Monsanto

St. Louis - General Offices

May 11, 1970 W. B. Papageorge

TO H. S. BERGEN ✓
J. E. SPRINGGATE

Attached hereto are copies of charts I used in the presentation with the CMC this morning.

The CMC gave its approval for us to implement the plan as outlined on the two sheets marked "PRESENT PLAN".

We are required to report to the CMC should we make any major deviation from these plans and we are also required to make a progress report probably around the 1st of August. Would you please go ahead and take the necessary action within your individual business groups and keep me advised of progress.

JOHN MASON

Att.

COST OF RAPID PHASE-OUT - ALL CHLORINATED BIPHENYLS EXCEPT DIELECTRICS

1970

LOSS IN SALES - $ 5.4 M

LOSS IN GROSS PROFIT - $ 2.6 M

IN ADDITION COGS WOULD INCREASE GIVING TOTAL LOSS IN GROSS PROFIT OF - $ 2.75 M.

1971

LOSS IN SALES - $ 12 M

TOTAL LOSS IN GROSS PROFIT - $ 6.1 M

PLUS POSSIBLE WRITE-OFF OF SOME $ 2.6 M KRUMMRICH AROCLOR FACILITIES.

OBJECTIVE

TO MAINTAIN A PROFITABLE BUSINESS SERVING THE NEEDS OF FUNCTIONAL FLUIDS USERS AND THE CARBONLESS DUPLICATING PAPER INDUSTRY WHILST MINIMIZING THE ESCAPE OF NON-BIODEGRADABLE BIPHENYLS INTO THE ENVIRONMENT.

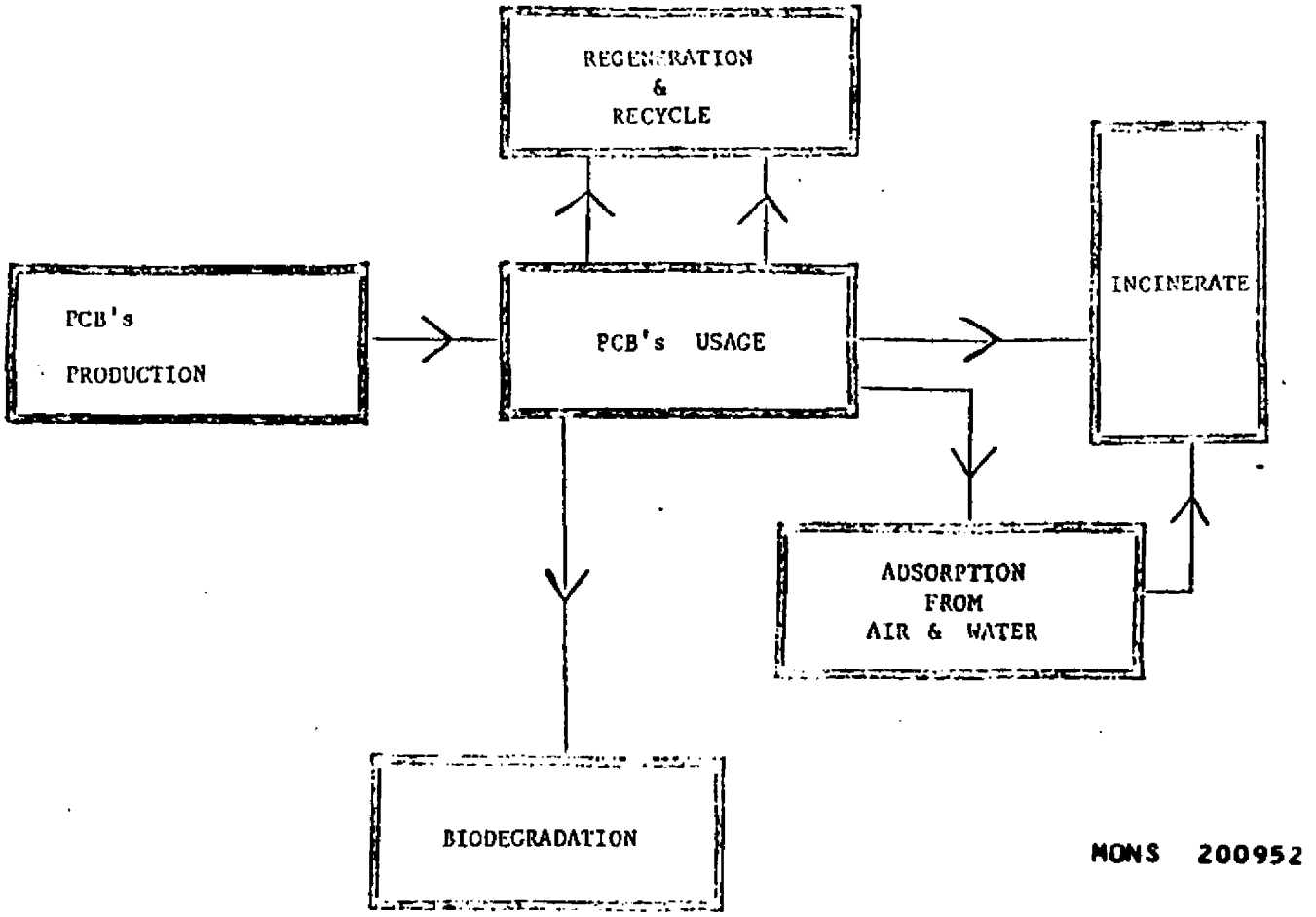
MONS 200950

ACTION TO ACHIEVE OBJECTIVES

1) MARKET NON-BIODEGRADABLE CHLORINATED BIPHENYLS ONLY FOR CLOSED SYSTEM APPLICATIONS WHERE CONTROL IS POSSIBLE.

2) PHASE OUT OF ALL NON-CONTROLLABLE APPLICATIONS REPLACING WITH BIODEGRADABLE CHLORINATED BIPHENYLS OR OTHER SATISFACTORY PRODUCTS.

THE CLOSED LOOP



MONS 200952

DO WE HAVE THE CAPABILITY TO CLOSE

THE LOOP ?

BIODEGRADATION

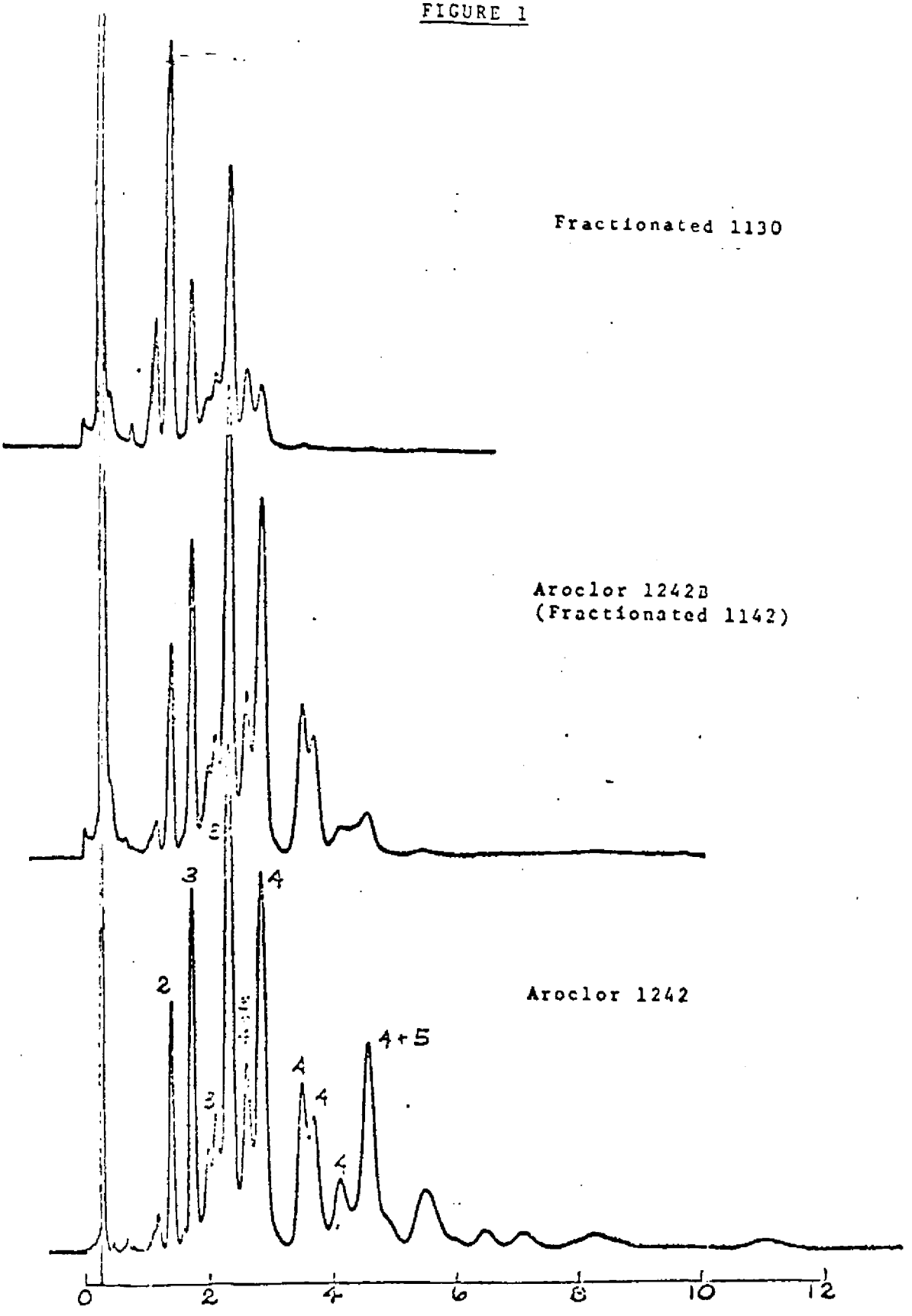
1) GOOD PROGRESS AT BOTH RUADON AND ST. LOUIS.

2) LOWER CHLORINATED ISOMERS RESPONDING WELL, BUT 5 & 6 CHLORINE ISOMERS EITHER NOT RESPONDING OR VERY SLOW.

3) CRITICAL PRODUCT IS 1242, CONTAINS SOME 50 ISOMERS — GOOD RESPONSE ON 2, 3, & SOME 4 CHLORINE ISOMERS.

4) WORK IN HAND ON FRACTIONATED 1242 GOOD PROGRESS TO DATE.

FIGURE 1



MONS 200955

FIGURE 2

Semi-Continuous
Activated Sludge
Biodegradation

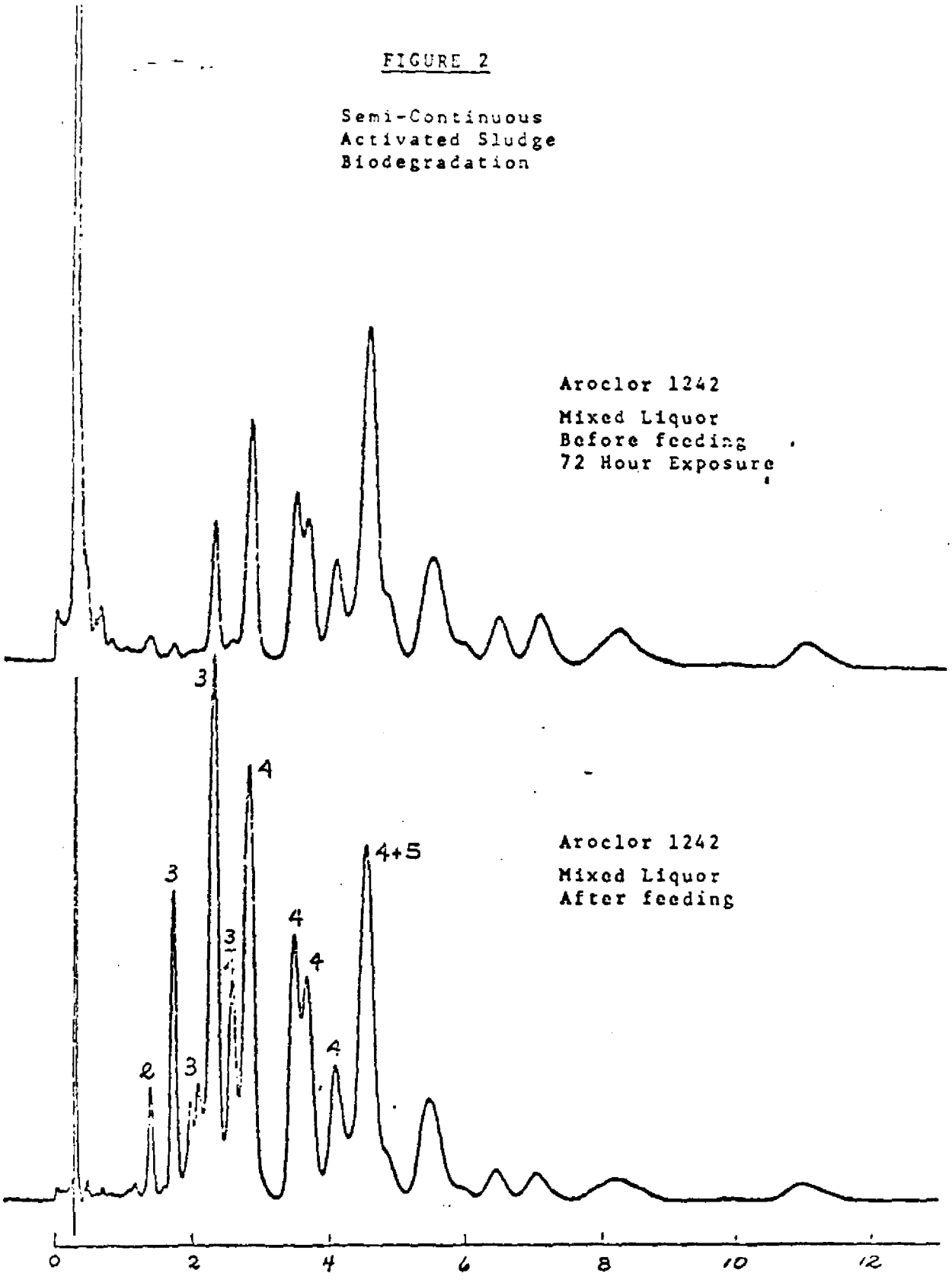


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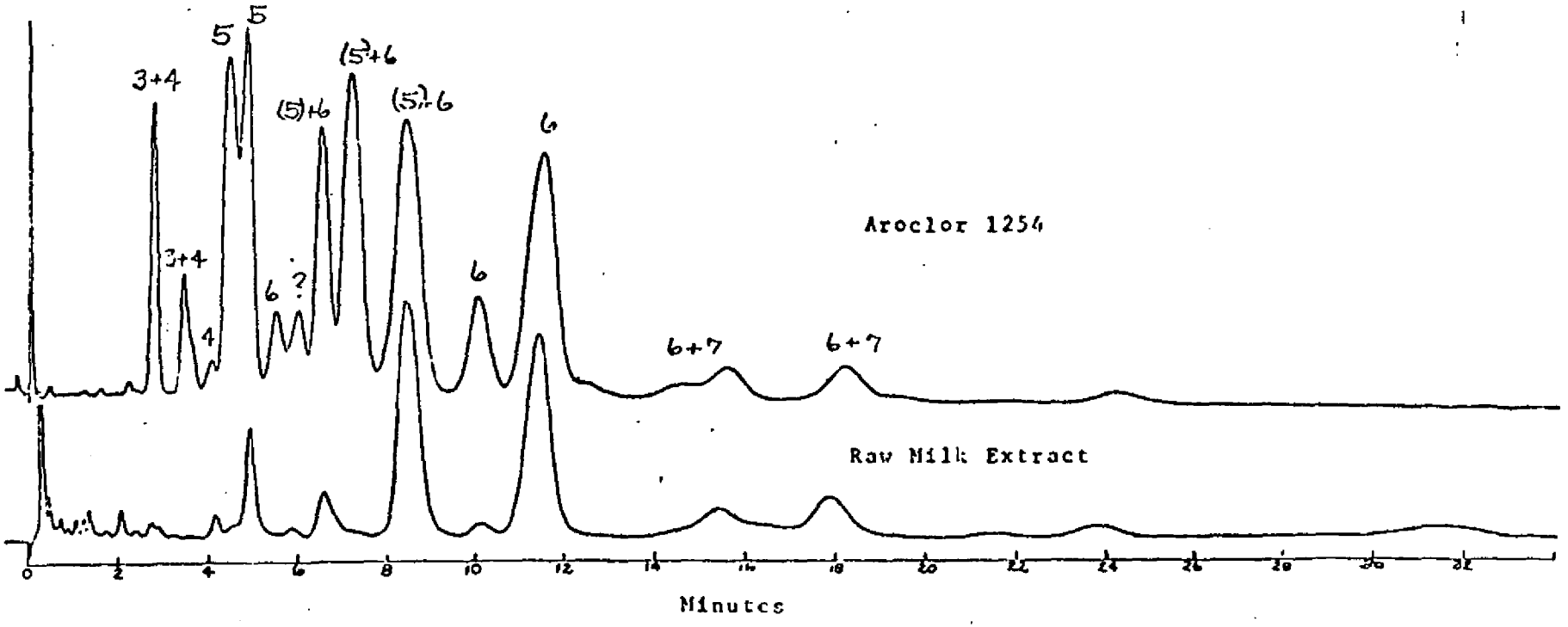
FIGURE 3



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REPLACEMENT PRODUCTS

1) 1242B SHOWS GOOD PROPERTIES AS CAPACITOR DIELECTRIC - NOW MAKING 500 GALS. AT DAYTON FOR CUSTOMER TRIALS. - ALSO WORKING ON 1230B.

2) GOOD PROGRESS ON PHOSPHATE ESTER REPLACEMENTS FOR HYDRAULIC FLUID APPLICATIONS. — TCP — CDP — TBP — NONYL PHENYL/CONYL PHENYL DIPHENYL PHOSPHATE.

3) HEAT TRANSFER FLUIDS — USING MAINLY ESTABLISHED PRODUCTS, E.G. HB-40 — EXAMINING POSSIBLE ENTRY INTO DIPHENYL OXIDE PRODUCTION EITHER OWN PROCESS OR LICENSING.

TOXICITY

1) NO CHANGE SINCE LAST REPORT - HAVE DISCUSSED RESULTS WITH DR. BURGER, EXECUTIVE OFFICE OF THE PRESIDENT.

2) WE HAVE ANALYZED AROCLORS 1248 AND 1254 FOR OCTOCHLORO DIBENZO p-DIOXIN -- NONE FOUND.

3) CENTRAL INSTITUTE FOR NUTRITION AND FOOD RESEARCH, ZEIST, HOLLAND -- EXAMINED BAYER, PRODELAC AND MONSANTO CHLORINATED BIPHENYLS FOR DIBENZO FURANS -- NONE FOUND IN MONSANTO MATERIAL.

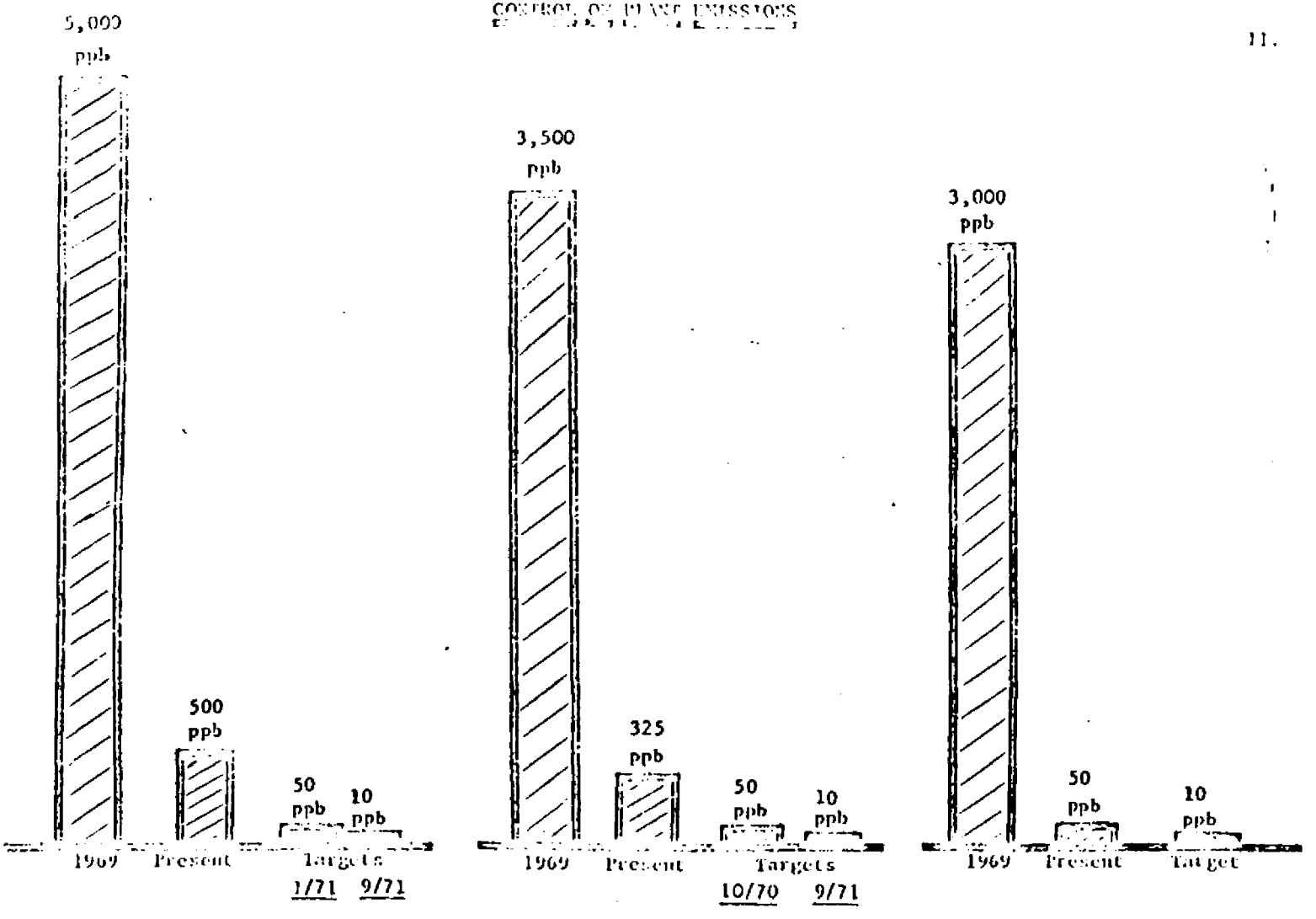
INCINERATION

1) SUCCESSFUL TRIAL AT JOHN ZINC CO., TULSA. 1242, 1260, 1254 DESTROYED AT 2000° F. +- OFF GAS HCl. ENGINEERING WORK NOW IN HAND TO BUILD SUITABLE INCINERATOR. ESTIMATED COST $250,000 M.

2) INTEND TO CARRY OUT FURTHER TRIALS ON STILL BOTTOMS.

3) INCINERATOR PROBABLY LOCATED AT KRUNDRICH.

CONTROL OF PLANT EMISSIONS



EMISSION - 5 lbs./day

REDUCTION - 200 lbs./day

REPORT - 0.5 lbs.

MONS 200961

C L O S I N G T H E

L O O P F O R I N D I V I D U A L

B U S I N E S S E S.

MONS 200962

TRANSFORMER & CAPACITOR DIELECTRICS

1) RESPONSIBLE INDUSTRIES USING 1254 AND 1242.

2) FIRE RESISTANCE EXTREMELY IMPORTANT.

3) COLLECTION AND RETURN OF SPENT AND ARCED FLUID.

4) REGENERATION AND RECYCLE.

5) TRIALS PLANNED FOR 1242B AND 1230B IF SATISFACTORY.

6) LABELLING OF ASKAREL TRANSFORMERS.

HEAT TRANSFER FLUIDS

1) EDUCATION OF USERS WHERE FIRE RESISTANCE IS OBLIGATORY -- MAJOR INDUSTRIAL CORPORATIONS -- E.G. GOODYEAR AND CHEMICAL COMPANIES.

2) PHASE OUT OF ALL FOOD APPLICATIONS -- LETTERS WILL BE SENT OUT MAY 15th -- NO SALES AFTER AUGUST 15th -- WILL COLLECT AND DESTROY OLD FLUID.

3) INSTITUTION OF REGULAR COLLECTION REGENERATION OR INCINERATION SERVICE.

4) PHASING IN NEW PRODUCTS WHERE CONTROL NOT POSSIBLE.

HYDRAULIC FLUIDS

1) RECOGNIZE THAT CONTROL OF SPILLAGE AND PUMP LEAKAGE MAKES THE USE OF NON-BIODEGRADABLE CHLORINATED BIPHENYLS UNDESIRABLE.

2) ALREADY REFORMULATED PYDRAUL 625, ACWG, 280 and F9 — REPLACEMENT COMPLETE BY AUGUST 1

3) OTHER PRODUCTS IN INTERIM STAGES (E.G. PYDRAUL AC FORMULATION ON COMPRESSOR TEST AT JFQ).

4) AIM TO COMPLETE 90% PHASE-OUT BY DECEMBER, 1970.

N. C. R.

1) U.K. HAS APPROVED HB-40, NOW PLACED REGULAR ORDERS — EXPECT COMPLETE PHASE-OUT BY 1st JULY.

2) U.S. RUNNING TRIALS ON M.I.B.P., EXPECT DECISION 22nd MAY — PRELIMINARY INTERIUM PRODUCTION OF 40 M POUNDS PER MONTH TARGETED FOR 30th AUGUST — PLANNING FULL SCALE PLANT 10 $\overline{M}$ LBS. PER ANNUM ON STREAM END JANUARY 1971 — ESTIMATED NFC $1 - 1.2 $\overline{M}$.

PLASTICIZER & MISCELLANEOUS APPLICATIONS

1) DISTRIBUTORS ALREADY ADVISED NO MORE SALES AFTER 30th AUGUST. (200 CUSTOMERS)

2) LETTERS TO 661 CUSTOMERS WILL BE SENT OUT 27th MAY ADVISING NO MORE SALES AFTER 30th AUGUST — DISPOSAL INSTRUCTIONS WILL BE GIVEN.

3) IN CONTACT WITH U.S.D.A. THROUGH AG DIVISION ON SILO PAINT PROBLEM.

4) BY 30th AUGUST ALL BUSINESS IN THIS AREA WILL BE PHASED OUT.

P R E S E N T P L A N

1) TERMINATE SALES OF ALL NON-BIODEGRADABLE CHLORINATED BIPHENYLS TO NON-CONTROLLABLE END USES.

COMPLETE - AUGUST 30th, 1970.

2) DISCONTINUE SALE OF AROCLOR 1242 TO NCR AND REPLACE WITH HB-40 IN U.K., AND NIBP IN U.S.A.

COMPLETE - U.K. -- JULY 1st, 1970

COMPLETE - U.S. -- JANUARY 30th, 1971

3) CLOSE THE LOOP ON HEAT TRANSFER APPLICATIONS WHERE P/R IS VITAL AND REPLACE WITH ALTERNATES IN OTHER CASES.

COMPLETE - DECEMBER 30th, 1970

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4) REPLACE ALL NON-BIODEGRADABLE CHLORINATED BIPHENYLS IN HYDRAULIC APPLICATIONS.

COMPLETE 20% - AUGUST 1st, 1970

" 40% - NOVEMBER 1st, 1970

" 100% - DECEMBER 30th, 1970

5) CLOSE THE LOOP ON ALL NON-BIODEGRADABLE CHLORINATED BIPHENYLS IN TRANSFORMER APPLICATIONS.

COMPLETE - AUGUST 1st, 1970

6) CLOSE THE LOOP ON CAPACITORS AS FAR AS POSSIBLE AND REPLACE 1242 WITH 1242B.

COMPLETE - DECEMBER 31st, 1970

(18

NEW CAPITAL NUMBER

HU-40 EXPANSION - ANNISTON	-	$ 275,000
SANTOWAX R REFINING - ANNISTON	-	$ 250,000
HU-40 CAPACITY - NEWPORT	-	$ 1,000,000
MIDP CAPACITY - ANNISTON ?	-	$ 1,200,000
CIMYL/MONYL PHENYL DIPHENYL PHOSPHATE - JFQ	-	$ 575,000
INCINERATOR/RECLAIMING EQUIPMENT	-	$ 285,000
TOTAL NEW FIXED CAPITAL	=	$ 3,585,000

MONS 200970

[illegible]

[illegible]

[illegible]

	[illegible]	[illegible]
SALES	$ 22.0 M	$ 20.0 M
C. P.	$ 3.5 M	$ 3.0 M
[illegible]	$ 2.9 M	$ 2.7 M
GROSS INVESTMENT	$ 25.4 M	$ 20.0 M
[illegible]	11.5%	9.5%

MONS 200971