

1984
ANNUAL REVIEW
ABERDEEN CHEMICAL PLANT
APRIL 9, 1984

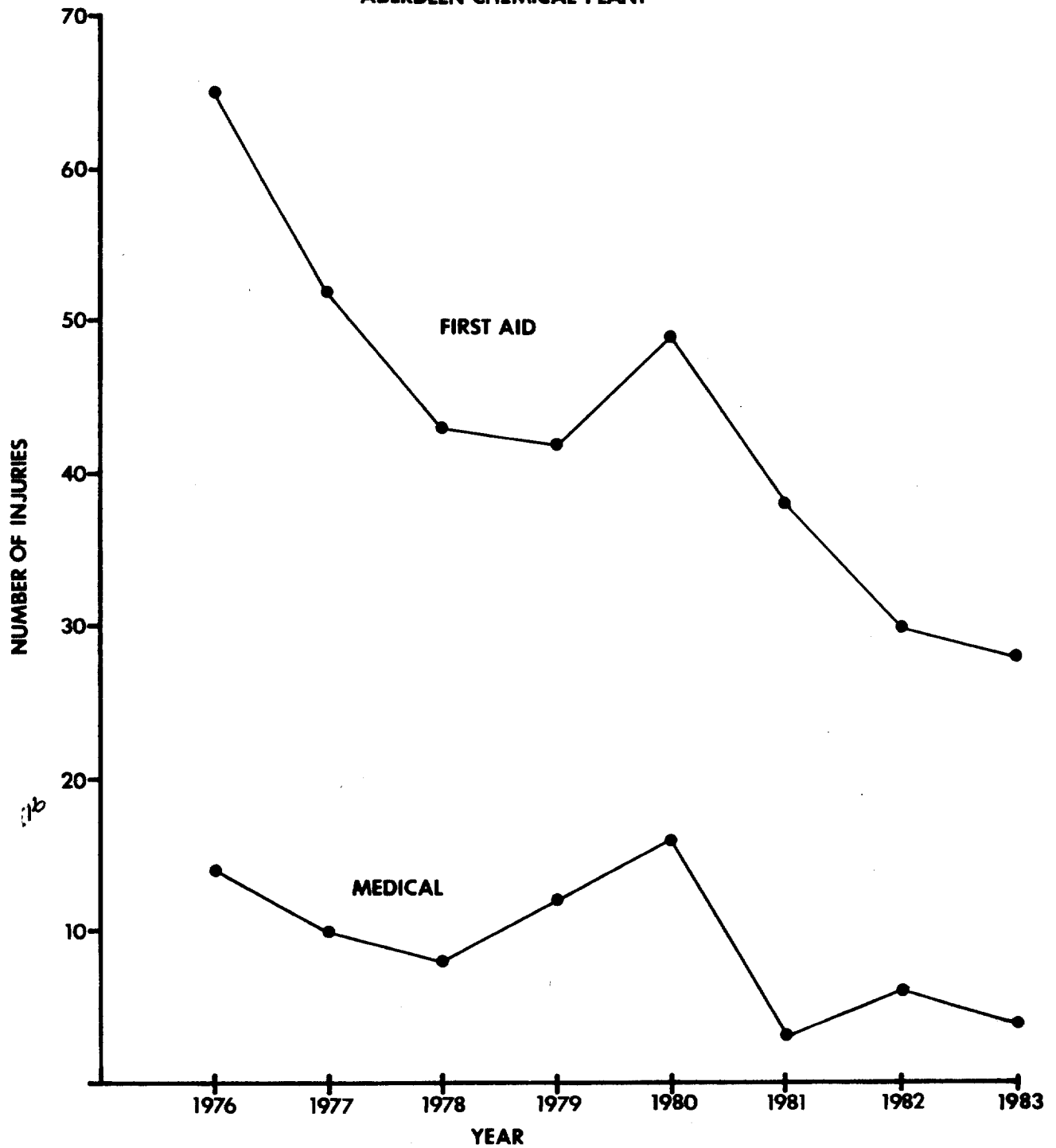
<u>TOPIC</u>	<u>PRESENTED BY</u>
I. SAFETY	AL SATHER
II. CASH FLOW PROGRAM	C. R. MILLER
III. ENERGY CONSERVATION	VELDON MESSICK
IV. NEW PRODUCTS	PAUL KOBER
V. MANUFACTURING IMPROVEMENTS	PETE MARKEY
VI. MAINTENANCE IMPROVEMENT	RICK SNOWDEN

DTH 000099925

SAFETY

DTH 000099926

INJURY DATA
ABERDEEN CHEMICAL PLANT



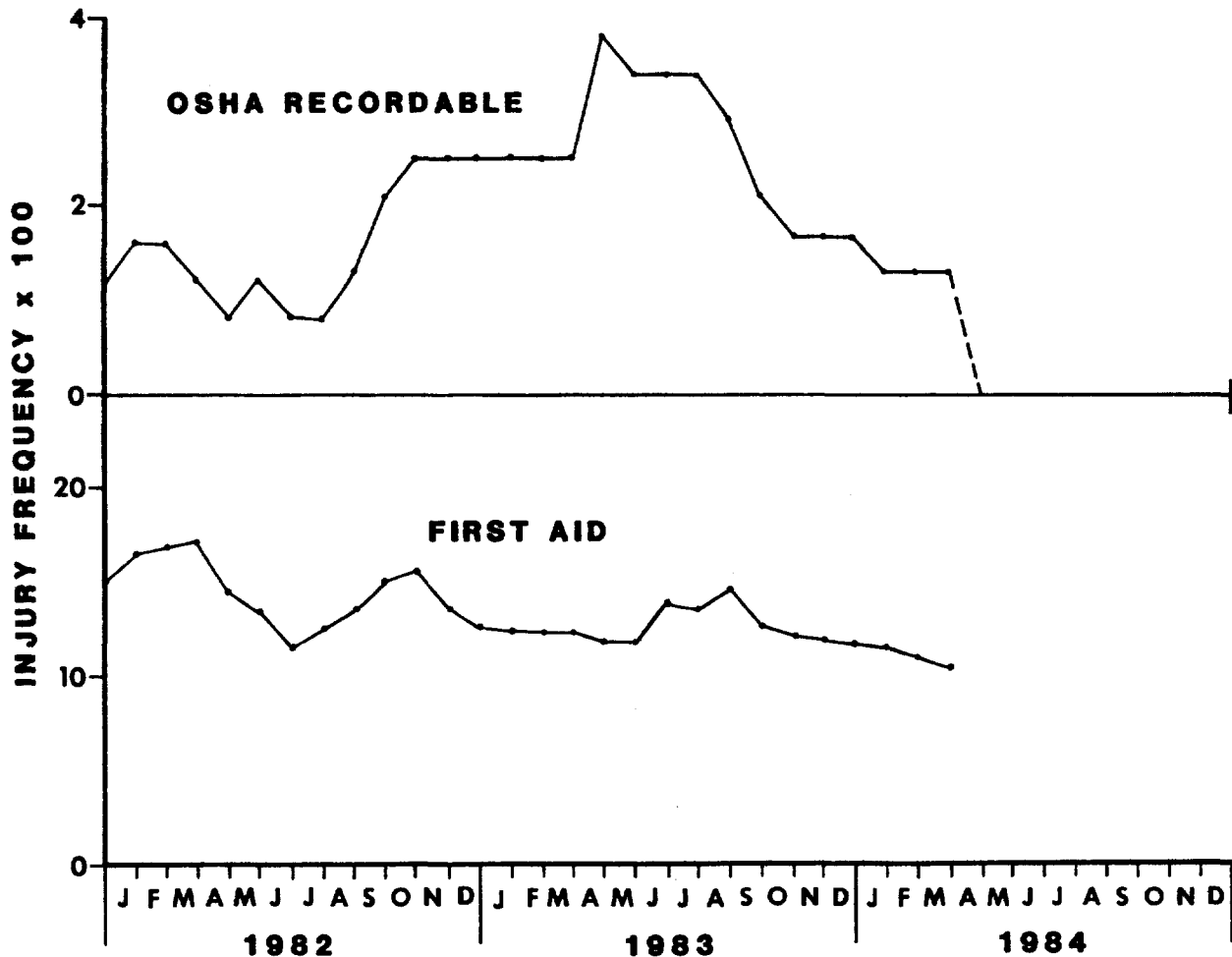
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ABERDEEN CHEMICAL PLANT

INJURY PERFORMANCE

	1ST.QTR.			
	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
FIRST AID	38	30	28	7
OSHA RECORDABLE	3	6	4	0
RESTRICTED	0	3	1	0
LOST TIME	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL	41	36	32	7

LAST LOST TIME INJURY - JULY 5, 1979



12 MONTH ROLLING AVERAGE OF INJURIES
(FA OR OSHA)

$$\text{FREQUENCY} = \frac{\text{TOTAL EMPLOYEES}}{\text{TOTAL EMPLOYEES}}$$

SAFETY
1983 HIGHLIGHTS

- **DECREASED INJURIES**
- **4 YEARS - NO LOST TIME INJURY**
- **FIRE PROTECTION IMPROVEMENTS**
- **SAFETY EMPHASIS SHIFT
FROM STAFF TO LINE**

SAFETY PROGRAM IMPROVEMENTS

- **PROGRAM ANALYSIS**
 - **LINE INVOLVEMENT**
 - **DEPARTMENTAL PROGRAM CONCEPT**
 - **SAFETY MEETINGS / SUPERVISORY LEADERSHIP**
 - **SAFETY COMMITTEE**
- **EMPLOYEE INVOLVEMENT**
 - **ESAR PROGRAM**
 - **TEAM INVESTIGATIONS**
 - **PROJECT FIELD REVIEWS**

SAFETY

1984 PLANS

- **LINE MANAGEMENT RESPONSIBILITY /
EMPLOYEE INVOLVEMENT**
- **SAFETY CONTROL SYSTEMS IMPROVEMENT**
- **CONTRACTOR PROGRAM IMPLEMENTATION**
- **EXPANSION OF EMERGENCY SYSTEMS
PM PROGRAM**

PERSONNEL DOSIMETRY SUMMARY

**% OF SAMPLES
GREATER THAN
PEL**

**% > PEL
WITHOUT
RESPIRATORY
PROTECTION**

VCM

1982	10.0	5.4
1983	6.0	1.3

LEAD

1982	4.7	0.0
1983	5.5	0.6

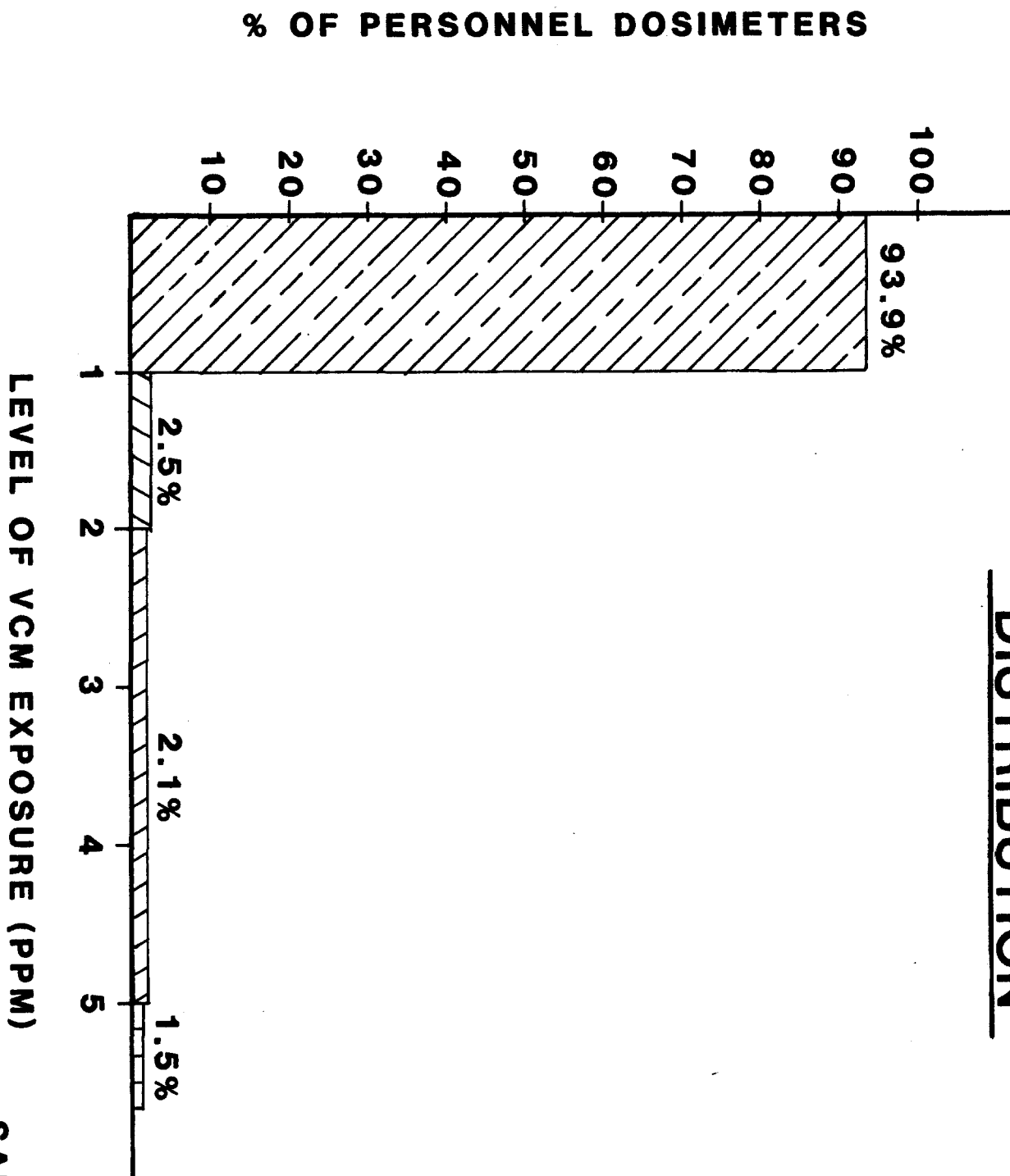
TOTAL

PARTICULATES

1982	2.0	0.0
1983	1.8	0.0

1983 VCM OVEREXPOSURE

DISTRIBUTION



DTH 000099933

SAMPLED:1109

INDUSTRIAL HYGIENE

PROGRAM HIGHLIGHTS

- **EMPHASIS ON IMMEDIATE LEAK RESPONSE**
- **ELIMINATION OF NEGATIVE PRESSURE
RESPIRATORS**
- **IMPLEMENTATION OF IMPROVED VCM
DOSIMETERS**

CASH FLOW
PROGRAM

DTH 000099935

CASH FLOW IMPROVEMENT PROGRAM

CAPITAL EXPENDITURES - 1983

1983 PROFIT OBJECTIVE	\$5779M
ACTUAL CAPITAL EXPENDITURES	\$2995M
CASH FLOW IMPROVEMENT	\$2784M

PROJECT UNDERRUNS AS COMPARED TO AUTHORIZED AMOUNTS

\$ M

MAJOR PROJECT EXPENDITURE DEFERRALS

LINE I MODERNIZATION	\$1769M
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BULK CTA STORAGE AND HANDLING	\$ 135M
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* 1904 M

MAJOR PROJECT DELETIONS

LINE V SURGE BLENDER	\$ 230M
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6-10 TM STORAGE FACILITIES	\$ 120M
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BULK LEAD STABILIZER ADDITION	\$ 300M
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BOTTLE COMPOUND PRODUCTION	\$ 200M
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\$ 850M

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1983

CASH FLOW IMPROVEMENT PROGRAM

VARIANCE FROM
PROFIT OBJECTIVES

(OVER)/UNDER

	<u>TARGET</u>	<u>ACTUAL</u>
FIXED COSTS	\$200M	\$458M
VARIABLE EFFICIENCIES	\$1786M	\$4578M
INVENTORY CONTROLS	-	\$403M
CAPITAL EXPENDITURES	\$2200M	\$2784M
TOTAL	\$4186M	\$8223M

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CASH FLOW IMPROVEMENT PROGRAM

FIXED COSTS - 1983

	<u>ACTUAL</u> <u>VARIANCE</u>
PAYROLL AND BENEFITS	\$404M
MAINTENANCE MATERIALS AND CONTRACTS	(\$ 70M)
TAXES , INSURANCE AND DEPRECIATION	\$ 62M
MISCELLANEOUS	\$ 62M
TOTAL	\$458M

CASH FLOW IMPROVEMENT PROGRAM
VARIABLE COST EFFICIENCY VARIANCE

1983

RAW MATERIAL/OFF-GRADE **\$979M**

PRODUCT MIX **\$2970M**

UTILITIES **\$629M**

TOTAL **\$4578M**

CASH FLOW IMPROVEMENT PROGRAM
MATERIALS AND SUPPLIES INVENTORIES

1983

	<u>12/83</u>		
	<u>TARGET</u>	<u>BOOK</u>	<u>AVAILABLE</u>
0739 WAREHOUSE	\$1500M	\$1580M	\$1579M
SUPPLIES (PARTS)			
0744 PROCESSING	\$1100M	\$ 617M	\$ 832M
SUPPLIES	_____	_____	_____
TOTAL INVENTORIES	\$2600M	\$2197M	\$2411M
IMPROVEMENT		\$ 403M	

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CASH FLOW IMPROVEMENT PROGRAM

CAPITAL EXPENDITURES - 1983

1983 PROFIT OBJECTIVE	\$5779M
ACTUAL CAPITAL EXPENDITURES	\$2995M
CASH FLOW IMPROVEMENT	\$2784M

MAJOR PROJECT EXPENDITURE DEFERRALS

LINE 1 MODERNIZATION	\$1769M
BULK CTA STORAGE AND HANDLING	\$ 135M
TOTAL	\$1904M

MAJOR PROJECT DELETIONS

LINE 5 SURGE BLENDER	\$ 230M
6-10 TM STORAGE FACILITIES	\$ 120M
BULK LEAD STABILIZER ADDITION	\$ 300M
BOTTLE COMPOUND PRODUCTION	\$ 200M
	\$ 850M

1984

CASH FLOW IMPROVEMENT PROGRAM

- INVENTORY CONTROL OPERATING PLAN
- RESIN COST STUDY
- FIXED COST
- VARIABLE EFFICIENCY COST
- INVENTORY REDUCTION
- CAPITAL EXPENDITURES

1984 CAPITAL EXPENDITURES

	\$MM
● PROFIT OBJECTIVE	4.2
● REFORECAST 2/10/84	4.2
● REFORECAST (VISTA)	2.4

VISTA BASIS

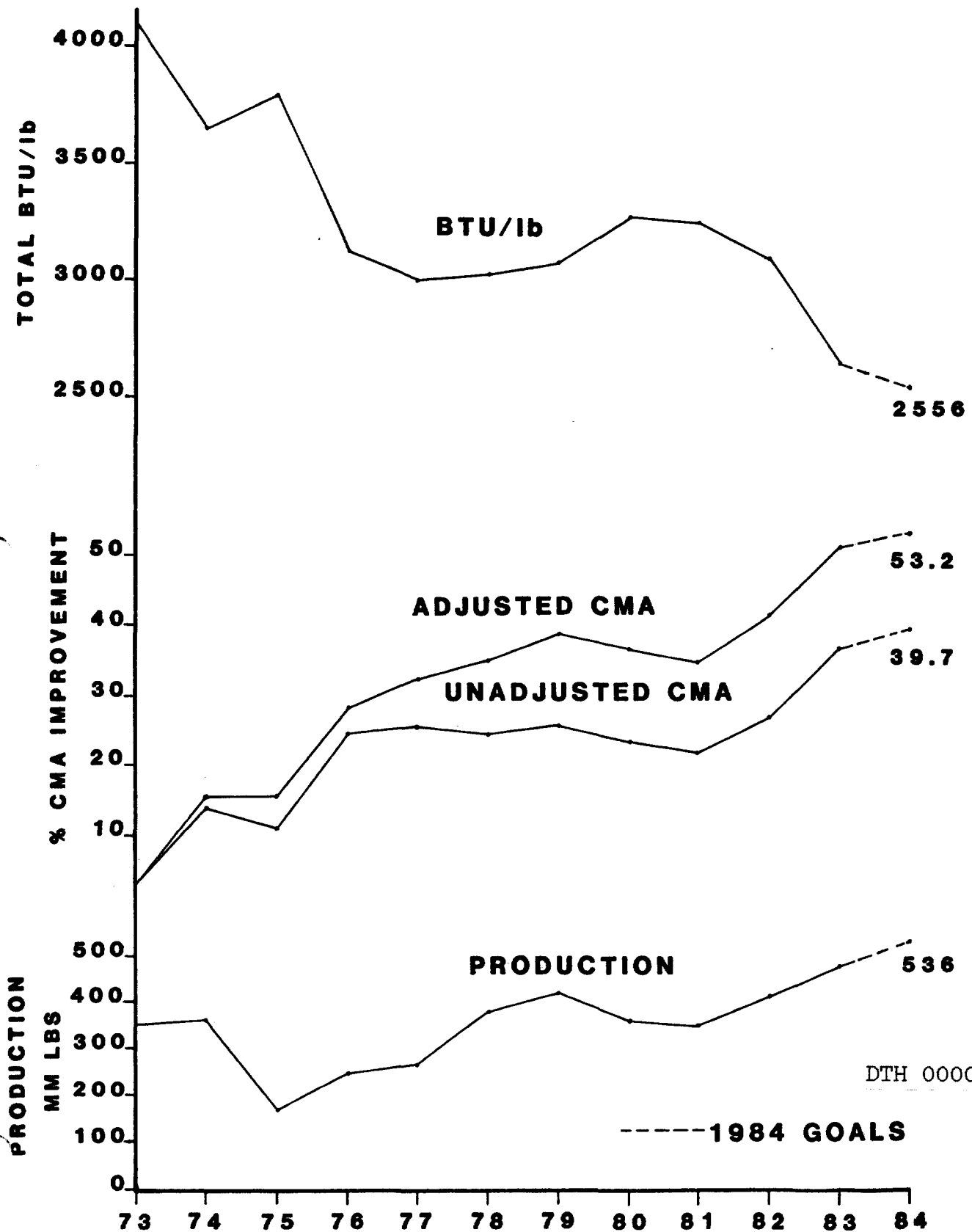
LIMIT ABERDEEN EXPENDITURES TO \$2MM

DEFERRAL OF PROJECTS

DELAYED CONSTRUCTION

PROJECT DELETION

ENERGY PERFORMANCE **ABERDEEN CHEMICAL PLANT**



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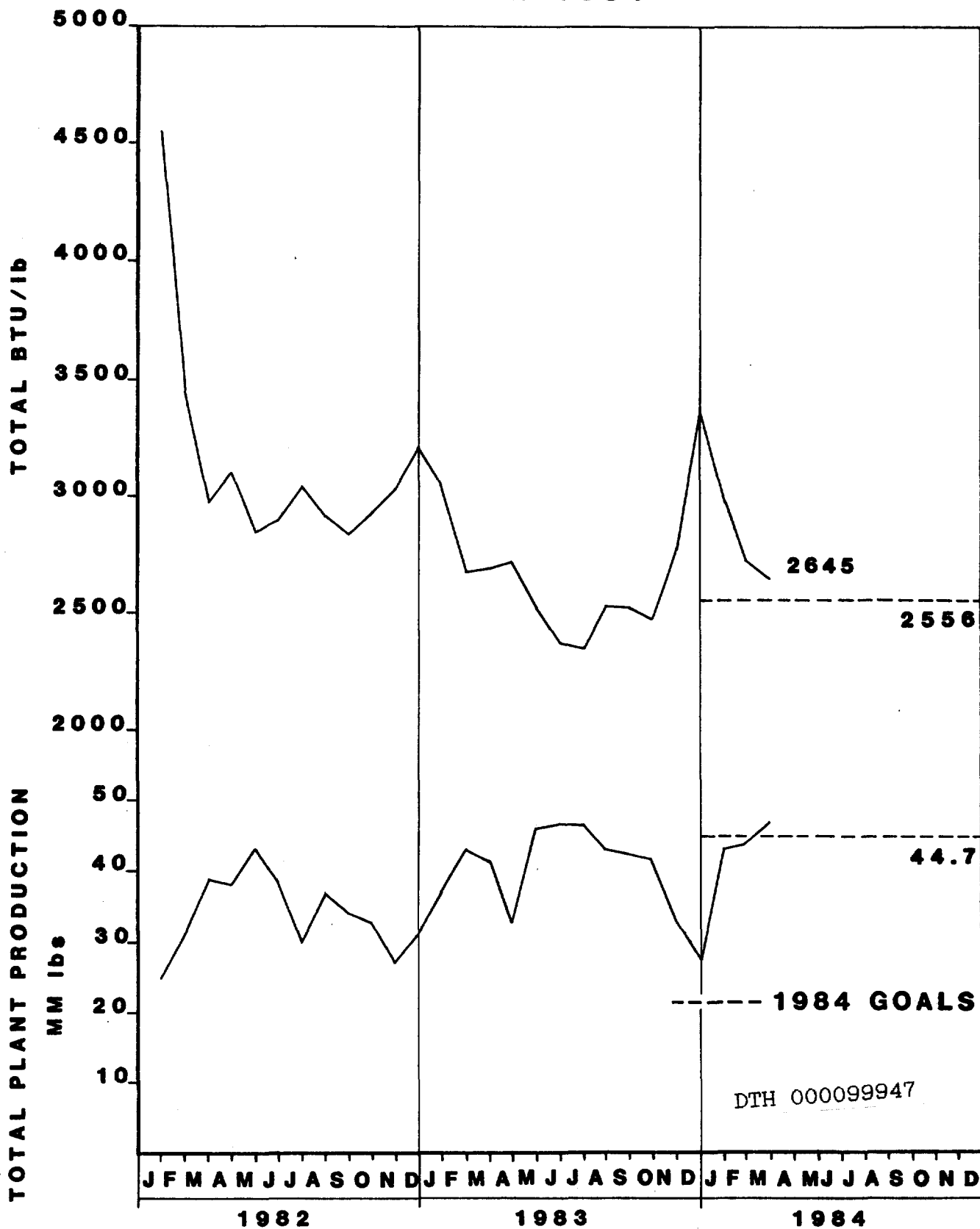
1983 PERFORMANCE vs BUDGET

ABERDEEN CHEMICAL PLANT

	INCREMENTAL		%ADJ
	MMM		
	<u>BTU/YR</u>	<u>%</u>	<u>CMA</u>
1983 BUDGETED ENERGY PERFORMANCE (2/2/83)			44.1
(PRODUCTION BASIS:493.4 MM lbs)			
PRODUCT MIX AND PRODUCTION LEVEL EFFECTS	(2.3)	0.1	
-11 CENTRATE HEAT RECOVERY COMPLETION DELAY	16.1	(0.7)	
INCREASED FLUID BED DRYER THROUGHPUT	(23.9)	1.1	
ADMINISTRATIVE PROGRAMS AND MISCELLANEOUS	(143.7)	6.5	
	(153.8)	7.0	
1983 ACTUAL ENERGY PERFORMANCE			51.1
(ACTUAL PRODUCTION:481.8 MM lbs)			

MONTHLY ENERGY PERFORMANCE

1982-1984



ABERDEEN ENERGY PROGRAM

KEY ELEMENTS

- **SUPERVISOR AND EMPLOYEE AWARENESS**
- **REDUCED RATE OPERATIONS PLAN**
- **BOILER OPERATIONS**
- **AIR CONSERVATION**
- **STEAM AND AIR LEAK PROGRAMS**
- **INSULATION AND STEAM TRAP PROGRAMS**

1984 EMPHASIS ITEMS

- **CONTINUED ROTARY DRYER UPGRADE
PROJECT**
- **STEAM AND DRYER NATURAL GAS
MONITORING PROJECTS**
- **V-11 CENTRATE HEAT RECOVERY**

1984 ENERGY CONSERVATION FORECAST

	INCREMENTAL MMM <u>BTU/YR</u>		<u>%</u>	<u>%ADJ</u> <u>CMA</u>
1983 ENERGY REDUCTION vs 1972 (CMA ADJUSTED BASIS)				51.1
PRODUCT MIX EFFECT	13.3		(0.6)	
PRODUCTION LEVEL EFFECT	(13.3)		0.6	
V-11 CENTRATE HEAT RECOVERY (9 MONTHS FULL OPERATION)	(29.4)		1.3	
OTHER PROJECTS & MISC.	(17.4)		0.8	
	<u>(46.8)</u>		<u>2.1</u>	
1984 FORECASTED ENERGY REDUCTION				53.2
1984 BUDGETED ENERGY REDUCTION				49.5

NEW PRODUCTS

**ABERDEEN CHEMICAL PLANT
1984**

- **NEW DRY BLEND APPLICATIONS**
- **COMPOUNDS AND PLASTICIZERS**
- **FITTINGS APPLICATIONS**

NEW DRY BLEND APPLICATIONS

- **IMPACT MODIFIED PIPE BLEND**

SPECIAL APPLICATION-TRUSS PIPE

5426-42A

ARMCO

- **SHEET BLEND**

RP-420

- **RIGID PROFILE PRODUCTS**

TWIN SCREW BLEND-PVC WINDOWS

SINGLE SCREW BLEND

SPECIAL BLENDS

FURNITURE

PURGE

COMPOUNDS AND PLASTICIZERS

- **EXPERIMENTAL COMPOUNDS**

- **34642 COMPOUND**

CABLE INSULATION

- **LINEAR ALCOHOL PLASTICIZERS**

610P

108P

810P

FITTINGS PRODUCTS

- **5265 RESIN**

LOW MOLECULAR WEIGHT

COMMERCIAL

VALUE ADDED

PRODUCTION

CTA

- **FITTINGS BLEND**

90172B

MANUFACTURING
IMPROVEMENTS

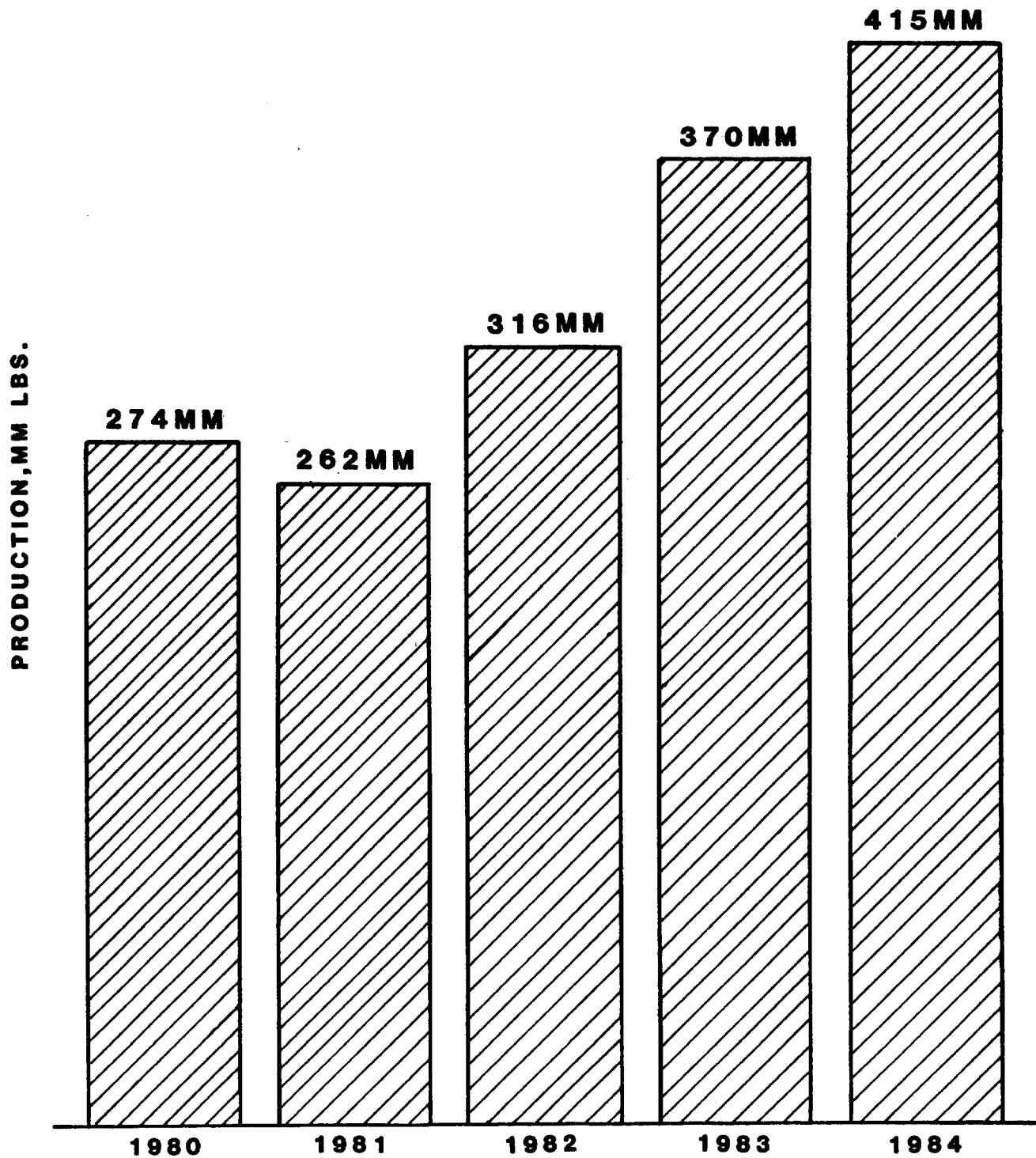
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MANUFACTURING IMPROVEMENTS

DOING A BETTER JOB WITH WHAT WE HAVE

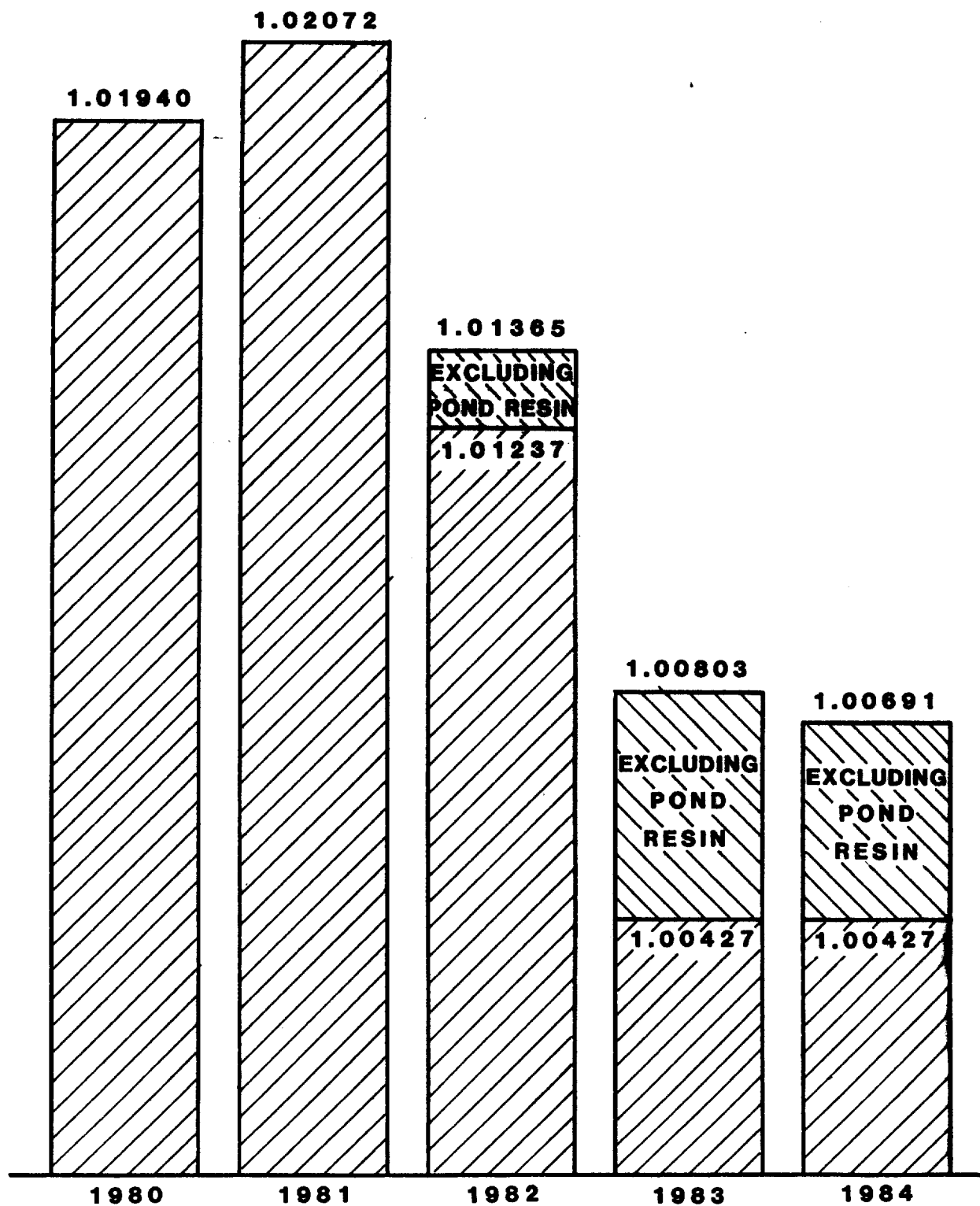
- **IMPROVING ADMINISTRATIVE CONTROLS**
- **PERFORMING OPTIMIZATION TEST RUNS**
- **DEVELOPING NEW PROCEDURES**
- **TRAINING OPERATORS**
- **DEVELOPING LOWER COST RAW MATERIAL
SUBSTITUTES**

ABERDEEN RESIN PRODUCTION
MM LBS PVC/YR.

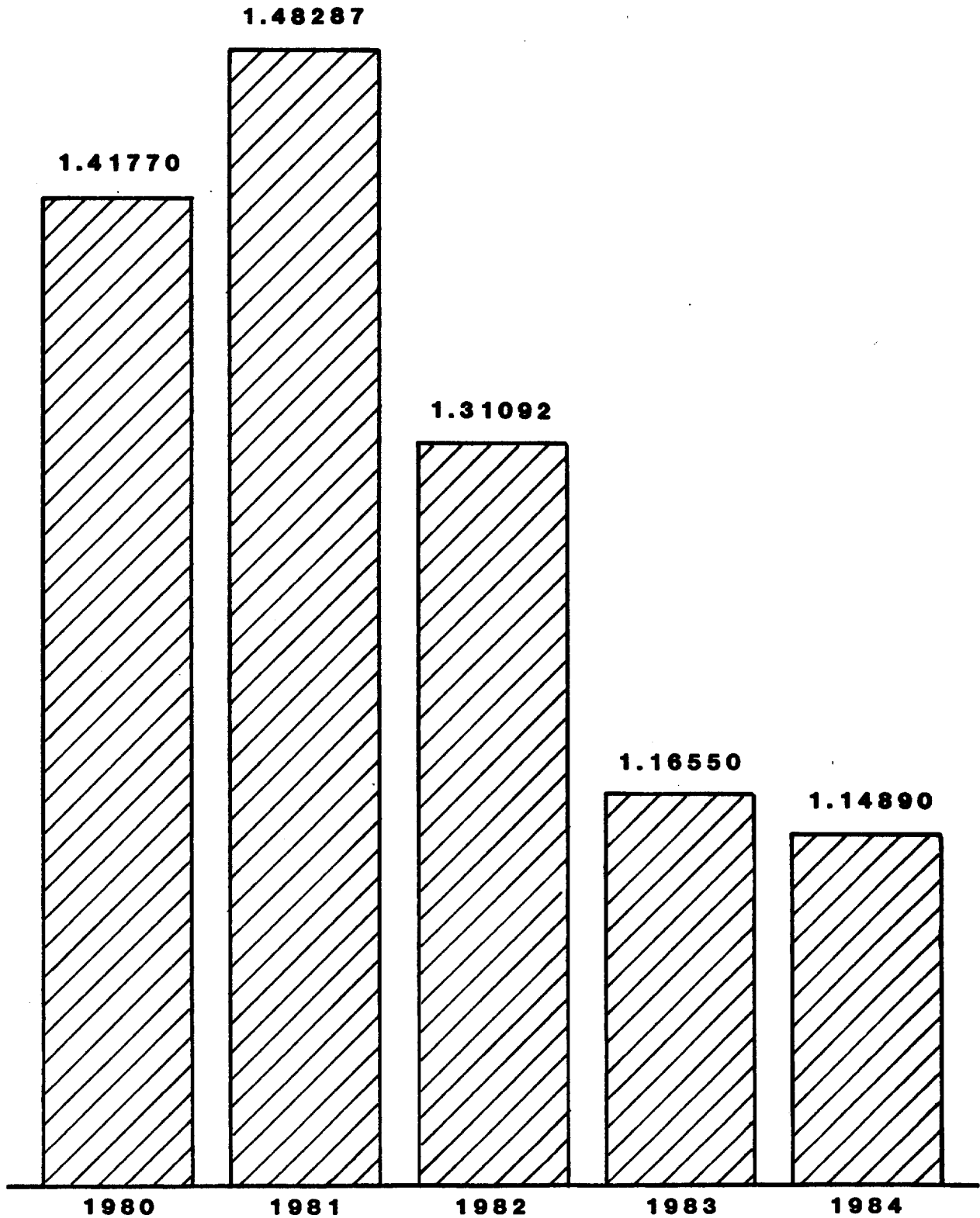


ABERDEEN VCM EFFICIENCY

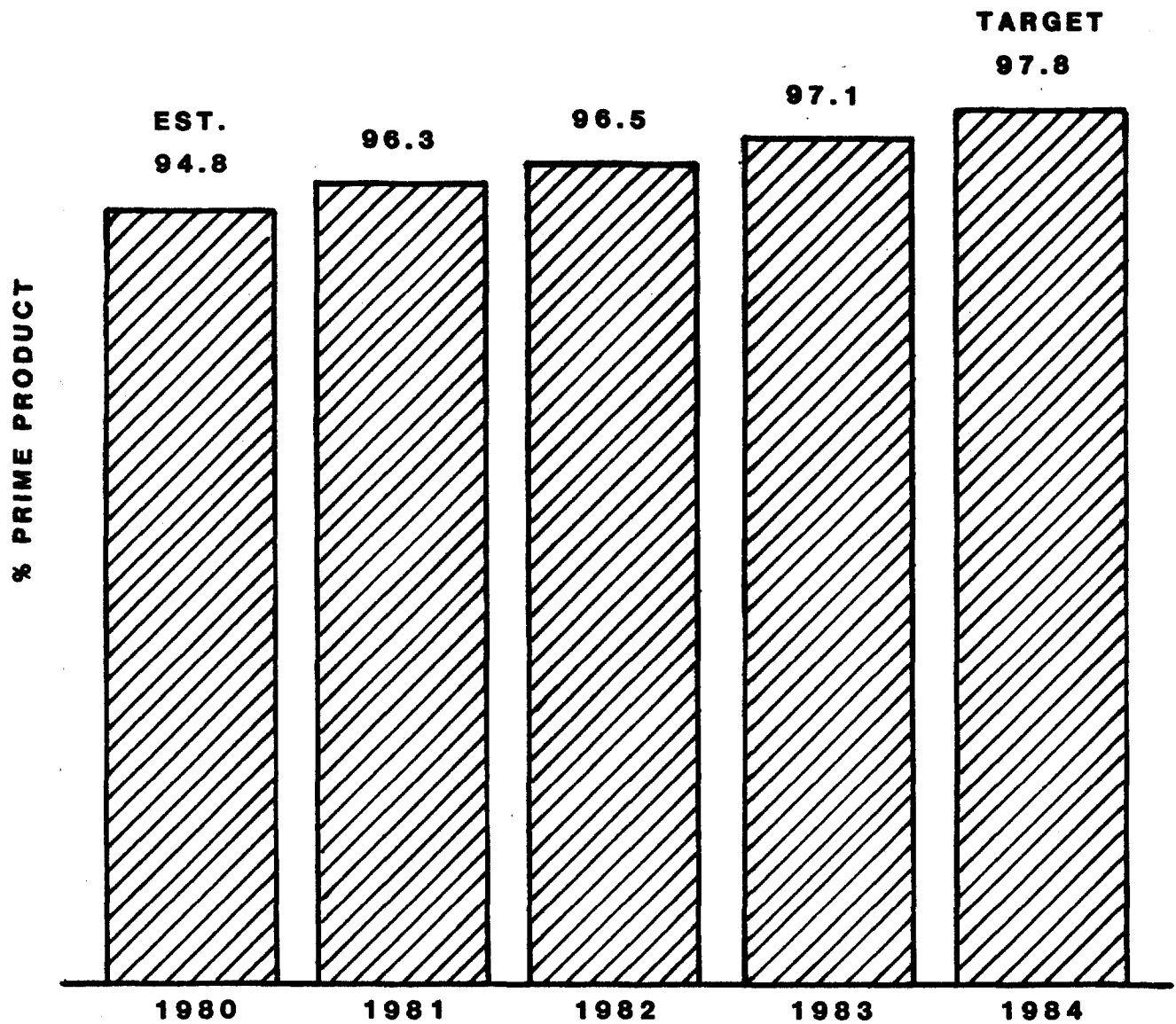
LBS.VCM/LBS.PVC



ABERDEEN RESIN VARIABLE
ENERGY COST ¢/LB PVC
(CONSTANT PRICING)

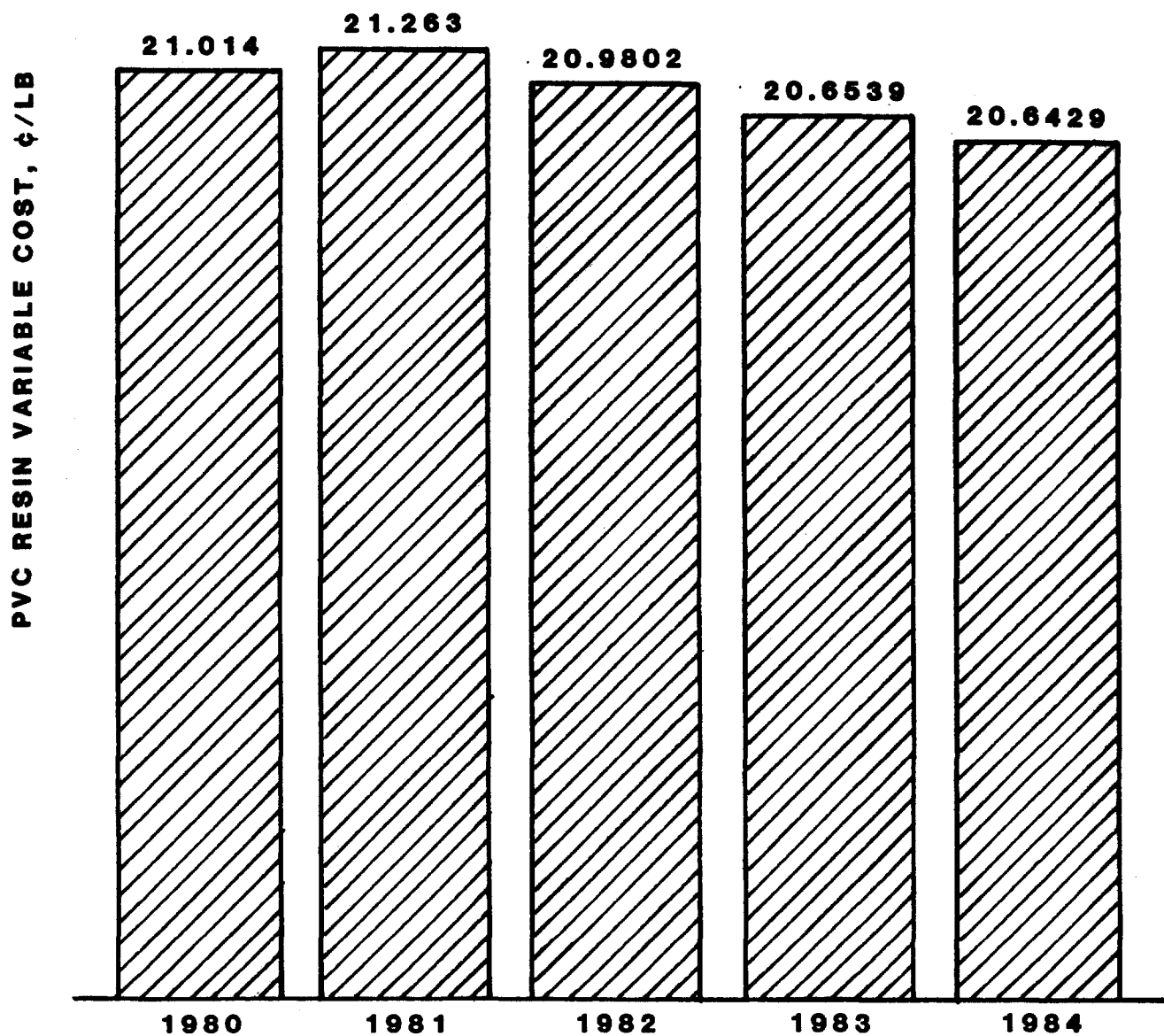


ABERDEEN RESIN PRODUCTION
% PRIME PRODUCT



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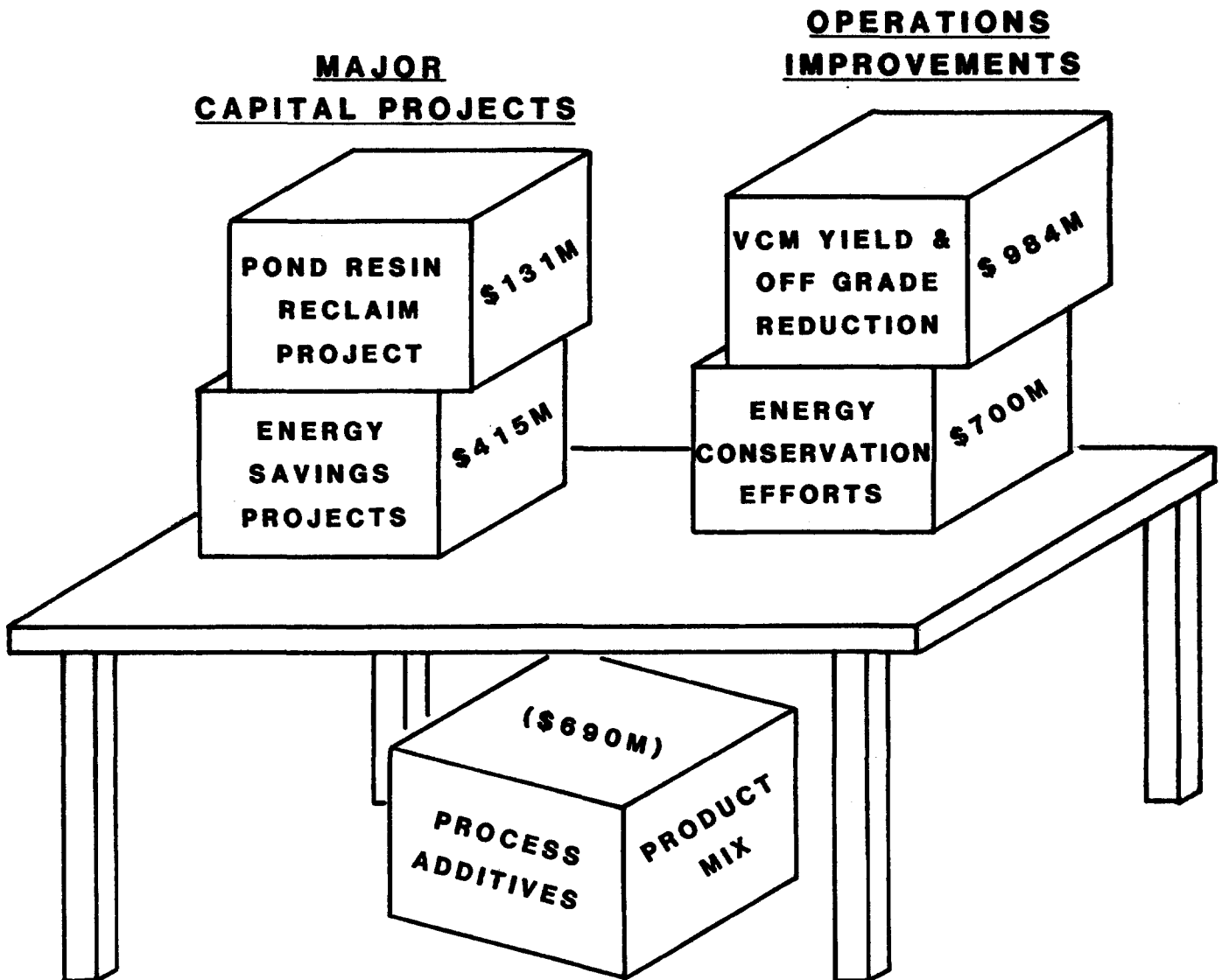
ABERDEEN PVC RESIN VARIABLE COST, ¢/LB
(CONSTANT PRICING)



MANUFACTURING

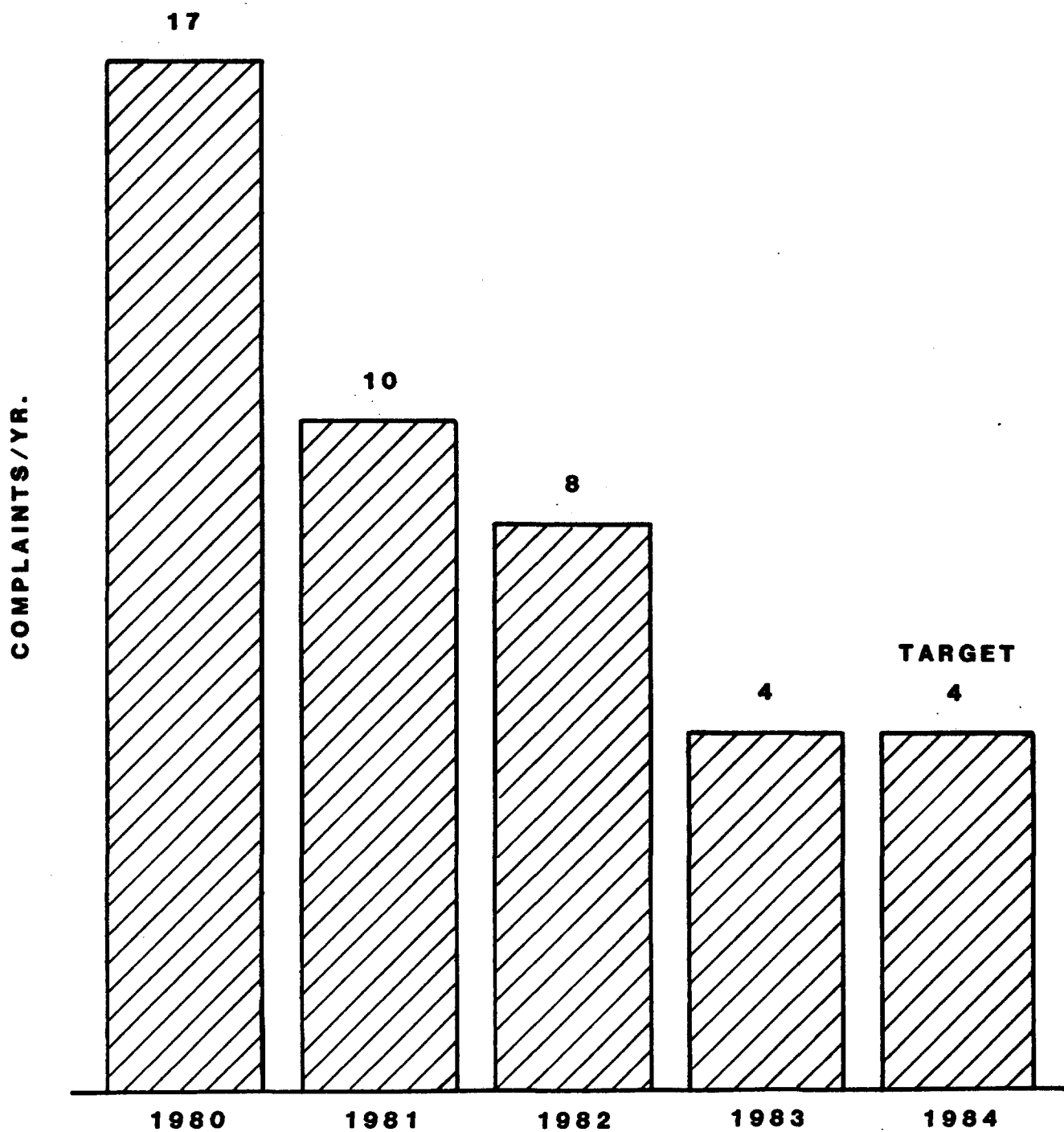
RESIN IMPROVEMENTS

**PVC VARIABLE COST DIFFERENCES 1980 VS 1984
AT CURRENT PRICING & 1984 PRODUCTION VOLUME
△ \$1.54MM**

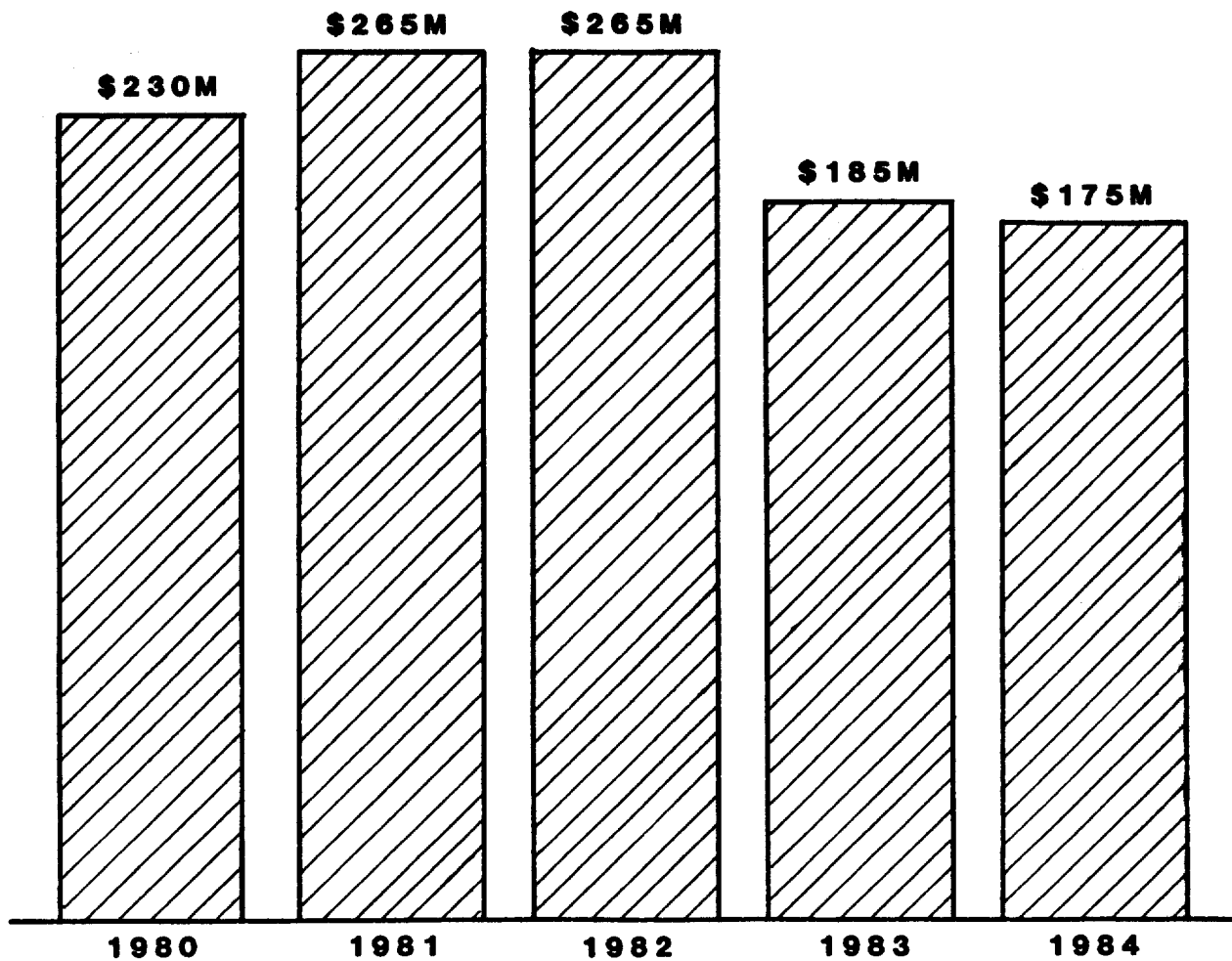


PRODUCT MIX CHANGES & FORMULA CHANGES

ABERDEEN PLANT
JUSTIFIED RESIN COMPLAINTS

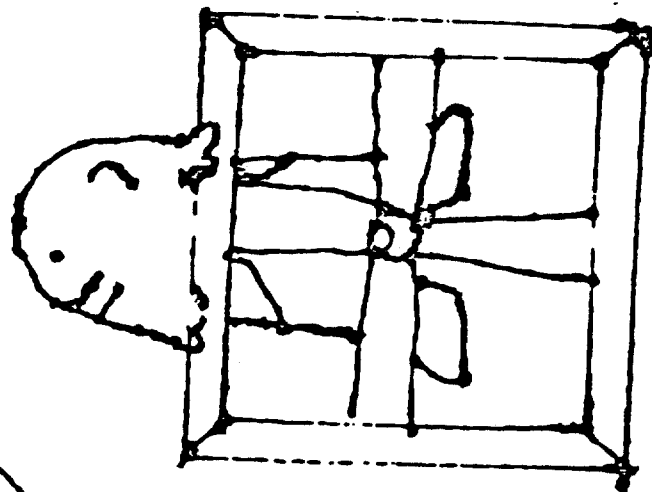
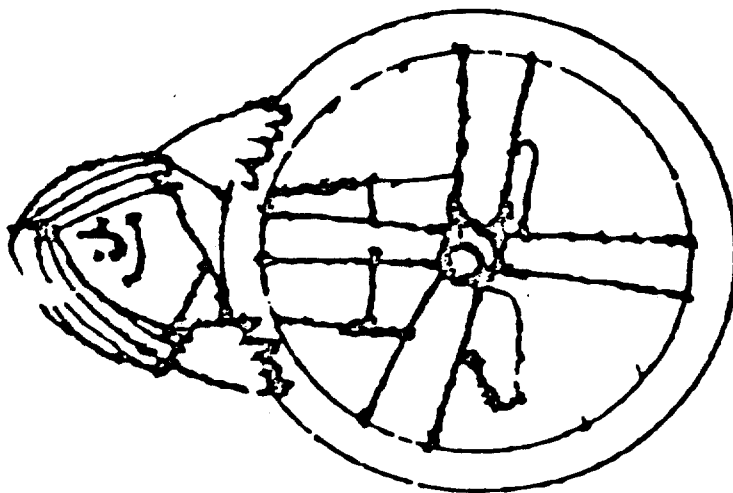


AVAILABLE RESIN RAW MATERIAL INVENTORY VALUES
(EXCLUDING MONOMER) (\$M)



FUTURE **MANUFACTURING IMPROVEMENT**

- **MTS OPERATOR TRAINING PROGRAM**
- **RESIN COST STUDY**
- **ADDITIONAL TECHNICAL SUPPORT FOR
PROCESS OPTIMIZATION**
- **UTILIZE NEW PLANT COMPUTER**
 - **IMPROVE TIME MANAGEMENT**
 - **PROVIDE IMPROVED DATA
MANAGEMENT**
- **FINE TUNE NEW AUTOMATED ADDITIVE
ADDITION SYSTEM**
- **CONTINUE TO OPTIMIZE RAW MATERIAL
& FINISHED PRODUCT INVENTORIES**



A winner says,
"There ought to be
a better way to do it";
a loser says,
"That's the way
it's always been done here."

DTH 000099967

MAINTENANCE IMPROVEMENT

DTH 000099968

1983 MAJOR POINTS

TRAINING

- I & E
- MECHANICAL
- OPERATIONS

SUPERVISORY SKILLS

- CRAFT DELAY STUDY
- WORK ORDER PLANNING

PREVENTIVE MAINTENANCE

TRAINING

I & E

- ~ 2200 MANHOURS OF IN PLANT TRAINING
- MED INSTRUMENT TRAILER

MECHANICAL

- PONCA CITY COURSES
 - SIX SUPERVISORS
 - SIX MECHANICS
- ALIGNMENT
- VENDOR
 - BOSTON GEAR BOX
 - RELIEF VALVES
 - RUPTURE DISCS

OPERATIONS

- MED INSTRUMENT TRAILER

DTH 000099970

SUPERVISORY SKILLS

SUPERVISORS PLAN WORK ORDERS

USEFUL WORK

- **CONOCO AVERAGE -2.4 HOURS/DAY**
- **ABERDEEN BEFORE- 2.5 HOURS/DAY**
- **ABERDEEN AFTER- 3.1 HOURS/DAY**

PREVENTIVE MAINTENANCE

- **AUTOMOTIVE**
- **FIRE PUMPS**

1984 PROGRAM

SYSTEM RELIABILITY

- I & E
- MECHANICAL

CRAFT PRODUCTIVITY

SYSTEM RELIABILITY

I & E

- **CONTINUED TRAINING**
- **INTERLOCK/ALARM PM PROGRAM**
- **MINOR INSTRUMENT REPAIR LOG-
REPETITIVE REPAIRS**

MECHANICAL

- **IDENTIFY TARGET EQUIPMENT**
 - **OPERATIONS**
 - **MAINTENANCE**
 - **ENGINEERING**
- **DEVELOP PH-1 PROGRAM**
- **TARGETED TRAINING**
- **MAINTENANCE ENGINEERING**

CRAFT PRODUCTIVITY

SUPERVISORY TRAINING

- **TPC COURSE**
- **100 HOURS PER/SUPERVISOR**
- **NUTS AND BOLTS "HOW TO"**
 - **PLANNING**
 - **SCHEDULING**
 - **WORKLOAD**

CREW MIX

- **CROSS TRAINING**
- **CHANGING HISTORIC ROLES**
- **MIXING CREWS**

MAINTAINING THE BACKLOG

**THE EASIEST ORGANIZATION
TO CHANGE IS
SOMEBODY ELSE'S**