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Reactor Statistics - Section III
April, 1961 - May 15, 1962

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AUTHOR

R. C. Burke

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June 13, 1962

REACTOR SIMULATION STUDY

The following discussion and attached summary report is sent to you to illustrate the type of information that is currently in data processing machine language and available to those who require it. During the progress meetings at which these reports were discussed, several persons indicated a desire to have a documented explanation of the report and a personal copy to scan. This is the answer to these requests.

The reports are comprised of three major sections. The first is a map indicating the number of recordings of data in the category defined by the function number code. The second is a summary of the data, in terms of hours, for each of the functions performed during an outage, except secondary function code number 21 which is the number of tubes associated with the basic function performed. The third is a summary of the secondary functions performed within a basic function class, the associated delay total, and the number of tubes involved for those functions where a delineation by tube count may be of interest.

The function code numbers relate directly to the definitions of the hours expended for charge-discharge, rupture removal, tube leak repair, tube replacement, and so forth. These definitive classes are taken from the distribution records supplied by the various reactor analysts and summarized by the Reports and Statistics group in the IPD Production Operation. The listing and record count map are an enlargement of the summary form designed in April of 1961. The codes are as follows:

	<u>Primary</u>	<u>Secondary</u>
***	1. Charge discharge - normal	1. Same as primary
Functions	2. Charge discharge - special	2. Same
	3. Charge discharge - problem	3. Same
	4. Rupture Removal	4. Same
	5. Water leak repair	5. Same
	6. Tube replacement	6. Same
	7. Tube replacement - abnormal	7. Same
	8. Mechanical Maintenance	8. Same
	9. Instrument Maintenance	9. Same
	10. Electrical Maintenance	10. Same

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	<u>Primary</u>	<u>Secondary</u>
	11. Standard Check	11. Same as Primary
	12. Production Test	12. Same
	13. Project Work	13. Same
	14. Miscellaneous - Other	14. Same
***	15. Cooling Time	15. Same
Delays	16. Startup Time	16. Same
	17. Equipment Breakdown	17. Same
	18. Delays - Man	18. Same
	19. Turco	19. Same
	20. Miscellaneous	20. Same
	21. Probologging	**21. Number of tubes involved
	22. Scrums	

One will notice immediately that the various time elements across any given function code row (primary function) do not necessarily have equal total values. The reason here is that some tasks are distributed according to the function governing or controlling the outage during different periods of the given outage. As an example, the records indicate that tube leak work was performed while normal charge-discharge was governing or the time controlling portion of a given outage. Therefore, one will find the tube leak repair hour requirements in row 1 under secondary function number 5 indicating the leak work was performed during the period when charge-discharge was the outage controlling function. The same distribution pattern will be especially noticeable with regard to associated maintenance time requirements. To determine the amount of time associated with a specific function one should look at the diagonal element for that particular function. For example, tube leak work during tube leak controlling periods will show up on the function row number 5 under secondary function column 5, and so forth.

The number of elements involved in this analysis versus the width of the paper on which to write the information required a slight modification. Therefore, it will be noted that each row is split with regard to the secondary functional relationship. The first fourteen functions are corrective in nature and the remaining are the unavoidable delays required to perform the necessary corrective work. Therefore, each row is broken at this logical point. The corrective first, followed by the associated delays ending with the corresponding tube count.

The third portion of each reactor report is a summary of the corrective time requirements, a summary of the associated delays, followed by the tube count for the period reported.

This report summarizes all the recorded data starting April 1, 1961 to May 15, 1962. This same analysis can be run for any reactor for any incremental period considering any one or combinations of causes for an outage during the above mentioned period. For example, one can get an analysis for B reactor, for the period July 1, 1961 through December 31, 1961 covering the outages for tube leaks and ruptures.

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The last page of the report is a summation of all the hours expended during the period for each of the recovery functions. This summary presents a reasonably good picture of the distribution of the total outage time to the various activities. One can, if he desires, calculate the percentage of time attributed to charge-discharge, rupture removal, mechanical maintenance and so forth. The averages, variance and standard deviation associated with tube count, in this case, are valueless.

Appendix A is an updated analysis which parallels the report HW-57166, but covers the period April 1, 1961 to May 16, 1962.

R. C. Burke

R. C. Burke

OPERATIONS RESEARCH & SYNTHESIS

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REACTOR 3 OUTAGE FUNCTION EXPECTATION REPORT

APRIL 1961 TO MAY 15 1962

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THIS IS AN EXEMPLARY REPORT ILLUSTRATING
AVERAGE TIME REQUIREMENTS AND EXPECTED
VARIANCES FOR THE BASIC TASKS REQUIRED
TO RE-ESTABLISH ON-LINE PRODUCTION STATUS.

••ALL DATA IN HOURS-EXCEPT SECONDARY FUNCTION#21#TUBE COUNT.

•• INCIDENT EXPERIENCE BY CAUSE FUNCTION ••

SECONDARY FUNCTION NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
FUNCTION 1	32	0	0	0	1	2	1	0	0	0	0	0	0	0	27	29	9	11	0	0	35
FUNCTION 2	11	23	0	0	0	0	0	0	0	0	0	0	0	0	18	18	0	6	0	0	34
FUNCTION 3	8	0	3	0	0	0	0	2	0	0	0	0	0	0	2	3	0	1	0	0	11
FUNCTION 4	6	0	0	7	0	0	0	4	1	0	0	0	0	0	7	9	2	3	0	0	12
FUNCTION 5	13	0	0	0	17	4	0	12	1	0	0	0	0	0	28	28	10	12	0	0	28
FUNCTION 6	1	0	0	0	0	19	0	4	1	0	0	0	0	0	20	20	2	6	0	1	23
FUNCTION 7	0	0	0	0	0	0	9	0	0	0	0	0	0	0	5	5	0	0	0	0	6
FUNCTION 8	8	0	0	0	0	0	0	44	17	7	0	0	3	0	32	33	0	10	0	0	0
FUNCTION 9	0	0	0	0	0	0	0	0	22	0	0	0	0	0	6	8	0	0	0	0	3
FUNCTION 10	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0
FUNCTION 11	7	0	0	0	0	0	0	0	0	0	11	0	0	0	2	4	1	0	0	0	0
FUNCTION 12	3	0	0	0	0	1	0	0	0	0	5	13	0	0	6	6	1	1	0	0	4
FUNCTION 13	3	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
FUNCTION 14	7	0	0	0	0	0	0	1	1	0	1	1	5	8	8	10	0	4	0	0	0
FUNCTION 15	31	7	0	3	13	13	5	13	5	0	1	2	0	1	0	0	0	0	0	0	0
FUNCTION 16	35	7	0	3	13	13	5	13	6	1	2	2	0	1	0	0	0	0	0	0	0

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FUNCTION 18	16	2	0	1	3	4	0	6	0	1	0	1	0	0	0	0	0	0	0	0
FUNCTION 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
FUNCTION 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
FUNCTION 21	4	0	0	0	1	11	0	0	0	0	4	0	0	0	6	5	3	2	0	
FUNCTION 22	1	0	0	0	0	0	0	0	2	0	0	5	0	0	0	0	0	0	0	

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SECONDARY
FUNCTION NUMBER

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	15	16	17	18	19	20	21								
FUNCTION 1															
TCT.HOURS CWN	349.5	0.	0.	0.	1.7	3.7	0.1	0.	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	32	0	0	0	1	2	1	0	0	0	0	0	0	0	0
AVERAGE DOWN	10.9	0.	0.	0.	1.7	1.8	0.1	0.	0.	0.	0.	0.	0.	0.	0.
VARIANCE	68.6	-0.	-0.	-0.	0.	2.6	0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	8.3	-0.	-0.	-0.	0.	1.6	0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.

FUNCTION 1															
TCT.HOURS CWN	20.6	31.7	15.9	8.4	0.	0.	4647.								
INCIDENTS	27	29	9	11	0	0	35								
AVERAGE DOWN	0.7	1.1	1.8	0.8	0.	0.	133.								
VARIANCE	0.3	0.5	4.3	0.6	-0.	-0.	18321.								
STD.DEVIATION	0.5	0.7	2.1	0.8	-0.	-0.	138.								

FUNCTION 2															
TCT.HOURS CWN	36.9	53.9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	11	23	0	0	0	0	0	0	0	0	0	0	0	0	0
AVERAGE DOWN	3.4	2.3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
VARIANCE	0.9	2.9	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	0.9	1.7	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.

FUNCTION 2															
TCT.HOURS CWN	5.5	6.4	0.	2.7	0.	0.	750.								
INCIDENTS	18	18	0	6	0	0	34								
AVERAGE DOWN	0.3	0.4	0.	0.4	0.	0.	22.								
VARIANCE	0.0	0.0	-0.	0.2	-0.	-0.	710.								
STD.DEVIATION	0.2	0.2	-0.	0.5	-0.	-0.	27.								

FUNCTION 3															
TCT.HOURS CWN	8.9	0.	3.0	0.	0.	0.	0.	3.4	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	8	0	3	0	0	0	0	2	0	0	0	0	0	0	0
AVERAGE DOWN	1.1	0.	1.0	0.	0.	0.	0.	1.7	0.	0.	0.	0.	0.	0.	0.
VARIANCE	1.2	-0.	0.4	-0.	-0.	-0.	-0.	0.5	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	1.1	-0.	0.6	-0.	-0.	-0.	-0.	0.7	-0.	-0.	-0.	-0.	-0.	-0.	-0.

FUNCTION 3															
TCT.HOURS CWN	0.4	0.6	0.	0.9	0.	0.	60.								
INCIDENTS	2	3	0	1	0	0	11								
AVERAGE DOWN	0.2	0.2	0.	0.9	0.	0.	5.								
VARIANCE	0.0	0.0	-0.	0.	-0.	-0.	34.								

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FUNCTION 4
TCT.HOURS DOWN
INCIDENTS
AVERAGE DOWN
VARIANCE
STD.DEVIATION

12.3 0. 0. 0. 46.0 0. 0. 0. 38.1 0.2 0. 0. 0. 0.
6 2.0 0. 6.6 7 10.3 0. 0. 4 0.2 0. 0. 0. 0.
0.7 0. 0. 108.2 10.4 0. 0. 0. 9.5 0.2 0. 0. 0. 0.
0.6 0. 0. 10.4 2.8 0. 0. 0. 76.4 0. 0. 0. 0. 0.
0. 0. 0. 0. 0. 0. 0. 0. 8.7 0. 0. 0. 0. 0.

FUNCTION 4
TCT.HOURS DOWN
INCIDENTS
AVERAGE DOWN
VARIANCE
STD.DEVIATION

6.2 12.4 0.5 10.3 0. 0. 0. 12.
7 9 2 3 0 0 12
0.9 1.4 0.2 3.4 0. 0. 1.
1.2 2.7 0.0 7.6 0. 0. 0.
1.1 1.7 0.1 2.8 0. 0. 0.

FUNCTION 5
TCT.HOURS DOWN
INCIDENTS
AVERAGE DOWN
VARIANCE
STD.DEVIATION

116.9 0. 0. 0. 258.5 13.7 0. 56.6 0.3 0. 0. 0. 0. 0.
13 9.0 0. 17 4 0 12 1 0. 0. 0. 0. 0.
21.6 0. 0. 15.2 3.4 0. 4.7 0.3 0. 0. 0. 0. 0.
4.7 0. 0. 74.9 2.6 0. 9.5 0. 0. 0. 0. 0. 0.
0. 0. 0. 6.7 1.6 0. 3.1 0. 0. 0. 0. 0. 0.

FUNCTION 5
TCT.HOURS DOWN
INCIDENTS
AVERAGE DOWN
VARIANCE
STD.DEVIATION

39.9 50.3 11.9 6.9 0. 0. 70.
28 28 10 12 0 28
1.4 1.8 1.2 0.6 0. 0. 3.
0.6 1.2 1.0 0.1 0. 0. 7.
0.8 1.1 1.0 0.4 0. 0. 3.

FUNCTION 6
TCT.HOURS DOWN
INCIDENTS
AVERAGE DOWN
VARIANCE
STD.DEVIATION

37.4 0. 0. 0. 351.1 0. 301.7 12.6 0. 0. 0. 0. 0. 0.
1 37.4 0. 19 4 0 4 1 0. 0. 0. 0. 0.
0. 0. 0. 18.5 0. 75.4 12.6 0. 0. 0. 0. 0. 0.
0. 0. 0. 170.1 0. 9795.1 0. 0. 0. 0. 0. 0. 0.
0. 0. 0. 13.0 0. 99.0 0. 0. 0. 0. 0. 0. 0.

FUNCTION 6
TCT.HOURS DOWN
INCIDENTS
AVERAGE DOWN
VARIANCE
STD.DEVIATION

20.0 38.7 14.1 16.0 0. 5.2 878.
20 20 2 6 0 1 23
1.0 1.9 7.0 2.7 0. 5.2 38.
1.0 3.2 72.2 16.1 0. 0. 6852.
1.0 1.8 6.6 4.0 0. 0. 83.

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FUNCTION 7
TCT.HOURS CWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

0.	0.	0.	0.	0.	0.	26.5	0.	0.	0.	0.	0.	0.	0.
0	0	0	0	0	0	9	0	0	0	0	0	0	0
0.	0.	0.	0.	0.	0.	2.9	0.	0.	0.	0.	0.	0.	0.
-0.	-0.	-0.	-0.	-0.	-0.	4.0	-0.	-0.	-0.	-0.	-0.	-0.	-0.
-0.	-0.	-0.	-0.	-0.	-0.	2.0	-0.	-0.	-0.	-0.	-0.	-0.	-0.

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FUNCTION 7
TCT.HOURS CWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

0.6	1.8	0.	0.	0.	0.	14.
5	5	0	0	0	0	6
0.2	0.4	0.	0.	0.	0.	2.
0.0	0.0	-0.	-0.	-0.	-0.	1.
0.1	0.2	-0.	-0.	-0.	-0.	1.

FUNCTION 8
TCT.HOURS CWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

32.1	0.	0.	0.	0.	0.	0.	301.3	62.7	10.8	0.	0.	3.1	0.
8	0	0	0	0	0	0	44	17	7	0	0	3	0
4.0	0.	0.	0.	0.	0.	0.	6.8	3.7	1.5	0.	0.	1.0	0.
13.8	-0.	-0.	-0.	-0.	-0.	-0.	31.7	12.4	2.9	-0.	-0.	1.8	-0.
3.7	-0.	-0.	-0.	-0.	-0.	-0.	5.6	3.5	1.7	-0.	-0.	1.4	-0.

FUNCTION 8
TCT.HOURS CWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

27.4	35.0	0.	6.8	0.	0.	0.
32	33	0	10	0	0	0
0.9	1.1	0.	0.7	0.	0.	0.
0.5	0.7	-0.	0.2	-0.	-0.	-0.
0.7	0.8	-0.	0.4	-0.	-0.	-0.

FUNCTION 9
TCT.HOURS CWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

0.	0.	0.	0.	0.	0.	0.	0.	100.6	0.	0.	0.	0.	0.
0	0	0	0	0	0	0	0	22	0	0	0	0	0
0.	0.	0.	0.	0.	0.	0.	0.	4.6	0.	0.	0.	0.	0.
-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	75.8	-0.	-0.	-0.	-0.	-0.
-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	8.7	-0.	-0.	-0.	-0.	-0.

FUNCTION 9
TCT.HOURS CWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

4.5	8.1	0.	0.	0.	0.	184.
6	8	0	0	0	0	3
0.7	1.0	0.	0.	0.	0.	61.
0.3	1.1	-0.	-0.	-0.	-0.	7906.
0.6	1.1	-0.	-0.	-0.	-0.	89.

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FUNCTION 10
TCT.HOURS CWN

0.	0.	0.	0.	0.	0.	0.	0.	0.	5.9	0.	0.	0.	0.
----	----	----	----	----	----	----	----	----	-----	----	----	----	----

AVERAGE DOWN	0.	0.	C.	0.	0.	0.	0.	0.	0.	0.	1.5	0.	0.	0.	0.
VARIANCE	-0.	-0.	-C.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	1.1	-0.	-0.	-0.	-0.
STD.DEVIATION	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	1.0	-0.	-0.	-0.	-0.

FUNCTION 10															
TCT.HOURS DOWN	0.	0.2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
AVERAGE DOWN	0.	0.2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
VARIANCE	-0.	0.	-C.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	-0.	0.	-C.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.

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FUNCTION 11															
TCT.HOURS DOWN	12.8	0.	0.	0.	0.	0.	0.	0.	0.	0.	24.7	0.	0.	0.	0.
INCIDENTS	7	0	0	0	0	0	0	0	0	0	11	0	0	0	0
AVERAGE DOWN	1.8	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.2	0.	0.	0.	0.
VARIANCE	16.4	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	2.7	-0.	-0.	-0.	-0.
STD.DEVIATION	4.0	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	1.6	-0.	-0.	-0.	-0.

FUNCTION 11															
TCT.HOURS DOWN	0.5	1.0	0.4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0
AVERAGE DOWN	0.2	0.2	0.4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
VARIANCE	0.0	0.0	C.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	0.1	0.1	C.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.

FUNCTION 12															
TCT.HOURS DOWN	8.1	0.	C.	0.	0.	1.2	0.	0.	0.	0.	8.5	26.8	0.	0.	0.
INCIDENTS	3	0	0	0	0	1	0	0	0	0	5	13	0	0	0
AVERAGE DOWN	2.7	0.	C.	0.	0.	1.2	0.	0.	0.	0.	1.7	2.1	0.	0.	0.
VARIANCE	7.7	-0.	-0.	-0.	-0.	0.	-0.	-0.	-0.	-0.	1.2	3.5	-0.	-0.	-0.
STD.DEVIATION	2.8	-0.	-C.	-0.	-0.	0.	-0.	-0.	-0.	-0.	1.1	1.9	-0.	-0.	-0.

FUNCTION 12															
TCT.HOURS DOWN	1.5	2.3	3.4	2.0	0.	0.	40.								
INCIDENTS	4	6	1	1	0	0	4								
AVERAGE DOWN	0.2	0.4	3.4	2.0	0.	0.	10.								
VARIANCE	0.0	0.1	C.	0.	-0.	-0.	140.								
STD.DEVIATION	0.2	0.3	C.	0.	-0.	-0.	12.								

FUNCTION 13															
TCT.HOURS DOWN	2.4	0.	C.	0.	0.	0.	0.	0.	0.	0.	2.0	0.	0.5	0.	0.
INCIDENTS	3	0	0	0	0	0	0	0	0	0	1	0	1	0	0
AVERAGE DOWN	0.8	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.0	0.	0.5	0.	0.
VARIANCE	0.3	-0.	-C.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	0.	-0.	0.	-0.	-0.

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FUNCTION 13
TCT-HOURS CWN
INCIDENTS
AVERAGE DCWN
VARIANCE
STD.DEVIATION

0. 0. 0. 0. 0. 0. 0.
0. 0. 0. 0. 0. 0. 0.
-0. -0. -0. -0. -0. -0. -0.
-0. -0. -0. -0. -0. -0. -0.

FUNCTION 14
TCT-HOURS CWN
INCIDENTS
AVERAGE DCWN
VARIANCE
STD.DEVIATION

44.2 0. 0. 0. 0. 0. 0.
7 0. 0. 0. 0. 0. 0.
6.3 0. 0. 0. 0. 0. 0.
55.9 -0. -0. -0. -0. -0. -0.
7.5 -0. -0. -0. -0. -0. -0.

FUNCTION 14
TCT-HOURS CWN
INCIDENTS
AVERAGE DCWN
VARIANCE
STD.DEVIATION

6.5 9.5 0. 0. 0. 0. 0.
8 10 0. 0. 0. 0. 0.
0.6 0.9 0. 0. 0. 0. 0.
0.4 1.0 0. 0. 0. 0. 0.
0.6 1.0 0. 0. 0. 0. 0.

FUNCTION 15
TCT-HOURS CWN
INCIDENTS
AVERAGE DCWN
VARIANCE
STD.DEVIATION

65.9 1.6 0. 0. 0. 0. 0.
31 7 0. 0. 0. 0. 0.
2.1 0.2 0. 0. 0. 0. 0.
2.1 0.0 0. 0. 0. 0. 0.
1.4 0.1 0. 0. 0. 0. 0.

FUNCTION 15
TCT-HOURS CWN
INCIDENTS
AVERAGE DCWN
VARIANCE
STD.DEVIATION

0. 0. 0. 0. 0. 0. 0.
0. 0. 0. 0. 0. 0. 0.
-0. -0. -0. -0. -0. -0. -0.
-0. -0. -0. -0. -0. -0. -0.

FUNCTION 16
TCT-HOURS CWN
INCIDENTS
AVERAGE DCWN
VARIANCE
STD.DEVIATION

91.4 2.6 0. 0. 0. 0. 0.
35 7 0. 0. 0. 0. 0.
2.6 0.4 0. 0. 0. 0. 0.
4.5 0.0 0. 0. 0. 0. 0.
2.1 0.1 0. 0. 0. 0. 0.

FUNCTION 16

INCIDENTS	0	0	0	0	0	0	0
AVERAGE DOWN	0.	0.	0.	0.	0.	0.	0.
VARIANCE	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	-0.	-0.	-0.	-0.	-0.	-0.	-0.

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FUNCTION 17														
TCT.HOURS DOWN	11.6	0.	0.	0.	1.8	1.0	0.	14.6	4.2	8.4	0.	0.	0.	0.
INCIDENTS	5	0	0	0	2	1	0	5	4	5	0	0	0	0
AVERAGE DOWN	2.4	0.	0.	0.	0.9	1.0	0.	2.9	1.0	1.7	0.	0.	0.	0.
VARIANCE	6.1	-0.	-0.	-0.	0.3	0.	-0.	21.8	1.0	1.9	-0.	-0.	-0.	-0.
STD.DEVIATION	2.5	-0.	-0.	-0.	0.6	0.	-0.	4.7	1.0	1.4	-0.	-0.	-0.	-0.

FUNCTION 17							
TCT.HOURS DOWN	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	0	0	0	0	0	0	0
AVERAGE DOWN	0.	0.	0.	0.	0.	0.	0.
VARIANCE	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	-0.	-0.	-0.	-0.	-0.	-0.	-0.

FUNCTION 18														
TCT.HOURS DOWN	27.4	0.7	0.	4.0	2.3	3.1	0.	11.6	0.	0.8	0.	2.0	0.	0.
INCIDENTS	16	2	0	1	3	4	0	6	0	1	0	1	0	0
AVERAGE DOWN	1.7	0.3	0.	4.0	0.8	0.8	0.	1.9	0.	0.8	0.	2.0	0.	0.
VARIANCE	3.6	0.0	-0.	0.	0.1	0.3	-0.	11.4	-0.	0.	-0.	0.	-0.	-0.
STD.DEVIATION	1.9	0.2	-0.	0.	0.3	0.6	-0.	3.4	-0.	0.	-0.	0.	-0.	-0.

FUNCTION 18							
TCT.HOURS DOWN	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	0	0	0	0	0	0	0
AVERAGE DOWN	0.	0.	0.	0.	0.	0.	0.
VARIANCE	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	-0.	-0.	-0.	-0.	-0.	-0.	-0.

FUNCTION 19														
TCT.HOURS DOWN	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AVERAGE DOWN	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
VARIANCE	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.

FUNCTION 19							
TCT.HOURS DOWN	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	0	0	0	0	0	0	0
AVERAGE DOWN	0.	0.	0.	0.	0.	0.	0.

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STD.DEVIATION

-0. -0. -0. -0. -0. -0. -0. -0.

FUNCTION 20
TCT.HOURS DWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.
0 0 0 0 0 0 0 0 0 0 0 0 0 0
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.
-0. -0. -0. -0. -0. -0. -0. -0. -0. -0. -0. -0. -0. -0.
-0. -0. -0. -0. -0. -0. -0. -0. -0. -0. -0. -0. -0. -0.

FUNCTION 20
TCT.HOURS DWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

0. 0. 0. 0. 0. 0. 0.
0 0 0 0 0 0 0
0. 0. 0. 0. 0. 0. 0.
-0. -0. -0. -0. -0. -0. -0.
-0. -0. -0. -0. -0. -0. -0.

FUNCTION 21
TCT.HOURS DWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

21.1 0. 0. 0. 5.2 52.6 0. 0. 0. 0. 10.3 0. 0. 0.
4 0 0 0 1 11 0 0 0 0 4 0 0 0
5.3 0. 0. 0. 5.2 4.8 0. 0. 0. 0. 2.6 0. 0. 0.
2.1 -0. -0. -0. 0. 17.8 -0. -0. -0. -0. 1.5 -0. -0. -0.
1.4 -0. -0. -0. 0. 4.2 -0. -0. -0. -0. 1.2 -0. -0. -0.

FUNCTION 21
TCT.HOURS DWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

1.7 1.9 2.0 1.2 0. 0. 819.
6 5 3 2 0 0 16
0.3 0.4 0.7 0.6 0. 0. 51.
0.0 0.0 0.1 0.0 -0. -0. 3481.
0.1 0.2 0.3 0.1 -0. -0. 59.

FUNCTION 22
TCT.HOURS DWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

0.3 0. 0. 0. 0. 0. 0. 0. 2.8 0. 0. 1.7 0. 0.
1 0 0 0 0 0 0 0 2 0 0 5 0 0
0.3 0. 0. 0. 0. 0. 0. 0. 1.4 0. 0. 0.3 0. 0.
0. -0. -0. -0. -0. -0. -0. -0. 2.9 -0. -0. 0.1 -0. -0.
0. -0. -0. -0. -0. -0. -0. -0. 1.7 -0. -0. 0.3 -0. -0.

FUNCTION 22
TCT.HOURS DWN
INCIDENTS
AVERAGE DWN
VARIANCE
STD.DEVIATION

0. 0. 0. 0. 0. 0. 0.
0 0 0 0 0 0 0
0. 0. 0. 0. 0. 0. 0.
-0. -0. -0. -0. -0. -0. -0.
-0. -0. -0. -0. -0. -0. -0.

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SLB TOTAL DELINEATION

FUNCTION 1		ASSOCIATED DELAY TOTALS		TOTAL TUBES
SUM#BASIC&SECCNCARIES	355.0	SUM OF DELAYS	76.2	SUM 4647.
NUMBER OF INCIDENTS	35	INCIDENTS	35	CNT 35
AVERAGE HOURS REQD.	10.1	AVERAGE	2.2	AVG 133.
VARIANCE	175.2	VARIANCE	4.6	
STD. DEVIATION	13.2	STD.DEVIATION	2.1	

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FUNCTION 2		ASSOCIATED DELAY TOTALS		TOTAL TUBES
SUM#BASIC&SECCNCARIES	90.8	SUM OF DELAYS	14.6	SUM 750.
NUMBER OF INCIDENTS	34	INCIDENTS	34	CNT 34
AVERAGE HOURS REQD.	2.7	AVERAGE	0.4	AVG 22.
VARIANCE	9.8	VARIANCE	0.3	
STD. DEVIATION	3.1	STD.DEVIATION	0.5	

FUNCTION 3		ASSOCIATED DELAY TOTALS		TOTAL TUBES
SUM#BASIC&SECCNCARIES	15.3	SUM OF DELAYS	1.9	SUM 60.
NUMBER OF INCIDENTS	11	INCIDENTS	11	CNT 11
AVERAGE HOURS REQD.	1.4	AVERAGE	0.2	AVG 5.
VARIANCE	4.2	VARIANCE	0.1	
STD. DEVIATION	2.1	STD.DEVIATION	0.3	

FUNCTION 4		ASSOCIATED DELAY TOTALS		TOTAL TUBES
SUM#BASIC&SECCNCARIES	96.6	SUM OF DELAYS	29.4	SUM 12.
NUMBER OF INCIDENTS	13	INCIDENTS	13	CNT 13
AVERAGE HOURS REQD.	7.4	AVERAGE	2.3	AVG 1.
VARIANCE	149.0	VARIANCE	8.3	
STD. DEVIATION	12.2	STD.DEVIATION	2.9	

FUNCTION 5		ASSOCIATED DELAY TOTALS		TOTAL TUBES
SUM#BASIC&SECCNCARIES	446.0	SUM OF DELAYS	109.0	SUM 70.
NUMBER OF INCIDENTS	29	INCIDENTS	29	CNT 29
AVERAGE HOURS REQD.	15.4	AVERAGE	3.8	AVG 2.
VARIANCE	302.9	VARIANCE	3.3	

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FUNCTION 6		ASSOCIATED DELAY TOTALS		TOTAL TUBES
SUM#BASIC&SECCNCARIES	702.8	SUM OF DELAYS	94.0	SUM 878.
NUMBER OF INCIDENTS	23	INCIDENTS	23	CNT 23
AVERAGE HOURS REQD.	30.6	AVERAGE	4.1	AVG 38.
VARIANCE	3876.4	VARIANCE	50.0	
STD. DEVIATION	62.3	STD.DEVIATION	7.1	

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FUNCTION 7		ASSOCIATED DELAY TOTALS		TOTAL TUBES
SUM#BASIC&SECCNCARIES	26.5	SUM OF DELAYS	2.6	SUM 14.
NUMBER OF INCIDENTS	9	INCIDENTS	9	CNT 9
AVERAGE HOURS REQD.	2.9	AVERAGE	0.3	AVG 2.
VARIANCE	13.7	VARIANCE	0.1	
STD. DEVIATION	3.7	STD.DEVIATION	0.3	

FUNCTION 21		ASSOCIATED DELAY TOTALS		TOTAL TUBES
SUM#BASIC&SECCNCARIES	89.2	SUM OF DELAYS	6.8	SUM 819.
NUMBER OF INCIDENTS	16	INCIDENTS	16	CNT 16
AVERAGE HOURS REQD.	5.6	AVERAGE	0.4	AVG 51.
VARIANCE	47.0	VARIANCE	0.6	
STD. DEVIATION	6.9	STD.DEVIATION	0.8	

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REACTOR 3 OUTAGE FUNCTION EXPECTATION REPORT

APRIL 1961 TO MAY15 1962

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THIS IS AN EXPLANATORY REPORT ILLUSTRATING
AVERAGE TIME REQUIREMENTS AND EXPECTED
VARIANCES FOR THE BASIC TASKS REQUIRED
TO RE-ESTABLISH ON-LINE PRODUCTION STATUS.
**ALL DATA IN HOURS-EXCEPT SECONDARY FUNCTION=21=TUBE COUNT.

** INCIDENT EXPERIENCE BY CAUSE FUNCTION **

SECONDARY
FUNCTION NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
FUNCTION TOTAL	46	23	3	7	17	24	9	47	40	11	17	14	9	7	46	50	20	28	0	1	46

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	15	16	2	3	4	5	6	7	8	9
*****										
FUNCTION TOTAL										
TOT. HOURS RUN	562.4	53.9	31.0	46.0	265.4	422.3	26.6	701.6	177.2	
INCIDENTS	46	23	3	7	17	24	9	17	40	
AVERAGE DOW	14.6	2.3	1.0	6.6	15.6	17.6	3.0	15.0	4.4	
VARIANCE	293.3	2.9	0.4	108.2	76.0	188.7	4.0	1125.8	49.9	
STD. DEVIATION	17.1	1.7	0.6	10.4	8.7	13.7	2.0	33.6	7.1	
*****										
FUNCTION TOTAL										
TOT. HOURS RUN	134.9	199.9	48.2	59.2	0.	5.2	7474.			
INCIDENTS	46	50	20	28	0	1	46			
AVERAGE DOW	2.9	4.0	2.4	2.1	0.	5.2	162.			
VARIANCE	0.9	3.2	8.7	7.5	-0.	0.	44636.			
STD. DEVIATION	1.0	1.8	2.9	2.7	-0.	0.	211.			

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	REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
TOTAL HOURS DOWN								
CAUSE 1	0.	448.5	308.3	173.2	43.1	0.	431.8	643.1
CAUSE 2	516.4	978.0	584.2	742.7	373.3	642.8	334.0	243.3
CAUSE 3	805.1	192.1	538.8	794.8	699.4	1148.4	0.	0.
CAUSE 4	1681.8	526.7	1172.7	831.3	829.6	917.8	0.	33.4
CAUSE 5	4.1	10.2	50.6	173.8	133.3	127.7	663.6	334.1
CAUSE 6	31.1	72.4	146.4	35.3	1.8	4.7	0.	38.0
CAUSE 7	0.	56.0	5.4	0.	134.6	116.5	2.1	0.
CAUSE 8	0.	3.6	0.	0.	6.3	0.	0.	0.
CAUSE 9	72.6	0.5	121.5	274.1	41.8	0.	0.6	92.7
CAUSE10	0.	0.	0.	0.	0.	0.	0.	1.1
CAUSE11	0.1	0.	0.	0.	0.	0.	117.5	0.
CAUSE12	0.	200.6	0.	0.	0.	0.	0.	0.
CAUSE13	102.8	43.4	0.	0.	188.9	0.	0.	0.
CAUSE14	52.9	0.	0.5	89.2	27.1	0.5	0.	0.
CAUSE15	37.7	0.	0.	0.	0.	0.	0.	0.
CAUSE16	7.5	11.1	0.	3.1	0.	2.5	0.	0.

APPENDIX

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- Cause 1 - Scheduled Charge-Discharge
- 2 - Rupture
- 3 - Tube Replacement
- 4 - Water Leaks
- 5 - Control Trips (Fancellit, Beckman, etc.)
- 6 - Front Face Leaks
- 7 - Rear Face Leaks
- 8 - Production Test
- 9 - Electrical Power Failure
- 10 - Oriface Failure
- 11 - Control Rod Failure
- 12 - Scheduled Overbore
- 13 - Water Supply Failure
- 14 - Ball Drop - Loss of Reactivity
- 15 - Plugged Rear Nozzles
- 16 - Faulty Thermocouples

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	REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
CAUSE 1	0	4	3	2	1	0	6	9
CAUSE 2	9	14	13	18	9	21	8	6
CAUSE 3	2	1	2	2	4	6	0	0
CAUSE 4	29	11	22	14	15	25	0	1
CAUSE 5	4	16	10	12	5	24	21	19
CAUSE 6	1	2	4	1	1	3	0	1
CAUSE 7	0	3	2	0	4	4	2	0
CAUSE 8	0	1	0	0	1	0	0	0
CAUSE 9	2	1	5	2	1	0	1	1
CAUSE10	0	0	0	0	0	0	0	1
CAUSE11	1	0	0	0	0	0	2	0
CAUSE12	0	2	0	0	0	0	0	0
CAUSE13	2	1	0	0	3	0	0	0
CAUSE14	2	0	1	2	2	2	0	0
CAUSE15	2	0	0	0	0	0	0	0
CAUSE16	2	2	0	2	0	2	0	0

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	REACTOR1		REACTOR2		**DOWN INCIDENT AVERAGE AND STANDARD DEVIATION*		REACTOR3		REACTOR4		REACTOR5		REACTOR6		REACTOR7		REACTOR8	
CAUSE 1	0.	0.	112.1	38.3	102.8	18.4	86.6	68.5	43.1	0.	0.	0.	0.	72.0	9.7	71.5	9.6	
CAUSE 2	57.4	28.4	69.9	73.0	44.9	21.2	41.3	5.1	41.5	21.7	30.6	13.8	41.8	35.6	40.6	27.4		
CAUSE 3	402.5	27.6	192.1	0.	269.4	168.8	397.4	75.6	174.8	142.4	191.4	148.6	0.	0.	0.	0.		
CAUSE 4	58.0	36.5	47.9	30.3	53.3	16.2	59.4	24.9	55.3	17.0	36.7	25.4	0.	0.	33.4	0.		
CAUSE 5	1.0	1.2	0.6	0.5	5.1	12.6	14.5	20.9	26.7	26.5	5.3	10.5	31.6	25.9	17.6	16.6		
CAUSE 6	31.1	0.	36.2	0.5	36.6	29.3	35.3	0.	1.8	0.	1.6	0.6	0.	0.	38.0	0.		
CAUSE 7	0.	0.	18.7	30.7	2.7	3.1	0.	0.	33.6	37.3	29.1	57.7	1.1	0.1	0.	0.		
CAUSE 8	0.	0.	3.6	0.	0.	0.	0.	0.	6.3	0.	0.	0.	0.	0.	0.	0.		
CAUSE 9	36.3	8.5	0.5	0.	24.3	22.4	137.0	142.5	41.8	0.	0.	0.	0.6	0.	92.7	0.		
CAUSE10	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.1	0.		
CAUSE11	0.1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	58.7	3.2	0.	0.		
CAUSE12	0.	0.	100.3	84.1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.		
CAUSE13	51.4	70.4	43.4	0.	0.	0.	0.	0.	63.0	25.4	0.	0.	0.	0.	0.	0.		
CAUSE14	26.5	36.1	0.	0.	0.5	0.	44.6	23.9	13.5	5.5	0.2	0.0	0.	0.	0.	0.		
CAUSE15	18.8	25.9	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.		
CAUSE16	3.8	3.1	5.6	7.6	0.	0.	1.5	1.6	0.	0.	1.3	0.6	0.	0.	0.	0.		

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****DOWN INCIDENT SUMMARY- TOTAL HOURS, PERCENTAGE OF TOTAL DEPARTMENT HOURS AND TIME OPERATING EFFICIENCY****

	REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
TOTAL	3312.2	2543.2	2928.4	3117.4	2479.1	2961.0	1549.8	1385.7
PERCENT	16.335	12.542	14.442	15.374	12.226	14.603	7.643	6.834
EFFENCY	0.664	0.742	0.703	0.684	0.749	0.700	0.843	0.860

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DEPARTMENT SUMMARY**

	TOTAL HOURS	TIMES DOWN	AVERAGE	STANDARD DEVIATION
CAUSE 1	2048.0	25.0	81.9	28.2
CAUSE 2	4414.8	90.0	45.0	34.7
CAUSE 3	4178.7	17.0	245.8	146.4
CAUSE 4	5993.4	117.0	51.2	27.5
CAUSE 5	1497.4	111.0	13.5	19.9
CAUSE 6	329.8	13.0	25.4	22.1
CAUSE 7	314.6	15.0	21.0	36.3
CAUSE 8	9.8	2.0	4.9	1.9
CAUSE 9	603.7	13.0	46.4	63.1
CAUSE10	1.1	1.0	1.1	0.
CAUSE11	117.6	3.0	39.2	33.9
CAUSE12	200.6	2.0	100.3	84.1
CAUSE13	335.1	6.0	55.8	36.3
CAUSE14	170.2	9.0	18.9	23.5
CAUSE15	37.7	2.0	18.8	25.9
CAUSE16	24.3	0.0	3.0	3.7

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INTERVAL BETWEEN LIKE OUTAGES BY CAUSE
CAUSE 1

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
	1040.3	749.9	486.6			977.6	857.7
	1147.4	6621.5				1069.4	747.8
	2299.6					760.5	1055.8
						826.8	1591.4
						1552.7	473.2
							412.3
							642.9
							917.2

INTERVAL BETWEEN LIKE OUTAGES BY CAUSE
CAUSE 2

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
334.6	170.0	444.1	502.2	189.2	418.9	1.8	2864.7
138.2	834.2	2898.2	1965.7	136.1	2.4	186.8	594.2
3.3	34.7	36.2	395.5	1528.8	1274.2	538.6	2881.2
1067.0	2970.2	253.5	142.1	207.0	1165.6	395.0	16.1
4788.8	251.7	545.9	203.7	62.9	519.5	5722.4	1138.6
1136.8	1007.9	1085.8	41.3	2.0	26.6	1439.6	
193.3	360.6	978.1	93.7	900.2	74.9	96.4	
1491.5	224.7	494.8	74.2	12.7	660.8		
	375.9	395.8	28.1		1625.4		
	1415.7	1309.1	38.0		198.3		
	212.1	6.6	1120.8		129.8		
	402.9	105.0	270.4		45.6		
	27.9		1720.8		127.2		
			916.8		12.2		
			105.4		183.4		
			88.2		79.0		
			116.9		64.1		
					1083.4		
					337.1		
					901.9		

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****INTERVAL BETWEEN LIKE OUTAGES BY CAUSE****

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
1794.7		1515.0	1445.1	1934.1	1050.3		
				3004.4	2841.2		
				1419.6	1117.1		
					1675.2		
					1112.3		

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HW-57168 C

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INTERVAL BETWEEN LIKE OUTAGES BY CAUSE
CAUSE 4

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
81.4	2.7	1402.1	61.3	6.6	2.9		
1472.5	666.8	506.1	425.8	2107.1	538.4		
430.9	69.0	335.7	103.0	16.2	453.2		
49.7	99.5	326.7	522.0	105.8	192.0		
111.1	184.4	174.3	162.5	577.0	580.9		
229.2	3507.2	776.9	529.8	399.6	203.4		
255.5	1255.8	31.2	69.1	278.4	584.7		
89.1	76.1	81.8	3096.1	1461.8	356.5		
12.0	1360.7	519.0	281.9	6.7	314.1		
99.5	300.8	195.8	1082.6	105.0	182.5		
109.2		132.5	458.2	352.5	92.5		
124.4		139.8	506.7	326.2	73.4		
156.2		43.1	1035.5	139.8	92.3		
2.3		385.6		959.0	448.3		
148.4		266.2			160.7		
49.4		119.0			70.7		
121.0		76.2			140.6		
75.6		145.6			113.6		
62.5		197.4			304.5		
347.6		270.0			136.8		
137.6		1989.8			1457.5		
903.5					69.2		
36.2					781.4		
152.3					365.5		
365.8							
150.1							
249.0							
161.1							

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INTERVAL BETWEEN LIKE OUTAGES BY CAUSE
CAUSE 5

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
631.1	1203.3	1393.1	2782.2	73.3	305.1	353.6	15.6
1645.3	3.3	2963.8	293.5	4878.6	308.2	323.1	574.4
2217.9	2368.3	529.6	622.6	210.8	205.6	628.3	322.8
	968.9	786.1	286.9	1453.6	357.5	1252.5	712.5
	36.1	358.8	326.6		1094.9	148.0	41.6
	136.6	1045.7	117.7		1.1	585.2	2462.0
	1183.7	0.1	69.6		1044.4	308.2	1008.4
	63.1	492.5	925.7		0.3	130.9	714.7
	1050.3	66.3	1139.2		1.4	558.4	51.5
	987.1		1881.9		0.6	226.4	330.9
	411.6		332.0		1407.1	792.9	0.2
	840.6				11.7	208.3	1.1
	1.3				3.3	357.8	0.7
	0.5				15.5	646.0	70.2
	0.4				5.3	483.7	457.1
					65.6	4.1	179.2
					110.9	1586.2	447.9
					0.9	1.4	928.0
					1063.7	19.1	
					742.6	317.3	
					702.6		
					0.6		
					975.2		

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****INTERVAL BETWEEN LIKE OUTAGES BY CAUSE****

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
	6044.2	1214.6			657.6		
		3074.2			660.1		
		1649.0					

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HW-57168 C

****INTERVAL BETWEEN LIKE OUTAGES BY CAUSE****
CAUSE 7

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
	4389.9	3551.9		529.7	704.3	1079.1	
	4147.9			753.4	1000.8		
				6536.2	2965.5		

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REACTOR1 REACTOR2 **INTERVAL BETWEEN LIKE OUTAGES BY CAUSE** REACTOR3 REACTOR4 CAUSE 8 REACTOR5 REACTOR6 REACTOR7 REACTOR8

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••INTERVAL BETWEEN LIKE OUTAGES BY CAUSE••
CAUSE 9

REACTOR1
5588.9

REACTOR2

REACTOR3
1373.5
17.8
3146.1
1833.2

REACTOR4
6220.0

REACTOR5

REACTOR6

REACTOR7

REACTOR8

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****INTERVAL BETWEEN LIKE OUTAGES BY CAUSE****
CAUSE10

REACTOR1

REACTOR2

REACTOR3

REACTOR4

REACTOR5

REACTOR6

REACTOR7

REACTOR8

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****INTERVAL BETWEEN LIKE OUTAGES BY CAUSE****

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
						540.7	

CAUSE11

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HW-57168 C

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****INTERVAL BETWEEN LIKE OUTAGES BY CAUSE****

REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
	3112.7						

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EW-57168 C

••INTERVAL BETWEEN LIKE OUTAGES BY CAUSE••
CAUSE13

REACTOR1
272.6

REACTOR2

REACTOR3

REACTOR4

REACTOR5
517.8
28.6

REACTOR6

REACTOR7

REACTOR8

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EW-57168 C

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REACTOR1
312.5

REACTOR2

REACTOR3

REACTOR4
115.3

REACTOR5
10.1

REACTOR6
1.1

REACTOR7

REACTOR8

INTERVAL BETWEEN LIKE OUTAGES BY CAUSE
CAUSE14

INTERVAL BETWEEN LIKE OUTAGES BY CAUSE**
CAUSE15

REACTOR1
5512.3

REACTOR2

REACTOR3

REACTOR4

REACTOR5

REACTOR6

REACTOR7

REACTOR8

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REACTOR8

BM-57268 C

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SUMMARY OF INTERVALS--AVERAGES AND STANDARD DEVIATIONS

	REACTOR1	REACTOR2	REACTOR3	REACTOR4	REACTOR5	REACTOR6	REACTOR7	REACTOR8
CAUSE 1	0.	0.	1495.8	698.2	3685.7	4151.8	486.6	0.
CAUSE 2	1144.2	1571.3	637.6	810.2	712.8	804.9	460.2	608.0
CAUSE 3	1794.7	0.	0.	0.	1515.0	0.	1445.1	0.
CAUSE 4	220.8	302.5	752.3	1088.3	386.4	480.9	641.1	806.9
CAUSE 5	1498.1	803.6	617.0	689.9	848.5	909.2	798.0	850.0
CAUSE 6	0.	0.	6044.2	0.	1979.3	972.8	0.	0.
CAUSE 7	0.	0.	4268.9	171.1	3551.9	0.	0.	0.
CAUSE 8	0.	0.	0.	0.	0.	0.	0.	0.
CAUSE 9	5586.9	0.	0.	0.	1592.6	1290.9	6220.0	0.
CAUSE 10	0.	0.	0.	0.	0.	0.	0.	0.
CAUSE 11	0.	0.	0.	0.	0.	0.	0.	0.
CAUSE 12	0.	0.	3112.7	0.	0.	0.	0.	0.
CAUSE 13	272.6	0.	0.	0.	0.	0.	0.	0.
CAUSE 14	312.5	0.	0.	0.	0.	115.3	0.	0.
CAUSE 15	5512.3	0.	0.	0.	0.	0.	0.	0.
CAUSE 16	3936.5	0.	3340.8	0.	0.	0.	8137.4	0.

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1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910
301/587-8202

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