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ARBITRATOR'S DECISION
Grievance No. 17-C-142

Between
INLAND STEEL COMPANY

and
UNITED STEELWORKERS OF AMERICA

BEFORE
MERLE D. SCHMID, ARBITRATOR
Feb. 23, 1954

Decision Rendered
June 21, 1954

The Question Before The Arbitrator

The question to be decided by the Arbitrator is whether or not the Tin Mill Continuous Strip Anneal Wage Plan, File No. 78-0410, installed March 3, 1952, provides equitable incentive earnings in accordance with the provisions of Article V, Section 5 of the Collective Bargaining Agreement dated Dec. 1, 1950.

Further, if the Arbitrator finds that Wage Incentive File No. 78-0410 does not provide equitable incentive earnings under the terms of the section of contract listed above, he is required to indicate the extent of the monetary changes necessary and is invited to recommend changes in the wage incentive structure if he so desires (see transcript page 110, lines 1-6).

Interpretation of Article V, Section 5, Procedure 4

Article V, Section 5, Procedure 4 states in part:

> "If the grievance be submitted to arbitration, the arbitrator shall decide the question of equitable incentive earnings in relation to the other incentive earnings in the department or like department involved and the Previous Job Requirements and the Previous Incentive Earnings and the decision of the arbitrator shall be effective as of the date when the new incentive was put into effect."

In Article V, Section 5, Procedure 4, the Parties (Union and Company - see pages 8 and 25 of transcript) have agreed and stipulated the factors that employees affected by a new wage plan can claim when filing a grievance on such a wage incentive plan. Specifically, they are:

1. The employees affected may claim that such new wage incentive plan does not provide equitable incentive earnings in relation to other incentive earnings in the department.

2. The employees affected may claim that such new wage incentive plan does not provide equitable incentive earnings in relation to other incentive earnings in a like department involved.

3. The employees affected may claim that such new wage incentive plan does not provide equitable incentive earnings in relation to the previous job requirements.

4. The employees affected may claim that such new wage incentive plan does not provide equitable incentive earnings in relation to the previous incentive earnings.

There are no " like departments" to the Tin Mill (see transcript pages 34 and 35). Therefore the Arbitrator cannot use this (see factor No. 2 above) as a consideration in the equitableness of the continuous Anneal Wage Incentive Rate.

Since the Wage Incentive for the Continuous Washer Annealer, File No. 78-0410, covers an absolutely new installation, it does not, and cannot, bear any relation to previous job requirements. The Arbitrator is therefore unable to consider the relationship to previous job requirements (see factor 3 above) in the equitableness of the continuous Anneal Wage Incentive Rate.

This Arbitrator feels that in this case that both factors 1 and 4 are pertinent:

1. He may consider the equitableness of the incentive rate File No. 78-0410 in relation to other incentive earnings in the Tin Mill department.

4. He may consider the equitableness of the incentive rate File No. 78-0410 in relation to previous incentive earnings.

The Arbitrator is well aware that the Company (see page 29 of transcript) rightly contends that at the time of the installation of Incentive Wage File No. 78-0410 there were no previous incentive earnings for the Continuous Washer Anneal with which to compare earnings.

Nevertheless the Arbitrator feels that factor No. 4 (above) can properly be considered in this connection. To illustrate this position allow the Arbitrator to carry to absurdity two separate positions held by the Company.

1) "...The Company took the same position that it did not matter whether the earnings came from the multiplication of box car numbers sitting outside the Superintendent's office or what. It was whether or not the earnings were equitable in relation to other incentive earnings in the department ...." (line 21 page 109 to line 4 page 110 of the transcript).

2a) "...There is really only one factor in the criteria that is set forth in the contract agreed to by the parties, and that is the testing rates that come into contention here, and that is the factor that the employees affected may claim that such new wage incentive plan does not provide equitable incentive earnings in relation to other incentive earnings in the department.

2b) We conclude that there was no like department involved.

2c) There could be no previous job requirements for previous incentive earnings because this was a new unit.

2d) This was the initial incentive installation in the line...." (line 16 page 66 to line 7 page 67 of the transcript).

3) For the purpose of the Arbitrator's example to absurdity, consider a condition when during the month of January of a certain year box cars of high numbers appear outside the Superintendent's window and the incentive earnings for a new unit just installed are calculated on this "box car" basis in such a manner as to be substantially (say 150%) higher than the corresponding base rates, while the incentive earnings of the department as a whole (in which the new unit is located) is only moderately (say 150%) higher than the corresponding base rates.

4. Assume also that the actual productivity (i.e. the effective accomplishment resulting from the application of Mental and Physical effort on the part of the crew to the materials, equipment, and tools available) in only moderate (say 90% of high task).

5. Now assume the month of July of the same year as in (3) above, and assume that the box cars outside the Superintendent's window have low numbers so that the incentive earnings calculated for the new unit are exactly the same (say 130%) in relation to the corresponding base rates as the entire department within which this new unit is located.

6. Assume also that the productivity of the new unit is up considerably since January (is now say 120% of high task).

7. According to the reasoning presented by the Company (point 1 above) the incentive earnings of the new unit in the month of July are equitable, since the ratio of the total incentive earnings to the corresponding base rates is equal to a similar ratio for the entire department (130%).

8. The fact that productivity raised from 90% to 120% while "incentive" earnings fell from 150% to 130% would have no bearing (see Company point 2a, and 2d above) since this was a new unit and had no history of "equitable level of incentive earnings" prior to January.

9. In the opinion of the Arbitrator, a condition such as listed (in 8 above) is contrary to all the principles and good practices of Wage Incentive administration, and he doubts that any Company could or would want to live with a condition of this nature.

Article V, Section 5, procedure 4, of the Dec. 1, 1950 collective bargaining Agreement states in part:

> "...if the employees affected claim that such new incentive does not provide equitable incentive earnings in relation to other incentive earnings in the department or like department involved and the previous Job Requirements and the Previous Incentive Earnings they may at any time after (30) days but within one hundred-eighty (180) days following such installation, file a grievance so alleging...."

If in the hypothetical 8 point example above the employees had filed a grievance in February they would have had little if any "incentive history" to compare their margin of total incentive earnings over base rate and appraise its equitableness.

If however they waited until July (i.e. within the 180 day period) to file a grievance they at least should be in the position to allege that the incentive earnings in July, in comparison to existing conditions, were not equitable the incentive earnings in January in comparison to the comparable conditions then existing.

This Arbitrator is well aware of the need and desirability of contractual time and procedural limitations in collective bargaining agreements. However this Arbitrator is also well aware of the almost impossibility of considering a given condition that existed in the past in its relationship at that time to a second set of given continuing conditions which continue to the present time, without also considering the given condition in its present time relationship to the second set of given conditions.

Even though it is often necessary to so consider arguments in the area of collective bargaining it is generally undesirable to do so. This is true since if the present relationship of the given condition is not equitable in respect to the continuing condition, it really doesn't solve the problem to prove by logic or Arbitrator that at a time in the past the given condition was equitable in its relationship to the continuing condition.

Usually the minimum that will result is that the employees will file a second grievance alleging that the given condition is not equitable in its relationship to the continuing condition at the present (later) time. If by the time this second grievance is processed to Arbitration the relationship of the given to the second and continuing condition has further changed this process could go on and on and the real problem never be solved.

Realistically, when the relationship between conditions that are current and intermediate, as well as those existing at the time a grievance was filed, are considered a generally more stable understanding is obtained. This Arbitrator realizes that this is not always possible or desirable, but he also knows that it has been done and refers to the discussion between himself, the Union, and the Company (see pages 91 through 97 of the transcript).

In consideration of the forgoing discussion the Arbitrator feels and so rules that it is proper to consider data from the second quarter 1950 through the date of the Arbitration, and further any of these data can be properly used to determine the equitableness of the Incentive Rate.

Analysis of Average Monthly Production Vs. Average Operator Earnings

In considering the equitableness of the incentive rate in relation to previous incentive earnings (see above discussion for authority) this Arbitrator feels that a graphical analysis is most appropriate. Exhibit No. 1 has been prepared for that purpose.

In the preparation of Exhibit No. 1 as well as most of the balance of this report, analysis of operator earnings only were used since the earnings of the other members of the crew are in proprotion to the operator and would show the same relationship of equitableness or lack of equitableness as the operator.

Data for Exhibit No. 1 was obtained as follows:

Data	Source
Average Monthly Production Per 8 Hour Turn	Sect. 2, Additional Data for Arbitrator
Average Operator Earnings Per Hour (by Pay Periods)	Sect. 4, Company Exhibit "D"

The "Production per 8 Hour" and the "Operator Earnings per Hour" scales were interlocked in the following manner:

High Task earnings for operator equal $3.228 per hour. (see Section 1, Company Exhibit "D" and page 59 of transcript).

High Task production .0093" x 28½" strip, running at 720 feet per Min. (incl. delays under .50 Hr. and slow running) and with 15% delays over .50 Hr. equal 266,138 lb. strip per 8 Hours. (see exhibit No. 3).

$3.228 on the right scale was made equal to 266,138 lb. on the left scale.

For the purpose of the analysis to be made from exhibit No. 1 the Arbitrator feels that this equaling of scales was as accurate as required. It is true, as can be seen in later analysis, that the average earnings on .0093" x 28½" strip is less than the on actual production, however the theoretical production of .0093" x 28½" strip is also less than the actual production of all strip (see exhibit 2 and 8).

Even allowing for a shift in the relative positions of the two vertical scales on exhibit No. 1, which a detailed analysis of weighted average production and earnings records might indicate is required, this exhibit still tells a significant story:

1) The trend in production was up 19 per cent in the 18 months just prior to the installation of the incentive. (188,000 to 224,000 lbs. per 8 hr. turn).

2) At the installation of the incentive the trend in production increased by 7% (224,000 to 240,000 lb. per 8 hr. turn).

3) In the first 24 months after the installation of the incentive rate production increased by just under 50% (240,000 to 359,000 lbs. per 8 hr. turn).

4) Guaranteed earnings during the 18 months prior to the installation of the incentive rate were $3.025 per hour for the operator. This was 22.5% above the evaluated base rate of $2.47 per hour.

5) At the installation of the incentive the trend in the incentive earnings of the operator increased 1.8% over the prior guaranteed earnings ($3.025 to to $3.08 operator earnings per hour).

6) In the 24 month period following the installation of the incentive the operator earnings increased 8.4% ($3.08 to $3.34 operator earnings per hour).

Summarizing the above six points:

	Production	Earnings	Earnings/Base Rate
18 months prior to Incentive	Up 18%	$3.025/Hr.	1.225
At Installation of Incentive	Up 7%	Up 1.8%	1.247
24 months subsequent to Incentive	Up 50%	Up 8.4%	1.246 to 1.352

The above summary would indicate to the Arbitrator that in spite of the fact that the ratio of the trend of incentive earnings had increased to 35% over evaluated base rate, which according to the Company's Industrial Engineers (see line 3 page 45 of the transcript) was the high task goal, there is indication of inequity contained within this exhibit and justifies further study by the Arbitrator.

Analysis of Operator's Earnings Per Hour.

In order to investigate further the equity or inequity of the incentive rate Exhibit No. 2 was prepared. The data presented in this exhibit was obtained as follows:

Col. 1 Months were selected just prior to the installation of the incentive, just subsequent to the installation of the incentive, and that were current.

Col. 2 The weighted average strip speed was obtained from section 3 of the additional data supplied to the Arbitrator.

Col. 3 Delays under .50 hrs. were obtained from the data supplied by the Company in compliance with the Arbitrator's request of April 3, 1954.

Col. 4 Is the Effective Operating Speed including the delays of Col.3. It was obtained by multiplying (Col.2) by (100 - Col.3).

Col. 5 This Column was calculated from data supplied by the Company in compliance with the Arbitrator's request of April 3, 1954.

Col. 6 Knowing the effective average speed of the Unit (Col.4), the time it was not operating (Col.5), and the weight of .0093" x 28½" strip the theoretical weight of this size strip that would have been annealed on the average turn for each month was calculated.

Col. 7 This column is the actual average strip weight per 8 hour turn. The data came from section 2 of the additional Data supplied the Arbitrator.

Col. 8 The operator earnings that would have resulted for the average turn each month if on that turn they had annealed .0093" x 28½" strip only was calculated and posted in this column.

Col. 9 The actual average operator earnings obtained from Company exhibit "D" were posted in this column.

The conclusion to be drawn from this exhibit is that an analysis based on .0093" x 28½" strip would give results comparable to actual production, at least as far as the operation of the incentive rate is concerned.

A further conclusion is merely that the average weight of strip is somewhat heavier than .0093" x 28½", and the rates for these sizes are slightly looser" than the rate for .0093" x 28½".

Analysis of Incentive Rate - File No. 78-0410

Having concluded from the study of Exhibit No. 2 that the theoretical production of .0093" x 28½" was a reasonably realistic approach and gave data that was comparable with the actual production situation, this type approach was explored further in Exhibit No. 3.

This exhibit shows the theoretical production of .0093" x 28½" strip and the make up and total of the operator's earnings over practically the entire normal operating range of the continuous Washer Annealer.

Theoretical effective running speeds from 650 to 900 feet per minute were selected (see Col. 1) and modified by delays over .50 hour from 5% to 25% (see Col. 2).

From these assumed conditions the lbs. of .0093" x 28½" strip that would be annealed in 8 clock hours was calculated and posted in column 3.

Columns 4, 5, 6, 7, and 8 show the operator's earnings under each of these conditions and the source of these earnings as calculated from the Incentive Rate - File 78-0410.

These operator earnings data were plotted graphically in exhibit No. 4 for 720 feet per minute effective line speed.

A study of Exhibit 3 and 4 shows that as the delay allowance decreases, the machine time allowance increases so that for all practical purposes nearly 75% of the operator's earnings are constant and uneffected by an increase in production. This actually makes for a very weak incentive.

Analizing the data from exhibit No. 3 further, the Arbitrator developed exhibit No. 5 to see just what the effective incentive was in relation to production.

Exhibit No. 5 shows that there are minor inconsistencies in the rate. For example, if 275,000 lb. of .0093" x 28½" strip were annealed at an effective speed of about 850 feet per minute, the line being down 25% of the time with delays of over .50 hour, the Operator's earnings would be $3.22 per hour. On the other hand, if the same amount of strip were annealed at an effective speed of about 680 feet per minute, the line being down only 5% of the time with delays of over .50 hour, the Operator's earnings would be $3.18 per hour.

Development of a Suggested Wage Incentive Curve By the Arbitrator

The present wage incentive curve of Exhibit 6 and Exhibit 7 was prepared directly from the data on Exhibit No. 3. The "O" intercept of the present wage Incentive curve was calculated as follows:

Operator Earnings - $ per hour

		PER CENT DELAY				
		25%	20%	15%	10%	5%
A	900 F/M	$3.279	$3.333	$3.383	$3.441	$3.496
B	659 F/M	3.012	3.048	3.081	3.121	3.158
C	900-650	.267	.285	.302	.320	.338
A	900 F/M	3.279	3.333	3.383	3.441	3.496
D	900/250 x "C"	.961	1.026	1.087	1.152	1.217
O	"O" Intercept	2.318	2.307	2.296	2.289	2.279

At least by inference, if not by written policy, the Company indicated that the "O" intercept (i.e. the Bonus Constant or i.e. Incentive Base) for the operator of the Continuous Washer Annealer (File No. 78-0410) was $1.180 --- See Section 2 and 3 of Company Exhibit "D".

Because of the particular structure of the incentive rate, in a large part due to the "crew rate per operating hour" the actual "O" intercept was about $2.30 (see page 11 above).

Take for example the theoretical production and earnings when annealing .0093" x 28½" strip at an effective line speed of 720 feet per minute while experiencing 15% delays over .50 hour:

	Actual Rate	Inferred Policy
Bonus Constant	$2.296	$1.180
Total Earnings	3.165	3.165
Incentive Part of Rate	.869	1.985
Incentive Part of Rate / Total Earnings	27.1%	62.7%

This Arbitrator agrees to the appropriateness of an incentive rate structure with less than 100% distribution for large integrated complex units such as the Continuous Washer Annealer. However he feels that any rate where only 27.5% of a man's earnings depends upon his productive performance is in the first place a week incentive rate, and in the second place inequitable to the employee at production levels above high task.

For many years a general policy was operative in most of the steel industry to the effect that wage incentive structures would be on a 60/40 basis (i.e. the rate of the incentive part of the rate to the total earnings would be 60%).

This still seems generally equitable to this Arbitrator and corresponds closely to the inferred policy of the Company when establishing $1.180 per hour as a bonus constant for the Operator.

Findings of the Arbitrator

In order to develop a wage incentive curve of approximately the type he would feel equitable, the Arbitrator drew in dashed lines on exhibits No. 6 and No. 7.

For the purpose of a reference point he assumed the Company Industrial Engineering Department's high task figure of 720 feet per minute Effective Line Speed and 15% Delays over .50 hour. He then drew a dashed line through this point and a Bonus Constant of $1.180 (as the "0" Intercept). He also drew in dashed lines for 5%, 10%, 20%, and 25% delays being careful to change them slightly from the current allowances in order to overcome the inconsistencies in the present rate pointed up by Exhibit No. 5.

Using the actual rate curve (solid lines) and the Arbitrator's suggested incentive rate curve (dashed lines) of exhibit No. 7 the Arbitrator studied the effect on earnings that would have resulted if the Jan. 1954 and Feb. 1954., production had been paid on such a curve.

Referring to Exhibit No. 2 the effective operating speed and per cent delays over .50 hours were as follows:

	Effective Operating Speed (Feet/Min.	Delays over .50 Hrs.
Jan. 1954	736.2	16.42%
Feb. 1954	796.7	9.70%

These speeds and delays were plotted on Exhibit No. 7 (theoretical condition for .0093" x 28½" strip) as follows:

A -	Actual Earnings	Feb. 1954
B -	Actual Earnings	Jan. 1954
A'-	Arbitrator's Suggested Earnings	Feb. 1954
B'-	Arbitrator's Suggested Earnings	Jan. 1954

Exhibit No. 8 was calculated from available data. The following conclusion can be drawn (with possibly minor variations) from this exhibit.

1. The average production each month April 1953 through Feb. 1954 was in excess of High Task (i.e. the equivalent to 720 feet per minute line speed and 1% delays of over .50 hour).

2. If operator and crew earnings were figured on a wage incentive plan which would plot into a curve such as the one suggested by the Arbitrator in exhibits No. 7 and 8, their earnings would be more each month April 1953 through Feb. 1954 than has actually been paid by the present wage incentive rate.

3. The earnings of the Operator and the other members of the crew if calculated on the basis of point 2 above, would be as equitable or more equitable in relation to incentive earnings of other incentive rates in the Tin Mill when they have been under the actual existing wage incentive plan.

Award of Arbitrator

The Arbitrator finds that the Continuous Washer Annealer Wage Incentive Plan (File No. 78-0410) does not provide equitable incentive earnings in relation to the previous incentive earnings.

The Arbitrator therefore directs that the Wage Incentive Plan for the Continuous Washer Annealer (File No. 78-0410) be modified to meet the following conditions.

a) The Operator earnings for the Month of February 1954 to be, on the average, at least $.13 per hour more than was actually paid.

b) The Operator earnings for the Month of January 1954 to be, on the average, at least $.025 per hour more than was actually paid.

c) That increases proportionate to the operator's be given to all other members of the continuous Washer Annealer Crew.

Above and beyond his commission to direct, the Arbitrator suggests that the revision of the incentive rate be such that it would plot into a curve similar to the Arbitrator's suggested curve on exhibits No. 6 and No. 7. Thus a theoretical operator earnings for annealing .0093" x 28½" strip under the same speed and delay conditions as February 1954 would plot at A' instead of A, and for January 1954 B' instead of B.

The Arbitrator would like to also suggest that in modifying the Wage Incentive rate the "crew rate per operating hour" be combined with the "crew rate per 1000 lb."

ANALYSIS OF OPERATOR'S EARNINGS PER HOUR

Actual Vs. Theoretical Based on .0093" x 28½"
Strip and Wt. Average Speed & Delay Data.

(1)	Wt. Average Strip Speed Ft./Min. (2)	Delays Under .50 Hrs. (3)	Effective Oper. Speed Ft./Min. (4)	Total Delay (5)	Lb. Theo. .0093" x 28½" Strip/8 Hrs. (6)	Lb. Actual Average Strip/8 Hrs. (7)	Oper. Earnings Theo.-.0093" x 28½" Strip (8)	Actual * (9)
Jan. 1952	590.7	.55%	587.5	30.98%	177309	191544	$2.91	
Feb. "	689.3	.73	684.3	28.92	213094	215960	3.12	
Mar. "	708.6	.87	712.4	21.88	240686	251464	3.09	$3.16
May "	653.8	.37	651.4	29.66	200019	217576	2.98	2.96
Aug "	648.6	.58	644.8	21.46	221529	250553	3.03	3.09
Sept. "	697.5	1.17	689.3	23.30	232626	274420	2.07	3.11
Oct. "	756.8	.27	754.8	22.21	256015	299424	3.15	3.21
Jan. 1954	739.7	.47	736.2	16.89	267334	308856	3.18	3.26
Feb. "	797.3	.08	796.7	9.78	312828	371714	3.31	3.40

*Data taken from Section IV Company Exhibit "D" for closest pay periods

Exhibit No. 2

Exhibit No. 2

Exhibit No. 3 Page 1

ANALYSIS OF INCENTIVE RATE NO. 78-0410

(Based on Annealing .0093" x 28⅛" Strip)

Speed-F/M (Incl. Delay Under .50 Hrs.)	Per cent Delays Over .50 Hrs.	Lbs. Strip Per 8 Hrs.	OPERATOR'S EARNINGS PER HOUR				
			Rate per 1000 Lb.	Rate per Oper. Hr.	Delay Allowance	Bonus Constant	Total Earnings
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
650	25	212004	$.693	$.816	$.323	$1.180	$3.012
	20	226138	.739	.871	.258	1.180	3.048
	15	240271	.786	.912	.194	1.180	3.081
	10	254405	.832	.980	.129	1.180	3.121
	5	268538	.878	1.035	.065	1.180	3.158
700	25	228312	.747	.816	.323	1.180	3.066
	20	243533	.796	.871	.258	1.180	3.105
	15	258754	.846	.926	.194	1.180	3.141
	10	273974	.896	.980	.129	1.180	3.185
	5	289195	.946	1.035	.065	1.180	3.226
720	25	234828	.768	.816	.323	1.180	3.087
	20	250483	.819	.871	.258	1.180	3.128
	15	266138	.870	.926	.194	1.180	3.165
	10	281794	.921	.980	.129	1.180	3.210
	5	297449	.973	1.035	.065	1.180	3.253
750	25	244620	.800	.816	.323	1.180	3.119
	20	260928	.853	.871	.258	1.180	3.162
	15	277236	.907	.926	.194	1.180	3.202
	10	293544	.960	.980	.129	1.180	3.249
	5	309852	1.013	1.035	.065	1.180	3.293

ANALYSIS OF INCENTIVE RATE NO. 78-0410

(Based on Annealing .0093" x 28½" Strip)

Speed-F/M (Incl. Delay Under .50 Hrs.)	Per cent Delays Over .50 Hrs.	Lbs. Strip Per 8 Hrs.	OPERATOR'S EARNINGS PER HOUR				
			Rate Per 1000 Lbs.	Rate per 8 Oper. Hr.	Delay Allowance	Bonus Constant	Total Earnings
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
800	25	260928	$.853	$.853	$.816	$1.180	$3.172
	20	278323	.910	.871	.258	1.180	3.219
	15	295718	.967	.926	.194	1.180	3.262
	10	313114	1.024	.980	.129	1.180	3.313
	5	330509	1.081	1.035	.065	1.180	3.361
850	25	277236	.907	.816	.323	1.180	3.226
	20	295718	.967	.871	.258	1.180	3.276
	15	314201	1.027	.926	.194	1.180	3.332
	10	332683	1.088	.980	.129	1.180	3.377
	5	351166	1.148	1.035	.065	1.180	3.428
900	25	293544	.960	.816	.323	1.180	3.279
	20	313114	1.024	.871	.258	1.180	3.333
	15	332683	1.088	.926	.194	1.180	3.383
	10	352253	1.152	.980	.129	1.180	3.441
	5	371822	1.216	1.035	.065	1.180	3.496

Exhibit No. 3 Page 2

EXAMPLE OF STRUCTURE OF INCENTIVE RATE

For Continuous Washer Annealer
(78-0410)
Based on: 720 Feet per Min. effective line Speed
and .0093" x 28½" Strip

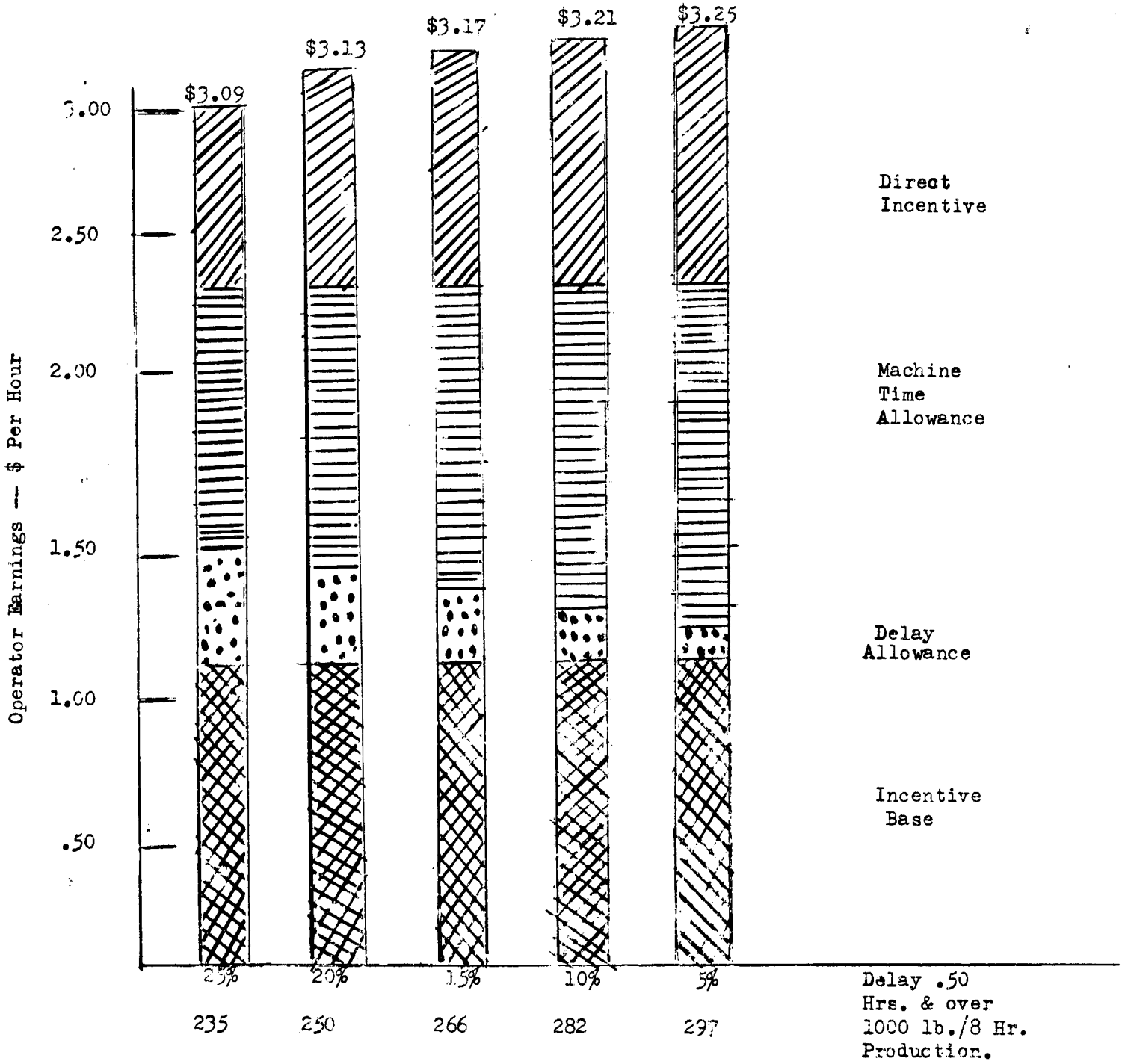

Exhibit No. 4

COMPARISON OF PRODUCTION PER TURN

Actual Vs. Theoretical .0093" x 28½" Strip

Month	Calculated Effective Strip Speed Feet/Min.	Per cent Total Delay	Pounds per 8 Hr. Turn Productions	
			Theoretical .0093 x 28½ Strip Only	Actual Sizes
Sept. 1952	689.3	23.65%	232.626	274,420
Oct. "	754.8	22.37	256.015	299,424
Nov. "		25.64		259,223
Dec. "		25.34		270,905
Jan. 1953		18.10		268,384
Feb. "		13.45		288,212
Mar. "		5.45		277,280
April "		15.40		331,590
May "		13.17		366,120
June "		19.76		326,912
July "		17.64		339,600
Aug. "		9.72		363,664
Sept. "		17.18		323,944
Oct. "		17.75		325,066
Nov. "		15.14		354,773
Dec. "		13.07		38[illegible].256
Jan. 1954	736.2	16.45	267.334	308,856
Feb. "	796.7	9.64	312,828	371,714
High Task Production	720	15.00	266,138	

Exhibit No. 8