

SAFETY - A. H. Sather

Occupational Injuries

<u>Injuries Treated</u>	<u>December</u>	<u>1980 Year-to-Date</u>	<u>1979 Year-to-Date</u>
First Aid	3	49	42
Medical Cases	0	14	9
Restricted Workday Cases	0	2	3
Restricted Workdays	0	23	69
Lost Time	0	0	1

Injuries by Department

Vinyl Operations	2	15	16
Compound Operations	0	20	6
Maintenance	1	25	25
Laboratory	0	4	2
Receiving and Warehouse	0	0	0
Office	0	1	4

Injuries by Type

Cuts and Abrasions	0	32	15
Eye Injuries	1	5	6
Burns	0	8	13
Bruises	1	14	13
Strains and Sprains	1	5	8
Other	0	4	3

As of December 31, 1980, the plant had operated 542 days or 697,904 manhours since the last disabling injury. Also, at the close of 1980, the plant had operated 133 days without a medical case injury.

Safety Meetings

The topic for December Safety Meetings was "Consequences of Serious Injuries". A slide and tape presentation "The Convincer" was reviewed. Three important points were reviewed in the follow-up discussion, which were:

1. Always use your protective equipment;
2. Never work on energized (powered) equipment; and,
3. Always plan your jobs.

New Employee Orientation

Three (3) new casual employees received new employee safety training.

Safety - (continued)

Third Radio Channel

Gerry Sjoberg, Telecommunications - Ponca City, was requested to make application to the Federal Communications Commission for a third in-plant radio frequency assignment. The additional channel will be used by Dryer Operators, Yard Operators, and Laboratory Personnel to minimize disruptive communication on reactor channels and to improve overall safety in the above job classifications. The additional radio channel will allow for status checks by Supervisory Personnel on personnel working in isolated plant areas on off-shifts. These checks cannot be done under current operating conditions.

OSHA Compliance

A significant amount of activity occurred in this area during the reporting period. The activities were:

1. Due to an increase in the number of compounder exposures greater than the permissible exposure limit for lead, a new respirator, the 3M "Airhat", was purchased. All compound personnel were trained on its use, care, cleaning and basic maintenance procedures. This respirator has been very well received by personnel in that department.
2. The medical testing screen by Health Examinetics was set for February 3 through 10, 1981. The Screen will be preceded by an introduction to the new Chemicals Contractor by T. G. Grumbles, Industrial Hygienist, Chemicals Houston, and W. W. Massad, Assistant Medical Director, Ponca City on January 21 and 22, 1981.
3. Routine dosimetry for VCM and lead. In addition, the results for Antimony and total dust will also be included in Aberdeen Safety Monthly Progress Reports. The results are shown below.

VCM

A total of 77 samples were analyzed for the reporting period, three (3) of which indicated overexposure. The results and overexposures are shown below:

<u>Range, (ppm)</u>	<u>Number</u>	<u>Percent</u>
0.0-0.5	67	87.0
0.5-1.0	7	9.1
1.0-5.0	2	1.3
5.0#	1	2.6
	<u>77</u>	<u>100.0</u>

Overexposures

Of the three overexposures, one occurred to a Maintenance Mechanic who was rebuilding a plug valve in the shop and was not wearing a respirator. The second occurred to a Vinyl Utility who was working in the new reactor area and was not wearing a respirator. The last overexposure occurred to a yard operator who was connecting/disconnecting VCM railcars for off-loading and was not wearing a respirator.

SAFETY - (continued)

Lead

A total of twelve (12) samples were analyzed, none of which indicated exposures in excess of the permissible exposure limit.

Antimony

A total of twelve (12) samples were analyzed, none of which indicated exposures in excess of the 500 microgram per cubic meter OSHA standard.

Total Dust

A total of five (5) samples were analyzed, none of which indicated exposures in excess of the 5 milligram per cubic meter OSHA respirable dust standard.

VINYL - P. E. Markey

<u>Production</u>	<u>Month</u>	<u>Y.T.D.</u>
1. Total Production, MM Lbs.	29.4	274.5
2. Production Rate, M Lbs./C.D.	948	750
3. Charges, Reactor Batches/C.D.	22.3	17.9
4. Total Charges	692	6540
5. Reactor Stream Factor	87.7	76.3
6. Dryer Rates, Average Lbs./Hr. (on-stream)	6233	5826
7. Dryer Stream Factor	90.6	76.6
8. Accounting Days	31	366

Vinyl Department production for December was 104% of budget at 29.4 MM lbs.

Reactor and dryer stream factors were 87.7% and 90.6% respectively. The major items affecting stream factor and production were:

1. Downtime in the reactor areas for tie-in items related to the Plant Expansion and Fire Water Improvement projects resulted in a 4.2% stream factor penalty.
2. Six month reactor rupture disc change-outs on D-300, D-400, and 744 reactors resulted in a reactor stream factor penalty of 0.4%.
3. Maintenance on the 744 condenser gasket resulted in a 0.4% reactor stream factor penalty.
4. Replacement of the Rotex sifters with the new Sweco sifters on #4, #5 and #6 dryers resulted in a 2.3% dryer stream factor penalty.
5. The unit was dryer limited for the month and the reactor shutdown work resulted in a 2.0% dryer stream factor penalty due to no material to dry.

Resin Quality Summary

<u>Resin Type</u>	<u>Prime Pounds</u>	<u>"BC" Grade</u>	<u>"H" Grade</u>	<u>% Of Total Production</u>
5305	1,705,743	-	(1,500)	5.8
5385	24,798,283	466,000	65,250	86.0
5425	1,738,922	-	-	5.9
5465	341,762	-	-	1.2
Sifter Overflow	-	-	324,845	1.1
TOTAL	28,584,710	466,000	383,595	100.0

Quality performance for December was 97.1% customer grade with 1.6% "BC" grade and 1.3% "H" grade.

VINYL - (continued)

Cost

The variable cost variance for December was favorable by \$601.8 M with \$642.6 M due to price and (\$40.8) due to efficiency. The major price variance was \$556.4 for VCM. Unfavorable variances of \$57.6 M for VCM and \$27.9 M due to off-grade production were partially offset by a favorable combined additive variance of \$27.9 M and \$17.9 M due to product mix.

Variable cost variances for 1980 were favorable \$799.5 M with \$360.2 M due to price and \$439.3 M due to efficiency.

The monomer raw material requirement for December was 1.02949 pounds VCM/ pound resin versus the 1.0196 standard. (Y.T.D. is 1.0194)

General

1. Several bulk quantities of 5305 were produced using a Chain Transfer Agent for American Hoechst trials. The testing was successful and from December 16 on, all 5305 production was made using the Chain Transfer Agent. The Chain Transfer Agent facilitates 5305 production at substantially lower operating pressures and reduces the chances of a VCM release.
2. Resin packaging for December totaled 6,500,050 pounds. No resin de-bagging or deboxing activities were conducted during the month.
3. A new daily charge record of 28 charges was established 12/7/81, breaking the previous record of 27 charges set in January, 1980.

COMPOUND - J. R. McCrimon

<u>Compound Production</u>	<u>Month</u>	<u>Per Day</u>	<u>Y.T.D.</u>
Line I, M Pounds	858	52	13,161
Line V, M Pounds	674	40	2,304
Line III, M Pounds	3,103	110	32,014
Total, M Pounds	4,635	150	47,479
Accounting Days	31		366

Line I operated 16.5 days during December at an average rate of 52 M pounds per day. Major items affecting production efficiency were: product changes (33.3 hours), skip hoist repairs (29.1 hours), Banbury gate repairs (12.0 hours), scales (9.9 hours), dicers (6.6 hours), and No. 2 blender gearbox (5.0 hours).

Line V operated 17 days during December at an average rate of 40 M pounds per day. Major items affecting production efficiency were: quality control (equipment cleaning - 40.9 hours), product changes (36.5 hours), putting up raw materials (23.7 hours), and resin blower (5.4 hours).

Line III operated 28.3 days during December at an average rate of 110 M pounds per day. Line III production was affected by: product changes (37.0 hours), quality control (mixed resin - 10.5 hours), and FCM conveyor (4.8 hours). Line III was down 66.0 hours for replacement of the FCM hopper liner; Lines I and V operated during this period.

Quality performance for flexible compounds was 4.2% off-grade of which 77.2% was due to mill scrap. "BC" production was 5.6%.

The raw material requirement for flexible compounds was 0.97652 pounds of raw material per pound of compound versus a 1.01300 standard. (Y.T.D. is 1.01307)

The variable cost variance for compound was \$18.0 M with \$33.8 M due to price and (\$15.8 M) due to efficiency. The variance due to product mix was (\$37.7 M). Major efficiency variances were: \$22.1 M for resin, \$12.1 M for 610P and \$12.2 M for colors. There were no major price variances for the month.

<u>Dry Blend</u>	<u>Month</u>	<u>Per Day</u>	<u>Y.T.D.</u>
Production, M Pounds	3,500	175	25,918
Accounting Days	31		366

Dry Blend operated 20 days during December at an average rate of 175 M pounds per day. Production included 80273G, 80274, 90171 and 80174. Dry Blend was affected by: out of resin (12.7 hours), quality control adjustments (11.6 hours), product changes (7.9 hours), putting up raw materials (6.5 hours), boxing limited (6.4 hours), resin silo star valve (7.5 hours) and Lab Brabender (6.3 hours). Quality performance for the month was 99.99% customer grade.

COMPOUND - (continued)

Dry Blend - (continued)

The raw material requirement for dry blend was 1.00121 pounds of raw material per pound of dry blend versus a standard of 1.00321. (Y.T.D. is 1.00378)

The variable cost variance for dry blend was \$84.2 M with (\$1.9 M) due to price and \$86.0 M due to efficiency. The variance due to product mix was \$96.5 M. There were no major price or efficiency variances for the month.

<u>Plasticizer</u>	<u>Month</u>	<u>Per Day</u>	<u>Y.T.D.</u>
Production	972	71	10,046
Accounting Days	31		366

Plasticizer operated 15 days during December at an average rate of 71 M pounds per day. Production included: DOP, 610P and DIDP.

VRP production totaled 101 M pounds (9.4%). Production was limited by: Schenk filter seals, rupture disc on R-3, and internal coil leak on R-2.

The raw material requirement for plasticizer was 1.08608 pounds of raw materials per pound of plasticizer versus a 1.08930 standard. (Y.T.D. is 1.10878 versus a 1.10237 standard)

The variable cost for plasticizer was (\$35.6 M) with (\$29.0 M) due to price and (\$6.6 M) due to efficiency. Major price variances were: (\$15.9 M) for Alfol 610 and (\$14.6 M) for 2-Ethylhexanol. There were no major efficiency variances.

The variance due to product mix was \$0.8 M.

General

Total customer grade compound inventory increased from 4.8 to 5.8 MM pounds during December.

MAINTENANCE - S. J. Vincent

Vinyl

There was one large reactor seal failure in this period. The seal failed on the D-600 reactor in the old module. There were no reactor gearbox failures and no reactor condensers cleaned this month. Safety valves were tested and all safety disc's were replaced on D-300, D-400 742 and 744 reactors. Flow meters were also cleaned on the old module reactors.

In the old module, there were four mechanical seals replaced and one pump overhauled. The seals replaced were the outboard seal on the 705 emission recovery compressor, the outboard seal on "B" vacuum pump, the inboard seal on "A" recovery compressor, and the seal on the chemical wash pump. The "B" water charge pump was overhauled. In the new module there was one mechanical seal replaced. The seal replaced was the outboard seal on the 903 recovery compressor. The seal flush system for the new module reactors was checked through its control sequence and placed in full operation.

There were two valves replaced this period. The valves replaced were the suction block valve on "A" compressor and the PVA charge valve on the 742 reactor.

Major projects completed in this period were to revise the suction and discharge piping on the new module charge water pumps, hydro-blasting and chemical cleaning of the new module charge water pre-heat exchanger and steam leaks were repaired when the module was down for the expansion tie-ins. A new temperature indicator was installed to eliminate the resistance from the reactors to the control room. A test flow indicator was also installed in the unloading line at the VCM tank farm.

Repairs to vinyl drying equipment were to change out and rebuild the #6 and #8 Birds. Rebuilt the exhauster stack damper on #4 dryer and replaced the Bird effluent hoppers on #4 and #6 Birds. The major project completed in the vinyl dryer area was to replace the rotex screeners with Sweco screeners on the #4, #5 and #6 dryers, along with, relocation of the activators and piping.

Three new pole mounted transformers were installed at the refrigeration building. The three that were in service had been recently checked and determined to be in poor condition.

Compound, Dry Blend, Plasticizer and Silo Storage

Major repairs to the compounding equipment were on line III. The FCM hopper section was pulled and new liners installed, the mill "O" rings were replaced, steam and water leaks repaired and gearboxes were opened, flushed and inspected. The spindle assembly was replaced on #5 dicer and the belt vacuum pump was repacked. The FCM motor was pulled and sent out for a PM check.

MAINTENANCE - (continued)

Compound, Dry Blend, Plasticizer and Silo Storage - (continued)

Repairs to compound line I were to replace and rebuild one blender gearbox. There were no major repairs to the #5 compound line in this period.

Repairs in the plasticizer area included, the repairing of a coil leak in R-2 reactor, replacing the seals in the Schenk filter, and replacing reactor safety disc's.

The dry blend unit had two gearbox problems, with gears being replaced in the "A" and "B" blender gearboxes and minor repairs to the transfer lines.

The plant crane was inspected and the engine adjusted. Repairs were made to the swing brake and to the outriggers.

The Plant Special Projects Crew completed repairs to general insulation in the vinyl production area.

Utilities and Service

Repairs to the plant air system were to repair valves in #2, #3, #5 and #7 air compressors and to overhaul the high pressure end of the #8 compressor. The air dryer heater element was changed in the #1 dryer west tower. The motor on #3 air compressor was repaired. When #9 air compressor motor failed, the #8 motor was taken and installed to keep it running. The plant vaporizers were test run three times in this period with no problems. Major equipment repairs were to overhaul the API sump pump and to overhaul the east compound cooling tower pump.

Projects completed were to install a skimmer unit in the API trap and to mount flue gas analyzers on all boilers.

Planner

The planner estimated 90 work orders and ordered material for 19 work order projects. There were 15 new invoice registers issued and 14 bills processed for payment. The equipment records were updated and work was started on revising the safety valve data records.

MECHANICAL ENGINEERING - J. A. Dixon

AFE's Submitted, Approved and Closed

The following AFE's were submitted and approved during December:

<u>AFE No.</u>	<u>Title</u>	<u>Authorized</u>
9780	Centrate Heat Recovery	\$300,000
9790	Resin Reclaim System	727,000
9800	Plasticizer Irritant Control (Air)	80,000
9810	Replacement Gearbox for Farrell Mixer	73,000

The following AFE's were closed to field charges during December:

<u>AFE No.</u>	<u>Title</u>	<u>Authorized</u>
9237	Heated Plasticizer Addition System	\$ 37,000
9519	Critical Spare Equipment	175,000
9649	Double Block Valves for VCM Charge	182,000
9510	Misc. Projects Under \$10,000	150,000
9650	Misc. Projects Under \$10,000	150,000
9580	Boiler Economizers	140,000
9670	Laboratory Equipment	32,000

There were no completion reports issued during December.

Design

Design work is in progress on the following projects:

- Fixed Point Monitor Data Computer & Warning Lights
- Compressor & Vacuum Pump Seal Flush Revisions
- Breathing Air Modifications
- Kemp Air Dryer Modifications
- Spare Inert Incinerator
- Batch Water Stripping
- Resin Reclaim System
- Calcium Stearate Addition System
- Reactor Pressure Relief Modifications

AFE Activity

1. AFE 9689 - Diking of Sphere & Curbing of Drum Storage Areas - J. L. White

This project is operational. A few minor items remain to be completed.

MECHANICAL ENGINEERING - (continued)

AFE Activity - (continued)

2. AFE 9709 - Facilities for Multigrade Resin Production - S. Krause

The preparation of the painting and insulation basis of bids is in progress. The remaining bulk pipe and fittings have been placed on order.

3. AFE 9729 - Fire Protection Improvements - Phase II - M. Ingle

Part I piping installation is nearly complete. The part II piping installation work has been let. Bids have been requested for installation of the pump building.

4. AFE 9739 - Methocel Charge Revisions - J. L. White

This project is operational. Insulation of piping is scheduled for January.

5. AFE 9530 - Spare Incinerator - D. Haub

Overall project design is 65% complete. Preparation of bid packages for piping and structural steel are in progress.

6. AFE 9590 - Critical Spare Equipment - J. P. McKee

Quotes and secrecy agreements have been received for construction of the spare reactor condenser. The quotes are being evaluated.

7. AFE 9610 - API Clean Water Bypass - M. S. Richards

The skimmer installation was completed and is operational. Sewer construction is scheduled to be completed in January.

8. AFE 9630 - Water Stripping - M. Ingle

Overall project design is 95% complete. The piping and equipment erection bid package have been issued. Insulation and painting bid packages are being prepared.

9. AFE 9660 - Hot Water Charge Tank Replacement - J. P. McKee

This project is operational. Insulation and painting remain to be completed.

10. AFE 9680 - Fixed Point Monitor Data Computer & Warning Lights - R. B. Harned

Overall project design is 70% complete. We are awaiting a copy of the purchase contract from CSD in Ponca City. Parts for modification of the gas chromatograph have been received.

MECHANICAL ENGINEERING - (continued)

AFE Activity - (continued)

11. AFE 80-395 - Interplant Communications - Phase III - R. B. Harned

The Gaitronics equipment for the original contract has been received. Construction is in progress and is 50% complete.

12. AFE 9690 - Breathing Air Modifications - J. L. White

Quotes have been received on the receiver and are being evaluated. Plan drawings have been distributed for review and comments.

Construction - G. A. Morgan

Three contracts were let during December for the following:

1. Part II of Piping and Equipment Installation for Fire Protection Improvements Phase II
2. Installation of Electrical Facilities for Fire Protection Improvements Phase II
3. Equipment Installation for Heated Plasticizer Addition System.

The following projects became operational in December:

1. Hot Water Charge Tank Replacement
2. Methocel Charge Revisions

Twenty-nine register tickets were issued during December.

(1) Thru November, 1980 Actual Accounting
(2) Thru December, 1980

ABERDEEN AUTHORIZATIONS REPORT

AUTH. NO.	CAPITAL DESCRIPTION	DATE APPROVED	AUTH. AFE AMT.	(1) EXPENDED TO DATE	(2) COMMITTED TO DATE	FINAL TOTAL EST. COST COMP.	UNDER (OVER) AUTH. AMT.	EST. COMP. DATE	EST. CLOS. DATE	REMARKS
9237	Heated Plasticizer Addition System	10/11/77	37,000	14,722	34,891	37,000	0	12/80	3/81	Closed to field charges.
9148	Plasticizer Chemical Exposure Abatement	8/21/78	152,000	143,863	145,203	145,203	6,797	9/80	12/80	Closed to field charges.
9519	Critical Spare Equipment	2/6/79	175,000	162,725	164,446	166,000	9,000	12/80	3/81	Closed to field charges.
9559	Color Weigh Room Modifications	4/19/79	25,000	18,552	19,647	25,000	0	1/81	4/81	Revisions in progress.
9589	Instrument Air Dryer	5/30/79	110,000	90,468	96,238	110,000	0	2/81	5/81	Revisions in progress.
9609	Reactor Inert Vent System	6/28/78	90,000	14,394	17,895	90,000	0	12/81	3/82	Project on hold
9629	Air Compressor	7/9/79	340,000	267,637	278,143	340,000	0	3/81	6/81	Revisions in progress.
9639	Revisions to Emission Recovery System	7/12/79	100,000	65,190	78,731	100,000	0	3/81	6/81	Revisions in progress.
9649	Double block Valves for VCM Charge	7/18/79	182,000	147,532	169,835	170,000	12,000	12/80	3/81	Closed to field charges.
9669	New Air Header	8/15/79	25,000	17,963	19,286	25,000	0	2/81	5/81	Revisions in progress.
9689	Diking of Sphere & Curbing of Drum Storage Areas	9/15/79	170,000	124,427	132,723	170,000	0	3/81	6/81	Construction in progress.
9699	Plant Dryer Debottlenecking	9/15/79	80,000	14,135	24,655	80,000	0	8/81	11/81	Construction in progress.
9709	Facilities for Multiple Grade Resin Production	9/20/79	870,000	56,030	352,285	870,000	0	8/81	11/81	Construction in progress.
9719	Aberdeen PVC Resin Expansion	9/10/79	850,000	11,421	829,021	850,000	0	8/81	4/81	Reactor vendor is off strike.
9729	Fire Protection Improvements - Phase II	10/1/79	490,000	53,592	224,371	490,000	0	6/81	9/81	Construction in progress.
9739	Methocel Charge Revision	10/3/79	66,000	20,270	37,079	66,000	0	2/81	5/81	Construction in progress.
9759	Aberdeen PVC Resin Expansion	12/10/79	11,150,000	2,009,000	5,623,700	11,150,000	0	9/81	12/80	Foundation work in progress.
9510	Miscellaneous Projects Under \$10,000	1/3/80	150,000	106,283	158,906	150,000	0	12/80	3/81	Closed to field charges.
9530	Spare Incinerator	1/23/80	650,000	7,465	238,632	650,000	0	6/81	9/81	Engineering in progress CED.
9550	P. A. Handling Improvement	3/3/80	63,000	25,352	33,914	63,000	0	12/81	3/82	Project on hold.
9560	Safety Equipment	3/12/80	25,000	1,854	9,985	25,000	0	3/81	6/81	Walkway quotes requested.
9570	Replace T-100 P.A. Tank	3/27/80	119,000	58,068	62,356	119,000	0	12/81	3/82	Project on hold.
9580	Boiler Economizers	3/26/80	140,000	115,091	143,916	144,000	(4,000)	12/80	3/81	Closed to field charges.
9590	Critical Spare Equipment	3/26/80	59,000	10,390	11,486	59,000	0	3/81	6/81	Condenser quotes requested.
9600	Calcium Stearate Addition System	4/2/80	84,000	0	8,037	84,000	0	5/81	8/81	Engineering in progress.
9610	API Clean Water Bypass	4/15/80	23,000	5,380	17,100	23,000	0	3/81	6/81	Sewer construction in progress.
9630	Water Stripping	4/30/80	810,000	32,099	246,693	810,000	0	6/81	9/81	Sewer construction in progress.
9650	Miscellaneous Projects Under \$10,000	5/30/80	150,000	78,042	154,409	150,000	0	12/80	3/81	Closed to field charges.
9660	Hot Water Charge Tank Replacement	6/4/80	160,000	14,917	121,758	160,000	0	2/81	5/81	Project operational.
9670	Laboratory Equipment	7/9/80	32,000	30,538	32,447	32,000	0	12/80	3/81	Closed to field charges.
9680	Fixed Point Monitor Data Computer and Warning Lights	9/4/80	113,000	708	13,205	113,000	0	9/81	12/81	Engineering in progress.
9690	Breathing Air Modifications	9/9/80	21,000	0	1,434	21,000	0	3/81	6/81	Engineering in progress.
9700	Compound Fines & Streamers Removal	10/1/80	95,000	0	0	95,000	0	10/81	1/82	Engineering scheduled.
9710	Fire Protection - Phase III	10/14/80	335,000	0	0	335,000	0	10/81	1/82	Engineering scheduled CED.
9720	Reactor Agitator Replacement	10/14/80	420,000	0	190,000	420,000	0	10/81	1/82	Agitators on order.
9730	Compound Line III Debottlenecking	10/16/80	1,350,000	0	22,732	1,350,000	0	10/81	1/82	Engineering scheduled.
9740	Modifications to Make Profile Dry Blend	10/27/80	200,000	0	0	200,000	0	10/81	1/82	Engineering scheduled.

ABERDEEN AUTHORIZATIONS REPORT

<u>AUTH.</u> <u>NO.</u>	<u>CAPITAL</u> <u>DESCRIPTION</u>	<u>DATE</u> <u>APPROVED</u>	<u>AUTH.</u> <u>AFE AMT.</u>	(1) <u>EXPENDED</u> <u>TO DATE</u>	(2) <u>COMMITTED</u> <u>TO DATE</u>	<u>FINAL</u> <u>TOTAL EST.</u> <u>COST COMP.</u>	<u>UNDER</u> <u>(OVER)</u> <u>AUTH. AMT.</u>	<u>EST.</u> <u>COMP.</u> <u>DATE</u>	<u>EST.</u> <u>CLOS.</u> <u>DATE</u>	<u>REMARKS</u>
9750	Rotary Dryer Insulation (Energy)	11/10/80	22,000	0	27,391	27,391	(5,391)	2/81	3/81	Insulation in progress.
9760	Emergency AMS Kill System	11/15/80	335,000	0	0	335,000	0	8/81	11/81	Engineering scheduled.
9770	Reactor Pressure Relief Modifications	11/25/80	560,000	0	0	560,000	0	12/81	3/82	Engineering in progress.
9780	Centrate Heat Recovery	12/8/80	300,000	0	0	300,000	0	3/82	6/82	Engineering scheduled.
9790	Resin Reclaim System	12/14/80	727,000	0	0	727,000	0	3/82	6/82	Engineering in progress CED.
9800	Plasticizer Irritant Control (Air)	12/15/80	80,000	0	0	80,000	0	9/81	12/81	Engineering scheduled.
9810	Replacement Gearbox for Farrell Mixer	12/18/80	73,000	0	0	73,000	0	9/81	12/81	Updated quote received.
80-395	Interplant Communication - Phase III	1/22/80	55,000	0	21,683	55,000	0	6/81	9/81	Construction in progress.
<u>EXPENSE</u>										
9010	Centrifuge Rotor Repair	9/19/80	20,000	16,500	0	20,000	0	2/81	5/81	Repairs in progress.
9020	Repairs to Line I Compounder	11/24/80	38,000	0	0	38,000	0	11/81	2/72	Parts to be ordered in Jan.

CONOCO CHEMICALS
Aberdeen, Mississippi

December 1980
MONTHLY PERSONNEL REPORT

Salaried Employees 79*
Hourly Employees 155
Total Employees 234*
Employees (Hourly)
New Employees 1
Terminations 1

Minority Employees # %
Salaried 6 7.6%
Hourly 58 37%
Total 64 27%

Hourly Min. Hired 1
% Min. Hired 100%
Hourly Min. Term. 1
% Min. Term. 100%

DEPARTMENTS	PAR	# EMPLOYEES	MIN. EMP.	% MIN.	NEW HIRES	YTD	TERM.	YTD	TURNOVER	YTD
Warehouse	<u>9</u>	<u>9</u>	<u>2</u>	<u>22%</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Gen. Plant	<u>10</u>	<u>10</u>	<u>3</u>	<u>30%</u>	<u>1</u>	<u>5</u>	<u>1</u>	<u>3</u>	<u>10%</u>	<u>30%</u>
Maintenance	<u>46</u>	<u>46</u>	<u>7</u>	<u>15%</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Laboratory	<u>22</u>	<u>21</u>	<u>3</u>	<u>14%</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Compound	<u>37</u>	<u>33</u>	<u>27</u>	<u>82%</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4**</u>	<u>0</u>	<u>9%</u>
Vinyl	<u>32</u>	<u>32</u>	<u>13</u>	<u>40%</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>3%</u>
Plasticizer	<u>5</u>	<u>4</u>	<u>3</u>	<u>75%</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

Number of Applicants:

Month 13 Year to Date 225

APPLICANT BREAKDOWN:

Minority 3 % Minority 23%
Female 5 % Female 38%

Hires (Hourly) :

Month 1 Year to Date 5

Terminations (Hourly) :

Month 1 Year to Date 8**

Overall Turnover .6%

Projected Annual Turnover 4.5%

*Includes three (3) temporary employees.

**Includes one (1) retirement and is not counted in turnover rates.

PERSONNEL - J. L. Carter

EMPLOYMENT

Gail Edwards, General Helper

TO/FROM LEAVE OF ABSENCE

None.

TRANSFER/PROMOTION

Gail Edwards, General Helper, to Compound Utility
Dwain Lucas, Compound Operator, to Lab Trainee

RETIREMENT

None.

TERMINATION

Arthur Cunningham, General Helper

OTHER

During December there were 18 casual labor employees on payroll.
Total hours worked were 2654.50.

OVERTIME AND ABSENTEEISM

December 1980

Department	Straight Time Hours Worked	Overtime Hours Worked		Overtime as % Of Straight Time	Absence Hours Lost	Absence as a % of Straight Time		
		Controllable (1)	Non-Controllable (2)			Sickness	Other	Total Year to Date
Warehouse	1294.75	168.50	84.00	19%	0	0	0	.6%
Maintenance	5041.00	419.00	48.00	9%	224	96%	4%	4%
Laboratory	2607.00	541.25	324.75	33%	184	100%	0	4%
Compound	4544.50	594.25	475.00	23%	184	100%	0	6%
Vinyl	4657.50	244.50	588.00	18%	288	100%	0	4%
Plasticizer	445.50	47.25	0	10%	0	0	0	9%
Utility Boiler House	515.75	87.75	72.00	31%	0	0	0	0
General Plant	783.75	6.75	0	.8%	24	100%	0	6%
Total	19889.75	2109.75	1591.75	19%	904	99.1%	.9%	4%

Note:

(1) Controllable Overtime - all overtime excluding overtime due to working regular hours on a holiday and working the sixth day in operations.

(2) Non-Controllable - that overtime due to working regular hours on a holiday and working regular hours on the sixth day in operations.

PROCESS ENGINEERING - R. A. Frohreich

A. Expansion Project

Field work is continuing in the V-11 and CRD reactor areas, slurry blend tank area, and silo area. Review of instrumentation and electrical packages is underway. Bids on the mechanical package have been received and the contract will be awarded in January.

B. Reactor Area Drum Storage

A revised process design incorporating review comments was issued.

C. Line III Mill Temperature Control

Work on the process design to provide a new mill heating system continues.

D. Reactor Emergency Cooling System

Process Engineering is assisting PED in obtaining field information on this project.

E. Reactor Agitator Replacement

The class "A" design to replace D-300 and D-400 reactor agitators was issued.

F. Donnelly Mirror Compound Testing

Process Engineering is investigating the requirements for providing compound in 2,000 pounds bulk sack containers to Donnelly Mirror.

G. Plasticizer Initiator Handling System

A class "A" design to provide a new catalyst charge system to the plasticizer reactors was issued.

H. Plasticizer Spill Containment

The class "A" design for this project is being prepared.

I. Normal Kill Solution Addition System

The class "A" design for this project is being prepared.

J. Rag Layer Reduction

An evaluation of replacing carbon black with sodium borohydride in plasticizer operation was issued. The letter also recommends a testing procedure to evaluate the effectiveness of sodium borohydride in reducing color in plasticizer.

PROCESS ENGINEERING - (continued)

K. Compound Line III Production

Process Engineering is assisting operations in improving compound production rates.

L. Dry Blend Production Rates

Process Engineering has been studying the dry blend operation and have given operations several recommendations for improving dry blend production rates.

M. Sifter Overflow Reclaim System

The class "A" design for this project was issued and a review meeting was held.

N. Improved Rupture Disc Holders

The class "A" design for this project was issued.

O. Recovered VCM Receiver High Level Alarms

The class "A" design for this project was issued.

P. VCM Tank Farm

An ultrasonic liquid detector is being tested in the VCM unloading line to determine if it can be used to indicate when the railcars are unloaded.

Q. Heat Recovery System - Part II

The AFE request to use V-10 centrate water to preheat boiler feedwater was submitted.

ENVIRONMENTAL - V. E. Messick

Particulates

One dryer was sampled for particulates in December and was within allowable limits.

Water

All effluent parameters were within NPDES limitations in December.

Results of the PCB and Pesticide fraction sample showed no PCB's or pesticides in the plant effluent.

The waste water trailer finished the biodisc study and left the plant on December 17.

The consolidated NPDES permit application was submitted to the Mississippi Bureau of Pollution Control.

Results of a second serial BOD were transmitted to the Mississippi Bureau of Pollution Control to aid them in establishing the BOD limit for the new permit.

VCM

Only a few flanges remain to be samples in the comprehensive VCM survey. Points with high VCM concentration have been reported to operations via the plant's Leak Detection and Elimination Plan for corrective action.

Hazardous Waste Management

Drums of waste phthalic anhydride, API solids, Acetone, Isoprene, and plasticizer/phthalic anhydride were moved into the drum storage area.

Contracts with Chemical Waste Management to dispose of phthalic anhydride, API solids, Acetone, and Isoprene have been signed and sent back to Chemical Waste Management.

A procedure to filter the plasticizer rag layer using the Schenk filter was written and distributed for comment. This will be attempted as soon as VRP storage space becomes available.

Groundwater monitoring proposals from several firms are being reviewed.

Other

An in-company environmental audit was conducted on December 16 and 17.

TABLE I
WATER COMPLIANCE WITH
NPDES PERMIT PARAMETERS

	Flow GPM	BOD		COD		Sus. Solids		Diss. O ₂	ph
		PPM	LB./DY.	PPM	LB./DY.	PPM	LB./DY.		
Jan. - Ave.	810	43	436	86	851	11	103		
Max.	941	131	1342	216	2214	13	143	6.8-8.5	7.7-8.0
Feb. - Ave.	645	6	42	15	116	10	79		
Max.	802	8	56	24	171	13	125	6.7-7.9	7.1-7.8
Mar. - Ave.	595	29	220	66	502	11	74	6.6-8.3	7.1-7.8
Max.	743	36	314	95	828	14	94		
Apr. - Ave.	628	21	147	54	378	12	86	6.4-8.3	7.5-8.4
Max.	877	30	232	67	519	13	129		
May - Ave.	304	16	69	53	197	10	40	6.7-7.3	7.2-7.9
Max.	480	32	184	74	426	14	81		
June - Ave.	670	6	49	40	316	12	98	6.7-7.3	7.5-7.9
Max.	804	11	84	51	367	15	145		
July - Ave.	696	14	112	39	322	11	88	6.6-7.3	7.3-8.0
Max.	813	19	145	78	597	14	110		
Aug. - Ave.	698	7	56	32	270	15	126	6.5-6.9	7.6-7.9
Max.	753	9	70	42	380	24	187		
Sept. - Ave.	679	5	42	22	168	7	44	6.2-6.7	6.5-7.9
Max.	767	7	64	27	248	14	89		
Oct. - Ave.	956	9	110	27	316	7	78	6.1-7.3	7.6-8.0
Max.	1066	17	217	45	576	11	119		
Nov. - Ave.	1032	16	196	28	347	11	131	7.2-7.5	7.4-7.8
Max.	1076	33	390	45	531	23	272		
Dec. - Ave.	1064	20	256	39	499	6	80	8.1-10.4	7.6-7.8
Max.	1214	28	374	75	1038	7	102		
NPDES - Ave.	-	32	387	-	1390	-	605	> 6.0	6.0-8.5
Max.	-	43	520	-	1940	-	909		

ENERGY CONSERVATION - J. F. Perez-Velasco

I. Plant Operations

Total energy consumption for December was 120.8 MMM BTU's. The energy consumption per pound of product decreased to 3131 BTU/lb. as compared with 3193 BTU/lb. for November.

II. Plant Energy Conservation Program

Steam Leaks

Sixteen (16) steam leaks were repaired in December.

Other

Energy conservation pamphlets were ordered for distribution to plant personnel.

ENERGY CONSERVATION DATA

<u>ITEM</u>	<u>1980</u>	<u>1979</u>
	<u>December</u>	<u>December</u>
<u>Production, MM Lbs.</u>		
Resin	29.4	26.5
Dry Blend	4.6	5.5
Compound	3.5	2.8
Plasticizer	<u>1.1</u>	<u>0.5</u>
TOTAL	38.6	35.3
<u>Natural Gas</u>		
Consumption, MSCF	65263	57020
Conversion, BTU/SCF	1020	1020
Energy Consumption, MMM BTU	66.569	58.160
<u>Electricity</u>		
Consumption, MM KWH	5.4024	4.9632
Conversion, BTU/KWH	10000	1000
Energy Consumption, MMM BTU	54.024	49.632
<u>Propane</u>		
Consumption, M Gal.	2.799	1.717
Conversion, BTU/Gal.	92000	92000
Energy Consumption, MMM BTU	0.256	0.158
<u>Total</u>		
Energy Consumption, MMM BTU	120.849	107.950
Energy Consumption , BTU/Lb.	3131	3058

Boiler Operating Data

	<u>Avg. Stack Temp.</u>		<u>Avg. % Excess Air</u>	
	<u>1979</u>	<u>1980</u>	<u>1979</u>	<u>1980</u>
No. 1	387	279	21	27
No. 2	421	284	21	26
No. 3	425	267	30	29

LABORATORY - R. D. Jackson

CUSTOMER COMPLAINTS

<u>Customer</u>	<u>Product</u>	<u>Complaint</u>	<u>Report By</u>
Novatech	80273G	Processing	JRW
Permafit	90171	Contamination, Processing	JRM
Alcan Cable	34641 B1k.	Contamination	JRM
Tenex	18031 CB 50	Air in Pellets	RDJ
Charlotte Pipe	5385	Moisture	PEM

WAIVERS RECEIVED

<u>Date</u>	<u>Identification</u>	<u>Product</u>	<u>Customer</u>	<u>Reason</u>	<u>Waived By</u>
12/14	T-2868	5305	Intex	Viscosity	RDJ
12/16	T-101	80273G	Columbia	Long Stability	JRW
12/18	T-2810	80273G	Uni-Mac	Long Stability	JRW

PRODUCT DEVELOPMENT & SERVICE

Sample Shipments

<u>Ship Date</u>	<u>Product</u>	<u>Amount (Lbs.)</u>	<u>Customer</u>	<u>Requested By</u>
12/3	5385-1	300	American Vinyl	COED
12/3	5385-1	500	Hamelin Industries	JFN
12/5	5305	50	Angus Fire Armour	PCM
	5385-3	50		
	5425	50		
12/11	5425-1	50	Fritz Airfreight (Export)	JPM
12/11	5305	5	Wilson Products Co.	RNG
12/11	5305	50	Goodyear Tire & Rubber Co.	JTW
	5385-1	50		
	5425	50		
	5465	50		
12/19	5385-1	100	Associated Lead Inc.	COED
12/22	5305	50	Sheller-Globe	MFM
12/22	45541 Brn 259	5	Conoco, Ponca City	ERC
12/23	5425	50	Witco Chemical Corp.	JLI
12/23	18551 B1k	100	Satellite Plastics	JFN

LABORATORY - (continued)

PRODUCT DEVELOPMENT & SERVICE - (continued)

Special Compound Testing

Complete specification tests were run on three samples of 34861 Gray 546 and on two samples of 36861 Natural for Western Electric.

Color Matching

A gray color was matched for Electri-Flex and sample plaques were submitted for customer approval. It was assigned the number 18961 Gray 551.

Melt Flow Tests

Melt flow tests were run on 3 samples of 48562 produced on Line V and on 16 samples of 18031 from Line III. The 18031 gave high values for melt flow; however, when 5425 resin was substituted for 5385 the values dropped well below the maximum allowable value.

Dry Blend Development

Laboratory Welex batches of 80273G were made for use as a quality control standard.

QUALITY CONTROL TESTING

Resin

Regular Samples = 349
Bag Samples = 163
Other In-Process Samples = 3299
Bulk Shipments = 152 (Railcars = 94; Trucks = 58)

Dry Blend (Rigid)

Blenders Produced = 377
Blenders Tested = 301
Blenders Adjusted = 9.2%
Other In-Process Samples = 315
Bulk Shipments = 44 (Railcars = 11; Truck - 33)

Compound (Flexible)

Blenders Produced = 574
Blenders Adjusted = 4.0%
Line 5 Production = 343 Skids; 48 Boxes; approximately 80 M bulk
Other In-Process Samples = 925
Bulk Shipments = 21 (Railcars = 13; Trucks = 8)

LABORATORY - (continued)

QUALITY CONTROL TESTING - (continued)

Resin Heat Stability

Oven heat stability tests were run on twenty-eight (28) samples of resin from production.

5385	14 samples
5425	6 samples
5305	4 samples
5465	4 samples

In addition to these, one railcar sample of high color 5305 was tested and found to have inferior heat stability. All samples of production resin were acceptable, except for one lot of 5465 produced early in the month. Late month production of 5465 was better than the control resin.

RVCM of Shipments

A total of 134 shipment samples were tested for residual VCM. A summary by product is listed below.

<u>Product</u>	<u>5305</u>	<u>5385</u>	<u>5425</u>	<u>5465</u>	<u>Dry Blend</u>
Average RVCM ppm	1.2	1.3	0.1	1.5	0.2
Number of Samples	37	85	3	1	8

Inherent Viscosity

Viscosity continues to be run on all railcar compartments of resin and on all shipments of 5305. A total of 640 samples were tested in December.

Raw Material Testing

Fifty three (53) lots of plant raw materials were tested. One shipment of SP-33 clay was rejected for giving a low value for volume resistivity; and another shipment will be rejected if it is not needed to keep the plant running. There was a meeting with representatives of the supplier regarding the recent drop in clay quality. One shipment of Hydral 710 was rejected for poor dispersion

MISCELLANEOUS PROJECTS

Resin Volume Resistivity

Volume resistivity tests were run twice this month - each time on 4 blends of 5425 resin. In both sets there were wider than normal variations in VR - all on the low side of the control. This property is being monitored frequently in attempt to find the reason for the low values.

Samples of resin giving low values are being sent to Ponca City to confirm test values.

LABORATORY - (continued)

MISCELLANEOUS PROJECTS - (continued)

Residual VCM of Slurry

A total of 673 reactor slurry samples were tested in December for residual VCM. The overall monthly average was 161 ppm with no daily averages exceeding 400 ppm.

Residual VCM of Blowdown Tank Water

A total of 146 samples of blowdown tank water were tested for RVC. The monthly average was 1.6 ppm.

Residual VCM of 5305 Dryer Samples

A total of 37 dryer samples of 5305 resin were tested for ppm RVC. The overall average was 14.5 ppm, however, only two samples exceeded 10 ppm. The average for the other 35 samples were 2.5 ppm.

Personnel Dosimetry

A total of 55 carbon dosimetry samples were tested in December.

L & N Microtrac Particle Size Tester

Quality Control Personnel were instructed on the revised operation and cleaning procedures for the particle size tester. A two week test was done to determine the effectiveness of the additional training. The resulting precision between multiple technicians was comparable with data obtained by a single operator using the L & N and screens. A single operator testing control resin previously gave a median particle size of 148.9 microns with a standard deviation 2.7. The QC technicians, over a similar time frame, testing the same sample, gave a median size of 148.8 microns with a standard deviation of 4.0. Additional improvements in precisions are expected by changing to a heated water supply during cold conditions in order to prevent fogging of the sample cell. Continued use of the instrument should also improve operator skills.

TRANSPORTATION - J. E. Stark

Shipment by Product - M/lbs.

	<u>December</u>	<u>Year-to-Date</u>
Resin	25,148	210,032
Plasticizer	82	891
Dry Blend	2,584	27,458
Compound	<u>3,324</u>	<u>45,687</u>
Total	31,138	284,068

Number of Shipment by Mode

	<u>R/C</u>	<u>O.T Bulk</u>	<u>O.T Van</u>	<u>C.O.T.</u>	<u>C.C.</u>	<u>TOFC</u>	<u>CPU</u>	<u>TOTAL</u>
Resin - Bulk	79	25			30		4	138
Package			1		1		10	12
Export			204		11			215
Platicizer							2	2
Dry Blend - Bulk	7	5			1		26	39
- Package			3					3
- Export			3					3
Compound - Bulk	8	7						15
- Package			11	4	11		15	41
- Export			4					4
Other - Antifreeze								
- Alumina								
Back Hauls for December	<u>94</u>	<u>37</u>	<u>226</u>	<u>4</u>	<u>54</u>	<u>0</u>	<u>57</u>	<u>472</u>
			16	1	4			21

Number of Shipment by Month-Year-to-Date

	<u>R/C</u>	<u>Bulk</u>	<u>Van</u>	<u>C.O.T.</u>	<u>C.C</u>	<u>TOFC</u>	<u>CPU</u>	<u>TOTAL</u>
January	104	55	72	0	4	2	36	273
February	111	83	66	0	21	4	35	320
March	130	95	64	1	37	0	48	375
April	69	43	84	0	5	0	29	230
May	42	41	75	0	3	0	30	191
June	55	36	136	0	7	0	74	308
July	57	47	52	0	2	0	64	222
August	79	51	65	0	12	0	89	296
September	102	53	62	0	7	2	53	279
October	128	76	107	1	43	0	116	471
November	87	67	117	4	59	0	84	418
December	94	37	226	4	54	0	57	472
Total per Year	<u>1058</u>	<u>684</u>	<u>1126</u>	<u>10</u>	<u>254</u>	<u>8</u>	<u>715</u>	<u>3855</u>

TRANSPORTATION - (continued)

<u>Material Handling Report</u>	<u>M/Lbs.</u>	<u>T/L</u>
Packaged Resin from Production	7,776	192
Packaged Compound, Dry Blend from Production	2,754	68
Transferred from Main to Prairie	2,146	53
Transferred from Prairie to Prairie	0	0
Reverse Transfer Resin to Plant	162	4
Reverse Transfer Compound to Plant	122	3
Shipment from Warehouses	11,218	277
Special Packaging	8,951	221
Transferred from Prairie to Main	<u>2,795</u>	<u>69</u>
	35,924	887

Off-Grade in Storage

<u>Material</u>	<u>M/Lbs.</u>	<u>T/L</u>
Sifter Overflow	1,053	26
Resin "BC"	2,544	63
Resin "H"	649	16
Mill Scraps	132	3
Compound "B"	1,332	33
Compound "H"	108	3
Dry Blend "O.G."	<u>261</u>	<u>6</u>
TOTAL	6,079	150

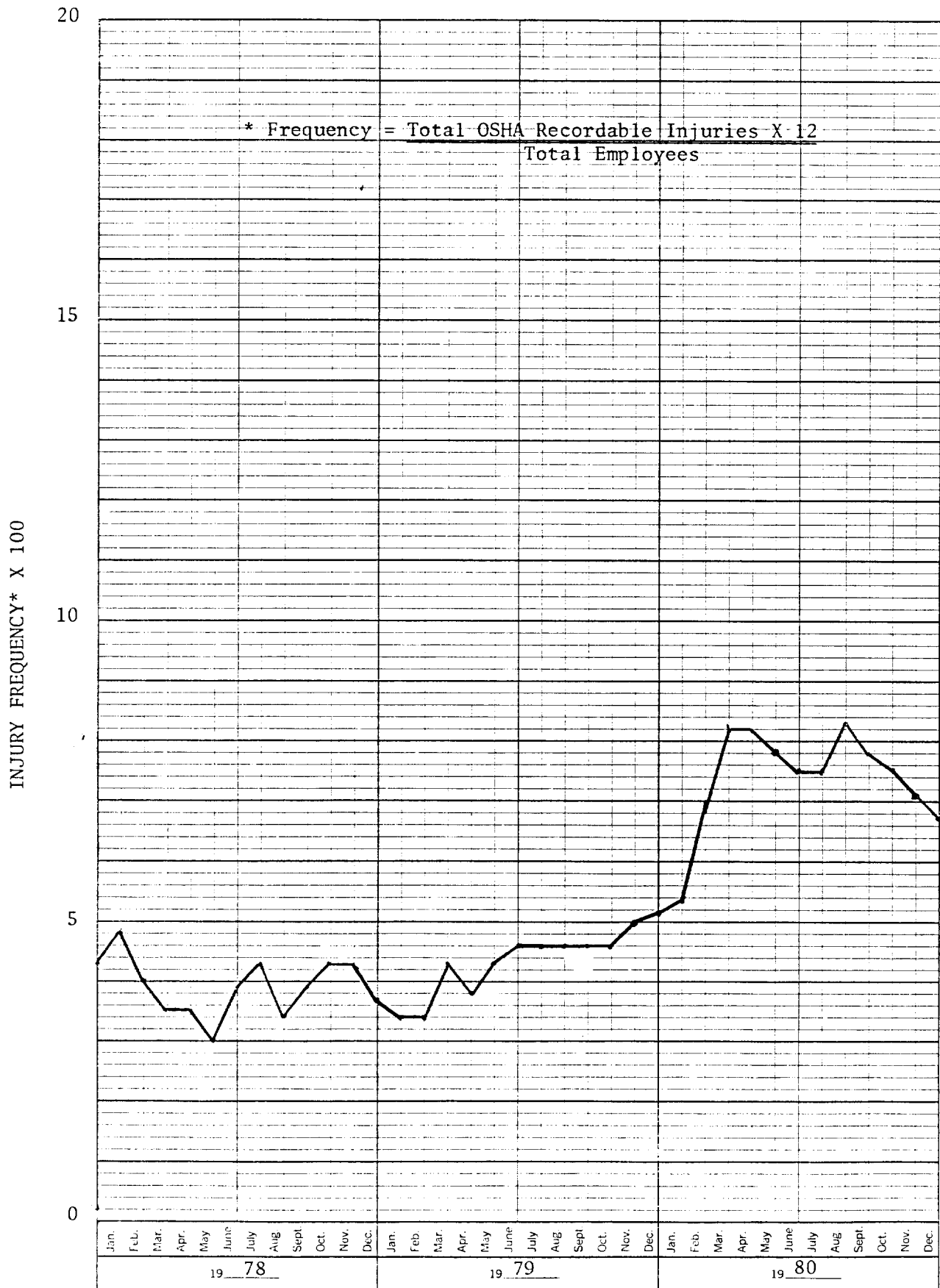
ABERDEEN WAREHOUSE

<u>LOCATION</u>	<u>TOTAL M SQ. FT.</u>	<u>CONTENTS</u>	<u>ESTIMATED MM POUNDS</u>		
			<u>ON FLOOR</u>	<u>OPEN</u>	<u>TOTAL</u>
MAIN-East	48	Compounds	3.6		
		Dry Blend	.3		
		Export Resin	.6		
		Conoco Resin	.7	5.2	4.8 10.0
Prairie 12-1	12	HDPE	.3	.5	1.0 1.5
		Dry Blend	.2		
12-1	22	Conoco Resin	4.0	* 4.0	3.5
12-3	21	Conoco	.2		
		Export Resin	2.5		
			.	2.7	.8 3.5
12-4	22	Conoco Resin	4.4		
		Resin O.G.	.	* 4.4	3.5
12-5	21	Mill Scraps	.1		
		Compd O. G.	1.4		
		Dry Blend O. G.	.1		
		Sifter Overflow	.8		
		Resin O. G.	.9	* 3.3	2.5
12-6	21	Compound	.1		
		Resin	3.0		
		Raw Material	.2	3.3	.2 3.5
12-7	21	Resin O. G.	3.1	3.1	.4 3.5
12-8	21	Conoco Resin	4.5	* 4.5	3.5
12-9	21	Conoco Resin	3.2	3.2	.3 3.5
12-12	21	Conoco Resin	.	.3	3.2 3.5
		S.O.	.2		
		Comp. O. G.	1		
		Sub-Total			42.0
		(Plug-Aisles)			3.2
Total	251	Total Conoco	34.5	10.7	45.2

DTH 000021421

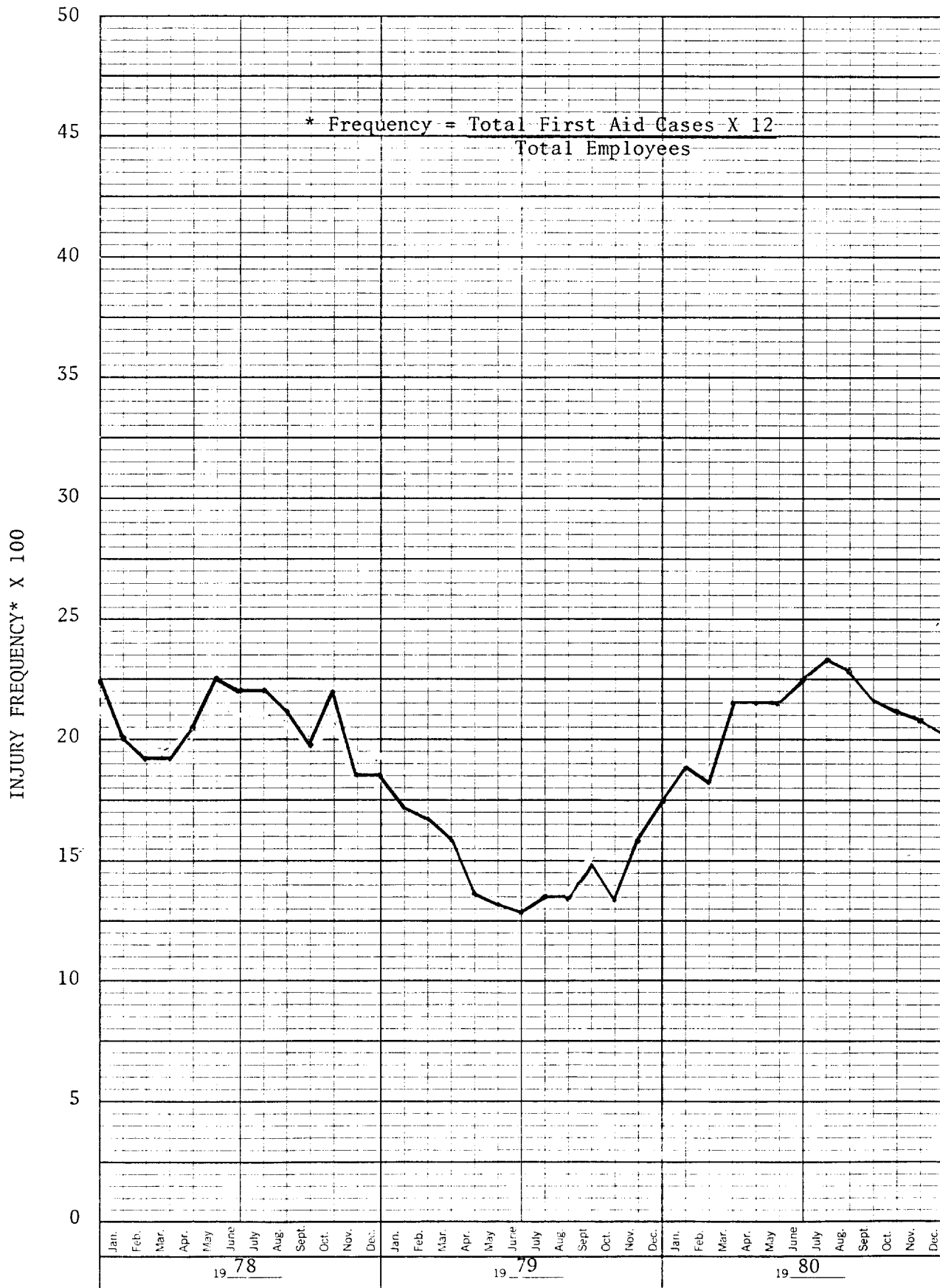
ABERDEEN OSHA RECORDABLE INJURIES

12 MONTH MOVING AVERAGE

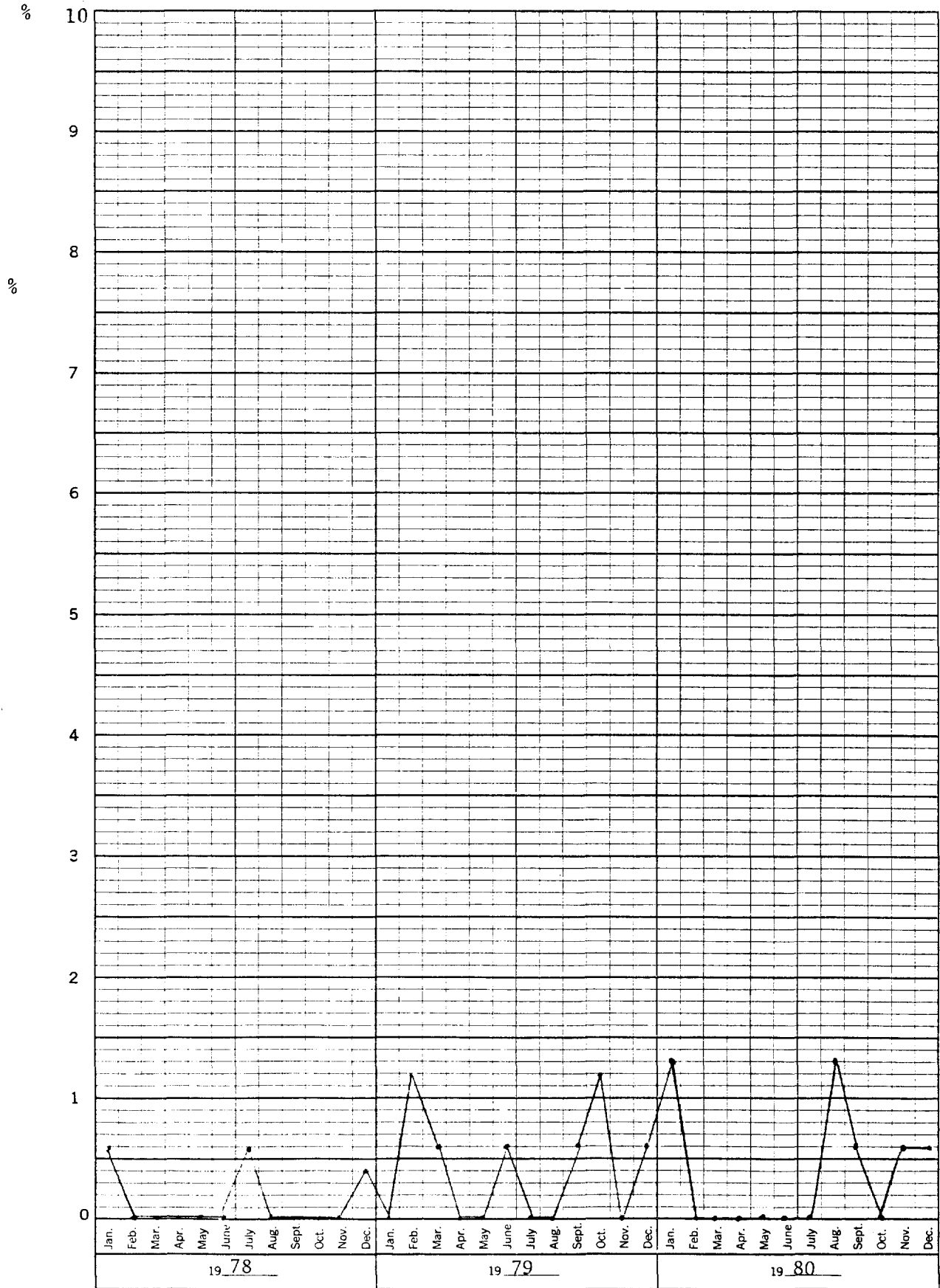


ABERDEEN FIRST-AID CASES

12 MONTHS MOVING AVERAGE



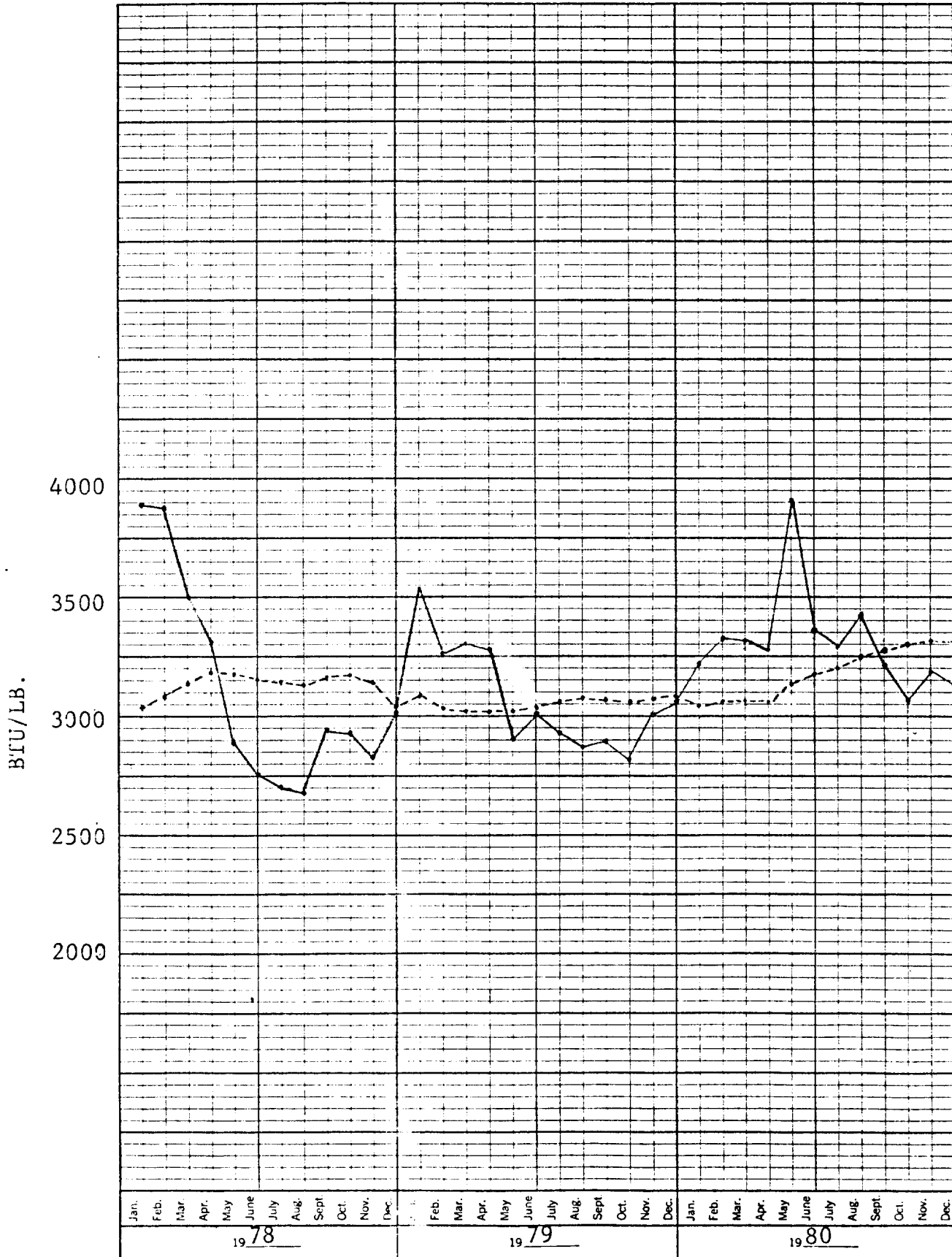
MONTHLY HOURLY TURNOVER



46 3290

K&S 3 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

ENERGY USAGE



Monthly

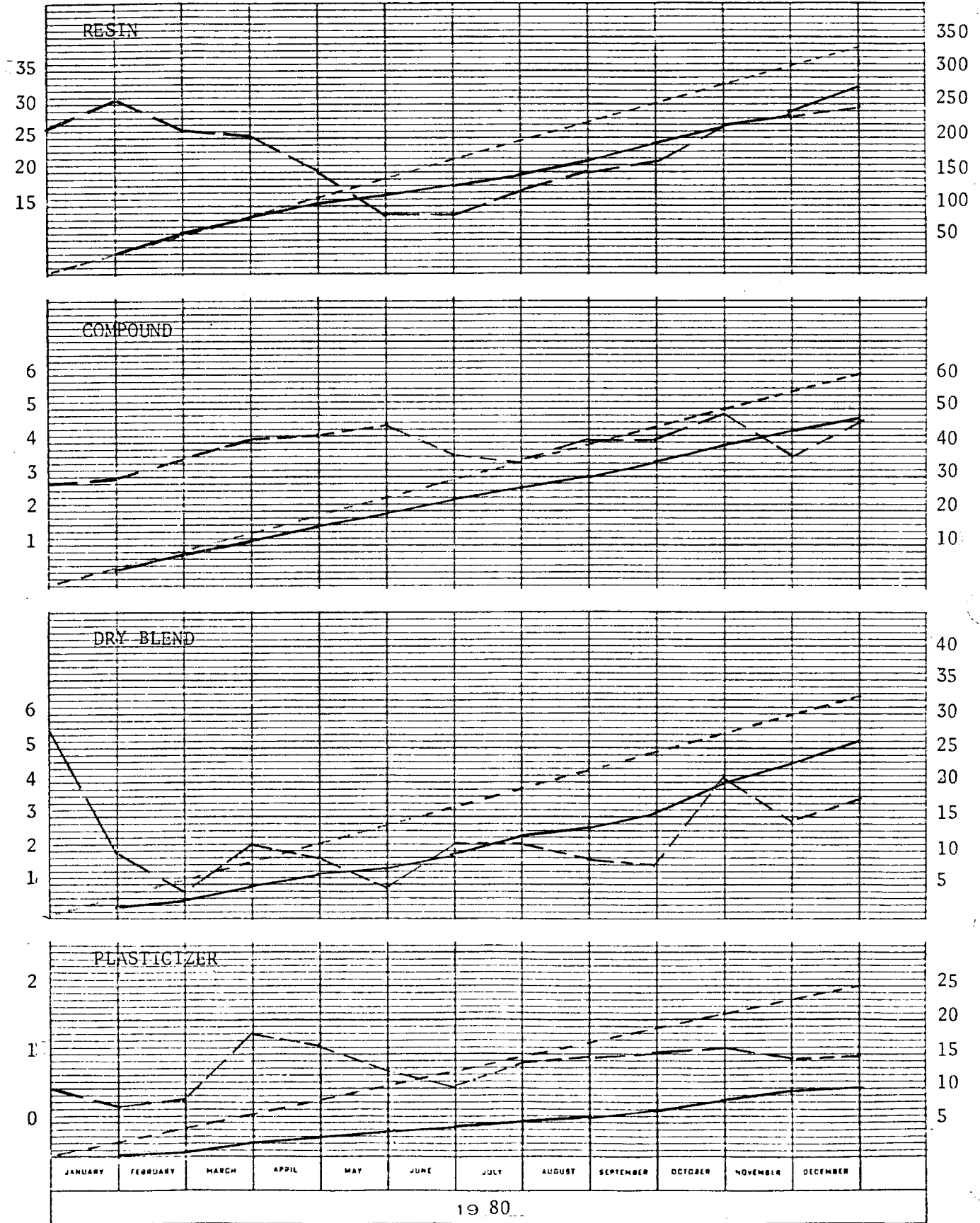
----- 12 Month Moving

MM POUNDS
MONTHLY

ABERDEEN PLANT PRODUCTION

1980

MM POUNDS
CUMULATIVE

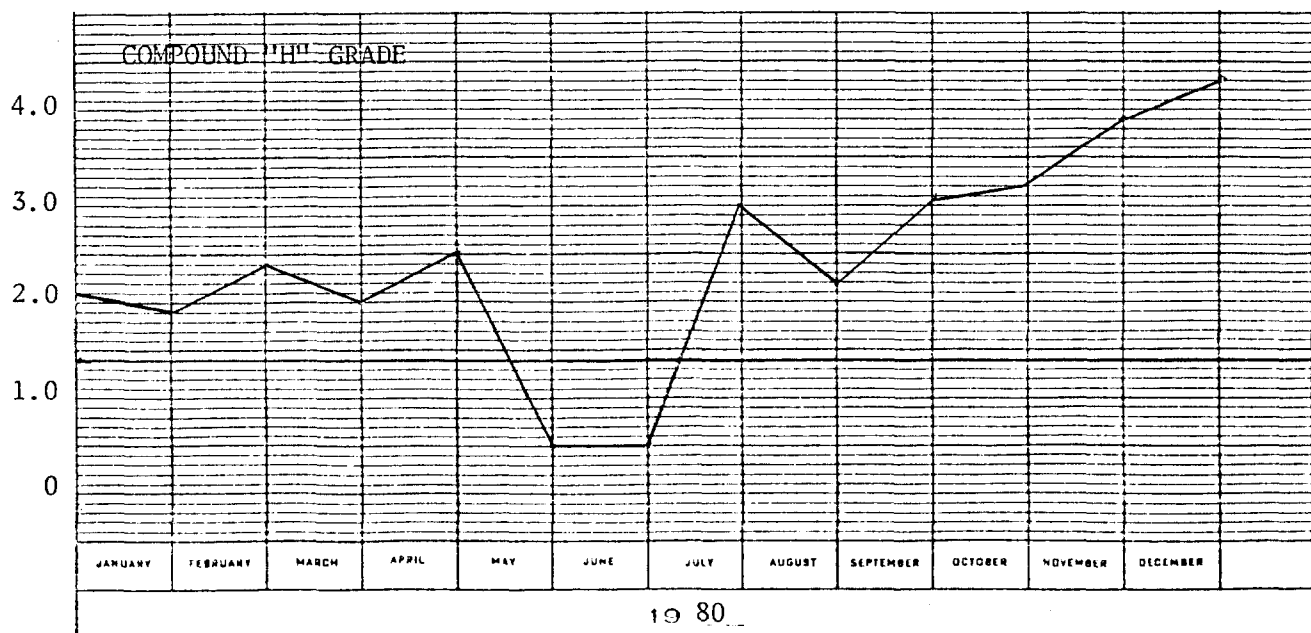
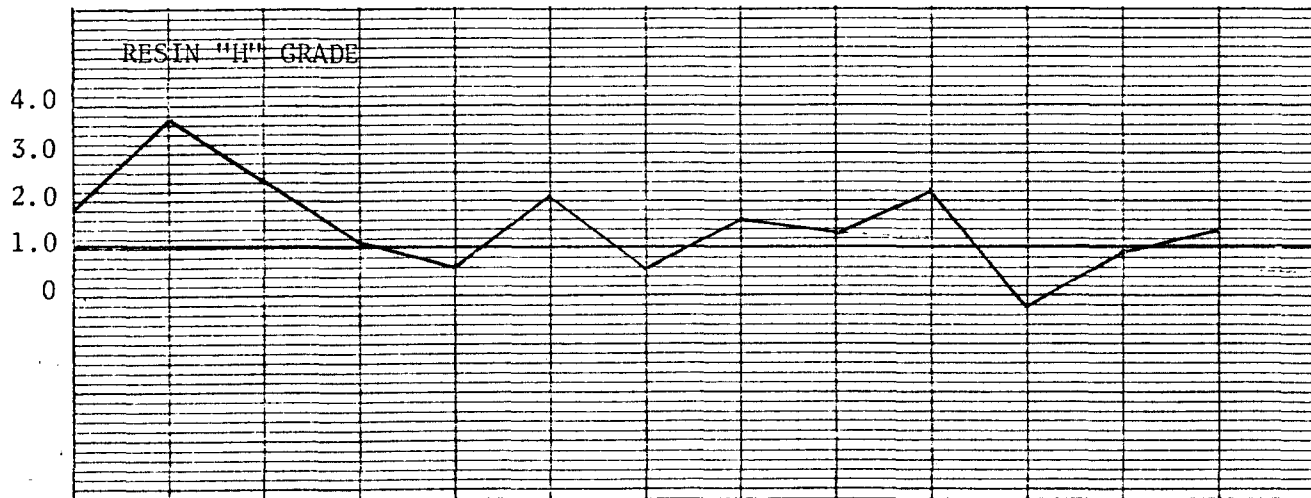
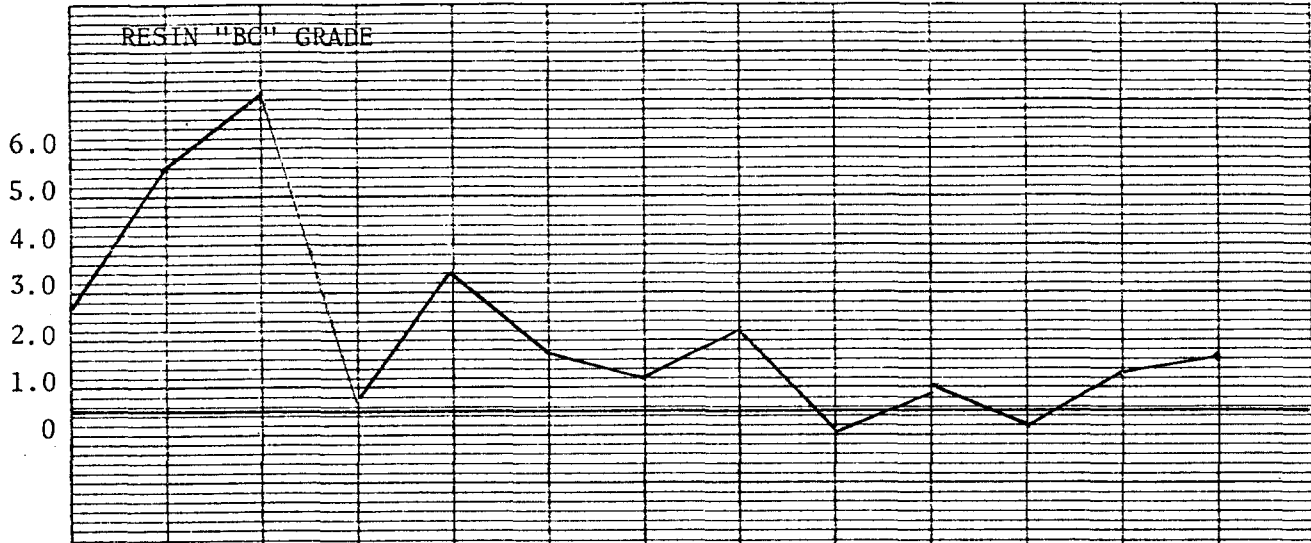


----- BUDGET
----- ACTUAL
----- CUMULATIVE

ABERDEEN PLANT QUALITY PERFORMANCE

1980

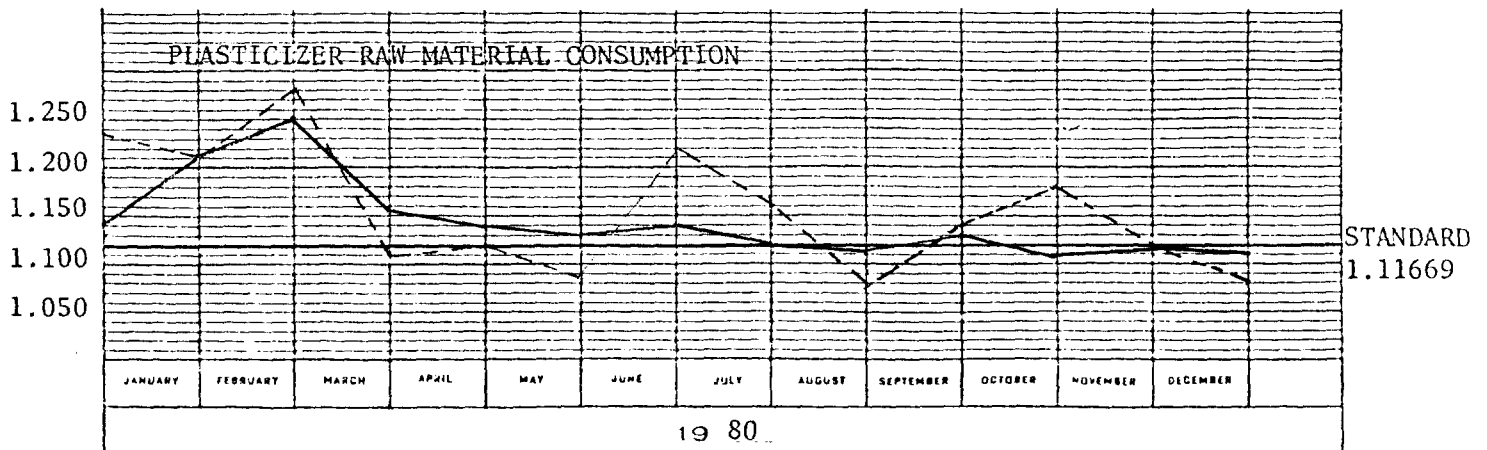
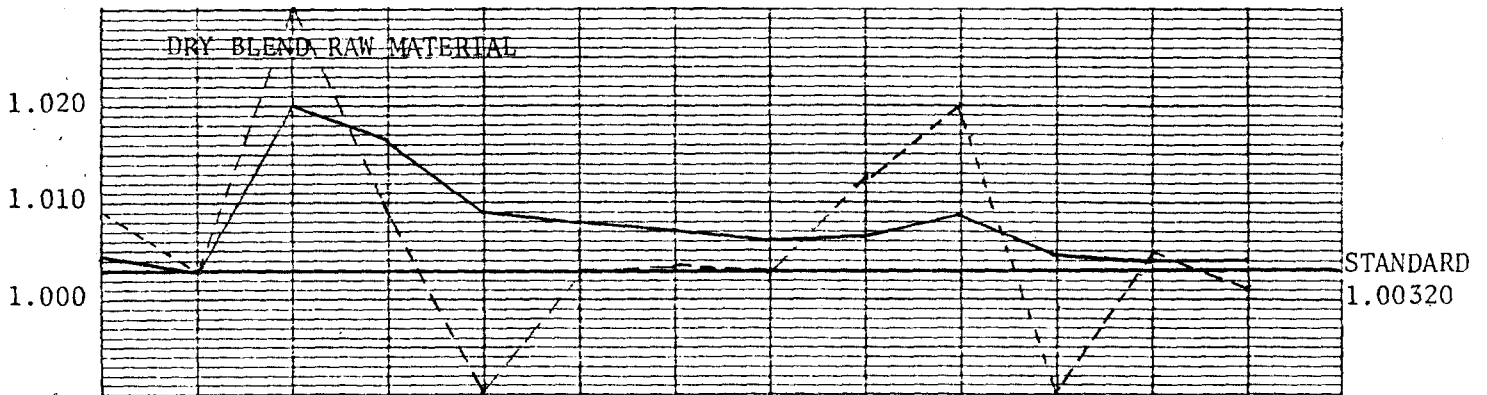
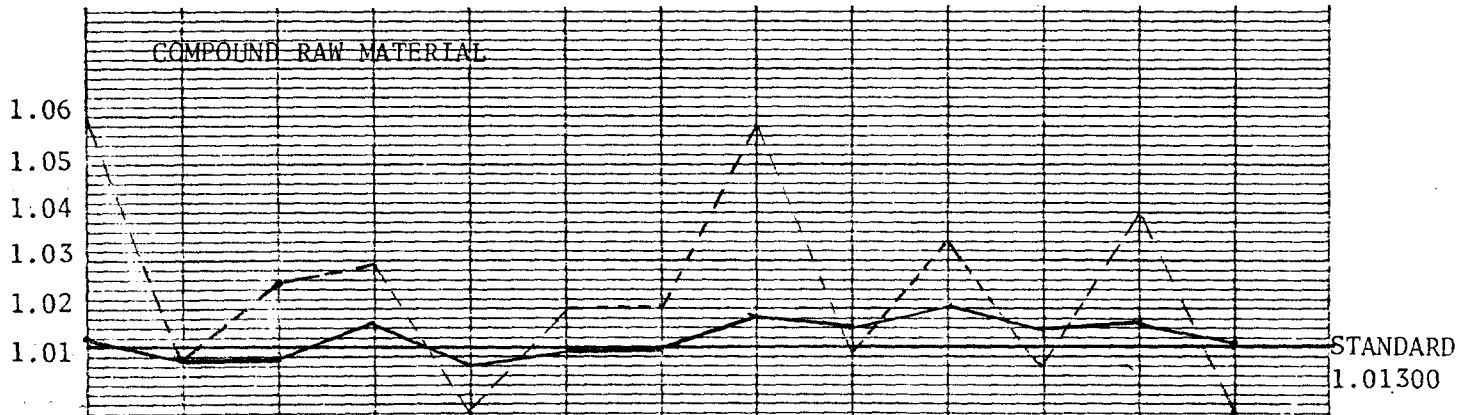
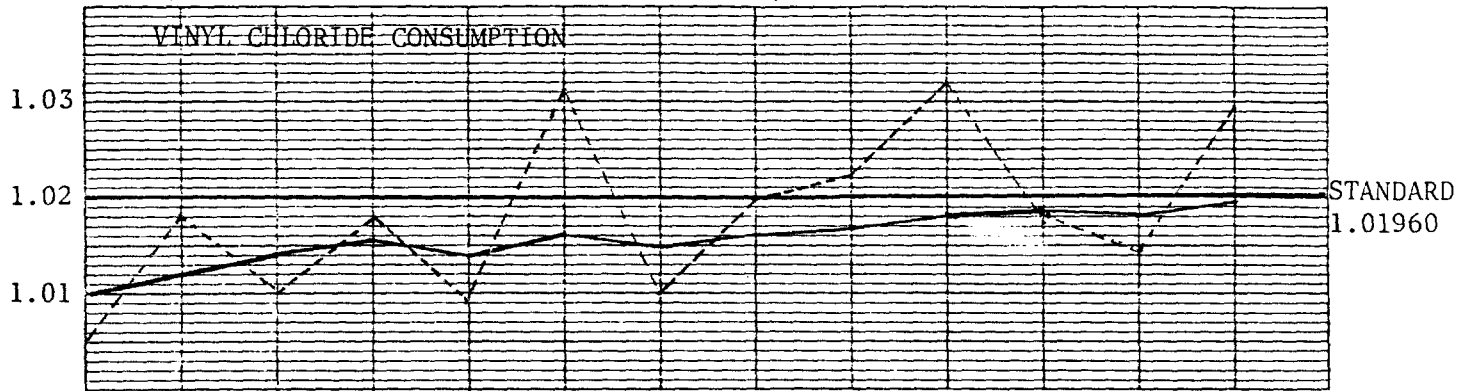
%
OFF GRADE



ABERDEEN PLANT EFFICIENCY

1980

POUNDS OF RAW MATERIAL/POUND OF PRODUCT



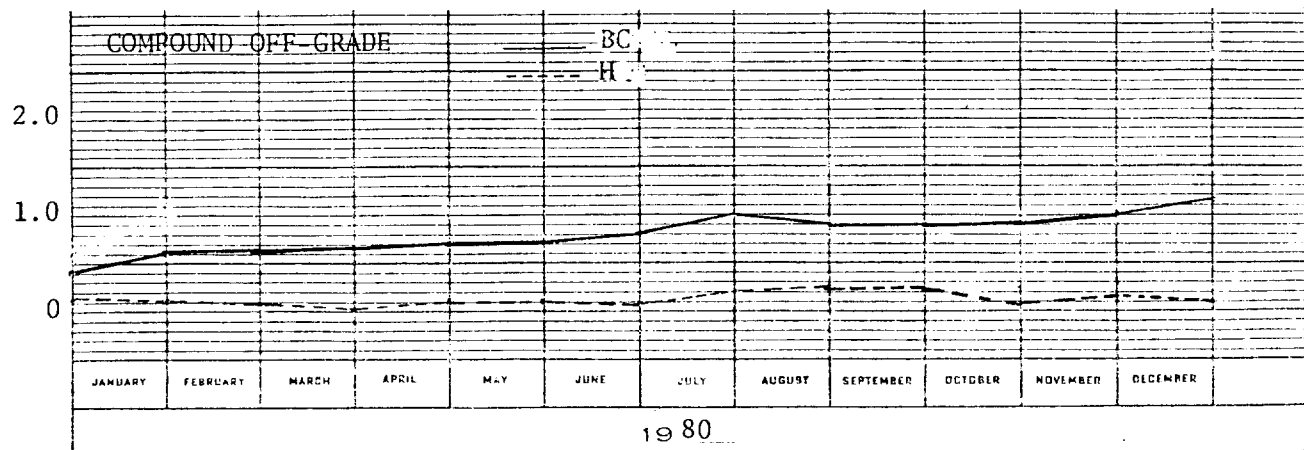
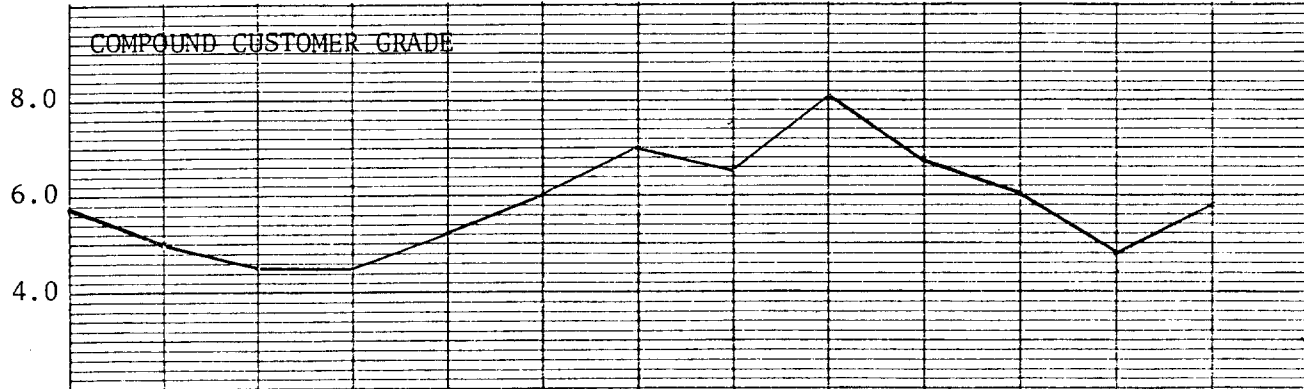
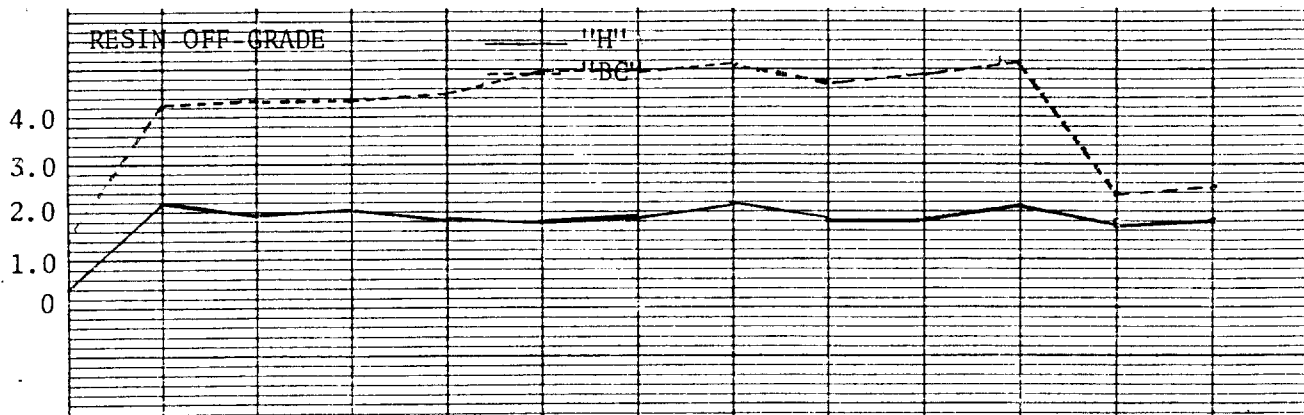
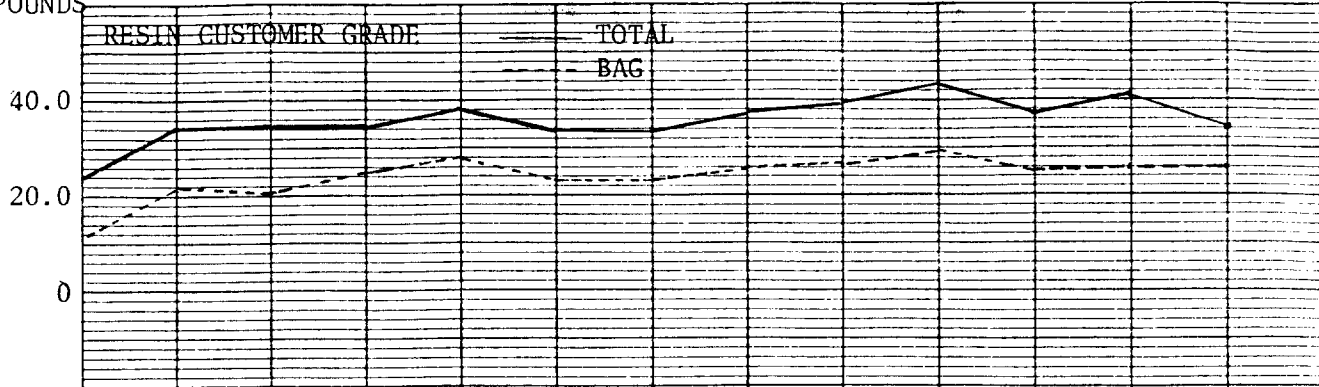
19 80

----- MONTHLY
 _____ CUMULATIVE

ABERDEEN PLANT INVENTORIES

1980

MM
POUNDS



1980