COMPANY CONFIDENTIAL

Monsanto

Anniston Plant

TECHNICAL SERVICES DEPARTMENT

MONTHLY REPORT

Anniston

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W. R. Robirds
J. E. Smith
J. A. Stephens
R. J. Stratmeyer

OTHER LOCATIONS

A. H. Forsten - Alvin, Texas

D. W. Jackson - WGK

T. M. Patrick - So. 2nd St.

Summary

November, 1969

Cost Improvement Results

	Est. Act.	Target	% of Target
Month	$51,480	$67,985	75.7%
YTD	$532,936	$573,830	92.9%

Organic Division

Solid Aroclor Montar 5 Sandvik belt estimated cost is $123M with savings of $36M and new earnings of up to $45M. Progress report to be issued in December '69.

Preliminary test was run on Santowax R column to determine operating conditions for improving capacity/yield while meeting the desired compositions for Solid Aroclor 5460 and HB-40. Test results are encouraging and further testing will be done in January '70.

Agricultural Division

Acetone Recovery equipment was installed during the Parathion turnaround. Preliminary indications are that the equipment is meeting performance specifications.

A Parathion MIP review meeting was held in St. Louis with representatives of Agricultural Division and CED.

DSW 551212

N-306 REV. 11/1/1968

COMPANY CONFIDENTIAL INFORMATION

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STLCOPCB4089629

Design & Drafting

Parathion Emergency Power Supply - installed and satisfactorily started up. Rebuilding and reinstallation of one "old" unit remains.

Fire alarm system in which alarm horn may be dialed direct from any telephone in the plant successfully put in operation 11-17-69.

Pollution Control

Test unit to remove solids from Waste Treatment Plant Effluent started up. Rapid cloth "blinding" has prevented extended operation. Eimco representative advising on cloth selection.

Quality Control

The Plant Quality Score was 78.0, a new low for 1969, down 5.1 from October, with a YTD score of 87.1. A comprehensive raw material quality control system was accepted in scope, and detail procedures for tank car shipments were adopted.

J. C. Landwehr

:kd

D

ORGANIC DIVISION
1969 TSD COST IMPROVEMENT

		ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
BiØ Improve Tower Treat. AFE 3155	TAR						450	450	450	450	450	450	450	450
	EST						0	0	0	584	645	50	725	
	ACT						0	0	0	585	645	50		
Improve Plt. Power Factor	TAR						900	900	900	900	900	900	900	900
	EST						0	500	900	900	900	950	955	
	ACT						0	500	830	990	980	940		
Central Air System	TAR										1000	1000	1000	1000
	EST										-	-	-	
	ACT										-	-		
Optimize Rx Time	TAR			2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
	EST			0	3420	0	0	0	2940	1260	0	0	0	
PNP	ACT			0	3420	0	0	0	2940	2370	0	0		
Reduce Mole Ratio NaOH/PNCB PNP	TAR					4000	4000	4000	4000	4000	4000	4000	4000	4000
	EST					0	0	0	0	0	0	0	0	
	ACT					0	0	0	0	0	0	0		
New Wash Water Pump - PNP AFE 2998	TAR						50	50	50	50	50	50	50	50
	EST			25	50	50	50	50	50	50	50	50	50	
	ACT			25	50	50	50	50	50	50	50	50		
Automatic pH Control PNP	TAR											500	500	500
	EST											0	0	
	ACT											0		
HCl Filter Pump	TAR	330	330	330	340									
	EST	330	330	330	340									
	ACT	330	330	330	340									
New Blow Tank HCl	TAR	200	200	200	200	200	200	200						
	EST	200	200	200	200	200	500	200						
	ACT	200	200	200	200	200	200	200						
150,000 Gal.-HCl Storage Tank AFE 2468	TAR					1760	1760	1780	1760	1760	1780	1760	1760	1780
	EST					-	0	0	2640	3290	2990	3500	3500	
	ACT					-	-	0	2830	3430	3125	3200		
Produce Staley Grade Acid AFE 3076	TAR								780	780	790	780	780	790
	EST								-	-	-	-	-	
	ACT								-	-	-	-		
Cl_2 Plt. Shutdown CEA 1831	TAR							8880	8880	8880	8880	8880	8880	8880
	EST						8880	6655	2885	19900	1990	19900	19900	
	ACT						2230	6655	2855	19900	19900	19900		
Hg Recover from Residue	TAR	250	250	250	250	250								
	EST	3910	0	0	0	0								
	ACT	3910	0	0	0	0								
Hg Wash Tank AFE 2802	TAR	250	250	250	250	250								
	EST	0	0	0	0	0								
	ACT	0	0	0	0	0								
Biphenyl Productivity	TAR	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600	5600
	EST	0	9000	15,000	0	0	0	0	30780	2700	0	0	0	
	ACT	1800	5900	13,500	0	0	0	0	30780	2700	0	0		
Total Organic By Month M $	TAR	23.3	26.8	29.3	37.5	42.3	51.1	51.6	51.6	51.6	51.6	52.7	53.5	50.6
	EST		27.1	30.2	11.5	36.3	39.165	107.4	53.844	49.410	40820	46560		
	ACT	16.5	23.8	27.8	11.4	25.75	45.9	110.22	258.16	51930	40410			
Total Organic YTD M $	TAR	23.3	50.1	79.4	116.9	159.2	210.3	261.9	313.5	365.1	417.8	471.3	521.9	
	EST		46.9	78.8	79.6	115.9	144.4	258.5	315.11	368.8	41220	45835		
	ACT	16.5	40.3	68.1	79.5	105.2	151.1	261.28	319.45	371.38	411.79			

* $22955 adjustment included for May & June.

** $27,780 adjustment included for months January thru June.

DSW 551214

STLCOPCB4089631

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ORGANIC DIVISION
1969 TSD COST IMPROVEMENT

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Sol.Aro.Level	TAR				2250	2250	2250	2250	2250	2250	2250	2250	2250
Ind.& -Still SpG	EST				-	-	-	-	-	-	-	-	
AFE 3015	ACT				-	-	-	-	-	-	-		
Solid Aro.	TAR	2600	2600	2600	2600	2600	2600	2600	2600	2600	-	-	-
Lower 5060	EST	1500	5490	4890	2150	4670	8000	4230	7730	3475			
Soft. Point	ACT	1500	5490	4890	2150	4670	8000	4230	7730	3475			
Sol.Aro.-Still	TAR				160	170	160	170	160	170	160	170	160
Coolant temp.	EST				-	-	-	-	-	-	-	-	
AFE 3015	ACT				-	-	-	-	-	-	-		
Sol.Aro.-Chlortor	TAR				390	390	390	390	390	390	390	390	390
Batch End	EST				-	-	-	-	-	-	-	-	
AFE 3015	ACT				-	-	-	-	-	-	-		
Sol.Aro. Yield	TAR					2750	2750	2750	2750	2750	2750	2750	2750
SW/R Composition	EST					-	-	-	-	-	-	-	
AFE 3016	ACT					-	-	-	-	-	-		
Solid Aro.	TAR					1080	1080	1080	1080	1080	1080	1080	1080
Montar 5 Flake	EST					-	-	-	-	-	-	-	
AFE 2949	ACT					-	-	-	-	-	-		
Sol.Aro.	TAR	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Blend 4465	EST	1690	1920	1680	1490	710	1180	990	220	-	10	710	
	ACT	1690	1920	1680	1490	710	1180	990	220	-	10		
Sol.Aro.-Verti-	TAR	70	80	70	80	70							
cal Still Cond.	EST	70	90	90	90	90	-	-	-				
AFE 2324	ACT	70	90	90	90	90	-	-					
Sol.Aro.Cl_2	TAR			940	940	950							
T/C Dock	EST			0	-	-							
AFE 2342	ACT			0	-	-							
Sol.Aro.-New Cl_2	TAR						950	940	950	940	950	940	950
Unload - No Delay	EST					900	2330	2050	2320	1650	2360	1640	
CED 1831	ACT					900	2330	2050	2320	1650	2360		
Solid Aro.-Flake	TAR	3000	3000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
& Drum	EST	0	0	1000	2000	2000	2000	3000	3000	3000	3000	3000	
CED 1430	ACT	0	0	1000	2000	2000	3000	3000	3000	3000	3000		
Liq.Aro.	TAR	3000	3000	-	-	-	-	-	-	-	-	-	-
48-53 M #/yr.	EST	0	5500	-	-	-	-	-					
AFE 2545	ACT	0	5500	-	-	-	-	-					
Liq.Aro.-No.2	TAR										3000	3000	
Still Entrain Sep.	EST										-	-	
AFE 3093	ACT												
Liq.Aro.-Montar	TAR			1080	1080	1080	1080	1080	1080	1080	1080	1080	1080
Disposal	EST			0	0	0	0	0	0	-	-	-	
AFE 2952	ACT			0	0	0	0	0	-	-	-		
Warehouse	TAR	2000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
Reduce Manpower	EST	2000	2000	2000	3000	3000	3000	3000	3000	3000	3000	3000	
CEA 1452	ACT	2000	2000	2000	3000	3000	3000	3000	3000	3000	3000		
Liq.Aro.New	TAR			1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Burners #3 Still	EST			0	0	1500	3000	900	0	-	0	0	
	ACT			0	0	1500	3000	900	-	-	0		
Biphenyl Relocate	TAR	500	500	500	500	500	500	500	500	500	500	500	500
No. 1 Preheat	EST	1500	0	1560	1870	0	0	1500	0	-	0	1780	
CEA 1892	ACT	1500	0	610	1870	0	0	1500	-	-	-		
HB-40	TAR	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
2nd Autoclave	EST	2230	2580	0	600	9000	6000	5600	4200	500	1000	4800	
AFE 3102	ACT	3490	2420	0	600	10,400	8600	7450	6950	750	1400		

DSW 551215

STLCOPCB4089632

AG DIVISION
1969 TSD COST IMPROVEMENT

	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Cooling Tower	TAR				420	420	410	410	420	420	410	420	420
Repiping	EST				0	0	0	0	0	0	0	0	
AFE 2598	ACT				0	0	0	0	0	0	0		
Optimize N_2 &	TAR				6600	6700	6700	6600	6700	6700			
Cl_2 Levels	EST				0	0	0	0	0	0			
	ACT				0	0	0	0	0	0			
Increase Waste	TAR				400	300	300	400	300	300	400	300	300
Acid Sales	EST				0	0	0	0	0	0	0	0	
	ACT				0	0	0	0	0	0	0		
Chlorinator R.I.	TAR							250	250	250	250	250	250
	EST							0	0	0	0	0	
AFE 2244	ACT							0	0	0	0		
EVOP Condensation	TAR	750	750	500							500	750	750
Rx.	EST	0	0	12,615							0	0	
	ACT	0	0	12,615							0		
Cl_2 Unloading	TAR							5000	5000	5000	2000	2000	2000
	EST							0	0	1580	730	4150	
CEA 1831	ACT							0	0	1580	730		
Recycle Wash	TAR							290	290	290	290	290	290
Water	EST							0	0	0	0	0	
AFE 2960	ACT							0	0	0	0		
Parathion Recovery	TAR										5800	5800	5800
	EST										0	0	
AFE 2655	ACT										0		
Reduce Acetone	TAR										4300	4300	4300
Losses	EST										0	0	
	ACT										0		
Formulations	TAR				1600	1600	1600	1600	1600	1600			
	EST				3000	6600	10,000	4570	2000	3950	1000	-	
AFE 2897	ACT				4300	10,400	9288	4570	1205	2675	950		
Change Cooling	TAR				125	125	125	125	125	125	125	125	125
H_2O Item 737	EST				120	180	155	272	333	310	218	240	
AFE 3067	ACT				120	180	171	272	333	310	220		
Well H_2O to Jets	TAR										500	500	500
	EST										0	0	
	ACT										0		
Ag. Division	TAR	750	750	500	9145	9145	9135	14675	14685	14685	14575	14485	14485
by Month	EST			12,615	3,120	6,780	10,155	4842	4033	13,710	8873	4920	
	ACT	0	0	12,615	4,420	10,580	9459	4842	6488	12435	8825		
Ag. Division	TAR	750	1500	2000	11145	20290	29465	44100	58785	73470	88045	102530	117015
YTD	EST			12,615	15,735	23,815	37,770	41,915	45,949	62,114	69,712	74584	
	ACT	0	0	12,615	17,035	27,615	37,074	41,915	48,404	60839	69664		
Ag. Division	TAR								0				
untargeted-R.M.	EST								1700	3690	2870	530	
Charges optimization	ACT								1700	3690	2870		
Organic Div.	TAR					0	0	0	0				
Untargeted - HCl	EST					5000	6250	5960	4690	13300	7000	6500	
Catch Tank & Coalesc	ACT					0	9350	6817	4920	15355	6500		
Ag Div.-Untargeted	TAR												
	EST								-	4180	4055	-	
#3 Cl_2 Change out	ACT								3250	4180	4055		

DSW 551216

STLCOPCB4089633

AROCLOR C. R. McIlwain, E. E. Bowles, J. M. Jones, J. W. Mattern, (V. R. Haupt)

Evaluate Quaterphenyl-Polyphenyl Effects on Solid Aroclor Yields	1969 Savings - $63,200 NFC - $14,000	TSD Objective B-8(a)

Lab data shows no relationship between specific gravity and softening point of Aroclor 5460 within the range of our specifications. Density gage now located on the still receiver circulating line will be relocated to the Montar circulating line. Distillation end point will be determined by specific gravity change of the Montar.

Solid Aroclor 5460 Solubility Problems	Quality	TSD Objective B-8(e)

Statistical tests to correlate Aroclor 5460 solubility problems with various operating parameters yielded the following results: (1) There is a definite correlation (99.5% confidence) between 5460 softening point and solubility. Solubility problems occur more frequently with soft points above 102.0°C. (2) No correlations are apparent between 5460 solubility and: 5060 soft point, percent quaterphenyls in SW/R, yield, ratio of para isomer to quaterphenyls content in SW/R, or the amount of trappings charged to weigh tank. Since this data is at best sketchy, reasonable doubt exists as to conclusions drawn. In order to collect more complete data for further analysis, the following was recommended to production: a) Continue taking a sample from each SW/R weigh tank charge for analysis to assure correct relations between lab analyses and operating data. b) Take a 5460 sample from the receiver just prior to pumpout and analyze for soft point in plant and solubility.

Further studies will be carried out by PR&D in December 1969.

Sandvik Belt Cooler for Montar 5 Solidification	Evaluation for Solid Aroclor Expansion	TSD Objective B-8(j)

Based on test data Sandvik has quoted: For a 8000#/hr. unit (72 ft. long) $31,795; for a 14000 #/hr. unit (122 ft. long) $42,950. Total installed project cost is estimated at $120M ±. A progress report will be issued in December 1969 covering details of this work.

Porocel Columns CED 2132	Technical Assistance	TSD Job No. 930

Initial tests of the new columns were hampered by instrumentation problems. These problems appear to be solved.

High power factor readings by the in-line instrument were found to be due to contamination by particulate matter and corrosion. The cell has been cleaned and will be placed back in service soon.

STLCOPCB4089634

BIPHENYL-SANTOWAX W. G. Niemeyer, D. A. Self, (V. R. Haupt)

Debottleneck Biphenyl-Santowax Distillation Area to 87.6M lbs./yr. Biphenyl	Capacity Increase	TSD Objective B-7(a)

A capacity/performance test run was conducted on the Santowax distillation column for November 11 through November 14, 1969. The detailed results will be reported in a TSD progress report to be issued during the week of December 8. Two different types of Santowax R were attempted: HB-40 grade with quaterphenyl content up to 15% and color to 2-1/2; and Solid Aroclor grade with quaterphenyls to 5% and color up to 3.

A Santowax R production rate of 26 $\overline{M}$ lbs./yr. with 93.5% on stream time was demonstrated on HB-40 grade Santowax with somewhat higher rates possible. Solid Aroclor grade capacity will be lower. Additional testing will be scheduled in January 1970.

Designed Experiment Run on No. 1 Biphenyl Furnace	Process Study	TSD Objective B-7(e)

A computer regression analysis and graphical print-out of #1 Biphenyl furnace designed experiment has been received from MISD. This information will be converted into a more direct reading form for in-plant use to improve process control.

Eliminate Safety Hazards at No. 1 Benzene Feed Tank	Safety	TSD Job No. 976

This project will eliminate existing safety hazards at the same time the No.1 benzene feed tank is replaced. Project premise issued December 2, 1969. AFE to be issued by December 5, 1969.

HB-40 J. W. Mattern, (V. R. Haupt)

HB-40 Control Variable Study	Process Study	TSD Objective B-12(d)

The investigation to correlate operating variables with high color has been indefinitely delayed. In December, Production will start a planned test of reduced fresh catalyst usage by increasing the recycle quantity. There is a potential savings of $4800.00 in 1970.

HCl L. O. Chambers, K. G. Hale, (A. G. McCarty)

Production of Staley Grade Acid - AFE-3076	New Earnings $288M Potential Savings $71,000	TSD Objective B-10(c)

Pilot carbon treatment studies have been delayed by late delivery of equipment. All equipment is now on hand, and arrangements have been made with Jacksonville University to use their analytical facilities to develop a

STLCOPCB4089635

HCl
Production of Staley Grade Acid - continued

more sensitive analysis. A revised schedule for the tests will be issued by December 14.

		TSD Objective
HCl MIP	Planning	B-1(b)

Final draft is ready for TPM review. Targeting for issue in December.

Muriatic Acid Reduced High Chlorine	Quality	TSD Job No. 950

Installation of the temporary air blowing system for reducing residual chlorine in #7 acid storage tank has begun. Completion is pending rotameter delivery.

PNP L. O. Chambers, K. G. Hale, (A. G. McCarty)

PNP Dust Flammability	Safety (S&PP Audit)	TSD Job No. 814

Additional tests will be run to learn something of process conditions. A final report will be issued following collection of data and comments.

PNP-Sulfuric Acid Unloading Pump	Safety (S&PP Audit)	TSD Job No. 979

A project premise for the replacement of present air pad unloading of sulfuric acid with a bottom pump unloading system, as recommended by S&PP, was issued November 25.

NIRAN D. W. Dudley, T. W. Lawrence, (A. G. McCarty)

Demonstrate Parathion Recovery	Savings - $17,400 10-15% Reduced COD	TSD Objective B-5(a)

Field construction continues. Test equipment (precoat filter and coalescer) placed on order for early December delivery. Tentative outlook for pilot testing is January 1970.

Acetone Recovery	Savings - $12,900 20% Reduced COD	TSD Objective B-5(i)

Equipment was installed during Ethyl changeover and is being utilized to strip acetone at higher vacuum. Improvements for charging pump-out water through the reactor bottom nozzle is reducing reactor pump-out problems. Performance evaluation will be made in December. Several small items remain to complete the project.

STLCOPCB4089636

NIRAN - continued

Parathion MIP	Planning	TSD Objective B-1(c)

An MIP review meeting was held with representatives of Agricultural Division Manufacturing and Research, and CED.

Chlorinator Off-Gas System Modification	Safety	TSD Job No. 980

The accident investigation of Haveg piping rupture at the No. 2 chlorinator off-gas catchpot pointed to water from the vacuum system back flowing into the catchpot and reacting with the organic material trapped there as probable cause. A study was started to provide modifications to prevent recurrence.

Improve Chlorinator Cooling System	Profit on New Sales and Productivity Savings $48,000/mo. per 1/2 Hour Reduction in Chlorination Time	TSD Objective B-5(g)

Tentative Process Amendment is circulating for approval.

PROCESS AND QUALITY ANALYSIS J. L. Murphree, (W. B. Dunlap)

Process Surveillance

A process capability report is being prepared which relates process levels to specifications. This will identify unrealistic specifications - an important feature in the plant process and quality control program.

Raw Material Control

A system of quality control for raw materials in tank cars was developed and adopted by the Quality Control Board. A similar system for raw material in bags and drums is being prepared.

PNP - Identification of Critical Variables	Potential Savings $60,000	TSD Objective C-3 TSD Job No. 839

Equipment failures plus the scheduled shut-down prevented experimental verification of reactor control settings for improved yield in November. This will be done in December. Circumstantial evidence indicates that reactor air flow before shut-down was greater th an indicated. Instrument calibration during shut-down has restored former control-valve settings. The air flow control valve is oversized for sensitive low-flow control, and a modification is being designed.

Niran Still Control	Potential Savings $7900	TSD Job No. 964

Equipment has been received. Design is targeted for 12/15. The installation target date of 3/1/70 is still realistic.

STLCOPCB4089637

D

ENGINEERING DESIGN AND SERVICES

Mechanical/Electrical/Instrument Design & Drafting — J. C. Price, J. A. Veazey, G. W. Richey, B. D. Morgan, R. V. Carlisle, R. L. Brewer, J. K. Rennie, (W. F. Taffee)

The new Plant Fire Alarm system which connects all phones in the plant to the new fire signals, became operational on 11-17-69. The system has performed well in all tests conducted to date. All areas of the plant are now using the new system.

The H_2S Monitor, intended for use in the Niran department as a safety device, was installed and placed in operation on 11/12/69. To date, the unit has performed flawlessly; however, further testing is in progress to determine if the unit will operate successfully for extended periods of time with little or no maintenance.

Initial installation and startup of the new Niran Emergency Generator (AFE 3305 - $41.9M) was completed on 11-7-69. The unit has been tested each day and has operated successfully at all times. The older, 175 KW generator, was removed and is in the process of being rebuilt.

J. C. Price is conducting a class entitled "Reinforced Concrete Design." In attendance are two draftsmen and two maintenance engineers. To date, five class sessions have been held - completion is scheduled for December.

All data and information necessary to complete the short circuit coordination study for the Niran area was forwarded to CED for computation using the computer. The results will be returned and used to compile a program for testing and setting, circuit breakers, switchgear and motor control centers in the Niran department.

All equipment necessary to conduct a test to determine the feasibility of Automatic Still Control in Niran (AFE 3347 - $2.2M) has been received. Design work required for installation is underway and will be completed in December. A statistical study in 1968 indicated an estimated savings of $79M/year would result from improved process control.

Two projects were prepared, revised and forwarded for approval. Tank Car Washing Facilities at Niran (AFE 3351 - $3.9M), OMP Dismantling (AFE 3359 - $27M).

Drafting

In progress:

Replace Benzene Feed Tank (AFE 3371 - $ to be determined), Install Grating Over Niran Process Trench (AFE 3367 - $3.1M), Eliminate "Head Knocker" in Aroclor department (AFE 3364 - $1.1M).

STLCOPCB4089638

Drafting - continued

Review drawings were completed for the following projects:

Renovate Niran Control Room (AFE 3369 - $19.5M), Modify Agitator Interlocks in Niran (AFE 3118 - $9.7M).

Construction drawings were completed for the following projects:

Niran Tank-Car Washing Facilities (AFE 3351 - $2.0M).

UTILITIES ENGINEERING — J. C. Price, J. O. House, (W. F. Taffee)

Started preparation of progress report on Utilities Cost Improvement Results For 1969 And Plans For 1970. Completion of this report is scheduled for December.

PLANT IMPROVEMENT — G. C. Goodwin, (W. F. Taffee)

Plant maps, prepared by Atlantic Aerial Surveys, were received and necessary corrections and additions were made before returning them for final printing. Final transmittal of all maps from Atlantic to Anniston is expected by mid-December.

Two design packages were checked and forwarded for review. Renovate Niran Control Room (AFE 3369 - $19.5M) and Install Grating Over Niran Process Trench (AFE 3367 - $3.1M).

POLLUTION CONTROL — E. G. Wright, (W. F. Taffee)

Air and H_2O Pollution Complaints	Community and Governmental Relations	TSD Objective B-2

One air pollution complaint was received during November. There were no H_2O pollution complaints received.

Eimco Filter Unit At Waste Treatment	Production Assistance	TSD Objective F-4 TSD Job No. 808

Testing with sludge input was begun. The unit is performing satisfactorily mechanically. Filter cloth "blinding" by fines has prevented continued operation to date.

Three cloth densities tested so far; two more on hand. Laboratory work by Betz representative indicates one of their polyelectrolytes will agglomerate the sludge and alleviate the blinding. Field test of polyelectrolyte scheduled for December.

DSW 551222

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POLLUTION CONTROL - continued

Waste Treatment

All wastes were effectively treated during November. Average daily values for Monsanto's effluent are as follows:

	Average daily	Specifications
PNP	1.0	5 PPM
COD	77	200 PPM
Parathion	.10	1.0 PPM
BOD	2.0	200 PPM

HCl Neutralization Pit — Pollution Abatement — TSD Objective F-4

Indications are that the neutralization pit may have reached the break-through point sometime in mid-November. An accurate determination of the condition of the pit cannot be made at this time due to the fact that the Niran department is presently sewering waste H_3PO_4 through this pit while their pit is being repaired. As soon as the Niran pit is returned to service, a test will be made on the HCl pit to determine its condition.

DSW 551223

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D

PLANT LABORATORIES G. W. Miller

PROCESS RESEARCH AND DEVELOPMENT J. T. Bell

For the month of November, PR&D expended 50 mandays of the 85 mandays available on projects listed in the 1969 Program. The remaining time was utilized on non-scheduled work (Aroclor 5460 Acetone Insolubles), illness, vacation, supervision, and the KTA training course.

Blend Scavenger Refinement (Aroclor)	Improved Aroclor Electrical Properties	J. L. Brown

The laboratory evaluation of Type 4A Molecular Sieve as an absorbant for electrical properties refinement of Aroclor 1242-Phenyl Glycidyl Ether mix was completed on 11-17-69. No further work in this area is planned.

HB-40 Process Studies	Determine Process Variables	W. H. Howard

A revised work plan is being prepared. Equipment malfunctions and slow delivery of necessary replacement parts have again delayed project progress.

Biphenyl Tubular Pilot Studies	Obtain Desired Biphenyl/Terphenyl Ratio	J. L. Brown

Construction on the Polyphenyl Pilot Laboratory is now 75% complete. Slow delivery on certain building materials has necessitated extending the EDC from 12/1 to 12/15.

Low Color Aroclor 5460	Develop Alternate Process	G. L. Arnett

The primary laboratory work has been completed and a possible plant demonstration awaits the results of corrosion studies being conducted in St. Louis.

Parathion Isomer Reduction	Increased Yields	G. L. Arnett

Experimentation employing polar solvents in the chlorination process has been conducted. The project will again be delayed for approximately 20 days to investigate acetone solubility problems with Aroclor 5460.

Parathion Condensation Reaction Studies	Increased Yields	I. Ransaw

Completion of the evaluation of different catalysts in the condensation reaction is scheduled for 12/11. A revised work plan has been issued.

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PLANT LABORATORIES (Cont'd)

PROCESS RESEARCH AND DEVELOPMENT (Cont'd)

Aroclor 5460
Acetone Insolubles — Quality — G. L. Arnett

An investigation to determine the process controls necessary to prevent the formation of over-chlorinated terphenyls has been initiated. An estimated 20 days is required for completion. In addition, support has been given to eliminate other plant difficulties.

ANALYTICAL AND QUALITY CONTROL S. O. Kemp

Complaint Report

Quality

Number	Material	Customer	Reason
16-A-69	Montar 5	Philip Carey Corp.	Large chunks of material causing difficulty in dissolving as contrasted to the smaller pieces.

YTD Quality Complaints/100 Shipments 0.25 Target 0.20

DSW 551225

COMMUNITY RELATIONS, PERSONNEL, RECRUITING, AND DEVELOPMENT

Personnel

1. J. W. Mattern will be a shift supervisor on the Solid Aroclor Start-up and will be temporarily transferred December 1 from TSD to Production reporting to R. A. Haydel.

Development

1. J. T. Bell, D. W. Dudley, K. G. Hale, W. H. Howard, T. W. Lawrence, C. R. McIlwain, W. G. Niemeyer, I. Ransaw - attended Kepner-Tregoe training course taught by C. H. Woods November 16-21.

2. G. L. Richey attended an Instrument Training Course presented by CED in St. Louis November 3-21.

3. R. L. Brewer attended the Annual Materials Engineering meeting held in St. Louis on November 18, 19 and 20.

4. Plant wide training in use of the Olivetti-Underwood computer was started November 3 with a class selected from TSD and Accounting. TSD graduates November 14 included T. W. Lawrence, K. G. Hale, C. R. McIlwain, J. C. Price and Brode Morgan with J. L. Murphree as instructor.

5. G. W. Miller visited Organic Research and attended Ag Division meeting in St. Louis November 17 and 18.

6. A. G. McCarty went to St. Louis November 17 and 18 to review Parathion MIP.

Visitors

1. R. S. Yates visited V. R. Haupt to discuss Solid Aroclor expansion November 5, 6, and 7.

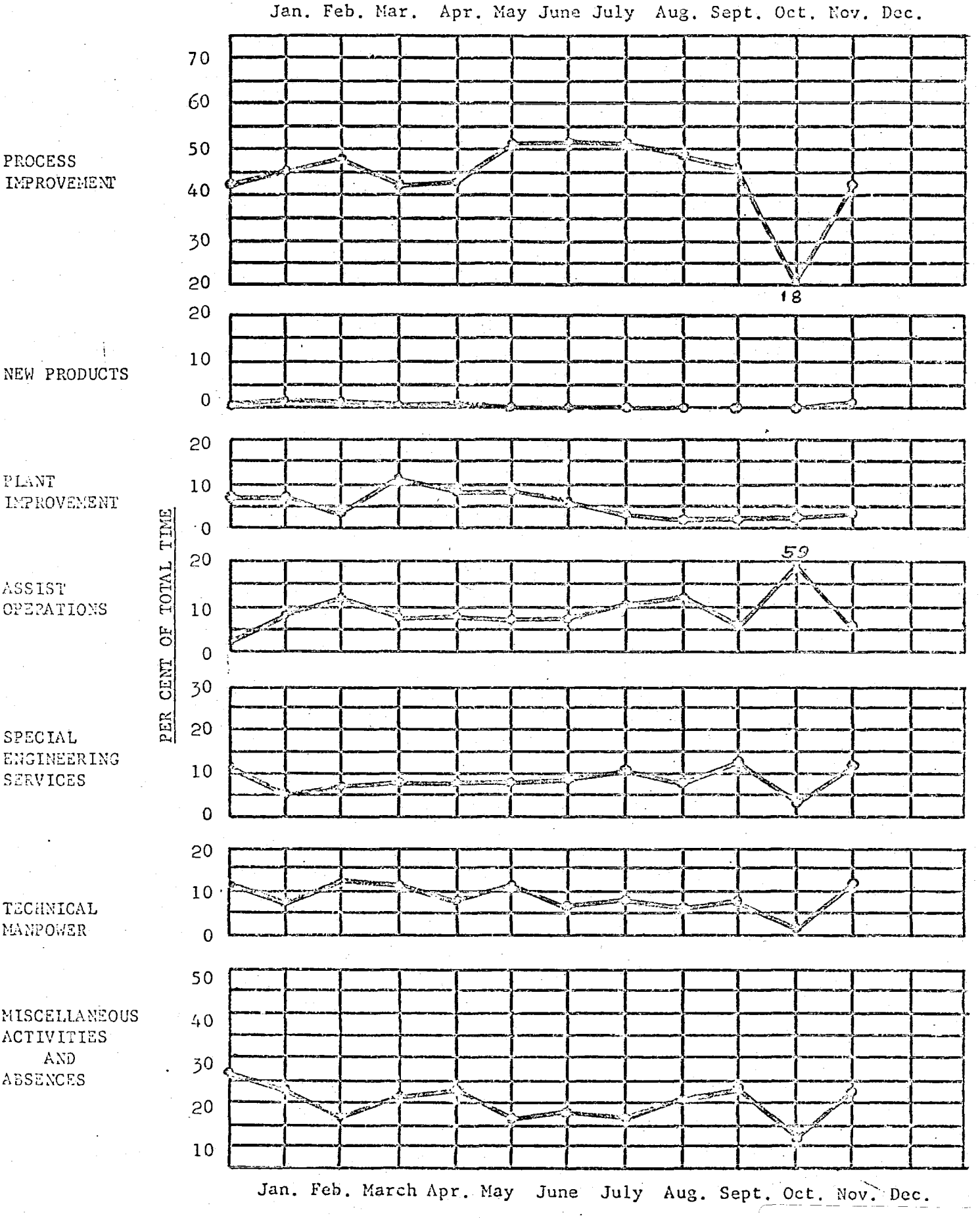
2. Angelo Testa, CED electrical engineer, visited the plant on 11-17-69 to discuss relocation of the 440v transformer formerly serving Chlorine.

3. R. G. Graham, Senior Sales Representative from New York-Monsanto Offices, and Dick Hanson, Westinghouse Project Engineer, visited November 20 and 21 to discuss liquid Aroclor handling.

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D

DISTRIBUTION OF TIME BY TECHNICAL SERVICE

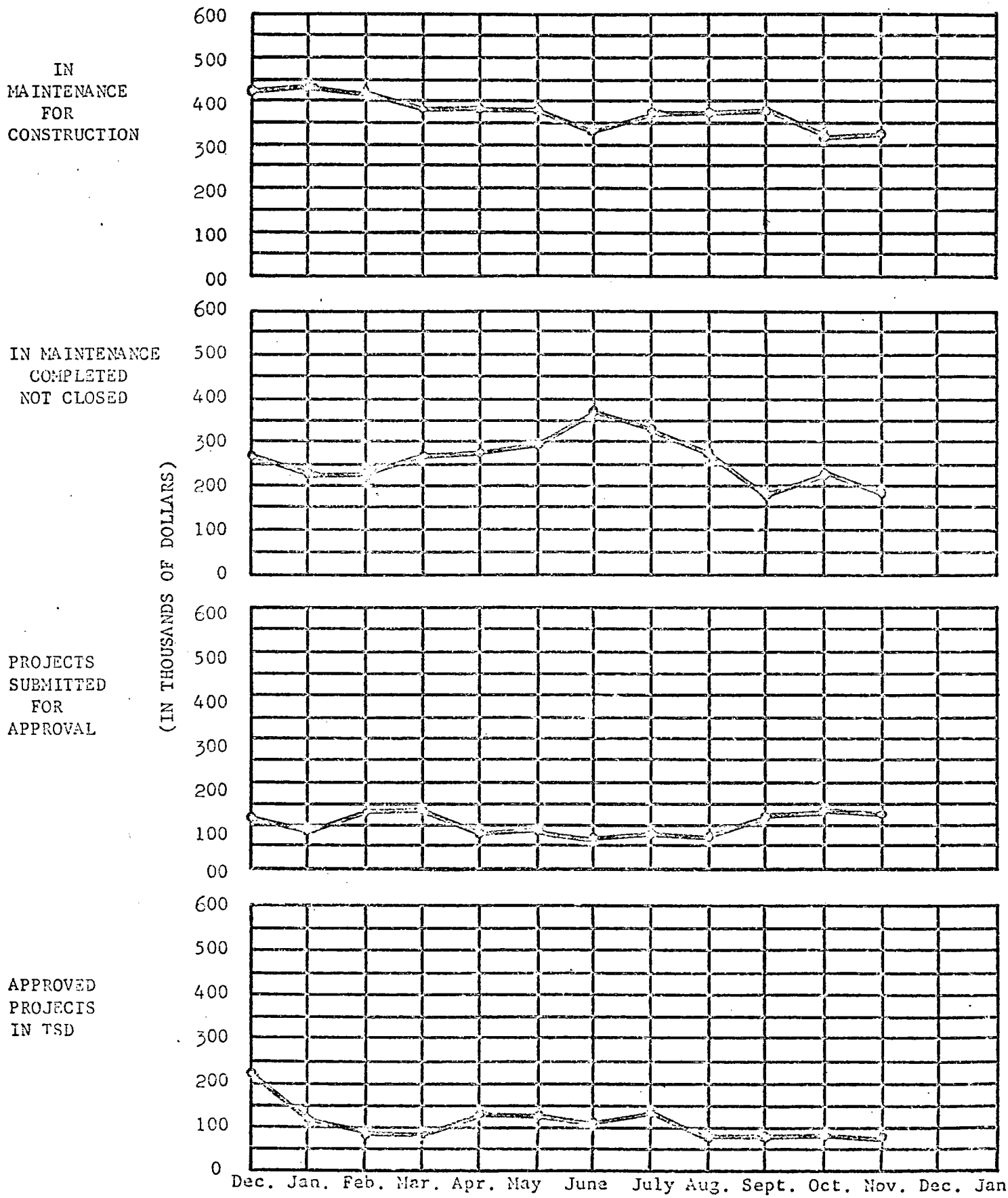


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TSD PROJECT SUMMARY

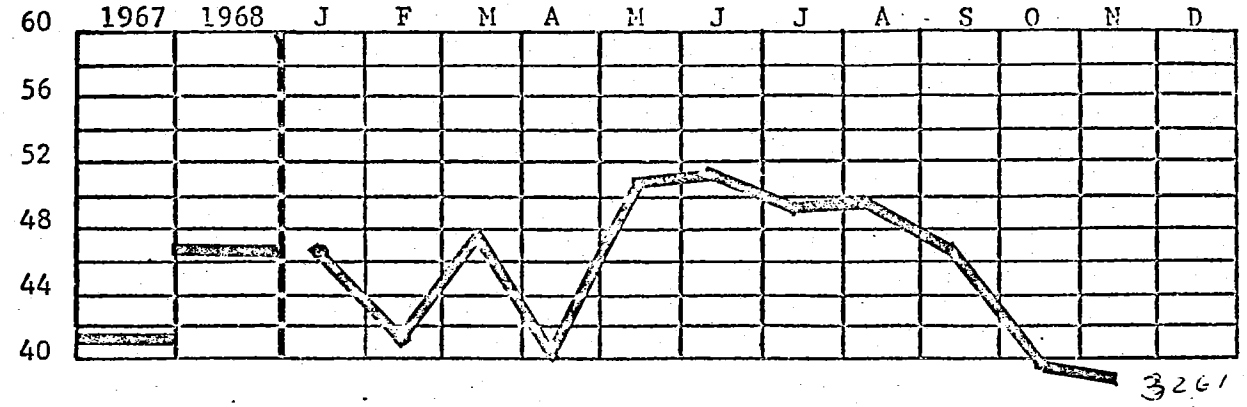


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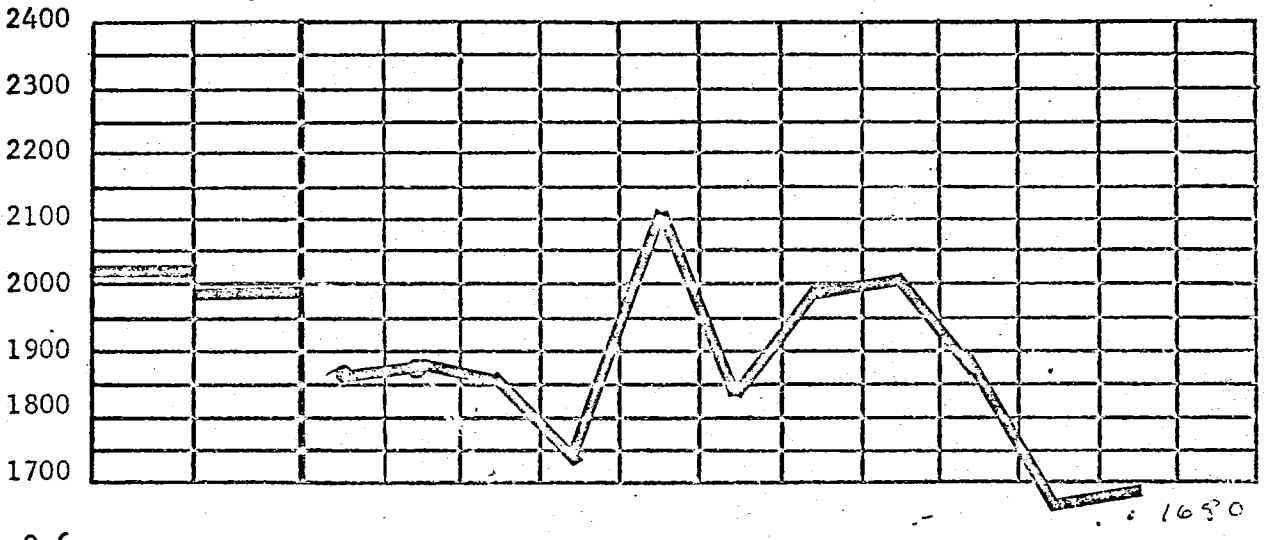
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LABORATORY ADMINISTRATION

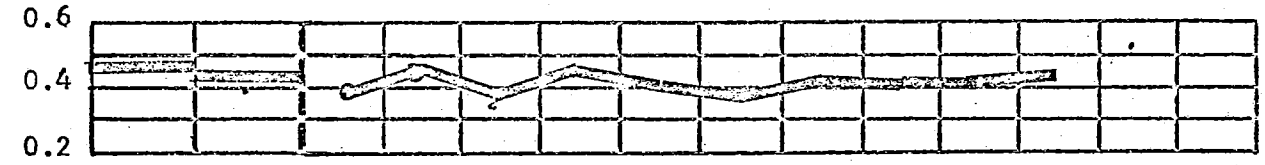
ANALYTICAL SAMPLES



ANALYTICAL MANPOWER



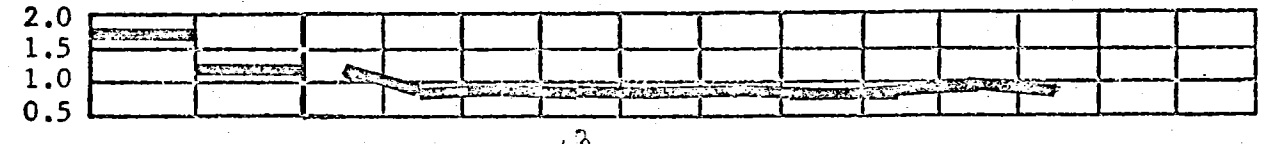
Manpower/sample



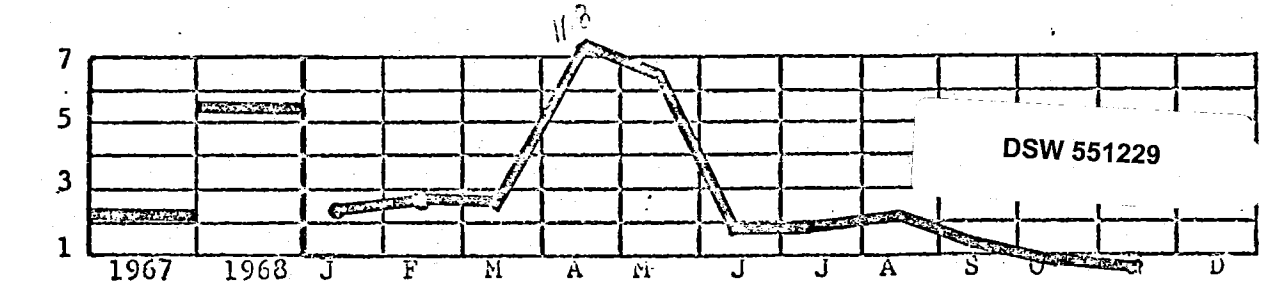
$/Manhours



% Total Plant Operating Cost



Overtime %



DSW 551229

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