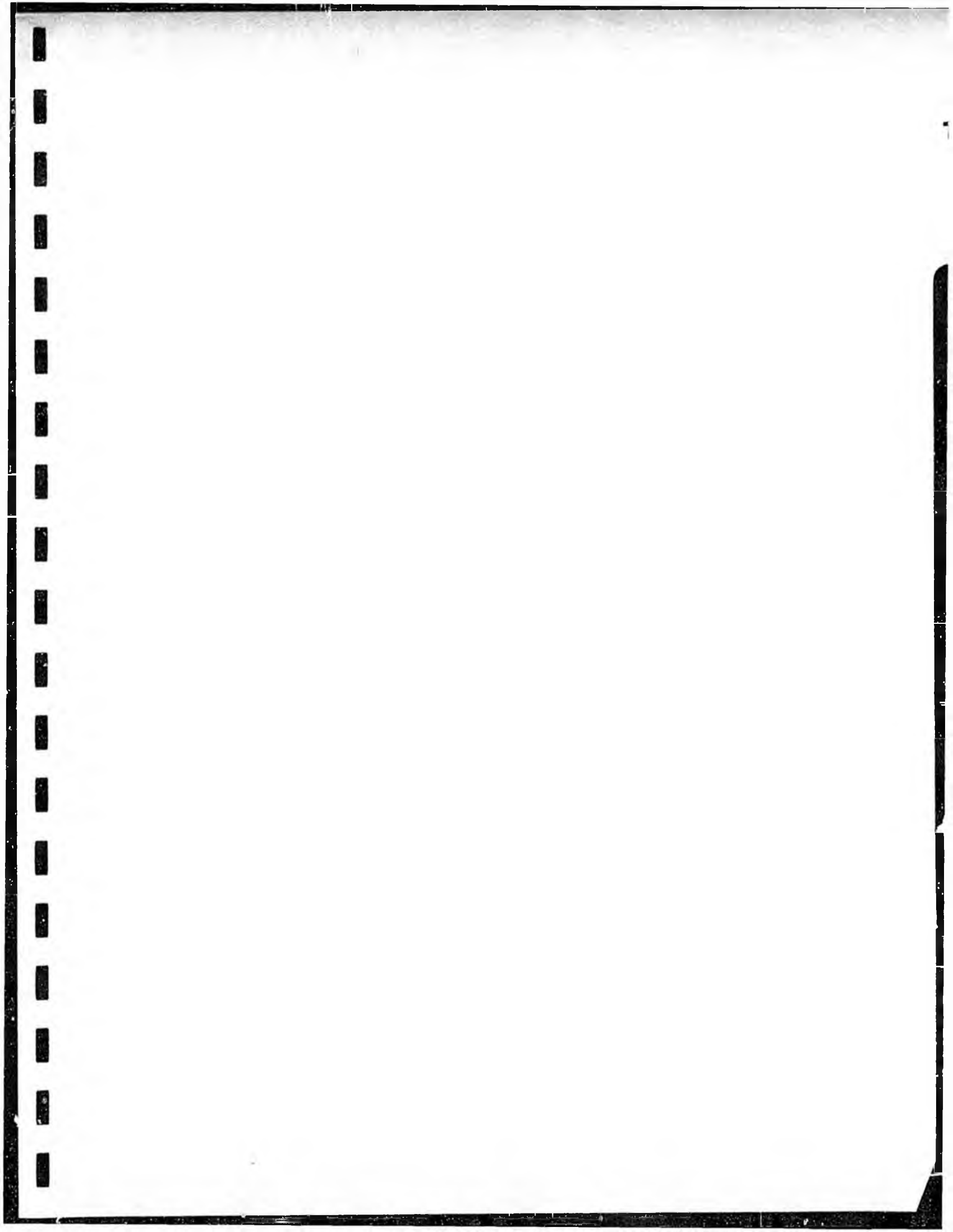
Sincerely,



S. E. Pregun  
Staff Business Representative  
Polybutylene Department

Enclosure

cc - Mr. William . . . man



70: ~~ORANGE~~ PLS DISTRIBUTE TO COMMISSIONERS WB 6/30/81  
DEPARTMENT OF HEALTH SERVICES/DEPARTMENT OF INDUSTRIAL RELATIONS  
HAZARD EVALUATION SYSTEM AND INFORMATION SERVICE (HESIS)  
2151 BERKELEY WAY  
BERKELEY, CA 94704  
(415) 540-2115

June 15, 1981



William Holliman  
McDonough, Holland & Allen  
Attorneys at Law  
555 Capitol Mall, Suite 950  
Sacramento, CA 95814

Dear Mr. Holliman:

Two important groups of data remain outstanding for assessing polybutylene's potential toxicity. The first deals with the toxicological effects of the antioxidant, Irganox 1010 or its hydrolysis products in water carried by PB pipe. As you may be aware, Irganox is a chemical analog of butylated hydroxy-toluene (BHT), a food additive in use for over 20 years. Both BHT and Irganox have been represented by Shell as being FDA-approved and, therefore, safe.

Recent developmental toxicological studies have shown that chronic, relatively low level (0.25 - 0.5% in diet) ingestion of BHT can lead to reduced weight gain, increased liver size and raised serum cholesterol in a number of separate animal tests. Other studies have shown reduced litter size following exposure during embryonic development. (For a current review, see C.V. Vorhess, et al, "Developmental neurobehavioral toxicity of butylated hydro-toluene in rats," Food and Cosmetic Toxicology 19: 153-162, 1981.)

These studies do not, of course, directly implicate Irganox; but they suggest by analogy the critical importance of obtaining two types of data for a substance otherwise considered "safe": 1) Leaching rates of Irganox from PB in different water qualities; and 2) Toxicological data pertinent to the levels of exposure likely to be encountered from ingestion of Irganox in water. I understand that latter data has been promised from Ciba-Geigy, but has not yet been received.

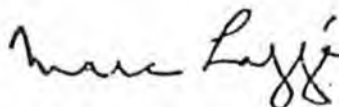
The second issue that deserves further study from a toxicological perspective is the possible presence of alkylbenzene sulphonate from PB pipe. Ambiguous data from the first Radian test suggested the presence of this emulsifier in PB pipe. I would like to see further evidence pertaining to this chemical since it is readily soluble and, if present in PB pipe, would be expected to be found in water leachates. However, it might not be seen in washed pipe, a process that I believe is undesirable prior to testing, unless the same washing process is used commercially prior to installation.

Alkylbenzene sulphonate is of concern because it can cause lysis of cells in vitro at levels as low as 5 ppm. While the relevance of such finding for possible occupational or consumer hazards of this substance is currently under review (see G.H. Pigott and J. Ishmael, "A comparison between in vitro toxicity

of PVC powders and their tissue reaction in vivo," Annals of Occupational Hygiene 22: 111-119, 1979), the presence of more than trace quantities of this potent cellular toxin in drinking water would be a cause for concern.

Please inform me of your intention to provide this additional material so that a reasonably complete preliminary assessment of polybutylene may be expeditiously completed.

Sincerely,



Marc Lappe', Ph.D.  
Staff Toxicologist

cc: Myron Moskevitch ✓  
Commission on Housing &  
Community Development

ML/sb



# Memorandum

MEMORANDUM TO THE COMMISSION OF  
HOUSING AND COMMUNITY DEVELOPMENT

Date April 20, 1961

Department of Housing and Community Development  
Office of the Director

I have recently reviewed the current status of the Commission's proceedings concerning the proposed adoption of regulations permitting the expanded use of plastic pipe. I am informed that the Commission is scheduled to decide whether or not an Environmental Impact Report should be prepared prior to taking any action to approve the expanded use of PB water pipe and ABS/PVC vent pipe.

I have reviewed this matter with members of my staff and interested members of the public. After having considered the evidence and discussed the issues with our legal counsel I am convinced that it would be most prudent for the Commission to prepare an EIR before proceeding with any decision to expand the use of plastic pipe.

My recommendation is based upon several factors. There presently is evidence in the record of the existence of potentially hazardous substances such as DEHP in polybutylene pipe and fittings. I am aware that there is also evidence in the record which suggests that there is no potential hazard from PB. Likewise, there is conflicting evidence concerning potential hazards associated with the use of ABS and PVC vent pipe. However, regardless of whether or not there is conflicting evidence, the evidence of potential hazards that has been presented to date is sufficient to legally compel the preparation of an EIR.

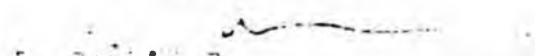
The issues in this matter have become extremely complex and esoteric. You are being asked to resolve highly technical questions such as the validity of laboratory studies, a matter which only highly trained specialists in these areas can truly answer. In addition, only within the framework of the preparation of an EIR can a reliable and unbiased answer to these questions be obtained. Such an approach would also serve to reassure an already apprehensive public and instill confidence in the ultimate decision on the merits of plastic pipe.

Page Two  
April 20, 1981

Finally, it is illustrative to remember the tremendous amount of time the Commission has devoted to deliberations on this issue. The Commission started holding hearings on plastic pipe over four years ago, in 1977. Throughout these proceedings the chief controversy has been compliance with CEQA. In this regard, numerous studies, substantial testimony and reams of documents have been presented for your consideration. This controversy could continue before the Commission for months to come. For example, further environmental evidence might be presented to the Commission at the last minute which, as has occurred throughout these proceedings, can lead to further hearings.

The evidence presented to date compels the preparation of an EIR. The only method of ensuring adherence to the law and directing this matter to a reasonable conclusion is for the Commission to require the preparation of an EIR before it takes any action to approve the use of plastic pipe. Therefore, I strongly urge the Commission to take such action.

Sincerely,

  
I. Donald Turner  
Secretary to the Commission





1020 N STREET, SACRAMENTO, CALIFORNIA 95814  
(916) 445-4465



April 16, 1981

Mr. Myron Moskovitz, Chairman  
Commission on Housing and  
Community Development  
921 Tenth Street  
Sacramento, CA 95814

Dear Chairman Moskovitz:

Transmitted herewith is our argument which demonstrates why, as a matter of law, an environmental impact report regarding polybutylene pipe is required prior to any decision by the Commission as to whether it should be approved for transporting potable water. While the appended document is sufficient to provide the legal justification necessary in this matter, I cannot allow to pass without comment the appalling procedural irregularities in this case and the highly questionable Radian report submitted by Shell Chemical Company with their accompanying letter of March 13, 1981.

I. Procedure

After being informed on April 6 that the April 20 hearing had been postponed for one month, we discovered indirectly on April 14 that the hearing had not been postponed after all! We have only subsequently discovered the intervening sequence of events which must be characterized as incomprehensible and deplorable:

- April 6 -- Upon chance inquiry by Department of Consumer Affairs staff, we were informed the April 20 hearing was postponed one month because Shell claimed it could not be prepared in time. As a result, our brief was not submitted and Commission members have not had the opportunity to review it.
- April 7 -- California Pipe Trades Council attorney was informed of postponement by Housing and Community Development attorney.
- April 7 -- Later the same day, California Pipe Trades Council attorney was informed postponement had been reconsidered and April 20 meeting would be held as previously scheduled.

- April 9 -- Department of Consumer Affairs received a Commission agenda for May 18, 1981, which showed plastic pipe consideration on the agenda.
- April 9 -- Department of Consumer Affairs Director sent a mailgram to the Housing and Community Development Commission Chairman deploring the postponement of the April 20 hearing (copy attached).
- April 10 -- California Pipe Trades Council attorney received Commission agenda for April 20, 1981, which showed plastic pipe consideration on the agenda.
- April 14 -- Member of Community Health Action Coalition (CHAC) informed Roger Dickinson, Department of Consumer Affairs attorney, that he was told by Paul Reynaga, Housing and Community Development attorney, that the hearing on PB pipe is scheduled for April 20.
- April 15 -- Confirmation of April 20 date by Department of Consumer Affairs by phone with California Pipe Trades Council attorney who also related prior conversations and notices detailed above.

We, the petitioners in this instance, have never received a call from Housing and Community Development staff regarding the on-again, off-again status of the April 20 meeting, nor have we been provided with a copy of the information submitted subsequent to the February 23 Commission meeting. We have only obtained information through our own direct inquiry or from a third party. As a result, we have suffered from a lack of information which has unreasonably affected our ability to fully prepare for the April 20 hearing and unfairly prejudiced our opportunity to provide a full, complete, and thorough presentation before the Commission.

## II. The Shell Test Results

Two sets of test results submitted by California Analytical Laboratories, Inc. show the presence of DEHP. Dr. Marc Lappe, Chief of the Hazard Evaluation System for the State, has characterized these results as posing "a potential health hazard to consumers." Given this substantial evidence of potential adverse environmental effects, the courts have made it clear that contrary evidence is insufficient to overcome

April 16, 1981

the need for an EIR. Therefore, the Shell test results are insignificant in considering whether an EIR is required with respect to PB pipe.

Nonetheless, I am deeply disturbed by the lack of basic information, the lack of specificity, and the lack of consistency in the report and letter submitted by Shell. These shortcomings must certainly call into question the very validity of the testing performed and the results apparently obtained.

For example, the Radian report fails to state at any point how the samples analyzed were prepared. It is only Shell's accompanying letter which reveals that Shell itself procured some unspecified pipe and prepared the samples of "water extractable material," whatever that might be. Not only should these samples, to assure scientific integrity, have been prepared by the laboratory itself, but we have subsequently discovered the pipe analyzed is designed to conduct heat not transport water.

In addition, on page two, the Radian report reveals that Shell personnel spiked the water before the leaching study! Why was the spiking done? Should not the laboratory itself have prepared sufficient samples, including control samples, to assure both the validity and the veracity of their results? How are we to know that Shell followed the recommended EPA protocol? Absent some unimaginable explanation, such a procedure must surely be considered invalid for offering reliable evidence of the potential leaching properties of polybutylene pipe.

Shell claims the pipe was soaked for five days, "an extended period". This characterization must be considered disingenuous at best considering the Montgomery test was based on leaching periods of 30, 60, and 90 days. Further, Shell states in its letter that the methods used to analyze the water leachate were "capable of identifying materials at concentrations of one part per billion (ppb)." In fact, the Radian report shows a detection capability of only 10 parts per billion.

Finally, the Radian results detected the presence of tetrahydrofuran, a compound not previously suggested to be present in polybutylene pipe. Where did it come from and how can a laboratory analysis by an unknown author presume to label it "insignificant in terms of potential health effects"?

In short, it requires no scientific training to harbor serious reservations regarding the validity or utility of the test

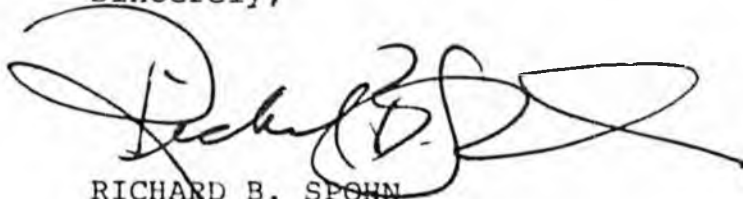
Mr. Myron Moskovitz

-4-

April 16, 1981

results so obligingly supplied by Shell. While, even if fully believable such results would not obviate the need for an EIR, it is distressing indeed to witness such an attempt to influence the Commission.

Sincerely,



RICHARD B. SPOHN  
Director

cc: William Holliman

MAILGRAM BE  
MIDDLETOWN, VA. 22645

western union

Mailgram



1-042539M103 04/13/81 TCS IMPROCC RNC SACCA  
00092 9164454465 MGM TDRN SACRAMENTO CA 04-13 1100P PST

CALIFORNIA DEPT OF CONSUMER AFFAIRS ROOM 516  
1020 N ST  
SACRAMENTO CA 95814

RECEIVED  
APR 1 1981  
DEPT OF CONSUMER AFFAIRS  
EXECUTIVE OFFICE  
SACRAMENTO

THIS MAILGRAM IS A CONFIRMATION COPY OF THE FOLLOWING MESSAGE:

9164454465 MGM TDRN SACRAMENTO CA 157 04-04 0918P EST  
ZIP  
MYRON MOSKOVITZ  
2371 EUNICE ST  
BERKELEY CA 94708  
I DEPLORE YOUR UNILATERAL DECISION TO DELAY THE HEARING ON  
OUR  
PETITION REGARDING PR PIPE. YOUR ACTION APPEARS TO BE ANOTHER  
IN THE  
LINE OF ADMINISTRATIVE MISFEITS WHICH CAUSED POSTPONEMENT  
OF THE  
DECEMBER AND JANUARY COMMISSION MEETING. WE SEE NO JUSTIFICATION  
FOR  
DELAY IN THE APRIL 20 HEARING ON THE BASIS THAT SHELL WILL  
NOT BE  
PREPARED TO OFFER REBUTTAL EVIDENCE TO THE CALIFORNIA LABORATORIES  
ANALYSTS. CEQA MAKES IT CLEAR THAT SUBSTANTIAL EVIDENCE OF  
A  
POTENTIAL SIGNIFICANT ENVIRONMENTAL EFFECT CANNOT BE NEGATED  
BY  
CONTRARY EVIDENCE. THE APPROPRIATE VEHICLE FOR OBJECTIVELY  
DEVELOPING  
AND ANALYZING EVIDENCE OF SIGNIFICANT ENVIRONMENTAL EFFECTS  
IS AN  
FIR. I WOULD APPRECIATE BEING CONSULTED PRIOR TO ANY FUTURE  
ACTION OF  
THE COMMISSION ON THIS MATTER SO THAT THE INTERESTS OF CALIFORNIA  
CONSUMERS WILL BE ADEQUATELY CONSIDERED. I ALSO FORMALLY REQUEST  
THAT  
THE COMMUNICATION BE ENTERED ON THE RECORD.  
RICHARD R SPORN, DIRECTOR  
CALIFORNIA DEPT OF CONSUMER AFFAIRS  
(EX).  
1850 EST  
23101 EST  
NONCOMP MGM



## Plastic Water Pipes Flunk A State Test

### Sacramento

Some laboratory tests indicate plastic water pipes considered for widespread residential use in California may cause sterility and cancer in humans, a state commission was told yesterday.

The Commission on Housing and Community Development had tentatively approved use of the polybutylene pipe, manufactured by Shell Chemical Co., beginning on November 24.

The commission later delayed final authorization for expanded use of the pipe in California to allow more time to consider potential health hazards.

The pipe would be used instead of galvanized or copper pipes.

In yesterday's hearing, state Consumer Affairs Director Richard Spohn said tests by the California Analytical Laboratory indicated a chemical known as DEHP, which has been found to cause cancer and sterility in laboratory animals, may exist in hazardous quantities in the pipe.

"One scientist has dubbed DEHP the equivalent of a chemical vasectomy," Spohn said. "If you do approve the use of this pipe, it is quite likely there will be widespread use throughout the state. You'd want to be pretty certain that you don't cause a massive sterilization."

The commission also received a letter from I. Donald Turner, director of the Department of Housing and Community Development, and a telephone call from state Fire Marshal Phil Favro. Both asked for further study of the pipe.

But Shell's lawyer, William Holliman, told the commission that Spohn gathered all his data from one set of test results and that another laboratory, financed by Shell, has repeatedly found nothing linking the pipe to cancer.

Before Holliman's testimony, Myron Moskowitz, chairman of the Housing and Community Development Commission, said he already had decided to require further study before the pipe was authorized. This statement angered Holliman, who said it "prejudiced the other commissioners" before they had a chance to vote on the issue.

*United Press*

A8 The Sacramento Bee • Tuesday, April 21, 1981 ★ ★



## Cancer Fears Delay Plastic Pipe OK

Laboratory tests indicate that plastic water pipes considered for widespread residential use in California may cause sterility and cancer in humans, a state commission was told Monday.

The Commission on Housing and Community Development has delayed final authorization for use of the polybutylene pipe, manufactured by Shell Chemical Co., on Nov. 24.

In Monday's hearing, state Consumer Affairs Director Richard Spohn said tests by the California Analytical Laboratory indicated a chemical known as DEHP, which has been found to cause cancer and sterility in laboratory animals, may exist in hazardous quantities in the pipe.



State and Consumer Services Agency



OFFICE OF THE SECRETARY  
1220 N STREET SUITE 409  
SACRAMENTO CA 95814  
(916) 445-1935

DEPARTMENT OF CONSUMER AFFAIRS  
DEPARTMENT OF GENERAL SERVICES  
DEPARTMENT OF VETERANS AFFAIRS  
FRANCHISE TAX BOARD  
OFFICE OF THE STATE FIRE MARSHAL  
STATE PERSONNEL BOARD  
STATE TEACHERS' RETIREMENT SYSTEM  
PUBLIC EMPLOYEES' RETIREMENT SYSTEM  
CALIFORNIA PUBLIC BROADCASTING COMMISSION  
MUSEUM OF SCIENCE AND INDUSTRY  
INTERGOVERNMENTAL PERSONNEL  
ACT GRANT PROGRAM

July 21, 1981

John Gorman  
California Pipe Trades Council  
614 Gibson Road  
Woodland, California 95695

Dear John,

This is in reply to your request for clarification of the legal relationship between the California Building Standards Law and the California Environmental Quality Act (CEQA).

I

Housing and Community Development Commission  
Amendments to 1979 Uniform Plumbing Code

HCD is proposing several amendments to the 1979 UPC by allowing for expanded use of plastic plumbing pipe. After several months of public testimony, the HCD determined (and voted) that prior to any decision to adopt these regulations, an Environmental Impact Report (EIR) must be developed in compliance with the California Environmental Quality Act (CEQA). As you well recall, I appeared at one such hearing (November 24, 1980) and stated on the record that HCD must comply with requirements for an EIR prior to submitting proposed building standards to the SBSC.

While beginning the EIR process, the HCD budget was deleted by the Legislature, casting doubt as to when, if at all, the EIR will be completed. Nonetheless, several legal issues remain. In particular, should the 1982 UPC incorporate all of the HCD proposed amendments to the 79 UPC, may HCD adopt the new code by reference without filing an EIR?

As discussed below, HCD may not adopt such building standards by reference without complying with CEQA. Furthermore, the SBSC cannot approve such adoption without a demonstration of compliance with CEQA by the adopting agency.

## II

## Building Standards and CEQA\*

The new California State Building Standards Law (Chapters 1 - 5 of Part 2.5 of Division 13, Health and Safety Code, Sections 18901 et. seq.) provides for uniformity and consistency in code promulgation through compliance with eight specified criteria (Health and Safety Code § 18930). State agencies, including the Commission on Housing and Community Development, must comply with all of these criteria before any of their "proposed" regulations\*\* can be "approved and have full binding legal effect." (Cf. Health and Safety Code § 18905.)

One such criterion states: "the proposed building standard (must be) within the parameters established by enabling legislation. (Health and Safety Code § 18930(a)(2).) To meet this criterion, the adopting agency must demonstrate compliance with other applicable substantive and procedural requirements of law in its adoption of building standards." 24 Cal. Admin. C. §§ 1-304(c)(2)(C).

The California Environmental Quality Act (Pub. Res. C. §§ 21000 et. seq., "CEQA") is clearly "applicable substantive law." The Legislature, it appears, specifically sought to include building standards within the scope of CEQA:

"All agencies of state government which regulate activities of private individuals, corporations.... shall regulate such activities so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian.; (Pub. Res. C. § 21000(g).) (Emphasis added.)

Therefore, once an adopting agency has made a finding that its proposed building standards are subject to CEQA, and the public record indicates that they have made such a finding, then the SBSC must review and evaluate such building standards in light of CEQA. (Health and Safety Code § 18930(a)(2).)

---

\* This analysis is confined to an interpretation of the Building Standards law (1979 Statutes, Chapter 1152) as it relates to CEQA. An analysis of the State Housing Law, although subject to CEQA, is not provided here.

\*\*Regulations "adopted" by HCD have the character only of "proposed" standards when before the BSC.

July 21, 1981

Should the adopting agency submit its building standards without compliance with CEQA (whether the submittals are in the form of amendments to model codes or in the model code itself) the standards would fail the above-noted criterion. It would be then my direction to the SBSC that such standards not be approved for failure to comply with clearly applicable statutes.

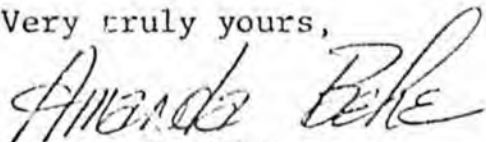
## III

## Conclusion

An adopting agency cannot avoid compliance with CEQA by adopting a "model" code by reference where the code contains material that was previously found to be subject to CEQA. To do otherwise would violate both the State Building Standards Law and the California Environmental Quality Act.

I hope this letter responds to your concerns. Please call if you have any questions.

Very truly yours,



M. Amanda Behe  
Commission Counsel

MAB:jlr

cc: William Hastie  
Wayne Jensen

PLEASE NOTE: THE PRECEDING PAGES WERE TREATED  
AS A UNIT IN THE ORIGINAL DOCUMENT.

# STATE OF ALASKA

**BILL SHEFFIELD, GOVERNOR**

## **DEPARTMENT OF LABOR**

*OFFICE OF THE COMMISSIONER*

P.O. BOX 1149  
JUNEAU, ALASKA 99802  
PHONE: (907)465-2700

May 11, 1984

The Honorable Richard Eliason  
Chairman, Senate Labor and  
Commerce Committee  
State Capitol  
Pouch V  
Juneau, AK 99811

Dear Senator Eliason:

This is in response to your request during the hearing yesterday on HB 508 regarding adoption of the 1982 Uniform Plumbing Code (UPC) by various local areas and municipalities around the state.

Enclosed are copies of letters sent out by our Mechanical Inspection office to various local officials and contractors throughout the state, advising them that the 1979 edition of the UPC was still in effect and would continue to be enforced as the State's minimum plumbing standards despite adoption of the 1982 UPC by several local jurisdictions. I have also enclosed a copy of the Superior Court's decision and order in the lawsuit brought by the Department of Labor against the City of Fairbanks, establishing that local areas and municipalities may not adopt their own plumbing codes which are less stringent than the State's minimum plumbing standards.

In response to Senator Mulcahy's question concerning fire hazards in trailers, I am informed that mobile home standards addressing this problem were first enacted in 1971 but were repealed in 1980 after the U.S. Department of Housing and Urban Development issued nationwide standards for trailers. The repealed State mobile home standards were under the jurisdiction of the Department of Commerce and Economic Development. For further information, contact Mr. Joe Swanson, Division of Measurement Standards.

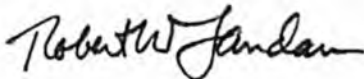
Senator Dick Eliason

-2-

May 11, 1984

I hope the above information is of assistance to you. Please contact me if you need any further information.

Sincerely,



Robert W. Landau  
Assistant Commissioner

Enclosures

cc/enc: Senator Mulcahy

FILE: AKMI (IR 3)

April 1, 1983

Arctic Sun Contracting  
Box 350  
Bethel, AK 99559

Attn. Mr. Greg Drury

Dear Mr. Drury:

You were correct in your letter; the 1982 Uniform Plumbing Code (UPC) has not been adopted by the state. When the 1982 UPC is adopted, the use of polybutylene pipe will be addressed, thus it's use should be allowed.

The state presently enforces the provisions of the 1979 UPC, which does not address the use of polybutylene, so I am not empowered to give a waiver.

In the case of the house at Lot 14, Block 10, Bethel; Mr. Rarce's greatest concern is the overall piping installation. Photographs that I have reviewed show the polybutylene tubing is installed without the proper strapping, the tubing is not plumb, and the overall installation looks very unprofessional.

This normally means that the installer has little pride in his work or has very limited knowledge about installing plumbing.

If I may be of future help, please do not hesitate to call.

Sincerely,

R. D. Cather  
Chief  
Mechanical Inspection

FILE: AKMI (IR 3)

April 29, 1983

City of Fairbanks  
410 Cushman Street  
Fairbanks, AK 99701

Attn: Mr. R. H. Hardin  
Building Official

Dear Mr. Hardin:

It is my understanding that the City of Fairbanks, Building Department, is allowing the use of ABS/PVC pipe in commercial buildings.

In reviewing the 1979 Uniform Plumbing Code, Sections 401 and 503, it is noted that ABS/PVC pipe is not allowed for commercial construction. It is only allowed in residential construction, no more than two stories in height.

The 1979 Uniform Plumbing Code, Sections 401 and 503, does not allow a waiver by the administrative authority to use ABS/PVC.

Since the 1979 Uniform Plumbing Code is the minimum state authority, under AS 18.60.705 - 740, its minimum guidelines must be met.

Sincerely,

R. D. Cather  
Chief  
Mechanical Inspection

cc: Bob Bacolas  
Don Wilson  
Adele Bacon

RDC:gr

FILE: AKMI (IR 10)

April 29, 1983

William Henderson  
DBA Pete's Place  
SR Box 90306  
Fairbanks, AK 99701

This is in response to your request for a variance to use ABS/PVC drain and vent piping in a commercial establishment.

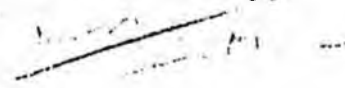
A variance cannot be granted for the following reason.

The state presently enforces the provisions of the 1979 Uniform Plumbing Code, in which the use of ABS/PVC waste/drain/venting pipe is restricted to residential construction, no more than two stories in height.

If you need confirmation, please review the Alaska state statutes: AS 18.60.705 and the 1979 Uniform Plumbing Code, Sections 401 and 503.

Should you need more help, please do not hesitate to call upon us.

Sincerely,

  
R. D. Cather  
Chief  
Mechanical Inspection

cc. Adele Bacon

*B.C.C.*  
RPO:gr

*Wilson*  
*Bacon*

FILE: AKMI (IR 3)

June 28, 1983

Harry Chartier  
City and Borough of Sitka  
Building Official  
Box 79  
Sitka, AK 99835

Dear Mr. Chartier:

Please excuse the delay in responding to your letter of June 17, 1983. It is our function to assist all the building officials in carrying out their duties. Al Anaka was following my instructions in advising the various city building officials within his inspection district, that the state's basic plumbing code is still the 1979 edition of the Uniform Plumbing Code (UPC). We are currently trying to resolve a similar problem concerning the City of Fairbanks. Suit has been filed in Fairbanks by the Department of Labor to enforce the 1979 UPC.

Rest assured it is not the intent of the state to prevent Sitka from adopting the 1982 UPC. It should be noted, however, that there are certain sections of the 1982 UPC which are less stringent than the 1979 UPC and cannot be enacted. These less stringent sections are 401 and 503, which restricts the use of ABS/PVC.

For your information, Senate Bill 214 is awaiting legislative action. If it is passed as proposed, the 1982 UPC will be the standard for the state. If you feel the 1979 UPC is obsolete, you are free to encourage the adoption of SB 214.

Sincerely,

  
Don Cather  
Chief

RDC:mn

C/R

FILE: AKMI (IR 3)

June 29, 1983

Bruce Davies  
City Manager  
City of Saxman  
Saxman, AK 99835

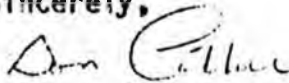
Dear Mr. Davies:

Please excuse the delay in responding to Mr. Eddy's letter of June 15, 1983. It is our function to assist all the builders and city managers in carrying out their duties. Al Anaka was following my instructions in advising the various builders, within his inspection district, that the state's basic plumbing code is still the 1979 edition of the Uniform Plumbing Code (UPC). We are currently trying to resolve a similar problem concerning the City of Fairbanks. Suit has been filed in Fairbanks by the Department of Labor to enforce the 1979 UPC.

Rest assured it is not the intent of the state to prevent Saxman from adopting the 1982 UPC. It should be noted, however, that there are certain sections of the 1982 UPC which are less stringent than the 1979 UPC and cannot be enacted. These less stringent sections are 401 and 503, which restricts the use of ABS/PVC.

For your information, Senate Bill 214 is awaiting legislative action. If it is passed as proposed, the 1982 UPC will be the standard for the state. If you feel the 1979 UPC is obsolete, you are free to encourage the adoption of SB 214.

Sincerely,



Don Cather  
Chief

RDC:mn

C/8

September 14, 1983

FILE: AKMI (IR 3)

Brice Gordon, Building Inspector  
Kodiak Island Borough  
Box 1246  
Kodiak, Alaska 99615

Dear Mr. Gordon:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.



Don Cather Chief  
Mechanical Inspection.

September 14, 1983

FILE: AKMI (IR 3)

Mayor Ronald Larson  
Matanuska-Susitna Borough  
Box R  
Palmer, Alaska 99645


Dear Mr. Larson:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cathart, Chief  
Mechanical Inspection.

September 14, 1983

FILE: AKMI (IR 3)

Mayor Stan Thompson  
Keani Peninsula Borough  
Box 850  
Keani, Alaska 99669

Dear Mr. Thompson:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

*Don Carter*  
Chief  
Mechanical Inspection.

September 14, 1983

FILE: AKMI (IR 3)

John Carlson, Mayor  
Fairbanks North Star Borough  
Box 1267  
Fairbanks, Alaska 99701

Dear Mr. Carlson:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

*Don Cather*  
Don Cather Chief  
Mechanical Inspection.

September 14, 1983

FILE: AKMI (IR 3)

Mayor Carol Fader  
Ketchikan Gateway Borough  
344 Front Street  
Ketchikan, Alaska 99901

Dear Mrs. Fader:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Joe Hill  
City of Kotzebue  
Box 46  
Kotzebue, Alaska 99752

Dear Mr. Hill:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

*Don Cather*  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Richard Underkofler  
City of Petersburg  
Box 329  
Petersburg, Alaska 99833

Dear Mr. Underkofler:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature ammends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

*Don Cather*

Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Justin Maile  
City of Soldotna  
Box 409  
Soldotna, Alaska 99669

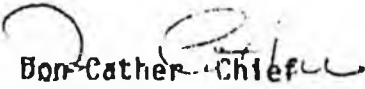
Dear Mr. Maile:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather, Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Suzi Collins  
City of Valdez  
Box 307  
Valdez, Alaska 99686

Dear Mr. Collins:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Don Cripps  
City of Seward  
Box 337  
Seward, Alaska 99664

Dear Mr. Cripps:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Leo Rasmussen  
City of Nome  
Box 281  
Nome, Alaska 99762

Dear Mr. Rasmussen:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Allen Beardsley  
City of Kodiak  
Box 1197  
Kodiak, Alaska 99615

Dear Mr. Beardsley:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Ron Malson  
City of Keani  
Box 580  
Keani, Alaska 99661

Dear Mr. Malson:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

*Don Cather*

Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Nate Olemaun  
City of Barrow  
Box 629  
Barrow, Alaska 99723

Dear Mr. Olemaun

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

*Don Cather*  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor John Guinn  
City of Bethel  
Box 388  
Bethel, Alaska 99559

Dear Mr. Guinn:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature ammends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Eugene Brower  
North Slope Borough  
Box 69  
Barrow, Alaska 99723

Dear Mr. Brower:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspection.

September 15, 1983

FILE: AKMI (IR 3)

Mayor Jack Shay  
City of Ketchikan  
Box 7300  
Ketchikan, Alaska 99752

Dear Mr. Shay:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature ammends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspector.

September 15, 1983

FILE: AKMI (IR 3)

Robert Hardin, Building Official  
City of Fairbanks  
410 Cushman St.  
Fairbanks, Alaska 99701

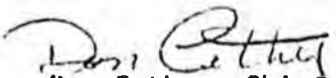
Dear Mr. Hardin:

Recently we have been questioned about the 1982 Uniform Plumbing Code and the use of ABS/PVC waste and drain piping.

Please be advised that the 1979 edition of the Uniform Plumbing Code is still in effect and is being enforced by the state as the minimum plumbing code.

Until the legislature amends AS 18.60.705, those ABS/PVC waste and drains installations subject to Chapter 401 (a) and Chapter 503 (a) of the 1979 Uniform Plumbing Code, are limited to residential construction, not more than two (2) stories in height.

Should you have any questions, please do not hesitate to call.

  
Don Cather Chief  
Mechanical Inspection.

December 22, 1983

FILE: AKMI (IR 3)

Bill Carlson  
Chairman of the Mechanical Board  
610 West 54th  
Anchorage, Alaska 99502

Dear Bill:

I have reviewed ordinance no. 83-9 and find that five of the amendments to the UPC are less stringent than the 1979 UPC as adopted by the State of Alaska under AS 18.60.705.

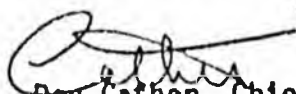
AS 18.60.735 provides for borough code administration no less stringent than those established under AS 18.60.705.

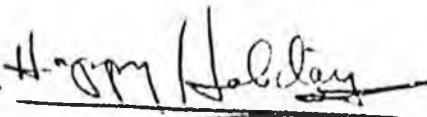
The amendments in question are 23.25.506 (f), 23.25.1003 (1), 23.25.1007 (c), 23.25.1007, and 23.25 appendix C.

We recommend the repeal of these amendments to avoid confusion and to conform to the State statutes.

We would appreciate your cooperation.

Sincerely,

  
Don Cather, Chief  
Mechanical Inspection  
Department of Labor



*But*

*City of Fairbanks*

JUNEAU OCT 10 1983

ATTORNEY GENERAL

SEP 28 1983

4th JUDICIAL DISTRICT  
STATE OF ALASKA

IN THE SUPERIOR COURT FOR THE STATE OF ALASKA  
FOURTH JUDICIAL DISTRICT

*cc: Mary Amundola*

STATE OF ALASKA, )  
 )  
 Plaintiff, )  
 )  
 vs. )  
 )  
 CITY OF FAIRBANKS, )  
 )  
 Defendant. )

FILED in the Trial Court  
State of Alaska, Fourth District

SEP 28 1983

WAYNE W. WOLFE, Clerk, Trial Courts  
By \_\_\_\_\_ Deputy

No. 4FA-83-1077 Civil

MEMORANDUM DECISION AND ORDER

This matter is presently before the court on the State of Alaska's motion for summary judgment. The State seeks declaratory relief against the City of Fairbanks for the City's failure to adhere to the Uniform Plumbing Code (UPC) as adopted by the State. AS 18.60.705. The narrow question addressed here is whether the City, a home rule municipality, may deviate from UPC standards and enforce less stringent ones.

The Constitution of the State of Alaska provides, at Article X, Sec. 11, that "A home rule borough or city may exercise all legislative powers not prohibited by law or charter." The State has clearly adopted the UPC "as the official minimum plumbing code for the state," AS 18.60.705, and has left no doubt of its intent that municipalities adopt standards "no less stringent than those established under AS 18.60.705." AS 18.60.735. The Supreme Court of Alaska has addressed the question of how far a home-rule municipality may extend its authority before encroaching on the State's.

[The authors of the constitution] wrote into Article X Sec. 11 the limitation of municipal authority "not prohibited by law or charter."

RECEIVED

OCT 10 1983

OFFICE OF THE COMMISSIONER

The test we derive from Alaska's constitutional provisions is one of prohibition, rather than traditional tests such as statewide versus local concern. A municipal ordinance is not necessarily invalid in Alaska because it is inconsistent or in conflict with a state statute. The question rests on whether the exercise of authority has been prohibited to municipalities. The prohibition must be either by express terms or by implication such as where the statute and ordinance are so substantially irreconcilable that one cannot be given its substantive effect if the other is to be accorded the weight of law.

Jefferson v. State, 527 P.2d 37 at 43 (Alaska 1974).

In the present matter, it is clear that any alteration by the City of the UPC as adopted by the State, which renders the code less stringent, is in violation of state law.

Summary judgment should therefore be granted to the State on the issue of whether the City may adopt a plumbing code less stringent than that adopted by the State. However, the question of whether the use of ABS or PVC in commercial structures falls short of the State's minimum standard is one which requires further proof. Assuming, arguendo, that the Building Official had power to authorize the use of alternative materials, he had no authority to authorize the use of materials which are prohibited for use by state law. The State appropriately notes that the Uniform Administrative Code, Sections 106 and 107, provides for the resolution of such conflicts in favor of those materials which provide "the greater safety to life" or those provisions which are "most restrictive". Unfortunately, the evidence before the court regarding "which materials are safest" is inconclusive and to hold that the 1979 version of the UPC is more restrictive than what the City proposes because it limits PVC and ABS to fewer types of structures

ignores the purpose of Sections 106 and 107 of the UAC which is not to restrict as to mere numbers, but to restrict as to quality.

Based upon the foregoing,

IT IS HEREBY ORDERED that the State of Alaska's motion for summary judgment in the same hereby is granted to the State of Alaska on the issue of whether the City may adopt a plumbing code less stringent than that adopted by the State.

IT IS FURTHER ORDERED that the court shall appoint an independent expert master to be selected either by the parties or by the court within ten days from the date of this order to hear arguments by both parties and to make findings of fact regarding whether ABS and PVC are sub-standard with respect to the Uniform Plumbing Code.

IT IS FURTHER ORDERED that the parties hereto shall submit the name of the master selected by them within ten days from the date of this order or the court shall appoint its own master.

DATED at Fairbanks, Alaska this 28 day of September, 1983.

  
GERALD J. VAN HOOISSEN  
Superior Court Judge

I certify that on 9/28/83  
copies of this form were sent to  
1983. *J. Cheyenne*

AG  
City Atty

## CHAPTER 4

### DRAINAGE SYSTEMS

#### Section 401—Materials

(a) Drainage piping shall be cast iron, galvanized steel, galvanized wrought iron, lead, copper, brass, ABS, PVC, extra strength vitrified clay pipe, or other approved materials having a smooth and uniform bore, except that:

(1) No galvanized wrought iron or galvanized steel pipe shall be used underground and shall be kept at least six (6) inches (152.4 mm) above ground.

(2) ABS and PVC DWV piping installations shall be limited to those structures where combustible construction is allowed.

(3) No vitrified clay pipe or fittings shall be used above ground and shall be kept at least twelve (12) inches (3m) below ground.

(b) Drainage fittings shall be of cast iron, malleable iron, lead, brass, copper, ABS, PVC, vitrified clay, or other approved materials having a smooth interior waterway of the same diameter as the piping served and all such fittings shall conform to the type of pipe used.

(1) Fittings on screwed pipe shall be of the recessed drainage type. Burred ends shall be reamed to the full bore of the pipe.

(2) The threads of drainage fittings shall be tapered so as to allow one fourth (1/4) inch per foot (20.9 mm/m) grade.

#### Section 402—Fixture Unit Equivalents

The unit equivalent of plumbing fixtures shown in Table 4-1 shall be based on the size of the trap required, and the unit equivalent of fixtures and devices not shown in Table 4-1 shall be based on the rated discharge capacity in GPM (gallons per minute) (liters per second) in accordance with Table 4-2.

Maximum trap loadings for sizes up to four (4) inches (101.6 mm) are as follows:

|          |             |         |
|----------|-------------|---------|
| 1 1/4" - | (31.8 mm)—  | 1 unit  |
| 1 1/2" - | (38.1 mm)—  | 3 units |
| 2" -     | (50.8 mm)—  | 4 units |
| 3" -     | (76.2 mm)—  | 6 units |
| 4" -     | (101.6 mm)— | 8 units |

Exception on self-service laundries.

#### Section 403—Size of Drainage Piping

(a) The minimum sizes of vertical and/or horizontal drainage piping shall be determined from the total of all fixture units connected thereto, and additional, in the case of vertical drainage pipes, in accordance with their length.

(b) Table 4-3 shows the maximum number of fixture units allowed

Max. Lengths (feet)  
(m)  
(See Note)

|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |       |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 45   | 60   | 75   | 90   | 105  | 120  | 135  | 150  | 165  | 180  | 210  | 240  | 270  | 300  | 330  | 360   |
| 13.7 | 18.2 | 22.8 | 27.4 | 32.0 | 36.5 | 41.1 | 45.7 | 50.3 | 54.9 | 63.4 | 71.9 | 80.4 | 88.9 | 97.4 | 105.9 |

† Excluding trap arm

‡ Except sinks and urinals

§ Except six-unit traps or water closets

¶ Only four of water closets or six-unit traps allowed on any vertical pipe or stack, and not to exceed three (3) water closets or six-unit traps on any horizontal branch or drain

† Based upon one-fourth (1/4) inch per foot (20.9 mm/m) slope. For one-eighth (1/8) inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of 0.8, which if it is connected. Fixture unit load values for drainage and vent piping shall be computed from Tables 4.1 and 4.2. Not to exceed one-third (1/3) of the total permitted length of any vent may be installed in a horizontal position. When vents are increased one (1) pipe size for their entire length, the maximum length limitations specified in this table do not apply.

## CHAPTER 5

### VENTS AND VENTING

#### Section 501—Vents Required

Each plumbing fixture trap, except as otherwise provided in this Code, shall be protected against siphonage and back pressure, and air circulation shall be assured throughout all parts of the drainage system by means of vent pipes installed in accordance with the requirements of this chapter and as otherwise required by this Code.

#### Section 502—Vents Not Required

(a) Where permitted by the Administrative Authority, vent piping may be omitted on an interceptor when such interceptor acts as a primary settling tank and discharges through a horizontal indirect waste pipe into a secondary interceptor. The second interceptor shall be properly trapped and vented.

(b) Traps serving sinks which are part of the equipment of bars, soda fountains and counters, need not be vented when the location and construction of such bars, soda fountains and counters is such as to make it impossible to do so. When such conditions exist, said sinks shall discharge by means of approved indirect waste pipes into a floor sink or other approved type receptor.

#### Section 503—Materials

(a) Vent pipe shall be cast iron, galvanized steel, galvanized wrought iron, lead, copper, brass, ABS, PVC or other approved materials, except that:

(1) No galvanized wrought iron or galvanized steel pipe shall be used underground and shall be kept at least six (6) inches above ground.

(2) ABS and PVC DWV piping installations shall be limited to those structures where combustible construction is allowed.

(b) Vent fittings shall be cast iron, galvanized malleable iron or galvanized steel, lead, copper, brass, ABS, PVC, or other approved materials, except that no galvanized malleable iron or galvanized steel fittings shall be used underground and shall be kept at least six (6) inches (152.4mm) above ground.

(c) Changes in direction of vent piping shall be made by the appropriate use of approved fittings and no such pipe shall be strained or bent. Buried ends shall be reamed to the full bore of the pipe.

of the Administrative Authority no supply system is evident, special ap- the vacuum breakers.

ly connected to a sewer connected to the inlet side of a trap and shall vacuum breaker installed at least six aspirator unit. The discharge pipe designed for free flow and shall irgap.

**Water Over 160°F (71°C)** shall be of le at temperatures of one hundred re without rendering any portion of

**Connections** shall be protected by an ice as set forth in subsection (a) of

n cases where it is impractical to ns on the domestic water line, the be considered a non-potable water r outlets shall be connected to the or back-siphonage from the non- ic water line shall be prevented by or by a tank having a pump for omestic water inlets to the non- an approved airgap as required t is impractical to install tanks, as ressure type backflow or back- be installed as follows:

to gravity or a vacuum within the ssure type vacuum breaker unit or ion device shall be installed in the

reaker unit shall be installed at a nes (.3 m) above the highest tank, the non-potable water. Other ap- ces shall be installed in a manner ve Authority, but in no case less ve the surrounding ground or floor. re to steam boilers, pumps, etc., e non-potable water line, an ap- ce shall be installed in the supply evice shall be installed at least e surrounding ground or floor.

ns of the non-potable water line t portions shall be properly iden- to the Administrative Authority. ater line which may be used for shall be posted: DANGER —

(p) Vacuum breakers shall be located outside any enclosure or hooded area containing fumes that are toxic or poisonous.

#### Section 1004—Materials

(a) Water pipe and fittings shall be of brass, copper, cast iron, galvanized malleable iron, galvanized wrought iron; galvanized steel, lead or other approved materials. Asbestos-cement, PB, PE, or PVC water pipe manufactured to recognized standards may be used for cold water distribution systems outside a building. PB water pipe and tubing may be used for hot and cold water distribution systems within a building. All materials used in the water supply system, except valves and similar devices shall be of a like material, except where otherwise approved by the Administrative Authority.

(b) Cast iron fittings up to and including two (2) inches (50.8 mm) in size, when used in connection with potable water piping shall be galvanized.

(c) All malleable iron water fittings shall be galvanized.

(d) Piping and tubing which has previously been used for any purpose other than for potable water systems shall not be used.

(e) Approved plastic materials may be used in water service piping, provided that where metal water service piping is used for electrical grounding purposes, replacement piping therefore shall be of like materials.

**Exception:** Where a grounding system, acceptable to the Administrative Authority is installed, inspected and approved, metallic pipe may be replaced with non-metallic pipe.

#### Section 1005—Valves

(a) Valves up to and including two (2) inches (50.8 mm) in size shall be brass or other approved material. Sizes over two (2) inches (50.8 mm) may have cast iron or brass bodies. Each gate valve shall be a full-way type with working parts of non-corrosive material.

(b) A fullway valve controlling all outlets shall be installed on the discharge side of each water meter and on each unmetered water supply. Water piping supplying more than one building on any one premises shall be equipped with a separate fullway valve to each building, so arranged that the water supply can be turned on or off to any individual or separate building; provided however, that supply piping to a single family residence and building accessory thereto, may be controlled on one valve. Such shut-off valves shall be readily accessible at all times. A fullway valve shall be installed on the discharge piping from water supply tanks at or near the tank. A fullway valve shall be installed on the cold water supply pipe to each water heater at or near the water heater. A fullway valve shall be installed for each apartment or dwelling of more than one (1) family. In lieu of the main supply shut-off in each apartment, individual shut-off valves may be provided at each fixture.

(c) All valves used to control two (2) or more openings shall be fullway gate valves or other approved valves designed and approved for the service intended.

Uniform Plumbing Code

HB 508 TITLE & SPONSOR SUMMARY

16:25 5/22/84 PAGE 1 OF 3

AMENDED TITLE:

AN ACT RELATING TO THE PLUMBING CODE

PRIME SPONSOR: COWDERY.

CO-SPONSORS: LISKA.

CURRENT STATUS: 2/21/84 IN (S) LABOR & COM REFERRAL JUDICIARY

HB 508 HOUSE ACTION

16:26 5/22/84 PAGE 2 OF 3

LEGISLATIVE ACTION

| DATE     | SEQ | PAGE |   |
|----------|-----|------|---|
| 01/12/84 | 01  | 2239 | FIRST READING -- COMMITTEE REPORTS      |
| 02/02/84 | 02  | 2432 | L&C -- DP04, NR01, OTHER02              |
| 02/02/84 | 03  | 2432 | L&C F/NOTE EQUALS ZERO                  |
| 02/16/84 | 04  | 2618 | SECOND READING                          |
| 02/16/84 | 05  | 2620 | AM01 NOT ADOPTED BY DIV 15-24-01        |
| 02/16/84 | 06  | 2620 | ADVANCED TO 3RD READING BY UN-H CONSENT |
| 02/16/84 | 07  | 2620 | THIRD READING                           |
| 02/16/84 | 08  | 2620 | PASSED BY DIV 20-14-01                  |
| 02/16/84 | 09  | 2621 | NOTICE OF RECONSIDERATION GIVEN         |
| 02/29/84 | 10  | 2645 | RECONSIDERATION NOT TAKEN UP            |
| XXX      | XX  | XX   | XXX XXX XXX                             |

HB 508 SENATE ACTION

16:26 5/22/84 PAGE 3 OF 3

LEGISLATIVE ACTION

| DATE     | SEQ | PAGE |                                    |
|----------|-----|------|------------------------------------|
| 02/21/84 | 11  | 2134 | FIRST READING -- COMMITTEE REPORTS |
|          |     |      | LABOR & COMMERCE                   |
|          |     |      | JUDICIARY                          |
|          |     |      | RULES                              |
| XXX      | XX  | XX   | XXX XXX XXX                        |

## SIGN-IN SHEET

Proposed Legislation HB508

| Name (please print)  | Address                                | Representing                           | Testify??<br>(YES or NO) | Phone<br>Number |
|----------------------|--|--|--------------------------|-----------------|
| 2 KEN JOHNSON        |  | REP Cowderl<br>H&E W' C                | YES                      | H905            |
| Tim Russ             | 155 So. Seward                         | CBT Bldg DFT                           | NO                       | 586-5231        |
| 4 DWIGHT PERKINS     | 245 maeine wy #7 TUNSAW                | Plumbers & Pipefitters L. 0252         | YES                      | 6-2874          |
| T. DON ROULEAU       | TUNSAW                                 | LOCAL 71                               | YES                      | 6-3703          |
| 7 David Wigglesworth | # 417 west 2 <sup>nd</sup> Ave         | AHP                                    | YES                      | 276-2864        |
| Bob Landan           | Dept. of Labor 1111 W. 8 <sup>th</sup> | Dept. of Labor                         | yes                      | 465-2700        |
| 5 Mary Ann Velazquez | 803 Walnut Pt. Rd <sup>Silber</sup>    | Francis Reby                           | yes                      | 747-8086        |
| 1 TONY SCHROEDER     | Houston, TX                            | Shell Chemical                         | yes                      | 713/241-6991    |
| 6 VERNON AKIN        | P.O. Box 1081 - Sumner AK              | VERNON AKIN & ASSOC                    | YES                      | 586-6622        |
| 3 Jack Lancaster     | Rt 1 Box 370, Brighton Tenn.           | Plastic Pipe &<br>Fittings Association | Yes                      | 901 829 4484    |
| Jim Laughlin         | TUNSAW                                 | HOME BUILDERS ASSO                     | YES                      | not provided    |
|                      |  |  |                          |                 |
|                      |  |  |                          |                 |
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|                      |  |  |                          |                 |
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|                      |  |  |                          |                 |
|                      |  |  |                          |                 |

SENATE LABOR AND COMMERCE COMMITTEE

HEARING DATE 5/10/84

Plumbing Code

MSG 84-00044129 PRTY 1 05/10/84 13:36:49 ORIG: HMR# IN= 0003 OUT= 0005  
FROM: JEAN IN HOMER TO: KEN IN JUNEAU  
TARGET: LJM6 SUBJ: PARTICIPANT LIST--PLUMBING CODES

---

TO PARTICIPATE:

1. BRUCE TURKINGTON
2. BUZZ BROWN

TO OBSERVE:

1. JOHN COOPES

MSG 84-00044120 PRTY 1 05/10/84 13:41:25 ORIG: LF20 IN= 0006 OUT= 0006  
FROM: LYNDY/FBX TO: KEN/JNO  
TARGET: LJM6 SUBJ: SEN L & C T/C 5/10

---

FBX #1

TO TESTIFY:

1. ART ROBSON, PLUMBER'S & PIPEFITTERS UNION

MSG 84-00044131 PRTY 1 05/10/84 13:42:09 ORIG: LA19 IN= 0004 OUT= 0007  
FROM: CANDY & DON ANCHORAGE TO: KEN  
TARGET: LJM6 SUBJ: SEN. LABOR & COMMERCE

---

OHNI # 2

TO TESTIFY:

4. LARRY BEATHE/BULDING INDUSTRY ASSOC. OF ANCHORAGE

MSG 84-00044133 PRTY 1 05/10/84 13:45:25 ORIG: LK00 IN= 0009 OUT= 0008  
FROM: JUNE R./KETCHIKAN TO: KEN/JUNEAU  
TARGET: LJM6 SUBJ: S LABOR & COMMERCE T/C HB 508 5/10/84

---

OHNI #1

TO OBSERVE IN KETCHIKAN:

1. R. F. TUCKER, RT #1, BOX 162, KETCHIKAN, AK. 99901, 225-3690

EOH/JR

MSG 84-00044108 PRTY 1 05/10/84 13:23:11 ORIG: LA19 IN= 0003 OUT= 0001  
FROM: CANDY & DON/ANCHORAGE TO: KEN, ALL  
TARGET: LJK6 SUBJ: S. LABOR & COMMERCE

---

OMNI # 1

TO TESTIFY:

1. WILLIAM CARLSON (MR. CARLSON TEACHES A CLASS THAT HE WOULD LIKE TO GET BACK TO, SO DOES REQUEST THAT HE SPEAK AS SOON AS POSSIBLE.)
  2. MARY LOU REDMOND.
  3. KEN WILKINGS.
- 

MSG 84-00044113 PRTY 1 05/10/84 13:24:28 ORIG: LS00 IN= 0005 OUT= 0002  
FROM: FALEENE/SITKA TO: JUNEAU  
TARGET: LJK6 SUBJ: (S) L&C PLUMBING CODE TC

---

OMNI #1

TO OBSERVE:

1. AL ANAKA

MSG 84-00044115 PRTY 1 05/10/84 13:25:58 ORIG: SOL4 IN= 0004 OUT= 0003  
FROM: LOBI, SOLDOTNA TO: KEN, JNUTC  
TARGET: LJK6 SUBJ: PLUMBER'S CODE TC

---

OMNI # 1

✓ SOLDOTNA HAS ONE TO TESTIFY  
KEN BROWN

MSG 84-00044122 PRTY 1 05/10/84 13:37:11 ORIG: LS00 IN= 0006 OUT= 0004  
FROM: FALEENE/SITKA TO: JUNEAU  
TARGET: LJK6 SUBJ: (S) L/C/PLUMBING CODE TC

---

OMNI #2

TO PARTICIPATE:

✓ HARRY CHARTIER, REPRESENTING CITY & BOROUGH OF SITKA

EDM

MSG 84-00044528 PRTY 1 /11/84 10:55:23 ORIG: 00 IN= 0005 OUT= 0011  
FROM: JUNE R./KETCHIKAN TO: KEN/JUNEAU  
TARGET: LJHV SUBJ: S LABOR & COMMERCE T/C HB 508 5/10/84 PL

\*\*\*\*\*  
LEGISLATIVE TELECONFERENCE NETWORK FINAL STATS  
\*\*\*\*\*

MAY 10, 1984\_\_\_\_\_ :DATE  
KETCHIKAN\_\_\_\_\_ :SITE/LOCATION  
S LABOR & COMM--HB 508 PLUMBING\_\_ :SPONSOR/SUBJECT

FINAL STATS:

---0--- :TESTIFIED \*\*\*\*\*T/C STARTED:-1:30 PM---  
---2--- :OBSERVED \*\*\*\*\*T/C ENDED:-3:00 PM---  
---2--- :TOTAL

| NAME/REPRESENTING   | ADDRESS/PHONE | TESTIFY | OBSERVE |
|---|---------------|---------|---------|
| 1. R. F. TUCKER, RT. #1, BOX 162, KETCHIKAN, AK. 99901            | 225-3690      |         | X       |
| 2. WILLIAM C. GOODALE, EVERGREEN TERRACE #1, KETCHIKAN, AK. 99901 | 225-5708      |         | X       |

EQM\*\*\*\*\*

MSG 84-00044633 PRY 1 05/11/84 13:18:00 ORIG: 000 IN= 0009 OUT= 0024  
FROM: SITKA TO: KEN/PRIMARY MODERATOR  
TARGET: LJVH SUBJ: 5/10,S L7C PLUMBING CODE TC

FINAL STATS

\*\*\*\*\*  
LEGISLATIVE TELECONFERENCE NETWORK SIGN-IN SHEET  
\*\*\*\*\*

DATE: MAY 10, 1984  
SITE: SITKA  
SPONSOR/SUBJECT: SENATE LABOR & COMMERCE/HB 508, UNIFORM PLUMBING CODE

1 TESTIFIED \*\*\*\*\*T/C STARTED: 1:40  
1 OBSERVED \*\*\*\*\*T/C ENDED: 2  
\*\*2\*\* TOTAL

TESTIFIED  
\*\*\*\*\*

1. HARRY CHARTIER, CITY & BOROUGH OF SITKA BUILDING INSPECTOR  
P.O. BOX 79  
SITKA, AK 99835 747-3294

OBSERVED  
\*\*\*\*\*

1. ALLAN ANAKA, DEPARTMENT OF LABOR, PLUMBING INSPECTOR  
210 LAKE STREET  
SITKA, AK 99835 747-6300

\*\*\*\*\*

MSG 84-00044289 PRY 1 05/10/84 16:08:27 ORIG: HOMER IN= 0006 OUT= 0036  
FROM: JEAN IN HOMER TO: KEN IN JUNEAU  
TARGET: LJVH SUBJ: FINAL STATS---PLUMBING CODES T/C

PARTICIPATED:

1. BRUCE TURKINGTON BOX 1181 HOMER, AK. 99603 235-6466

OBSERVED:

1. JOHN COOPER BOX 562 HOMER, AK. 99603 235-8820  
2. BUZZ BROWN BOX 1791 HOMER, AK. 99603 235-6556  
3. PAT EVARTS BOX 1016 HOMER, AK. 99603 235-7376

EOM

MSG 84-00045057 PRTY 1 /14/84 10:05:14 ORIG: 20 IN= 0005 OUT= 0011  
FROM: LYNDA/FBX TO: KEN JND/TC  
TARGET: LJHV SUBJ: FINAL STATS - SEN L & C 5/10

\*\*\*\*\*  
LEGISLATIVE TELECONFERENCE NETWORK SIGN-IN SHEET  
\*\*\*\*\*

MAY 10, 1984 \_\_\_\_\_ : DATE  
FAIRBANKS \_\_\_\_\_ : SITE/LOCATION  
SENATE LABOR & COMMERCE CMTE. \_\_\_\_\_ : SPONSOR/SUBJECT  
HB508, PLUMBING CODE

TESTIFIED/PARTICIPATED:

1. ART ROBESON, PLUMBERS & PIPEFITTERS, 3568 GERAGHTY ST, FBX 99701  
#479-6281

OBSERVED:

1. ADELE BACON, AK STATE, 675 7TH AVE, FBX 99701 #452-8105
2. LARRY COFFMAN, " " " "

\_\_\_\_\_STATS\_\_\_\_\_

|                  |                        |
|------------------|------------------------|
| 1_____TESTIFY/ED | *****T/C STARTED:_____ |
| 2_____OBSERVE/ED | *****T/C ENDED:_____   |
| 3_____TOTAL      |                        |

=====EOM

MSG 84-00044252 PRTY 1 05/10/84 15:32:17 ORIG: 008 IN= 0013 OUT= 0033  
FROM: CANDY/ANCHORAGE TO: KEN  
TARGET: LJHV SUBJ: S. LABOR & COMMERCE P. HEARING ON HB 508

\*\*\*\*\*  
LEGISLATIVE TELECONFERENCE NETWORK SIGN-IN SHEET  
\*\*\*\*\*

DATE: MAY 10, 1984  
SITE: ANCHORAGE  
SPONSOR/SUBJECT: SEN. LABOR & COMMERCE ON HB 508, PLUMBING CODE

0 .....TESTIFIED \*\*\*\*\*T/C STARTED: 1:30PM  
4 .....UNABLE TO TESTIFY \*\*\*\*\*T/C ENDED: 2:55PM  
0 .....OBSERVED  
4 .....TOTAL

\*\*\*\*\* UNABLE TO TESTIFY \*\*\*\*\*

- 1. WILLIAM CARLSON, 610 W. 54TH AVENUE, ANCHORAGE 99502 562-2810
- 2. MARY LOU REDMOND, BOX 8700 INDIAN CREEK, ALASKA 99540 653-7654
- 3. KEN WILKINGS, 1530 GAMBELL ANCHORAGE 272-1146
- 4. LARRY BEATHE/BUILDING INDUSTRY ASSOC., 333-4712

OUR PARTICIPANTS DID LEAVE BEFORE THE END OF THE TELECONFERENCE AS IT APPEARED TO THEM THAT THERE WOULD BE LITTLE TIME AVAILABLE TO TESTIFY.

EOM.....

MSG 84-00044295 PRTY 1 05/10/84 16:12:24 ORIG: SOL\$ IN= 0007 OUT= 0037  
FROM: SOLDOTNA/ LORI TO: JUNEAU T/C, KEN  
TARGET: LJHV SUBJ: F. STATS/S LABOR & COMMERCE HB 508

\*\*\*\*\*  
LEGISLATIVE TELECONFERENCE NETWORK SIGN-IN SHEET  
\*\*\*\*\*

5/10/84\_\_\_\_\_ : DATE  
SOLDOTNA\_\_\_\_\_ : SITE/LOCATION  
SENATE LABOR & COMMERCE-PLUMBING CODE: SPONSOR/SUBJECT  
1:30PM\_\_\_\_\_ : T/C START  
4:00PM\_\_\_\_\_ : T/C ENDED

1\_\_\_TESTIFY/ED  
0\_\_\_OBSERVE/ED  
1\_\_\_TOTAL

| NAME/REPRESENTING                | ADDRESS/PHONE          | TESTIFY | OBSERVE |
|----------------------------------|------------------------|---------|---------|
| 1. R.K. BROWN/YENNY CONSTRUCTION | BOX 486 STERLING 99672 | X       |         |
| 2.                               | 262-3998               |         |         |
| 3.                               |                        |         |         |

May 11, 1984

Mr. Richard I Eliason  
Chairperson  
Senate Labor & Commerce  
Alaska State Legislature  
Pouch V  
Juneau, AK 99811

Dear Senator Eliason:

I am Chairman of the Mechanical Board for the Municipality of Anchorage. I would like to make a few comments on the adoption of the 1982 U.P.C. Plumbing Code.

The Mechanical Board is reviewing the use of plastic pipe in Anchorage at the present time.

Thawing frozen plastic lines was discussed, especially water lines. The use of a steam machine with a small tube stuck inside the potable water pipe to melt the ice was recommended. Source of water would be a problem as it is frozen. Yellow snow could be one source of water. Is this steam thaw rig only used for water lines or sewer lines also?

How do you thaw underground A.B.S.? Would you use steam? What about clogs? Do you use a power auger? Both would cause irreparable damage.

Other questions I have are as follows:

1. Who was the advisory Committee who reviewed the code book and recommended its adoption? The Mechanical Board?
2. What were the recommendations of this Board of experts?
3. Was this information distributed to all affected towns and cities for comment at the inspection department level?
4. What were their recommendations and comments?
5. What does cost savings have to do with the health of Alaskans? Asbestos was cost effective also!
6. Who will inspect all the work to determine if it's installed correctly or to code?

I will look forward to hearing from you.

Sincerely Yours,  
*William R. Carlson*  
William R. Carlson  
Chairman, Mechanical Board  
Municipality of Anchorage

cc: John Bishop  
Senator Pat Rodey

# Alaska State Legislature

SENATOR  
**DON GILMAN**

Juneau Ph.  
(907) 465-4935  
(907) 465-4529



## State Senate

HOME ADDRESS  
P.O. BOX 630  
KILBUCK, ALASKA 99611  
(907) 283-4182

DURING SESSION  
POUCH V  
JUNEAU, ALASKA 99811

April 11, 1984

### MEMORANDUM

To: Senator Dick Eliason  
Chairman, Senate Labor  
& Commerce Committee

From: Senator Don Gilman *DLG*

Subject: HB 508 (An Act relating to the plumbing code)

I have attached a copy of a letter written to you from Dan Owen of Homer. Mr. Owen is in something of a bind and I need to give him some kind of answer as to what he may expect. While Homer has not adopted the '82 code by ordinance, I understand that some municipalities have.

Thank you.

OWEN MARINE CORP.

BOX 2586  
HOMER, AK 99603  
HOMER 235-7691  
SEWARD 224-3542

March 27, 1984

Senator Richard I. Eliason  
Chairman  
Senate Labor & Commerce Committee  
Pouch V  
Juneau, Ak. 99811

Dear Senator Eliason,

This letter will hopefully enlist your timely assistance in the solution of a problem that has arisen during the construction of our new building. We are faced with a dilemma that could cost us needless economic hardship and serve no useful purpose in the process.

Last December 15, we began construction of a new facility to house our business, Owen Marine Corp. All the below grade work had been done prior to freeze-up, so we could take advantage of the slow winter months to build. The building permit was applied for and granted through the City of Homer, with our proposed project meeting all the city requirements. The project was designed, and has been built, in accordance with all the latest national building codes.

On February 16, we were visited by a State Plumbing Inspector from the Anchorage office of the Department of Labor. The inspector stated that he was responding to a telephone complaint of illegal plumbing installations being made in some commercial building projects in Homer. We are quite sure of the origin of the complaint, and the motivation for it. Let it suffice to say that it was not the result of a concerned citizen acting in behalf of the public's best interest. If serving the public interest was the inspector's mission, it seems strange that we have no verification of an inspection being performed on the construction of one very public facility here: the expansion of the South Peninsula Hospital, which also qualifies as the largest construction project currently underway in Homer. The inspector did, however, manage to visit three small commercial building sites in the area and issue at least two citations for 1979 Plumbing Code violations.

We were given the following in violation of section 43, 44 of the Uniform Plumbing Code. As you can see on the enclosed copy of the ordinance, the single violation is "Sec 401, ABS pipe and pipe not allowed in commercial building. Remove and replace with Code material."

Apparently, this is a legitimate violation of the 1979 edition of the Uniform Plumbing Code, the edition which the State of Alaska is currently enforcing. It is however, in direct conflict with the new 1982 Code, which is the standard we use in plumbing the building. The out-dated 1979 Code is still being enforced simply because the State Legislature has not adopted the 1982 edition of the Code. House Bill # 509, dealing with the replacement of the '79 edition with that of 1982, is presently sitting in your committee waiting action.

The City of Homer adopted this 1982 edition of the Uniform Plumbing Code over a year ago. The plumbing in our building was done in full compliance with this edition, not realizing we were in violation of State statutes as described above. Had we been aware of this fact, we could have very easily conformed to the 1979 edition when the plumbing was roughed in.

Since the inception of this project, we have put considerable effort to insure that the materials and workmanship in our building would meet or exceed the latest standards set by the National Uniform Building Code, National Electrical Code, and Uniform Plumbing Code. After all, with the substantial investment we are making in this project, it would be "penny wise and pound foolish" to do anything less.

It seems absolutely ludicrous to us that we should be required now, to forego the tremendous cost and time loss that would be necessary to abrogate this violation, when adoption of the new Code is so near. I ask you, what possible needs would be served by this action?

Several other commercial buildings in our area have been completed using ABS plumbing materials. They were completed without any inspection at all, and are apparently perfectly legal now because they simply were not inspected before completion. Is this the way our State statutes are intended to be enforced? As I understand them, both the State and Federal Constitutions guarantee, if not demand, equal and uniform enforcement of all statutes with regard to the citizenry they serve. Random inspections that can be prompted by nothing more than perhaps a vindictive telephone call, hardly qualify as "equal and uniform enforcement".

The project is subject to the fact that the...  
The... of... of... of... of... of...  
The... of... of... of... of... of...  
that has already been secured, which is subject to the...  
that complying with all current building codes. At the very  
least, it would incur tremendous expense in terms of interest  
costs alone, should any delay occur due to this situation.  
Either set of circumstances would seriously jeopardize not only  
this project, but the future of our business and the financial  
security of the people involved in it.

I stated previously, we are not the only business here that  
stands to suffer as a result of this misguided action. Lockwood  
Hall, a long standing local bowling alley, has also cited for  
using ABS pipe in their new building. They were instructed, as  
we have, that "all ABS pipe had to be removed and replaced with  
copper material". In both of our cases, walls, floors, and ceiling  
lags would have to be torn out just to get to the subject  
piping. The ABS piping would then have to be removed and the  
"1979 Code material" would have to be installed in its place.  
All of this would then be followed by the reconstruction of the  
area out walls, floors, and ceiling. This would be a tremendous  
task that would be very, very costly in both time and money.

Immediate action by your committee regarding the adoption of the  
1982 Uniform Plumbing Code would prevent these situations from occurring.  
It is imperative the current Legislature address this problem  
during this session, as any delay in passage of this statute  
could very possibly cause extreme and unnecessary financial  
hardship for two businesses and their owners.

Trusting this request will be honored, I remain,

Sincerely,

Daniel G. Owen  
President

cc: Senator Don Gilliam  
Senator Paul Fischer  
Representative Mike Pritz  
Representative Hugh Malone  
Mayor Eric Cooper  
Homer City Council  
Mitch Gravel

# Alaska State Legislature

OFFICIAL BUSINESS

CHAIRMAN  
RULES COMMITTEE



JAN FAIKS  
DOUGH V  
CAPITOL BUILDING  
JUNEAU, ALASKA 99811

Senate

## MEMORANDUM

TO: Senator Dick Eliason  
Chair, Senate Labor and Commerce Committee

FROM: Senator Jan Faiks *JF*

DATE: March 29, 1984

RE: House Bill 508

House Bill 508 has been referred to the Senate Labor and Commerce Committee. I would very much appreciate a hearing for this bill as soon as your committee schedule allows.

I have had several letters and have been visited by a few of my constituents this session who are very supportive of this legislation. After listening to them, it does seem to me that this legislation or something similar to it is certainly needed.

Thank you.

*Rumor has it .... you hate this  
bill ... Can we work a compromise?*

MSG 84-00044190 PRTY 1 05/10/84 14:43:33 ORIG: LA08 IN= 0008 OUT= 0011  
FROM: CANDY/ANCHORAGE TO: KEN  
TARGET: LJH6 SUBJ: FOR SENATE LABOR & COMMERCE HEARING

---

FOLLOWING IS THE TESTIMONY OF LARRY BEATHE/PRESIDENT OF THE BUILDING INDUSTRY ASSOC. OF ANCHORAGE. MR. BEATHE ALSO REPRESENTS THE HOMEBUILDERS ASSOC. OF AK:

I AM TESTIFYING ON BEHALF OF THE HBA OF ALASKA AND THE BUILDING INDUSTRY ASSOC. OF ANCHORAGE, A NON-PROFIT TRADE ASSOCIATION REPRESENTING RESIDENTIAL CONTRACTORS.

WE ENTHUSIASTICALLY SUPPORT THE USE OF POLYBUTYLENE BECAUSE IT HAS A PROVEN TRACK RECORD THAT HAS SHOWN ITS MANY USERS A HOUSING COMPONENT THAT IS, #1 SAFE, # 2 EASIER TO INSTALL THAN OTHER MATERIALS, AND # 3 LESS EXPENSIVE THAN METAL PIPING.

HOUSING AFFORDABILITY IS ONE OF THIS NATION'S MOST CRITICAL ISSUES. THE AMERICAN DREAM OF OWNING ONE'S OWN HOME HAS SERIOUSLY BEEN TARNISHED BY SPIRALING COSTS. AFTER CAREFUL RESEARCH INTO ISSUES OF SAFETY, ADAPTABILITY, DURABILITY, AND COST WE FEEL ADOPTION OF THIS CODE ALLOWING THE USE OF POLYBUTYLENE WOULD BEST SERVE THE PUBLIC, SO WE ASK THAT YOU HELP US KEEP HOUSING COSTS WITHIN REACH OF MOST CONSUMERS BY GIVING THIS BILL YOUR FULLEST SUPPORT.

MR. BEATHE ASKS THAT THIS TESTIMONY BE GIVEN TO ALL COMMITTEE MEMBERS AS WELL AS TO CLARK GRUENING IF HE IS PRESENT AT THE HEARING.

MSG 84-00044204 PRTY 1 05/10/84 14:54:58 ORIG: LA08 IN= 0009 OUT= 0012  
FROM: CANDY/ANCHORAGE TO: KEN  
TARGET: LJH6 SUBJ: FOR SENATE LABOR & COMMERCE COMMITTEE

---

FOLLOWING IS TESTIMONY FOR THE SENATE LABOR & COMMERCE COMMITTEE ON HB 508:

I, MARY LOU REDMOND, WANT THE A.B.S. PLASTIC PIPE (BILL # 508, PLUMBING CODE) TO PASS! I AM IN THE ANCHORAGE MUNICIPALITY AND THEY GO BY THE NEW 1982 CODE BOOK, AND THE STATE GOES BY THE OLD 1979 CODE BOOK. AT PRESENT THE STATE IS KEEPING MY BUSINESS CODE CLOSED FOR 3 MONTHS NOW BECAUSE OF MY A.B.S. PLASTIC DRAIN PIPES!

MARY LOU REDMOND  
DBA MARY LOU'S  
BAR & LIQUOR STORE  
HOTEL/MOTEL & CAFE  
INDIAN CREEK, ALASKA 99540  
653-7654

MSG 84-00093517 PRTY 1 05/17/84 12:02:03 ORIG: LA18 ID= 0005 OUI= 0055  
FROM: DIRECT, AND INFO TO: FOR, BUREAU INFO  
TARGET: LINK SUBJ: P O H

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TO: ALL MEMBERS OF THE SENATE

FROM: MARY LOU REDMOND  
602 8798  
TOLL-FREE 88548  
H/0 655-7651

RE: HB 508 FLOODING CODE

I WOULD LIKE TO HAVE HB 508 PASS BECAUSE I DO HAVE PLASTIC ABS DRAIN  
PILES IN MY BEM BUSINESS. I WAS KEPT CLOSED BECAUSE OF THE 662 PLASTIC  
PIPE EVEN THOUGH THE MUNICIPALITY OF ANCHORAGE HAS ACCEPTED ABS PLASTIC.

LOD

TESTIMONY

Mr. Tom Higham  
Executive Director, IAPMO

"Reference was made, I believe, by Mr. Perkins to a lawsuit in California against IAPMO. That lawsuit was brought by the union, an environmental group known as Friends of the Earth, and by the State Department of Consumer Affairs. The State Department of Consumer Affairs was only interested in one aspect of the lawsuit: that the public be made aware that there is an environmental impact study going on in California. The requirement to make those people aware was stipulated to by IAPMO, and that was that a notice would be placed in the plumbing code alerting people that the environmental impact study is going on. The notice in no way, shape, or form stated that, or purported to state, that plastic is good, bad, or indifferent, but merely notifies people of the environmental impact study.

The lawsuit has been settled and the outcome of the lawsuit is that the allegations made by the union and the others was completely without foundation and were dismissed by the judge. But we do continue to put the notice in the code alerting the public of the study."

Presented during House L+C  
cmte

1982 Uniform Plumbing Code  
Significant Changes

Section 108 allows for a larger grease interception to serve one or more fixtures. Section 203(d) states that copper tubing used for water service shall have a weight of not less than Type L.

Table 4-3, footnote #4. Evidence indicates that a three-inch horizontal waste will effectively handle discharge from three water closets; thus the code change, so that only four water closets or six unit traps are allowed on any vertical stack, and not to exceed three water closets or six unit traps on any horizontal branch or drain.

Section 601 changes will not allow cold storage rooms, refrigerators, cooling counters, etc. designed to hold food or drink, or sinks for washing or preparation of food, to be directly connected to a waste or vent pipe. All drains shall discharge through an air gap into a open drain or approved receptor.

Section 1004 is one of the major changes, and allows Poly Butylene (PB) water pipes to be used for hot and cold water distribution tubing systems, using inserts for connectors. It also inserts language to assure that when metal pipe is used as a building ground, it will be replaced by metal pipe when repairs are made to these pipes.

Also adopted were insulation standards for cold water service and yard piping. These standards were for Poly Vinyl Chloride (PVC), asbestos cement pressure piping and Poly Butylene (PB).

Those groups most affected by this change will be plumbers, contractors, local governments and state agencies.

I-45

Changes in the Code



# United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada

262

245 Marine Way #7

LOCAL NO.

STREET ADDRESS

Juneau, Alaska 99801

CITY STATE ZIP

SUBJECT MATTER

DATE

May 10, 1984

Mr. Chairman, Committee Members,

My name is Dwight Perkins and I am the Business Manager for the United Association of Plumbers & Pipefitters Local Union 262 in Juneau, Alaska. I am also speaking on behalf of the Alaska state Pipe Trades Council of the United Association with a membership of two thousand state wide.

I've come to speak in opposition of House Bill 508, an act relating to the Plumbing code. I would like to give you some background of the code and address some concerns that we have.

In October 1981 at it's 52nd. Annual Conference, the International Association of Plumbing and Mechanical Officials adopted the Uniform Plumbing Code, 1992 edition. Up until 1982 all such codes had limited the use of polybutylene, Polyethylene, Polyvinyl Chloride and Asbestos Cement Pipe for water distribution systems outside of a building, under section 1004 materials.

MARTIN J. WARD  
*General President*

JOSEPH A. WALSH  
*General Secretary-Treasurer*

MARVIN J. BOEDE  
*Assistant General President*

CHARLES J. HABIG  
*Asst. General Secretary-Treasurer*



AFL-CIO-CLC

Letters should be confined to one subject

In addition section 401-materials limited the use of ABS and PVC Piping installation for drainage and venting systems to residential construction, not more than two stories in height.

The 1982 addition of the Uniform Plumbing code has lifted restrictions regarding the use of PB water pipe under section 1004 so that now it may be used for hot and cold water distribution systems within a building.

In Section 401, ABS and PVC Piping installations can be used where all combustible construction is allowed.

Because of the less stringent attitudes the International Association of Plumbing and Mechanical Officials has adopted raises several issues of concern not only here in Alaska but nationwide.

The issues I would like to address regarding the use of plastic pipe, whether PB., PVC piping or ABS presents the following problems:

1. Durability
2. Thaw ability in Arctic regions as well as other parts of the state.
3. Fire Hazards (both combustibility and gases released

upon combustion)

4. Use of water system as the electrical "ground"
5. Permeability and related public health issues
6. Worker safety

1. Durability In discussing the issue of Durability, the most obvious difference between plastic and metal pipe is durability. Some of Alaska is earthquake prone and hence durability can be quite important. In construction of large residential buildings and commercial buildings, the increased usage makes durability important. This issue has the advantage of being self evident. Cast iron, malleable iron or copper piping and its qualities are apparent to all and a comparison with the qualities of plastic, particularly in temperature extremes such as those in the interior, needs no further amplification.

2. Thaw Ability The issue of thaw ability in arctic regions as well as other parts of the state is cause for concern in that sometimes pipes freeze. The common methods of thawing pipes are (a) the use of propane torches, (b) the use of steam, and (c) the use of clamp on electrical generators. ~~None~~ of these can be used on plastic pipe. In any installation where the freezing of a pipe represents a danger to either a considerable investment or a large number of people, the ability to thaw is important.

3. Fire Hazards The 1979 edition of the Uniform Plumbing code states that ABS or PVC installation be limited to residential construction, not more than two stories in height. The 1982 UPC states that ABS and PVC piping installation shall be limited to the structures where combustible construction is allowed. It also states that PB pipe may be used for hot and cold water distribution system within a building. The problems in this area are twofold. First, plastic pipe will burn. In burning, the plastic makes itself useless as a pipe and hence terminates the water which is often necessary to fight a fire. Additionally the burning of the pipe generates gases.

In a study of the combustion hazards of P.V.C. and A.B.S done by Eric L. Tollefson from the Department of Chemical and Petroleum Engineering at the University of Calgary found that:

1. The main product of pyrolysis or combustion of PVC is hydrogen chloride vapor which is not only extremely irritating to the eyes and nose but causes extensive lung damage when inhaled.
2. ABS is a very flammable plastic which on combustion produces deadly hydrogen cyanide as well as carbon monoxide.
3. The length of time between the initiation of combustion of ABS or PVC in a room and the point at which concentrations of smoke and toxic gases become overpowering to a victim is short, probably about one minute.

4. ABS and PVC under test conditions produce many times more smoke under flaming conditions than a number of woods that were tested.

5. Ionization detectors are relatively insensitive to the products of combustion of PVC sometimes giving a warning after the concentration of hydrogen chloride has built up to several times the tolerable concentration

6. Use of plastic pipe plumbing systems in high rises and multi-unit dwelling places can contribute to the rapid production of dangerous levels of smoke and toxic gases as well as spreading of flames should the components of such a system catch fire.

4. Grounding Most modern construction involves electricity. Electricity presents the problem of short circuits. Almost all communications that use electricity require additional grounding. Traditionally, this grounding is done through the water system in a building. In a plastic pipes water system, there is no readily available ground. If the water has sufficient mineral content and if the grounds are inserted through the pipe, adequate grounding may occur. Otherwise the defense against electrical accidents and fires is worthless in a plastic piped building.

5. Permeability Recent tests in California have

duplicated field and laboratory experiences of water utility districts and environmental health experts concur that polyvinyl chloride (PVC), Polyethylene (PE) and Polybutylene (PB) water service lines can be and are permeated by gasoline, petroleum distillates and industrial solvents. The Public Health impact can be serious enough to require the removal of an entire underground network of plastic water service lines and may cause serious health consequences for its consumers. Since plastic pipe was found to have a potentially adverse effect on the environment and because of its threat to water quality, worker safety, and fire safety, state agencies in California will not allow its expanded use until all scientific and public health questions have been answered.

Because the International Association of Plumbing and Mechanical Officials proceeded with the expanded use of plastic pipe in its 1982 Uniform Plumbing Code, a coalition of state public and private consumer groups, environmental and labor organizations sued I.A.M.P.O.. On January 24, 1984, the county clerk filed an order from the Honorable Jack A. Crickard, Judge presiding over the case in which he stated:

IT IS NOW ORDERED, ADJUDGED AND DECREED:

1. Upon the authority of Code and Civil Procedure, Section 526 Subdivision (1), the existing preliminary injunction, granted upon the application of plaintiff Director's predecessor in office, is partially modified and continued in force as the permanent order of this Court.

2. Pursuant thereto, Defendant IAPMO, its agents, officers, employees and representatives, and all persons acting in concert or participating with IAPMO are hereby permanently enjoined from disseminating, directly or indirectly, to any individual or organization in California, the 1982 Edition of the Uniform Plumbing Code ("UPC") or the IAPMO Directory of Plumbing Research Recommendations ("Research Directory"), without including a warning notice. The warning notice required to be included shall appear in no less than 10 point bold type and shall state as follows:

Notice: An Environmental Impact Report is now being prepared in California to determine whether the use of CPVC, PVC, or PB plastic pipe for transing potable water poses a danger to public health or the environment. At the time of this printing of the 1982 Edition of the Uniform Plumbing Code and this update of IAPMO's Directory of Plumbing Research Recommendations, the State of California does not permit any expansion of the use of such pipe, in applications permitted by the Uniform Plumbing Code, beyond those applications permitted in the 1979

Edition of the Uniform Plumbing Code.

For information on California restrictions, contact the State Housing Law Section of the California Housing and Community Development Department.

Immediately below the notice, in the same size or smaller type, the following statement may appear, at the option of IAPMO:

(This notice is inserted herein pursuant to a court Order in the case of CALIFORNIA DEPARTMENT OF CONSUMER AFFAIRS V. INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS, Los Angeles Superior Court No.C-395294)

The Notice shall not contain, include or be accompanied by any other information or materials.

6. Worker Safety Assemblage in small construction quantities such as residential housing, do not normally bring workers beyond the dangerously toxic levels of exposure to the Benzene, Chloroform and kindred glue. On larger projects, the time spent on their assemblage puts workers beyond the safe limits of such exposure and in

effect forces him to sniff glue. Because the damage from these chemicals is permanent and irreversible, the United Association and its members strenuously object to the current state of the art process for assembling plastic pipe.

In closing, I would ask that you consider holding House Bill 508 in Committee and review the amendments the Municipality of Anchorage has adopted regarding the 1982 edition of Uniform Plumbing Code.

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
DIVISION OF CODES & STANDARDS Administrative Section  
P. O. Box 1407, Sacramento, CA 95807 (916) 445-9471



November 10, 1982

INFORMATION BULLETIN SHL 82-5

TO: CITY BUILDING OFFICIALS  
COUNTY BUILDING OFFICIALS  
HOUSING CODE OFFICIALS  
FIRE OFFICIALS  
HEALTH OFFICIALS  
ENVIRONMENTAL HEALTH OFFICIALS  
INTERESTED PARTIES (SHL)  
DIVISION STAFF

RE: PLASTIC PIPING SYSTEMS

The Department of Housing and Community Development has undertaken an Environmental Impact Report under the provisions of the California Environmental Quality Act before authorizing the expanded use of plastic pipe. The Environmental Impact Report is required because a significant controversy exists, and because evidence exists, although disputed, that plastic pipe may cause actual or potential significant adverse environmental or public health effects by leaching hazardous or carcinogenic chemicals, and/or may pose fire safety or worker safety hazards. The types of pipe being studied are PVC, CPVC, and PB for potable water and ABS and PVC for drain, waste and vent.

The Environmental Impact Report will also evaluate existing uses of plastic and metal pipe. Until the Environmental Impact Report is completed and reviewed, the expanded use of plastic pipe is not approved by the state beyond the uses adopted by the state in 1979.

Because of an order of the California Supreme Court, the Uniform Plumbing Code, 1982 Edition, is being distributed in California with a notice inserted by IAPMO which notifies recipients, among other things, that the Environmental Impact Report is being prepared and that the expanded use of plastic pipe "is not permitted in California." This notice of IAPMO, and its manner of insertion in the code, has caused misunderstanding as to the current status of the approved use of plastic pipe in California.

The Department of Housing and Community Development adopted the Uniform Plumbing Code, 1979 Edition, as part of the State Housing Law on December 31, 1979. The 1979 Edition is the current edition being enforced under the State Housing Law.

Re: California

## NOTICE

The 1982 Uniform Plumbing Code is now being distributed to California users with the following notice inserted in each book:

### TO CALIFORNIA USERS OF THE UPC Re UPC Section 1004 and IS-22-81

The following Notice is inserted in your 1982 edition of the UPC in order to comply with that certain Stay Pending Appeal issued by the Supreme Court of California on April 1, 1982, in the matter of *Spohn, as Director of the California Department of Consumer Affairs, Friends of the Earth, Consumer Federation of California, State Building and Construction Trades Council of California, and Aileen Adams, Plaintiffs, vs. International Association of Plumbing and Mechanical Officials, etc., et al., Defendants*, 2d Civil No. 64671. The Notice does not reflect the editorial policy of the publishers of the UPC, and its insertion in the UPC, to accompany listings of PB, PVC and CPVC plastic pipe, does not reflect any agreement or concession by IAPMO that the Notice is either necessary or appropriate.

“NOTICE: An Environmental Impact Report is now being prepared in California to determine whether the use of CPVC, PVC or PB plastic pipe for transporting potable water poses a danger to public health or the environment. At the time this edition of the Uniform Plumbing Code was printed the use of such pipe for this purpose is not permitted in California. It is recommended that you contact the State Housing Law Section of the California Housing and Community Development Department before using such pipe.”

S. L & C.  
A. Fischer

APR 27 1983

# FAIRBANKS CENTRAL LABOR COUNCIL

## A. F. of L. - C. I. O.

FAIRBANKS, ALASKA

(907) 479-6281

April 22, 1983

Senator Don Bennett  
Pouch V  
Juneau, Alaska 99811  
(Mail Stop 3100)

Re: Senate Bill 214

Dear Don :

The Fairbanks Central Labor Council has unanimously adopted the resolution opposing Senate Bill 214. The gravamen of the bill is to delete the 1975 Uniform-Plumbing Code as the official minimum plumbing code for the state. The bill replaces the 1979 edition with a 1982 edition. The 1982 edition was the product of a tremendous amount of lobbying and as a result, it is totally permissive. This means there are almost no standards. Plumbing work done by union plumbing contractors and union men has always been a guarantee of a good functional job. If we reduce to the standards of the 1982 version of the code, every kind of get rich quick short cut will be codified and everyone will have to drop to those standards to meet the competition. The result will be non-thawable pipes, leaks, and tremendous dissatisfaction with the plumbing industry.

For the benefit of the public, who needs the protection, and the plumbing industry, that must maintain its reputation, please vote against SB 214.

Sincerely,



ARTHUR LYLE ROBSON, Secretary-Treasurer  
Fairbanks Central Labor Council

ALR:CJM

Letter of Opposition



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# Alaska Health Project

417 West Eighth Avenue — P. O. Box 10-1037, Anchorage, Alaska 99510 — (907) 276-2864

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May 9, 1984

TO: Senate Labor and Commerce Committee

FROM: David Wigglesworth  
Occupational/Environmental  
Health Specialist

SUBJECT RE: House Bill #508, An Act Relating To The Plumbing Code

Plumbers and pipefitters encounter many hazardous materials in their occupations. For example, traditional metal pipe plumbing threaten plumbers with toxic metal fumes and vapors from welding. Now, contemporary polyvinyl chloride (PVC) and acrylonitrile-butadiene-styrene (ABS) plastic pipe systems present plumbers with new hazards which, unlike traditional plumbing, have not been fully studied as to their long and short term health hazards.

Alaska Health Project is not in the position of opposing or supporting HB508. However, we feel it is our responsibility to point out some health risks associated with the use of new plastic pipe systems and to raise questions concerning worker and public health if the legislature does expand the use of these systems as described in HB508.

## I. Health Issues Associated With Plastic Pipe Systems

### A. What Are The Chemicals Involved?

The joining of plastic pipe involves the use of many cleaning solvents and rapid gluing cements containing solvents and plastic resins.

Typical solvents found in plastic pipe cements and primers are:

- 1) Methyl Ethyl Ketone (MEK)
- 2) Tetrahydrofuran (THF)
- 3) Cyclohexanone (CyHx)
- 4) Dimethyl Formamide (DMF)
- 5) Toluene
- 6) Xylene
- 7) Methyl Butyl Ketone (MBK)

These cements also contain plastic resins such as PVC and ABS.

E. What Are the Health Effects To Workers

In General these substances enter the body via inhalation, ingestion, and/or skin contact. All of them can cause short term, or acute, irritation to the eyes, nose, and throat; impair judgement and cause dizziness and narcosis. Plumbers working in confined spaces without adequate ventilation or personal protective equipment will be more susceptible to these symptoms.

The long term, or chronic, implications of exposure to these substances is largely unknown, yet many are being investigated to determine if they cause or promote cancer and damage the central nervous system. For example:

1) Tetrahydrofuran (CAS-109-99-9)

Syn. - 1, 4 epoxy, butylene oxide (ether-like odor)

Routes of exposure are: inhalation, ingestion, skin contact

Acute exposure causes eye, nose irritation; and nausea, dizziness, headache.

Long term exposure - prolonged, repeated skin contact can dry out the skin, causing dermatitis.

Although not known as a liver toxin, liver and kidney effects should be considered because of the importance of these organs in the detoxification of the body.

No chronic systemic effects have been found in humans to date (1978 reference).

Latest Registry of Toxic Effects of Chemical Substances (RTECS) lists references on mutation data.

Being tested in NTP (National Toxicological Program) for carcinogenicity (Jan. 1983).<sup>1</sup>

2) N, N, Dimethyl Formamide (CAS-68-12-2)

Syn. - DMF (ammonia-like odor)

Routes of exposure are: inhalation, ingestion, and skin contact. Can be absorbed through the skin.

Acute exposure - abdominal distress and pain, loss of appetite, nausea, vomiting, liver injury, agitation and increased blood pressure. Skin irritation may also result. Facial flushing (especially after drinking alcohol) may occur.

Long term exposure - repeated or prolonged skin contact can cause dermatitis.

DMF is toxic to the liver and kidneys - from animal testing and some human exposure studies (liver).

Odor thresholds is 100ppm - well above level of toxic affects. Poor warning properties.

RTECS list information on irritant properties, mutation data, reproductive effects data.

Being tested in NTP for carcinogenicity (Jan. 1983).<sup>2</sup>

3) Cyclohexanone (CAS-108-94-1)

Syns: Anon, Hexanone

Routes of exposure are: inhalation, ingestion, skin contact.

Acute exposure causes skin, eye, and nasal irritations, especially in concentrations above 50 ppm (parts per million). Exposure to high concentrations can result in central nervous system (CNS) depression.

Although research suggests that there are no long term health effects to workers, damage to liver and kidney should be considered because of the importance of these organs in the detoxification of the body.<sup>3</sup>

4) Methyl Ethyl Ketone (CAS-78-93-3)

Syns: MEK, Butanone

Routes of exposure are: inhalation, ingestion, and skin contact.

Short term (acute) exposures cause irritation to the nose and throat; Numbness in the fingers, arms, and legs; headache, nausea. Severe irritation results in concentrations greater than 300 ppm. Ingestion of an ounce or more can cause death.

Long term exposures can have an effect on the central nervous system characterized by weakness, fatigue, and numbness in the extremities. Symptoms may develop after 1 year of exposure to vapor concentrations of 50 to 200 ppm.

There is the possibility of a synergistic effect between MEK and THF to produce peripheral neuropathy.

The NIOSH Criteria Document for Ketones (1978) (which includes MEK, MBK and CYHX) recommends further research on the health effects of these substances. "The possibility of carcinogenic, mutagenic, teratogenic, and reproductive effects from ketones have not been thoroughly investigated. Epidemiological studies on all of the ketones are also needed."<sup>4</sup>

C. What Potential Health Effects will the Expanded Use of PVC and ABS Pipe Systems Have On The Community?

The health risks of plastic pipe cements and solvents to a community is low. However, plastic pipe systems of all types do pose a threat to public health when heated. Fires in buildings containing these systems can melt plastic pipes liberating gases and fumes, many of which are colorless, odorless, toxic and in some instances carcinogenic.

Given the proper conditions, PVC will burn decomposing into vinyl chloride, benzene, hydrochloric acid, phosgene gas, carbon monoxide. Both vinyl chloride and benzene are known carcinogens. Phosgene and hydrogen chloride (HCL) gas are extremely irritating to the respiratory system. The concern with ABS pipe systems is the liberation of acrylonitrile and butadiene, both known to cause cancer in humans.<sup>5</sup>

Besides the obvious fire hazards burning plastics present potential hazards to emergency response personnel, office workers and the nearby public.

The real and potential hazards to plumbers and pipefitters, emergency responders, and the general public raise some fundamental questions which Alaska Health Project feels the legislature should address as it considers HB508.

1. If the state intends to expand the use of PVC/ABS plumbing systems, has it also considered completely the increased health risks to the community and to workers?
2. If HB508 is adopted, are there provisions in the legislation to ensure the maximum amount of protection to plumbers and the general public?
3. Is the legislature willing to expand the use of these plastic plumbing systems before current national research teams complete their studies on the potential carcinogenic, mutagenic and teratogenic properties of pipe cements and solvents?
4. Is there a mechanism in place whereby emergency responders are made aware of buildings containing ABS and/or PVC pipe systems so that they can protect themselves in the event of a fire?

In the event that this legislation is adopted, Alaska Health Project urges the legislature to consider the following amendments:

1. Adopt language directing the State Department of Health to develop a follow-up program to keep up-to-date with current NTP testing, NIOSH research and other scientific studies on the health issues surrounding plastic pipe systems. Furthermore, direct the Department to collect data on exposures and health effects to Alaskan plumbers who have used or are using these

systems and also to monitor for health effects at a statistically significant number of job sites where these systems are being installed. This information would more clearly define potential health problems and assist the state in developing programs to prevent unnecessary workplace exposures thereby protecting the health of plumbers.

2. When possible, PVC cements and cleaners should not be used if they contain DMF. Its health risks are more clearly documented and should be substituted for a less toxic substance.

3. Adopt language requiring that the fire department and other emergency responders are made aware of buildings containing PVC, ABS or other plastic pipe systems.

Alaska Health Project appreciates the opportunity to testify before the Senate Labor and Commerce Committee. We urge your careful consideration of this legislation.

#### NOTES

- 1 U.S. Dept. of Labor Occupational Health Guide for Tetrahydrofuran 1978  
Registry of Toxic Effects of Chemical Substances (RTECs), NIOSH
- 2 U.S. Dept. of Labor Occupational Health Guide for Dimethyl Formamide 1978  
Registry of Toxic Effects of Chemical Substances (RTECs), NIOSH 1983
- 3 Patty's Industrial Hygiene and Toxicology, 3rd revised edition, Vol. 2C 1982
- 4 Patty's Industrial Hygiene and Toxicology, 3rd revised edition, Vol. 2C 1982  
Criteria Document for Occupational Exposure to Ketones, NIOSH 1978
- 5 International Firefighters Associations, Occupational Cancer and the Firefighter, Dept. of Research, Health and Safety Division

#### OTHER SOURCES

Health Hazard Evaluation Report, Plumbers and Gasfitters Local Union #12, NIOSH, 1981

NIOSH Current Intelligence Bulletin 41, 1, 3 Butadiene, Feb. 9, 1984

Sax, Irving, Dangerous Properties of Industrial Materials, 5th edition 1979

999 EAST TUDOR ROAD  
ANCHORAGE, ALASKA 99503  
(907)563-3004 TELEX: 090-25-297

P.O. BOX 128 NORTHGATE STATION  
SEATTLE, WASHINGTON 98125  
(206) 284-5531 TELEX: 32-1041

# du Alaska Company

Manufacturers  
Representatives

May 12, 1983

Senator Richard Eliason  
Pouch V  
Juneau, Alaska 99811

Dear Senator,

I had the pleasure today of talking to Sheila Peterson in your office in behalf of Senator Paul Fischer's Bill #214 to upgrade the Alaskan State plumbing code to agree with the 1982 edition of the IATMO Code.

I hope you can see your way clear to schedule hearings on this bill. One of the products which would be allowed would be Polybutylene Pipe for water service.

This pipe is not new to Alaska. Every trailer or modular home shipped into Alaska is plumbed with this product because it stands vibration extremely well and because if the unit freezes, no damage will occur from bursting pipe, yet because of our outdated code, local Trailer Manufacturers like Husky must use older and more expensive pipe. Owners who remodel or work on their units, must to be legal, use a different material. In actual fact they ignore the law.

In Fairbanks, Sitka, Palmer and Bethel, wide use is being made of this pipe wither under local code or illegally. It is just too good a product to ignore if there is any chance the building will freeze up. Imagine how much money is spent replacing water damaged walls from freeze burst copper pipe.

I have personally appeared before the Anchorage Borough Plumbing Board and have heard members of plumbing associations object to this product. My personal feeling is that the professional plumber tends to move slowly on any new product but since the Anchorage market is covered by the Greater Anchorage Borough Mechanical Board, their area will not be effected by the state code anyway.

*ok this way*

Letter of Support

There have been some people who have objected to any plastic on the basis that its use may cause cancer. I have never personally seen any laboratory test or medical opinion that bears this out. I know I eat off a plastic covered table, brush my teeth with a plastic toothbrush and drink Coke out of a plastic bottle poured into a plastic glass. I can't see how in the face of this, anyone can be concerned if the water for my scotch mixer comes out of a plastic pipe!

The other health problem has been told to me by the Anchorage Health Department personnel who say that galvanized pipe that is installed a long time rusts so bad inside that even repeated chlorination does not always kill the bacterial contamination. Polybutylene never corrodes, is always smooth and like new. I'd certainly prefer to get my water from it than some of these rusty iron pipes.

Our state achieves considerable revenue from the sale of petroleum, there has even been talk of a state supported Petro Chemical Plant. In view of this fact, is it now in the states interest to encourage the products of those Petro Chemical Plants instead of banning their use?

I'd like to come to Juneau for a hearing on this and I know others in Alaska who would also. If you would like people who are using this product in Alaska to contact you, I'll be delighted to ask them.

Best Regards,



C. Dammann

CD/bjs

# Shell Chemical Company

A Division of Shell Oil Company



June 6, 1983

P.O. Box 7637  
Stockton, CA 95207

Senator Paul Fisher  
Pouch V  
Juneau, Alaska 99811

ATTENTION: Elieen Glenn  
Administrative Assistant

Dear Ms. Glenn:

I am writing this letter at the suggestion of C. Chuck Dummann of du Alaska Company, Inc. Chuck has informed me that Senator Fisher has introduced Bill #SP-214 that is of great interest to Shell Chemical Company.

The Bill would adopt the 1982 Uniform Plumbing Code as the required Code for the State. Currently the State operates under the 1979 version. While there are several minor changes between 1979 and 1982, there is a major change of importance to us. This change appears in Section 1004. It incorporates the use of polybutylene as an approved plumbing pipe along with the more traditional materials such as copper and galvanized pipe.

For your general information I am enclosing a selection of literature on the subject of polybutylene. As you can see, it is a versatile material capable of performing in many severe conditions.

In addition to these proven performance characteristics there are several reasons particular to the State of Alaska that make the passing of Bill #SB-214 important:

1. The mobile home industry has for years used polybutylene. We estimate over 80 percent of all mobile homes are plumbed with polybutylene. The manufactured housing industry outside of Alaska has a distinct cost advantage over the Alaska based manufacturer. The Alaska builder does not have the advantage of polybutylene's low cost.
2. The low installed cost of polybutylene puts the Alaska builder at a disadvantage to a major portion of the remainder of the United States. Mobile home and manufactured housing builders in other states have the advantage of using polybutylene. This puts the Alaska builder in an uncompetitive situation.

Letter of Support

June 5, 1983

3. In addition to polybutylene's advantages in plumbing application, its use is rapidly growing in fire sprinklers. Polybutylene is now listed by Factory Mutual. Approval of polybutylene in plumbing application would greatly assist its development in the fire sprinkler installation.
4. Given the Alaska climate, polybutylene has a special feature of being freeze resistant. Simply put, properly installed polybutylene will not rupture as will conventional material when frozen.

Thank you for your effort thus far. Polybutylene is a proven material around the United States and around the world and belongs as a material available to the people of Alaska.

I am ready to come to Juneau to testify or speak to anyone on the subject if it would be helpful.

I hope that Senator Fisher will make every effort possible to move this Bill forward.

Very truly yours,

*M. J. O'Brien*

M. J. O'Brien  
Regional Sales Manager  
Polybutylene Department

MJO/ja

Enclosures

cc: Chuck Dummann  
Gordon Evans  
Ely, Guess and Rudd  
Juneau, Alaska

MSG 84-00043816 PRTY 1 05/09/84 15:48:52 ORIG: 4604 IN= 0007 OUT= 0036  
FROM: DOROTHY/PETERSBURG TO: JUNEAU INFO.  
TARGET: LJHK SUBJ: FOR

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TO: SENATORS RICHARD ELIASON, BOB MULCAHY, FRITZ PETTYJOHN, PATRICK RODEY,  
JOHN SACKETT

FROM: GARY FOND  
BOX 1711  
PETERSBURG, AK 99833

RE: HB 508

VOTE NO ON HB 508 WITHOUT REVISION.

UNLESS REVISED IN SECTION 404 AND SECTION 1004, I FEEL IT ENDANGERS THE  
PUBLIC AND WORKERS HEALTH.

MSG 84-00043840 PRTY 1 05/09/84 16:19:50 ORIG: 460\$ IN= 0008 OUT= 0000  
FROM: DOROTHY/PETERSBURG TO: JUNEAU INFO.  
TARGET: LJHK SUBJ: POM

---

TO: SENATORS RICHARD ELIASON, BOB MULCAHY, FRITZ PETTYJOHN, PATRICK RODEY,  
JOHN SACKETT

FROM: HARVEY BOHANNAN  
BOX 7261  
KETCHIKAN, AK 99901

RE: HB 508

VOTE NO ON HB 508 WITHOUT REVISION.

UNLESS REVISED IN SECTION 401 AND SECTION 1004, I FEEL IT ENDANGERS THE  
PUBLIC AND WORKERS HEALTH.

*Handwritten notes:*  
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MSG 84-00043868 PRTY 1 05/09/84 17:19:32 ORIG: 4604 IN= 0009 OUT= 0099  
FROM: DOROTHY/PETERSBURG TO: JUNEAU INFO.  
TARGET: LJHK SUBJ: POM

---

TO: SENATORS RICHARD ELIASON, BOB MULCAHY, FRITZ PETTYJOHN, PATRICK RODEY,  
JOHN SACKETT

FROM: RONALD E. SMITH  
BOX 772  
HAINES, ALASKA 99827 907 766-2843

RE: HB 508

VOTE NO ON HB 508 WITHOUT REVISION.

UNLESS REVISED IN SECTION 401 AND SECTION 1004, I FEEL IT ENDANGERS THE  
PUBLIC AND WORKERS HEALTH.

MSG 84-00043869 PRTY 1 05/09/84 17:22:37 ORIG: 4604 IN= 0010 OUT= 0100  
FROM: DOROTHY/PETERSBURG TO: JUNEAU INFO.  
TARGET: LJHK SUBJ: POM

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TO: SENATORS RICHARD ELIASON, BOB MULCAHY, FRITZ PETTYJOHN, PATRICK RODEY,  
JOHN SACKETT

FROM: DUANE E. VILANDRE  
BOX 1420  
SIKKA, ALASKA 99835 907 772-3045

RE: HB 508

VOTE NO ON HB 508 WITHOUT REVISION.

UNLESS REVISED IN SECTION 401 AND SECTION 1004, I FEEL IT ENDANGERS THE  
PUBLIC AND WORKERS HEALTH.

MSG 84-00044100 PRY 1 05/10/84 13:22:15 ORIG: LK00 IN= 0005 OUT= 0064  
FROM: JUNE G/KETCHIKAN TO: JUNEAU INFO  
TARGET: LJHK SUBJ: POM

---

TO: SENATOR DICK ELIASON & SENATE LABOR & COMMERCE COMMITTEE MEMBERS:

FROM: CURTIS W. TUCKER  
P. O. BOX 5784  
KETCHIKAN, ALASKA 99901  
(907) 225-6394 (HOME) (907) 225-6648 (WORK)

RE: HB 508

DUE TO WORKER'S HEALTH & SAFETY I URGE YOU TO MODIFY THE 1982 PLUMBING CODE SECTIONS 401 & 1004 TO EXCLUDE THE USE OF PLASTIC PIPE IN ANY DWELLING OF 2 STORIES OR LESS AND ALL COMMERCIAL BUILDINGS. THANK YOU.

EDM/JG

ASL 84-00044118 PRTY 1 05/10/84 13:30:48 ORIG: LK06 IN= 0006 OUT= 0006  
FROM: JUNE G/RETCHIKAN TO: JUNEAU INFO  
TARGET: LMR SUBJ: PDR 2

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TO WENIGOR DICK ELIASON, LABOR & COMMERCE COMMITTEE

FROM ROBERT F. TUCKER  
RT. 1 BOX 182  
RETCHIKAN, ALASKA 99901  
(907) 225-3699 (HOME) (907) 225-6648 (WORK)

RE HB 503 (PLUMBING CODE)

OBJECT TO PASSAGE OF HB 503 SECTION 1004 & 401 HAZARD TO WORKERS HEALTH & SAFETY AS WELL AS OCCUPANTS & OWNERS.

END JG

HSG 84-00044127 PRTY 1 05/10/84 13:40:52 ORIG: LK00 IN= 0008 OUT= 0068  
FROM: JUNE G/KETCHIKAN TO: JUNEAU INFO  
TARGET: LJHK SUBJ: FOM

---

TO: SENATOR DICK ELIASON, LABORS AND COMMERCE COMMITTEE

FROM: MICHAEL J. GLASSER  
1378 WOODSIDE DR.  
KETCHIKAN, ALASKA 99901  
(907) 225-6845 (HOME) (907) 225-6648 (WORK)

RE: HB 508 PLUMBING CODE

OBJECT TO PASSAGE OF HB 508, SECTION 1004 & 401. HAZARDOUS TO WORKERS  
HEALTH & SAFETY AS WELL AS OCCUPANTS AND OWNERS.

EDR/JG