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HANFORD ATOMIC PRODUCTS OPERATION - RICHLAND, WASHINGTON

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TITLE

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

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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	

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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

REACTOR 7 OUTAGE FUNCTION EXPECTATION REPORT

APRIL 1961 TO MAY 15 1962

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.

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** 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	24	0	0	0	0	0	0	0	0	0	0	0	0	2	21	23	11	5	1	0	24
FUNCTION 2	9	15	0	0	0	0	0	0	0	0	0	0	0	0	20	19	0	1	0	0	24
FUNCTION 3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
FUNCTION 4	3	0	0	1	0	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	4
FUNCTION 5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
FUNCTION 6	1	0	1	0	0	1	0	4	0	0	0	0	0	0	4	3	0	0	0	0	4
FUNCTION 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FUNCTION 8	0	0	0	0	0	0	0	24	10	3	0	0	4	0	14	16	2	3	0	0	0
FUNCTION 9	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0
FUNCTION 10	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	1	1	0	0	0
FUNCTION 11	3	0	0	0	0	0	0	4	0	0	5	0	0	0	4	4	0	0	0	0	0
FUNCTION 12	11	15	0	3	0	1	0	13	2	0	7	14	2	0	20	22	1	1	0	0	2
FUNCTION 13	0	0	0	0	0	0	0	4	0	0	4	0	0	0	7	8	0	0	0	0	0
FUNCTION 14	1	1	0	0	0	0	0	4	1	1	0	0	5	2	4	6	0	0	0	0	0
FUNCTION 15	19	10	0	1	0	2	0	4	0	0	1	10	3	3	0	0	0	0	0	0	0
FUNCTION 16	20	10	0	2	0	2	0	4	0	0	1	11	5	3	0	0	0	0	0	0	0
FUNCTION 17	8	0	0	0	0	0	0	2	2	2	0	0	0	0	1	1	0	0	0	0	0

FUNCTION 18	7	0	0	0	0	0	0	2	2	0	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	14	0	0	0	0	8	0	1	0	0	8	0	0	0	9	9	1	1	0	
FUNCTION 22	0	0	0	0	0	0	0	1	3	0	2	4	0	0	0	0	0	0	0	

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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														
TCT-HOURS DWN	407.4	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.9
INCIDENTS	24	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2
AVERAGE DGM	15.7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.4
VARIANCE	88.4	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	0.8
STD.DEVIATION	9.4	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	0.9
FUNCTION 1														
TCT-HOURS DWN	29.2	33.5	13.7	17.4	2.4	0.	11054.							
INCIDENTS	21	23	11	3	1	0	24							
AVERAGE DGM	1.4	1.5	1.2	3.5	2.4	0.	441.							
VARIANCE	0.6	0.9	0.8	15.0	0.	-0.	113035.							
STD.DEVIATION	0.8	1.0	0.9	3.9	0.	-0.	336.							
FUNCTION 2														
TCT-HOURS DWN	65.4	92.8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	4	15	0	0	0	0	0	0	0	0	0	0	0	0
AVERAGE DGM	7.3	8.2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
VARIANCE	20.0	5.5	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	4.5	2.4	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
FUNCTION 2														
TCT-HOURS DWN	11.5	9.8	0.	0.2	0.	0.	2937.							
INCIDENTS	20	19	0	1	0	0	24							
AVERAGE DGM	0.4	0.5	0.	0.2	0.	0.	122.							
VARIANCE	0.1	0.1	-0.	0.	-0.	-0.	8363.							
STD.DEVIATION	0.3	0.3	-0.	0.	-0.	-0.	91.							
FUNCTION 3														
TCT-HOURS DWN	2.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
INCIDENTS	3	0	0	0	0	0	0	0	0	0	0	0	0	0
AVERAGE DGM	0.7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
VARIANCE	0.1	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
STD.DEVIATION	0.3	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.
FUNCTION 3														
TCT-HOURS DWN	0.	0.	0.	0.	0.	0.	14.							
INCIDENTS	0	0	0	0	0	0	3							
AVERAGE DGM	0.	0.	0.	0.	0.	0.	5.							
VARIANCE	-0.	-0.	-0.	-0.	-0.	-0.	22.							
STD.DEVIATION	-0.	-0.	-0.	-0.	-0.	-0.	5.							

FUNCTION 4
TCT.HOURS CMN 3.5 0.0 0.0 4.5 0.0 0.0 14.9 2.2 0.0 0.0 0.0 0.0 0.0
INCIDENTS 1.2 0.0 0.0 4.5 0.0 0.0 14.9 1.1 0.0 0.0 0.0 0.0 0.0
AVERAGE DCNM 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.6 0.0 0.0 0.0 0.0 0.0
VARIANCE 0.2 0.0 0.0 0.0 0.0 0.0 0.0 1.3 0.0 0.0 0.0 0.0 0.0
STD.DEVIATION

FUNCTION 4
TCT.HOURS CMN 0.3 1.5 0.0 0.0 0.0 0.0 4.0
INCIDENTS 1.1 2.0 0.0 0.0 0.0 0.0 1.0
AVERAGE DCNM 0.3 0.7 0.0 0.0 0.0 0.0 1.0
VARIANCE 0.0 0.1 0.0 0.0 0.0 0.0 0.0
STD.DEVIATION

FUNCTION 5
TCT.HOURS CMN 0.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0
INCIDENTS 0.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0
AVERAGE DCNM 0.0 0.0 0.0 0.0 0.0 0.0 1.0 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 0.0 0.0 0.0 0.0 0.0
STD.DEVIATION

FUNCTION 5
TCT.HOURS CMN 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 DCNM 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

FUNCTION 4
TCT.HOURS CMN 0.4 0.0 0.3 0.0 0.0 2.7 0.0 29.0 0.0 0.0 0.0 0.0
INCIDENTS 0.1 0.0 0.1 0.0 0.0 2.7 0.0 7.2 0.0 0.0 0.0 0.0
AVERAGE DCNM 0.4 0.0 0.1 0.0 0.0 0.0 0.0 23.5 0.0 0.0 0.0 0.0
VARIANCE 0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.8 0.0 0.0 0.0 0.0
STD.DEVIATION

FUNCTION 6
TCT.HOURS CMN 3.4 1.7 0.0 0.0 0.0 0.0 11.0
INCIDENTS 0.4 0.3 0.0 0.0 0.0 0.0 4.0
AVERAGE DCNM 0.8 0.6 0.0 0.0 0.0 0.0 3.0
VARIANCE 0.5 0.2 0.0 0.0 0.0 0.0 2.0
STD.DEVIATION

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FUNCTION	7
TCT-ANCURS CUN	0.0
INCIDENTS	0.0
AVERAGE DQWN	-0.0
VARIANCE	-0.0
STO.DEVIATION	-0.0

FUNCTION	7
TCT, HOURS DOWN	0.
INCIDENTS	0.
AVERAGE DOWN	0.
VARIANCE	-0.
STD. DEVIATION	-0.

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FUNCTION	8	16	32	64	128	256	512	1024	2048	4096	8192	16384	32768	65536	131072	262144	524288	1048576	2097152	4194304	8388608	16777216	33554432	67108864	134217728	268435456	536870912	1073741824	2147483648	4294967296	8589934592	17179869184	34359738368	68719476736	137438953472	274877906944	549755813888	1099511627776	2199023255552	4398046511104	8796093022208	17592186044416	35184372088832	70368744177664	140737488355328	281474976710656	562949953421312	1125899906842624	2251799813685248	4503599627370496	9007199254740992	18014398509481984	36028797018963968	72057594037927936	144115188075855872	288230376151711744	576460752303423488	1152921504606846976	2305843009213693952	4611686018427387904	9223372036854775808	18446744073709551616	36893488147419103232	73786976294838206464	147573952589676412928	295147905179352825856	590295810358705651712	1180591620717411303424	2361183241434822606848	4722366482869645213696	9444732965739290427392	18889465931478580854784	37778931862957161709568	75557863725914323419136	151115727451828646838272	302231454903657293676544	604462909807314587353088	1208925819614629174706176	2417851639229258349412352	4835703278458516698824704	9671406556917033397649408	19342813113834066795298816	38685626227668133590597632	77371252455336267181195264	154742504910672534362390528	309485009821345068724781056	618970019642690137449562112	1237940039285380274899124224	2475880078570760549798248448	4951760157141521099596496896	9903520314283042199192993792	19807040628566084398385987584	39614081257132168796771975168	79228162514264337593543950336	158456325028528675187087900672	316912650057057350374175801344	633825300114114700748351602688	1267650600228229401496703205376	2535301200456458802993406410752	5070602400912917605986812821504	10141204801825835211973625643008	20282409603651670423947251286016	40564819207303340847894502572032	81129638414606681695789005144064	162259276829213363391578010288128	324518553658426726783156020576256	649037107316853453566312041152512	1298074214633706907132624082305024	2596148429267413814265248164610048	5192296858534827628530496329220096	10384593717069655257060992658440192	20769187434139310514121985316880384	41538374868278621028243970633760768	83076749736557242056487941267521536	166153499473114484112975882535043072	332306998946228968225951765070086144	664613997892457936451903530140172288	1329227995784915872903807060280344576	2658455991569831745807614120560689152	5316911983139663491615228241121378304	10633823966279326983230456482242756608	21267647932558653966460912964485513216	42535295865117307932921825928971026432	85070591730234615865843651857942052864	170141183460469231731687303715884105216	340282366920938463463374607431768210432	680564733841876926926749214863536420864	1361129467683753853853498429727072841728	272225893536750770770699685945414568352	544451787073501541541399371890829136704	1088903574147003083082798743781658273408	2177807148294006166165597487563316546816	4355614296588012332331194975126633093632	8711228593176024664662389950253266187264	17422457186352049329324779900506532354528	34844914372704098658649559801013064709056	69689828745408197317299119602026129418112	139379657490816394634598239204052258836224	278759314981632789269196478408104517672448	557518629963265578538392956816209035344896	1115037259926531157076785913632418070689728	2230074519853062314153571827264836141379456	44601490397061246283071
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FUNCTION 13
TCT-HOURS CMN
INCIDENTS
AVERAGE DCMN
VARIANCE
STD.DEVIATION

4.9 4.8 0.0 0.0 0.0 0.0
7 8 0.0 0.0 0.0 0.0
0.7 0.8 0.0 0.0 0.0 0.0
0.2 0.3 0.0 0.0 0.0 0.0
0.4 0.6 0.0 0.0 0.0 0.0

FUNCTION 14
TCT-HOURS CMN
INCIDENTS
AVERAGE DCMN
VARIANCE
STD.DEVIATION

1.2 0.5 0.0 0.0 0.0 0.0
1 1 0.0 0.0 0.0 0.0
1.2 0.5 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 CMN
INCIDENTS
AVERAGE DCMN
VARIANCE
STD.DEVIATION

7.7 7.0 0.0 0.0 0.0 0.0
4 4 0.0 0.0 0.0 0.0
1.9 1.2 0.0 0.0 0.0 0.0
2.2 3.0 0.0 0.0 0.0 0.0
1.3 1.7 0.0 0.0 0.0 0.0

FUNCTION 15
TCT-HOURS CMN
INCIDENTS
AVERAGE DCMN
VARIANCE
STD.DEVIATION

48.4 3.6 0.0 0.0 0.0 0.0
19 10 0.0 0.0 0.0 0.0
2.4 0.4 0.0 0.0 0.0 0.0
3.0 0.1 0.0 0.0 0.0 0.0
1.7 0.3 0.0 0.0 0.0 0.0

FUNCTION 15
TCT-HOURS CMN
INCIDENTS
AVERAGE DCMN
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

FUNCTION 16
TCT-HOURS CMN
INCIDENTS
AVERAGE DCMN
VARIANCE
STD.DEVIATION

54.2 4.9 0.0 0.0 0.0 0.0
20 10 0.0 0.0 0.0 0.0
2.8 0.5 0.0 0.0 0.0 0.0
3.8 0.1 0.0 0.0 0.0 0.0
1.9 0.2 0.0 0.0 0.0 0.0

FUNCTION 16
TCT-HOURS CMN

0.0 0.0 0.0 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 17														
TCT.HOURS DOWN	9.9	0.	0.	0.	0.	0.	0.	2.7	1.5	4.2	0.	0.	0.	0.
INCIDENTS	8	0	0	0	0	0	0	2	2	2	0	0	0	0
AVERAGE DOWN	1.2	0.	0.	0.	0.	0.	0.	1.3	0.7	2.1	0.	0.	0.	0.
VARIANCE	0.4	-0.	-0.	-0.	-0.	-0.	-0.	0.4	0.1	2.0	-0.	-0.	-0.	-0.
STD.DEVIATION	0.6	-0.	-0.	-0.	-0.	-0.	-0.	0.6	0.4	1.4	-0.	-0.	-0.	-0.

FUNCTION 17							
TCT.HOURS DOWN	0.2	0.2	0.	0.	0.	0.	0.
INCIDENTS	1	1	0	0	0	0	0
AVERAGE DOWN	0.2	0.2	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 18														
TCT.HOURS DOWN	28.7	0.	0.	0.	0.	0.	0.	2.8	4.5	0.	0.	1.5	0.	0.
INCIDENTS	7	0	0	0	0	0	0	2	2	0	0	1	0	0
AVERAGE DOWN	4.1	0.	0.	0.	0.	0.	0.	1.4	2.2	0.	0.	1.5	0.	0.
VARIANCE	21.0	-0.	-0.	-0.	-0.	-0.	-0.	0.0	1.1	-0.	-0.	0.	-0.	-0.
STD.DEVIATION	4.6	-0.	-0.	-0.	-0.	-0.	-0.	0.1	1.1	-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.
VARIANCE	-0.	-0.	-0.	-0.	-0.	-0.	-0.

STD.DEVIATION

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

FUNCTION 20

TCT.HOURS OWN

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
-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 OWN

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.

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FUNCTION 21

TCT.HOURS OWN

INCIDENTS

AVERAGE DCWN

VARIANCE

STD.DEVIATION

24.8 0. 0. 0. 0. 15.2 0. 2.8 0. 0. 14.2 0. 0. 0.
14 0 0 0 0 1.8 0 2.8 0 0 1.8 0 0 0
1.9 0. 0. 0. 0. 1.0 0. 0. 0. 0. 0.4 0. 0. 0.
0.9 -0. -0. -0. -0. 1.0 -0. 0. -0. -0. 0.7 -0. -0. -0.
1.0 -0. -0. -0. -0. 1.0 -0. 0. -0. -0. 0.7 -0. -0. -0.

FUNCTION 21

TCT.HOURS OWN

INCIDENTS

AVERAGE DCWN

VARIANCE

STD.DEVIATION

2.5 2.5 1.2 11.1 0. 0. 576.
9 9 1 1 0 0 16
0.3 0.3 1.2 11.1 0. 0. 16.
0.0 0.0 0. 0. -0. -0. 737.
0.2 0.1 0. 0. -0. -0. 27.

FUNCTION 22

TCT.HOURS OWN

INCIDENTS

AVERAGE DCWN

VARIANCE

STD.DEVIATION

0. 0. 0. 0. 0. 0. 0. 1.0 3.4 0. 7.2 3.8 0. 0.
0 0 0 0 0 0 0 1 3 0 2 4 0 0
-0. -0. -0. -0. -0. -0. -0. 1.0 1.1 0. 3.6 0.9 0. 0.
-0. -0. -0. -0. -0. -0. -0. 0. 0.7 -0. 19.2 0.5 -0. -0.
-0. -0. -0. -0. -0. -0. -0. 0. 0.8 -0. 4.4 0.7 -0. -0.

FUNCTION 22

TCT.HOURS OWN

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.

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==SUB TOTAL DELINEATION==

FUNCTION 1	ASSOCIATED DELAY TOTALS				TOTAL TUBES	
SUM BASIC SECONDARIES	410.5	SUM OF DELAYS	96.2	SUM	11054.	
NUMBER OF INCIDENTS	26	INCIDENTS	26	CNT	26	
AVERAGE HOURS REQD.	15.6	AVERAGE	3.7	AVG	425.	
VARIANCE	349.2	VARIANCE	12.2			
STD. DEVIATION	18.7	STD. DEVIATION	3.5			

FUNCTION 2	ASSOCIATED DELAY TOTALS				TOTAL TUBES	
SUM BASIC SECONDARIES	158.2	SUM OF DELAYS	21.5	SUM	2937.	
NUMBER OF INCIDENTS	24	INCIDENTS	24	CNT	24	
AVERAGE HOURS REQD.	6.6	AVERAGE	0.9	AVG	122.	
VARIANCE	54.0	VARIANCE	0.4			
STD. DEVIATION	7.5	STD. DEVIATION	0.6			

FUNCTION 3	ASSOCIATED DELAY TOTALS				TOTAL TUBES	
SUM BASIC SECONDARIES	2.0	SUM OF DELAYS	0.	SUM	14.	
NUMBER OF INCIDENTS	3	INCIDENTS	3	CNT	3	
AVERAGE HOURS REQD.	0.7	AVERAGE	0.	AVG	5.	
VARIANCE	0.8	VARIANCE	0.			
STD. DEVIATION	0.9	STD. DEVIATION	0.			

FUNCTION 4	ASSOCIATED DELAY TOTALS				TOTAL TUBES	
SUM BASIC SECONDARIES	25.1	SUM OF DELAYS	1.8	SUM	4.	
NUMBER OF INCIDENTS	4	INCIDENTS	4	CNT	4	
AVERAGE HOURS REQD.	4.3	AVERAGE	0.4	AVG	1.	
VARIANCE	154.2	VARIANCE	0.3			
STD. DEVIATION	12.4	STD. DEVIATION	0.5			

FUNCTION 5	ASSOCIATED DELAY TOTALS				TOTAL TUBES	
SUM BASIC SECONDARIES	1.0	SUM OF DELAYS	0.	SUM	0.	
NUMBER OF INCIDENTS	1	INCIDENTS	1	CNT	1	
AVERAGE HOURS REQD.	1.0	AVERAGE	0.	AVG	0.	
VARIANCE	0.	VARIANCE	0.			
STD. DEVIATION	0.	STD. DEVIATION	0.			

FUNCTION 4		ASSOCIATED DELAY TOTALS		TOTAL TUBES	
SUM#BASICS&SECCNCARIES	32.4	SUM OF DELAYS	5.1	SUM	11.
NUMBER OF INCIDENTS	5	INCIDENTS	5	CNT	5
AVERAGE HOURS REQD.	4.5	AVERAGE	1.0	AVG	2.
VARIANCE	75.4	VARIANCE	0.8		
STD. DEVIATION	8.7	STD.DEVIATION	0.9		

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FUNCTION 7		ASSOCIATED DELAY TOTALS		TOTAL TUBES	
SUM#BASICS&SECCNCARIES	0.	SUM OF DELAYS	0.	SUM	0.
NUMBER OF INCIDENTS	0	INCIDENTS	0	CNT	0
AVERAGE HOURS REQD.	0.	AVERAGE	0.	AVG	0.
VARIANCE	-0.	VARIANCE	-0.		
STD. DEVIATION	-0.	STD.DEVIATION	-0.		

FUNCTION 21		ASSOCIATED DELAY TOTALS		TOTAL TUBES	
SUM#BASICS&SECCNCARIES	59.0	SUM OF DELAYS	17.3	SUM	576.
NUMBER OF INCIDENTS	16	INCIDENTS	16	CNT	16
AVERAGE HOURS REQD.	3.7	AVERAGE	1.1	AVG	36.
VARIANCE	18.9	VARIANCE	8.0		
STD. DEVIATION	4.3	STD.DEVIATION	2.8		

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:

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** 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	27	18	1	4	0	9	1	28	23	9	15	14	11	4	25	27	12	10	1	0	29

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	326.2	155.2	0.3	16.6	0.	21.9	14.9	304.3	34.6	26.9	112.2	52.6	15.9	5.5
TOT. HOURS DWN	27	18	1	4	0	9	1	28	23	9	15	14	11	4
INCIDENTS	19.5	8.6	0.3	4.1	0.	2.4	14.9	10.9	1.5	3.0	7.5	3.8	1.4	1.4
AVERAGE DOWN	232.3	28.0	0.	5.8	-0.	2.0	0.	103.5	1.1	12.7	46.2	11.2	3.4	0.8
VARIANCE	15.2	5.3	0.	2.4	-0.	1.4	0.	10.2	1.1	3.6	6.8	3.4	1.8	0.9
STD. DEVIATION														

FUNCTION TOTAL

TOT. HOURS DWN	89.6	90.5	18.7	38.0	2.4	0.	14053.
INCIDENTS	25	27	12	10	1	0	29
AVERAGE DOWN	3.6	3.4	1.6	3.6	2.4	0.	485.
VARIANCE	1.1	2.6	1.8	15.4	0.	-0.	189312.5
STD. DEVIATION	1.0	1.6	1.3	3.9	0.	-0.	435.

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Signature

| | REACTOR1 | REACTOR2 | REACTOR3 | **TOTAL HOURS DOWN**
REACTOR4 | REACTOR5 | REACTOR6 | REACTOR7 | REACTOR8 |
|----------|----------|----------|----------|----------------------------------|----------|----------|----------|----------|
| 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 |
| CAUSE 10 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 1.1 |
| CAUSE 11 | 0.1 | 0. | 0. | 0. | 0. | 0. | 117.5 | 0. |
| CAUSE 12 | 0. | 200.6 | 0. | 0. | 0. | 0. | 0. | 0. |
| CAUSE 13 | 102.8 | 43.4 | 0. | 0. | 188.9 | 0. | 0. | 0. |
| CAUSE 14 | 52.9 | 0. | 0.5 | 89.2 | 27.1 | 0.5 | 0. | 0. |
| CAUSE 15 | 37.7 | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| CAUSE 16 | 7.5 | 11.1 | 0. | 3.1 | 0. | 2.5 | 0. | 0. |

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

APPENDIX

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	REACTOR1	REACTOR2	**TOTAL DOWN INCIDENTS**			REACTOR6	REACTOR7	REACTOR8
			REACTOR3	REACTOR4	REACTOR5			
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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HM-57168 G

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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| | TOTAL HOURS | **DEPARTMENT SUMMARY**
TIMES DOWN | AVERAGE | STANDARD DEVIATION |
|---------|-------------|--------------------------------------|---------|--------------------|
| CAUSE 1 | 2048.0 | 25.0 | 81.9 | 28.2 |
| CAUSE 2 | 4414.8 | 98.0 | 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 | 8.0 | 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

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INTERVAL BETWEEN LIKE OUTAGES BY CAUSE

| REACTOR1 | REACTOR2 | REACTOR3 | REACTOR4 | CAUSE 2
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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BM-57168 G

REACTOR1 REACTOR2 REACTOR3 REACTOR4 CAUSE 3 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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HM-57168 G

INTERVAL BETWEEN LIKE OUTAGES BY CAUSE

| REACTOR1 | REACTOR2 | REACTOR3 | REACTOR4 | CAUSE 4
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	186.1	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••
CAUSE 6

REACTOR1

REACTOR2
6044.2

REACTOR3
1214.6
3074.2
1649.0

REACTOR4

REACTOR5

REACTOR6
657.6
660.1

REACTOR7

REACTOR8

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HW-57168 G

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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HW-57168 G

••INTERVAL BETWEEN LIKE OUTAGES BY CAUSE••
CAUSE 8

REACTOR1

REACTOR2

REACTOR3

REACTOR4

REACTOR5

REACTOR6

REACTOR7

REACTOR8

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HW-57168 4

REACTOR8

A-14

DECLASSIFIED

HM-57168 G

INTERVAL BETWEEN LIKE OUTAGES BY CAUSE
 CAUSE10

REACTOR1

REACTOR2

REACTOR3

REACTOR4

REACTOR5

REACTOR6

REACTOR7

REACTOR8

A-15

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EW-57168 G

REACTOR1 REACTOR2 REACTOR3 REACTOR4 REACTOR5 REACTOR6 REACTOR7 REACTOR8

CAUSE11

540.7

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DECLASSIFIED

BM-57168 G

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

| REACTOR1 | REACTOR2 | REACTOR3 | REACTOR4 | CAUSE12
REACTOR5 | REACTOR6 | REACTOR7 | REACTOR8 |
|----------|----------|----------|----------|---------------------|----------|----------|----------|
| | 3112.7 | | | | | | |

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RM-57168 G

REACTOR1
272.6

REACTOR2

REACTOR3

REACTOR4

CAUSE13
REACTOR5
517.8
28.6

REACTOR6

REACTOR7

REACTOR8

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DECLASSIFIED

HM-57168 G

••INTERVAL BETWEEN LIKE OUTAGES BY CAUSE••
CAUSE 14

REACTOR1
312.5

REACTOR2

REACTOR3

REACTOR4
115.3

REACTOR5
10.1

REACTOR6
1.1

REACTOR7

REACTOR8

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DECLASSIFIED

BM-57168 G-

••INTERVAL BETWEEN LIKE OUTAGES BY CAUSE••
CAUSE15

REACTOR1
5512.3

REACTOR2

REACTOR3

REACTOR4

REACTOR5

REACTOR6

REACTOR7

REACTOR8

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DECLASSIFIED

HM-57168 4-

••INTERVAL BETWEEN LIKE OUTAGES BY CAUSE••
CAUSE16

REACTOR1
3936.5

REACTOR2
3340.8

REACTOR3

REACTOR4
8137.4

REACTOR5

REACTOR6
0.7

REACTOR7

REACTOR8

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DATE
FILMED

9/9/94

END