CUSTOMER CALL REPORT

CUSTOMER & LOCATION Mortell Company Plymouth, MI

INDUSTRY CLASSIFICATION Sealants

SALESMAN Edward J. Kleber REGION Midwest DATE OF CALL 7/26/78

ASBESTOS HEALTH & REGULATORY DOCUMENTS PROVIDED:

- ☐ MSDS
- ☐ Health & OSHA Information Blue Book
- ☐ Dust Count Report
- ☐ Other, specify below

PERSONS INTERVIEWED: Dr. T. J. Anagnostou - R & D Director

CALL OBJECTIVE: Regular call on large RG-110/RG-144 customers development lab.

RESULTS OF CALL: It appears that things have really "hit the fan" here at Mortell. The attached letter is pretty self-explanatory, the only unsaid thing in there is that the letter although signed by the executive committee of Mortell, it was actually written by Don Mortell, owner and president. The good Dr. Anagnostou says that for the present he's going to ignore the letter, because he feels it's a waste of good lab time to look for asbestos substitutes. He will have to respond to the letter in the next few months and lay out his opinion of why they should not be searching for asbestos substitutes. He said the only real immediate effect on our business was the sentence in their letter which says absolutely no new products are to be formulated with asbestos. This is obviously a direct order from the boss, and even he is not about to disobey that. Mortell, of course, is a very important Calidria customer. Last year we sold them $71,000 not including the California plant.

About the only thing we've got going here for us is that Anagnostou is firmly in our corner and will help us anyway he can. He suggested that maybe it would be a good idea to get Don Mortell and Harry Rhodes together and let them fight it out. He recognizes that he's no expert in the field and said that if he tries to convince Don Mortell he's wrong, he's liable to look like a fool.

PLAINTIFF'S EXHIBIT

UC-4790

FOLLOW-UP ACTION REQUIRED:

EJK /HBR - Let's get with Taki and figure out a plan of action.

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dal 8/17/78

MORTELL COMPANY
INTER-OFFICE CORRESPONDENCE

RECEIVED
JUL 20 1978
MORTELL RESEARCH LAB
PLYMOUTH, MICH.

DATE July 19, 1978
TO Dr. Anagnostou and B. A. Radebaugh
FROM Executive Committee
SUBJECT: Asbestos

On Sunday, June 25th, the Evening News carried a report on a national symposium convened for discussing asbestos use among Naval shipyard workers on the East Coast. A number of workers had contracted mesothelioma after several years of exposure. Some workers had not been employed by the shipyards for five years, however, developed the condition some years after termination of employment.

As a result of the symposium, the Federal government will be issuing notices with the Social Security checks of retired workers formerly employed by known asbestos users. The notice advises the retirees of the hazards of asbestos exposure and urges immediate chest x-rays for those exposed.

With the increase in media attention given occupational diseases and subsequent legal settlements, the recent Social Security development could have ominous liability implications for Mortell Company. Hence, it is essential that a serious R & D effort is made towards the elimination of fiber in all product lines, regardless of whether or not the EPA and OSHA standards continue to allow the corporation to use asbestos.

Mortell Company will almost certainly face law suits within the next two years from both retired and previously employed plant workers who hope to cash in on the occupational disease bonanza. The seriousness of the legal threat outweighs any consideration of attempting to mechanically comply with the new 1979 OSHA air standards, since doing so would require major capital expenditures for the equipment to meet the new standards, but would not eliminate our liability.

The game plan must be for fiberless plants, as opposed to compliance with future air standards. The corporation should be completely fiberless by fiscal year 1980. R & D would have one year to eliminate fiber in all product lines. Absolutely no new products are to be formulated with asbestos -- this includes Whitney's products. I suspect that the capital expenditures necessary to comply with the new air standards will be so severe that we will be financially forced to pursue fiberless operations over and above liability considerations.

R & D should begin to develop an overall plan to eliminate asbestos on a product line by product line basis. Developing fiberless products will be extremely hard, but watching the corporation being dissolved and sold off in chunks to pay off legal claims could be even harder.

cc: Executive Committee
Anderson, D. R.
Benbrook, D. L.
Guertin, J. J.
Januski, E. A.
Logos, P. J.
Lund, E. T.
McGinty, R. N.
Messier, A. A.
Mortell, Jim
Overbeek, R. W.
Rivard, R. J.
Stamps, M. J.
Stetson, G. H.
Whitaker, D. B.

CUSTOMER CALL REPORT

CUSTOMER & LOCATION: Mortell Company, Plymouth, MI — INDUSTRY CLASSIFICATION: Sealants

SALESMAN: Edward J. Kleber w/ G. L. Dickson & H. Fukuma (Tomoe Engineering) — REGION: Midwest — DATE OF CALL: 10/18/78

ASBESTOS HEALTH & REGULATORY DOCUMENTS PROVIDED:

- ☐ MSDS
- ☐ Health & OSHA Information Blue Book
- ☐ Dust Count Report
- ☐ Other, specify below

PERSONS INTERVIEWED:

Taki Anagnostou - R & D Director
Bruce Radebough - Assistant R & D Director

CALL OBJECTIVE:

Have Dr. Anagnostou conduct lab tour for our Japanese distributor.

Find out the result of H. B. Rhodes' meeting with Mortell's Board of Directors.

RESULTS OF CALL:

Taki could not be happier with the results of H. B. Rhodes' meeting on 10/4/78 with the Board of Directors to discuss toxicology. Don Mortell (President) told Taki that he couldn't understand why they were so worried. H. B. Rhodes excellent presentation seems to have removed "the familiar aroma of panic" so evident at Mortell these last few months. Taki recognizes that there may be problems handling asbestos, but at least Mortell will go about solving them in an orderly manner.

Bruce Radebough has been charged with setting-up an employee education program and mentioned that he may wish to call on us for assistance. I told him we'd be happy to help in any way possible.

The laboratory tour was conducted for Mr. Fukuma's benefit, we thanked him profusely and left.

FOLLOW-UP ACTION REQUIRED:

HBR - Your presentation to Mortell seems to have injected some sanity to their higher echelons. Give yourself a minimum of 5 "attaboys". Thanks.

EJK - Continue regular calls.

COPIES TO: JRL:TPN:HBR:JEW:KC-FILE:NF-FILE — NF PERMANENT FILE

Calidria ASBESTOS

UNION CARBIDE CORPORATION • METALS DIVISION • P. O. BOX 579 • NIAGARA FALLS, N.Y. 14302 • TEL: 716-278-3376

October 25, 1978

Dr. T. J. Anagnostou
Mortell Company-Development Lab.
401 Industrial Road
Plymouth, MI 48170

Dear Taki:

Just a note to thank you for taking time out of your busy schedule to conduct a laboratory tour for our Japanese distributor's sales manager. Mr. Fukuma assured me that the tour was both interesting and informative. His lack of questions was due to his unfamiliarity with English, not because he wasn't interested.

If we can ever return the favor by way of a tour of our plant or labs, please let me know.

Very truly yours,

Edward J. Kleber
Midwest Sales

EJK:dal

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CUSTOMER CALL REPORT

CUSTOMER & LOCATION Mortell Company Plymouth, MI INDUSTRY CLASSIFICATION Sealers

SALESMAN Edward J. Kleber REGION Midwest DATE OF CALL 2/16/79

ASBESTOS HEALTH & REGULATORY DOCUMENTS PROVIDED:

- ☐ MSDS
- ☐ Health & OSHA Information Blue Book
- ☐ Dust Count Report
- ☐ Other, specify below

PERSONS INTERVIEWED: Bruce Radebough - Assistant Technical Director

CALL OBJECTIVE: Routine

RESULTS OF CALL:

Right now, because of the departure of Taki Anagnostou there is no Technical Director at Mortell. A very vigorous search for someone to take his place, although not on the same level, is underway. Most of our call was spent with Bruce trying to pump me for people who might fit that job.

I decided to take the bull by the horns and asked Bruce straight out why RG-144 and/or RG-244 were not considered for their newly approved hot melt sealant at Ford. Bruce noted that there is no question in his mind that our product would work, however, he cited our old bugaboo of toxicology as the reason. Bruce went on to explain that although Ford does not give Mortell trouble on approval of sealants containing asbestos, it's something they would rather avoid. Bruce told me that the hot melt is such a high profit item for Mortell that the initial cost of using Cab-O-Sil is negligible next to the ascetic virtues of being able to say there's no asbestos present. Bruce said the only way they would consider even looking at these products in their hot melt is if we were able to say with certainty that there is a major performance advantage. I told Bruce that we were trying to develop some data and we'd get back to him. He says he'll keep an open mind.

We discussed the program for replacing Canadian 7RS with SG-130 on the west coast. Bruce

(OVER)

FOLLOW-UP ACTION REQUIRED:

REB/EJK - If we are to gain any hot melt business at Mortell, we're going to have to show a large performance advantage. We should probably try to do some lab work.

EJK - Normal calls.

COPIES TO: JRL:TPN:JEW:KC-FILE:NF-FILE NF PERMANENT FILE ☐

CUSTOMER CALL REPORT

CUSTOMER & LOCATION: Mortell Company, 401 Industrial Drive, Plymouth, MI 48170

INDUSTRY CLASSIFICATION: Product Developme Laboratory

SALESMAN: Gordon L. Dickson & J. E. Walsh

REGION: Eastern

DATE OF CALL: 8/5/80

ASBESTOS HEALTH & REGULATORY DOCUMENTS PROVIDED:

- ☐ MSDS
- ☐ Health & OSHA Information Blue Book
- ☐ Dust Count Report
- ☒ Other, specify below

PERSONS INTERVIEWED:

Bruce Radebaugh - Technical Director

CALL OBJECTIVE:

Account maintenance plus introduce Jack.

RESULTS OF CALL:

Very little new to report here. Most of the conversation was toxicology related in one way or another. Mortell continues to use asbestos in many of their products but their policy apparently is that their new products are to be asbestos free if at all possible. Learned that A. T. Callas has sampled them with both RG-144 & 244 in paste form and that their work to date has been very encouraging. Will cover in more detail with Liana Callas later in the week.

FOLLOW-UP ACTION REQUIRED:

Maintain normal contact.

COPIES TO: JRL:TPN:JEW:KC-FILE:NF-FILE

NF PERMANENT FILE [X]

dal 8/11/80

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UNION CARBIDE CORPORATION • METALS DIVISION • P. O. BOX 579 • NIAGARA FALLS, N.Y. 14302 • TEL: 716-278-3376

March 17, 1981

Mortell Company
401 Industrial Drive
Plymouth, MI 48170

Attn: Mr. Mahendra Shah

Dear Mr. Shah:

Technical information and a safety data sheet for "Calidria" asbestos RG-110, RG-144 and RG-244 is enclosed as per your recent request. "Calidria" asbestos RG-110 and RG-144 are listed in the EPA Initial Inventory or its supplement as asbestos fiber with a registry number of 1332-21-4. "Calidria" asbestos RG-244 is a mixture of asbestos fibers and silica with registry numbers of 1332-21-4 and 7631-86-9, respectively.

Please let us know if additional information is required.

Very truly yours,

G. L. Dickson
Technical Sales Representative
Eastern Region

GLD:dal
Enclosures

TECH METALS NF

TECH METALS NF

UCC MSG PROC

MCX0001 DMA0011 5000 03/13 1026/1026

METALS DIV/NIAGARA FALLS

PLEASE SEND TECH. DATA SHEETS, MATERIAL SAFETY DATA SHEETS AND CHEM. AESTRACT NO'S ON RG-110, RG-144 AND RG-244 TO:

MOPTELL CO.
AATN: MAHENDRA SHAH
401 INDUSTRIAL DRIVE
PLYMOUTH, MICH. 48170

THANKS
DAN JOPLIN/DET
SH

Sent 3-1-[illegible]

TECH METALS NF

METALS DIVISION - "CALIDRIA" ASBESTOS

CUSTOMER CALL REPORT

CUSTOMER & LOCATION: Mortell Company, 401 Industrial Drive, Plymouth, MI 48170

INDUSTRY CLASSIFICATION: Product Developme Laboratory (Caulks, Sea ants & C

SALESMAN: ~~Gordon L. Dickson~~ & Mike Grubb (A. T. Callas Co.) REGION: Eastern DATE OF CALL: 12/10/81

ASBESTOS HEALTH & REGULATORY DOCUMENTS PROVIDED:

- ☐ MSDS
- ☐ Health & OSHA Information Blue Book
- ☐ Dust Count Report
- ☐ Other, specify below

PERSONS INTERVIEWED: Mahendra Shah - Product Development Manager

CALL OBJECTIVE: Account maintenance

RESULTS OF CALL:

First meeting with Mahendra Shah who now pretty much runs their laboratory as Bruce Radebaugh, their technical director, is also responsible for their two manufacturing plants in Michigan.

About 60% of Mortell's business is automotive related (caulks, sealants, sound deadeners, undercoatings), the remainder of their products going primarily into mobile homes and residential buildings.

Although they still use considerable amounts of "Calidria" and Canadian asbestos they presently use much less than in the past because of pressure from some of their customers e.g. G.M. & Ford. A small amount of RG-244/polybutene paste is being purchased from A. T. Callas for use in an PVC automotive sealant, plus some purchases of our regular resin grade products when they run short. Normally their requirements are obtained from their Kankakee plant who buys directly from us.

Mahendra suggested the following as viable contacts at their Riverside, CA, and Kankakee, IL, plants: (OVER)

FOLLOW-UP ACTION REQUIRED:

1) Maintain at least quarterly contact here.

2) Visit their California plant as soon as convenient.

COPIES TO: GML:TPN:JEW:KC-FILE:NF-FILE NF PERMANENT FILE ☐

From The Desk Of

TOM NORRIS

What is status?
~~Kmart~~ – H.P.? – others.
Nissan

UNION CARBIDE "CALIDRIA" ASBESTOS

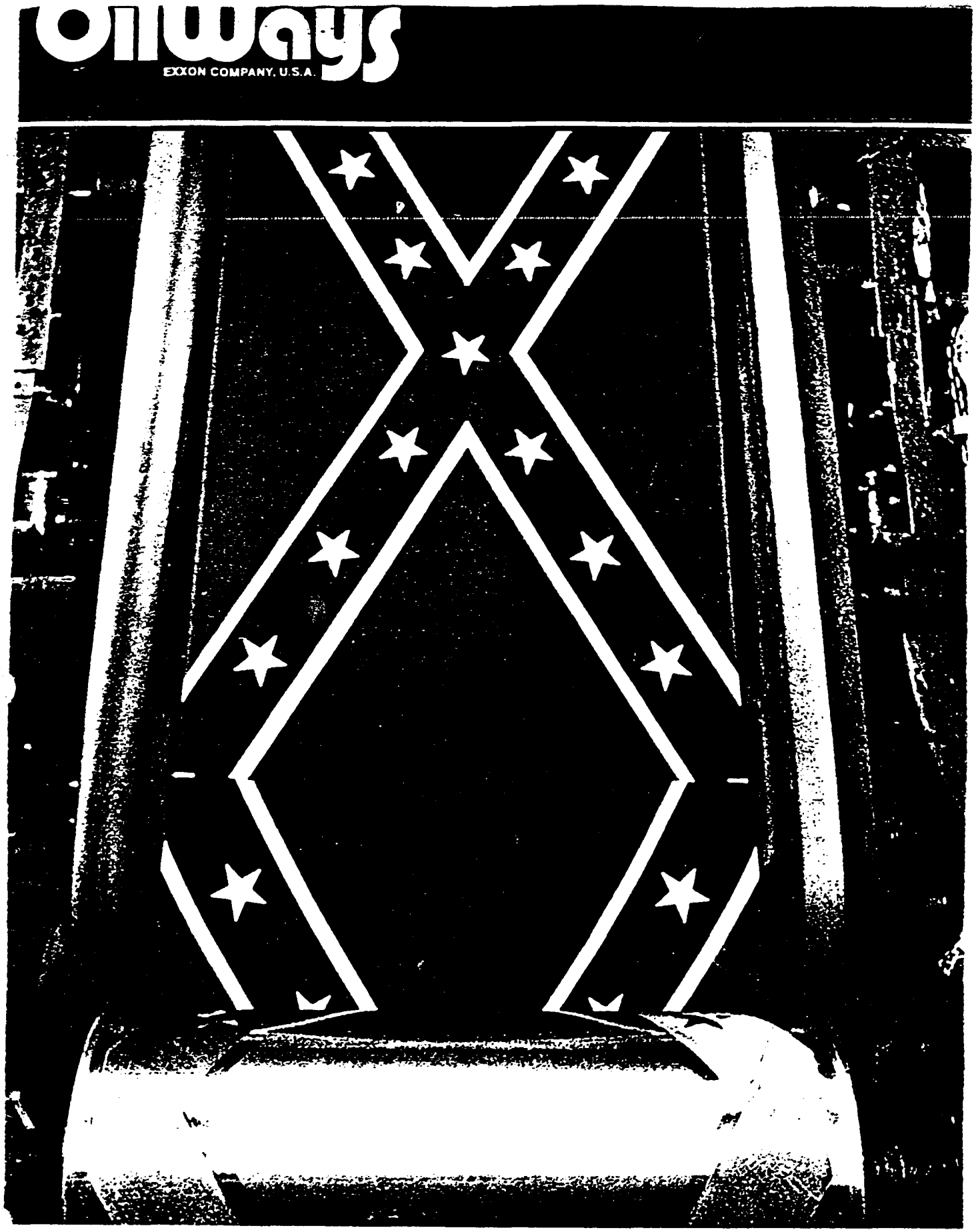
Riverside

Nick Schaina: Plant Manager
Bruce Stone: Manager of quality control

Kankakee

Ken Zamrobsky: Chief Chemist (mostly automotive aftermarket from automotive
Jim Harris: Ass't Chief Chemist

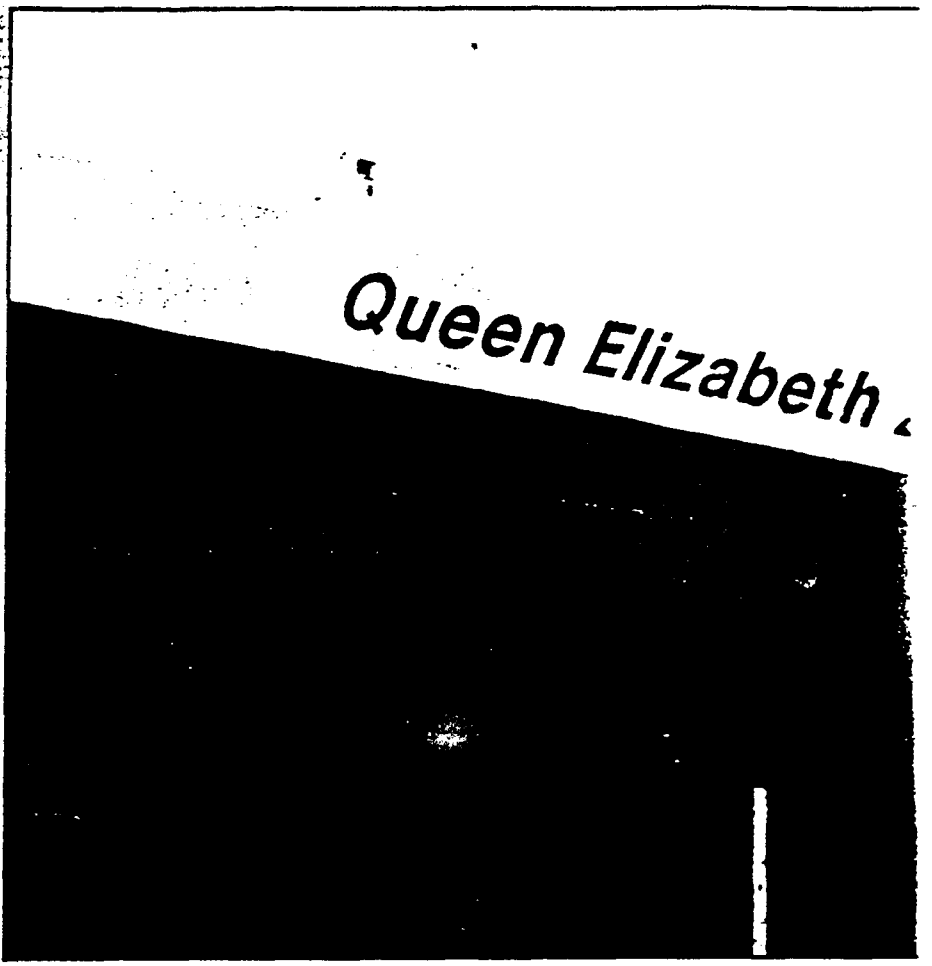
Regarding their Riverside production Mahendra was not sure what type of asbestos, if any, had replaced the Calaveras 7RS that had previously been used. We have tried in the past to get SG-130 evaluated as a replacement but for some unknown reason had never been successful. Mahendra said he would check with Bruce Radebaugh and let Mike Grubb know why.



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Quenching the Thirst of

BY JERRY BROWN



"Let me see if I've got it," replies George Beodeker to the party on the other end of the telephone line. The senior transportation allocator in Exxon USA Marine Department's East Coast Branch New York harbor office checks his notes, "She'll be docking at 0800 hours on the eighth at Pier Number 88, right, and she'll need 26,000 barrels of fuel. OK, we'll be there."

After hanging up the receiver, George turns to tug dispatcher Bob Amitrani: "That was Exxon International Marine Sales. They just informed me that the Queen is coming in from her around-the-world cruise. She's going to be pretty darn thirsty, so we'd better start gearing up for her arrival."

The Queen that George is referring to is the luxury passenger liner, The Queen Elizabeth II (QE II), the last of the great passenger ships still making trans-Atlantic crossings. Her thirst, bunker fuel or black oil to run on.

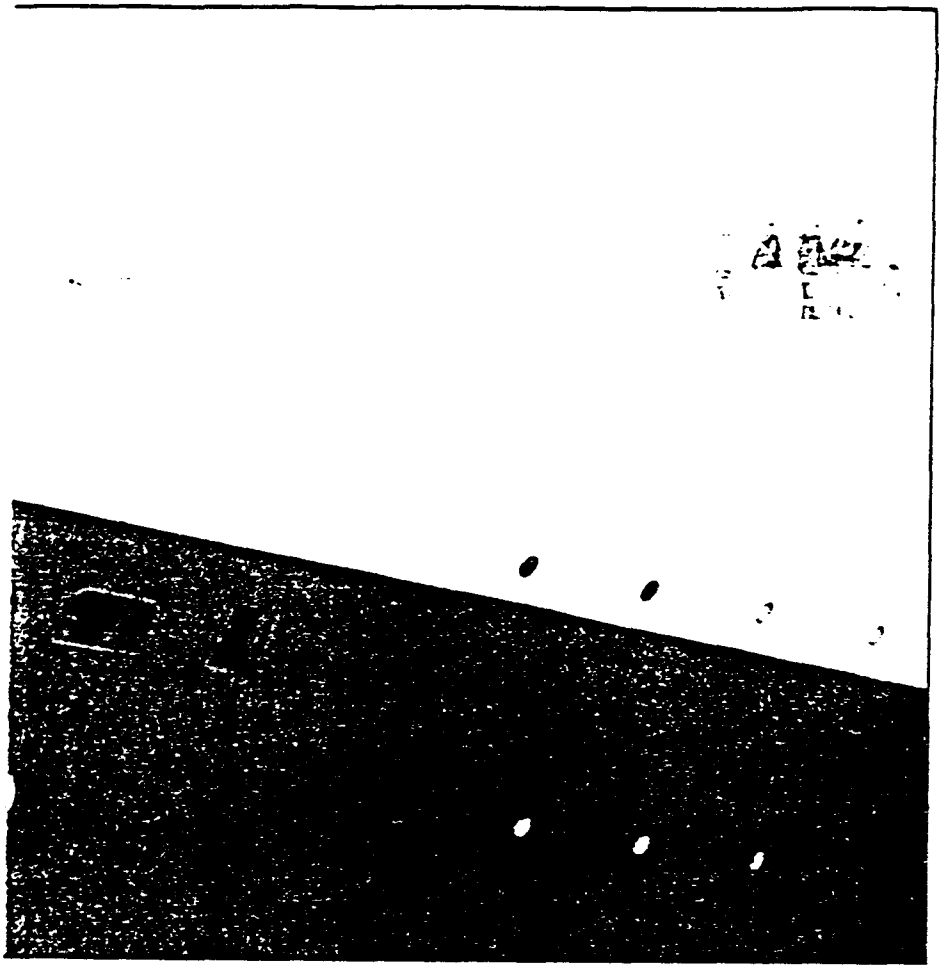
Bunkering is big business for Exxon Marine Department. In addition to fueling the QE II and other passenger ships in the New York harbor, it also bunkers a cornucopia of other vessels—tankers, freighters, container ships, LASH ships, Ro/Ro ships, Navy vessels, even fishing trawlers. Volumes of deliveries range from 75 to 60,000 barrels.

Ever since the QE II made her first crossing in 1969, she has been quenching her thirst in the New York Harbor with Exxon bunkers delivered by employees of Exxon Marine. "We've always handled Cunard Line's (owners of the vessel) ships in the New York Harbor," explains George, who has been with Exxon Marine for 20 years.

"Our relationship with Cunard goes back to the days of the Queen Mary and the original Queen Elizabeth. We also bunkered the France, United States, Bremen, Queen Anna Maria, Olympia and the Franconia when they were calling in New York."

Direct sales of bunker products are made to steamship lines like Cunard by marine sales department employees of various Exxon Corporation affiliates around the world. Once they receive notification of a vessel's arrival, bunker requirements and time of delivery, the information is passed on to Exxon's Bayonne, N.J., plant where the fuel is stored. After notifying Bayonne of the order, they in turn contact George Beodeker for barge availability. "Sometimes we get orders when all our barges are out

Queen



working," says George. "In such cases, we go out and charter a barge to ensure our customers are taken care of." Once George learns a ship is arriving, he nominates a barge for the job and informs Bayonne when the barge will arrive to pick up the load.

Nominating barges for shipside deliveries in the New York Harbor is not an easy job. It takes a detailed knowledge of the harbor to work with six barges ranging in capacity from 12,000 to 125,000 barrels. The transportation allocator also has to stay in constant touch with the tug dispatcher who directs the three tugs, the Exxon Granite State, Empire State and Delaware Valley, used to move the barges around the harbor.

The men at the wheels of these powerful units and the barge captains themselves are extremely knowledgeable in the ways of the fickle tides, winds and currents in the harbor. More often than not, they work in close quarters and must maneuver the oil-laden barges with great care so as not to damage the hulls of the ships they service.

"Allocating barges in the New York Harbor is a tricky business," says George. "Because we have no control over the number of orders we will receive on any given day or the destination of delivery, we must juggle the barges around in a manner to ensure that every order is filled at the time the fuel is needed."

Early on April 8, when the QE II pulled into her berth in mid-Manhattan, the Exxon Delaware Valley was right on hand pushing her fully laden barge—the 37,000-barrel Exxon barge number 31.

Because of tight schedules, passenger ships often stay in port only eight to 10 hours, especially during peak tourist seasons. This means a big job must be done quickly.

As soon as the QE II is securely moored, the Exxon Delaware Valley maneuvers the barge alongside the huge vessel. Once in place, the crew of the tug boards the barge to assist in the tie-up. Upon securing the barge to the ship, the chief engineer on the QE II climbs down to the barge to consult with the barge crew. Together they then gauge all the tanks to verify the quantity of oil aboard. Once that's done, the hose is connected and the traditional pre-transfer conference begins. After the rate of discharge is agreed on, the oil starts to flow. Six hours later, the job is completed. The hose is disconnected and the chief engineer of the QE II boards the barge to sign the receipt for the oil. Now, the grand lady of the sea is ready for another trans-Atlantic crossing, her thirst quenched by the men of Exxon Marine Department.

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SHHH! MORTELL AT WORK



Pumpable caulk used in autos is checked for viscosity at Mortell's Plymouth Research Center in Warren, Mich.

Published by AsbestosClaims.Law
asbestosclaims.law/library/19307/15

"The automotive industry just shut down, so we had to do something to fill the void," points out Don Mortell, president of Mortell Company, Kankakee, Ill. He's not talking about what's happening in 1981, but what happened after World War II broke out in 1941. At that time, almost 80% of the company's business came from the automotive industry, so the company was forced to diversify or die.

Diversify it did, developing new products for other civilian industries and landing military contracts to make ammunition black, sound deadeners for Sherman tanks, nonskid decking for aircraft carriers. And it came up with a rope-like, permanently plastic caulk for sealing tanks against moisture during shipment overseas. This World War II baby grew up to become Mortell's best-known product and gave the company an entry into the expanding do-it-yourself market.

Millions of homeowners have since used Mortite to caulk windows and doors against the weather. In addition to functioning as a reusable weatherstrip—peel it off, roll it up and save it until the next spell of severe weather—Mortite is used to keep insects out of ill-fitting screens, to make sinks and drains watertight and to do countless other jobs around the house.

But Mortell today is much more than a caulk manufacturer. In fact, it's into so many areas with so many different products, it's a difficult company to categorize.

How do you describe a company that makes hot-melt sealers for refrigerators, spravable tile adhesives, rustproofing compounds for cars, extruded caulks for foundries, acid-resistant coatings for tank cars, sealants for sewer joints and sound deadeners.

You can't classify the company by raw material source either. To get the properties needed for such diverse applications, Mortell uses asphalt, rubbers, resins, plastisols, polymers, mineral fillers, solvents, petrolatums and process oils. The company buys VARSOL solvent for undercoatings, one of Exxon's petrolatums for caulks, and TELURA



Director of purchasing Jim Keslin, right, shows Exxon's Ken McNatt Mortell's Instant Roof and Gutter Patch tape. It's only one of an extensive line of products for the home developed by the company in recent years.

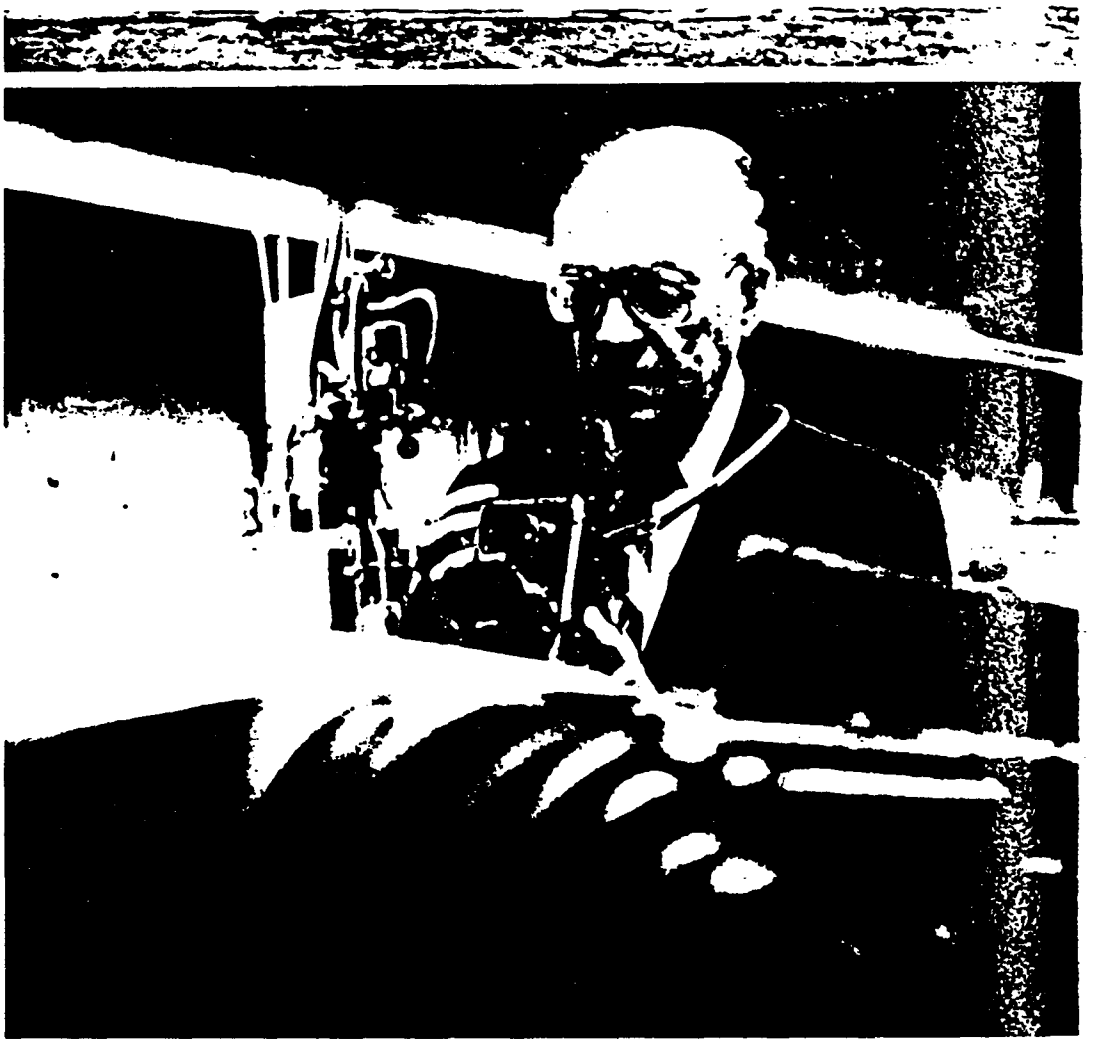
Our Man in DuPage County, Illinois

If the small Chicago suburb of Arrowhead had a mayor, you can bet the people's choice would be Ken McNatt. Civic-minded Ken has helped set up a "hot line" for emergency services, twice served as president of his homeowners association, organized voter drives and served as trustee on a regional fire protection district.

Ken's been a part of the suburban Chicago scene since 1965, providing petroleum products to Exxon customers in Illinois and Indiana. He started out in sales with the company in his native Colorado after earning a business administration degree from the University of Denver in 1948.

But now Ken regards himself as an Illini. His proudest accomplishment as a civic leader? Pushing through a drainage program to prevent disastrous flooding in his community.





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asbestosclaims.law/library/19307/17

At left: A new caulk formulation is prepared for testing in a lab ribbon mixer. Mortell develops hundreds of new or reformulated products a year to meet customer needs. Below: Purchasing agent Bill Williamson checks a camera angle on a sound deadener line at the Kankakee plant. He's the talented photographer who shot most of the pictures for this article.

---

and FLEXON process oils for sealants and sound deadeners.

The one thing Mortell products have in common is that they're designed for performance, not prettiness. Indeed, most end up in applications where they're never seen by the end user.

Take sound deadeners, for example. Don Mortell points to two shallow metal tubs leaning against his office wall and invites us to give them a good thump. Klunngg! goes the first one. The other gives out only a muffled thunk. Turning them over, Mortell shows us the difference: two thin strips of a soft plastic material, not much bigger than two business cards, stuck to the back of the dull-sounding tub.

Maximum sound deadening with minimum weight is most important to the auto industry. And even though cars are getting smaller and more fuel-efficient, there's a growing requirement for the kinds of products Mortell makes.

Sound deadeners are also a good example of how Mortell uses its technological expertise to propel itself into new markets. The company uncovered an aesthetic problem with metal caskets. It seemed they gave out a disconcerting rumble rolling down church aisles and a hollow sound when they were bumped. Mortell scientists designed sound deadeners to give them a reassuring silent solidity.

"There's no limit on what we work on," declares Mortell. "We know what our manufacturing and technical capabilities are, and we use them as a base to decide what we'll get into next. It's a constant battle to keep coming up with new products. But if we stayed with our current line, we'd fall behind our competition rapidly."

Mortell's policy of continuous product development—several hundred new formulations a year—has taken the company on a serpentine path to success.

The company was started in 1895 by Don Mortell's grandfather to make specialty paints for the home, such as stove black and gilsonite coatings. The paint company saw a big market for its wares in Kankakee's large railroad repair shop, so it turned away from the consumer market to making specialty coatings and sealants for freight cars. From an asphaltic-based coating for boxcars evolved an adhesive to stick jute pads to sheet metal, the system used in the '20s for dampening sound in automobiles. Once Mortell had a foothold in Detroit, it came up with a better sound deadener—a highly filled asphalt mastic. Then came sealants for access holes, rustproofing coatings, windshield sealants and a host of other products.

From expertise gained in making products for cars, the company expanded into numerous other manufacturing industries, notably trucks and buses, mobile homes, appliances and metal fabrication. Most recently, Mortell came back to the market where it got its start.

"One of our strong commitments today," says Mortell, "is to concentrate on the consumer market. There's been a tremendous growth in energy-saving products for the home. But we knew we had to offer a full line of products, not just Mortite."

The Mortell line includes foam weatherstripping tapes, air conditioner windowseals, pipe wraps, electric switch outlet seals, even doorstrips.

"Take this wood-and-vinyl foam doorstrip," points out Mortell. "That was a big departure for us from the other kinds of products we make. But as long as our sales people keep coming in from the marketplace with customer needs, we'll keep coming up with products to meet those needs."

FROM FLAPPERS TO FLAGS

BY JULIE SHOEBOTHAM

Cover: The Old South rises again with Confederate flags produced by textile giant, Rock Hill Printing and Finishing.

It was the age of the flapper. Women were scandalous as they bobbed their hair, draped themselves with long strands of pearls and dared to be seen in shockingly short, knee-length dresses.

Women's dresses were expensive at about $3.98 each. Many women had to make their own clothes. Those fortunate to be able to buy ready-made dresses usually had to buy cotton. After all, silk was only for those oh-so-lucky girls and the use of man-made fibers had just begun.

It was during this era, in 1929, that a company in South Carolina opened its doors to begin decorating fabric for an expanding women's apparel market. Today, after five decades of "in" things and new fads, Rock Hill Printing and Finishing, a division of M. Lowenstein Corporation, proudly claims to be the largest, most versatile textile printing and finishing plant in the world.

Over its lifetime the company has produced enough printed cloth to make 16 round trips to the moon and has grown to occupy 46 acres in Rock Hill, S.C.

"We're basically decorators of fabric," explains William H. Grier, Jr., vice-president and general manager of the division. "We don't make the fabric and we don't make clothes. What we do is take cloth from the mills and transform it into the attractive fabric that the





apparel industry wants."

And, ironically, what's gotten them through these years of wildly fluctuating hemlines and styles has been a production process that's stayed virtually unchanged since the turn of the century.

The company still starts with the feed-sack-like greige (grey) goods from the textile mills. Impurities are then removed by washing, treating, drying, bleaching and framing so the cloth can be used in the printing process.

The printing department, hub of the company's operations, is an assault on the visual sense. Fabric whizzes through print machines, up to 100 yards per minute. Swatches of brilliantly colored cloth hang by inspection desks. Vats of rainbow-colored dyes wait patiently to be transformed into paisley prints and perky polka dots.

There are two printing methods which put designs on fabric. Cloth printed with the roller printer is passed between a large drum and one or more copper rolls. The design to be printed is engraved on the rollers, which pick up the dyes from troughs and squeeze them through the fabric. This is the most widely used process in apparel printing because it gives the fine-line detail which so many women demand in their clothing.

Screen printing, on the other hand, is used for the larger patterned, more brilliant prints. Its large, nickel-plated rollers lay dye on top of the fabric, instead of squeezing it through, producing a brighter, "bloom" effect.

Each year, these machines churn out thousands of miles of what's hot in women's clothing but, believe it or not, there are always a few patterns that stay the same.

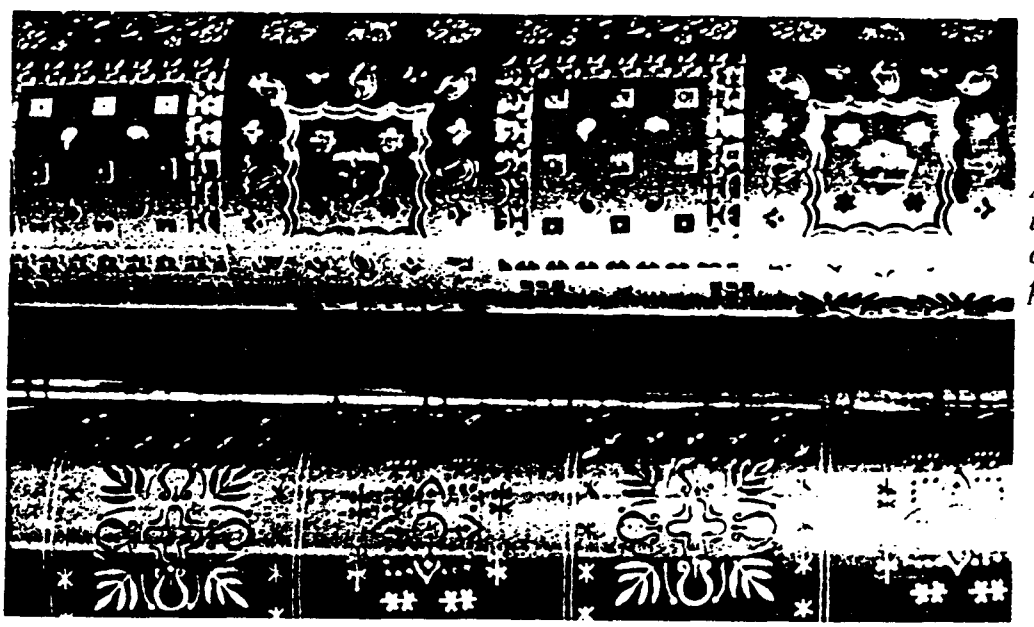
"The staples are popular every year," explains Bill Grier. "They're the polka dots, stripes and some plaids. Calicos tend to be here this year, gone the next. But calicos can fool you, because they're slightly different each year. People think they look the same, but they always have different colorations and a change or two in the design itself."

On the whole, the women's apparel industry has changed drastically over the years. The neat, practical styles of World War II became "culottes," the party pants of the '50s, and then the mini-skirts of the '60s. There's been a trend toward the more sporty, casual look. Better heating systems in today's office buildings and homes have led to the lighter cotton blends and man-made fibers' domination over heavy woolen and worsted materials.

Surviving the furious pace of women's fashion has meant staying flexible. As E. Ross Blew, vice-president for public and industrial relations, says, "Women at all economic levels want to be fashionable and that means keeping up with what's new. We used to print as much as a million yards of a pattern at a time, but not now. We can't depend on sheer quantity anymore. We need first-run quality and the ability to change directions quickly."

Because of this need for fast flexibility, RHP&F has recently invested over two million dollars to modernize and streamline its operations. The finishing department, which puts the different resins, plastics and fire-resistant qualities into fabric, has recently

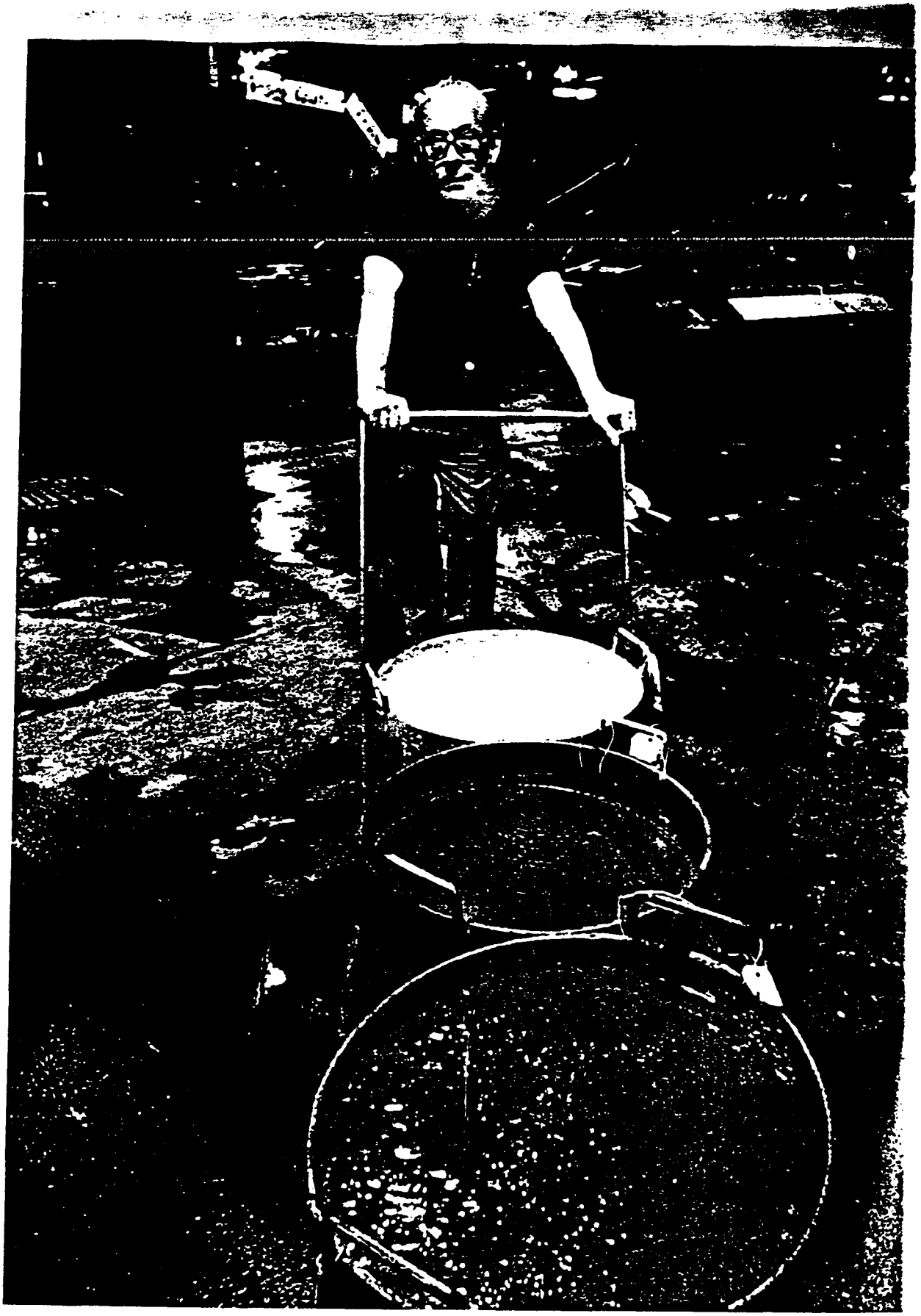
(Continued on page 12)



After designs are engraved into copper rollers, they are chrome-plated for long-lasting protection.

PHOTOS BY ART GENTILE

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Opposite page: Dyes are formulated by computer. Exxon's Varsol solvent keeps them smooth and fluid. At left: Quality control, from start to finish, is stressed at RHP&F. Inspectors examine material for any defects when it first enters the plant. Below: George Brandt, environmental control director, inspects freshly roller-printed fabric with Exxon's Kathy Beck and Fred York.

Our People in Textile Country

Rock Hill Printing and Finishing gets the able service of not one, but two Exxon reps. Senior Marketing Representative Fred York, an 18-year Exxon veteran, coordinates sales for M. Lowenstein's plants at its Southern headquarters in Lymart, S.C. Fred's right at home in his territory, having spent his college days at Clemson University, graduating with a B.S. in industrial engineering.

Sales rep Kathy Beck tends to RHP&F's day-to-day needs from her Charlotte base. She joined the Exxon team in 1980 after getting a degree in microbiology and chemistry from the University of Missouri—Columbia and an MBA from the University of Missouri—St. Louis.

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been equipped with high-speed machines. The company claims it's one of the most modern finishing departments in the world, designed not only for speed, but for improved quality. New conveyor systems in the packing and shipping departments have helped smooth out and speed up the flow of fabrics through the plant.

The company has countered the recent move toward denim and corduroy by expanding production of non-apparel items. It has helped promote patriotism by producing more American flags than anyone else in the world. And for those displaced Southerners shivering through northern winters, the company's Confederate flags provide a warm reminder of home.

A colorful array of bandanas has given millions of workmen their handkerchieves, country and western singers their headbands, teenagers their status symbols. RHP&F's printed fabrics have been turned into everything from bedding to aprons to pot holders.

• But it's to women's apparel that RHP&F owes its start and its strength today. What's next in the wild world of fashion? Who knows? But you can bet RHP&F will be ready to print the colors and patterns that will satisfy the whims of American women.



GOOD NEIGHBORS

M. Lowenstein Corporation and Rock Hill, S.C. seemed made for each other, that autumn of 1928. The company* was looking for a new textile printing and finishing plant site that had good rail service, ample water supplies and a solid labor market. The gracious southern city had an attractive warm climate, a willing labor force and the railroad service and water sources the company needed.

There was only one obstacle standing before the handshake that would seal the agreement.

Although the nearby Catawba River could provide water for the plant's production needs, the city had no way to move water from the river to the plant site.

But the two groups worked out an agreement.

The city of Rock Hill would build a pump station, install the pipes and build a filter plant. From then on, it was up to the plant, Rock Hill Printing and Finishing, to maintain and operate the system, providing water not only for itself, but for the entire city as well.

Thus started a unique give-and-take relationship between an industry giant and a quiet, tree-lined city of 35,000 that continues even today.

"We're very much aware that we are part of Rock Hill and that it's part of us. When you're right downtown, when you can see city hall and practically throw a baseball at it, you have a very close relationship," explains Bill Grier, vice president and general manager of RHP&F.

"During the Depression," continues Grier, "we were one of the few plants open. We didn't have a single lost hour and, as a consequence, really helped this city through those hard times."

Industrial relations expert Ross Blew says the close relationship has continued because, although the company has always looked for ways to become more efficient, it hasn't forgotten its responsibility to the people and the city's economy.

"For instance," Blew comments, "we found we could save money if paydays were Friday instead of Thursday. At first we thought it would be a simple change, but found it would be chaotic for the city. Grocers would have to order stock and fresh foods earlier, bank schedules would have to change, etc. So, of course, we decided not to do it."

Although RHP&F is still the city's largest employer, it employs less than 5% of the city's population. Rock Hill has broadened its economic base in recent years by attracting such industries as lumber, paper and textiles to the area.

Over 40% of RHP&F's employees have over 25 years' service and many others over 10 years. As Blew says, "they've dedicated their lives to us and we're dedicated to them. Helping these people stay happy outside of work is just as important as when they're in the plant."

Because of this attitude, RHP&F donates a great deal of money for city improvement. Its contributions range from owning and operating a 17-acre waterfront park to helping a children's nature museum purchase a telescope.

The company also encourages employees to contribute their time and talent to charity organizations, senior citizen groups and the local college.

As Blew concludes, it's all part of the company's philosophy that, "you can't be a good businessman without being a good neighbor."

*then called M. Lowenstein & Sons Co.

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Look Out Nessie! Here Comes Echo Identification

Color Slide Film



L. TO R. DR. GAUNAURD— DR. ÜBERALL

this side toward screen

What's really down in the murky depths of Loch Ness? Is there a vast reservoir of oil under some scrubby patch of West Texas real estate? What is that UFO on the radar screen?

Radar and sonar are remarkable remote sensing devices, but they have one major drawback. They can tell you something is at a certain location, but not what that something is. That blip on the radar screen could be an enemy missile, a cleverly disguised decoy or even a flock of birds.

But two scientists have recently come up with a technique that may one day allow us to "see" what we can now only locate. Dr. Herbert Überall, professor of physics at The Catholic University of America, Washington, D.C., and Dr. Guillermo Gaunaurd, of the Naval Surface Weapons Center, White Oak, Md., call their technique "echo identification."

It's based on the principle long known to chemists that atoms and molecules vibrate at characteristic frequencies. When a substance is heated up, its atoms or molecules emit light at precisely these frequencies. Take a simple substance like carbon dioxide. The "spectral lines" of light it emits after heating, corresponding to its "resonant frequencies," identify carbon dioxide as distinctly as fingerprints identify a criminal.

What Gaunaurd and Überall have done is extend this principle to large objects, in which geometry and material composition affect their resonant frequencies.

When a radar or sound wave bounces off an object, it comes back to the sender bearing the imprint of the object's resonant frequencies. The Überall-Gaunaurd technique is used to analyze these imprints to reveal information about shape and composition.

How sensitive is their technique at this stage of its development? Gaunaurd and Überall recently studied how a radar wave bounces off a metallic sphere coated with a dielectric of unknown composition. The technique not only identified the thickness of the coating, but its composition as well.

Überall and his students are building up a file of resonances of objects of different shapes and compositions to use as a reference like a criminologist's master fingerprint file.

While the military implications of the scientists' discovery are enormous, Überall and Gaunaurd are most enthusiastic about applications in medicine, industry and research.

Maybe a doctor will one day be able to determine whether a suspicious mass in a brain is a tumor or fluid.

Maybe an oilman will be able to take some of the guesswork out of wildcatting.

Maybe a quality control inspector will be able to spot hidden flaws in materials more efficiently.

And maybe a scientist will be able to tell us finally what's at the bottom of Loch Ness.

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Exxon's Outlook for U.S. Transportation Distillates

By Karl R. Fink
Manager, Wholesale &
Industrial Business



Over the next 20 years, transportation distillate demand will be growing rapidly, placing unprecedented demands on the capabilities of U.S. oil refiners. I'd like to share with you Exxon's assessment of the future availability of transportation distillates.

Let's begin with a look at total transportation energy demand. As you can see from **Figure 1**, Exxon projects that the U.S. transportation sector will be consuming no more energy in the year 2000 than it does today. This stable demand is chiefly the consequence of continuing efficiency improvements in automobiles and other forms of transportation.

But while overall transportation demand does not grow, there will be a significant shift in the mix of fuels consumed by this sector. As you can see, mogas demand will decline sharply over the next two decades, while distillates—shown here as diesel fuel and jet fuel—grow rapidly. By 2000, distillates will account for about half of total transportation demand, compared with about 20% in 1980. The top segment of the graph, labeled "Other," includes such fuels as heavy fuel oil and electrical power.

As you can see, mogas demand will decline sharply over the next two decades, while distillates—shown here as diesel fuel and jet fuel—grow rapidly.

Diesel fuel demand will about double by 1990 and triple by 2000, and jet fuel demand will increase by more than 50%. These two fuels are called "premium distillates"—low-boiling, high-cetane products that are particularly desirable for transportation use. As demand for both diesel fuel and jet fuel grows, we can expect increasing competition between air and ground transportation for the premium distillate molecules in the crude barrel.

Figure 2 focuses on the diesel fuel segment of transportation demand. As you can see, diesel demand will grow most rapidly in the automotive sector—that is, in passenger cars and light trucks. Over the next two decades automotive diesel fuel demand will grow from about 40 MB/D to nearly 900 MB D, more than a 2000% increase. As a result, automotive's share of total transportation diesel demand will grow from 3% to about 27%. The smallest growth will be in marine use, where diesel fuel demand will grow about 50% through the year 2000.

Now, how do refiners plan to adapt to the rapidly changing pattern of transportation fuel demand, as mogas declines and transportation distillates grow? It's not as simple as merely converting more of a barrel of crude into diesel fuel. Crude oil is an extremely complex material made up of distinctive types of molecules that are not readily interchangeable with each other.

The simplified illustration of a refinery pipe still, or distillation

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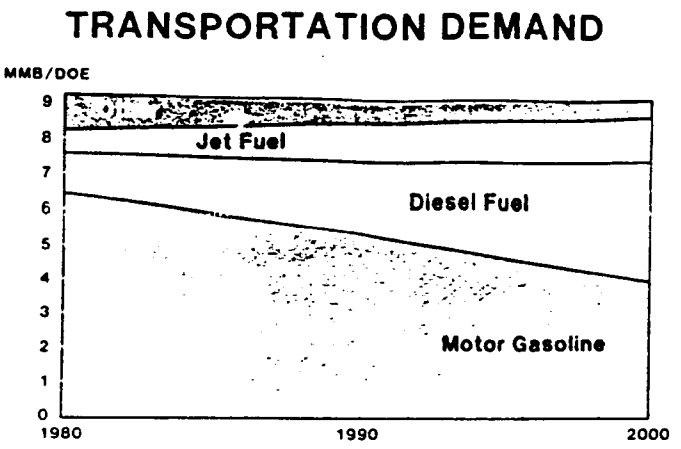


FIGURE 1

tower. **Figure 3,** helps show how petroleum molecules distill out, according to their respective boiling points, in the natural proportions in which they occur in the crude.

If consumers coincidentally required petroleum products in the same ratio in which they distill out naturally from the crude barrel, life would be comparatively simple for refiners. But this isn't the case. For example, the natural yield of gasoline is typically around 20% of the barrel. But, historically, U.S. demand has necessitated that some 40-50% of that barrel be turned into gasoline. Refiners met this demand with the help of sophisticated equipment and processes designed to break down and rearrange some of the other molecules in the crude barrel into the types of molecules needed to make gasoline.

As for distillates, historic demand has been moderate enough so that refiners have had comparatively little difficulty in meeting demand. But, today, the sharp rise in transportation distillate demand confronts refiners with an unprecedented technological challenge.

The problem is compounded by the fact that available crudes are getting heavier. This means that they provide a greater natural yield of heavier products, such as heavy fuel oil, and a lower yield of lighter products, such as diesel fuel. The

If consumers coincidentally required petroleum products in the same ratio in which they distill out naturally from the crude barrel, life would be comparatively simple for refiners. But this isn't the case.

table, **Figure 3,** illustrates the difference between South Louisiana crude, typical of the crudes readily available in the '70s, and Maya crude, a heavier crude from Mexico's Yucatan Peninsula, which is coming into increasing use in the '80s. Note that the natural yield of the South Louisiana crude is only about 40% heavy fuel oil, compared with nearly a 60% yield from the Maya crude. As a result, the distillate yield of the Maya crude is only about 22%, compared with 38% for the South Louisiana crude.

Figure 4 points up the problem this poses for refiners. The top barrels represent the demand trend through the '80s. As you can see, distillate demand is projected to grow from 26% to 34% of the crude barrel, while demand for heavy fuel oil declines. The bottom two barrels represent the average crude slate being run by U.S. refiners in 1980 and estimated for 1990. You can see that the supply trend is toward less distillate yield and greater yield of heavier products. Obviously, the trend toward heavy, high-sulfur crude is running exactly counter to the trend in demand for lighter, cleaner products.

An added twist to the problem

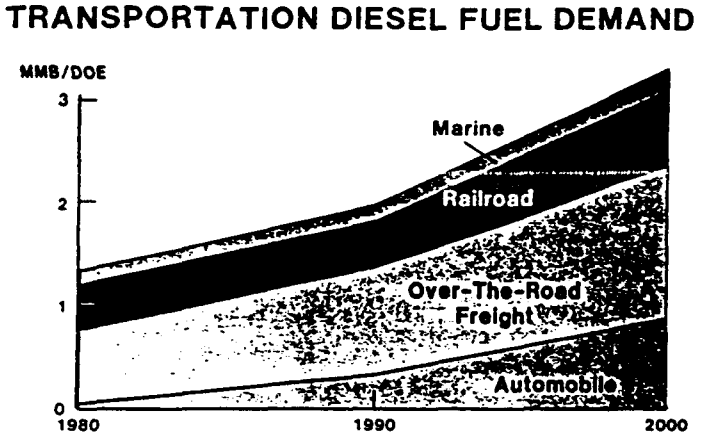


FIGURE 2

is that heavy crudes tend to have higher sulfur content than light crudes. Maya crude, for example, has 8 times more sulfur than South Louisiana crude. The necessity of removing large amounts of sulfur from crude confronts refiners with still other technological problems.

There's only one way, ultimately, for refiners to meet these challenges. They will have to construct major new facilities capable of converting increasingly heavy, high-sulfur crudes into the lighter, cleaner products that Americans most want and need. Even if there were no change at all in current product demand patterns, it would still be necessary to invest in such facilities just to maintain current production levels.

Until these new facilities come on stream, there are a number of short-term options for wringing more transportation distillates out of the barrel. Distillate production can be increased through minor modifications to refinery equipment, at the expense of certain other products, such as gasoline and heating oil. But there are practical limits to this approach.

Obviously, the trend toward heavy, high-sulfur crude is running exactly counter to the trend in demand for lighter, cleaner products.

Another option is to relax diesel fuel specifications below historic quality standards. This would permit refiners to reach deeper into the barrel for molecules with lower cetane ratings and higher boiling points. This approach is consistent with a recent proposal by the American Society for Testing and Materials for introduction of a No. 3 diesel fuel. Such a fuel would still provide satisfactory performance in many applications in which No. 2 diesel is now used.

This brings me to a third option —the use of additives to improve the cetane rating and cold flow of lower-specification diesel fuels. Such additives are becoming more economic with rising crude prices, and their use would expand the pool of crude molecules from which diesel fuel could be made.

These short-term options will help assure adequate supplies over the next few years, but, at best, they will be stopgap measures. They will carry us over until the refining industry has completed the modernization projects required to meet long-term growth in distillate demand.

Construction of the necessary facilities will be costly. Exxon

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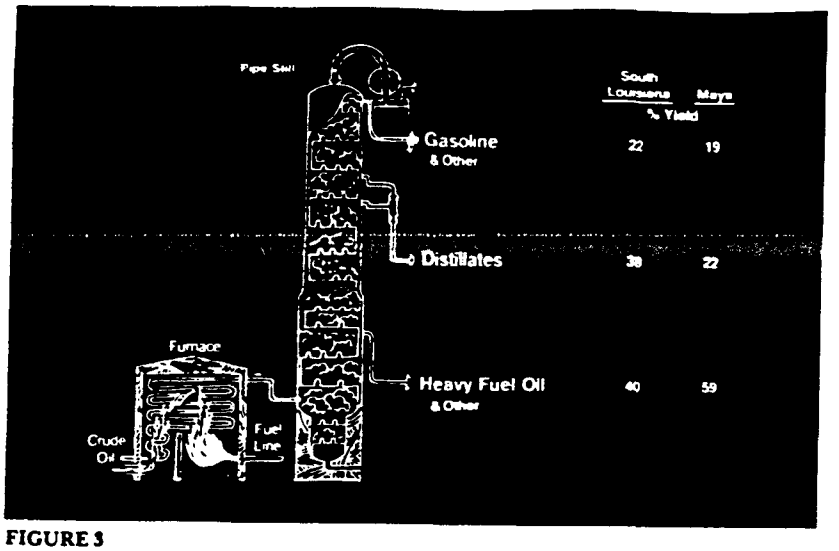


FIGURE 3

U.S.A. alone is evaluating expenditures of more than $1 billion over the next couple of years for this purpose. And before the end of the decade, Exxon will have spent several billion more dollars to improve refining efficiencies and to substitute non-petroleum fuel in our refineries, in order to free up more crude oil for petroleum products.

An obvious question is what effect these considerable expenditures will have on the price of diesel fuel and other petroleum products. While I can't specifically predict prices, I can discuss the cost pressures that will strongly influence prices.

Certainly, major refining investments of the magnitude I've just described can be expected to exert upward pressure on petroleum product prices.

And there will be other cost pressures as well. The costs of imported and domestic crude continue to move upward. The average cost of a barrel of OPEC crude in 1979 was a little under $19.00—the average cost in 1980 was nearly $31.00, more than a 60% increase in just one year. Over the same 1-year period, the cost of decontrolled domestic crude rose by two-thirds, from $12.64 to more than $21.00.

Certainly, major refining investments of the magnitude I've just described can be expected to exert upward pressure on petroleum product prices.

Refiner operating costs are rising as well. For example, Exxon—like everyone else—must cope with rising fuel costs. The cost of fuel to run our refineries has risen from 35% of total refinery operating costs in 1973 to nearly 50% today, and we expect that figure to rise to 60% by the mid-'80s, despite substantial efficiency gains in our refineries.

All these cost pressures must inevitably be reflected in the price of our products. Now, some may ask, "Why can't a company the size of Exxon just absorb some of these cost increases?" The answer is that the after-tax profit for Exxon's refining and marketing operations last year was just 0.9¢/G, and our return on capital employed was 7.9%, well below the 11% median return on capital employed for U.S. industry as a whole, as calculated by Forbes magazine. Our 1979 return was even lower, 4%, giving Exxon's refining and marketing operations an average

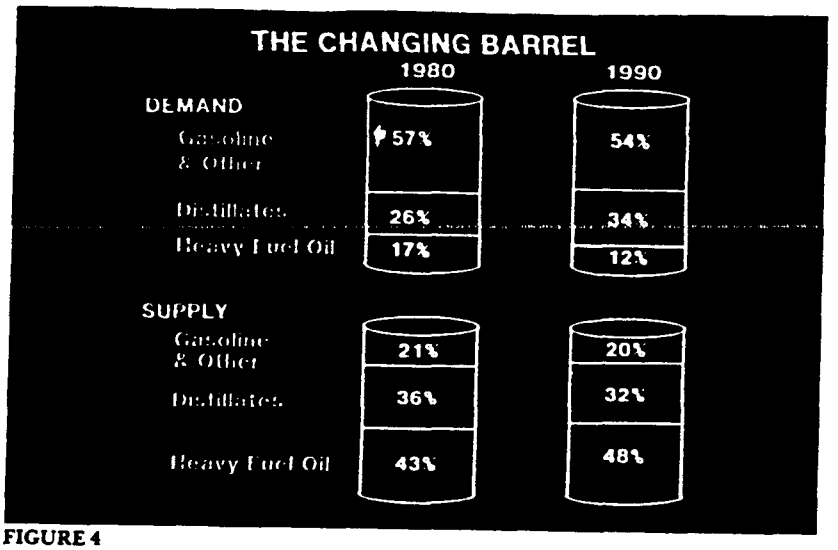


FIGURE 4

2-year return on capital employed of just 6%. Obviously, with profits measured in less than a cent per gallon, there's very little room to absorb rising costs and operating expenses. Timely recovery of such costs is fundamental not only to profitability, but to a refiner's capability to make the huge investments needed to meet future petroleum product demand.

But while U.S. refiners certainly have the potential to meet distillate demand growth, it would be unrealistic to pretend that this outlook is without uncertainties. Future availability of diesel fuel and other distillates could be restricted in a number of ways. First, automobile and engine manufacturers may conclude that lower-specification diesel fuel is not acceptable in their equipment. This would significantly reduce refiner flexibility to make diesel fuel. Also, greater-than-expected growth in demand in one or more segments of the transportation sector would create still more competition for the available distillate molecules, possibly resulting in tighter supplies. Additionally, refiner difficulties in recovering costs would reduce the capital available for investment in new facilities needed to process heavy, high-sulfur crudes into distillate products.

But while U.S. refiners certainly have the potential to meet distillate demand growth, it would be unrealistic to pretend that this outlook is without uncertainties.

And there is still another question, one that is fundamental to any discussion of petroleum product availability—the outlook for oil supply. Declining domestic production and growing dependence on imports from insecure foreign sources raise serious questions as to the future adequacy of U.S. oil supply.

It all comes down to this. Notwithstanding a number of uncertainties in the distillate outlook, the U.S. petroleum industry does have the capability to adapt to the changing product needs of the transportation sector. The industry also has the ability to contribute to the development of the domestic energy alternatives that are essential to reducing imports. But long lead times are required to refurbish refineries, find and develop new oil fields, build synthetic fuels plants, and develop new energy technologies. Therefore, the security of our energy supplies late in this decade, and through the next, will depend on the economic, political and environmental decisions we as a nation make in the very near future.

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It's a Whozit, Not a Whatchamacallit

What's the best way to make your name immortal in the world of business and technology?

Become a tycoon? Nope. Bet you can't name the CEOs of the five biggest companies in the U.S.

Make a technological breakthrough? That's not certain either. Not too many people know the names of Francis Rogallo and Chester Carlson, but who hasn't marvelled at the hang glider and xerography?

No, the only sure-fire way to have your name on the lips of people is, well, to have your name on the lips of people—every time they describe an object or use a term.

If you're a researcher with a nice, short name, you might hang around your peers while they're trying to come up with a name for a new physical unit. Sometimes they run out of ideas.

After honoring physicist George Ohm by naming the unit of electrical resistance after him, scientists were seemingly stuck for a name for the unit of conductance. If only you'd been there, maybe they'd have picked your name instead of calling it the *mho*, Ohm's name spelled backward.

But you say you're not a research scientist. Yet you want your name carried on by someone other than your kids?

How about naming an invention after yourself, even if the idea strikes you as a trifle immodest. Adolphe Sax did, and gave us the saxophone. So did Henry Shrapnel, whose rupturing shells helped Wellington defeat Napoleon at Waterloo.

But, you protest, you're not an inventor either.

Hmmm. Sometimes you can sneak into the ranks of the immortals by the side door. For example, what would we call our skivvies if Messrs. Bradley, Voorhees and Day hadn't decided to start making underwear in 1876? And we wouldn't be able to call unscrupulous lawyers "shysters" if a certain Mr. Scheuster had not been con-



ILLUSTRATIONS BY KEN HARSHFIELD

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stantly reprimanded by New York courts in the late 1840s for his devious dealings.

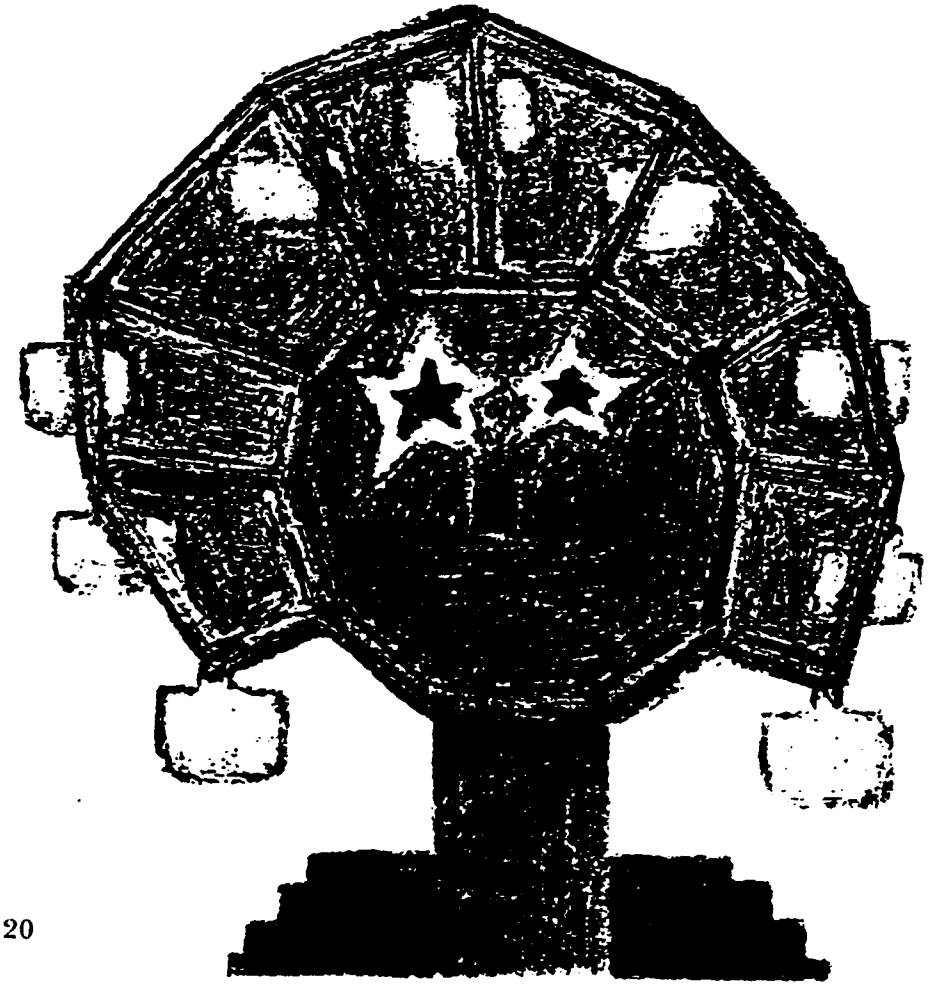
So maybe it's worth a try to become one of the great "whozits" of history. Just think of some of the illustrious company you'll keep:

Samuel Plimsoll (plimsoll lines): Member of British parliament who fought for legislation to prevent captains from overloading ships. His name lives on in the loading lines on ship hulls which show how much cargo can be carried safely under various weather and sea conditions.

Luigi Galvani (galvanizing): Italian anatomy professor who erroneously thought he's discovered "animal electricity." But the professor's experiments led to the invention of the battery.

Anders Celsius (celsius temperature scale): Swedish scientist who promoted a new scale with zero as boiling point and 100 as freezing. Fortunately, somebody thought to turn his scale upside down before it was widely adopted.

George Pullman (pullman car): American building contractor who developed the first sleeping car. It became widely accepted by railroads after its use by the widow of Abraham Lincoln.



Johanna Lind (jenny lind bed): Swedish soprano who toured the U.S. in the 1850s and gained such popularity that the American spool bed was named after her.

James Prescott Joule (joule): scion of a British beermaking family who devoted his life to science rather than making suds. The unit of work was named for him to honor his pioneering work in thermodynamics.

George Washington Ferris (ferris wheel): American engineer who designed the popular amusement device for the Columbian Exposition in Chicago in 1893.

John Mercer (mercerizing): English calico printer who developed the caustic treatment of cotton cloth to improve appearance and receptiveness to dyes.

Joseph Guillotin (guillotine): French physician who proposed in 1789 that decapitation be made more democratic—not just for the upper classes, but for all citizens guilty of capital crimes. The machine which bears his name was actually invented in the Middle Ages.

Isaac Babbitt (babbitt metal): American foundry superintendent who invented soft metal alloys of tin, copper, antimony, zinc and arsenic for lining bearings.

Claude Minie (minie ball): French army officer who invented the first long rifle bullet to replace the round metal ball.

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Doctor Product Safety



DR. WILLIAM G. DOMASK

The rabbi wants to ask him about a roll oil used in making aluminum foil wrap for kosher food. The sales rep wants to find out if a process oil his customer spilled while unloading presents a significant hazard to a cleanup crew. The lawyer needs some last-minute technical data for tomorrow's testimony. The packaging specialist needs help with wording on a new motor oil can label. The technical writer wants to know what to say about dermatitis on a new compressor lube Data Sheet.

A dozen phone calls and two meetings later, Dr. William G. Domask of Exxon's Marketing Technical Services is ready to call it a day. He packs up his briefcase and walks to his office door, casting a last glance back at the two eight-inch high stacks of regulations, reports and copies of the Federal Register on his desk. Bill vows he'll wade through them tomorrow between crises and consultations, because the morning's mail may add another two inches or so to the piles.

Bill Domask has been Marketing's Dr. Product Safety for 15 years. "I'm involved with the toxicological aspects of Exxon products and the regulations relating to the safety of their use by our customers. In my job, I'm constantly in contact with our manager of Industrial Hygiene and Environmental Health on product safety problems." In Marketing, Bill wears two hats: government regulations advisor and environmental health advisor. But he's also Marketing's representative to the Environmental Health Advisory Group, which looks after health and safety matters for all the operating functions of Exxon Company, U.S.A.

Bill's interest in promoting product safety goes back to the days when he was working on his Ph.D. in chemical engineering. He promoted programs to make chemistry labs safer places to work and suggested special courses on product safety.

He started with Exxon in 1952 in refining, spent several years in petrochemical research, then joined Marketing Technical Services. Bill's background has proved invaluable in his current job because the products he's responsible for are just about everything we make: light hydrocarbons like solvents and gasoline, lubes and process oils and fuels ranging from middle distillates to heavy fuel oil.

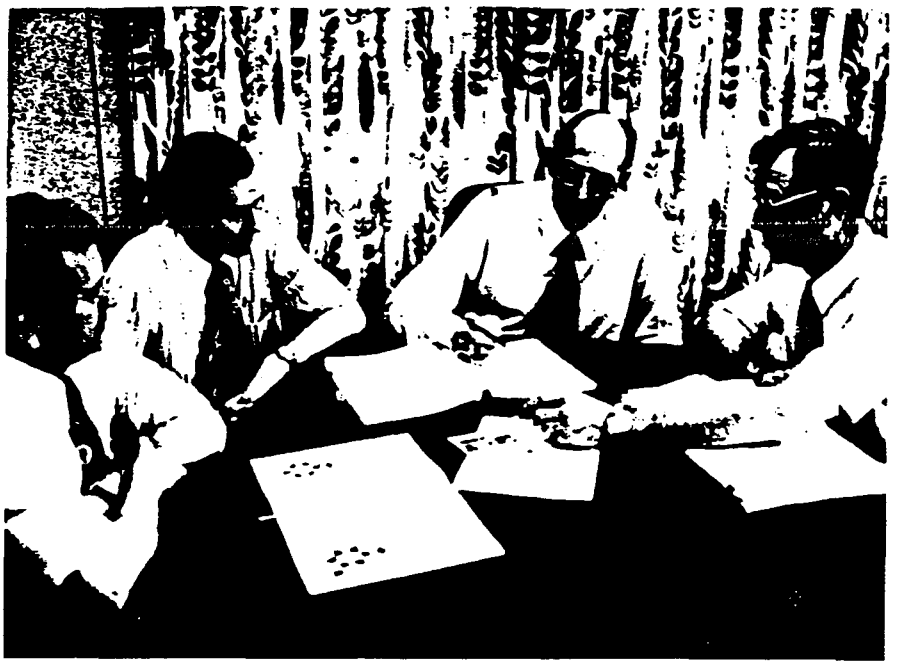
Surprisingly, Bill ranks gasoline as one of our most hazardous products, but notes, "I prefer to use the term 'potentially hazardous.' If any potentially hazardous material is handled properly, the hazard is minimized. But gasoline is one of the most frequently mishandled petroleum products. By and large, the tragedies caused by gasoline are caused by misuse such as people using it as a charcoal fire starter or as a cleaner. Why, some people even use it to wash clothes inside a house, of all things. And some kids even sniff gasoline to get 'high.' Gasoline is intended for use as a motor fuel only."

While Bill would rank USP white oil as one of the "least toxic" petroleum products, he points out that no product can be called truly safe.

Even water?

"Even water. Several years ago, a woman died of 'water poisoning.' She drank an average of four gallons a day 'for her health.' The excessive water intake leached the minerals from her body and she reportedly died of mineral

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Bill Domask discusses a hazard communication problem on one of our products with Exxon Medical Department's environmental health experts Bob Diakun, Dick Russell and Bob Volz (left to right).

deficiency."

"All chemicals," explains Bill, "are dose-response related. A chemical's toxicity is dependent on how much a person takes in relative to his or her body weight. For highly toxic materials, such as a cyanide, a few grains would be fatal. A cupful of a USP white oil, on the other hand, would simply have a strong laxative effect."

Exxon runs a formidable number of tests to define the toxicity of the products it sells. Besides a barrage of physical tests to define flammability and other operational hazards, the company runs numerous biological tests on mice and other laboratory animals to define potential dangers to people.

These tests indicate what could happen if workers in a customer's plant accidentally swallowed the product, splashed it in their eyes, left it on their skin without washing it off or inhaled the product in a poorly ventilated area for long periods of time.

"We're fortunate," notes Bill Domask, "that the products we sell —hydrocarbons—have a relatively low order of toxicity compared to many chamicals. And we've accumulated a lot of data on them. But we never have all the information we want, so we're constantly reexamining our products with increasingly sophisticated test procedures."

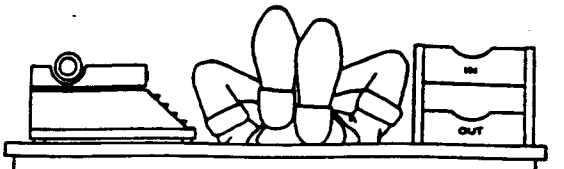
Exxon is exploring newer areas of concern like mutagenicity, the ability of a product to cause mutations over a long period of time. And teratogenicity, the influence a product might have on a developing fetus. And even behavioral effects that might be observed from long-term exposure to a product. Some of the newer areas are not well understood yet and these tests involving generations and generations of rats, mice or other laboratory animals are very expensive.

"It's been our long-standing goal," says Bill, "to stay ahead of regulations. Often we see something that suggests work we should be doing, even if no regulations cover it. Sometimes it means being well ahead of others in industry."

Bill's fight for product safety and rational regulations has been recognized by the American Petroleum Institute. In a Certificate of Appreciation in 1979, it saluted him as a "a dedicated man of determination who has been able to go into the public arena and translate research into a convincing case for the public good."

That's a pretty good description of Marketing's Dr. Product Safety.

Union Carbide trial exhibit UC-4790: Union Carbide Calidria Customer Call Reports and Related Papers on Mortell... Published by AsbestosClaims.Law
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In closing...

Mike Gurgo, one of Exxon's experts on lubrication, is retiring next month after 39 years of service. The coordinator of our Sales Service Laboratory at the Bayonne (N.J.) plant will be missed not only by us, but by industry as well. A former president of the American Society of Lubrication Engineers, Mike was elected a Fellow of the Society in 1977.

Following in Mike's footsteps at ASLE is Jim Dickey of Exxon Research and Engineering Company, who has been elected president for 1981-1982. Jim has served on the Society's board since 1973.

The fuel-economy technology that has made Uniflo Motor Oil a leading gas-saver has now been incorporated into Exxon Extra Motor Oil. The 10W-30 oil meets the highest performance level recognized by automakers, API Service Category SF.

General Motors has been given permission by EPA to use fuel-saving motor oils for mileage certification of its 1982-model cars. One of the conditions of EPA's approval is that GM recommend only fuel-saving, API SF multi-grades for oil changes.

Traffic signals with outdated or improperly timed control units may be costing us a billion gallons of fuel a year, says the Federal Highway Administration. The National Electrical Manufacturers Association, proposing a major effort to upgrade signal control units across the U.S., points out that eliminating only one stop a mile at 30 mph could improve fuel efficiency by about 20%.

Finally, two scientists in India may have come up with a use for cigarette butts and cigar stubs. Their tests indicate that an extract of tobacco makes a good inhibitor for hydrochloric acid on mild steel. Wonder what it would do for acid indigestion?



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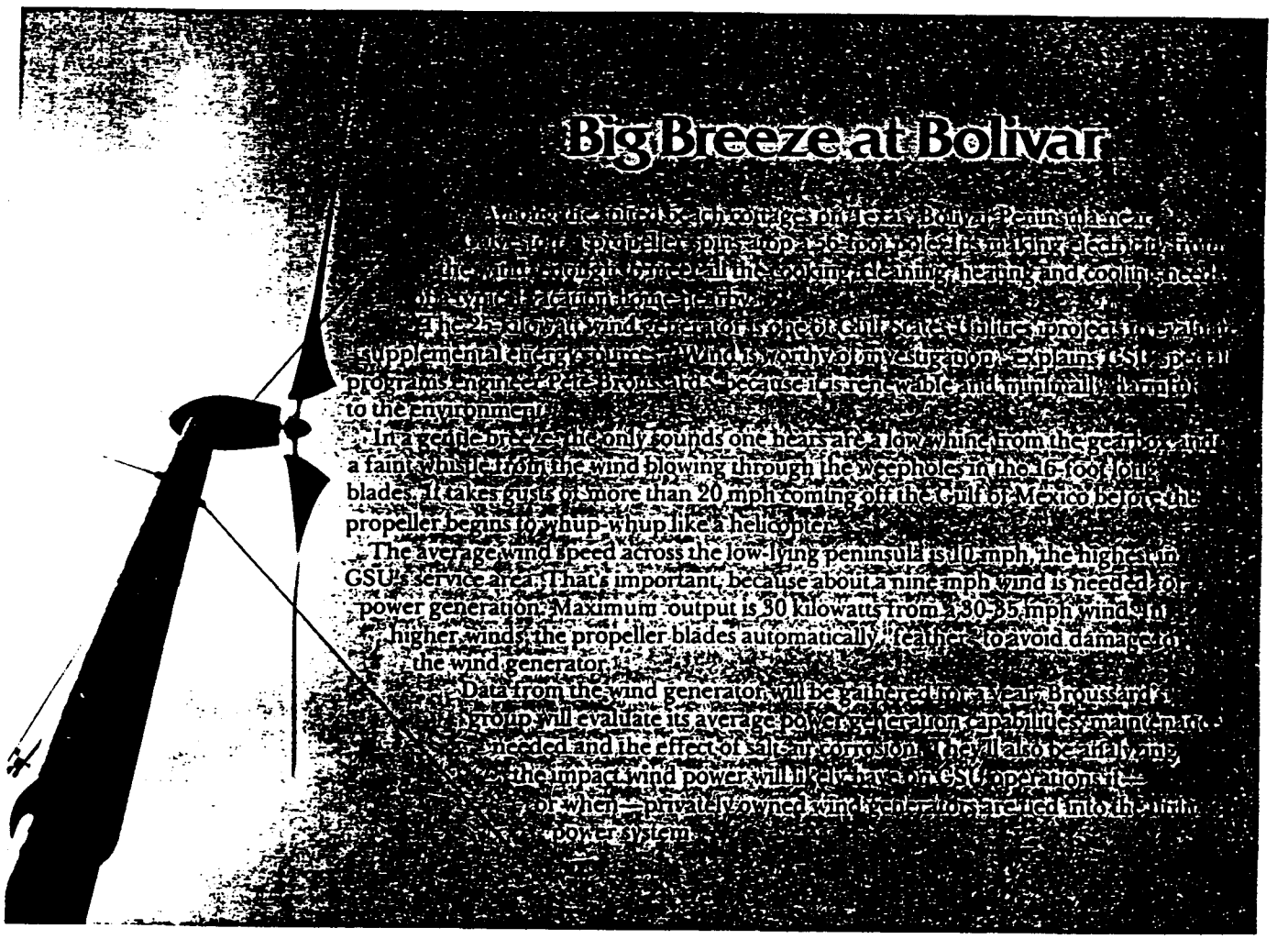
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Exxon Company, U.S.A.
P.O. Box 2180
Houston, Texas 77001

ADDRESS CORRECTION
REQUESTED



Big Breeze at Bolivar

[illegible] lighted beach cottages on Texas' Bolivar Peninsula, a [illegible]-foot propeller spins atop a 56-foot pole. It's making electricity from the wind, enough to help run all the cooking, cleaning, heating and cooling needs of a typical vacation home nearby.

The 2.5-kilowatt wind generator is one of Gulf States Utilities' projects to evaluate supplemental energy sources. "Wind is worth investigation," explains GSU program engineer Pete Broussard, "because it is renewable and minimally harmful to the environment."

In a gentle breeze, the only sounds one hears are a low whine from the gearbox and a faint whistle from the wind blowing through the weepholes in the 16-foot long blades. It takes gusts of more than 20 mph coming off the Gulf of Mexico before the propeller begins to whup-whup like a helicopter.

The average wind speed across the low-lying peninsula is 10 mph, the highest in GSU's service area. That's important, because about a nine mph wind is needed for power generation. Maximum output is 30 kilowatts from a 30-35 mph wind. In higher winds, the propeller blades automatically "feather" to avoid damaging the wind generator.

Data from the wind generator will be gathered for a year. Broussard's group will evaluate its average power generation capabilities, maintenance needed and the effect of salt air corrosion. They'll also be analyzing the impact wind power will likely have on GSU operations if — or when — privately owned wind generators are tied into the utility power system.

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SEALANTS AND COATINGS SINCE 1895

MORTELL COMPANY

PRODUCT DEVELOPMENT LABORATORY

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TECHNICAL DIREC[illegible]

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SEALANTS AND COATI[illegible]S SINCE 1895

MORTELL COMPANY

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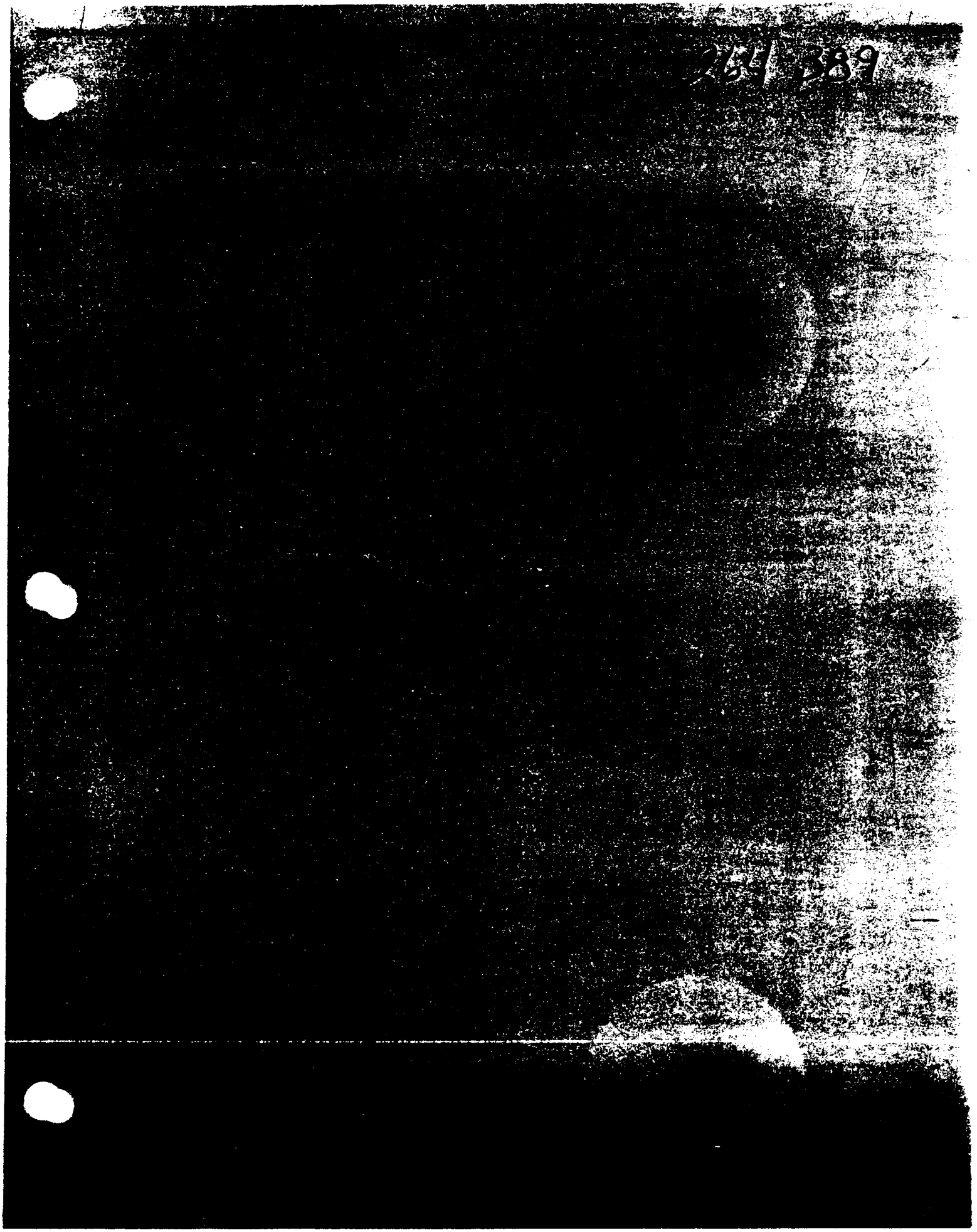
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MORTELL COMPANY

INTER-OFFICE CORRESPONDENCE

FILE 4/4

From TPH

DATE 1/4/83
TO Jim Keslin
FROM Jim Harris
SUBJECT: Purchased Material Evaluation Request:
Union Carbide Asbestos SG130 Replacement for F-38 at Riverside

SG130 cannot successfully be used as a substitute for F-38.

Evaluation was made in MBC's S5038 and F5020, Pinch and Slug Grade Caulks. Due to the higher oil absorption of SG130, only 20% of the required amount was used to achieve the desired penetration. F-37 was increased for the 80% balance.

The reduced volume of absorbant fiber plus additional filler which contribute little toward internal cohesiveness produced caulks with excess tack which readily transfer to the fingers.

PLAINTIFF'S EXHIBIT
UC-340

JH: ;h
cc
JHL
KZ
BD
JH

JH

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NIAGARA FALLS, N. Y.

FORM NO 183

CUSTOMER CALL REPORT

CUSTOMER & LOCATION Mortell Company Plymouth, MI INDUSTRY CLASSIFICATION Sealants

SALESMAN Edward J. Kleber REGION Midwest DATE OF CALL 7/26/78

ASBESTOS HEALTH & REGULATORY DOCUMENTS PROVIDED:

- ☐ MSDS
- ☐ Health & OSHA Information Blue Book
- ☐ Dust Count Report
- ☐ Other, specify below

PERSONS INTERVIEWED: Dr. T. J. Anagnostou - R & D Director

CALL OBJECTIVE: Regular call on large RG-110/RG-144 customers development lab.

RESULTS OF CALL: It appears that things have really "hit the fan" here at Mortell. The attached letter is pretty self-explanatory, the only unsaid thing in there is that the letter although signed by the executive committee of Mortell, it was actually written by Don Mortell, owner and president. The good Dr. Anagnostou says that for the present he's going to ignore the letter, because he feels it's a waste of good lab time to look for asbestos substitutes. He will have to respond to the letter in the next few months and lay out his opinion of why they should not be searching for asbestos substitutes. He said the only real immediate effect on our business was the sentence in their letter which says absolutely no new products are to be formulated with asbestos. This is obviously a direct order from the boss, and even he is not about to disobey that. Mortell, of course, is a very important Calidria customer. Last year we sold them $71,000 not including the California plant.

About the only thing we've got going here for us is that Anagnostou is firmly in our corner and will help us anyway he can. He suggested that maybe it would be a good idea to get Don Mortell and Harry Rhodes together and let them fight it out. He recognizes that he's no expert in the field and said that if he tries to convince Don Mortell he's wrong, he's liable to look like a fool.

PLAINTIFF'S EXHIBIT
Union Carbide 461

FOLLOW-UP ACTION REQUIRED:

EJK /HBR - Let's get with Taki and figure out a plan of action.

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dal 8/17/78

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