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**SECRETARY'S OFFICE  
Public Utility Commission**

PECO STATEMENT NO. 8B

R-850152 A by  
3/17/86 JK

PENNSYLVANIA PUBLIC UTILITY COMMISSION, ET AL.

v.

PHILADELPHIA ELECTRIC COMPANY,  
DOCKET NO. R-850152

SUR-SURREBUTTAL TESTIMONY OF

JAMES O. LOVE

AND BASIL P. KONONETZ

THEODORE BARRY AND ASSOCIATES

**DOCKETED**  
MAR 24 1986

ERRORS IN STAFF'S QUANTIFICATION  
OF ALLEGED IMPRUDENCE

**DOCUMENT  
FOLDER**

March 11, 1986

1 Q. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.

2  
3 A. My name is James O. Love. I am an Executive Vice President in the management  
4 consulting firm of Theodore Barry and Associates (TB&A), a California  
5 corporation, whose principal business address is 1520 Wilshire Boulevard, Los  
6 Angeles, California 90017. I am TB&A's Engagement Director responsible for the  
7 retrospective assessment of Limerick Unit 1 and Common.  
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11  
12 Q. PLEASE STATE YOUR NAME AND OCCUPATION.

13  
14 A. My name is Basil P. Kononetz. I am a Principal with TB&A and have served as  
15 TB&A's Project Manager for our retrospective assessment of Limerick Unit 1 and  
16 Common.  
17  
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19  
20 Q. ARE YOU THE SAME MR. LOVE AND MR. KONONETZ WHO HAVE  
21 PREVIOUSLY FILED DIRECT AND REBUTTAL TESTIMONY IN THIS  
22 PROCEEDING?  
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25  
26 A. Yes. We have previously submitted direct testimony identified as PECO Statement  
27 No. 8 and rebuttal testimony identified as PECO Statement No. 8A.  
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29

30 Q. WHAT IS THE PURPOSE OF THIS SUR-SURREBUTTAL TESTIMONY?

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32 A. Our purpose is to address the following points in response to Staff rebuttal  
33 testimony: Staff witnesses' misinterpretation of the PPUC's Order at Docket No.  
34 I-80100341 (i.e. the 1980 Limerick Nuclear Generating Station Investigation); the  
35 absence of any causal connection between their quantification of alleged PECO  
36 imprudence and the alleged imprudence itself; and their use of inappropriate  
37 approximations in their quantification of the 1976 and 1978 deferral  
38 announcements.  
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42 Q. IN WHAT WAY HAVE STAFF WITNESSES MISINTERPRETED THE PPUC'S  
43 ORDER AT DOCKET NO. I-80100341?  
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1 A. The PPUC in its final Order at Docket No. I-80100341 stated that "...PECo  
2 management did not exercise sufficient judgement to meet our reasonable man  
3 standard in delaying construction at Limerick in 1976 and 1978.." (pg. 17). The  
4 Commission's opinion, as we understand it, was related only to the deferral  
5 announcements, and not to any particular length of time that the schedule may  
6 have been extended by those announcements. Indeed, the evidence is clear that  
7 many significant factors beyond PECO's control ultimately affected the plant's  
8 final completion date, such as late imposed regulatory requirements during the  
9 1979-1984 period as described in PECO Exhibit No. 2. The ultimate determination  
10 of the impact of PECO's deferral announcements on the Limerick construction  
11 schedule and the subsequent quantification of imprudently incurred costs, if any,  
12 were to be addressed in the instant proceeding.  
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24 Q. WHAT ACCEPTED TENET OF QUANTIFICATION DID STAFF WITNESSES  
25 VIOLATE, IN TBA'S OPINION, WHEN DETERMINING THE COSTS ASSOCIATED  
26 WITH ALLEGED PECO IMPRUDENCE?  
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30 A. Proper regulatory treatment recognizes that findings of imprudence do not  
31 necessarily correspond to increased project costs. Basic to any quantification of  
32 imprudence is the need to develop a direct causal relationship between the alleged  
33 imprudence and subsequent costs incurred as a direct consequence of the alleged  
34 imprudence. This requires that the analyst identify and analyze the specific cause  
35 and effect tie that links actions to cost. In other words, it is necessary that what  
36 specifically is found imprudent must be defined and its causative connection with  
37 cost increases must also be defined prior to any quantification. As described in  
38 our rebuttal testimony, Staff witnesses' analysis neither identifies specific  
39 imprudence nor establishes its causation relationship to any cost increase.  
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1           This can be demonstrated by a brief summary of the Staff witnesses'  
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3 position as presented in their rebuttal testimony. It appears they would have the  
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5 Commission accept the following scenario;

- 6           -       PECo's announcements to defer construction in 1976  
7  
8                   and 1978 have been determined to be imprudent.  
9  
10          -       The completion date for Limerick Unit 1 just prior to  
11  
12                   the 1976 deferral announcement was April 1981.  
13  
14          -       All escalation in costs and associated AFUDC incurred  
15  
16                   after April 1981 are therefore imprudent and should be  
17  
18                   disallowed.  
19

20  
21           These witnesses rely on such logic in support of their proposed adjustment  
22  
23 without performing any analysis whatsoever of Limerick project management  
24  
25 processes or the factors which affected cost and schedule growth. In contrast, as  
26  
27 described in our direct testimony (PECo Statement No. 8, pp. 278-284), TB&A has  
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29 performed such a detailed analysis and concluded that the process underlying the  
30  
31 1976 and 1978 deferral announcements "was reasonable and reflected an informed  
32  
33 position with regard to both the costs and benefits of those decisions." In view of  
34  
35 the numerous, complex and interrelated factors affecting project cost and  
36  
37 schedule, including regulatory changes, cash constraints, labor unavailability, etc.,  
38  
39 a detailed analysis of project management processes is a prerequisite to  
40  
41 determining whether a Company action or decision resulted in additional cost or  
42  
43 increased schedule duration.

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45 Q.   IN YOUR OPINION, COULD LIMERICK 1 AND COMMON PLANT HAVE BEEN  
46  
47 COMPLETED AND IN-SERVICE BY APRIL, 1981 AS STAFF'S QUANTIFICATION  
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49 ANAYLSIS IMPLICITLY ASSUMES?  
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1 A. No. As we have testified at PECO Statement 8A, we believe even OCA's  
2 recommended completion date of July, 1982 is unrealistic. Indeed, all of the  
3 analyses which we and other PECO witnesses have performed, and which we have  
4 reviewed, which analyses are directed at the OCA completion date, also serve to  
5 demonstrate the unrealistic and impossible character of the Staff's even earlier  
6 date. Further, OCA Witness O'Brien has also testified that a completion date any  
7 time before 1982 was unachievable.  
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11 Q. YOU MENTIONED PREVIOUSLY THAT THE STAFF QUANTIFICATION  
12 ANALYSIS USED INAPPROPRIATE APPROXIMATIONS. WOULD YOU PLEASE  
13 DISCUSS THEM?  
14

15 A. Certainly, there are approximations incorporated into the Staff analysis that bias  
16 it in favor of maximizing deductions from PECO. Staff's attempt to justify these  
17 approximations as insignificant or offsetting in its rebuttal testimony must fail for  
18 the reasons described below.  
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22 Staff witness Dougherty's treatment of post-October 1984 direct costs is  
23 admittedly biased against the Company. Under his April 1981 completion  
24 scenario, he initially assumed that the omission of the calculation of AFUDC for  
25 post-October 1984 direct costs would be offset by the fact that he did not de-  
26 escalate these direct costs to April 1981. However, he has subsequently admitted  
27 that this assumption is incorrect and that, for this approximation alone, he has  
28 overstated the recommended disallowance from PECO by \$12 million (Trial Staff  
29 Statement DPD-2, pgs. 3-4).  
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45 Also, Staff witness Dougherty's use of differential labor wage rates to  
46 determine the amount of imprudently incurred labor costs is biased against  
47 PECO. To determine the amount of imprudently incurred labor costs due to  
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1 PECO's failure to achieve an April 1981 service date, he 1) calculated the average  
2 dollar per hour rate at both April 1981 and October 1984, 2) subtracted the April  
3 1981 rate from the October 1984 rate, and 3) multiplied the difference in wage  
4 rates by the manhours expended during this period to obtain a recommended labor  
5 cost disallowance. However, Staff witness Dougherty has failed to make any  
6 attempt to determine the impact of overtime expenditure on the calculated wage  
7 rates. Substantially increased overtime (at 1.5 to 2.0 times the base wage rate)  
8 toward the end of the project would tend to inflate the dollar per hour differential  
9 between April 1981 and October 1984 and, therefore, exacerbate the increase in  
10 costs that he attributes to imprudence. A more accurate treatment would have  
11 been to calculate the wage rate differential excluding overtime expenditures.  
12 Staff witness Dougherty, however, made no effort in this regard.  
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25 In summary, Staff witnesses have submitted a quantification which, aside  
26 from being based on an unrealistically early completion date for Limerick 1 and  
27 Common Plant, is totally irrelevant due to the lack of any cause and effect  
28 relationship having been shown between PECO's alleged imprudence and project  
29 costs. It is also based on approximations which contain inherent biases against the  
30 Company. As previously stated, this approximate analysis is offered in place of  
31 the type of detailed review of project management processes and quantification of  
32 reasons for cost and schedule growth performed by TB&A, which is required if a  
33 meaningful quantification of alleged imprudence is to be developed. The Staff  
34 approach is unsupportable and too imprecise to be relied upon as the basis for  
35 regulatory policymaking in TBA's judgment.  
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46 Q. WOULD YOU PLEASE COMMENT ON STAFF WITNESS ROSENTHAL'S  
47 CRITICISM OF THE USE OF HINDSIGHT BY PECO WITNESS HILL IN PECO  
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1 STATEMENT 18D.  
2

- 3 A. TB&A has consistently adhered to the principle that the use of hindsight is to be  
4 avoided when evaluating the prudence of management decisions and actions  
5 (further discussion on this subject is contained in PECO Statement 8A, pgs. 4-5).  
6  
7 However, once imprudence has been determined, the analyst must use the most  
8 accurate information at his disposal to quantify the costs associated with the  
9 impacts of management's imprudent action or decision.  
10

11 PECO witness Hill's analysis of the effects of alternative completion dates  
12 is consistent with this position because he is not utilizing hindsight to evaluate the  
13 prudence of management actions or decisions, but rather is using current data to  
14 quantify the actual impacts of PECO's deferral announcements. This is an entirely  
15 appropriate approach. Use of estimated data, prepared years ago, when actual or  
16 more accurate information is currently available, would constitute a flawed  
17 methodology and would not result in an accurate quantification.  
18

19 A hypothetical example will serve to demonstrate this principle. Let us  
20 assume that a utility management made a decision to construct a coal fired power  
21 plant when their own analysis indicated that it would be \$50 million/year cheaper  
22 to own and operate a nuclear plant. Assume also that there were no other  
23 mitigating factors and that the decision was found to be imprudent based on  
24 information available at the time the decision was made. i.e., without the use of  
25 hindsight. Employing Staff Witness Rosenthal's approach, the costs associated  
26 with this imprudent action are \$50 million/year based on the earlier estimate.  
27 However, lets assume that over the period of time that the plant was being  
28 constructed, the economics of nuclear versus coal power changed and, based on  
29 current information, the plant is projected to cost no more to own and operate  
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1 than the nuclear unit. Although the decision to construct the coal plant is still  
2 imprudent, and this determination must be derived from an analysis which  
3 evaluates data available to the utility at the time it made its decision (e.g. they  
4 ignored the contemporaneous comparative costs of coal and nuclear), the cost of  
5 this imprudent decision is zero. This conclusion results from the fact that there is  
6 no present day cost differential between the nuclear and the coal plant.  
7 Ratepayers simply will not be injured by management's improper decision, and  
8 there are thus no unreasonable, unjust or excessive costs to disallow. The  
9 measurement of injury, which is an actual (and not hypothetical) fact-based  
10 determination, must rely upon actual data where available or current forecast  
11 estimates, and not long-outdated projections which did not or will not come to  
12 pass.  
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25 This same reasoning applies to PECO witness Hill's use of actual data. His  
26 inclusion of Limerick Unit 1 deratings due to water unavailability and actually  
27 experienced nuclear fuel prices do not, as Staff witness Rosenthal contends,  
28 'effectively sabotage' the analysis. On the contrary, they enhance the quality of  
29 the quantification by providing a more realistic representation of what actually  
30 would have happened had the Company actually completed Limerick Unit 1 in  
31 November 1983. It should be emphasized, however, that TB&A has not  
32 sufficiently reviewed and is not generally endorsing PECO witness Hill's analysis,  
33 other than to the specific extent that it employs actual or currently-estimated  
34 data as the basis of quantification as described above.  
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45 Q. HAS TB&A REVIEWED PECO'S SUBCONTRACT WITH SCHNEIDER SHEET  
46 METAL, INC?

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49 A. Yes. As described at pages 242-246 of PECO Statement No. 8, TB&A performed a  
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1 comprehensive review of this subcontract. TB&A found that there were more  
2 stringent design requirements for the Limerick HVAC system than for Peach  
3 Bottom and many other nuclear units constructed during that period. In addition,  
4 significant differences, most notably a seismic requirement of 0.15g ground  
5 acceleration (vs. 0.1g for Susquehanna) and the need for the reactor enclosure to  
6 have closed loop, filtered, air recirculation, contributed to a more complex,  
7 congested and costly design for Limerick than for Susquehanna. Finally, TB&A  
8 found that PECO was reasonable and appropriate in managing this aspect of the  
9 project, citing PECO's active involvement in HVAC subcontract problem  
10 resolution, as well as the renegotiation of the original subcontract.  
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21 Q. PLEASE COMMENT ON PECO'S USE OF BOTH PUBLICLY ANNOUNCED, AS  
22 WELL AS CONSTRUCTION TARGET COMPLETION DATES FOR LIMERICK  
23 UNIT 1.  
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26  
27 A. As previously described in PECO Statement Nos. 8 and 8A, through mid-1980 PECO  
28 was consistently working towards a construction target completion date which was  
29 significantly advanced from that publicly announced. This strategy allowed PECO  
30 to keep schedule pressure on all parties involved in the project, i.e., Bechtel,  
31 PECO personnel, subcontractors and vendors, so as to obtain maximum progress  
32 from the available funds. Obviously, such a strategy created two completion  
33 dates (a public and a construction target date) prior to mid-1980. Staff witness  
34 Rosenthal has indicated that there was "confusion" on his part with respect to the  
35 April 1981 completion date due to "...conflicting presentations on the part of  
36 PECO...." (Trial Staff Statement RAR-2, pg. 3, lines 1-3). It should be  
37 reemphasized that the existence of different service dates at the same point in  
38 time resulted from a deliberate strategy by PECO -- a strategy which TB&A  
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1 evaluated and assessed as reasonable and appropriate -- and not from any  
2 "confusion" on the Company's part.  
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5 Q. DOES THIS CONCLUDE YOUR TESTIMONY?  
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7 A. Yes, it does.  
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PECO STATEMENT NO. 8C

R-850152 Hbg  
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PENNSYLVANIA PUBLIC UTILITY COMMISSION, ET AL.

v.

PHILADELPHIA ELECTRIC COMPANY,

DOCKET NO. R-850152

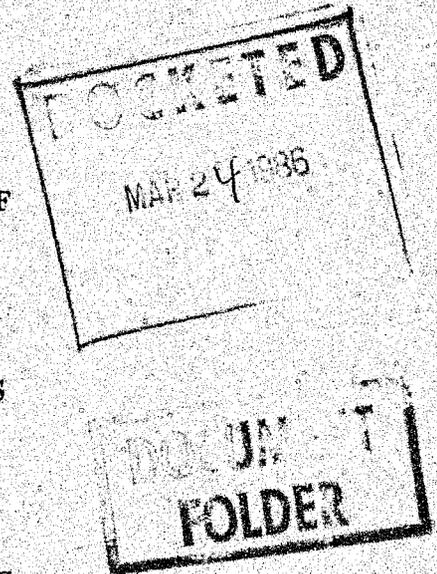
SUR-SURREBUTTAL TESTIMONY OF

JAMES O. LOVE

AND BASIL P. KONONETZ

THEODORE BARRY & ASSOCIATES

ERRORS MADE BY OCA WITNESSES  
IN SURREBUTTAL TESTIMONY



March 13, 1986

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TESTIMONY OF JAMES O. LOVE  
AND BASIL P. KONONETZ  
THEODORE BARRY & ASSOCIATES

I. INTRODUCTION

Q: PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.

A: My name is James O. Love. I am an Executive Vice President and Principal in the management consulting firm of Theodore Barry & Associates ("TB&A"), a California corporation, whose principal business address is 1520 Wilshire Boulevard, Los Angeles, California 90017. I am TB&A's Engagement Director responsible for our retrospective assessment of the Limerick Unit 1 and Common project.

Q: PLEASE STATE YOUR NAME AND OCCUPATION.

A: My name is Basil P. Kononetz. I am a Principal with TB&A and have served as TB&A's Project Manager for our retrospective assessment of the Limerick Unit 1 and Common project.

Q: ARE YOU THE SAME JAMES O. LOVE AND BASIL P. KONONETZ WHO PREVIOUSLY PRESENTED TESTIMONY ON THE PRUDENCE OF LIMERICK 1 AND COMMON PROJECT MANAGEMENT IN THIS PROCEEDING?

A: Yes, we are. Our prepared direct testimony was presented as PECO Statement No. 8, filed September 27, 1985; our prepared rebuttal testimony was presented as PECO Statement No. 8A, filed February 19, 1986; and, our prepared Sur-Surrebuttal was filed as PECO Statement No. 8B on March 11, 1986, all at Docket No. R-850152 in this proceeding.

Q. WHAT IS THE PURPOSE OF THIS SUR-SURREBUTTAL TESTIMONY?

A. The purpose of this sur-surrebuttal testimony is to respond to the many errors in the prepared surrebuttal testimony of OCA witness O'Brien in particular, and also

1 to point out the process flaws in OCA witness Hanauer's prepared surrebuttal  
2 testimony. In addition, our testimony notes the failures by OCA witnesses O'Brien  
3 and Hanauer to rebut our contentions of errors they made in their analyses as  
4 presented in our previous testimony at PECO Statement 8A in this proceeding.  
5 We have previously filed, as PECO Statement 8B in this proceeding, our response  
6 to the errors in the prepared surrebuttal testimony of Staff witnesses Dougherty  
7 and Rosenthal.  
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15 Q. PLEASE SUMMARIZE YOUR SUR-SURREBUTTAL TESTIMONY.

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17 A. TB&A finds the testimony of OCA witnesses O'Brien and Hanauer to be seriously  
18 flawed and completely lacking in credibility for the following reasons:  
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- 20  
21 1. Both OCA witnesses fail to support their allegations with Limerick-specific  
22 analyses.  
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- 24  
25 2. OCA witness O'Brien refutes his own original testimony in his surrebuttal  
26 testimony when it serves his purpose to do so.  
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- 28  
29 3. The OCA witnesses make assumptions in their analyses which are mutually  
30 inconsistent.  
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- 32  
33 4. OCA witness O'Brien overextends his expertise by testifying on the NRC  
34 licensing process aspects of the Limerick schedule, an area which is  
35 admittedly not within his qualifications as an expert witness.  
36
- 37  
38 5. Both OCA witnesses make findings and statements showing they focused  
39 primarily, if not solely, on results when attempting to quantify the impacts  
40 of alleged imprudence in the management of Limerick 1 and Common plant  
41 construction.  
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- 43  
44 6. OCA witness O'Brien made several errors in his testimony which clearly  
45 indicate the simplistic, unrealistic and superficial nature of his approach.  
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7. OCA witness O'Brien shows an unprofessional propensity for misquoting and for taking quotes out of context in an attempt to use PECO witness statements to the exact opposite effect for which they were intended.
  8. OCA witness O'Brien makes assertions of fact which are demonstrably incorrect and then uses these "facts" in the reasoning process which he proffers in support of his allegations.
  9. OCA witness O'Brien, in his testimony, demonstrates a surprising lack of understanding of such basic construction concepts as productivity (as opposed to monthly installation rates) and the use of the critical path method for schedule analysis, particularly in the development of "as-built" schedules.
  10. OCA witness O'Brien demonstrates repeatedly that he is willing to ignore, gloss over or treat cavalierly errors in his "analysis" which have been pointed out by PECO witnesses, rather than respond to them in his surrebuttal testimony.

31 Q. CAN YOU CITE WHERE OCA WITNESS HANAUER HAS FAILED TO SUPPORT  
32 ALLEGATIONS WITH LIMERICK-SPECIFIC ANALYSES?

35 A. Yes. At page 9, item 12 of his surrebuttal testimony in OCA Statement No. 2A,  
36 OCA witness Hanauer reasserts his speculative conclusion that "[t]he non-Mark II  
37 regulatory requirements cited by PECO could also have been resolved at Limerick  
38 by early to mid-1982." However, OCA witness Hanauer never presents an analysis  
39 of how non-Mark II regulatory issues could have been resolved through the  
40 Limerick licensing process. Instead, he merely restates his belief that they could  
41 have been resolved, offering only his belief in rebuttal to PECO witnesses' specific  
42 evidence of delays caused by non-Mark II regulatory issues in both the licensing  
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1 process and the time required for the engineering-design-procurement-  
2 installation-start-up-pre-operational testing sequence of resolving such issues as  
3 ATWS.  
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7 Also, at page 13 of his surrebuttal testimony (OCA Statement No. 2A),  
8 OCA witness Hanauer makes a process error in his analysis by not distinguishing  
9 high population density sites such as Limerick when contending that  
10 "implementation of a great many requirements, both TMI-related and other, was  
11 allowed to be postponed past the dates when low and full power licenses were  
12 issued." The non-Mark II issue of resolving ATWS drew specific attention and  
13 concern from the ACRS, as TB&A has pointed out in our previous testimony  
14 (PECO Statement No. 8A, Pp. 11-13), which resulted in a sophisticated solution  
15 termed "3A" by the NRC, a solution which was required to make the risk of  
16 operating Limerick in a high density population zone acceptable to the NRC.  
17 Obviously, the NRC -- despite OCA witness Hanauer's contention to the contrary  
18 -- deemed it necessary for Limerick to complete the ATWS 3A solution as the  
19 Chairman of the ACRS expressed in a letter to the Chairman of the NRC.<sup>1/</sup>  
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33 Finally, OCA witness Hanauer mischaracterizes the Diablo Canyon nuclear  
34 power plant licensing process when he states that "[t]he end result was that,  
35 except for plants in a mess of their own making like Diablo and Zimmer, few  
36 plants were actually delayed by licensing past the date when construction was  
37 complete." (OCA Statement No. 2A, p. 13). Diablo Canyon had already achieved  
38 the key construction completion and start-up/pre-operational testing milestone  
39 known as hot functional in late 1975 and early 1976 when the NRC, prompted by  
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49 <sup>1/</sup> April 16, 1980 letter from Milton S. Plesset, Chairman of the Advisory Committee on  
50 Reactor Safeguards (ACRS) to John F. Ahearne, Chairman of the NRC.

1 the United States Geological Survey (USGS) analysis of an off-shore fault known  
2 as the Hosgri fault, required Pacific Gas and Electric Company (PGandE) to  
3 upgrade its seismic requirements from 0.5g to 0.75g. This requirement prompted  
4 a complete reanalysis of the Diablo Canyon design and extensive construction  
5 modifications to a plant that was already essentially complete before TMI and  
6 before the plant was allowed to operate. This NRC requirement came despite  
7 assurances from PGandE's seismic experts that the Hosgri fault posed no  
8 additional threats to the plant's operation beyond those provided for in the original  
9 design basis earthquake initially approved by the NRC for Diablo Canyon.  
10

11 Q. CAN YOU CITE WHERE OCA WITNESS O'BRIEN HAS FAILED TO SUPPORT HIS  
12 ALLEGATIONS WITH LIMERICK-SPECIFIC ANALYSES?  
13

14 A. Yes. In attempting to compare a group of plants which are unlike Limerick in  
15 several important ways, OCA witness O'Brien admits that "although I have not  
16 performed the investigation, it is possible that Limerick might have been among  
17 these plants but for the fact that it had a Mark II containment." (OCA Statement  
18 No. 1B, pages 5-6) The fact is that none of the units he cites are similar to  
19 Limerick 1. Four of the five units he cites are second units of a 2-unit nuclear  
20 station, all are PWR NSSS systems rather than BWR's like Limerick, and all but  
21 one received their construction permit (C.P.) from 2 to 6 years prior to Limerick  
22 1's C.P. date of June 19, 1974. Moreover, in using this group of plants in an  
23 attempt to support Staff witness Dougherty's April, 1981 in-service date  
24 quantification basis for Limerick OCA witness O'Brien reverses his original  
25 contention at OCA Statement No. 1, page 6, that "no U.S. Boiling Water Reactor  
26 (BWR) facility with a construction start contemporaneous with Limerick's  
27 completed construction any time in 1981 or before" due most importantly to "a  
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1 class of externally-imposed regulatory changes" (OCA Statement No. 1, page 13).  
2

3 Further, when questioned about considering any of the Limerick-specific,  
4 non-Mark II regulatory requirements which arose after 1974, such as the TMI  
5 analysis and design changes, plant staffing, start-up and training, fire protection  
6 and electrical separation, environmental and dynamic equipment qualification and  
7 ATWS, OCA witness O'Brien was asked.  
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13 "Q. Would I be correct that your analyses, any one of your analyses, either  
14 JJO'B-3, JJO'B-4 and JJO'B-13, did not reflect any analysis of the effects  
15 of these items upon construction logic, commodity levels, manpower levels  
16 or any other construction-related matter?  
17

18 A. That's correct. As I testified previously, it was our belief that the  
19 extended time as a result of the delay in 1974 plus the extended time  
20 resulting from Mark II would have given enough time to accomplish all  
21 these other things.  
22

23 Q. What evaluations did you make with regard to construction logic or  
24 construction manpower or cash flows that would permit you to say that?  
25

26 A. As I testified, none of the above. It was an opinion based upon Dr.  
27 Hanauer's review;..." (Tr. pages 3115-3116, emphasis supplied)  
28

29 "Q. But you have done no analysis specifically related to the physical structures  
30 to be built at Limerick, the space available in those structures, the com-  
31 modities to be installed, the manpower available for that installation to  
32 determine whether or not that assumption of yours and Dr. Hanauer's is  
33 correct?  
34

35 A. That is correct;..." (Tr. page 3117, emphasis supplied)  
36

37 Even when labelling a set of "consequences" as "provable, quantifiable  
38 facts", OCA witness O'Brien skips completely over any proof and says that "the  
39 only issue for consideration is the quantification" (OCA Statement No. 1B, page 5)  
40  
41

42 Finally, by leaping from his JJO'B-13-based "achievable completion date"  
43 for Limerick 1 and Common plant of 12/81 to Susquehanna Unit 1's completion  
44 date of 7/82 as the basis for his quantification, OCA witness O'Brien abandons  
45 even the pretense of having done a valid, Limerick-specific schedule analysis.  
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Q. CAN YOU CITE WHERE OCA WITNESSES HANAUER AND O'BRIEN HAVE MADE MUTUALLY INCONSISTENT ASSUMPTIONS?

A. Yes. Beginning at page 7 of OCA Statement No. 1B, OCA witness O'Brien challenges PECO witness Mattson's critical path analysis by saying "[i]t demands that we accept a great deal of history as it actually transpired". He further states, in direct contradiction to his partner-OCA witness Hanauer (who is nominally the NRC regulatory change and licensing expert, upon whom OCA witness O'Brien has admitted he relies; Tr. page 3140, lines 1-6), that:

"In sum, I cannot accept the constant insistence by PECO licensing witnesses that history as it was negotiated or transpired would have been precisely the same three years earlier." (OCA Statement No. 1B, page 9)

Whereas, OCA witness Hanauer when asked "What would have been the licensing requirements?" responds that:

"[t]he basic requirements for Limerick would probably have ended up looking pretty much like the requirements that Limerick actually had to meet." (OCA Statement No. 2A, page 17).

Q. IS OCA WITNESS O'BRIEN AWARE OF YOUR OPINION THAT BOTH HE AND OCA WITNESS HANAUER FOCUS PRIMARILY ON RESULTS AS THEIR TECHNIQUE OF JUDGING PRUDENCE?

A. In TB&A's rebuttal testimony at pages 17 and 18 of PECO Statement No. 8A, we point out that OCA witnesses Hanauer and O'Brien have taken differing positions from time to time on whether results achieved should be the proper focus of a prudence review. In his testimony at pages 27 and 28 of OCA Statement No. 1B, OCA witness O'Brien attempts to reconcile the difference in two statements which show witnesses Hanauer and O'Brien poles apart. OCA witness O'Brien attempts to divert attention from the central issues by focusing unconvincingly on the "units" by which results are measured, saying that:

1 "My statement was made with reference to comparing the 'bottom line' of  
2 plant costs", while "Dr. Hanauer has never testified on the subject of total  
3 plant costs and was referring here to the 'results achieved' with reference  
4 to engineering and licensing issues." (OCA Statement No. 1B, page 28)  
5

6 TB&A cited the differences in the two statements by OCA witnesses  
7 Hanauer and O'Brien primarily as an example of the inconsistencies in positions  
8 they have taken. However, their testimony leaves little doubt they both believe,  
9 as OCA witness Hanauer stated in another nuclear power plant construction  
10 project prudence rate proceeding, that:  
11  
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14

15 "Our review properly concentrated on the results achieved... it is the  
16 results rather than the process by which prudence should be judged, in our  
17 opinion." (Missouri Public Service Commission - Union Electric Company  
18 Case Nos. ER-84-168 and EO-85-17, November, 1984, page 6)  
19

20  
21 Q. CAN YOU CITE WHERE OCA WITNESS O'BRIEN RELIES PRIMARILY ON  
22 RESULTS IN HIS ATTEMPTS TO QUANTIFY THE IMPACTS OF ALLEGED  
23 IMPRUDENCE ON LIMERICK'S SCHEDULE?  
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27 A. Yes. At page 13 of OCA Statement No. 1B, OCA witness O'Brien twice focuses on  
28 activities that were "late against the contemporaneous construction schedule".  
29

30  
31 Q. DO YOU CONSIDER, IN A PRUDENCE REVIEW, THAT A RESULT SUCH AS  
32 "LATE AGAINST THE CONTEMPORANEOUS CONSTRUCTION SCHEDULE" IS  
33 PROOF OF MANAGEMENT IMPRUDENCE?  
34

35  
36  
37 A. Definitely not. An activity may be "late against the contemporaneous  
38 construction schedule" for any of several reasons which may be beyond  
39 management's control, such as strikes, poor weather, NRC-required backfits,  
40 etc. The focus on an outcome is only "proof" that OCA witness O'Brien does not  
41 understand the prudence standard and the application of that standard to assessing  
42 prudence which is basic to the validity of a prudence review.  
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1 Q. CAN YOU CITE WHERE OCA WITNESS HANAUER FOCUSES PRIMARILY ON  
2 RESULTS IN HIS ATTEMPTS TO QUANTIFY THE IMPACTS OF PECO'S  
3 ALLEGED IMPRUDENCE?  
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7 A. Yes. OCA witness Hanauer stubbornly maintains that "[t]he Mark II cost, that  
8 would not have had to be spent if the plant had been designed correctly to start  
9 with, was unreasonably and imprudently spent and should be disallowed." (OCA  
10 Statement No. 2A, page 8) His only support for this argument is reliance on 20/20  
11 hindsight, a hindsight that no one in the industry had, not A/E's, nor constructors,  
12 nor the utility owners who started building 32 BWR reactors from December, 1964  
13 through November, 1974. Clearly, an argument that is based on management's  
14 failure to be clairvoyant is not a valid basis for determining imprudence but rather  
15 an excellent example of falling into the trap of hindsight.  
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25 Q. CAN YOU GIVE EXAMPLES OF SOME OF THE ERRORS WHICH OCA WITNESS  
26 O'BRIEN MAKES IN HIS TESTIMONY?  
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29 A. Yes. First, however, we would like to point out that we explained numerous errors  
30 made by OCA witness O'Brien in our rebuttal testimony at PECO Statement No.  
31 8A. OCA witness O'Brien's surrebuttal testimony ignores most of those errors  
32 while adding still others which we describe below:  
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37 • At page 29 of his surrebuttal testimony, OCA witness O'Brien attacks PECO  
38 witness Vollmer's testimony by stating that "[t]he result of his analysis is that only  
39 \$24.8 million of the \$136.1 million of the Mark II cost at Limerick would have  
40 been incurred if the plant loads had been specified correctly to start with." What  
41 PECO witness Vollmer actually stated was the reverse, i.e., that only \$24.8  
42 million of the Mark II cost at Limerick would not have been incurred if the plant  
43 loads had been specified correctly to start with. OCA witness O'Brien than  
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1 proceeds to attack PECO witness Vollmer's cost allocation by means of an  
2 inaccurate, misleading comparison of Limerick's Mark II costs with "the total cost  
3 of Mark II changes at the Zimmer plant" which he contends "would have exceeded  
4 \$400 million had that plant been completed." (OCA Statement No. 1B, page 33)  
5  
6

7  
8  
9 • OCA witness O'Brien contended that "the simple fact is that Limerick was not  
10 completed sooner because PECO did not try to complete it sooner" (OCA  
11 Statement No. 1B, page 3). As TB&A pointed out at page 50 of PECO Statement  
12 No. 8A, this is a continuing mischaracterization by OCA witness O'Brien in the  
13 face of overwhelming evidence to the contrary, including PECO's attempt in  
14 1979<sup>2/</sup> to convince the PPUC to advance funds required to accelerate the  
15 Limerick 1 schedule in order to provide relief to PECO's ratepayers from the  
16 rapidly escalating fuel prices. However, PECO's plea that the funding needed for  
17 the acceleration of Limerick was justified because ratepayers would experience a  
18 reduction in fuel prices which would offset the introduction of Limerick 1 into  
19 rate base, was rejected by the PPUC in their May, 1980 order.<sup>3/</sup> This is in stark  
20 contrast to OCA witness O'Brien's repeated use of the phrase that the Limerick  
21 construction schedule was "intentionally delayed by PECO management". (OCA  
22 Statement No. 1B, page 6)  
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37 • OCA witness O'Brien, in discussing Mark II cost increase allocations states that  
38 "the cost of delay during the 2 month Containment Hold.... is not included" in Mr.  
39 Vollmer's analysis (OCA Statement No. 1B, page 33). What OCA witness O'Brien  
40 fails to recognize in this discussion but which is included on page 10 of his  
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47 <sup>2/</sup> Rebuttal testimony of PECO witness J.F. Paquette, Jr., filed December 3, 1979 at  
48 Docket No. R-79060865, pp. 7-10.  
49

50 <sup>3/</sup> PPUC Order of May 9, 1980, at Docket No. R-79060865.

1 surrebuttal testimony, is that a concurrent 5-week operating engineers strike  
2 occurred in parallel with this 7-week hold, thus reducing the net impact of the  
3 containment hold to 2 weeks.  
4

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6  
7 At page 3 of his surrebuttal testimony, OCA witness O'Brien asserts that, despite  
8 his experience "as a professional construction manager...on numerous complex  
9 projects...I have never heard of a project that was completed earlier than the  
10 owner's stated intentions and funding limitations." As one example that  
11 contradicts this assertion, TB&A recently completed a retrospective audit of the  
12 prudence of the project management of Sierra Pacific Power Company's North  
13 Valmy Unit 2 power plant construction project where the utility brought the plant  
14 in both ahead of schedule and under the funding limitations budgeted for the  
15 project.  
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25 Q. DO YOU HAVE EVIDENCE THAT OCA WITNESS O'BRIEN WAS AWARE THAT  
26 HIS COMPARISON OF MARK II COSTS AT ZIMMER VERSUS THOSE AT  
27 LIMERICK WAS INACCURATE, AND THEREFORE MISLEADING?  
28  
29

30 A. Yes. In his report prepared on the Zimmer nuclear power plant construction  
31 project for the Public Utility Commission of Ohio, OCA witness O'Brien showed,  
32 at page 5-39 in his Table 5-4<sup>4/</sup>, a Cincinnati Gas & Electric Company (CG&E)  
33 analysis that total Mark II costs excluding AFUDC are \$219.29 million (as  
34 compared to \$136.1 excluding AFUDC for Limerick). The reason that the AFUDC  
35 component of Zimmer's Mark II costs is approximately 40% of the total figure of  
36 \$360 million cited by OCA witness O'Brien (as contrasted to the approximately  
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48 <sup>4/</sup> "Analysis of Possible Mismanagement and Correlated Cost", prepared by O'Brien-  
49 Kreitzberg & Associates for the Public Utility Commission of Ohio at Case 83-  
50 1321-EL-COI, June 15, 1984.

1 30% that AFUDC represents of the total Limerick 1 Mark II cost) is explained in  
2  
3 OKA's opinion that, for Zimmer, "Mark II had major delay impact."<sup>5/</sup> On the  
4  
5 other hand, it is TB&A's opinion based on our analysis of contemporaneous project  
6  
7 documents and our "as-built" schedule that Mark II did not have a major impact on  
8  
9 the Limerick 1 and Common plant schedule completion date.

10  
11 Further, details of CG&E's analysis included in OCA witness O'Brien's  
12  
13 report provided descriptions of line item cost increases indicating that a range of  
14  
15 \$45.1 to \$62.8 million was incurred at Zimmer as a result of rework and/or  
16  
17 upgrades in the design, excluding indirect costs and excluding AFUDC. The same  
18  
19 number, excluding indirect costs and AFUDC, for Limerick 1 is \$24.8 million.  
20  
21 This is a reasonable difference when you consider that Zimmer was a "lead plant"  
22  
23 in the Mark II resolution program, which meant that CG&E had to gamble that its  
24  
25 initial design and construction "fixes" for Mark II would be adequate to meet the  
26  
27 forces and loads ultimately approved by the NRC. Unfortunately, CG&E had to  
28  
29 make significant changes to its initial Mark II design and construction fixes which  
30  
31 resulted in extensive rework costs (as contrasted to the minimal rework at  
32  
33 Limerick due to PECO's decision to await final resolution of Mark II loads and  
34  
35 forces before proceeding with construction). Therefore, OCA witness O'Brien's  
36  
37 contention that PECO witness Vollmer's analysis seriously understates the  
38  
39 "avoidable" Mark II costs is misleading and fallacious.

40  
41 Q. WHAT DO YOU CONSIDER THE MOST SURPRISING OF OCA WITNESS  
42  
43 O'BRIEN'S ERRORS?

44  
45 A. OCA witness O'Brien incredibly confuses monthly installation rates (of  
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50 <sup>5/</sup> IBID., page 5-44, Footnote.

1 construction commodities) with productivity. As every construction expert knows,  
2 productivity refers to the unit rates, i.e., the manhours per unit of commodity  
3 installed, whereas installation rates, (typically measured on a monthly basis)  
4 refers to the total progress, net of rework, for installing bulk commodities. While  
5 productivity in terms of unit rates is universally accepted as a possible indication  
6 of the effectiveness of the management of the work force, high monthly  
7 installation rates can be obtained simply by applying more manual manhours, at  
8 least up to the point where manpower density limitations are experienced. For  
9 example, at Susquehanna, where PP&L did not face the same cash constraints that  
10 PECO did for Limerick, it is not surprising that, due to the application of more  
11 manual manhours, the monthly installation rates were higher for most  
12 commodities than at Limerick, as shown in OCA witness O'Brien's own table at  
13 page 26 of OCA Statement No. 1B. What is amazing is OCA witness O'Brien's  
14 contention that:  
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29 "despite the fact that accelerated schedules are supposed to lead to  
30 decreased productivity...yet, productivity was still better at Susquehanna  
31 than at Limerick." (OCA Statement No. 1B, page 23)  
32

33 Q. WAS THE PRODUCTIVITY BETTER AT SUSQUEHANNA THAN AT LIMERICK?  
34

35 A. No. As shown on page 240a, at Schedule 34 of TB&A's prepared direct testimony  
36 (PECO Statement No. 8), for 8 of the 12 key commodities Limerick Unit 1 and  
37 Common had better productivity, i.e., lower unit rates, than Susquehanna Unit 1  
38 and Common. Only large pipe hangers, small pipe, cable tray and conduit had  
39 higher unit rates, i.e. lower productivity (as measured by unit rates), at Limerick,  
40 as TB&A displayed at Schedule 34, page 240a, in PECO Statement No. 8. And, as  
41 we noted at page 240, "the four commodities for which Limerick had higher unit  
42 rates were directly impacted by seismic requirements which were much more  
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1 stringent at Limerick than at Susquehanna."  
2

3 Q. YOU PREVIOUSLY NOTED AN UNPROFESSIONAL PROPENSITY BY OCA  
4 WITNESS O'BRIEN TO MISQUOTE AND TO TAKE QUOTES OUT OF CONTEXT IN  
5 A MISLEADING WAY. DO YOU HAVE EXAMPLES OF THAT?  
6  
7

8  
9 A. Unfortunately, yes.  
10

11 Q. WHY DO YOU SAY UNFORTUNATELY?  
12

13 A. Because it is disappointing to find a witness who evidently does not subscribe to  
14 the same ethical codes as the Association of Management Consulting Firms  
15 (ACME) of which TB&A is a member. Our founder, Theodore M. Barry is a past  
16 President of ACME who pioneered the high code of ethics to which all ACME  
17 member firms subscribe. Mr. Barry has also testified on the ethics of independent  
18 management consulting firms before a U.S. Senate subcommittee and has strongly  
19 supported the Institute of Management Consultants, Inc. (IMC) and its strong code  
20 of ethical conduct. Several TB&A consultants are Certified Management  
21 Consultants (CMC), having met the IMC's stringent requirements.  
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31 Q. PLEASE GIVE AN EXAMPLE OF OCA WITNESS O'BRIEN'S MISQUOTATION OF  
32 PECO WITNESSES.  
33

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35 A. At page 4 of OCA Statement No. 1B, OCA witness O'Brien intentionally misused  
36 TB&A's rebuttal testimony concerning the PPUC's Order of May 7, 1982. We said  
37 that the Order "was not explicit in its identification of specific imprudent  
38 management actions" even though "implicit in the ruling, of course, is the  
39 sentiment that because PECO reduced then-scheduled funding levels, schedule  
40 delays and increased project costs resulted," and then stated that "[A]lthough  
41 intuitively credible, this assumption is not necessarily correct and, even if it were  
42 correct, it is incumbent upon the analysts (PECO, OCA, Staff, consultants, etc.)  
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1 to perform a thorough review of all relevant contemporaneous circumstances to  
2 determine to what degree, if any, funding restrictions or other alleged imprudent  
3 actions affected cost and schedule." (PECO Statement No. 8A Pp. 44-45)  
4  
5

6  
7 However, OCA witness O'Brien twisted TB&A's statement to read that:  
8

9 "Even Messrs. Love and Kononetz found the following 'intuitively credible':  
10

11 ...because PECO reduced then-scheduled funding levels, schedule  
12 delays and increased project costs resulted." (OCA Statement No.  
13 1B, page 4)  
14

15 Additionally, at page 30 of OCA Statement No. 1B, OCA witness O'Brien  
16 mis-cites TB&A's PECO Statement No. 8A, p. 12 as the source of a statement he  
17 makes that "[h]owever, the design, construction and installation of about 1000 pipe  
18 hangers was wasted and had to be done entirely over because of the Mark II  
19 error." TB&A has made no such statement in any of our testimony in this  
20 proceeding.  
21

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27 Q. ARE THERE ANY OTHER EXAMPLES OF WHERE OCA WITNESS O'BRIEN HAS  
28 TAKEN QUOTES OUT OF CONTEXT IN A MISLEADING WAY?  
29

30  
31 A. Yes. OCA witness O'Brien attempts to portray PECO witness Vollmer as coming  
32 "very close to conceding" as "I agreed with Dr. Hanauer that the Mark II problem  
33 appears to have been the critical path to fuel load", when PECO witness Vollmer  
34 merely stated the Mark II problem was the "most complex issue to face the BWR  
35 owners." (OCA Statement No. 1B, page 6)  
36  
37

38 First, a very complex issue is not synonymous with an activity's being on  
39 the critical path for a project. There are many instances of extremely complex  
40 technical issues which were resolved without becoming critical path activities,  
41 e.g., the accommodation of the NRC's requirement for (1) upgrading of Limerick's  
42 seismic requirements to 0.15g from 0.10g and (2) an independent design  
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1 verification. Second, when OCA witness O'Brien states that the Mark II problem  
2 "appears to have been the critical path to fuel load" he is begging the question of  
3 his entire testimony and analysis by admitting that this conclusion is merely an  
4 assumption which he never examined.  
5  
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8  
9 Q. WHAT DO YOU CONSIDER TO BE THE MOST FLAGRANT OF OCA WITNESS  
10 O'BRIEN'S MISCHARACTERIZATIONS?  
11

12  
13 A. At page 13 of OCA Statement No. 1B, OCA witness O'Brien attempts to discredit  
14 PECO's use of construction target schedules charging that:  
15

16  
17 "the targets could not be met because PECO had already announced that it  
18 did not intend for the targets to be met"  
19

20 As TB&A verified in our comprehensive prudence review, both through  
21 interviews with PECO and Bechtel management personnel and via intensive review  
22 of project documents, the use of target construction schedules with earlier dates  
23 than those publicly announced up through mid-1980 was a conscious effort on the  
24 part of PECO management to maintain schedule pressure, and communicate  
25 schedule urgency, to all parties on the Limerick project. This proactive approach  
26 was designed to signal PECO's intent to complete Limerick as fast as possible  
27 within the funding constraints facing the company.  
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36 In contrast to OCA witness O'Brien's attempt to demean PECO's efforts  
37 with his reference to "Dr. Parkinson" and "his now famous law", it is OCA witness  
38 O'Brien's failure to verify the facts before making his assertion that should be  
39 subject to ridicule.  
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43  
44 Q. DO YOU AGREE WITH OCA WITNESS O'BRIEN'S CHARACTERIZATION OF THE  
45 WAY BECHTEL ACCUMULATES COSTS?  
46

47  
48 A. No. However, in this instance OCA witness O'Brien has not totally  
49 mischaracterized the facts when he contends:  
50

1 "that Bechtel does not accumulate costs in such a way as to identify work  
2 items separately in cost reports. Therefore we are dealing with forward-  
3 looking estimates of certain pieces of work." (OCA Statement No. 1B,  
4 pages 29-30)  
5

6 However, he does misunderstand the nature of the back-up underlying the  
7 cost reconciliation analyses developed jointly by TB&A and PECO. TB&A, in its  
8 overall direction of the analysis (prepared to explain the reasons for cost and  
9 schedule growth of Limerick 1 and Common Plant), was pleased by the detailed  
10 documentary support which exists for every line item in the more than 90 pages of  
11 back-up which underlies the cost reconciliation provided in PECO's Statement No.  
12 2. It was the Notices of Change in Design and the Bechtel worksheets supporting  
13 the line items which provided TB&A exceptionally strong substantiation upon  
14 which to base our analysis and verification of cost drivers which significantly  
15 influenced the cost and schedule of Limerick 1 and Common Plant.  
16  
17

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26 Q: WOULD YOU PLEASE REITERATE THE VALUE AND IMPORTANCE OF AN "AS-  
27 BUILT" SCHEDULE ANALYSIS FOR USE IN COMPUTING AND EVALUATING  
28 HYPOTHETICAL ALTERNATIVE SCHEDULE COMPLETION DATES?  
29  
30

31  
32 A: Yes. As stated in our rebuttal testimony, the value of an "as-built" schedule  
33 analysis is that it identifies the actual critical path, which provides a sound  
34 benchmark against which alternative hypothetical schedules can be evaluated.  
35 Without knowing the "as-built" critical path and making the postulated  
36 adjustments to the actual critical path, the quantification of a hypothetical  
37 schedule duration is not grounded on reality.  
38  
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44 Q: IS THERE ANOTHER WAY TO QUANTIFY THE SCHEDULE DURATION FOR A  
45 HYPOTHETICAL ALTERNATIVE SCHEDULE?  
46

47  
48 A: Yes. One can also start with an earlier project schedule provided that subsequent  
49 "as-built" information is appropriately utilized.  
50

1 Q: WHICH OF THESE APPROACHES HAS OCA WITNESS O'BRIEN USED?  
2

3 A: Neither. He started with a schedule that was formulated prior to receipt of the  
4 construction permit for Limerick in June of 1974 and neglected to utilize the  
5 abundance of later scheduling information that was available.  
6  
7

8  
9 Q: DOES OCA WITNESS O'BRIEN USE ANY "AS-BUILT" ASPECTS IN HIS  
10 ANALYSIS?  
11

12  
13 A: OCA witness O'Brien's initial analysis, in which he used a 1974 schedule, did not  
14 include any "as-built" information. In his surrebuttal testimony, he admits to  
15 having erroneously omitted some of the "as-built" activities pointed out by TB&A  
16 as errors in his analysis, but ignores many others.  
17  
18

19  
20  
21 Q: WHAT OTHER ITEMS DOES OCA WITNESS O'BRIEN IMPROPERLY IGNORE IN  
22 YOUR OPINION?  
23

24  
25 A: First, when referring to Schedule 5 in TB&A's rebuttal testimony (which identified  
26 omissions in OCA witness O'Brien's critical path as compared to the "as-built"  
27 critical path), OCA witness O'Brien states:  
28

29 "every other activity shown on that line is included in my network." (OCA  
30 Statement 1B, p. 12 lines 10 & 11)  
31

32  
33 Although each activity is in OCA witness O'Brien's schedule, the fact that  
34 they are not on OCA Witness O'Brien's critical path is the most important  
35 omission and results in OCA witness O'Brien understating the total project  
36 schedule duration by the length of each of those activities (15 weeks for this one  
37 example alone). Thus OCA Witness O'Brien's above statement is misleading.  
38  
39

40  
41 Second, OCA witness O'Brien attempts to avoid the shortcomings in his  
42 analysis in using a 1974 schedule when he states:  
43  
44

45 "I reject the assertion that just because the Baseline BPC Schedule was  
46 created in June 1974, it is somehow flawed." (OCA Statement 1B, p. 14)  
47  
48  
49  
50

1           The point is not that it was flawed (it was the projects' best projection at  
2 that time), but rather that it has been superceded by a wealth of "as-built"  
3 information. For example, it was the actual project experience which determined  
4 that the drywell and wetwell should be separated for scheduling purposes (as the  
5 work scope increased more significantly in the drywell), as represented in the "as-  
6 built" schedule. The need to do so was unknown in 1974.  
7  
8

9  
10  
11  
12  
13           OCA witness O'Brien in OCA Statement No. 1B at page 14, once again  
14 misrepresents his critical path. He states:  
15

16  
17           "Either way, the critical path was exactly as shown at JJO'B-13 - in  
18 containment."  
19

20           In contrast to this, the true "as-built" critical path went only through the  
21 containment drywell, not through the entire containment as OCA witness O'Brien  
22 has represented.  
23  
24

25  
26           Moreover his wording can lead one to assume that the critical paths are the  
27 same for a large number of activities, which is not the case as we show in  
28 Appendix A and discuss later in detail.  
29  
30

31  
32 Q: PLEASE GIVE AN EXAMPLE OF WHERE OCA WITNESS O'BRIEN  
33 "MISUNDERSTANDS" TB&A'S AS-BUILT SCHEDULE.  
34

35  
36 A: OCA witness O'Brien misrepresents his own schedule analysis and  
37 "misunderstands" TB&A's "as-built" schedule when he makes the following two  
38 statements in OCA Statement 1B:  
39  
40

41  
42           "TB&A's as-built network.....is far more summary in nature than the  
43 schedule that I used." (p. 10, lines 21-24).  
44

45 and

46  
47           "the TB&A as-built schedule was a 900 activity network and my OKA  
48 Schedule included over 3,700 activities." (p. 22 lines 16-18).  
49

50           TB&A's "as-built" schedule used no Unit 2 activities, included weather

1 allowances as part of each activity where weather was a factor in the actual  
2 duration, and did not count zero duration constraints as activities. The net  
3 number of activities used in TB&A's "as-built" schedule is 795 counted on this  
4 basis. On the other hand, OCA witness O'Brien's 3,700 activities (actually 3,767)  
5 consist of the following:  
6  
7  
8  
9

|    | <u>3,767</u> | <u>Purported Schedule Activities</u>                   |
|----|--------------|--|
| 10 |              |  |
| 11 |              |  |
| 12 |              |  |
| 13 | Less: (23)   | Activities pre-construction permit                     |
| 14 | (1,306)      | Unit 2 activities                                      |
| 15 | (8)          | Weather allowances                                     |
| 16 | (1,000)      | Zero duration constraints                              |
| 17 | (13)         | No descriptions  |
| 18 | (582)        | Segmented activities (60 activities represented as 642 |
| 19 |              | segments)  |
| 20 | <u>835</u>   | Actual Schedule Activities                             |
| 21 |              |  |

22 Thus OCA witness O'Brien's schedule network is, in reality, no more  
23 detailed in terms of numbers of activities than TB&A's "as-built" schedule. More  
24 importantly however, as respects accuracy, OCA witness O'Brien's schedule is  
25 based on a single project schedule forecast issued in the Spring of 1974, prior to  
26 receipt of the construction permit, whereas TB&A's "as-built" schedule is based on  
27 actual schedule information from many separate project schedules and project  
28 progress and status reports. The document source for each schedule activity  
29 which constitutes the "as-built" is presented in Appendix B.  
30  
31  
32  
33  
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36  
37

38 Q: HAVE YOU ANY FURTHER COMMENT ON THE COMPARISON BETWEEN THE  
39 SCHEDULES PRESENTED BY TB&A AND OCA WITNESS O'BRIEN?  
40

41  
42 A: Yes. OCA witness O'Brien stated that an "as-built" schedule "inherently  
43 incorporates the impact of all delays regardless of their cause" (OCA Statement  
44 1B, p. 10). What OCA witness O'Brien fails to recognize and state is that the  
45 schedule impact of any delay can be removed from the associated activities in the  
46 "as-built", for example, to test the impact of a delay caused by an imprudent  
47  
48  
49  
50

1 decision or by any other factor. Indeed, this is exactly what TB&A did in the  
2 "sanity check" of PECO's and Bechtel's schedule analysis presented at pages 38-42  
3 of PECO Statement No 8A. Contrary to OCA witness O'Brien's statement at page  
4 10 of OCA Statement 1B, both this sanity check and the development of an "as-  
5 built" schedule do constitute independent analyses developed and presented by  
6 TB&A.  
7

8  
9  
10  
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12  
13 Q. WHAT ARE THE KEY ELEMENTS OF THE TYPICAL INDEPENDENT  
14 ASSESSMENT MADE TO CONFIRM THE RESULTS OF A COMPUTATIONAL  
15 ANALYSIS SUCH AS THE PECO/BECHTEL SCHEDULE ANALYSIS, AND HOW  
16 DID TB&A PERFORM EACH OF THESE ELEMENTS?  
17  
18

19  
20  
21 A. There are four elements which are key in making a valid independent assessment  
22 to confirm the results of, for example, a cost estimate, a financial model  
23 projection, an economic evaluation or a schedule analysis:  
24

- 25  
26  
27 • An evaluation of the validity of the computational logic or framework used  
28 in the analysis  
29  
30 • A challenge of the assumptions and data input on which the computational  
31 analysis is based  
32  
33 • A thorough check, often taking the form of a parallel computation, of some  
34 key portion of the computational analysis  
35  
36 • An overall check of the results of the computational analysis against an  
37 alternative computational approach or result, often referred to as a "sanity  
38 check"  
39  
40  
41  
42  
43  
44

45 For TB&A's independent assessment of the PECO/Bechtel schedule  
46 alternatives analysis for the Limerick 1 and Common plant project completion  
47 date alternatives, we:  
48  
49  
50

- 1           •     Verified the suitability of the MSCS scheduling system, and its usefulness  
2                   as an analytical tool to represent the Limerick 1 and Common plant  
3                   construction logic  
4  
5  
6  
7           •     Checked the activities, their sequences and their relationships to the actual  
8                   commodities installed, the use of manpower density limitations and the  
9                   actual unit rates experienced and manhours applied at Limerick  
10  
11  
12  
13          •     Made sure that the "as-built" activities from TB&A's schedule analysis of  
14                   Limerick 1 and Common plant construction were used where appropriate,  
15                   particularly in:  
16  
17                 -     The period from issuance of the construction permit for Limerick on  
18                         June 19, 1974, to June 1, 1976, the pre-deferral decision  
19                         construction period for the project  
20  
21                 -     The period from start of "Blue Tag" testing for the critical drywell  
22                         mechanical and electrical systems on April 6, 1983, through  
23                         completion of start-up and pre-operational testing on October 24,  
24                         1984  
25  
26  
27  
28  
29  
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31  
32          •     Constructed an overall "sanity check" approach which provided an  
33                   alternative computational method to the PECO/Bechtel analysis which  
34                   produced a Limerick 1 and Common plant completion date of January, 1984  
35                   versus the PECO/Bechtel result of July, 1984, showing that the outcomes  
36                   were within an acceptable 6 month range  
37  
38  
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43

44   Q:   HAS OCA WITNESS O'BRIEN ACKNOWLEDGED THAT HIS SCHEDULE  
45         ANALYSIS FAILED TO REFLECT "AS-BUILT" CONSTRUCTION REALITIES?

46   A:   Yes, but he has corrected only a few of the errors in his critical path that TB&A  
47  
48         has identified. He has ignored the majority of the identified omissions, incorrect  
49  
50

1 activity sequences and understated durations and has mischaracterized his analysis  
2 as adequate, when in fact, it continues to be fraught with inaccuracies.  
3  
4

5 For example, OCA witness O'Brien fails to accept what he defines as the  
6 PPUC ruling, that PECO actions were prudent up through May 1976 (the date the  
7 1976 deferral decision was announced for Limerick), while accepting what he  
8 defines as the rest of the PPUC's ruling, that PECO was imprudent regarding the  
9 1976 and 1978 deferral decision announcements. Therefore, instead of basing his  
10 schedule analysis on the "as-built" Limerick activities through May 1976, OCA  
11 witness O'Brien used logic from a schedule forecast produced June 4, 1974, which  
12 does not describe the actual critical path for Limerick in the time frame from  
13 receipt of construction permit on June 19, 1974 through May 1976.  
14  
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22

23 Q: DOES OCA WITNESS O'BRIEN EXPLAIN WHY HE ADMITTED TO ONLY A  
24 SMALL PORTION OF THE ERRORS IN HIS SCHEDULE?  
25

26  
27 A: No, he offers no such explanation. Furthermore, he has mischaracterized the  
28 effect of these errors and dealt with the few he admits to in a very convoluted  
29 manner.  
30  
31  
32

33 Q: PLEASE DISCUSS THIS IN MORE DETAIL.  
34

35 A: In our rebuttal testimony, we explicitly identified errors in OCA witness O'Brien's  
36 schedule logic and durations which add 34.7 months to his overall schedule.  
37 (PECO Statement 8A, p. 33). This required increase to his schedule is caused  
38 primarily by schedule activities that he has not included in the critical path, or  
39 activities which he does include but whose durations do not reflect the actual  
40 scope of the project. These errors and omissions were not only explained in detail  
41 in our rebuttal testimony but also illustrated in schedules 5 through 8,  
42 representing various phases of the project.  
43  
44  
45  
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1 OCA witness O'Brien has admitted that 13 weeks of duration have been  
2 omitted from his critical path between receipt of the construction permit and  
3 RPV set. (OCA Statement 1B, page 12). He dismisses the remaining 15 weeks of  
4 missing activities, illustrated in Schedule 5 of PECO Statement 8A, by stating they  
5 are "included in my network" (OCA Statement 1B, page 12), when the point is that  
6 they are not on his critical path-as they should be.  
7  
8  
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13 OCA witness O'Brien acknowledges that "the effect" of these missing 13  
14 weeks "would be to extend the fuel load date.... until the end of March, 1982".  
15 (OCA Statement 1B, page 11,). However, on the same page he admits that his  
16 schedule erroneously shows the RPV set milestone occurring five months earlier  
17 than was projected in April 1976, saying "I will accept that delay". OCA witness  
18 O'Brien then summarily dismisses these errors and omissions by stating that  
19 "[s]ince my original testimony included an extension of construction until July  
20 1982, this change has no effect on my ultimate conclusion". (OCA Statement 1B,  
21 pages 11 and 12)  
22  
23  
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31 Furthermore, accounting for the actual duration to RPV set, which  
32 occurred in December 1976 (three months later than projected) would require  
33 OCA witness O'Brien to further move his JJO'B-13-computed fuel load date from  
34 March 1982 to June, 1982 -- within one month of the Susquehanna fuel load date  
35 of July 1982, which he chose to use as the basis for his quantification of alleged  
36 imprudently-incurred costs, with many further errors in 1977 and beyond yet to be  
37 reconciled.  
38  
39  
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44

45 Q. DOES OCA WITNESS O'BRIEN IMPLY THAT HE HAS NOT INCLUDED THESE  
46 THREE ADDITIONAL MONTHS BECAUSE THE RPV SET OCCURRED LATER  
47 THAN PROJECTED?  
48  
49  
50

1 A. Yes. But, as TB&A stated previously in this testimony, the mere fact that an  
2 activity occurs later than projected is not a basis for concluding that it was  
3 imprudent or using it as a basis for attempting to quantify alleged imprudence.  
4  
5

6  
7 Q. WHAT OTHER OMISSIONS AND ERRORS IN OCA WITNESS O'BRIEN'S  
8 SCHEDULE IN THE PERIOD SUBSEQUENT TO 1976 DID HE FAIL TO  
9 ACKNOWLEDGE?  
10  
11

12  
13 A. OCA witness O'Brien failed to acknowledge these other errors and omissions which  
14 we identified in our rebuttal testimony:  
15

16  
17 Weeks missing from  
18 OCA Witness O'Brien's  
19 Schedule vs. TB&A's  
20 "As-Built" Schedule  
21

|    |                                       |                   |
|----|---------------------------------------|-------------------|
| 22 |                                       |                   |
| 23 | RPV Set - Start of Drywell Mechanical | 37 weeks          |
| 24 | and Electrical Activities             |                   |
| 25 |                                       |                   |
| 26 | Drywell Mechanical and Electrical     | 60 weeks          |
| 27 | Activities                            |                   |
| 28 |                                       |                   |
| 29 | Startup Activities                    | <u>34.7</u> weeks |
| 30 |                                       |                   |
| 31 | Total duration of missing activities  | 131.7 weeks       |
| 32 | subsequent to RPV set                 |                   |
| 33 |                                       |                   |

34 The nature of these errors and the necessity for their correction is described in  
35 TB&A's rebuttal testimony at PECO Statement No. 8A. These errors, if admitted  
36 to, would drastically extend the resultant fuel load date in OCA witness O'Brien's  
37 analysis, thus destroying the effect of that analysis. OCA witness O'Brien offers  
38 no argument that his start-up duration is severely underestimated, not only in  
39 terms of that which occurred at Limerick when the project was fully funded, but  
40 also in comparison to the nuclear industry in general. This 34.7 week  
41 understatement in his schedule has a major impact on his July 1982 result.  
42  
43  
44  
45  
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50 Similarly, he provides neither acceptance nor rebuttal of the major error he

1 made in his attempt to adjust for the effect of Mark II resolution activities in  
2 containment. Since this was the basis of one of his few schedule adjustments, the  
3 lack of his acknowledgement of this error is inexcusable.  
4  
5

6  
7 OCA witness O'Brien contends that certain additional schedule durations  
8 from RPV set to start of drywell mechanical and electrical activities, and during  
9 the progression of such activities should be viewed as related to the funding  
10 limitations that occurred during a portion of this period. However, certain of  
11 these activities were fully funded even during cash constraint periods as TB&A has  
12 previously testified, i.e., principally critical path drywell mechanical and  
13 electrical activities. OCA witness O'Brien's argument is thus not valid. As an  
14 example of the effect of this error, PECO's and Bechtel's Case 3 analysis shows  
15 that drywell activities consume 261 weeks with double shifting (with the second  
16 shift assumed to be equal to 2/3 of the first shift). OCA Witness O'Brien's  
17 schedule, on the other hand, contends that the appropriate drywell duration is 190  
18 weeks and assumes, by default, that drywell manpower density limitations are not  
19 a factor and that drywell progress is directly related to total project funding.  
20 Moreover, the 37 week difference in duration between the "as-built" and OCA  
21 Witness O'Brien's critical paths for the period from RPV set to start of drywell  
22 activities is due to a combination of the fact that OCA Witness O'Brien's schedule  
23 is missing activities, and that he does not recognize the cash constraints which  
24 were announced by PECO in May 1976.  
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43 Thus, OCA Witness O'Brien's disregard of these important factors has  
44 drastically accelerated the hypothesized completion date for Limerick 1 and  
45 Common plant under his postulated conditions.  
46  
47  
48

49 Q. HOW WOULD YOU SUMMARIZE YOUR ABOVE DISCUSSION?  
50

1 A. First, OCA Witness O'Brien has chosen to disregard a large portion (in terms of  
2 schedule duration) of the errors in his analysis that were identified to him in our  
3 rebuttal testimony. Certain of these durations may have been falsely interpreted  
4 by OCA Witness O'Brien as having been totally due to the additional financial  
5 constraints imposed on the project in 1976 and 1978.  
6  
7  
8  
9

10 The significance of the difference between the "as-built" critical path and  
11 OCA witness O'Brien's critical path is illustrated in Appendix A. Therein, all of  
12 the "as-built" critical path activities (as also tabulated in Appendix A of PECO  
13 Statement 8A) are tagged with a Yes/No indicator showing which activities are, or  
14 are not, on OCA witness O'Brien's critical path. Of the 56 "as-built" critical path  
15 activities, only 9 appear on OCA witness O'Brien's critical path. Furthermore only  
16 3 of the 20 "as-built" critical path activities through May 1976, appear on OCA  
17 witness O'Brien's critical path. Thus the project progress through even this  
18 "accepted" period of the project is not properly represented in OCA witness  
19 O'Brien's schedule. This lack of consistency between reality and OCA witness  
20 O'Brien's schedule renders his analysis invalid for his intended purpose, i.e.,  
21 quantification.  
22  
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35 Secondly, TB&A reiterates the point that we made in our rebuttal  
36 testimony -- that the mid-1984 fuel load date as determined in PECO/Bechtel  
37 Case 3 is a much more reasonable date than that put forth by OCA witness  
38 O'Brien, under his hypothetically-postulated conditions.  
39  
40  
41  
42

43 TB&A's "sanity check" of the PECO/Bechtel analysis appropriately  
44 considered the "as-built" status as of the May 1976 project extension and funding  
45 limitation announcement, projections of construction progress for subsequent  
46 activities made prior to May 1976 without the funding limitations, the significant  
47  
48  
49  
50

1 increased work scope in the containment drywell, the drywell manpower density  
2 limitations, and the "as-short-as-reasonably-possible", fully-funded startup phase  
3 of the Limerick project. This "sanity check" also incorporated the effect of  
4 increased project funding subsequent to May 1976, beyond that which actually  
5 occurred, and still resulted in a fuel load date of January 1984.  
6  
7  
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10  
11 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

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13 A. Yes.  
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APPENDIX A

LIMERICK UNIT 1 AND COMMON

COMPARISON OF "AS-BUILT" & JJO'B-13 CRITICAL PATH ACTIVITIES

| <u>"AS-BUILT"<br/>CRITICAL PATH<br/>ACTIVITIES</u>           | <u>"AS-BUILT"<br/>DURATION<br/>(WEEKS)</u> | <u>"AS-BUILT"<br/>ACTIVITY<br/>END<br/>DATE</u> | <u>IS THIS<br/>ACTIVITY<br/>INCLUDED IN<br/>JJO'B-13 CRITICAL PATH</u> |
|--|--|---|--|
| Form, Reinforce and Pour<br>Basemat*                         | 6  | 7-31-74   | Yes  |
| Radwaste Drains in Basemat*                                  | 6  | 7-31-74   | No   |
| CB&I Out of Hole Work*                                       | 15   | 10-2-74   | No   |
| Area 12 and 16 Footing at<br>Elevation 177'*                 | 3  | 8-21-74   | Yes  |
| Area 11 Footing at<br>Elevation 177'*                        | 3  | 8-21-74   | No   |
| Exterior and Partial<br>Interior Walls to<br>Elevation 201'* | 16   | 12-11-74  | No   |
| CB&I Unit 2 Restraint*                                       | 27   | 4-9-75  | Yes  |
| Cure Slab and Set Cranes*                                    | 7  | 1-29-75   | No   |
| Suppression Pool Rebar 30%*                                  | 3  | 2-19-75   | No   |
| Suppression Pool Rebar 60%*                                  | 3  | 3-12-75   | No   |
| Suppression Pool Rebar 100%*                                 | 4  | 4-9-75  | No   |
| Mark II-Related<br>Containment Hold*                         | 7  | 5-28-75   | No   |
| Prefabricate and Fit New<br>Rebar*                           | 6  | 7-9-75  | No   |

\* Critical Path Activity prior to June 1976.

| <u>"AS-BUILT"<br/>CRITICAL PATH<br/>ACTIVITIES</u> | <u>"AS-BUILT"<br/>DURATION<br/>(WEEKS)</u> | <u>"AS-BUILT"<br/>ACTIVITY<br/>END<br/>DATE</u> | <u>IS THIS<br/>ACTIVITY<br/>INCLUDED IN<br/>JJO'B-13 CRITICAL PATH</u> |
|--|--|---|--|
| Suppression Pool Walls<br>Lifts 1-3*               | 4  | 8-6-75  | No   |
| Suppression Pool Lifts<br>4 and 5*                 | 2  | 8-20-75   | No   |
| Drywell Rebar to Elevation<br>258'*                | 18   | 12-24-75  | No   |
| Suppression Pool Lift 6 to<br>Elevation 237'-5"*   | 3  | 1-14-76   | No   |
| Cone Lift 1*                                       | 6  | 2-25-76   | No   |
| Rebar to Elevation 292'*                           | 8  | 4-21-76   | No   |
| Cone Lifts 2 and 3*                                | 9  | 6-23-76   | No   |
| CB&I Start Removal Cylinder<br>Brackets            | 2  | 7-7-76  | No   |
| CB&I Complete Removal<br>Cylinder Brackets         | 15   | 10-20-76  | Yes  |
| Paint Containment Liner                            | 6  | 12-1-76   | Yes  |
| Set RPV  | 1  | 12-8-76   | Yes  |
| RPV Nuclear Insulation                             | 2  | 12-22-76  | No   |
| Dismantle RPV Lift Rig                             | 1  | 12-15-76  | Yes  |
| Set Fuel Pool Girder Steel                         | 3  | 1-5-77  | No   |
| Fuel Pool Girder Steel<br>on Containment           | 3  | 1-12-77   | No   |
| Set Reactor Shield                                 | 3  | 1-12-77   | No   |
| Support Steel at Elevation<br>300' to 313'         | 4  | 2-2-77  | No   |

\* Critical path activity prior to June 1976.

| <u>"AS-BUILT"<br/>CRITICAL PATH<br/>ACTIVITIES</u>                                 | <u>"AS-BUILT"<br/>DURATION<br/>(WEEKS)</u> | <u>"AS-BUILT"<br/>ACTIVITY<br/>END<br/>DATE</u> | <u>IS THIS<br/>ACTIVITY<br/>INCLUDED IN<br/>JJO'B-13 CRITICAL PATH</u> |
|--|--|---|--|
| Complete Reactor Shield<br>Welds   | 23   | 6-22-77   | No   |
| Q-Deck at Elevation 300' to<br>313'  | 2  | 2-16-77   | No   |
| Form and Reinforce Cask Wash<br>Dn. and Spent Fuel Pool                            | 4  | 3-16-77   | No   |
| Start Forming, Reinforcing<br>and Pouring Girder B                                 | 12   | 6-8-77  | No   |
| Complete Forming, Reinforcing<br>Girder B, Pour Cask<br>W. D. Slab                 | 4  | 7-6-77  | No   |
| Start Forming Reinforcing<br>and Pouring Girder C                                  | 9  | 8-10-77   | No   |
| Structural Steel at<br>Elevation 272' and 286'                                     | 24   | 12-7-77   | No   |
| Complete Forming,<br>Reinforcing and Pouring<br>Girder C                           | 9  | 9-7-77  | No   |
| Dryer Separation Slab,<br>Support Steel and Q-Deck                                 | 4  | 9-7-77  | No   |
| Structural Steel and Q-Deck<br>Reactor Well  | 3  | 9-28-77   | No   |
| Form and Reinforce Dryer<br>Separation Slab  | 3  | 9-28-77   | No   |
| Start Forming, Reinforcing<br>and Pouring Girder D<br>Slab Under Reactor<br>Cavity | 2  | 10-12-77  | No   |
| Set Dryer Separation<br>Liner  | 2  | 10-12-77  | No   |
| Complete Forming,<br>Reinforcing and<br>Pouring Girder D                           | 3  | 11-2-77   | No   |
| Complete Forming,<br>Reinforcing and<br>Pouring Girder E 326'<br>to 336'           | 23   | 4-12-78   | No   |

| <u>"AS-BUILT"<br/>CRITICAL PATH<br/>ACTIVITIES</u>  | <u>"AS-BUILT"<br/>DURATION<br/>(WEEKS)</u> | <u>"AS-BUILT"<br/>ACTIVITY<br/>END<br/>DATE</u> | <u>IS THIS<br/>ACTIVITY<br/>INCLUDED IN<br/>JJO'B-13 CRITICAL PA</u> |
|---|--|---|--|
| Limited Mechanical and Electrical in the Containment Drywell, and Completion of Structural Steel at Elevation 272' and 286' | 24   | 5-24-78   | No   |
| Form, Reinforce and Pour Girder F to Elevation 351'   | 13   | 7-12-78   | No   |
| Mechanical and Electrical in the Containment Drywell  | 254  | 4-6-83  | Yes  |
| Phase I Post Tension Girder   | 5  | 8-16-78   | No   |
| Remove Elevation 313' Shoring   | 2  | 8-30-78   | No   |
| Mechanical and Electrical at Elevation 283'   | 240  | 4-6-83  | No   |
| "Blue Tag" Testing at Elevation 283'  | 12   | 6-29-83   | No   |
| "Blue Tag" Testing in Containment Drywell   | 12   | 6-29-83   | No   |
| Startup Activities in Containment Drywell   | 67   | 10-10-84  | Yes  |
| Startup Activities in Elevation 283'  | 69   | 10-24-84  | No   |
| Drywell Startup Completion to Fuel Load   | 2  | 10-24-84  | No   |
|   |  | Total   | Yes 9<br>No 47   |

SOURCE: PECO Statement 8A, Appendix A; OCA Statement 1, Exhibit JJO'B-13.

| <b>Task Number and Description</b>      | <b>Source</b>   |
|---|---|
| A000 RECEIPT OF CONSTRUCTION PERMIT     | MONTHLY PROGRESS REPORT (6/74)                                      |
| A008 FR&P BASEMAT                       | MSCS 21 FLOAT REPORT  |
| A009 RW DRAINS IN BASEMAT               | MSCS 21 FLOAT REPORT  |
| A010 OUT OF HOLE CONCRETE               | MSCS 27 REPORT  |
| A011 CB&I OUT OF HOLE WORK              | MSCS 21 FLOAT REPORT  |
| A012 CB&I CYL. 1-3                      | MSCS 21 FLOAT REPORT  |
| A013 CB&I UNIT 2 RESTRAINT              | MSCS 21 FLOAT REPORT  |
| A014 S.S. COLUMNS                       | MSCS 21 FLOAT REPORT  |
| A015 CB&I CYL. 4-6                      | MSCS 21 FLOAT REPORT  |
| A016 CB&I COURSE                        | MSCS 21 FLOAT REPORT  |
| A017 INSTALL BOTTOM LINER               | MSCS 21 FLOAT REPORT  |
| A018 RPV PED. BELOW 238                 | MSCS 21 FLOAT REPORT  |
| A019 SET PIPE                           | MSCS 21 FLOAT REPORT  |
| A020 SET TANKS                          | MSCS 21 FLOAT REPORT  |
| A021 CPT. S. S. & DOWNCOMERS            | MSCS 21 FLOAT REPORT  |
| A022 SUPPRESSION POOL M&E               | MSCS 21 FLOAT REPORT  |
| A023 CB&I CONES 1-3                     | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84 |
| A024 SUPPRESSION POOL S/C               | MSCS 21 FLOAT REPORT  |
| A025 RW DRAINS EL. 177                  | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84 |
| A026 AREA 12 & 16 FOOTING EL. 177       | MSCS 21 FLOAT REPORT  |
| A027 AREA 11 FOOTING EL. 177            | MSCS 21 FLOAT REPORT  |
| A029 EMBEDDED CONDUIT - EL. 177         | MSCS 21 FLOAT REPORT  |
| A030 FR&P EL. 177 BASEMAT AND EMBEDS    | MSCS 21 FLOAT REPORT  |
| A031 CB&I INSERTS 1-4                   | MSCS 21 FLOAT REPORT  |
| A032 EXT. & PART INT. WALLS TO 201'     | MSCS 21 FLOAT REPORT  |
| A033 INSTALL REBAR, Q-DECK, DIAPH, SLAB | MSCS 21 FLOAT REPORT  |
| A034 CB&I CONES 4-6                     | MSCS 21 FLOAT REPORT  |
| A035 23-LINE WALL EL. 177 - 201'        | MSCS 21 FLOAT REPORT  |
| A036 RW DRAINS IN DIAPHRAM SLAB         | MSCS 21 FLOAT REPORT  |
| A037 CB&I INSERTS 5-6                   | MSCS 21 FLOAT REPORT  |
| A038 CURE SLAB & SET CRANES             | MSCS 21 FLOAT REPORT  |
| A039 SUPPRESSION POOL REBAR 30 %        | MSCS 21 FLOAT REPORT  |
| A040 CB&I CONES 7-9                     | MSCS 21 FLOAT REPORT  |
| A041 CB&I CONES 10-11                   | MSCS 21 FLOAT REPORT  |
| A042 CB&I INSERTS 7-10                  | MSCS 21 FLOAT REPORT  |
| A043 SUPPRESSION POOL REBAR 60 %        | MSCS 21 FLOAT REPORT  |
| A044 SUPPRESSION POOL REBAR 100 %       | MSCS 21 FLOAT REPORT  |
| A045 SET 9 STEEL COLUMNS                | MSCS 21 FLOAT REPORT  |
| A046 PREFAB & FIT NEW REBAR             | MSCS 21 FLOAT REPORT  |
| A047 SUPPRESSION POOL WALLS LIFT 1-3    | MSCS 21 FLOAT REPORT  |
| A048 SUPPORT STEEL                      | MSCS 21 FLOAT REPORT  |
| A049 SET PIPE AT EL. 177'               | MSCS 21 FLOAT REPORT  |
| A050 SUPPRESSION POOL LIFT 4&5          | MSCS 21 FLOAT REPORT  |
| A051 Q-DECK                             | MSCS 21 FLOAT REPORT  |
| A052 EXT. & PART INT. WALLS TO 217      | MSCS 21 FLOAT REPORT  |
| A053 CB&I LINER MANPOWR                 | MSCS 21 FLOAT REPORT  |
| A054 QUAD CRANES TO 253'                | MSCS 21 FLOAT REPORT  |
| A055 BACKFILL D-LINE                    | MSCS 21 FLOAT REPORT  |

| <u>Task Number and Description</u>        | <u>Source</u>  |
|---|--|
| A056 DRYWELL REBAR TO 258                 | MSCS 21 FLOAT REPORT                                       |
| A057 SUPPRESSION POOL LIFT 6 TO 237' - 5" | MSCS 21 FLOAT REPORT                                       |
| A058 LIFT 6 CURE                          | MSCS 21 FLOAT REPORT                                       |
| A059 POUR DIAPHRAGM SLAB                  | MSCS 21 FLOAT REPORT                                       |
| A060 INST PIPE HGRS RESTR. TO CONT        | MSCS 21 FLOAT REPORT                                       |
| A061 FR&P LIFT RIG FOUNDATION             | MSCS 21 FLOAT REPORT                                       |
| A062 JUMP CRANE TO 316                    | MSCS 21 FLOAT REPORT                                       |
| A063 RPV RIG TRANSPORT                    | MSCS 21 FLOAT REPORT                                       |
| A064 CONE LIFT 1                          | MSCS 21 FLOAT REPORT, MONTHLY PROJECT STATUS REPORT (3/76) |
| A065 FRP RPV PEDST ABOVE DIAPH SLAB       | MSCS 21 FLOAT REPORT                                       |
| A066 SET OUTSIDE LEGS LIFT RIG            | MSCS 21 FLOAT REPORT                                       |
| A067 PLATFORM AT 253                      | MSCS 21 FLOAT REPORT                                       |
| A068 REBAR TO ELEV. 292                   | MSCS 21 FLOAT REPORT                                       |
| A069 INSERVICE INSPECTION                 | MSCS 21 FLOAT REPORT                                       |
| A070 CONE LIFTS 2 & 3                     | MSCS 21 FLOAT REPORT                                       |
| A071 REBAR TO FLANGE 322' - 4"            | MSCS 21 FLOAT REPORT                                       |
| A072 CB&I START REMOVE CYL. BRACKETS      | MSCS 21 FLOAT REPORT                                       |
| A073 COMPLETE LIFT RIG                    | MSCS 21 FLOAT REPORT                                       |
| A074 CB&I DIAPH SLAB LINER PLATE          | MSCS 21 FLOAT REPORT                                       |
| A075 PLACE NUC INSUL FOR BOTTOM HEAD      | MSCS 21 FLOAT REPORT                                       |
| A076 TEST RIG                             | MSCS 21 FLOAT REPORT                                       |
| A077 SET RPV RING GIRDER                  | MSCS 21 FLOAT REPORT                                       |
| A078 CB&I CPT REMOVE CYL. BRACKETS        | MSCS 21 FLOAT REPORT                                       |
| A079 PAINT CONT. LINER                    | MSCS 21 FLOAT REPORT                                       |
| A081 COMPLETE INT. WALLS EL. 177-201'     | MSCS 21 FLOAT REPORT                                       |
| A083 SET RPV                              | MSCS 21 FLOAT REPORT, MONTHLY PROJECT STATUS REPORT (1/77) |
| A084 OUT OF HOLE CONC CONTAINMENT         | MSCS 21 FLOAT REPORT                                       |
| A085 CPT INT WALLS 217'                   | MSCS 21 FLOAT REPORT                                       |
| A086 SUB ASSEMBLY REAC SHIELD             | MSCS 21 FLOAT REPORT                                       |
| A087 RPV NUCLEAR INSULATION               | MSCS 21 FLOAT REPORT                                       |
| A088 EMBEDDED CONDUIT EL. 201'            | MSCS 21 FLOAT REPORT                                       |
| A089 FR&P 201 SLAB                        | MSCS 21 FLOAT REPORT                                       |
| A090 OUT OF HOLE PAINT REAC. SHIELD       | MSCS 21 FLOAT REPORT                                       |
| A091 S.S. 201-217&COLS TO EXT WALLS       | MSCS 21 FLOAT REPORT                                       |
| A092 POUR SHIELD                          | MSCS 26 REPORT   |
| A093 SET REACTOR SHIELD                   | MSCS 21 FLOAT REPORT                                       |
| A094 CPT REACT SHIELD WELD                | MSCS 21 FLOAT REPORT                                       |
| A095 G-DECK 217                           | MSCS 21 FLOAT REPORT                                       |
| A096 RW DRAINS EL. 201'                   | MSCS 21 FLOAT REPORT                                       |
| A097 WELD SHIELD CAP                      | MSCS 27 REPORT   |
| A098 CPT SS EL. 201'                      | MSCS 21 FLOAT REPORT                                       |
| A099 START SS AT 217-253 EXT WLS-COLS     | MSCS 21 FLOAT REPORT                                       |
| A100 CPT PAINT REAC SHIELD                | MSCS 27 REPORT   |
| A101 SET PIPE EL. 201'                    | MSCS 21 FLOAT REPORT                                       |
| A102 CPT. G-DECK 217'                     | MSCS 21 FLOAT REPORT                                       |
| A103 S/C EL. 177'                         | MSCS 27 REPORT   |
| A104 RW DRAINS @ 217                      | MSCS 21 FLOAT REPORT                                       |
| A105 PART G-DECK @ 253 EXT WALLS TO COLS  | MSCS 21 FLOAT REPORT                                       |

| Task Number and Description              | Source   |
|--|--|
| A106 START REBAR WALLS 217-253           | MSCS 21 FLOAT REPORT   |
| A107 S.S. EL. 217 COLS. TO CONT          | MSCS 21 FLOAT REPORT   |
| A108 CPT FR&P EL. 217 SLAB COLS. TO CONT | MSCS 21 FLOAT REPORT   |
| A109 MECH & ELECT 177                    | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84) |
| A110 START FORMS CPT RBR WALS 217-253    | MSCS 21 FLOAT REPORT   |
| A111 PRECAST 217-253                     | MSCS 21 FLOAT REPORT   |
| A112 FR&P PART SLAB 217 EXT WALLS TO COL | MSCS 21 FLOAT REPORT   |
| A113 DISMANTLE RPV LIFT RIG              | MSCS 21 FLOAT REPORT   |
| A115 EMBED CONDUIT @ 217                 | MSCS 21 FLOAT REPORT   |
| A116 CONT FR&P WALLS ELEV 217-253        | MSCS 21 FLOAT REPORT   |
| A117 CPT. FR&P WALLS ELEV 217-253        | MSCS 21 FLOAT REPORT   |
| A118 MECH & ELEC 201                     | MSCS 21 FLOAT REPORT   |
| A119 CPT INT WALLS 217-253 CON-COLS      | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84) |
| A120 S/C AT 201                          | MSCS 21 FLOAT REPORT   |
| A121 Q-DECK 241                          | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84) |
| A123 FRAME STEEL @ 253 - 313             | MSCS 21 FLOAT REPORT   |
| A124 FR&P SLAB AT 241 STEAM VENT AREA    | MSCS 21 FLOAT REPORT   |
| A125 CPT. Q-DECK 253                     | MSCS 21 FLOAT REPORT   |
| A126 STEAMCHASE MECH & ELEC              | MSCS 21 FLOAT REPORT   |
| A128 FR&P WALLS 241- 253 STEAM VENT AREA | MSCS 27 REPORT   |
| A129 S/C IN STEAM CHASE                  | MSCS 21 FLOAT REPORT   |
| A130 START FR&P 253 SLAB EXT WAL-COL     | MSCS 27 REPORT   |
| A131 RW DRAINS @ 253                     | MSCS 21 FLOAT REPORT   |
| A132 CPT FR&P 253 SLAB COLS TO CONT      | MSCS 21 FLOAT REPORT   |
| A133 START EXT. WALLS 253-283            | MSCS 21 FLOAT REPORT   |
| A134 283 EXT WALLS TO COLS FLOOR SUPPORT | MSCS 21 FLOAT REPORT   |
| A135 Q-DECK                              | MSCS 21 FLOAT REPORT   |
| A136 S/C 217                             | MSCS 21 FLOAT REPORT   |
| A137 CPT SS 253-283 COLS TO CONT         | MSCS 27 REPORT   |
| A138 MECH & ELEC 217                     | MSCS 21 FLOAT REPORT   |
| A139 CPT Q-DECK 283                      | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84) |
| A141 CPT FR&P SLAB @ 283                 | MSCS 21 FLOAT REPORT   |
| A142 RW DRAINS @ 283                     | MSCS 21 FLOAT REPORT   |
| A143 START PRECAST PNLs 253-283          | MSCS 21 FLOAT REPORT   |
| A144 CONT. WALLS 253-283                 | MSCS 21 FLOAT REPORT   |
| A145 EMBEDDED CONDUIT @ 283              | MSCS 21 FLOAT REPORT   |
| A146 CPT PRECAST PANELS 253-283          | MSCS 21 FLOAT REPORT   |
| A147 EMBEDDED CONDUIT 253                | MSCS 21 FLOAT REPORT   |
| A148 CONT. WALLS 253-283                 | MSCS 21 FLOAT REPORT   |
| A149 CPT. WALLS 253-283                  | MSCS 21 FLOAT REPORT   |
| A150 CONE LIFTS 4-5                      | MSCS 21 FLOAT REPORT   |
| A151 START FR&P SLAB AT 283              | MSCS 21 FLOAT REPORT   |
| A152 SET TEMP COLS AT 283 FOR            | MSCS 21 FLOAT REPORT   |
| A153 SET FUEL POOL GIRDER                | MSCS 21 FLOAT REPORT   |
| A154 BECHTEL SUPT REACT SHIELD           | MSCS 21 FLOAT REPORT   |
| A155 POOL GIRDER SS ON                   | MSCS 21 FLOAT REPORT   |
| A156 SUPPORT STEEL AT 300                | MSCS 21 FLOAT REPORT   |
| A157 CRD MODULES                         | MSCS 21 FLOAT REPORT   |
|  | MONTHLY PROJECT STATUS REPORT (4/81); 12 MONTH REPORT                |

| <b>Task Number and Description</b>     | <b>Source</b>   |
|--|---|
| A158 Q-DECK AT 300-313                 | MSCS 21 FLOAT REPORT  |
| A159 S/C 253                           | MSCS 27 REPORT  |
| A160 SS AT 272' & 286'                 | WEEKLY CONSTRUCTION PROGRESS REPORT (12/2/77)                       |
| A161 CRD PIPE OUTSIDE                  | MSCS 27 REPORT  |
| A162 INSTALL CRD PIPE                  | MONTHLY PROJECT STATUS REPORTS, 24, 18, 12 MONTH REPORTS            |
| A163 START FUEL POOL LINER OUT OF HOLE | MSCS 21 FLOAT REPORT  |
| A164 F&R CASK WASH DN &                | MSCS 21 FLOAT REPORT  |
| A165 MECH & ELEC 253                   | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84 |
| A166 START PRECAST TO 313              | MSCS 21 FLOAT REPORT  |
| A167 DRYWELL S/C                       | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84 |
| A168 DRYWELL MECH & ELEC               | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84 |
| A169 START EXT WALLS TO 283            | MSCS 21 FLOAT REPORT  |
| A170 SHORE 313 SLAB                    | MSCS 21 FLOAT REPORT  |
| A171 SET SPENT FUEL POOL LINER         | MSCS 21 FLOAT REPORT  |
| A172 CPT 313 PRECAST                   | MSCS 21 FLOAT REPORT  |
| A173 START FR&P GIRDER B               | MSCS 21 FLOAT REPORT  |
| A176 COMPLETE EXT WALLS 283 TO         | MSCS 21 FLOAT REPORT  |
| A177 SET CASK WASHDOWN LINER           | MSCS 21 FLOAT REPORT  |
| A178 CPT FR&P GRD B POUR               | MSCS 21 FLOAT REPORT  |
| A179 START FR&P GIRDER C               | MSCS 21 FLOAT REPORT  |
| A180 F&R 313 SLAB D-F                  | MSCS 21 FLOAT REPORT  |
| A181 FRAME STEEL 313 TO 352            | MSCS 21 FLOAT REPORT  |
| A183 POUR SOUTH 313 SLAB               | MSCS 21 FLOAT REPORT  |
| A184 COMPLETE FR&P GIRDER C            | MSCS 21 FLOAT REPORT  |
| A185 DRYER SEP. SLAB SPT               | MSCS 21 FLOAT REPORT  |
| A186 CPT SUPPORT STEEL @ 331           | MSCS 21 FLOAT REPORT  |
| A187 STR STL & Q-DECK                  | MSCS 21 FLOAT REPORT  |
| A188 F&R DRYER SEP SLAB                | MSCS 21 FLOAT REPORT  |
| A189 START FR&P GRD D                  | MSCS 21 FLOAT REPORT  |
| A190 RW DRAINS @ 313'                  | MSCS 27 REPORT  |
| A191 Q-DECK @ 331                      | MSCS 21 FLOAT REPORT  |
| A192 EXT START WALLS 313-331           | MSCS 21 FLOAT REPORT  |
| A193 START F&R GIRDER E                | MSCS 21 FLOAT REPORT  |
| A194 SET DRYER SEP LINER               | MSCS 21 FLOAT REPORT  |
| A195 CPT FR&P GIRDER D                 | MSCS 22 REPORT  |
| A196 FR&P SOUTH INT WALLS TO           | MSCS 22 REPORT  |
| A197 PRECAST TO 331                    | MSCS 23 REPORT  |
| A198 CPT FUEL POOL LINER OUT OF        | MSCS 24 REPORT  |
| A199 CPT EXT WALLS 313 & 331           | MSCS 23 REPORT  |
| A200 CPT FR&P GIRDER E                 | MSCS 23 REPORT  |
| A201 REMOVE COLS 283'                  | MSCS 21 FLOAT REPORT  |
| A202 FR&P 331 SLAB                     | MSCS 23 REPORT  |
| A204 SET REACTOR CAVITY LINER          | MSCS 22 REPORT  |
| A205 CONSTRUCTION RESTRAINT            | MSCS 22 REPORT  |
| A206 PRECAST TO 352'                   | MSCS 23 REPORT  |
| A207 CPT 313 & 352 CONSTRUCTION        | MSCS 27 REPORT  |
| A208 BECHTEL SUP PRV INTERNALS         | 24, 18, 12 MONTH REPORTS  |
| A209 REMOVE QUAD CRANES                | MSCS 22 REPORT  |

| <b>Task Number and Description</b>         | <b>Source</b>   |
|--|---|
| A210 FR&P EXT. & INT. WALLS TO             | MSCS 23 REPORT  |
| A211 FR&P GIRDER F TO 351                  | MSCS 23 REPORT  |
| A212 TOP HAT COLS TO 23 LINE               | MSCS 23 REPORT  |
| A213 SET HVAC FILTR PLENUMS @              | MSCS 23, 24 REPORTS   |
| A214 STR STL Q-DECK @ 352                  | MSCS 24 REPORT  |
| A215 CPT Q-DECK                            | MSCS 24 REPORT  |
| A216 RF GIRDER (EXCEPT 21.5                | MSCS 24 REPORT  |
| A217 R.B. BRIDGE CRANE (RIG IN)            | MSCS 24 REPORT  |
| A218 PHASE 1 POST TENSION                  | MSCS 25 REPORT  |
| A219 REBAR EXT WALLS 352-410               | MSCS 26 REPORT  |
| A220 PLACE CNSTR SEPARATION                | MSCS 27 REPORT  |
| A221 PRECAST 2 LIFTS NOT OVER              | MSCS 27 REPORT  |
| A223 FR&P INT WALLS 283' - 313'            | MSCS 23, 24 REPORTS   |
| A224 CPT NEW FUEL STORAGE                  | MSCS 23, 24 REPORTS   |
| A225 TEST CRANE                            | MSCS 27 REPORT  |
| A226 PRECAST FPG 14.1 LINE                 | MSCS 27 REPORT  |
| A227 FR&P 300' SLAB                        | MSCS 27 REPORT  |
| A228 PLACE EXT. WALLS ALL LIFTS            | MSCS 27 REPORT  |
| A229 FR&P WALLS & ROOF OF ELEV             | MSCS 27 REPORT  |
| A230 CURE F                                | MSCS 23, 24 REPORTS   |
| A231 352 SLAB & NEW FUEL                   | MSCS 26, 27 REPORTS   |
| A232 PRECAST THIRD LIFT                    | MSCS 27 REPORT  |
| A233 RPV INTRNLS UPTO & INCLUDING JET PUMP | MSCS 27 REPORT, 24, 18, 12 MONTH REPORTS                            |
| A234 MECH & ELECT 313                      | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84 |
| A235 INCORE INSTRUMENTS                    | MSCS 27 REPORT  |
| A238 S/C 313                               | MSCS 27 REPORT  |
| A239 POUR DRYER SEP &                      | MSCS 26 REPORT  |
| A240 COMP. INTRNL UPTO COLD HYDRO          | MONTHLY PROJECT STATUS REPORT (4/81), PREOP STATUS TABLE (10/2/84   |
| A241 BECH CPT RPV INTERNAL                 | MONTHLY PROJECT STATUS REPORT (4/81)                                |
| A242 PLACE ROOF                            | MSCS 27 REPORT  |
| A243 S/C 352                               | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84 |
| A246 MECH & ELECT 352                      | MSCS 27, ICS, 24, 18, 12 MONTH REPORTS, PREOP STATUS TABLE (10/2/84 |
| A247 SPECIAL COATING                       | MSCS 27 REPORT  |
| A248 RW DRAINS @ 352'                      | MSCS 26, 27 REPORTS   |
| A249 CPT FR&P REST OF 313 SLAB             | MSCS 26, 27 REPORTS   |
| A250 SPECIAL COATING @ 331                 | MSCS 27 REPORT  |
| A252 PHASE II POST TENSION                 | MSCS 26 REPORT  |
| A253 MOVE IN D.W. HEAD                     | MSCS 27 REPORT  |
| A254 TOPPING SLABS & LINER BASE            | MSCS 26, 27 REPORTS   |
| A255 REMOVE 313' SHORING                   | MSCS 25 REPORT  |
| A256 CRANE ON ROOF                         | MSCS 27 REPORT  |
| A257 S/C 283                               | MSCS 27 REPORT  |
| A258 CHECK RPV HEAD FIT.                   | MSCS 27 REPORT  |
| A259 REAC. WELL LINER FINISH               | MSCS 27 REPORT  |
| A260 MECH & ELECT 283                      | MSCS 27 REPORT  |
| A262 PDM, LINERS & GATE & STOP             | MSCS 27 REPORT  |
| A263 N.W. & S PRECAST STACKS               | MSCS 27 REPORT  |
| A264 INSTALL RPV HEAD, BELLOWS             | MSCS 27 REPORT  |

| <u>Task Number and Description</u>    | <u>Source</u>  |
|---------------------------------------|--|
| A265 PDM HYDRO                        | MSCS 27 REPORT   |
| A266 INSTALL ROOFING                  | MSCS 27 REPORT   |
| A267 FUEL POOL RACKS & EQUIP          | MSCS 27 REPORT   |
| A270 EXC. D-LINE PIPE TUNNEL          | MSCS 21 FLOAT REPORT   |
| A271 INSTALL R/W DRAIN PIPE           | MSCS 21 FLOAT REPORT   |
| A272 FR&P TUNNEL BASE SLAB &          | MSCS 23 REPORT   |
| A273 FR&P TUNNEL ROOF                 | MSCS 23, 24 REPORTS  |
| A274 DUMMY                            | MSCS 27 REPORT   |
| A275 MECHANICAL & ELECTRICAL          | MSCS 27 REPORT   |
| A277 OPERATING ENGINEERS STRIKE       | MONTHLY PROGRESS REPORTS (5/75, 6/75)                        |
| A279 REDESIGN OF CRD SYS. BY TELEDYNE | 24, 18, 12 MONTH REPORTS                                     |
| A280 CONTAINMENT HOLD                 | MONTHLY PROJECT STATUS REPORT (4/75), PROJECT CORRESPONDENCE |
| A281 LIMITED DRYWELL MECH &           | WEEKLY CONSTRUCTION PROGRESS REPORT (12/2/77)                |
| A282 "BLUE TAG" TESTING               | MSCS 27 REPORT   |
| A283 DRYWELL "BLUE TAG" TESTING       | MSCS 27 REPORT   |
| A284 DRYWELL STARTUP; CORESPRAY       | PREOP STATUS TABLE (10/2/84)                                 |
| A285 EL. 283 STARTUP; CORESPRAY       | PREOP STATUS TABLE (10/2/84)                                 |
| A286 LICENSE DELAY                    | PREOP STATUS TABLE (10/2/84)                                 |
| A287 COMPLETE ATWS MODIFICATIONS      | PREOP STATUS TABLE (10/2/84)                                 |
| A288 TUNNEL STARTUP TESTING           | PREOP STATUS TABLE (10/2/84)                                 |
| A289 STEAM CHASE STARTUP              | PREOP STATUS TABLE (10/2/84)                                 |
| C001 FR&P TURBINE FOUNDATNS           | MSCS 21 FLOAT REPORT   |
| C002 CIRC WATER PIPE ENV.             | MSCS 21 FLOAT REPORT   |
| C003 SITE PREPARA- TION               | MSCS 21 FLOAT REPORT   |
| C004 FR&P TURBINE BASE                | MSCS 21 FLOAT REPORT   |
| C005 MUD MAT                          | MSCS 21 FLOAT REPORT   |
| C006 SERVICE WATER PIPE               | MSCS 21 FLOAT REPORT   |
| C007 FRP FOOTINGS & GROUND BEAMS      | MSCS 21 FLOAT REPORT   |
| C008 UTILITY PIPE & DRAINS            | MSCS 21 FLOAT REPORT   |
| C009 BACKFILL CONCRETE                | MSCS 21 FLOAT REPORT   |
| C010 ELEC DUCT BNKS BELOW 217 SLB     | MSCS 21 FLOAT REPORT   |
| C011 ENCASE ELEC DUCT BANK            | MSCS 21 FLOAT REPORT   |
| C012 FR&P TUNNEL                      | MSCS 21 FLOAT REPORT   |
| C013 FR&P BASE SLAB                   | MSCS 21 FLOAT REPORT   |
| C014 CIRC WATER CONC. ENV.            | MSCS 21 FLOAT REPORT   |
| C015 CPT FRP FDN WALLS                | MSCS 21 FLOAT REPORT   |
| C016 FRP STRUCT WALLS                 | MSCS 21 FLOAT REPORT   |
| C017 FR&P INT WALLS TO 239            | MSCS 21 FLOAT REPORT   |
| C018 FR&P INT WALLS TO 253            | MSCS 21 FLOAT REPORT   |
| C019 CONDENSER OUTSIDE EREC           | MSCS 21 FLOAT REPORT   |
| C020 FR&P PEDESTAL LEGS               | MSCS 21 FLOAT REPORT   |
| C021 RW DRAINS @ 239                  | MSCS 21 FLOAT REPORT   |
| C022 FR&P SLAB AT 239                 | MSCS 21 FLOAT REPORT   |
| C023 CURE SLAB                        | MSCS 21 FLOAT REPORT   |
| C024 MECH & ELEC AREA 03A 200 217     | MSCS 27 REPORT   |
| C025 EMBEDDED CONDUIT @ 239           | MSCS 21 FLOAT REPORT   |
| C026 FR&P INT WALLS TO 269            | MSCS 27 REPORT   |
| C027 STR. STL. INST. PED. CAP         | MSCS 21 FLOAT REPORT   |

| <b>Task Number and Description</b>    | <b>Source</b>                                     |
|---------------------------------------|---|
| C028 TUNNEL S/C                       | MSCS 27 REPORT                                    |
| C029 FR&P SLAB @ 217                  | MSCS 21 FLOAT REPORT                              |
| C030 RW DRAINS @ 217                  | MSCS 21 FLOAT REPORT                              |
| C031 S/C AREA 03A 200' 217'           | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| C032 TUNNEL MECH & ELEC               | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| C033 START CONDENSER INSIDE ERECT.    | MSCS 21 FLOAT REPORT                              |
| C034 FR&P SLAB AT 253'                | MSCS 21 FLOAT REPORT                              |
| C035 CURE SLAB                        | MSCS 21 FLOAT REPORT                              |
| C036 EMB CONDUIT 217                  | MSCS 21 FLOAT REPORT                              |
| C037 S/C AREA 01B 239'                | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| C038 217 - 269 STRUC STEEL BECH.      | MSCS 21 FLOAT REPORT                              |
| C039 FRP PED CAP                      | MSCS 21 FLOAT REPORT                              |
| C040 S/C AREA 01A 200' 217'           | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| C041 MECH & ELEC AREA 01B 239'        | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| C042 FR&P INT WALLS @ 269             | MSCS 27 REPORT                                    |
| C043 MVSS STRUCT STEEL                | MSCS 21 FLOAT REPORT                              |
| C044 OUT OF HOLE CONCRETE             | MSCS 23 REPORT                                    |
| C045 FR&P SLAB @ 269                  | MSCS 21 FLOAT REPORT                              |
| C046 MECH & ELEC AREA 01A 200 217     | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C047 INSTALL OVERHEAD CRANE           | MSCS 21 FLOAT REPORT                              |
| C048 CONT. COND. INSIDE ERECT.        | MSCS 21 FLOAT REPORT                              |
| C049 INSTALL PRECAST PANELS           | MSCS 26 REPORT                                    |
| C050 DUMMY                            | MSCS 27 REPORT                                    |
| C051 RW DRAINS @ 269                  | MSCS 21 FLOAT REPORT                              |
| C052 COMP COND. INSIDE ERECT.         | MSCS 27 REPORT                                    |
| C053 DUMMY                            | MSCS 27 REPORT                                    |
| C054 FRP EXT. WALLS                   | MSCS 21 FLOAT REPORT                              |
| C055 DUMMY                            | MSCS 27 REPORT                                    |
| C056 CLEAN & HYDROTEST CONDENSER      | MSCS 27 REPORT                                    |
| C057 PERMANENT ROOFING                | MSCS 26, 27 REPORTS                               |
| C058 MECH & ELEC 269                  | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C059 S/C AREA 01C 200' 217' 239'      | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C060 METAL DECK                       | MSCS 21 FLOAT REPORT                              |
| C061 MECH & ELEC AREA 01C 200 217 239 | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C062 TEMPORARY ROOFING                | MSCS 21 FLOAT REPORT                              |
| C063 S/C 269                          | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C064 S/C AREA 03C 239'                | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C065 MECH & ELEC 02A 200 217 239      | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C066 MECH & ELEC AREA 03C 239'        | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C067 S/C 02A 200' 217' 239'           | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C068 S/C 03B 200 217                  | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C069 MECH & ELEC 02B 200 217 239      | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C070 S/C 02B 200' 217' 239'           | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| C071 MECH & ELEC 03B 200' 217'        | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| D001 DRAINAGE                         | MSCS 21 FLOAT REPORT                              |
| D002 MUD MAT                          | MSCS 21 FLOAT REPORT                              |
| D003 OUT OF HOLE CONCRETE             | MSCS 26, 27 REPORTS                               |
| D004 FR&P FDN SLABS FTGS & WALLS      | MSCS 21 FLOAT REPORT                              |

| <b>Task Number and Description</b> | <b>Source</b>                                     |
|------------------------------------|---|
| D005 FR&P WALLS TO 200             | MSCS 21 FLOAT REPORT                              |
| D006 STRUC. STEEL TO 200           | MSCS 21 FLOAT REPORT                              |
| D007 FR&P SLAB 182                 | MSCS 21 FLOAT REPORT                              |
| D008 RW DRAINS @ 180               | MSCS 21 FLOAT REPORT                              |
| D009 FR&P WALLS TO 217             | MSCS 21 FLOAT REPORT                              |
| D010 FR&P SLAB - 200               | MSCS 21 FLOAT REPORT                              |
| D011 STRUCTURAL STEEL TO 217       | MSCS 21 FLOAT REPORT                              |
| D012 FR&P SLAB - 217               | MSCS 21 FLOAT REPORT                              |
| D012 FR&P SLAB - 217               | MSCS 21 FLOAT REPORT                              |
| D013 RW DRAINS @ 200               | MSCS 21 FLOAT REPORT                              |
| D014 TUNNEL MECH & ELEC            | MSCS 26, 27 REPORTS                               |
| D015 MECH & ELECT 180              | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| D016 S/C 180                       | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| D017 EMBED CONDUIT @ 217           | MSCS 21 FLOAT REPORT                              |
| D020 RW DRAINS @ 217               | MSCS 21 FLOAT REPORT                              |
| D021 FR&P WALLS TO 239             | MSCS 21 FLOAT REPORT                              |
| D022 SUPPORT STEEL 239             | MSCS 21 FLOAT REPORT                              |
| D023 FR&P WALLS TO 254             | MSCS 21 FLOAT REPORT                              |
| D024 SUPPORT STEEL 254             | MSCS 21 FLOAT REPORT                              |
| D025 FR&P J LINE WALL TO 351       | MSCS 21 FLOAT REPORT                              |
| D026 FR&P WALLS TO 269             | MSCS 21 FLOAT REPORT                              |
| D027 SUPPORT STEEL 269             | MSCS 21 FLOAT REPORT                              |
| D028 FR&P WALLS TO 289             | MSCS 21 FLOAT REPORT                              |
| D029 289' SUPPORT STEEL            | MSCS 21 FLOAT REPORT                              |
| D030 FR&P WALLS TO 304             | MSCS 21 FLOAT REPORT                              |
| D031 MECH & ELEC 200               | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| D033 EMBED CONDUIT @ 239           | MSCS 21 FLOAT REPORT                              |
| D034 S/C 200                       | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| D035 EMBED CONDUIT @ 254           | MSCS 21 FLOAT REPORT                              |
| D036 FR&P SLAB @ 254               | MSCS 21 FLOAT REPORT                              |
| D038 FR&P SLAB @ 269               | MSCS 21 FLOAT REPORT                              |
| D039 RW DRAINS @ 269               | MSCS 21 FLOAT REPORT                              |
| D040 S/C 217                       | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| D041 MECH & ELEC 217               | MSCS 26 REPORT, PREOP STATUS TABLE (10/2/84)      |
| D042 FR&P 26.6 & 19.4 WALL TO 324  | MSCS 21 FLOAT REPORT                              |
| D043 EMBED CONDUIT @ 289           | MSCS 21 FLOAT REPORT                              |
| D044 MECH & ELEC 239               | MSCS 26 REPORT, PREOP STATUS TABLE (10/2/84)      |
| D045 S/C 239                       | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| D046 MECH & ELEC 254               | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| D047 STRUCTURAL STEEL TO ROOF      | MSCS 21 FLOAT REPORT                              |
| D049 S/C 254                       | MSCS 26, 27 REPORTS                               |
| D050 304' SUPPORT STEEL            | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| D051 FR&P SLAB 289                 | MSCS 21 FLOAT REPORT                              |
| D053 RW DRAINS @ 304               | MSCS 21 FLOAT REPORT                              |
| D054 RW DRAINS @ 289               | MSCS 21 FLOAT REPORT                              |
| D056 EMBED CONDUIT @ 304           | MSCS 21 FLOAT REPORT                              |
| D057 FR&P SLAB @ 304               | MSCS 21 FLOAT REPORT                              |
| D058 F&R 26.6 LINE TO ROOF         | MSCS 21 FLOAT REPORT                              |

| Task Number and Description           | Source               |
|---------------------------------------|----------------------|
| D059 PRECAST PANELS TO ROOF           | MSCS 21 FLOAT REPORT |
| D060 MECH & ELEC 269                  | MSCS 26, 27 REPORTS  |
| D061 S/C 269                          | MSCS 26, 27 REPORTS  |
| D062 F&P WALLS TO 332                 | MSCS 21 FLOAT REPORT |
| D063 S/C 289                          | MSCS 26, 27 REPORTS  |
| D064 MECH & ELEC 289                  | MSCS 26, 27 REPORTS  |
| D065 F & P WALLS TO 366               | MSCS 22, 23 REPORTS  |
| D066 FR&P ROOF SLAB                   | MSCS 23 REPORT       |
| D067 FR&P SLABS 332 & 350             | MSCS 22, 23 REPORTS  |
| D069 RW DRAINS 332 & 350              | MSCS 22, 23 REPORTS  |
| D071 DUMMY                            | MSCS 27 REPORT       |
| D072 ROOFING                          | MSCS 23 REPORT       |
| D073 S/C 304                          | MSCS 26, 27 REPORTS  |
| D074 MECH & ELEC 304                  | MSCS 26, 27 REPORTS  |
| D075 MECH & ELEC 360                  | MSCS 27 REPORT       |
| D076 MECH & ELEC 332                  | MSCS 26, 27 REPORTS  |
| D077 S/C 332                          | MSCS 26, 27 REPORTS  |
| E002 BACKFILL & MUDMAT                | MSCS 21 FLOAT REPORT |
| E003 TRENCH EXCAVATION                | MSCS 21 FLOAT REPORT |
| E004 WATER PROOFING                   | MSCS 21 FLOAT REPORT |
| E005 START DRAINAGE PIPING            | MSCS 21 FLOAT REPORT |
| E006 FR&P SLAB 162'                   | MSCS 21 FLOAT REPORT |
| E007 RW DRAINS @ 162                  | MSCS 21 FLOAT REPORT |
| E008 START WATERPROOFING WALLS TO 174 | MSCS 21 FLOAT REPORT |
| E009 185 FRP WALLS & COLS             | MSCS 21 FLOAT REPORT |
| E010 PHASE SEPARATORS                 | MSCS 21 FLOAT REPORT |
| E011 COMPLETE WATERPROOF TO 174'      | MSCS 21 FLOAT REPORT |
| E012 WATERPROOF -ING 185 WALLS        | MSCS 21 FLOAT REPORT |
| E013 CPT. STRUCT. STEEL TO 191        | MSCS 21 FLOAT REPORT |
| E014 FRP WALLS & COLS TO 191          | MSCS 21 FLOAT REPORT |
| E015 F&R SLAB SOUTH OF CD             | MSCS 21 FLOAT REPORT |
| E016 191' -217' ERECT STRUC.STEEL     | MSCS 21 FLOAT REPORT |
| E017 RW DRAINS @ 191                  | MSCS 21 FLOAT REPORT |
| E018 COMPLETE LIGHTING                | MSCS 21 FLOAT REPORT |
| E019 EXCAVATE MUDMAT                  | MSCS 21 FLOAT REPORT |
| E020 WALLS TO 217 SOUTH OF CD         | MSCS 21 FLOAT REPORT |
| E021 F&R SLAB NORTH OF CD             | MSCS 21 FLOAT REPORT |
| E022 RW DRAINS @ 217                  | MSCS 21 FLOAT REPORT |
| E023 WALLS TO 217' NORTH OF CD        | MSCS 24, 26 REPORTS  |
| E024 WATERPROOF MUDMAT                | MSCS 21 FLOAT REPORT |
| E025 ERECT TANKS @ 191                | MSCS 21 FLOAT REPORT |
| E026 MECH & ELEC 162                  | MSCS 26 REPORT       |
| E027 FRP COLDBOX BASE SLAB 181'       | MSCS 21 FLOAT REPORT |
| E028 FRP 217' SLAB NORTH OF CD        | MSCS 21 FLOAT REPORT |
| E029 RW DRAINS @ 189                  | MSCS 21 FLOAT REPORT |
| E030 STRUCT STL 217 - 237             | MSCS 21 FLOAT REPORT |
| E031 FR&P BLOCKOUTS                   | MSCS 23, 24 REPORTS  |
| E032 S/C 162                          | MSCS 26, 27 REPORTS  |

**Task Number and Description****Source**

| <b>Task Number and Description</b>    | <b>Source</b>                                     |
|---------------------------------------|---|
| E033 189 MUDMAT                       | MSCS 21 FLOAT REPORT                              |
| E035 STRUCT STEEL 237 - 257           | MSCS 21 FLOAT REPORT                              |
| E036 PRECAST TO 237                   | MSCS 21 FLOAT REPORT                              |
| E037 PRECAST TO 257                   | MSCS 21 FLOAT REPORT                              |
| E038 FINE GRADE & BACKFILL            | MSCS 23 REPORT                                    |
| E039 WATERPROOF MUDMAT                | MSCS 21 FLOAT REPORT                              |
| E040 FRP WALLS TO 185'                | MSCS 21 FLOAT REPORT                              |
| E042 COLUMNS & FRAMING TO 279         | MSCS 21 FLOAT REPORT                              |
| E043 FRP WALLS TO 237                 | MSCS 21 FLOAT REPORT                              |
| E044 PRECAST TO 275                   | MSCS 21 FLOAT REPORT                              |
| E045 FRP WALLS TO 257                 | MSCS 21 FLOAT REPORT                              |
| E046 RW DRAINS 257                    | MSCS 21 FLOAT REPORT                              |
| E047 OUT OF HOLE CON- CRETE           | MSCS 22, 24 REPORTS                               |
| E048 FRP PIPEWAY SLAB                 | MSCS 21 FLOAT REPORT                              |
| E049 FRP 217 SOUTH OF CD              | MSCS 21 FLOAT REPORT                              |
| E050 FR&P WALLS TO 195' SLAB          | MSCS 21 FLOAT REPORT                              |
| E051 FRP ROOF SLAB                    | MSCS 21 FLOAT REPORT                              |
| E052 WTRPRF & BACKFILL SW CORNR OF RW | MSCS 21 FLOAT REPORT                              |
| E053 FRP SLAB @228 & 237              | MSCS 21 FLOAT REPORT                              |
| E054 FLOOR SUPPORT STL 195-217        | MSCS 21 FLOAT REPORT                              |
| E055 FRP 257' SLAB                    | MSCS 21 FLOAT REPORT                              |
| E056 RW DRAINS 228 & 237              | MSCS 21 FLOAT REPORT                              |
| E057 FRP WALLS TO 275                 | MSCS 21 FLOAT REPORT                              |
| E058 POUR PART 195 SLAB               | MSCS 21 FLOAT REPORT                              |
| E059 TUNNEL MECH & ELEC               | MSCS 26, 27 REPORTS                               |
| E060 DUMMY                            | MSCS 27 REPORT                                    |
| E061 DUMMY                            | MSCS 27 REPORT                                    |
| E062 CURE                             | MSCS 21 FLOAT REPORT                              |
| E063 S/C 191                          | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| E064 ROOFING                          | MSCS 27 REPORT                                    |
| E065 CPT FRB 195 SLAB BACKFILL        | MSCS 21 FLOAT REPORT                              |
| E066 WALLS TO 217                     | MSCS 21 FLOAT REPORT                              |
| E067 MECH & ELEC. 191                 | MSCS 26, 27 REPORTS                               |
| E068 MECH & ELEC 237                  | MSCS 26 REPORT                                    |
| E069 FRP SLABS 217                    | MSCS 26 REPORT                                    |
| E070 PRECAST PLUGS                    | MSCS 27 REPORT                                    |
| E071 S/C 217                          | MSCS 26, 27 REPORTS                               |
| E072 MECH & ELEC 217                  | MSCS 26, 27 REPORTS                               |
| E073 DUMMY                            | MSCS 27 REPORT                                    |
| E074 DUMMY                            | MSCS 27 REPORT                                    |
| E075 S/C 257                          | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| E076 S/C 237                          | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| E077 CIVIL REWORK                     | MSCS 27 REPORT                                    |
| E078 MECH & ELECT 257                 | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| E079 RADIATION COATING                | MSCS 27 REPORT                                    |
| E080 FR&P PARAPET WALLS               | MSCS 27 REPORT                                    |
| E081 OFF GAS MECH & ELEC              | MSCS 26, 27 REPORTS                               |
| E082 S/C OFF GAS                      | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |

**Task Number and Description****Source**

|  |  |
|--|--|
| F001 EXCAVATE                          | MSCS 21 FLOAT REPORT                         |
| F002 CONCRETE BACKFILL                 | MSCS 25 REPORT                               |
| F003 S/C DGS                           | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84) |
| F004 EXCAVATE                          | MSCS 27 REPORT                               |
| F005 MOBILIZE                          | MSCS 23 REPORT                               |
| F006 PIPE TRENCH TO COOLING            | MSCS 27 REPORT                               |
| F008 FOUNDATIONS & DRAINS              | MSCS 27 REPORT                               |
| F009 U.G. PIPE & DRAINS                | MSCS 27 REPORT                               |
| F010 ROCK ANCHORS & SUBPLINTHS         | MSCS 27 REPORT                               |
| F011 MECH & ELEC DGS                   | MSCS 23 REPORT                               |
| F012 LIGHTING GROUNDING AIRCRFT LIGHTS | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84) |
| F013 CPT SP IN TRENCH                  | MSCS 27 REPORT                               |
| F014 STRUCTURAL STEEL                  | MSCS 27 REPORT                               |
| F015 FOUNDATIONS SLABS &               | MSCS 27 REPORT                               |
| F016 EMBEDDED CONDUIT                  | MSCS 27 REPORT                               |
| F017 PRECAST COLUMNS                   | MSCS 27 REPORT                               |
| F018 INTERIOR WALLS                    | MSCS 24 REPORT                               |
| F019 UNDERGROUND PIPE                  | MSCS 27 REPORT                               |
| F020 EQUIPMENT                         | MSCS 27 REPORT                               |
| F021 ERECT PRECAST WALLS               | MSCS 27 REPORT                               |
| F022 PLINTHS & BACK PROP PADS          | MSCS 27 REPORT                               |
| F023 PRECAST WALLS & ROOF              | MSCS 25 REPORT                               |
| F024 EXTERIOR WALLS                    | MSCS 27 REPORT                               |
| F025 ERECT COLUMNS                     | MSCS 27 REPORT                               |
| F026 OUT OF HOLE CONCRETE              | MSCS 24 REPORT                               |
| F027 INNER BASIN                       | MSCS 27 REPORT                               |
| F028 ROOFINGS & SHEET METAL            | MSCS 27 REPORT                               |
| F029 MECH & ELEC YARD                  | MSCS 27 REPORT                               |
| F030 ROOFING                           | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84) |
| F031 CAISSONS & BENTS                  | MSCS 27 REPORT                               |
| F032 TOWER CRANE                       | MSCS 27 REPORT                               |
| F033 DUMMY                             | MSCS 27 REPORT                               |
| F034 ERECT SHELL                       | MSCS 27 REPORT                               |
| F034 INTERIOR FINISH                   | MSCS 27 REPORT                               |
| F035 INTERIOR FINISH                   | MSCS 27 REPORT                               |
| F037 LAG                               | MSCS 27 REPORT                               |
| F038 SMALL PIPE                        | MSCS 27 REPORT                               |
| F039 RISERS & COLD WATER OUTLETS       | MSCS 27 REPORT                               |
| F040 OUTER BASIN & WALLS               | MSCS 27 REPORT                               |
| F042 MISC APPURTENANCE                 | MSCS 27 REPORT                               |
| F043 ERECT FILL STRUCTURE              | MSCS 27 REPORT                               |
| F044 INSTRUMENTS                       | MSCS 27 REPORT                               |
| F045 FUNCT. TEST S/U SYSTEM 42         | MSCS 27 REPORT                               |
| F046 CLEAN UP                          | MSCS 27 REPORT                               |
| G001 EXCAVATE                          | MSCS 27 REPORT                               |
| G002 EXCAVATION                        | MSCS 27 REPORT                               |
| G003 EXCAVATION                        | MSCS 21 FLOAT REPORT                         |
| G004 GROUNDING                         | MSCS 21 FLOAT REPORT                         |
|  | MSCS 27 REPORT                               |

| <b>Task Number and Description</b> | <b>Source</b>                                |
|------------------------------------|--|
| G005 MARINE WORK                   | MSCS 27 REPORT                               |
| G006 FR&P SLAB                     | MSCS 27 REPORT                               |
| G007 U/G PIPE                      | MSCS 21 FLOAT REPORT                         |
| G008 U.G. PIPE CONDUIT GROUNDING   | MSCS 27 REPORT                               |
| G009 FR&P WALLS TO 217'            | MSCS 27 REPORT                               |
| G010 ERECT TANKS                   | MSCS 27 REPORT                               |
| G011 FRP TANKS & SLAB              | MSCS 21 FLOAT REPORT                         |
| G012 START INTAKE & PUMPHOUSE      | MSCS 27 REPORT                               |
| G013 MECHANICAL EQUIPMENT          | MSCS 27 REPORT                               |
| G014 U/G CONDUIT & GROUND          | MSCS 21 FLOAT REPORT                         |
| G015 MUDMAT                        | MSCS 26 REPORT                               |
| G016 DEWATER                       | MSCS 27 REPORT                               |
| G017 BACKFILL CONCRETE             | MSCS 27 REPORT                               |
| G018 ELECTRICAL EQUIPMENT          | MSCS 27 REPORT                               |
| G019 MECH & ELECTRICAL HYDROGEN    | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84) |
| G020 LARGE PIPE                    | MSCS 27 REPORT                               |
| G021 TEMPORARY OUTFALL PIPE        | MSCS 21 FLOAT REPORT                         |
| G022 COMPLETE INTAKE &             | MSCS 27 REPORT                               |
| G023 SLABS                         | MSCS 27 REPORT                               |
| G024 MISC STEEL                    | MSCS 27 REPORT                               |
| G025 ERECT SHELTER                 | MSCS 27 REPORT                               |
| G026 BEGIN PIPING                  | MSCS 21 FLOAT REPORT                         |
| G027 START ELECTRICAL WORK         | MSCS 27 REPORT                               |
| G028 S/C HYDROGEN                  | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84) |
| G029 PRECAST PANELS                | MSCS 27 REPORT                               |
| G030 INSTALL MECH EQUIPMENT &      | MSCS 21 FLOAT REPORT                         |
| G031 SMALL PIPE                    | MSCS 27 REPORT                               |
| G032 ROOF                          | MSCS 27 REPORT                               |
| G033 MISC S/C PIPING               | MSCS 18 FLOAT REPORT                         |
| G034 FR&P N. WALLS TO ELEV 263     | MSCS 27 REPORT                               |
| G035 PERMANENT EFFLUENT PIPE       | MSCS 21 FLOAT REPORT                         |
| G036 MISC. STEEL                   | MSCS 21 FLOAT REPORT                         |
| G037 ELECTRICAL EQUIPMENT          | MSCS 21 FLOAT REPORT                         |
| G038 PAINT                         | MSCS 27 REPORT                               |
| G039 ROOFING                       | MSCS 27 REPORT                               |
| G040 COMPLETE PIPING               | MSCS 21 FLOAT REPORT                         |
| G041 INSTRUMENTS                   | MSCS 27 REPORT                               |
| G042 STRUCTURAL STEEL              | MSCS 27 REPORT                               |
| G043 MISC STEEL                    | MSCS 27 REPORT                               |
| G044 DUMMY                         | MSCS 27 REPORT                               |
| G045 FR&P WEST RETAINING WALL      | MSCS 27 REPORT                               |
| G046 HVAC                          | MSCS 27 REPORT                               |
| G047 FR&P CW PUMP PADS             | MSCS 27 REPORT                               |
| G048 INSULATION                    | MSCS 21 FLOAT REPORT                         |
| G049 HEADWALL                      | MSCS 21 FLOAT REPORT                         |
| G051 ELECTRICAL BULKS              | MSCS 21 FLOAT REPORT                         |
| G052 O.H. CRANE                    | MSCS 27 REPORT                               |
| G053 CPT YARD & INTERIOR           | MSCS 27 REPORT                               |

| <b>Task Number and Description</b>   | <b>Source</b>                                |
|--------------------------------------|--|
| G054 FR&P SW FIRE WTR DIES TANK      | MSCS 27 REPORT                               |
| G055 PLUMBING                        | MSCS 21 FLOAT REPORT                         |
| G056 INSTALL PIPELINE                | MSCS 27 REPORT                               |
| G057 SET PUMPS, FIRE & SUMP &        | MSCS 27 REPORT                               |
| G058 INSULATION                      | MSCS 27 REPORT                               |
| G059 INSTALL CHLORINATION            | MSCS 27 REPORT                               |
| G060 ARCHITECTURE FINISH             | MSCS 21 FLOAT REPORT                         |
| G061 PRECAST WALL PANELS & RF        | MSCS 27 REPORT                               |
| G063 COMPLETE ELECTRICAL WORK        | MSCS 27 REPORT                               |
| G064 DUMMY                           | MSCS 27 REPORT                               |
| G065 S/C CWP                         | MSCS 27 REPORT                               |
| G066 ARCHITECTURAL FINISHES          | MSCS 27 REPORT                               |
| G068 CONCRETE                        | MSCS 21 FLOAT REPORT                         |
| G069 CONCRETE                        | MSCS 27 REPORT                               |
| G071 U.G. PIPE                       | MSCS 21 FLOAT REPORT                         |
| G072 U.G. PIPE                       | MSCS 27 REPORT                               |
| G073 PRECAST PANELS                  | MSCS 27 REPORT                               |
| G074 PRECAST PANELS                  | MSCS 21 FLOAT REPORT                         |
| G075 ROOFING                         | MSCS 27 REPORT                               |
| G076 ROOFING                         | MSCS 21 FLOAT REPORT                         |
| G077 MECH & ELECTRICAL FOH           | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84) |
| G078 MECH & ELECTRICAL LOE           | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84) |
| G079 DUMMY                           | MSCS 27 REPORT                               |
| H001 SITE CLEARING & ACCESS RD       | MSCS 22 REPORT                               |
| H002 EXCAVATE TOWER                  | MSCS 22 REPORT                               |
| H003 EXCAVATE WAREHOUSE              | MSCS 23 REPORT                               |
| H004 CONDUIT GROUNDING & BACKFILL    | MSCS 27 REPORT                               |
| H005 INTAKE COFFERDAM                | MSCS 22 REPORT                               |
| H006 FRP SLABS & WALLS TO 217'       | MSCS 24 REPORT                               |
| H007 CIVIL RIVERWORK & BLOW-DOWN     | MSCS 27 REPORT                               |
| H008 FRP SLAB & WALLS TO 217'        | MSCS 23 REPORT                               |
| H009 INSTALL OVERHEAD CRANE          | MSCS 27 REPORT                               |
| H010 MANHOLE 91 92, 93 & BACKFILL    | MSCS 27 REPORT                               |
| H011 CLEAN UP RIVER WORK             | MSCS 27 REPORT                               |
| H012 SS & Q-DECK @ 217'              | MSCS 24 REPORT                               |
| H013 ERECT STRUC STL & FRP SLB       | MSCS 27 REPORT                               |
| H014 U/G PIPE                        | MSCS 25 REPORT                               |
| H015 EREC SS & INSTL PRECAST PANELS  | MSCS 27 REPORT                               |
| H016 EXCAVATE                        | MSCS 23 REPORT                               |
| H017 INSTALL PRECAST PANELS          | MSCS 27 REPORT                               |
| H018 INSTALL M-U PIPE MNFLD&BACKFILL | MSCS 27 REPORT                               |
| H019 R & P SLABS @ 217'              | MSCS 24 REPORT                               |
| H020 FRP & EMBDS                     | MSCS 27 REPORT                               |
| H021 INSTALL ROOF                    | MSCS 27 REPORT                               |
| H022 PULL WIRE DUCT BANKS            | MSCS 27 REPORT                               |
| H023 MECH & ELEC GDS                 | MSCS 27 REPORT                               |
| H024 START STR STEEL ABOVE 217'      | MSCS 24 REPORT                               |
| H025 INSTALL ROOF                    | MSCS 27 REPORT                               |

| <b>Task Number and Description</b>  | <b>Source</b>        |
|-------------------------------------|----------------------|
| H026 FR&P FOOTINGS                  | MSCS 23 REPORT       |
| H027 INSTALL MULLIONS & GLASS       | MSCS 27 REPORT       |
| H029 S/C WAREHOUSE                  | MSCS 27 REPORT       |
| H030 TRASH RACK & RAKE              | MSCS 27 REPORT       |
| H031 CPT STRUCT & Q-DECK TO ROOF    | MSCS 24 REPORT       |
| H032 CLEAN UP                       | MSCS 27 REPORT       |
| H033 ROOFING                        | MSCS 27 REPORT       |
| H034 FIRE PROOFING                  | MSCS 27 REPORT       |
| H035 INTERIOR S/C GDS               | MSCS 27 REPORT       |
| H036 FRP COLS 137 SLAB & INTER WALL | MSCS 27 REPORT       |
| H037 INTERIOR WALLS & FINISHES      | MSCS 27 REPORT       |
| H038 FRP RETAINING WALLS            | MSCS 26 REPORT       |
| H039 MISC CONCRETE                  | MSCS 27 REPORT       |
| H040 PRECAST PANELS                 | MSCS 27 REPORT       |
| H041 BACKFILL WALLS & FINE GRADE    | MSCS 27 REPORT       |
| H042 MECH & ELEC WAREHOUSE          | MSCS 26 REPORT       |
| H043 INSTALL SECURITY SYSTEM        | MSCS 27 REPORT       |
| H044 BLOCKWALLS                     | MSCS 27 REPORT       |
| H045 R&P SLAB ABOVE 217' TO ROOF    | MSCS 27 REPORT       |
| H046 SS & PANELS TO ROOF            | MSCS 27 REPORT       |
| H047 DEWATER                        | MSCS 27 REPORT       |
| H049 CLEAN UP                       | MSCS 27 REPORT       |
| H051 FRP ROOF SLAB                  | MSCS 27 REPORT       |
| H052 SIDING                         | MSCS 27 REPORT       |
| H053 TRAVELING SCREENS              | MSCS 27 REPORT       |
| H054 INTERIOR WALL FRAMING          | MSCS 27 REPORT       |
| H055 MULLIONS                       | MSCS 27 REPORT       |
| H056 MECH & ELEC ADB                | MSCS 27 REPORT       |
| H057 FIELD PAINTING                 | MSCS 27 REPORT       |
| H058 GLASS                          | MSCS 27 REPORT       |
| H059 TEMPORARY CLOSE IN             | MSCS 27 REPORT       |
| H060 COMPLETE FIREPROOFING          | MSCS 27 REPORT       |
| H061 ROOFING                        | MSCS 27 REPORT       |
| H062 REMOVE COFFERDAM               | MSCS 27 REPORT       |
| H063 S/C SRP H63                    | MSCS 27 REPORT       |
| H064 S/C ADB                        | MSCS 27 REPORT       |
| H065 CLEAN UP                       | MSCS 27 REPORT       |
| H067 MOVE MATERIAL TO NEW AREA      | MSCS 27 REPORT       |
| H068 COMMON EXCAVATION              | MSCS 24 REPORT       |
| H069 EXCAVATE HOT SHOP AREA         | MSCS 27 REPORT       |
| H070 NEW LAY DWN AREA STRIP         | MSCS 18 FLOAT REPORT |
| H071 EXCAVATE DUCT BANK PWR         | MSCS 27 REPORT       |
| H072 POND EXCAVATION                | MSCS 27 REPORT       |
| H073 ERECT STRCT STL & FRP SLAB     | MSCS 27 REPORT       |
| H074 EXCAVATE ROCK                  | MSCS 24 REPORT       |
| H075 INSTALL DUCT BANKS             | MSCS 27 REPORT       |
| H076 START ROCK FRACTURE            | MSCS 27 REPORT       |
| H077 INSTALL INTERMEDIATE SLAB      | MSCS 27 REPORT       |

| <b>Task Number and Description</b>  | <b>Source</b>                                |
|-------------------------------------|--|
| H078 INSTALL PRECAST                | MSCS 27 REPORT                               |
| H079 BACKFILL ACCESS ROAD           | MSCS 27 REPORT                               |
| H080 MUDMAT                         | MSCS 24 REPORT                               |
| H081 BACKFILL DUCT BANKS            | MSCS 27 REPORT                               |
| H082 START INSTALLATION OF PIPE     | MSCS 27 REPORT                               |
| H083 CPT ROCK FRACTURE              | MSCS 27 REPORT                               |
| H084 ROOFING                        | MSCS 27 REPORT                               |
| H085 FENCING                        | MSCS 27 REPORT                               |
| H086 FR&P FDN                       | MSCS 27 REPORT                               |
| H087 U.G. PIPE                      | MSCS 27 REPORT                               |
| H088 MECH & ELEC HOT SHOP           | MSCS 27 REPORT                               |
| H089 INTERIOR WALLS & FINISHES      | MSCS 27 REPORT                               |
| H090 CPT INSTALLATION OF PIPE       | MSCS 27 REPORT                               |
| H091 S/C HOT SHOP                   | MSCS 27 REPORT                               |
| H092 EXCAVATE MAKE-UP PIPE          | MSCS 26 REPORT                               |
| H094 MISC S/C                       | MSCS 27 REPORT                               |
| H095 THRUST BLOCKS                  | MSCS 27 REPORT                               |
| H096 CLEAN UP                       | MSCS 27 REPORT                               |
| H096 FR&P FDN WALLS TO 262'         | MSCS 27 REPORT                               |
| H097 INSTALL MAKE-UP PIPE           | MSCS 27 REPORT                               |
| H098 MECH & ELEC SPA                | MSCS 27 REPORT                               |
| H099 BACKFILL UG PIPE               | MSCS 27 REPORT                               |
| H101 OUT OF HOLE CONCRETE           | MSCS 27 REPORT                               |
| H102 BACKFILL MAKE-UP PIPE          | MSCS 27 REPORT                               |
| H103 BACKFILL STATION               | MSCS 27 REPORT                               |
| H104 BENTONITE LINING               | MSCS 27 REPORT                               |
| H106 FR&P SLAB @ 264'               | MSCS 27 REPORT                               |
| H107 MECH & ELEC SWP                | MSCS 27 REPORT                               |
| H108 EXTERIOR PRECAST TO 287'       | MSCS 27 REPORT                               |
| H109 WL & MISSLE PROTECTION         | MSCS 27 REPORT                               |
| H110 STRUCT & MISC STEEL            | MSCS 27 REPORT                               |
| H111 S/C SWP                        | MSCS 27 REPORT                               |
| H112 CONCRETE ROOF DECK             | MSCS 27 REPORT                               |
| H113 ROOFING & SHEET METAL          | MSCS 27 REPORT                               |
| H114 DUMMY                          | MSCS 27 REPORT                               |
| H115 INTERIOR FINISH                | MSCS 27 REPORT                               |
| K001 EMBEDDED CONDUIT @200          | MSCS 21 FLOAT REPORT                         |
| K002 TUNNEL MUDMAT                  | MSCS 21 FLOAT REPORT                         |
| K003 200 FOUNDATION WALLS           | MSCS 21 FLOAT REPORT                         |
| K004 FR&P WALLS                     | MSCS 26, 27 REPORTS                          |
| K005 FR&B BASE SLAB                 | MSCS 21 FLOAT REPORT                         |
| K006 RW DRAINS @ 200                | MSCS 21 FLOAT REPORT                         |
| K007 TUNNEL CONCRETE BACKFILL       | MSCS 21 FLOAT REPORT                         |
| K008 START FR&P WALLS FROM 200-217' | MSCS 21 FLOAT REPORT                         |
| K009 FOOTINGS& BEAMSTO201 TUNNEL    | MSCS 21 FLOAT REPORT                         |
| K010 MECH& ELEC. STEAM CHASE        | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84) |
| K011 TUNNEL RW DRAINS               | MSCS 21 FLOAT REPORT                         |
| K012 MVSS STRUC STL TO 217'         | MSCS 21 FLOAT REPORT                         |

| <b>Task Number and Description</b>           | <b>Source</b>                                     |
|--|---|
| K013 TUNNEL MECH & ELEC                      | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| K014 FR&P WALLS 200 - 217                    | MSCS 21 FLOAT REPORT                              |
| K015 FR&P ROOF                               | MSCS 27 REPORT                                    |
| K016 TUNNEL S/C                              | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| K017 CPT MVSS STRUCT STEEL                   | MSCS 21 FLOAT REPORT                              |
| K019 FR&P SLAB @217                          | MSCS 21 FLOAT REPORT                              |
| K020 RW DRAINS @ 217                         | MSCS 21 FLOAT REPORT                              |
| K021 BECHTEL SUPPORT TO MVSS                 | MSCS 21 FLOAT REPORT                              |
| K023 EMBEDDED CONDUIT@217                    | MSCS 21 FLOAT REPORT                              |
| K024 PRECAST PANELS                          | MSCS 21 FLOAT REPORT                              |
| K025 METAL ROOF DECK                         | MSCS 21 FLOAT REPORT                              |
| K026 FR&P WALLS TO 239                       | MSCS 21 FLOAT REPORT                              |
| K027 MECH & ELEC 200                         | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| K028 TURB AUX ENCL HVAC CONTROL              | MSCS 25 REPORT                                    |
| K029 S/C 200                                 | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| K030 FR&P WALLS TO 255                       | MSCS 21 FLOAT REPORT                              |
| K031 RW DRAINS @ 239                         | MSCS 26, 27 REPORTS                               |
| K032 FR&P SLAB @ 239                         | MSCS 21 FLOAT REPORT                              |
| K033 FR&P WALLS TO 269                       | MSCS 21 FLOAT REPORT                              |
| K034 FR&P SLAB @ 255                         | MSCS 21 FLOAT REPORT                              |
| K035 EMBEDDED CONDUIT@269                    | MSCS 21 FLOAT REPORT                              |
| K036 S/C 217                                 | MSCS 26, 27 REPORTS, PREOP STATUS TABLE (10/2/84) |
| K037 TEMPORARY ROOFING                       | MSCS 21 FLOAT REPORT                              |
| K038 S/C 239                                 | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| K039 MECH & ELEC 217                         | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| K040 FR&P WALLS TO 302                       | MSCS 21 FLOAT REPORT                              |
| K041 FR&P SLAB @ 269                         | MSCS 21 FLOAT REPORT                              |
| K042 RW DRAINS@269                           | MSCS 21 FLOAT REPORT                              |
| K043 MECH & ELEC 239                         | MSCS 27 REPORT                                    |
| K044 RW DRAINS @ 302                         | MSCS 23 REPORT                                    |
| K045 EMBEDDED CONDUIT@ 302                   | MSCS 22 REPORT                                    |
| K046 OUT OF HOLE CONC TURB AUX*1             | MSCS 21 FLOAT REPORT                              |
| K047 FR&P SLAB @ 302                         | MSCS 21 FLOAT REPORT                              |
| K048 BLOCK WORK @ 269                        | MSCS 23 REPORT                                    |
| K049 FR&P N LINE WALLS ON 302                | MSCS 26 REPORT                                    |
| K050 SLAB AT 285                             | MSCS 23 REPORT                                    |
| K051 DUMMY                                   | MSCS 27 REPORT                                    |
| K052 S/C 302                                 | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| K053 S/C 269                                 | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| K054 PERMANENT ROOFING                       | MSCS 27 REPORT                                    |
| K055 MECH & ELEC 269                         | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| K056 MECH & ELEC 302                         | MSCS 27 REPORT, PREOP STATUS TABLE (10/2/84)      |
| X001 FLUSH CRD INSERT LINES                  | MSCS 27 REPORT                                    |
| X002 GRIND FLGS, CPL WELDS                   | MSCS 27 REPORT                                    |
| X003 HYDRO RPV, BACKFLUSH                    | 12 MONTH REPORT; PREOP STATUS TABLE (10/2/84)     |
| X004 CPT RPV INT                             | PREOP STATUS TABLE (10/2/84)                      |
| X005 SU-34 RX BLDG H&V: P/L, TEST, TRB APPR. | PREOP STATUS TABLE (10/2/84)                      |
| X006 SU-54 PUNCHLIST                         | MSCS 27 REPORT                                    |

| <b>Task Number and Description</b>               | <b>Source</b>                |
|--|------------------------------|
| X008 SU-62 RPV & AUX: TEST, TRB APPR.            | PREOP STATUS TABLE (10/2/84) |
| X009 SU-59 CONT. & SUPP.                         | PREOP STATUS TABLE (10/2/84) |
| X010 SU13 PUNCHLIST                              | MSCS 27 REPORT               |
| X013 SU-81 FUEL HAND.: P/L, TEST, TRB APPR.      | PREOP STATUS TABLE (10/2/84) |
| X014 SU-14 REAC. BLDG COOL WTR:                  | PREOP STATUS TABLE (10/2/84) |
| X016 EL. 217 STARTUP                             | PREOP STATUS TABLE (10/2/84) |
| X017 SU-55 PUNCHLIST                             | MSCS 27 REPORT               |
| X018 SU-55 CRD HYD: TEST, TRB APPR.              | PREOP STATUS TABLE (10/2/84) |
| X019 UNIT 1 FUEL LOAD                            | LOW POWER LICENSE            |
| X020 SU-33 TURB. BLDG. H&V: P/L, TEST, TRB APPR. | PREOP STATUS TABLE (10/2/84) |
| X022 SU-47 FEEDWATER SYS.: P/L, TEST, TRB APPR.  | PREOP STATUS TABLE (10/2/84) |
| X023 SU-37 PUNCHLIST                             | MSCS 27 REPORT               |
| X024 SU-37 DEMMIN WTR TRANSFER STARTUP           | PREOP STATUS TABLE (10/2/84) |
| X025 SU-69 LIQ. RADWASTE; P/L, TEST, TRB APPR.   | PREOP STATUS TABLE (10/2/84) |
| X027 SU-99 MISC: P/L, TEST, TRB, APPR.           | PREOP STATUS TABLE (10/2/84) |
| X028 SU-30 CONTROL BLDG H&V:                     | PREOP STATUS TABLE (10/2/84) |
| X030 SU-11 SERVICE WTR: TEST, TRB APPR.          | PREOP STATUS TABLE (10/2/84) |
| X032 SU-24 DIESEL GEN: P/L, TEST, TRB APPR.      | PREOP STATUS TABLE (10/2/84) |
| X033 SU-9 INTAKE STRUCTURE:                      | PREOP STATUS TABLE (10/2/84) |
| X034 SU10A: SCRNM WASH                           | MSCS 27 REPORT               |
| X035 SU-23 FUEL OIL SYS:P/L, TEST, TRB APPR.     | PREOP STATUS TABLE (10/2/84) |
| X036 SU-74 N2, H3 & CO2: TEST, TRB APPR.         | PREOP STATUS TABLE (10/2/84) |
| X037 SU-40 PUNCHLIST                             | MSCS 27 REPORT               |
| X038 SU-42 CIRC WTR SYS: P/L, TEST, TRB APPR.    | PREOP STATUS TABLE (10/2/84) |
| X039 SU-10C: SCRNM & SCRNM WASH                  | MSCS 27 REPORT               |
| X040 SU-92 TURB STM SEAL: P/L, TEST, TRB, APPR.  | PREOP STATUS TABLE (10/2/84) |
| X041 SU-43 PUNCHLIST                             | MSCS 27 REPORT               |
| X042 SU-43 CONDENSER & AIR                       | PREOP STATUS TABLE (10/2/84) |
| X043 SU-93 PUNCHLIST                             | MSCS 27 REPORT               |
| X044 SU-93 MAIN TURB: TEST, TRB, APPR.           | PREOP STATUS TABLE (10/2/84) |
| X045 SU-18 PUNCHLIST                             | MSCS 27 REPORT               |
| X046 SU-18 INST. AIR SYS: TEST, TRB, APPR.       | PREOP STATUS TABLE (10/2/84) |
| X047 SU-15 TURB BLDG COOL WTR:                   | PREOP STATUS TABLE (10/2/84) |
| X048 SU-44 CONDENSATE P/L, TEST, TRB APPR.       | PREOP STATUS TABLE (10/2/84) |
| X049 SU-68 RADSOLIDS HANDLING                    | PREOP STATUS TABLE (10/2/84) |
| X050 SU-65 RADWASTE BLDG H&V                     | PREOP STATUS TABLE (10/2/84) |
| X051 SU-72 GAS RADWASTE: P/L, TEST, TRB APPR.    | PREOP STATUS TABLE (10/2/84) |
| X052 SU-16 RHR SERV. SYSTEM:                     | PREOP STATUS TABLE (10/2/84) |
| X053 SU-41 COOLING TWRS: TEST, TRB APPR.         | PREOP STATUS TABLE (10/2/84) |
| X054 SU-11 PUNCHLIST                             | MSCS 27 REPORT               |
| X055 SU-13 FIRE PROT: TEST, TRB APPR.            | PREOP STATUS TABLE (10/2/84) |
| X061 SU-53 STDBY LIQ CONTROL:                    | PREOP STATUS TABLE (10/2/84) |
| Z001 DUMMY                                       | MSCS 27 REPORT               |
| Z002 DUMMY                                       | MSCS 27 REPORT               |
| Z003 DUMMY                                       | MSCS 27 REPORT               |
| Z004 DUMMY                                       | MSCS 27 REPORT               |
| Z005 DUMMY                                       | MSCS 27 REPORT               |
| Z006 DUMMY                                       | MSCS 27 REPORT               |

**Task Number and Description****Source**

|            |                |
|------------|----------------|
| Z007 DUMMY | MSCS 27 REPORT |
| Z008 DUMMY | MSCS 27 REPORT |
| Z009 DUMMY | MSCS 27 REPORT |
| Z010 DUMMY | MSCS 27 REPORT |
| Z011 DUMMY | MSCS 27 REPORT |
| Z012 DUMMY | MSCS 27 REPORT |
| Z013 DUMMY | MSCS 27 REPORT |
| Z014 DUMMY | MSCS 27 REPORT |
| Z015 DUMMY | MSCS 27 REPORT |
| Z016 DUMMY | MSCS 27 REPORT |
| Z017 DUMMY | MSCS 27 REPORT |
| Z018 DUMMY | MSCS 27 REPORT |
| Z019 DUMMY | MSCS 27 REPORT |
| Z020 DUMMY | MSCS 27 REPORT |
| Z021 DUMMY | MSCS 27 REPORT |
| Z022 DUMMY | MSCS 27 REPORT |

ERRATA TO PECO STATEMENT NO. 1A,  
REBUTTAL TESTIMONY OF VINCENT S. BOYER

R-852152  
Hbg JK  
3/17/86

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Public Utility Commission

Three analytical cases were developed as part of this effort. Case 1 extended Mr. O'Brien's Mark II Impacted Schedule from December 1981 to the July 1982 fuel load date adopted by Mr. O'Brien. This analysis allowed us to realistically assess the levels of cash and manpower implied by Mr. O'Brien's completion date. As a part of this analysis, OKA's proposed schedule was also modified to include the additional manual manhours actually required at Limerick as a result of the larger actual scope of mechanical/electrical work. Also, the actual startup schedule logic and duration achieved at Limerick were incorporated. After making these adjustments, the annual cash flows and manpower densities required to meet the O'Brien fuel load data were calculated and evaluated.

Case 2 was developed to accurately reflect the as-built civil/structural logic at Limerick, and actual project progress up through June 1, 1976. The schedule model was constrained to allow reasonable manpower density limitations which would exist in critical and non-critical path activities and reasonable assumptions regarding the use of double shifts in construction. The fuel load date was not fixed.

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PENNSYLVANIA PUBLIC UTILITY COMMISSION  
v.  
PHILADELPHIA ELECTRIC COMPANY  
DOCKET NO. 850152

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**MAR 19 1986**

**SECRETARY'S OFFICE  
Public Utility Commission**

ANALYSIS CORRECTING ERRORS AND  
OMISSIONS IN  
O'BRIEN-KREITZBERG & ASSOCIATES  
SCHEDULE ANALYSIS

**DOCKETED**  
**MAR 24 1986**  
*[Handwritten initials]*

**DOCUMENT  
FOLDER**

FEBRUARY 19, 1986

LIMERICK GENERATING STATION  
UNIT 1 RATE CASE

SCHEDULE STUDY

SUMMARY

This study was prepared to provide an evaluation of the earliest achievable schedule completion of Limerick 1 and Common Plant. The case scenarios were defined jointly by Bechtel Power Corporation and Philadelphia Electric Company personnel; in order to simplify the analysis, and to eliminate subjective judgment to the extent possible, all cases are based on the identical total manhour and normalized cost data. No adjustments were made for productivity loss and premium cost of shift work or high density manpower levels. Because of the stringent licensing requirements associated with Limerick's location near a metropolitan area, earlier schedules would have resulted in substantial rework associated with many of the regulatory issues (e.g. Mark II, fire protection, equipment qualification, ATWS). These cost penalties for earlier schedules are excluded from this study; moreover, as Case 4 demonstrates, late resolution of many of these regulatory items made an earlier date impossible.

The MSCS CPM process was utilized to define the critical paths and fuel load dates for the various cases. Manpower and cash flow requirements were then developed from the MSCS network analysis. The cases are defined in more detail in later sections of this study. Main characteristics of the cases are summarized below.

| <u>CASE</u>   | <u>FUEL LOAD<br/>DATE</u> | <u>COMMERCIAL<br/>OPERATION<br/>DATE</u> | <u>DRYWELL<br/>DENSITY</u> |
|---|---------------------------|--|----------------------------|
| 1: OKA'S MARK II SCHEDULE   | 7/28/82                   | 11/17/83                                 | 305                        |
| 2: LGS I BEST SCHEDULE -<br>ACTUAL THRU JUNE 1, 1976 -<br>MANPOWER DENSITY AND DOUBLE<br>SHIFTING | 7/02/84                   | 10/18/85                                 | 200                        |
| 3: CASE 2 ADJUSTED FOR<br>PROJECTED UNRESTRAINED CASH<br>AVAILABILITY                             | 7/02/84                   | 10/18/85                                 | 200                        |

| <u>CASE</u>  | <u>FUEL LOAD<br/>DATE</u> | <u>COMMERCIAL<br/>OPERATION<br/>DATE</u> | <u>DRYWELL<br/>DENSITY</u> |
|--|---------------------------|--|----------------------------|
| 4: CASE 3 ADJUSTED FOR<br>REGULATORY AND LICENSING<br>RESTRAINTS | 10/01/84                  | 1/20/85                                  | 200                        |
| ACTUAL   | 10/26/84                  | 2/1/86                                   |                            |

LIMERICK GENERATING STATION

UNIT 1 RATE CASE

SCHEDULE STUDY

0: GENERAL

LIMERICK GENERATING STATION  
UNIT 1 RATE CASE

SCHEDULE STUDY

GENERAL

Manhours: Manhours are actual manhours from our field records. The total direct hire manhours (29,965,000) are equal to those used in the OKA study.

Mechanical/Electrical Manhours: The mechanical/electrical manhours are defined as those manhours which are spent in a facility/elevation module after the completion of major structural work (slab above subject elevation complete) and before the installation of wire and cable and connections. The direct hire manhours include some civil/architectural manhours and were developed by subtracting all concrete and structural steel manhours from the facility manhours. Subcontract manhours are for specific mechanical/electrical contracts.

Start of Mechanical/Electrical Work in an Elevation: The civil critical/sub-critical paths leading to the start of mechanical/electrical work in the different elevations are either based on the OKA Case 1 (= MSCS Rev. 1) logic (for Case 1) or on the as-built logic and on earliest achievable completion dates.

Mechanical/electrical work is usually started after the slab above the subject elevation has been poured. Rev. 1 of MSCS shows mechanical activities preceding the mechanical/electrical work; these activities are labeled "set 10% nuclear equipment" or "install 8% large pipe", etc.; their intent was to allow placement of heavy equipment, etc. before the slab on top was completed. For the purpose of this study, these activities were not considered to be the start of mechanical/electrical work.

Network Scope: For this study the schedule networks have been stripped down to their essential elements, namely the critical path for a typical elevation starts with civil/structural work for that elevation, continues with the mechanical/electrical work and then ties into the preoperational testing for the appropriate startup system.

We greatly simplified the logic for the mechanical/electrical work for each of the elevations. Compared to the civil/structural work which, as a rule, requires fairly well defined activities to happen in sequences, mechanical/electrical work has few such mandatory sequential steps.

To install pipe, hangers, electrical raceway, equipment or

instruments in a given geographical location, i.e., a certain elevation in the reactor building, other scheduling criteria become more important: design and material availability, density limits, total project craft availability, project wide commodity installation rates, etc., are usually more important than a contrived schedule logic which can easily be changed without serious impact to the end date. For an ideal case, where no delivery and other external restraints exist, density limits in conjunction with the total manhours for a given elevation become the most important factors in determining total durations for mechanical/electrical activities in a given location. The total manhours are spread evenly over the available mechanical/electrical durations determined by the density limits selected for the various cases.

For each elevation, the turnover date for the most significant system for that elevation was selected. An activity called "Blue Tag Testing" was inserted between the end of the mechanical/electrical activities and the startup activity. A weather allowance and a 7-week "hold" of the containment in 1975 are included where appropriate.

Cash Flow: A comparison of the cash flow requirements for the different cases is shown on Exhibits 0-1 and 0-2.

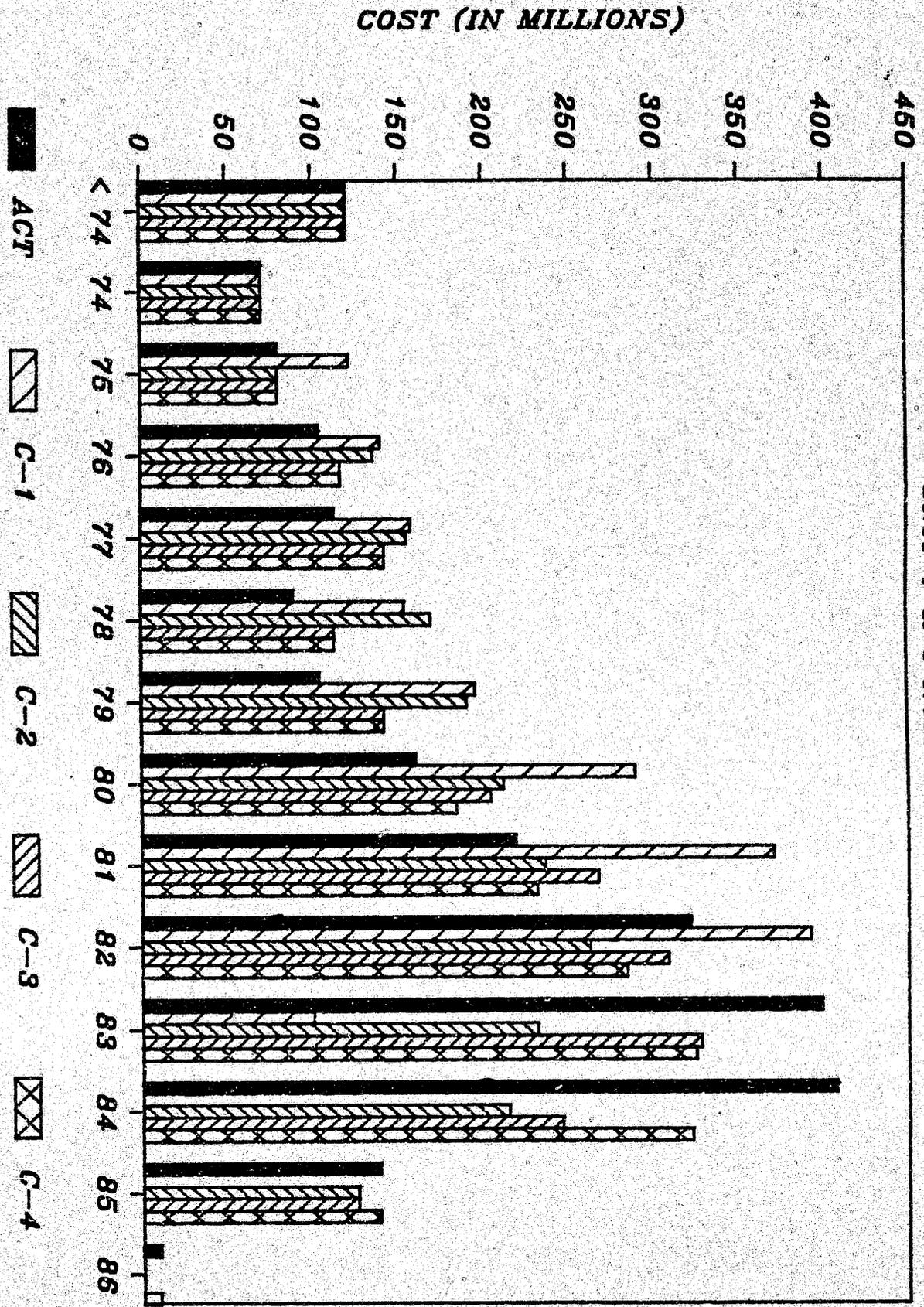
Cost: The "Actual Nominal Direct Costs" used in the OKA report (\$2,358.3 million) were modified slightly in the years 1985 and 1986 to reflect actual/reforecasted expenditures supplied by PECO. The revised cost total is \$2,345.3 million.

LIMERICK GENERATING STATION UNIT 1&C RATE CASE 14-Feb-86

| YEAR   | ACTUAL CASHFLOW               |                            | CASE 1 (OKA CASE 3) CASHFLOW  |                            | CASE 2 CASHFLOW               |                            | CASE 3 CASHFLOW               |                            | CASE 4 CASHFLOW               |                            |
|--------|-------------------------------|----------------------------|-------------------------------|----------------------------|-------------------------------|----------------------------|-------------------------------|----------------------------|-------------------------------|----------------------------|
|        | 1971 LEVEL COST (IN \$1000'S) | NOMINAL COST (IN \$1000'S) | 1971 LEVEL COST (IN \$1000'S) | NOMINAL COST (IN \$1000'S) | 1971 LEVEL COST (IN \$1000'S) | NOMINAL COST (IN \$1000'S) | 1971 LEVEL COST (IN \$1000'S) | NOMINAL COST (IN \$1000'S) | 1971 LEVEL COST (IN \$1000'S) | NOMINAL COST (IN \$1000'S) |
| PRE 74 | 111,900                       | 121,100                    | 111,900                       | 121,100                    | 111,900                       | 121,100                    | 111,900                       | 121,100                    | 111,900                       | 121,100                    |
| 1974   | 55,000                        | 71,300                     | 55,000                        | 71,300                     | 55,000                        | 71,300                     | 55,000                        | 71,300                     | 55,000                        | 71,300                     |
| 1975   | 55,900                        | 80,700                     | 84,900                        | 122,500                    | 55,900                        | 80,700                     | 55,900                        | 80,700                     | 55,900                        | 80,700                     |
| 1976   | 67,700                        | 104,700                    | 91,100                        | 140,800                    | 88,063                        | 136,498                    | 75,613                        | 117,200                    | 75,613                        | 117,200                    |
| 1977   | 68,500                        | 113,600                    | 95,500                        | 158,400                    | 94,021                        | 156,075                    | 86,205                        | 143,100                    | 86,205                        | 143,100                    |
| 1978   | 50,900                        | 89,700                     | 87,800                        | 154,700                    | 96,627                        | 170,064                    | 64,432                        | 113,400                    | 64,432                        | 113,400                    |
| 1979   | 54,300                        | 104,900                    | 101,600                       | 196,300                    | 99,203                        | 191,462                    | 73,834                        | 142,500                    | 73,834                        | 142,500                    |
| 1980   | 77,100                        | 161,200                    | 138,700                       | 290,000                    | 101,778                       | 212,717                    | 98,133                        | 205,098                    | 88,471                        | 184,904                    |
| 1981   | 96,700                        | 219,700                    | 163,300                       | 371,100                    | 104,354                       | 236,883                    | 118,079                       | 268,039                    | 102,101                       | 231,769                    |
| 1982   | 130,700                       | 322,300                    | 159,300                       | 392,700                    | 106,929                       | 263,046                    | 125,547                       | 308,846                    | 115,761                       | 284,772                    |
| 1983   | 154,700                       | 399,100                    | 39,100                        | 100,900                    | 89,972                        | 232,128                    | 127,176                       | 328,114                    | 126,043                       | 325,191                    |
| 1984   | 152,600                       | 407,600                    | 0                             | 0                          | 80,452                        | 214,807                    | 92,381                        | 246,657                    | 120,940                       | 322,910                    |
| 1985   | 48,700                        | 139,400                    | 0                             | 0                          | 44,000                        | 126,500                    | 44,000                        | 126,500                    | 48,700                        | 139,400                    |
| 1986   | 3,500                         | 10,000                     | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          | 3,500                         | 10,000                     |
| 1987   | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          |
| 1988   | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          |
| 1989   | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          | 0                             | 0                          |
| TOTAL  | \$1,128,200                   | \$2,345,300                | \$1,128,200                   | \$2,119,800                | \$1,128,200                   | \$2,213,279                | \$1,128,200                   | \$2,272,555                | \$1,128,200                   | \$2,288,246                |

# LIMERICK GENERATING STATION

## UNIT 1 & C NOMINAL CASHFLOW



LIMERICK GENERATING STATION  
UNIT 1 RATE CASE  
SCHEDULE STUDY

CASE 1: OKA'S MARK II SCHEDULE

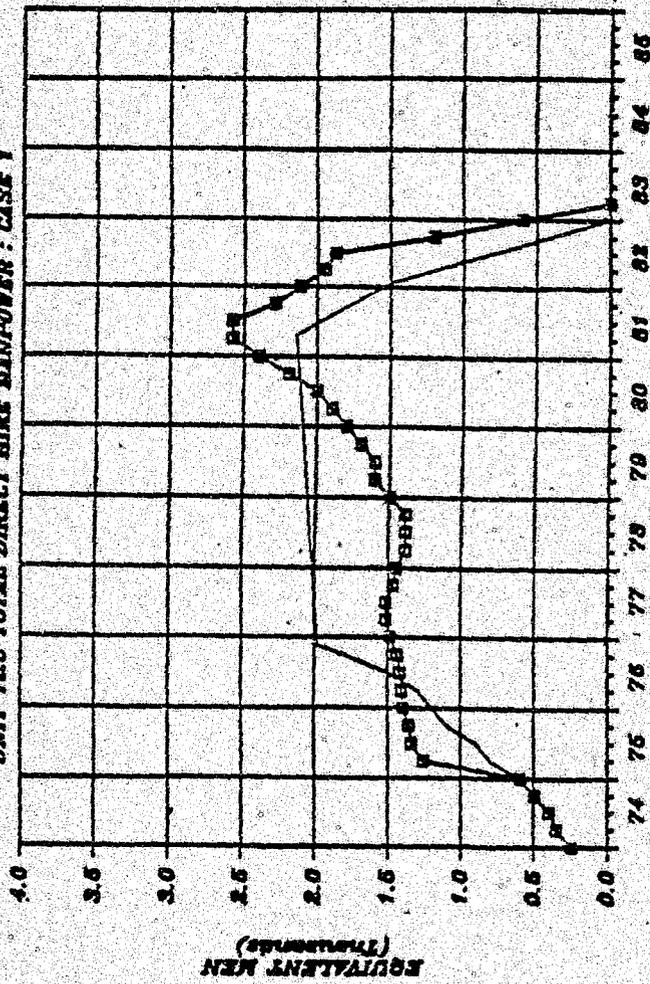
Exhibit 1-1

**MECHANICAL/ELECTRICAL ACTIVITIES**  
**DENSITY/SHIFT CALCULATIONS**

| Location             | Manhours<br>(1000's) | Duration<br>(Wks)<br>(ES-LF) | Calcu.<br>Density | Density<br>Limit | Shifts      |
|----------------------|----------------------|------------------------------|-------------------|------------------|-------------|
| Containment Drywell  | 2090                 | 171                          | 305               | 120              | 2.54        |
| Wetwell              | 508                  | 171                          | 74                | 50               | 1.48        |
| <b>Containment</b>   | <b>2598</b>          | <b>171</b>                   | <b>379</b>        | <b>170</b>       | <b>2.23</b> |
| Reactor Bldg. 177    | 1048                 | 263                          | 100               | 80               | 1.25        |
| 201                  | 838                  | 259                          | 81                | 95               | 1           |
| 217                  | 1187                 | 226                          | 131               | 125              | 1.05        |
| 253                  | 1466                 | 180                          | 204               | 100              | 2.04        |
| 283                  | 1258                 | 138                          | 228               | 185              | 1.23        |
| 313                  | 838                  | 117                          | 180               | 90               | 2.00        |
| 352                  | 349                  | 104                          | 84                | 90               | 1           |
| <b>Reactor Bldg.</b> | <b>6984</b>          |                              | <b>1008</b>       | <b>765</b>       |             |

# LIMERICK GENERATING STATION

UNIT 1 & C TOTAL DIRECT HIRE MANPOWER - CASE 1



D OKA CASE 3 — RE-EVALUATION

| Year    | Case 1 (Re-evaluation) Cashflow |                          | Case 1 (OKA Case 3) Cash Flow |                          |
|---------|---------------------------------|--------------------------|-------------------------------|--------------------------|
|         | 1971 Level Cost (in 1000's)     | Nominal Cost (in 1000's) | 1971 Level Cost (in 1000's)   | Nominal Cost (in 1000's) |
| Pre '74 | 111,900                         | 121,100                  | 111,900                       | 121,100                  |
| 1974    | 55,000                          | 71,500                   | 55,000                        | 71,300                   |
| 1975    | 55,900                          | 80,496                   | 84,900                        | 122,500                  |
| 1976    | 111,664                         | 173,079                  | 91,100                        | 140,800                  |
| 1977    | 132,993                         | 220,768                  | 95,300                        | 158,400                  |
| 1978    | 135,673                         | 238,784                  | 87,800                        | 154,700                  |
| 1979    | 138,321                         | 266,960                  | 101,600                       | 196,300                  |
| 1980    | 140,969                         | 294,625                  | 138,700                       | 290,000                  |
| 1981    | 116,720                         | 264,954                  | 163,300                       | 371,100                  |
| 1982    | 90,860                          | 223,516                  | 159,300                       | 392,700                  |
| 1983    | 38,200                          | 98,556                   | 39,100                        | 100,900                  |
| 1984    |                                 |                          |                               |                          |
| Total   | \$1,128,200                     | \$2,054,338              | \$1,128,200                   | \$2,119,800              |

| MODE  | MODE  | ACTIVITY DESCRIPTION        | DUR   | REN   | DUR    | REN   | START   | FINISH  | EARLY START | LATE FINISH | REN     |     |
|-------|-------|-----------------------------|-------|-------|--------|-------|---------|---------|-------------|-------------|---------|-----|
| A0010 | A0015 | ENERGIZATION                | 1.0   | 1.0   | A      |       | 10FEB80 | 23FEB80 | N           | 10FEB80     | 04MAR80 | 1.2 |
| A0015 | A0017 | CONCL REMAINDER OF S/U SYS  | 113.0 | 113.0 | A      |       | 25FEB80 | 14MAY82 |             | 25FEB80     | 23MAY82 | 1.2 |
| A0017 | X0509 | DUMMY                       | 0.0   | 0.0   | A      |       | 14MAY82 | 14MAY82 |             | 14MAY82     | 24MAY82 | 1.2 |
| A0019 | A0020 | FRP SBAY SLAB 331           | 7.0   | 7.0   | G      |       | 07MAR78 | 25APR78 |             | 07MAR78     | 25APR78 | 0.0 |
| A0020 | A0022 | SBAY WALLS 331-352          | 12.0  | 12.0  | G      |       | 25APR78 | 22JUL78 |             | 25APR78     | 24JUL78 | 0.0 |
| A0021 | A0023 | G-DECK & FRP SLAB TO 352    | 15.0  | 15.0  | G      |       | 24JUL78 | 07NOV78 |             | 24JUL78     | 06DEC78 | 3.8 |
| A0022 | A0021 | DUMMY                       | 0.0   | 0.0   | G      |       | 24JUL78 | 24JUL78 |             | 24JUL78     | 18AUG78 | 3.8 |
| A0022 | A0041 | DUMMY                       | 0.0   | 0.0   | G      |       | 24JUL78 | 24JUL78 |             | 24JUL78     | 24JUL78 | 0.0 |
| A0023 | A0036 | EL-352 DH MECH/EL BULKS     | 100.0 | 100.0 | H      |       | 07NOV78 | 25OCT80 |             | 07NOV78     | 21NOV80 | 3.8 |
| RES   | PF    | 187.5/                      | QD=01 | EL    | 101.2/ | EL/   | 0.2     | QT      | 51.2/       | QT/         | 0.1     |     |
| SEG1  | PF/   | 0.3                         | QD=01 | EL/   | 0.2    | EL/   | 0.1     | QT/     | 0.1         | QT/         | 0.1     |     |
| A0023 | A0037 | EL-352 S/C MECH/EL BULKS    | 100.0 | 100.0 | H      |       | 07NOV78 | 25OCT80 |             | 07NOV78     | 21NOV80 | 3.8 |
| RES   | DT    | 96.2/                       | QD=01 | EL    | 100.0  | 100.0 | H       |         |             |             |         |     |
| SEG1  | DT/   | 0.1                         | QD=01 | EL    | 100.0  | 100.0 | H       |         |             |             |         |     |
| A0036 | A0036 | BLUE TAG TESTING            | 13.0  | 13.0  | H      |       | 17NOV80 | 20FEB81 | N           | 17NOV80     | 26FEB81 | 0.8 |
| A0037 | A0036 | DUMMY                       | 0.0   | 0.0   | H      |       | 27OCT80 | 27OCT80 |             | 27OCT80     | 21NOV80 | 3.8 |
| A0038 | A0039 | T/O & S/U OF ALL SYS EL-352 | 63.0  | 63.0  | H      |       | 20FEB81 | 18MAY82 |             | 20FEB81     | 24MAY82 | 0.8 |
| A0039 | X0508 | DUMMY                       | 0.0   | 0.0   | H      |       | 18MAY82 | 18MAY82 |             | 18MAY82     | 24MAY82 | 0.8 |
| A0041 | A0046 | EL 313 DH MECH/EL BULKS     | 117.0 | 116.0 | G      |       | 24JUL78 | 01NOV80 |             | 24JUL78     | 03NOV80 | 0.0 |
| RES   | PF    | 458.7/                      | QD=01 | EL    | 245.0/ | EL/   | 0.4     | QT      | 122.5/      | QT/         | 0.2     |     |
| SEG1  | PF/   | 0.7                         | QD=01 | EL/   | 0.4    | EL/   | 0.2     | QT/     | 0.2         | QT/         | 0.2     |     |
| A0041 | A0045 | EL 313 S/C MECH/EL BULKS    | 117.0 | 116.0 | G      |       | 24JUL78 | 01NOV80 |             | 24JUL78     | 03NOV80 | 0.0 |
| RES   | DT    | 231.2/                      | QD=01 | EL    | 117.0  | 116.0 | G       |         |             |             |         |     |
| SEG1  | DT/   | 0.3                         | QD=01 | EL    | 117.0  | 116.0 | G       |         |             |             |         |     |
| A0044 | A0050 | BLUE TAG TESTING            | 13.0  | 13.0  | G      |       | 03NOV80 | 06FEB81 | L           | 03NOV80     | 06FEB81 | 0.0 |
| A0045 | A0044 | DUMMY                       | 0.0   | 0.0   | G      |       | 03NOV80 | 03NOV80 |             | 03NOV80     | 03NOV80 | 0.0 |
| A0050 | A0055 | T/O & S/U OF ALL SYS EL-313 | 66.0  | 65.8  | G      |       | 06FEB81 | 22MAY82 |             | 06FEB81     | 24MAY82 | 0.0 |

| 1     | 2     | 3                             | 4     | 5     | 6   | 7   | 8     | 9       | 10      | 11      | 12      | 13   | 14    | 15     | 16    | 17     | 18    | 19     | 20    |  |
|-------|-------|-------------------------------|-------|-------|-----|-----|-------|---------|---------|---------|---------|------|-------|--------|-------|--------|-------|--------|-------|--|
| NODE  | NODE  | ACTIVITY DESCRIPTION          | ORG   | REM   | DUR | DUR | CODES | START   | FINISH  | EARLY   | LATE    | REIN | START | FINISH | START | FINISH | START | FINISH | START |  |
| 00055 | X0508 | DUMMY                         | 0.0   | 0.0   | G   |     |       | 24MAY82 | 24MAY82 | 24MAY82 | 24MAY82 | 0.0  |       |        |       |        |       |        |       |  |
| 00070 | A0091 | CRBI COMPL REMOVE CYL BRKTS   | 3.0   | 3.0   | A   |     |       | 01JUN76 | 22JUN76 | 01JUN76 | 22JUN76 | 0.0  |       |        |       |        |       |        |       |  |
| 00074 | A0076 | FRP CONELIFTS 2&3             | 13.0  | 13.0  | A   |     |       | 20OCT75 | 23JAN76 | 20OCT75 | 06MAR76 | 6.2  |       |        |       |        |       |        |       |  |
| 00076 | A0174 | DUMMY                         | 0.0   | 0.0   | A   |     |       | 23JAN76 | 23JAN76 | 23JAN76 | 08MAR76 | 6.2  |       |        |       |        |       |        |       |  |
| 00077 | A0079 | FRP CONELIFTS 4 & 5           | 7.0   | 7.0   | A   |     |       | 12APR76 | 29MAY76 | 12APR76 | 01JUN76 | 0.0  |       |        |       |        |       |        |       |  |
| 00079 | A0070 | DUMMY                         | 0.0   | 0.0   | A   |     |       | 01JUN76 | 01JUN76 | 01JUN76 | 01JUN76 | 0.0  |       |        |       |        |       |        |       |  |
| 00079 | A0090 | DUMMY                         | 0.0   | 0.0   | A   |     |       | 01JUN76 | 01JUN76 | 01JUN76 | 01JUN76 | 0.0  |       |        |       |        |       |        |       |  |
| 00082 | A0081 | RPV NUCLEAR INSULATION        | 4.0   | 4.0   | A   |     |       | 28OCT76 | 25NOV76 | 28OCT76 | 14JAN77 | 6.2  |       |        |       |        |       |        |       |  |
| 00083 | A0084 | INSTL SAC SHIELD              | 16.0  | 16.0  | A   |     |       | 29NOV76 | 24MAR77 | 29NOV76 | 06MAY77 | 6.2  |       |        |       |        |       |        |       |  |
| 00084 | A0085 | POUR SHIELD                   | 3.0   | 3.0   | A   |     |       | 24MAR77 | 14APR77 | 24MAR77 | 27MAY77 | 6.2  |       |        |       |        |       |        |       |  |
| 00085 | A0116 | DUMMY                         | 0.0   | 0.0   | A   |     |       | 14APR77 | 14APR77 | 14APR77 | 27MAY77 | 6.2  |       |        |       |        |       |        |       |  |
| 00090 | A0091 | COMPL RPV LIFT RIG            | 3.0   | 3.0   | A   |     |       | 01JUN76 | 22JUN76 | 01JUN76 | 22JUN76 | 0.0  |       |        |       |        |       |        |       |  |
| 00091 | A0092 | TEST RIG & SET RPV            | 3.0   | 3.0   | A   |     |       | 22JUN76 | 14JUL76 | 22JUN76 | 14JUL76 | 0.0  |       |        |       |        |       |        |       |  |
| 00092 | A0093 | DISMANTL CONFINMT LIFT RIG    | 1.0   | 1.0   | A   |     |       | 14JUL76 | 21JUL76 | 14JUL76 | 21JUL76 | 0.0  |       |        |       |        |       |        |       |  |
| 00093 | A0315 | PAINT DRYWELL LINER PLATE     | 14.0  | 14.0  | A   |     |       | 21JUL76 | 26OCT76 | 21JUL76 | 28OCT76 | 0.0  |       |        |       |        |       |        |       |  |
| 0101  | A0105 | DUMMY                         | 0.0   | 0.0   | A   |     |       | 10OCT80 | 10OCT80 | 10OCT80 | 10OCT80 | 0.0  |       |        |       |        |       |        |       |  |
| 0105  | A0107 | BLUE TAG TESTING              | 13.0  | 13.0  | A   |     |       | 10OCT80 | 15JAN81 | 10OCT80 | 15JAN81 | 0.0  |       |        |       |        |       |        |       |  |
| 0107  | A0109 | T/O & S/U OF ALL SYS-CONFINMT | 69.0  | 69.0  | A   |     |       | 15JAN81 | 22MAY82 | 15JAN81 | 24MAY82 | 0.0  |       |        |       |        |       |        |       |  |
| 0109  | X0508 | DUMMY                         | 0.0   | 0.0   | A   |     |       | 24MAY82 | 24MAY82 | 24MAY82 | 24MAY82 | 0.0  |       |        |       |        |       |        |       |  |
| 0115  | A0116 | CONMT INSTL LP-DRYWELL BK     | 29.2  | 29.2  | A   |     |       | 28OCT76 | 27MAY77 | 28OCT76 | 27MAY77 | 0.0  |       |        |       |        |       |        |       |  |
| 0116  | A0101 | CONFINMT-S/C-M&E-BULK INSTL   | 170.8 | 170.8 | A   |     |       | 27MAY77 | 10OCT80 | 27MAY77 | 10OCT80 | 0.0  |       |        |       |        |       |        |       |  |

RES DT 450.07 QD=01  
 SEG1 DTZ 0.5  
 DUR =170.8/170.8

| MODE  | NODE            | ACTIVITY DESCRIPTION         | DUR   | REM       | CODES     | START   | FINISH  | EARLY   | LATE    | FINISH | FLOAT |
|-------|-----------------|------------------------------|-------|-----------|-----------|---------|---------|---------|---------|--------|-------|
| A0116 | A0105           | CONTINUIT-DH -HAE-BULK INSTL | 170.8 | 170.8     | A         | 27MAY77 | 10OCT80 | 27MAY77 | 10OCT80 | 0.0    |       |
|       | RES, PF 1538.77 |                              | QD=01 | EL 838.77 |           | QD=01   |         |         |         |        |       |
|       | SEGI            | PF/ 1.8                      | QD=01 | EL/ 0.9   | DT 420.07 | DT/ 0.4 |         |         |         |        |       |
| A0139 | A0140           | CONE REINF COMPL TO 253      | 0.0   | 0.0       | A         | 15APR75 | 11JUN75 | 15APR75 | 11JUN75 | 0.0    |       |
| A0139 | A0234           | DUMMY                        | 0.0   | 0.0       | A         | 15APR75 | 15APR75 | 15APR75 | 23APR75 | 1.2    |       |
| A0140 | A0214           | DUMMY                        | 0.0   | 0.0       | A         | 11JUN75 | 11JUN75 | 11JUN75 | 11JUN75 | 0.0    |       |
| A0141 | A0142           | FRP BASE MATS & INSTL EMBD   | 5.0   | 5.0       | A         | 01JUL74 | 06AUG74 | 06AUG74 | 06AUG74 | 0.0    |       |
| A0142 | A0286           | DUMMY                        | 0.0   | 0.0       | A         | 06AUG74 | 06AUG74 | 06AUG74 | 06AUG74 | 0.0    |       |
| A0151 | A0152           | ERECT SBAY STR STL-313       | 0.0   | 0.0       | F         | 20APR77 | 16JUN77 | 20APR77 | 16JUN77 | 0.0    |       |
| A0152 | A0316           | SOUTHBAY PRECAST 283-313     | 1.0   | 1.0       | F         | 16JUN77 | 16JUN77 | 16JUN77 | 23JUN77 | 0.0    |       |
| A0153 | A0154           | SBAY STR STLEPRECAST TO 352  | 9.4   | 9.4       | F         | 26SEP77 | 02DEC77 | 26SEP77 | 02DEC77 | 0.0    |       |
| A0154 | A0305           | FRP SBAY SLAB 313            | 3.0   | 3.0       | F         | 02DEC77 | 23DEC77 | 02DEC77 | 23DEC77 | 0.0    |       |
| A0155 | A0019           | DUMMY                        | 0.0   | 0.0       | F         | 07MAR78 | 07MAR78 | 07MAR78 | 07MAR78 | 0.0    |       |
| A0155 | A0160           | EL 283 OH MECH/EL BULKS      | 135.0 | 135.0     | F         | 07MAR78 | 07MAR78 | 07MAR78 | 07MAR78 | 0.0    |       |
|       | RES             | PF 675.07                    | QD=01 | EL 367.57 |           | QD=01   |         |         |         |        |       |
|       | SEGI            | PE/ 1.0                      | QD=01 | EL/ 0.5   | DT 183.77 | DT/ 0.2 |         |         |         |        |       |
| A0155 | A0161           | EL 283 S/C MECH/EL BULKS     | 135.0 | 135.0     | F         | 07MAR78 | 07MAR78 | 07MAR78 | 07MAR78 | 0.0    |       |
|       | RES             | DT 346.27                    | QD=01 |           |           |         |         |         |         |        |       |
|       | SEGI            | DT/ 0.5                      |       |           |           |         |         |         |         |        |       |
| A0160 | A0161           | BLUE TAG TESTING             | 13.0  | 13.0      | F         | 17NOV80 | 20FEB81 | 17NOV80 | 26FEB81 | 0.8    |       |
| A0161 | A0160           | DUMMY                        | 0.0   | 0.0       | F         | 03NOV80 | 03NOV80 | 03NOV80 | 21NOV80 | 2.8    |       |
| A0163 | A0165           | T/O & S/U OF ALL SYS EL-283  | 63.0  | 63.0      | F         | 20FEB81 | 18MAY82 | 20FEB81 | 24MAY82 | 0.8    |       |
| A0165 | X0508           | DUMMY                        | 0.0   | 0.0       | F         | 18MAY82 | 18MAY82 | 18MAY82 | 24MAY82 | 0.8    |       |
| A0168 | A0179           | DUMMY                        | 0.0   | 0.0       | E         | 28DEC76 | 28DEC76 | 28DEC76 | 28DEC76 | 0.0    |       |
| A0173 | A0174           | STR STL TO 283 & 313 NEARBAY | 13.2  | 13.2      | A         | 03DEC75 | 06MAR76 | 03DEC75 | 08MAR76 | 0.0    |       |
| A0174 | A0175           | COMPL STR STL TO 283         | 5.0   | 5.0       | A         | 08MAR76 | 08MAR76 | 08MAR76 | 12APR76 | 0.0    |       |

DUR =135.0/135.0  
 DUR =170.8/170.8  
 DUR =135.0/135.0  
 DUR =135.0/135.0

| MODE | MODE      | ACTIVITY DESCRIPTION        | ORG       | REM   | DUR       | DUR | CODES | START   | FINISH  | EARLY   | LATE    | REM   |
|------|-----------|-----------------------------|-----------|-------|-----------|-----|-------|---------|---------|---------|---------|-------|
|      |           |                             |           |       |           |     |       | START   | FINISH  | START   | FINISH  | FLOAT |
| 0175 | A0077     | DUMMY                       | 0.0       | 0.0   | A         |     |       | 12APR76 | 12APR76 | 12APR76 | 12APR76 | 0.0   |
| 0176 | A0172     | FRP N.E.W. WALLS 253-283    | 10.0      | 10.0  | E         |     |       | 07MAY76 | 20JUL76 | 07MAY76 | 20JUL76 | 0.0   |
| 0177 | A0173     | RPV SET-PROGRESS STOP       | 9.0       | 9.0   | E         |     |       | 20JUL76 | 22SEP76 | 20JUL76 | 22SEP76 | 0.0   |
| 0179 | A0164     | FRSP SBAT WALLS 253-283     | 13.0      | 13.0  | E         |     |       | 22SEP76 | 28DEC76 | 22SEP76 | 28DEC76 | 0.0   |
| 0179 | A0190     | FR69 SLABS TO 281           | 16.0      | 16.0  | E         |     |       | 28DEC76 | 20APR77 | 28DEC76 | 20APR77 | 0.0   |
| 0190 | A0151     | DUMMY                       | 0.0       | 0.0   | E         |     |       | 20APR77 | 20APR77 | 20APR77 | 20APR77 | 0.0   |
| 0180 | A0195     | EL 253 OH MECH/EL BULKS     | 180.4     | 180.4 | E         |     |       | 20APR77 | 08NOV80 | 20APR77 | 10NOV80 | 0.0   |
| RES  | PF 786.27 | QD=01                       | EL 428.77 | QD=01 | DT 213.77 |     |       |         |         |         |         |       |
| SEGI | PEL 0.3   |                             | EL/ 0.4   |       | DT/ 0.2   |     |       |         |         |         |         |       |
| 0190 | A0186     | EL 253 S/C MECH/EL BULKS    | 180.4     | 180.4 | E         |     |       | 20APR77 | 08NOV80 | 20APR77 | 10NOV80 | 0.0   |
| RES  | DT 403.77 | QD=01                       |           |       |           |     |       |         |         |         |         |       |
| SEGI | DT/ 0.4   |                             |           |       |           |     |       |         |         |         |         |       |
| 1185 | A0187     | BLUE TAG TESTING            | 13.0      | 13.0  | E         |     |       | 10NOV80 | 13FEB81 | 10NOV80 | 13FEB81 | 0.0   |
| 1186 | A0185     | DUMMY                       | 0.0       | 0.0   | E         |     |       | 03NOV80 | 03NOV80 | 03NOV80 | 10NOV80 | 1.0   |
| 1187 | A0188     | T/O & S/U OF ALL SYS EL-253 | 65.0      | 64.8  | E         |     |       | 13FEB81 | 22MAY82 | 13FEB81 | 24MAY82 | 0.0   |
| 1188 | X0508     | DUMMY                       | 0.0       | 0.0   | E         |     |       | 24MAY82 | 24MAY82 | 24MAY82 | 24MAY82 | 0.0   |
| 1192 | A0193     | POUR LAG TIME               | 4.0       | 4.0   | D         |     |       | 09APR76 | 07MAY76 | 09APR76 | 07MAY76 | 0.0   |
| 1193 | A0176     | DUMMY                       | 0.0       | 0.0   | D         |     |       | 07MAY76 | 07MAY76 | 07MAY76 | 07MAY76 | 0.0   |
| 1193 | A0200     | DUMMY                       | 0.0       | 0.0   | A         |     |       | 07MAY76 | 07MAY76 | 07MAY76 | 07JUL76 | 8.2   |
| 1196 | A0197     | STR STL TOKAT 253           | 9.0       | 9.0   | A         |     |       | 15AUG75 | 18OCT75 | 15AUG75 | 20OCT75 | 0.0   |
| 1197 | A0074     | DUMMY                       | 0.0       | 0.0   | A         |     |       | 20OCT75 | 20OCT75 | 20OCT75 | 04DEC75 | 6.2   |
| 1197 | A0198     | Q-DECK LAGTIME              | 3.0       | 3.0   | A         |     |       | 20OCT75 | 08NOV75 | 20OCT75 | 10NOV75 | 0.0   |
| 1197 | A0212     | DUMMY                       | 0.0       | 0.0   | D         |     |       | 20OCT75 | 20OCT75 | 20OCT75 | 20OCT75 | 0.0   |
| 1198 | A0173     | Q-DECK LAGTIME              | 3.0       | 3.0   | A         |     |       | 10NOV75 | 03DEC75 | 10NOV75 | 03DEC75 | 0.0   |
| 1198 | A0193     | FR&P Q-DECK SLAB 253        | 19.0      | 19.0  | A         |     |       | 10NOV75 | 26MAR76 | 10NOV75 | 07MAY76 | 6.0   |

DUR =180.4/180.4

DUR =180.4/180.4

| MODE  | MODE  | ACTIVITY DESCRIPTION        | DUR    | REM       | DUR | CODES | START   | FINISH  | EARLY START | LATE FINISH | REM              |
|-------|-------|-----------------------------|--------|-----------|-----|-------|---------|---------|-------------|-------------|------------------|
| A0200 | A0206 | EL 217 DM MECH/EL BULKS     | 218.0  | 218.0     | D   | 00=01 | 07MAY76 | 27AUG80 | 07MAY76     | 26OCT80     | 8.2              |
|       | RES   | PF 636.27                   | 346.27 |           |     |       | 00=01   |         |             |             | DUR =218.0/218.0 |
|       | SEG1  | PEL 0.5                     |        |           |     |       | 0.1     |         |             |             |                  |
| A0200 | A0208 | EL 217 S/C MECH/EL BULKS    | 218.0  | 218.0     | D   |       | 07MAY76 | 27AUG80 | 07MAY76     | 26OCT80     | 8.2              |
|       | RES   | DT 327.57                   | 40=01  |           |     |       |         |         |             |             | DUR =218.0/218.0 |
|       | SEG1  | DT/ 0.3                     |        |           |     |       |         |         |             |             |                  |
| A0206 | A0306 | BLUE TAG TESTING            | 13.0   | 13.0      | D   |       | 20OCT80 | 23JAN81 | N 20OCT80   | 29JAN81     | 0.8              |
| A0208 | A0206 | DUMNY                       | 0.0    | 0.0       | D   |       | 27AUG80 | 27AUG80 | 27AUG80     | 26OCT80     | 8.2              |
| A0209 | A0210 | START STRUCT STEEL-217      | 5.0    | 5.0       | A   |       | 11MAR75 | 15APR75 | 11MAR75     | 15APR75     | 0.0              |
|       | SEG1  | DUMNY                       | 0.0    | 0.0       | A   |       | 15APR75 | 15APR75 | 15APR75     | 15APR75     | 0.0              |
| A0212 | A0192 | FRAP WALLS TO 253           | 24.0   | 24.0      | D   |       | 20OCT75 | 09APR76 | 20OCT75     | 09APR76     | 0.0              |
| A0216 | A0196 | FR LAGTIME                  | 9.0    | 9.0       | A   |       | 11JUN75 | 15AUG75 | 11JUN75     | 15AUG75     | 0.0              |
| A0216 | A0220 | Q-DECK & FRP SLAB 217       | 12.0   | 12.0      | A   |       | 11JUN75 | 06SEP75 | 11JUN75     | 16SEP75     | 1.2              |
| A0220 | A0197 | POUR LAG TIME               | 3.0    | 3.0       | A   |       | 08SEP75 | 27SEP75 | 08SEP75     | 20OCT75     | 3.0              |
| A0220 | A0222 | EL 201 S/C MECH/ELEC BULKS  | 258.0  | 258.0     | C   | 00=01 | 08SEP75 | 09OCT80 | 08SEP75     | 17OCT80     | 1.2              |
|       | RES   | PF 448.77                   | 40=01  | EL 245.07 |     | 00=01 | 00=01   |         |             |             | DUR =258.0/258.0 |
|       | SEG1  | PF/ 0.3                     |        | EL/ 0.1   |     |       | 0.0     |         |             |             |                  |
| A0220 | A0225 | EL 201 DM MECH/ELEC BULKS   | 258.0  | 258.0     | C   |       | 08SEP75 | 09OCT80 | 08SEP75     | 17OCT80     | 1.2              |
|       | RES   | OT 231.27                   | 40=01  |           |     |       |         |         |             |             | DUR =258.0/258.0 |
|       | SEG1  | OT/ 0.1                     |        |           |     |       |         |         |             |             |                  |
| A0222 | A0225 | DUMNY                       | 0.0    | 0.0       | C   |       | 09OCT80 | 09OCT80 | 09OCT80     | 17OCT80     | 1.2              |
| A0225 | A0227 | BLUE TAG TESTING            | 13.0   | 13.0      | C   |       | 13OCT80 | 16JAN81 | H 13OCT80   | 22JAN81     | 0.8              |
| A0227 | A0229 | T/O & S/U OF ALL SYS EL-201 | 68.0   | 68.0      | C   |       | 16JAN81 | 18MAY82 | 16JAN81     | 24MAY82     | 0.8              |
| A0229 | X0508 | DUMNY                       | 0.0    | 0.0       | C   |       | 18MAY82 | 18MAY82 | 18MAY82     | 24MAY82     | 0.8              |
| A0214 | A0216 | Q-DECK LAG TIME             | 3.0    | 3.0       | A   |       | 15APR75 | 06MAY75 | 15APR75     | 11JUN75     | 5.0              |
| A0214 | A0217 | Q-DECK FRP SLAB 201         | 15.0   | 15.0      | A   |       | 15APR75 | 01AUG75 | 15APR75     | 11AUG75     | 1.2              |
| A0217 | A0220 | POUR LAG TIME               | 3.0    | 3.0       | A   |       | 01AUG75 | 22AUG75 | 01AUG75     | 16SEP75     | 3.2              |

| LINE  | MODE   | ACTIVITY DESCRIPTION        | ORG DUR | REM DUR | CODES  | START   | FINISH  | EARLY START | LATE FINISH | REM FLOAT |
|-------|--------|-----------------------------|---------|---------|--------|---------|---------|-------------|-------------|-----------|
| A0237 | A0247  | DUMMY                       | 0.0     | 0.0     | B      | 01AUG75 | 01AUG75 | 01AUG75     | 11AUG75     | 1.2       |
| A0241 | A0242  | BLUE TAG TESTING            | 13.0    | 13.0    | B      | 06OCT80 | 09JAN81 | 06OCT80     | 15JAN81     | 0.8       |
| A0242 | A0243  | T/O & S/U OF ALL SYS EL-177 | 69.0    | 69.0    | B      | 09JAN81 | 18MAY82 | 09JAN81     | 26MAY82     | 0.8       |
| A0243 | X0308  | DUMMY                       | 0.0     | 0.0     | B      | 18MAY82 | 18MAY82 | 18MAY82     | 26MAY82     | 0.8       |
| A0247 | A0241  | EL177 DH MECH/ELEC BULKS    | 262.0   | 262.0   | B      | 01AUG75 | 02OCT80 | 01AUG75     | 10OCT80     | 1.2       |
|       | RES PF | 562.5/                      | QD=01   | EL      | 306.3/ | QD=01   | DT      | 152.5/      |             |           |
|       | SEGI   | PF/                         | 0.4     | EL/     | 0.2    | DT/     | 0.1     |             |             |           |
| A0247 | A0250  | EL177 S/C MECH/ELEC BULKS   | 262.0   | 262.0   | B      | 01AUG75 | 02OCT80 | 01AUG75     | 10OCT80     | 1.2       |
|       | RES DT | 299.7/                      | QD=01   |         |        |         |         |             |             |           |
|       | SEGI   | DT/                         | 0.2     |         |        |         |         |             |             |           |
| A0250 | A0241  | DUMMY                       | 0.0     | 0.0     | B      | 02OCT80 | 02OCT80 | 02OCT80     | 10OCT80     | 1.2       |
| A0256 | A0260  | CPT WALLS TO 201            | 10.0    | 10.0    | A      | 06DEC74 | 18FEB75 | 06DEC74     | 18FEB75     | 0.0       |
| A0257 | A0259  | FRP WALLS JO. 201           | 11.0    | 11.0    | A      | 18SEP74 | 06DEC74 | 18SEP74     | 06DEC74     | 0.0       |
| A0258 | A0259  | POUR LAG TIME               | 7.0     | 7.0     | A      | 16OCT74 | 06DEC74 | 16OCT74     | 06DEC74     | 0.0       |
| A0259 | A0256  | DUMMY                       | 0.0     | 0.0     | A      | 06DEC74 | 06DEC74 | 06DEC74     | 06DEC74     | 0.0       |
| A0260 | A0261  | CONPL STRUCT. STL-201       | 3.0     | 3.0     | A      | 18FEB75 | 11MAR75 | 18FEB75     | 11MAR75     | 0.0       |
| A0261 | A0209  | DUMMY                       | 0.0     | 0.0     | A      | 11MAR75 | 11MAR75 | 11MAR75     | 11MAR75     | 0.0       |
| A0265 | A0257  | FSR LAGTIME                 | 3.0     | 3.0     | A      | 27AUG74 | 18SEP74 | 27AUG74     | 18SEP74     | 0.0       |
| A0265 | A0258  | FRP 177 BASEMAT             | 7.0     | 7.0     | A      | 27AUG74 | 16OCT74 | 27AUG74     | 16OCT74     | 0.0       |
| A0296 | A0265  | APEA 12416 FOOTINGS TO 177  | 3.0     | 3.0     | A      | 06AUG74 | 27AUG74 | 06AUG74     | 27AUG74     | 0.0       |
| A0305 | A0155  | FRP SBAY WALLS TO 331       | 10.0    | 10.0    | F      | 23DEC77 | 07MAR78 | 23DEC77     | 07MAR78     | 0.0       |
| A0306 | A0308  | T/O & S/U OF ALL SYS EL 217 | 67.0    | 67.0    | D      | 23JAN81 | 18MAY82 | 23JAN81     | 24MAY82     | 0.8       |
| A0308 | X0508  | DUMMY                       | 0.0     | 0.0     | D      | 18MAY82 | 18MAY82 | 18MAY82     | 24MAY82     | 0.8       |
| A0315 | A0082  | DUMMY                       | 0.0     | 0.0     | A      | 28OCT76 | 28OCT76 | 28OCT76     | 14DEC76     | 6.2       |
| A0315 | A0115  | DUMMY                       | 0.0     | 0.0     |        | 28OCT76 | 28OCT76 | 28OCT76     | 28OCT76     | 0.0       |

DUR = 262.0/262.0

DUR = 262.0/262.0

| MODE  | ACTIVITY DESCRIPTION     | ORG DUR | REM DUR | CODES | START   | FINISH  | EARLY START | LATE FINISH | REM FLOAT |
|-------|--------------------------|---------|---------|-------|---------|---------|-------------|-------------|-----------|
| A0316 | FRP SHAY WALLS 285-313   | 13.0    | 13.0    | F     | 23JUN77 | 24SEP77 | 23JUN77     | 26SEP77     | 0.0       |
| K0505 | FUEL LOAD UNIT #1        | 0.0     | 0.0     | A     | 26JUL82 | 28JUL82 | 28JUL82     | 28JUL82     | 0.0       |
| K0508 | UNIT 1 WEATHER ALLOWANCE | 9.0     | 9.0     | A     | 24MAY82 | 28JUL82 | 24MAY82     | 28JUL82     | 0.0       |

Exhibit 1-3 (7)

| DATE   | BCU | 02NOV73 | 20JUL74 | 06APR75 | 22DEC75 | 07SEP76 | 25MAY77 | 09FEB78 | 27OCT78 | 14JUL79 | 30MAR80 | 15DEC80 |
|--------|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 4.00-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 3.60-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 3.20-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 2.80-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 2.40-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 2.00-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 1.60-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 1.20-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 0.80-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 0.40-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |
| 0.00-- | I   | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |

SCHEDULE PLOTTED IS (LEVEL)  
 (Containment and Reactor Bldg  
 Mechan./Electr. Activities)

| RESOURCE CODE | IS PF | Pipefilters | x | 100 | AGE  |
|---------------|-------|-------------|---|-----|------|
| 5.00--        | I     |             |   |     | 5.00 |
| 4.50--        | I     |             |   |     | 4.50 |
| 4.00--        | I     |             |   |     | 4.00 |
| 3.50--        | I     |             |   |     | 3.50 |
| 3.00--        | I     |             |   |     | 3.00 |
| 2.50--        | I     |             |   |     | 2.50 |
| 2.00--        | I     |             |   |     | 2.00 |
| 1.50--        | I     |             |   |     | 1.50 |
| 1.00--        | I     |             |   |     | 1.00 |
| 0.50--        | I     |             |   |     | 0.50 |
| 0.00--        | I     |             |   |     | 0.00 |

SYNOPSIS FOR REH. FLDDAT (GREATER 10 (+), 10 TO GREATER 5 (+), 5 TO -5 (0), LESS -5 TO -10 (-), LESS -10 (=))

| DATE | BCU | 02MAY73 | 20JUL74 | 06APR75 | 22DEC75 | 07SEP76 | 25MAY77 | 09FEB78 | 27OCT78 | 14JUL79 | 30MAR80 | 15DEC80 |
|------|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|      |     | 306.0   | 566.0   | 826.0   | 1096.0  | 1346.0  | 1606.0  | 1866.0  | 2126.0  | 2386.0  | 2646.0  | 2906.0  |

Exhibit -3A

TOTAL RESOURCES X 100 SCHEDULE PLOTTED IS (LEVEL) INCREMENTAL

(Containment and Reactor Bldg.  
Mech./Electr. Activities)

| DATE    | BCU | 02NOV73 | 20JUL74 | 06APR75 | 22DEC75 | 07SEP76 | 25MAY77 | 09FEB78 | 27OCT78 | 14JUL79 | 30MAR80 | 15DEC80 |
|---------|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 9.00--1 | I   | 306.0   | 566.0   | 826.0   | 1086.0  | 1346.0  | 1606.0  | 1866.0  | 2126.0  | 2386.0  | 2646.0  | 2906.0  |
| 8.10--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 7.20--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 6.30--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 5.40--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 4.50--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 3.60--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 2.70--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 1.80--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 0.90--1 | I   |         |         |         |         |         |         |         |         |         |         |         |
| 0.00--1 | I   |         |         |         |         |         |         |         |         |         |         |         |

SYMBOLS FOR REM. FLOAT (GREATER 10 (\*), 10 TO GREATER 5 (\*), 5 TO -5 (0), LESS -5 TO -10 (-), LESS -10 (\*\*))  
 Exhibit 1-3A

OVERSIZE

DOCUMENTS

LIMERICK GENERATING STATION

UNIT 1 RATE CASE

SCHEDULE STUDY

CASE 2: LGS BEST SCHEDULE -

ACTUAL THRU JUNE 1, 1976

Exhibit 2-1

MECHANICAL/ELECTRICAL ACTIVITIES  
DENSITY/SHIFT CALCULATIONS

| Location            | Manhours<br>(1000's) | Duration<br>(Wks)<br>(ES-LF) | Calcu.<br>Density | Density<br>Limit | Shifts |
|---------------------|----------------------|------------------------------|-------------------|------------------|--------|
| Containment Drywell | 2090                 | 261                          | 200               | 120              | 1.67   |
| Wetwell             | 508                  | 344                          | 37                | 50               | 1      |
| Containment         | 2598                 |                              | 237               | 170              |        |
| Reactor Bldg. 177   | 1048                 | 328                          | 80                | 80               | 1      |
| 201                 | 838                  | 326                          | 64                | 95               | 1      |
| 217                 | 1187                 | 318                          | 93                | 125              | 1      |
| 253                 | 1466                 | 292                          | 126               | 100              | 1.26   |
| 283                 | 1258                 | 230                          | 137               | 185              | 1      |
| 313                 | 838                  | 197                          | 106               | 90               | 1.18   |
| 352                 | 349                  | 208                          | 42                | 90               | 1      |
| Reactor Bldg.       | 6984                 |                              | 648               | 765              |        |

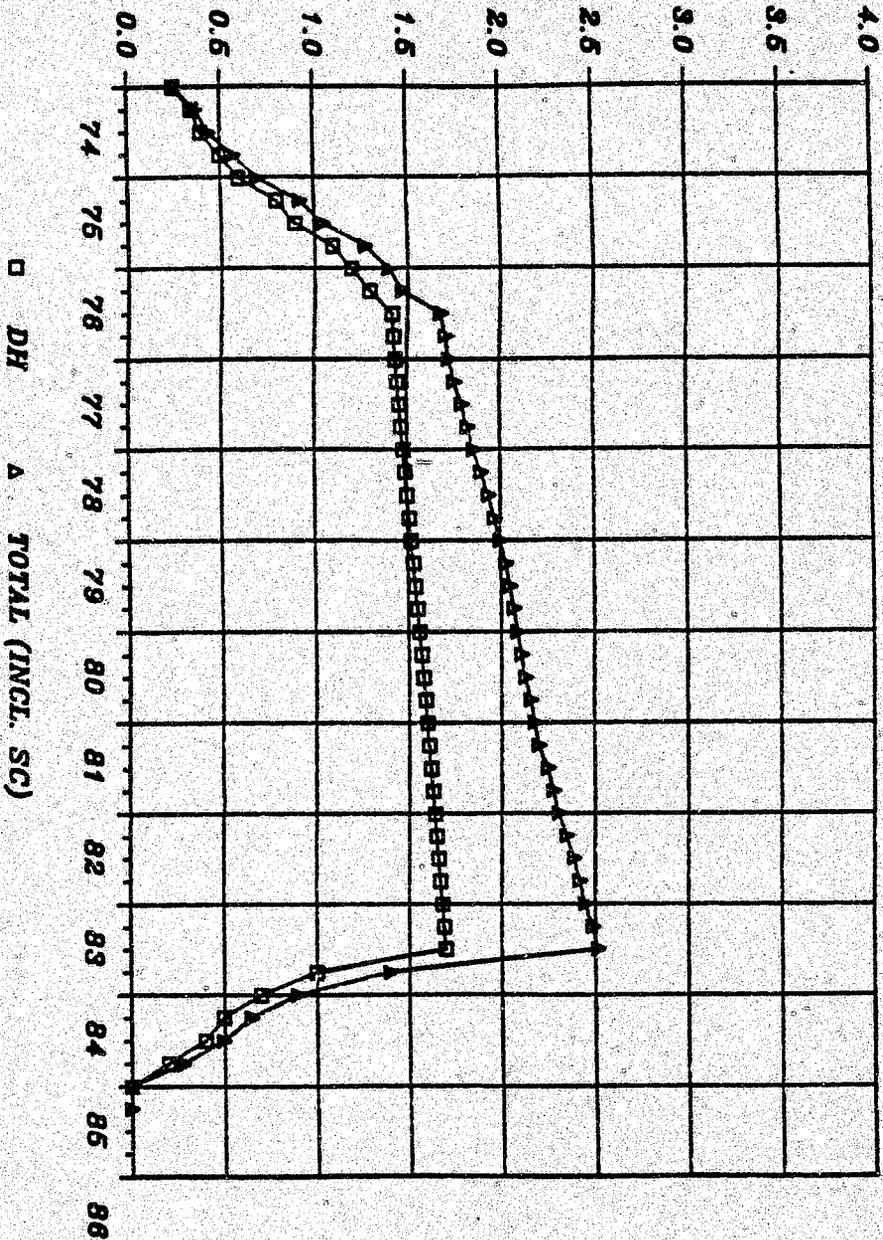
CASE 2  
CASHFLOW

| YEAR    | 1971 LEVEL COST |               | NOMINAL COST  |               |
|---------|-----------------|---------------|---------------|---------------|
|         | (IN \$1000'S)   | (IN \$1000'S) | (IN \$1000'S) | (IN \$1000'S) |
| PRE '74 | 111,900         | 121,100       |               |               |
| 1974    | 55,000          | 71,300        |               |               |
| 1975    | 55,900          | 80,700        |               |               |
| 1976    | 88,063          | 136,498       |               |               |
| 1977    | 94,021          | 156,075       |               |               |
| 1978    | 96,627          | 170,064       |               |               |
| 1979    | 99,203          | 191,462       |               |               |
| 1980    | 101,778         | 212,717       |               |               |
| 1981    | 104,354         | 236,883       |               |               |
| 1982    | 106,929         | 263,046       |               |               |
| 1983    | 89,972          | 232,128       |               |               |
| 1984    | 80,452          | 214,807       |               |               |
| 1985    | 44,000          | 126,500       |               |               |
| 1986    | 0               | 0             |               |               |
| 1987    | 0               | 0             |               |               |
| 1988    | 0               | 0             |               |               |
| 1989    | 0               | 0             |               |               |
| TOTAL   | \$1,128,200     | \$2,213,279   |               |               |

Exhibit 2-2

EQUIVALENT MEN  
(Thousands)

LIMERICK GENERATING STATION  
UNIT 1&2 TOTAL MANUAL HANPOWER : CASE 2



| MASTER FILE NAME | MASTER FILE NUMBER | NO | NO | ACTIVITY DESCRIPTION           | ORG   | REM   | START     | FINISH    | EARLY     | LATE     | REM   |
|------------------|--------------------|----|----|--------------------------------|-------|-------|-----------|-----------|-----------|----------|-------|
| NO               | NO                 | NO | NO |                                | DUR   | DUR   | START     | FINISH    | START     | FINISH   | FLOAT |
| A0010            | A0015              |    |    | ENERGIZATION                   | 1.0   | 1.0   | 01APR82   | 08APR82   | M 01APR82 | 12APR82  | 0.4   |
| A0015            | A0245              |    |    | COMPL. REMINDER. DE. S/U. SYS. | 133.0 | 133.0 | 08APR82   | 28JUN84   | DRAPR82   | 02JUL84  | 0.4   |
| A0100            | A0105              |    |    | FR&P BASEMAT                   | 6.0   | 0.0   | A 17JUN74 | A 30JUL74 | ACTIVITY  | COMPLETE |       |
| A0105            | A0110              |    |    | AREA 11, 12, 16-EL 177 FOOTG   | 3.0   | 0.0   | A 30JUL74 | A 20AUG74 | ACTIVITY  | COMPLETE |       |
| A0110            | A0115              |    |    | EXTRAPART INT. WALLS TO 201    | 16.0  | 0.0   | A 20AUG74 | A 13DEC74 | ACTIVITY  | COMPLETE |       |
| A0115            | A0120              |    |    | CURE SLAB & SET CRANES         | 7.0   | 0.0   | A 13DEC74 | A 04FEB75 | ACTIVITY  | COMPLETE |       |
| A0120            | A0125              |    |    | SUPPRESSION POOL REBAR         | 11.0  | 0.0   | A 04FEB75 | A 22APR75 | ACTIVITY  | COMPLETE |       |
| A0120            | A0905              |    |    | START WALLS TO EL 217          | 13.0  | 0.0   | A 04FEB75 | A 03MAY75 | ACTIVITY  | COMPLETE |       |
| A0125            | A0127              |    |    | CONTAINMENT HOLD               | 7.0   | 0.0   | A 22APR75 | A 11JUN75 | ACTIVITY  | COMPLETE |       |
| A0127            | A0130              |    |    | PREFAB & FIT NEW REBAR         | 3.0   | 0.0   | A 11JUN75 | A 30JUN75 | ACTIVITY  | COMPLETE |       |
| A0130            | A0135              |    |    | SUPPRESSION WALLS LIETS 1-3    | 4.0   | 0.0   | A 30JUN75 | A 06AUG75 | ACTIVITY  | COMPLETE |       |
| A0135            | A0140              |    |    | SUPPRESSION WALLS LIETS 4-5    | 2.4   | 0.0   | A 06AUG75 | A 22AUG75 | ACTIVITY  | COMPLETE |       |
| A0140            | A0145              |    |    | DRYWELL REBAR TO 258           | 15.0  | 0.0   | A 22AUG75 | A 11DEC75 | ACTIVITY  | COMPLETE |       |
| A0145            | A0150              |    |    | POOL LIET 6 TO 217             | 3.0   | 0.0   | A 11DEC75 | A 12JAN76 | ACTIVITY  | COMPLETE |       |
| A0145            | A0155              |    |    | REBAR TO EL 292                | 8.0   | 0.0   | A 11DEC75 | A 05FEB76 | ACTIVITY  | COMPLETE |       |
| A0150            | A0285              |    |    | POUR DIAPH SLAB                | 2.0   | 0.0   | A 12JAN76 | A 30JAN76 | ACTIVITY  | COMPLETE |       |
| A0155            | A0160              |    |    | CONE LIET                      | 3.0   | 0.0   | A 05FEB76 | A 26FEB76 | ACTIVITY  | COMPLETE |       |
| A0155            | A0205              |    |    | REBAR TO FLANGE 322-4          | 5.0   | 0.0   | A 05FEB76 | A 12MAR76 | ACTIVITY  | COMPLETE |       |
| A0160            | A0165              |    |    | CONE LIETS 2 & 3               | 17.0  | 3.6   | 01JUN76   | 25JUN76   | A 26FEB76 | 25JUN76  | 0.0   |
| A0165            | A0166              |    |    | CONELIETS 4, 5                 | 14.4  | 14.4  | 25JUN76   | 07OCT76   | 25JUN76   | 19OCT76  | 1.6   |
| A0165            | A0170              |    |    | CR&L REMOVE CYL BRACKET        | 16.0  | 16.0  | 25JUN76   | 19OCT76   | 25JUN76   | 19OCT76  | 0.0   |
| A0166            | A0170              |    |    | DUNNY                          | 0.0   | 0.0   | 07OCT76   | 07OCT76   | 07OCT76   | 19OCT76  | 1.6   |
| A0170            | A0175              |    |    | PAINT CONT. LINER              | 6.0   | 6.0   | 19OCT76   | 02DEC76   | 19OCT76   | 02DEC76  | 0.0   |

Exhibit  
 2-1-3

| NODE  | NODE  | ACTIVITY DESCRIPTION         | ORG   | REH       | DUR   |           | DUR CODES  | START      | FINISH            | EARLY START | LATE FINISH | REM FLOAT        |
|-------|-------|------------------------------|-------|-----------|-------|-----------|------------|------------|-------------------|-------------|-------------|------------------|
|       |       |                              |       |           | DUR   | DUR       |            |            |                   |             |             |                  |
| A0175 | A0180 | SET RPV                      | 2.0   | 0.8       | A     |           | 02DEC76    | 08DEC76    | 02DEC76           | 08DEC76     | 0.0         |                  |
| A0190 | A0185 | RPV INSL. SET REACT. SHIELDS | 6.6   | 6.6       | A     |           | 08DEC76    | 27JAN77    | 08DEC76           | 27JAN77     | 0.0         |                  |
| A0190 | A0500 | DISHANTEL RPV LIFTING RIG    | 1.0   | 1.0       | E     |           | 08DEC76    | 19DEC76    | 08DEC76           | 03JAN77     | 2.0         |                  |
| A0195 | A0190 | COMPLT REACTOR SHIELD WELD   | 15.0  | 15.0      | A     |           | 27JAN77    | 12MAY77    | 27JAN77           | 12MAY77     | 0.0         |                  |
| A0190 | A0192 | STR. STL. - EL. 272-286      | 17.0  | 17.0      | A     |           | 12MAY77    | 13SEP77    | 12MAY77           | 13SEP77     | 0.0         |                  |
| A0192 | A0195 | WEATHER ALLOWANCE            | 2.0   | 2.0       | A     |           | 13SEP77    | 27SEP77    | 13SEP77           | 27SEP77     | 0.0         |                  |
| A0195 | A0225 | DRYWELL OH MECH/EL BULK INS  | 261.0 | 261.0     | A     |           | 27SEP77    | 18NOV82    | 27SEP77           | 18NOV82     | 0.0         |                  |
|       | RES   | PF 1231.2/                   | QD=01 | EL 671.2/ | QD=01 | OT 335.0/ | QD=01      |            |                   |             |             | DUR =261.0/261.0 |
|       | SEG1  | PEL 0.9                      | EL/   | EL/       | 0.5   | OT/ 0.2   |            |            |                   |             |             |                  |
| A0195 | A0226 | DRYWELL SC MECH/EL BULK INS  | 261.0 | 261.0     | A     |           | 27SEP77    | 18NOV82    | 27SEP77           | 18NOV82     | 0.0         | DUR =261.0/261.0 |
|       | RES   | OT 375.0/                    | QD=01 |           |       |           |            |            |                   |             |             |                  |
|       | SEG1  | OT/ 0.2                      |       |           |       |           |            |            |                   |             |             |                  |
| A0205 | A0210 | COMPLETE SLAB. B. EL. 201    | 7.0   | 0.0       | B     |           | A. 12MAR76 | A. 01MAY76 | ACTIVITY COMPLETE |             |             |                  |
| A0210 | A0215 | DUMMY                        | 0.0   | 0.0       | B     |           | 01JUN76    | 01JUN76    | 01JUN76           | 15JUN76     | 2.0         |                  |
| A0215 | A0220 | EL 177 OH MECH/EL BULK INST  | 326.0 | 326.0     | B     |           | 01JUN76    | 04NOV82    | 01JUN76           | 18NOV82     | 2.0         | DUR =326.0/326.0 |
|       | RES   | PF 501.2/                    | QD=01 | EL 306.2/ | QD=01 | OT 153.7/ | QD=01      |            |                   |             |             |                  |
|       | SEG1  | PEL 0.3                      | EL/   | EL/       | 0.1   | OT/ 0.0   |            |            |                   |             |             |                  |
| A0215 | A0221 | EL 177 SC MECH/EL BULK INST  | 326.0 | 326.0     | B     |           | 01JUN76    | 04NOV82    | 01JUN76           | 18NOV82     | 2.0         | DUR =326.0/326.0 |
|       | RES   | OT 288.7/                    | QD=01 |           |       |           |            |            |                   |             |             |                  |
|       | SEG1  | OT/ 0.1                      |       |           |       |           |            |            |                   |             |             |                  |
| A0220 | A0228 | BLUE TAG TESTING             | 13.0  | 13.0      | B     |           | 15NOV82    | 18FEB83    | N. 15NOV82        | 23FEB83     | 0.6         |                  |
| A0221 | A0220 | DUMMY                        | 0.0   | 0.0       | B     |           | 04NOV82    | 04NOV82    | 04NOV82           | 18NOV82     | 2.0         |                  |
| A0225 | A0235 | BLUE TAG TESTING             | 13.0  | 13.0      | A     |           | 18NOV82    | 23FEB83    | 18NOV82           | 23FEB83     | 0.0         |                  |
| A0226 | A0225 | DUMMY                        | 0.0   | 0.0       | A     |           | 18NOV82    | 18NOV82    | 18NOV82           | 18NOV82     | 0.0         |                  |
| A0228 | A0229 | Y/O & S/U OF ALL SYS EL-177  | 69.0  | 69.0      | B     |           | 18FEB83    | 27JUN84    | 18FEB83           | 02JUL84     | 0.6         |                  |
| A0229 | A0245 | DUMMY                        | 0.0   | 0.0       | B     |           | 27JUN84    | 27JUN84    | 27JUN84           | 02JUL84     | 0.6         |                  |
| A0235 | A0240 | T/O & S/U OF ALL SYS IN D/W  | 69.0  | 69.0      | A     |           | 23FEB83    | 30JUN84    | 23FEB83           | 02JUL84     | 0.0         |                  |

Exhibit 2  
1-2  
3-3

| LINE  | NODE  | ACTIVITY DESCRIPTION        | DUR   | ORC   | REM    | DUR   | CODES | START   | FINISH  | EARLY START | LATE FINISH | REM              |
|-------|-------|-----------------------------|-------|-------|--------|-------|-------|---------|---------|-------------|-------------|------------------|
| A0240 | A0245 | DUMMY                       | 0.0   | 0.0   | A      |       |       | 02JUL84 | 02JUL84 | 02JUL84     | 02JUL84     | 0.0              |
| A0245 | A1003 | FUEL LOAD                   | 0.0   | 0.0   | A      |       |       | 02JUL84 | 02JUL84 | 02JUL84     | 02JUL84     | 0.0              |
| A0285 | A0286 | NET WELL DH MECH/EL BULKS   | 342.2 | 325.0 | I      | 00=01 | 01    | 01JUN76 | 28OCT82 | A 30JAN76   | 11NOV82     | 2.0              |
|       | RES   | PF 303.77                   | 00=01 | EL    | 167.57 |       | 00=01 |         |         |             |             |                  |
|       | SEG1  | PF/ 0.1                     |       | EL/   | 0.0    |       | 0.0   | 01JUN76 | 28OCT82 | A 30JAN76   | 11NOV82     | 2.0              |
|       |       |                             |       |       |        |       |       |         |         |             |             | DUR =342.2/325.0 |
| A0285 | A0287 | NET WELL SC MECH/EL BULKS   | 342.2 | 325.0 | I      |       |       | 01JUN76 | 28OCT82 | A 30JAN76   | 11NOV82     | 2.0              |
|       | RES   | DT 75.07                    | 00=01 |       |        |       |       |         |         |             |             |                  |
|       | SEG1  | DT/ 0.0                     |       |       |        |       |       |         |         |             |             |                  |
|       |       |                             |       |       |        |       |       |         |         |             |             | DUR =342.2/325.0 |
| A0286 | A0291 | DUMMY                       | 0.0   | 0.0   | I      |       |       | 28OCT82 | 28OCT82 | 28OCT82     | 11NOV82     | 2.0              |
| A0287 | A0286 | DUMMY                       | 0.0   | 0.0   | I      |       |       | 28OCT82 | 28OCT82 | 28OCT82     | 11NOV82     | 2.0              |
| A0291 | A0292 | BLUE TAG TESTING            | 13.0  | 13.0  | I      |       |       | 08NOV82 | 11FEB83 | N 08NOV82   | 16FEB83     | 0.6              |
| A0292 | A0293 | T/O & S/U OF ALL SYS-WET NL | 70.0  | 70.0  | I      |       |       | 11FEB83 | 27JUN84 | 11FEB83     | 02JUL84     | 0.6              |
| A0293 | A0245 | DUMMY                       | 0.0   | 0.0   | I      |       |       | 27JUN84 | 27JUN84 | 27JUN84     | 02JUL84     | 0.6              |
| A0325 | A0703 | SLAB A 283                  | 16.0  | 16.0  | E      |       |       | 04NOV76 | 03MAR77 | 04NOV76     | 17MAR77     | 2.0              |
| A0335 | A0325 | WALLS A 253 - 283           | 26.4  | 22.0  | D      |       |       | 01JUN76 | 04NOV76 | A 28APR76   | 18NOV76     | 2.0              |
| A0335 | A0341 | SLAB A 253                  | 15.8  | 10.6  | D      |       |       | 01JUN76 | 14AUG76 | A 28APR76   | 30AUG76     | 2.0              |
| A0341 | A0342 | WEATHER ALLOWANCE           | 1.0   | 1.0   | D      |       |       | 16AUG76 | 21AUG76 | 16AUG76     | 07SEP76     | 2.0              |
| A0342 | A0344 | EL 217 DH MECH/EL BULK INST | 316.4 | 316.4 | D      | 00=01 | 01    | 23AUG76 | 18NOV82 | 23AUG76     | 06DEC82     | 2.0              |
|       | RES   | PF 636.27                   | 00=01 | EL    | 346.27 |       | 00=01 |         |         |             |             |                  |
|       | SEG1  | PF/ 0.4                     |       | EL/   | 0.2    |       | 0.1   | 23AUG76 | 18NOV82 | 23AUG76     | 06DEC82     | 2.0              |
|       |       |                             |       |       |        |       |       |         |         |             |             | DUR =316.4/316.4 |
| A0342 | A0345 | EL 217 SC MECH/EL BULK INST | 316.4 | 316.4 | D      |       |       | 23AUG76 | 18NOV82 | 23AUG76     | 06DEC82     | 2.0              |
|       | RES   | DT 327.57                   | 00=01 |       |        |       |       |         |         |             |             |                  |
|       | SEG1  | DT/ 0.2                     |       |       |        |       |       |         |         |             |             |                  |
|       |       |                             |       |       |        |       |       |         |         |             |             | DUR =316.4/316.4 |
| A0344 | A0350 | BLUE TAG TESTING            | 13.0  | 13.0  | D      |       |       | 02DEC82 | 05MAR83 | N 02DEC82   | 09MAR83     | 0.4              |
| A0345 | A0344 | DUMMY                       | 0.0   | 0.0   | D      |       |       | 18NOV82 | 18NOV82 | 18NOV82     | 06DEC82     | 2.0              |
| A0350 | A0355 | T/O & S/U OF ALL SYS-EL 217 | 67.0  | 67.0  | D      |       |       | 07MAR83 | 28JUN84 | 07MAR83     | 02JUL84     | 0.4              |
| A0355 | A0245 | DUMMY                       | 0.0   | 0.0   | D      |       |       | 29JUN84 | 28JUN84 | 28JUN84     | 02JUL84     | 0.4              |

| MODE  | MODE  | ACTIVITY DESCRIPTION                      | ORG DUR | REM DUR | CODES | START   | FINISH  | EARLY START | LATE FINISH | REM FLOAT |
|-------|-------|---|---------|---------|-------|---------|---------|-------------|-------------|-----------|
| A0500 | A0505 | PULL GIRDER S/S ON CONT                   | 2.0     | 2.0     | E     | 15DEC76 | 31DEC76 | 15DEC76     | 17JAN77     | 2.0       |
| A0500 | A0510 | DUMMY                                     | 0.0     | 0.0     | E     | 15DEC76 | 15DEC76 | 15DEC76     | 03JAN77     | 2.0       |
| A0505 | A0515 | DUMMY                                     | 0.0     | 0.0     | E     | 03JAN77 | 03JAN77 | 03JAN77     | 17JAN77     | 2.0       |
| A0510 | A0515 | SET FUEL POOL GIRDER STL                  | 2.0     | 2.0     | E     | 15DEC76 | 31DEC76 | 15DEC76     | 17JAN77     | 2.0       |
| A0515 | A0520 | SUPPORT STEEL                             | 4.0     | 4.0     | E     | 03JAN77 | 29JAN77 | 03JAN77     | 14FEB77     | 2.0       |
| A0520 | A0535 | Q-DECK AT EL 300-313                      | 2.0     | 2.0     | E     | 31JAN77 | 12FEB77 | 31JAN77     | 28FEB77     | 2.0       |
| A0520 | A0530 | DUMMY                                     | 0.0     | 0.0     | F     | 31JAN77 | 31JAN77 | 31JAN77     | 14FEB77     | 2.0       |
| A0525 | A0535 | DUMMY                                     | 0.0     | 0.0     | F     | 14FEB77 | 14FEB77 | 14FEB77     | 28FEB77     | 2.0       |
| A0530 | A0540 | Q-DECK AT EL 300-313                      | 2.0     | 2.0     | F     | 31JAN77 | 12FEB77 | 31JAN77     | 28FEB77     | 2.0       |
| A0535 | A0500 | START EXT WALLS EL 283-313                | 2.0     | 2.0     | H     | 14FEB77 | 26FEB77 | 14FEB77     | 14MAR77     | 2.0       |
| A0540 | A0535 | DUMMY                                     | 0.0     | 0.0     | H     | 14FEB77 | 14FEB77 | 14FEB77     | 28FEB77     | 2.0       |
| A0540 | A0545 | F4R CASKWASH DMSSENT FUEL                 | 4.0     | 4.0     | F     | 14FEB77 | 12MAR77 | 14FEB77     | 05JUL77     | 15.8      |
| A0545 | A0550 | START FRAP GIRDR 8&POUR CSK               | 10.0    | 10.0    | F     | 14MAR77 | 21MAR77 | 14MAR77     | 14SEP77     | 15.8      |
| A0550 | A0555 | CPLT FRAP GIRDER C                        | 7.0     | 7.0     | F     | 23MAY77 | 13JUL77 | 23MAY77     | 02NOV77     | 15.8      |
| A0555 | A0560 | S/S 40-DECK CPLT FRAP GRD D               | 7.0     | 7.0     | F     | 13JUL77 | 31AUG77 | 13JUL77     | 23DEC77     | 15.8      |
| A0560 | A0565 | CPLT FRAP GIRDER E 326-336                | 7.6     | 7.6     | F     | 31AUG77 | 25OCT77 | 31AUG77     | 17FEB78     | 15.8      |
| A0565 | A0570 | FRAP GIRDER F TO 351                      | 9.0     | 9.0     | F     | 25OCT77 | 30DEC77 | 25OCT77     | 21APR78     | 15.8      |
| A0570 | A0575 | PH 1 POST TENSION GIRDER                  | 6.0     | 6.0     | F     | 30DEC77 | 18FEB78 | 30DEC77     | 05JUN78     | 15.8      |
| A0575 | A0575 | WEATHER ALLOWANCE                         | 4.0     | 4.0     | F     | 19MAY78 | 17JUN78 | 19MAY78     | 06JUL78     | 2.0       |
| A0575 | A0675 | SLAB 2 253                                | 10.0    | 10.0    | G     | 19MAY78 | 03AUG78 | 19MAY78     | 17AUG78     | 2.0       |
| A0575 | A0579 | EL 203 DH MECH/EL BULK INST 228.2 228.2 F | 0.0     | 0.0     | F     | 19JUN78 | 18DEC82 | 19JUN78     | 05JAN83     | 2.0       |
| RES   | PF    | 675.07                                    | 0.0     | 0.0     | F     | 0.0     | 0.0     | 0.0         | 0.0         | 0.0       |
| SEG1  | PF/   | 0.5                                       | 0.5     | 0.5     | F     | 0.1     | 0.1     | 0.1         | 0.1         | 0.1       |

DUR = 228.27228.2

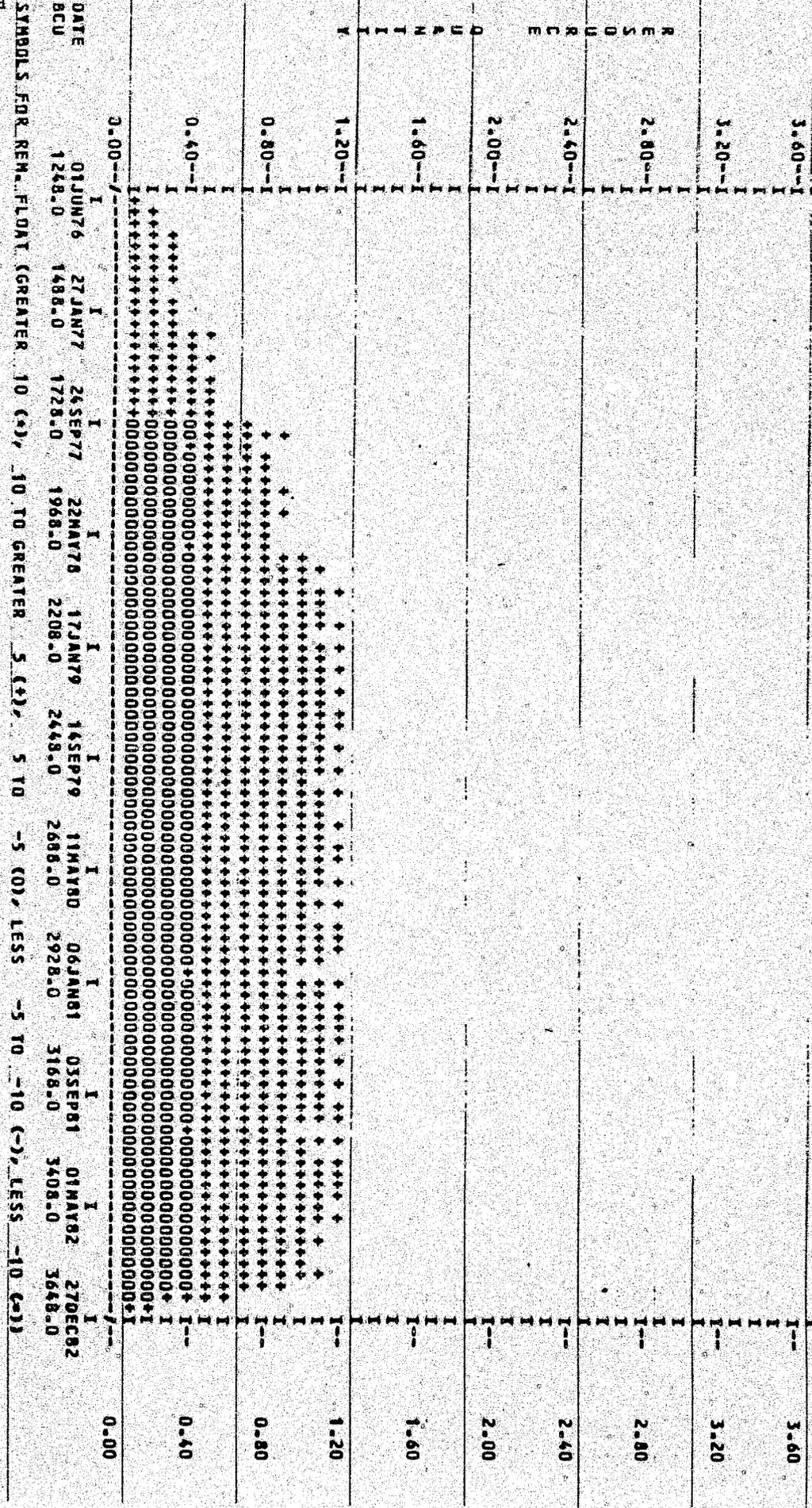


| MODE  | NODE  | ACTIVITY DESCRIPTION              | ORG   | REM       | DUR | DUR CODES | START     | FINISH    | EARLY     | LATE              | REN   |
|-------|-------|-----------------------------------|-------|-----------|-----|-----------|-----------|-----------|-----------|-------------------|-------|
|       |       |                                   |       |           |     |           | START     | FINISH    | START     | FINISH            | FLOAT |
| A0655 | A0654 | DUMMY                             | 0.0   | 0.0       | H   |           | 20DEC82   | 20DEC82   | 20DEC82   | 05JAN83           | 2.0   |
| A0658 | A0659 | I/O & S/U OF ALL SYS-EL 352       | 65.0  | 65.0      | H   |           | 04APR83   | 28JUN84   | 04APR83   | 02JUL85           | 0.4   |
|       | A0245 | DUMMY                             | 0.0   | 0.0       | H   |           | 28JUN84   | 28JUN84   | 28JUN84   | 02JUL84           | 0.4   |
| A0673 | A0675 | WEATHER ALLOWANCE                 | 4.0   | 4.0       | G   |           | 03AUG78   | 31AUG78   | 03AUG78   | 15SEP78           | 2.0   |
| A0675 | A0679 | EL 313 DH MECH/EL BULK INST 195.2 | 195.2 | 195.2     | G   |           | 31AUG78   | 07JUL82   | 31AUG78   | 21JUL82           | 2.0   |
|       | RES   | PF 448.7/                         | QD=01 | EL 245.0/ | EL/ | 0.2       | QD=01     | OT 122.5/ | QD=01     | DT/               | 0.1   |
|       | SEG1  | PF/ 0.4                           | QD=01 | EL/       | 0.2 |           | QD=01     | DT/       | 0.1       |                   |       |
| A0675 | A0680 | EL 313 SC MECH/EL BULK INST 195.2 | 195.2 | 195.2     | G   |           | 31AUG78   | 07JUL82   | 31AUG78   | 21JUL82           | 2.0   |
|       | RES   | DT 231.2/                         | QD=01 |           |     |           |           |           |           |                   |       |
|       | SEG1  | DT/ 0.2                           |       |           |     |           |           |           |           |                   |       |
| A0679 | A0685 | BLUE TAG TESTING                  | 13.0  | 13.0      | G   |           | 19JUL82   | 19OCT82   | 19JUL82   | 21OCT82           | 0.4   |
| A0680 | A0679 | DUMMY                             | 0.0   | 0.0       | G   |           | 07JUL82   | 07JUL82   | 07JUL82   | 21JUL82           | 2.0   |
| A0685 | A0690 | I/O & S/U OF ALL SYS-EL 313       | 86.0  | 86.0      | G   |           | 19OCT82   | 28JUN84   | 19OCT82   | 02JUL84           | 0.4   |
|       | A0245 | DUMMY                             | 0.0   | 0.0       | G   |           | 28JUN84   | 28JUN84   | 28JUN84   | 02JUL84           | 0.4   |
| A0703 | A0705 | WEATHER ALLOWANCE                 | 2.0   | 2.0       | E   |           | 03MAR77   | 17MAR77   | 03MAR77   | 31MAR77           | 2.0   |
| A0705 | A0710 | EL 253 DH MECH/EL BULK INST 290.0 | 290.0 | 290.0     | E   |           | 17MAR77   | 06DEC82   | 17MAR77   | 20DEC82           | 2.0   |
|       | RES   | PF 786.2/                         | QD=01 | EL 428.7/ | EL/ | 0.2       | QD=01     | OT 213.7/ | QD=01     | DT/               | 0.1   |
|       | SEG1  | PF/ 0.5                           | QD=01 | EL/       | 0.2 |           | QD=01     | DT/       | 0.1       |                   |       |
|       | SEG1  | DT/ 0.2                           |       |           |     |           |           |           |           |                   |       |
| A0710 | A0720 | BLUE TAG TESTING                  | 13.0  | 13.0      | E   |           | 16DEC82   | 19MAR83   | 16DEC82   | 23MAR83           | 0.4   |
| A0715 | A0710 | DUMMY                             | 0.0   | 0.0       | E   |           | 06DEC82   | 06DEC82   | 06DEC82   | 20DEC82           | 2.0   |
| A0720 | A0725 | I/O & S/U OF ALL SYS-EL 253       | 65.0  | 65.0      | E   |           | 21MAR83   | 28JUN84   | 21MAR83   | 02JUL85           | 0.4   |
|       | A0245 | DUMMY                             | 0.0   | 0.0       | E   |           | 28JUN84   | 28JUN84   | 28JUN84   | 02JUL84           | 0.4   |
| A0905 | A0906 | OPERATING ENGR STRIKE             | 5.0   | 0.0       | C   |           | A 05MAR75 | A 09JUN75 | A 05MAR75 | ACTIVITY COMPLETE |       |
| A0906 | A0907 | CMPLT WALLS TO EL 217             | 17.0  | 0.0       | C   |           | A 09JUN75 | A 12SEP75 | A 09JUN75 | ACTIVITY COMPLETE |       |

| MODE  | MODE  | ACTIVITY DESCRIPTION                      | ORG   | REN       | DUR | DUR | CODES | START     | FINISH    | START     | FINISH   | FLOAT            |
|-------|-------|---|-------|-----------|-----|-----|-------|-----------|-----------|-----------|----------|------------------|
| A0907 | A0335 | WALLS # 217 - 253                         | 30.0  | 0.0       | 0   |     |       | A 12SEP75 | A 28APR76 | ACTIVITY  | COMPLETE |                  |
| A0907 | A0908 | SLAB AT EL 217                            | 39.4  | 2.0       | C   |     |       | 01JUN76   | 15JUN76   | A 12SEP75 | 22JUN76  | 2.0              |
| A0908 | A0910 | WEATHER ALLOWANCE                         | 1.0   | 1.0       | C   |     |       | 15JUN76   | 22JUN76   | 15JUN76   | 07JUL76  | 2.0              |
| A0910 | A0914 | EL 201 DH MECH/EL BULK INST 324.0 324.0 C |       |           |     |     |       | 22JUN76   | 11NOV82   | 22JUN76   | 29NOV82  | 2.0              |
|       | RES   | PF 448.7/                                 | QD=01 | EL 245.0/ | EL/ | 0.1 |       | QD=01     |           |           |          |                  |
|       | SEGI  | PF/ 0.2                                   |       |           |     |     |       | OT/ 0.0   |           |           |          | DUR =324.0/324.0 |
| A0910 | A0915 | EL 201 SC MECH/EL BULK INST 324.0 324.0 C |       |           |     |     |       | 22JUN76   | 11NOV82   | 22JUN76   | 29NOV82  | 2.0              |
|       | RES   | OT 231.2/                                 | QD=01 |           |     |     |       |           |           |           |          | DUR =324.0/324.0 |
|       | SEGI  | OT/ 0.1                                   |       |           |     |     |       |           |           |           |          |                  |
| A0914 | A0920 | BLUE TAG TESTING                          | 13.0  | 13.0      | C   |     |       | 23NOV82   | 26FEB83   | N 23NOV82 | 02MAR83  | 0.4              |
| A0915 | A0914 | DUMMY                                     | 0.0   | 0.0       | C   |     |       | 11NOV82   | 11NOV82   | 11NOV82   | 29NOV82  | 2.0              |
| A0920 | A0925 | T/O & S/U OF ALL SYS-EL 201               | 68.0  | 68.0      | C   |     |       | 28FEB83   | 28JUN84   | 28FEB83   | 02JUL84  | 0.4              |
| A0925 | A0245 | DUMMY                                     | 0.0   | 0.0       | C   |     |       | 28JUN84   | 28JUN84   | 28JUN84   | 02JUL84  | 0.4              |



SCHEDULE PLOTTED IS (LEVEL)  
 (Containment and Reactor Bldg.  
 Mechan./Electr. Activities)





OVERSIZE

DOCUMENTS

LIMERICK GENERATING STATION  
UNIT 1 RATE CASE  
SCHEDULE STUDY

CASE 3: CASE 2 ADJUSTED FOR  
PROJECTED UNSRESTRAINED  
CASH AVAILABILITY

Exhibit 3-1

MECHANICAL/ELECTRICAL ACTIVITIES  
DENSITY/SHIFT CALCULATIONS

| Location            | Manhours<br>(1000's) | Duration<br>(Wks)<br>(ES-LF) | Calcu.<br>Density | Density<br>Limit | Shifts |
|---------------------|----------------------|------------------------------|-------------------|------------------|--------|
| Containment Drywell | 2090                 | 261                          | 200               | 120              | 1.67   |
| Wetwell             | 508                  | 344                          | 37                | 50               | 1      |
| Containment         | 2598                 |                              | 237               | 170              |        |
| Reactor Bldg.       | 177                  | 1048                         | 328               | 80               | 1      |
|                     | 201                  | 838                          | 326               | 64               | 1      |
|                     | 217                  | 1187                         | 318               | 93               | 1      |
|                     | 253                  | 1466                         | 292               | 126              | 1.26   |
|                     | 283                  | 1258                         | 230               | 137              | 1      |
|                     | 313                  | 838                          | 197               | 106              | 1.18   |
|                     | 352                  | 349                          | 208               | 42               | 1      |
| Reactor Bldg.       | 6984                 |                              | 648               | 765              |        |

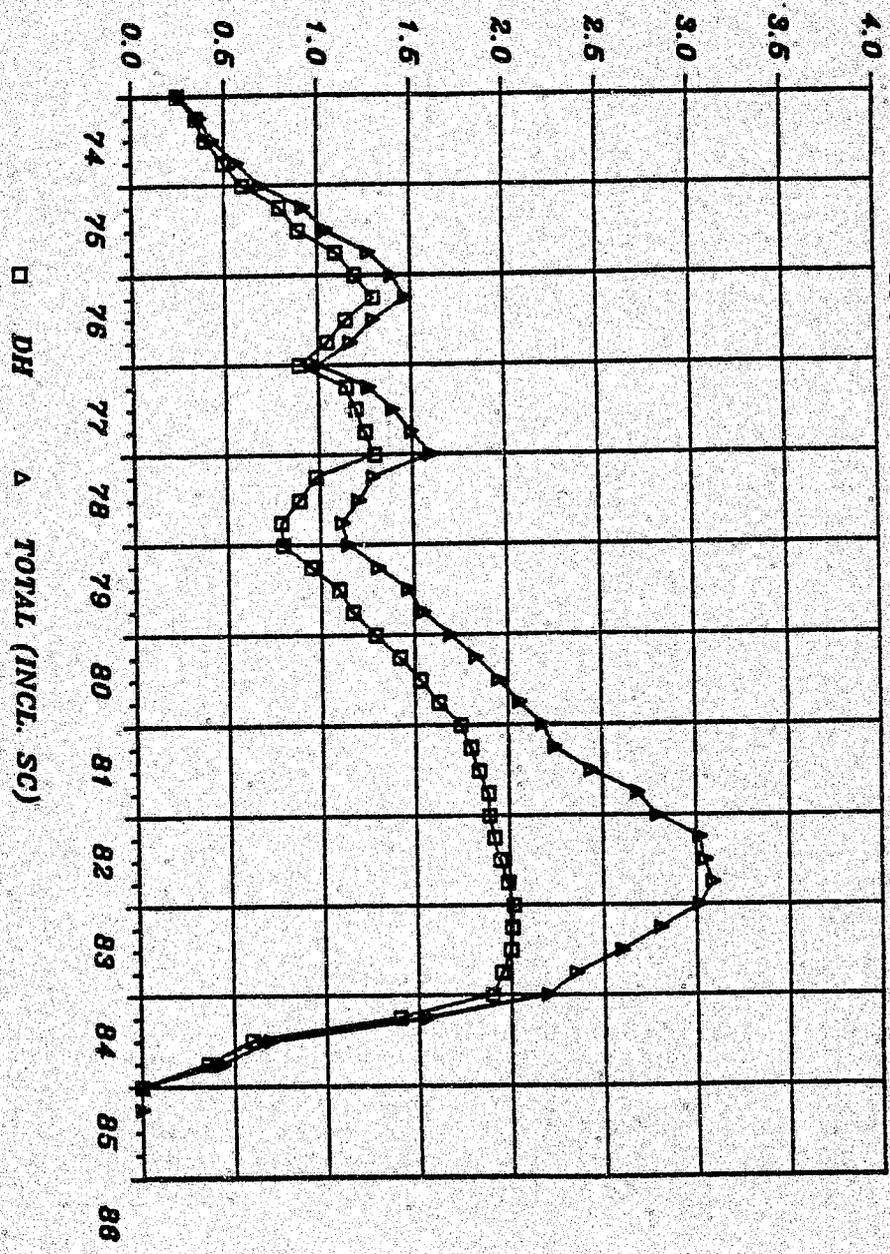
CASE 3  
CASHFLOW

| YEAR    | 1971 LEVEL COST (IN \$1000'S) | NOMINAL COST (IN \$1000'S) |
|---------|-------------------------------|----------------------------|
| PRE '74 | 111,900                       | 121,100                    |
| 1974    | 55,000                        | 71,300                     |
| 1975    | 55,900                        | 80,700                     |
| 1976    | 75,613                        | 117,200                    |
| 1977    | 86,205                        | 143,100                    |
| 1978    | 64,432                        | 113,400                    |
| 1979    | 73,834                        | 142,500                    |
| 1980    | 98,133                        | 205,098                    |
| 1981    | 118,079                       | 268,039                    |
| 1982    | 125,547                       | 308,846                    |
| 1983    | 127,176                       | 328,114                    |
| 1984    | 92,381                        | 246,657                    |
| 1985    | 44,000                        | 126,500                    |
| 1986    | 0                             | 0                          |
| 1987    | 0                             | 0                          |
| 1988    | 0                             | 0                          |
| 1989    | 0                             | 0                          |
| TOTAL   | \$1,128,200                   | \$2,272,555                |

# LIMERICK GENERATING STATION

UNIT 1&C TOTAL MANUAL MANPOWER : CASE 3

EQUIVALENT MEN  
(Thousands)



LIMERICK GENERATING STATION  
UNIT 1 RATE CASE  
SCHEDULE STUDY

CASE 4: CASE 3 ADJUSTED FOR  
REGULATORY AND  
LICENSING RESTRAINTS

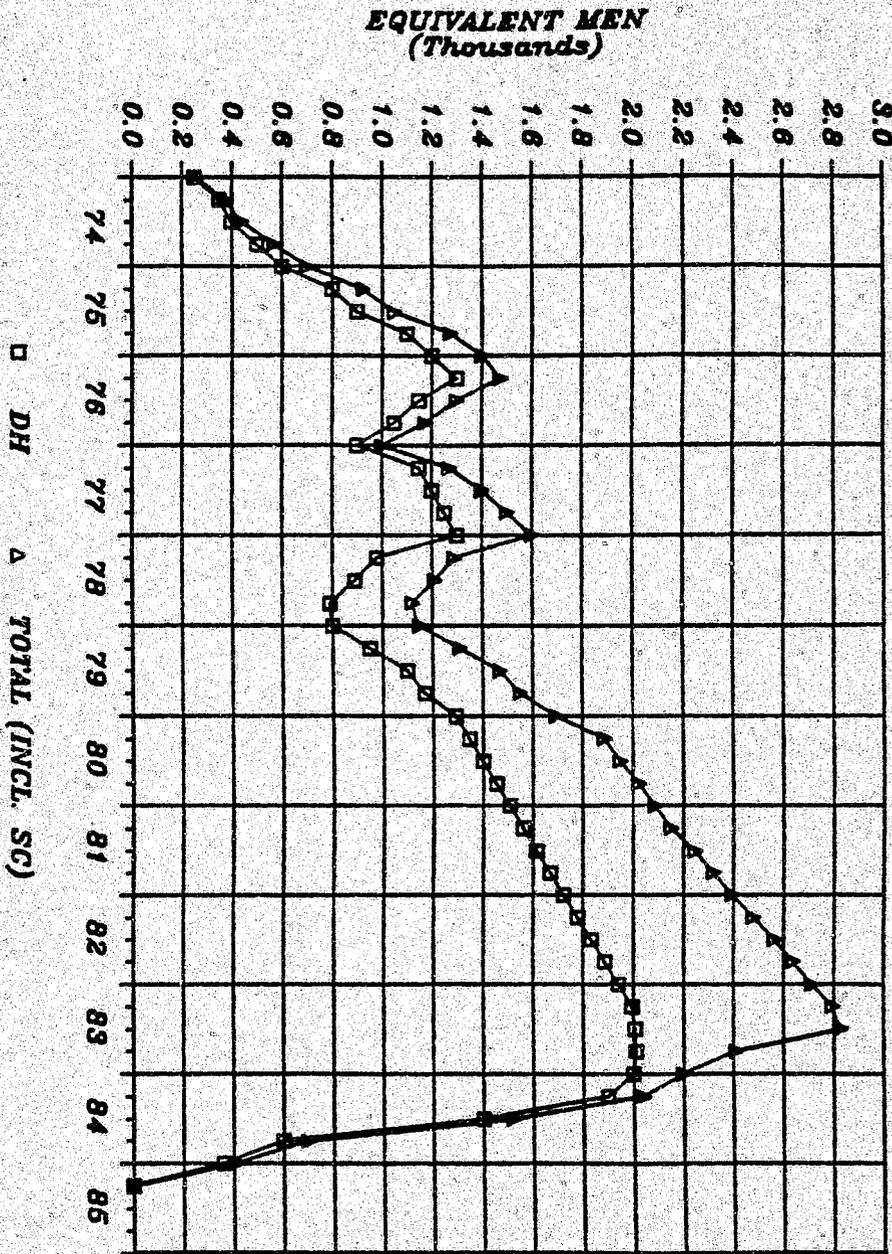
Exhibit 4-1

MECHANICAL/ELECTRICAL ACTIVITIES  
DENSITY/SHIFT CALCULATIONS

| Location            | Manhours<br>(1000's) | Duration<br>(Wks)<br>(ES-LF) | Calcu.<br>Density | Density<br>Limit | Shifts |
|---------------------|----------------------|------------------------------|-------------------|------------------|--------|
| Containment Drywell | 2090                 | 261                          | 200               | 120              | 1.67   |
| Wetwell             | 508                  | 344                          | 37                | 50               | 1      |
| Containment         | 2598                 |                              | 237               | 170              |        |
| Reactor Bldg.       | 177                  | 1048                         | 328               | 80               | 1      |
|                     | 201                  | 838                          | 326               | 64               | 1      |
|                     | 217                  | 1187                         | 318               | 93               | 1      |
|                     | 253                  | 1466                         | 292               | 126              | 1.26   |
|                     | 283                  | 1258                         | 230               | 137              | 1      |
|                     | 313                  | 838                          | 197               | 106              | 1.18   |
|                     | 352                  | 349                          | 208               | 42               | 1      |
| Reactor Bldg.       | 6984                 |                              | 648               | 765              |        |

# LIMERICK GENERATING STATION

UNIT 1&C TOTAL MANUAL MANPOWER : CASE 4



| YEAR         | 1971 LEVEL         |                            |
|--------------|--------------------|----------------------------|
|              | COST (IN \$1000'S) | NOMINAL COST (IN \$1000'S) |
| PRE 74       | 111,900            | 121,100                    |
| 1974         | 55,000             | 71,300                     |
| 1975         | 55,900             | 80,700                     |
| 1976         | 75,613             | 117,200                    |
| 1977         | 86,205             | 143,100                    |
| 1978         | 64,432             | 113,400                    |
| 1979         | 73,934             | 142,500                    |
| 1980         | 88,471             | 184,904                    |
| 1981         | 102,101            | 231,769                    |
| 1982         | 115,761            | 284,772                    |
| 1983         | 126,043            | 325,191                    |
| 1984         | 120,940            | 322,910                    |
| 1985         | 48,700             | 139,400                    |
| 1986         | 5,300              | 10,000                     |
| 1987         | 0                  | 0                          |
| 1988         | 0                  | 0                          |
| 1989         | 0                  | 0                          |
| <b>TOTAL</b> | <b>\$1,129,200</b> | <b>\$2,288,246</b>         |

| JOB CODE | ACTIVITY DESCRIPTION        | ORG DUR | REN DUR | REN CODES | START   | FINISH   | EARLY START | LATE FINISH       | REN FLOAT |
|----------|-----------------------------|---------|---------|-----------|---------|----------|-------------|-------------------|-----------|
| 10 A0015 | ENERGIZATION                | 1.0     | 1.0     | I         | 01APR82 | 08APR82  | N 01APR82   | 12JUL82           | 13.0      |
| 00 A0105 | PREP BASEMAT                | 6.0     | 0.0     | A         | 08APR82 | 28JUN86  | 08APR82     | 03OCT86           | 13.0      |
| 05 A0110 | AREA 11/12&16-EL 177 FOOTG  | 3.0     | 0.0     | A         | 17JUN74 | 130JUL74 | I 30JUL74   | ACTIVITY COMPLETE |           |
| 10 A0115 | EXTRAPART INT. WALLS TO 201 | 16.0    | 0.0     | A         | 30JUL74 | 20AUG74  | N 20AUG74   | ACTIVITY COMPLETE |           |
| 15 A0120 | CURE SLAB & SET CRANES      | 7.0     | 0.0     | A         | 20AUG74 | 13DEC74  | A 13DEC74   | ACTIVITY COMPLETE |           |
| 20 A0125 | SUPPRESSION POOL REBAR      | 11.0    | 0.0     | A         | 13DEC74 | 04FEB75  | A 04FEB75   | ACTIVITY COMPLETE |           |
| 20 A0905 | START WALLS TO EL 217       | 13.0    | 0.0     | C         | 04FEB75 | 05MAY75  | A 05MAY75   | ACTIVITY COMPLETE |           |
| 25 A0127 | CONTAINMENT HOLD            | 7.0     | 0.0     | A         | 22APR75 | 11JUN75  | A 11JUN75   | ACTIVITY COMPLETE |           |
| 27 A0130 | PREFAB & FIT NEW REBAR      | 3.0     | 0.0     | A         | 11JUN75 | 30JUN75  | A 30JUN75   | ACTIVITY COMPLETE |           |
| 30 A0135 | SUPPRESSION WALLS LIFTS 1-3 | 4.0     | 0.0     | A         | 30JUN75 | 06AUG75  | A 06AUG75   | ACTIVITY COMPLETE |           |
| 35 A0140 | SUPPRESSION WALLS LIFTS 4-5 | 2.4     | 0.0     | A         | 06AUG75 | 22AUG75  | A 22AUG75   | ACTIVITY COMPLETE |           |
| 40 A0145 | DRYWELL REBAR TO 258        | 15.0    | 0.0     | A         | 22AUG75 | 11DEC71  | A 11DEC71   | ACTIVITY COMPLETE |           |
| 45 A0150 | POOL LIFT 6 TO 237          | 3.0     | 0.0     | A         | 11DEC75 | 12JAN76  | A 12JAN76   | ACTIVITY COMPLETE |           |
| 45 A0155 | REBAR TO EL 292             | 8.0     | 0.0     | A         | 11DEC75 | 05FEB76  | A 05FEB76   | ACTIVITY COMPLETE |           |
| 50 A0285 | POUR DIAPH SLAB             | 2.0     | 0.0     | I         | 12JAN76 | 30JAN76  | A 30JAN76   | ACTIVITY COMPLETE |           |
| 55 A0160 | COME LIFT                   | 3.0     | 0.0     | A         | 05FEB76 | 26FEB76  | A 26FEB76   | ACTIVITY COMPLETE |           |
| 55 A0205 | REBAR TO FLANGE 322-4       | 5.0     | 0.0     | B         | 05FEB76 | 12MAR76  | A 12MAR76   | ACTIVITY COMPLETE |           |
| 60 A0165 | COME LIFTS 2 & 3            | 17.0    | 3.6     | A         | 01JUN76 | 25JUN76  | A 26FEB76   | 24SEP76           | 12.6      |
| 65 A0166 | COMPLETETS 4 & 5            | 14.4    | 14.4    | A         | 25JUN76 | 07OCT76  | 25JUN76     | 21JAN77           | 14.2      |
| 65 A0170 | CG&T REMOVE CYL BRACKET     | 16.0    | 16.0    | A         | 25JUN76 | 19OCT76  | 25JUN76     | 21JAN77           | 12.6      |
| 66 A0170 | DUMMY                       | 0.0     | 0.0     | A         | 07OCT76 | 07OCT76  | 07OCT76     | 21JAN77           | 14.2      |
| 67 A0175 | PAINT CONT. LINER           | 6.0     | 6.0     | A         | 19OCT76 | 02DEC76  | 19OCT76     | 04MAR77           | 12.6      |

| MODE     | ACTIVITY DESCRIPTION        | DUR   | REH     | REH       | START   | FINISH  | EARLY    | LATE     | REN               |
|----------|-----------------------------|-------|---------|-----------|---------|---------|----------|----------|-------------------|
|          |                             |       | CODES   |           |         |         | START    | FINISH   | FLOAT             |
| 5 A0190  | SET RPV                     | 2.0   | 0.8 A   |           | 02DEC76 | 08DEC76 | 02DEC76  | 10MAR77  | 12.6              |
| 0 A0195  | RPV INSL.-SET REACT-SHIELDS | 6.6   | 6.6 A   |           | 08DEC76 | 27JAN77 | 08DEC76  | 26APR77  | 12.6              |
| 0 A0500  | DISMANTEL RPV LIFTING RIG   | 1.0   | 1.0 E   |           | 08DEC76 | 15DEC76 | 08DEC76  | 31MAY77  | 14.6              |
| 5 A0190  | COMPLY REACTOR SHIELD WELD  | 15.0  | 15.0 A  |           | 27JAN77 | 12MAY77 | 27JAN77  | 11AUG77  | 12.6              |
| 0 A0192  | STR. STL - EL 272-286       | 17.0  | 17.0 A  |           | 12MAY77 | 13SEP77 | 12MAY77  | 13DEC77  | 12.6              |
| 2 A0195  | WEATHER ALLOWANCE           | 2.0   | 2.0 A   |           | 13SEP77 | 27SEP77 | 13SEP77  | 20DEC77  | 12.6              |
| 5 A0225  | DRYWELL OH MECH/EL BULK INS | 261.0 | 261.0 A |           | 27SEP77 | 18NOV82 | 27SEP77  | 21FEB83  | 12.6              |
| RES      | PF 1231.2/ QD=01 EL 671.2/  |       | QD=01   | OT 335.0/ | 00=01   |         |          |          |                   |
| SEGI     | PF/ 0.9 EL/ 0.5             |       |         | OT/ 0.2   |         |         |          |          | DUR = 261.0/261.0 |
| 5 A0226  | DRYWELL SC MECH/EL BULK INS | 261.0 | 261.0 A |           | 27SEP77 | 18NOV82 | 27SEP77  | 21FEB83  | 12.6              |
| RES      | OT 375.0/ QD=01             |       |         |           |         |         |          |          |                   |
| SEGI     | DT/ 0.2                     |       |         |           |         |         |          |          | DUR = 261.0/261.0 |
| 5 A0210  | COMPLETE SLAB 2 EL 201      | 7.0   | 0.0 B   |           | 12MAR76 | 01MAY76 | ACTIVITY | COMPLETE |                   |
| 0 A0215  | DUMMY                       | 0.0   | 0.0 B   |           | 01JUN76 | 01JUN76 | 01JUN76  | 14SEP76  | 14.6              |
| 5 A0220  | EL 177 OH MECH/EL BULK INST | 326.0 | 326.0 B |           | 01JUN76 | 04NOV82 | 01JUN76  | 21FEB83  | 14.6              |
| RES      | PF 561.2/ QD=01 EL 306.2/   |       | QD=01   | OT 153.7/ | 00=01   |         |          |          |                   |
| SEGI     | PF/ 0.3 EL/ 0.1             |       |         | OT/ 0.0   |         |         |          |          | DUR = 326.1/326.0 |
| 5 A0221  | EL 177 SC MECH/EL BULK INST | 196.0 | 196.0 B |           | 01JUN76 | 15APR80 | 01JUN76  | 21FEB83  | 14.6              |
| RES      | OT 288.7/ QD=01             |       |         |           |         |         |          |          |                   |
| SEGI     | OT/ 0.2                     |       |         |           |         |         |          |          | DUR = 196.0/196.0 |
| 20 A0228 | BLUE TAG TESTING            | 13.0  | 13.0 B  |           | 18NOV82 | 23FEB83 | 18NOV82  | 23MAY83  | 12.6              |
| 21 A0220 | DUMMY                       | 0.0   | 0.0 B   |           | 15APR80 | 15APR80 | 15APR80  | 21FEB83  | 14.6              |
| 22 A0235 | BLUE TAG TESTING            | 13.0  | 13.0 A  |           | 18NOV82 | 23FEB83 | 18NOV82  | 23MAY83  | 12.6              |
| 22 A0225 | DUMMY                       | 0.0   | 0.0 A   |           | 18NOV82 | 18NOV82 | 18NOV82  | 21FEB83  | 12.6              |
| 28 A0229 | T/O 2 S/U OF ALL SYS-EL 217 | 69.0  | 69.0 B  |           | 23FEB83 | 30JUN84 | 23FEB83  | 01OCT84  | 12.6              |
| 29 A0245 | DUMMY                       | 0.0   | 0.0 B   |           | 02JUL84 | 02JUL84 | 02JUL84  | 01OCT84  | 12.6              |
| 35 A0240 | T/O 2 S/U OF ALL SYS IN D/W | 69.0  | 69.0 A  |           | 23FEB83 | 30JUN84 | 23FEB83  | 01OCT84  | 12.6              |

| MODE  | ACTIVITY DESCRIPTION        | ORG DUR | REM DUR   | CODES | START     | FINISH  | EARLY START | LATE FINISH | REM FLOAT        |
|-------|-----------------------------|---------|-----------|-------|-----------|---------|-------------|-------------|------------------|
| A0245 | DUMMY                       | 0.0     | 0.0       | A     | 02JUL84   | 02JUL84 | 02JUN84     | 01OCT84     | 12.6             |
| A1000 | FUEL LOAD                   | 0.0     | 0.0       | A     | 01OCT84   | 01OCT84 | 01OCT84     | 01OCT84     | 0.0              |
| A0286 | NET WELL DR MECH/EL BULKS   | 342.2   | 325.0     | I     | 01JUN76   | 28OCT82 | 4 30JAN76   | 14FEB83     | 14.6             |
| RES   | PF 308.77                   | 40=01   | EL 167.57 | 40=01 | DT 43.77  |         |             |             | DUR =342.2/325.0 |
| SEGI  | PEF/ 0.1                    |         | EL/ 0.0   |       | DT/ 0.0   |         |             |             |                  |
| A0287 | NET WELL SC MECH/EL BULKS   | 342.2   | 325.0     | I     | 01JUN76   | 28OCT82 | A 30JAN76   | 14FEB83     | 14.6             |
| RES   | DT 75.07                    | 40=01   |           |       |           |         |             |             | DUR =342.2/325.0 |
| SEGI  | DT/ 0.0                     |         |           |       |           |         |             |             |                  |
| A0291 | DUMMY                       | 0.0     | 0.0       | I     | 28OCT82   | 28OCT82 | 28OCT82     | 14FEB83     | 14.6             |
| A0286 | DUMMY                       | 0.0     | 0.0       | I     | 28OCT82   | 28OCT82 | 28OCT82     | 14FEB83     | 14.6             |
| A0292 | BLUE TAG TESTING            | 13.0    | 13.0      | I     | 08NOV82   | 11FEB83 | M 08NOV82   | 16MAY83     | 13.2             |
| A0293 | T/O & S/U OF ALL SYS-NET WL | 70.0    | 70.0      | I     | 11FEB83   | 27JUN84 | 11FEB83     | 01OCT84     | 13.2             |
| A0245 | DUMMY                       | 0.0     | 0.0       | I     | 27JUN84   | 27JUN84 | 27JUN84     | 01OCT84     | 13.2             |
| A0703 | SLAB A 283                  | 16.0    | 16.0      | E     | 04NOV76   | 03MAR77 | 04NOV76     | 15JUN77     | 14.6             |
| A0325 | WALLS A 253 - 283           | 26.4    | 22.0      | D     | 01JUN76   | 04NOV76 | A 28APR76   | 22FEB77     | 14.6             |
| A0341 | SLAB A 251                  | 15.8    | 10.6      | D     | 01JUN76   | 16AUG76 | A 28APR76   | 30NOV76     | 14.6             |
| A0342 | WEATHER ALLOWANCE           | 1.0     | 1.0       | D     | 16AUG76   | 21AUG76 | 16AUG76     | 07DEC76     | 14.6             |
| A0344 | EL 217 DR MECH/EL BULK INST | 316.4   | 316.4     | D     | 23AUG76   | 18NOV82 | 23AUG76     | 07MAR83     | 14.6             |
| RES   | PF 636.27                   | 40=01   | EL 146.27 | 40=01 | DT 175.77 |         |             |             | DUR =316.4/316.4 |
| SEGI  | PEL 0.4                     |         | EL/ 0.2   |       | DT/ 0.1   |         |             |             |                  |
| A0345 | EL 217 SC MECH/EL BULK INST | 316.4   | 316.4     | D     | 23AUG76   | 18NOV82 | 23AUG76     | 07MAR83     | 14.6             |
| RES   | DT 327.57                   | 40=01   |           |       |           |         |             |             | DUR =316.4/316.4 |
| SEGI  | DT/ 0.2                     |         |           |       |           |         |             |             |                  |
| A0350 | BLUE TAG TESTING            | 13.0    | 13.0      | D     | 06DEC82   | 09MAR83 | M 06DEC82   | 07JUN83     | 12.6             |
| A0346 | DUMMY                       | 0.0     | 0.0       | D     | 18NOV82   | 18NOV82 | 18NOV82     | 07MAR83     | 14.6             |
| A0355 | T/O & S/U OF ALL SYS-EL 217 | 67.0    | 67.0      | D     | 09MAR83   | 30JUN84 | 09MAR83     | 01OCT84     | 12.6             |
| A0245 | DUMMY                       | 0.0     | 0.0       | D     | 02JUL84   | 02JUL84 | 02JUL84     | 01OCT84     | 12.6             |

| NODE  | MODE  | ACTIVITY DESCRIPTION                      | ORG   | REN  | DUR    | DUR   | CODES | START        | FINISH  | EARLY   | LATE    | REN   |
|-------|-------|---|-------|------|--------|-------|-------|--------------|---------|---------|---------|-------|
|       |       |   |       |      |        |       |       | START        | FINISH  | START   | FINISH  | FLOAT |
| A0500 | A0505 | PULL GIRDER S/S ON CONT                   | 2.0   | 2.0  | E      |       |       | 15DEC76      | 31DEC76 | 15DEC76 | 14APR77 | 14.6  |
| A0500 | A0510 | DUMMY                                     | 0.0   | 0.0  | E      |       |       | 15DEC76      | 15DEC76 | 15DEC76 | 31MAR77 | 14.6  |
| A0505 | A0515 | DUMMY                                     | 0.0   | 0.0  | E      |       |       | 03JAN77      | 03JAN77 | 03JAN77 | 14APR77 | 14.6  |
| A0510 | A0515 | SET FUEL POOL GIRDER STL                  | 2.0   | 2.0  | E      |       |       | 15DEC76      | 31DEC76 | 15DEC76 | 14APR77 | 14.6  |
| A0515 | A0520 | SUPPORT STEEL                             | 4.0   | 4.0  | E      |       |       | 03JAN77      | 29JAN77 | 03JAN77 | 12MAY77 | 14.6  |
| A0520 | A0525 | Q-DECK AT EL 300-313                      | 2.0   | 2.0  | E      |       |       | 31JAN77      | 12FEB77 | 31JAN77 | 26MAY77 | 14.6  |
| A0520 | A0530 | DUMMY                                     | 0.0   | 0.0  | F      |       |       | 31JAN77      | 31JAN77 | 31JAN77 | 12MAY77 | 14.6  |
| A0525 | A0535 | DUMMY                                     | 0.0   | 0.0  | F      |       |       | 14FEB77      | 14FEB77 | 14FEB77 | 26MAY77 | 14.6  |
| A0530 | A0540 | Q-DECK AT EL 300-313                      | 2.0   | 2.0  | F      |       |       | 31JAN77      | 12FEB77 | 31JAN77 | 26MAY77 | 14.6  |
| A0535 | A0600 | START EXT WALLS EL 283-313                | 2.0   | 2.0  | H      |       |       | 14FEB77      | 26FEB77 | 14FEB77 | 10JUN77 | 14.6  |
| A0540 | A0535 | DUMMY                                     | 0.0   | 0.0  | H      |       |       | 14FEB77      | 14FEB77 | 14FEB77 | 26MAY77 | 14.6  |
| A0540 | A0545 | F&R CASKWASH DMSPEENT FUEL                | 4.0   | 4.0  | F      |       |       | 14FEB77      | 12MAR77 | 14FEB77 | 03OCT77 | 28.4  |
| A0545 | A0550 | START FR&P GIRDR BEPDR CSK                | 10.0  | 10.0 | F      |       |       | 14MAR77      | 21MAY77 | 14MAR77 | 14DEC77 | 28.4  |
| A0550 | A0555 | CPLT FR&P GIRDER C                        | 7.0   | 7.0  | F      |       |       | 23MAY77      | 13JUL77 | 23MAY77 | 03FEB78 | 28.4  |
| A0555 | A0560 | S/S Q-DECK CPLT FR&P GRD D                | 7.0   | 7.0  | F      |       |       | 13JUL77      | 31AUG77 | 13JUL77 | 24MAR78 | 28.4  |
| A0560 | A0565 | CPLT FR&P GIRDER E 326-336                | 7.6   | 7.6  | F      |       |       | 31AUG77      | 25OCT77 | 31AUG77 | 17MAY78 | 28.4  |
| A0565 | A0570 | FR&P GIRDER E JO 351                      | 9.0   | 9.0  | F      |       |       | 25OCT77      | 30DEC77 | 25OCT77 | 25JUL78 | 28.4  |
| A0570 | A0573 | PH 1 POST TENSION GIRDER                  | 6.0   | 6.0  | F      |       |       | 30DEC77      | 11FEB78 | 30DEC77 | 06SEP78 | 28.4  |
| A0573 | A0575 | WEATHER ALLOWANCE                         | 4.0   | 4.0  | F      |       |       | 19MAY78      | 17JUN78 | 19MAY78 | 04OCT78 | 14.6  |
| A0573 | A0673 | SLAB 2 253                                | 10.0  | 10.0 | G      |       |       | 19MAY78      | 03AUG78 | 19MAY78 | 15NOV78 | 14.6  |
| A0575 | A0579 | EL 283 DH MECH/EL BULK INST 228.2 228.2 F |       |      |        |       |       | 19JUN78      | 18DEC82 | 19JUN78 | 06APR83 | 14.6  |
| RES   | PF    | 675.07                                    | 00=01 | EL   | 367.57 | 00=01 | OT    | 183.77       | 01=01   |         |         |       |
| SEG1  | PF/   | 0.5                                       | EL/   | 0.3  | OT/    | 0.1   | DUR   | -228.2/228.2 |         |         |         |       |

4-3(4)



| LINE  | CODE  | ACTIVITY DESCRIPTION              | DUR     | REN       | DUR       | DUR       | START     | FINISH    | EARLY     | LATE     | REN              |
|-------|-------|-----------------------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|----------|------------------|
|       |       |                                   |         |           |           |           |           |           |           |          |                  |
| A0655 | A0654 | DUNHY                             | 0.0     | 0.0       | H         |           | 20DEC82   | 20DEC82   | 20DEC82   | 04APR83  | 14.6             |
| A0658 | A0659 | T/O & S/U OF ALL SYS-EL 352       | 65.0    | 63.0      | H         |           | 04APR83   | 28JUN84   | 04APR83   | 01OCT84  | 13.0             |
| A0659 | A0245 | DUNHY                             | 0.0     | 0.0       | H         |           | 28JUN84   | 28JUN84   | 28JUN84   | 01OCT84  | 13.0             |
| A0673 | A0675 | WEATHER ALLOWANCE                 | 4.0     | 4.0       | G         |           | 03AUG78   | 31AUG78   | 03AUG78   | 15DEC78  | 14.6             |
| A0675 | A0679 | EL 313 ON MECH/EL BULK INST 195.2 | 195.2   | 195.2     | G         |           | 31AUG78   | 07JUL82   | 31AUG78   | 19OCT82  | 14.6             |
|       | RES   | PF 448.7/                         | QD=01   | EL 255.0/ | QD=01     | DT 122.5/ |           |           |           |          |                  |
|       | SEGI  | DT/ 0.4                           | EL/ 0.2 | QD=01     | DT 122.5/ | DT/ 0.1   |           |           |           |          | DUR =195.2/195.2 |
| A0675 | A0680 | EL 313 SC MECH/EL BULK INST 195.2 | 195.2   | 195.2     | G         |           | 31AUG78   | 07JUL82   | 31AUG78   | 19OCT82  | 14.6             |
|       | RES   | DT 231.2/                         | QD=01   |           |           |           |           |           |           |          |                  |
|       | SEGI  | DT/ 0.2                           |         |           |           |           |           |           |           |          | DUR =195.2/195.2 |
| A0679 | A0685 | BLUE TAG TESTING                  | 13.0    | 13.0      | G         |           | 19JUL82   | 19OCT82   | N 19JUL82 | 24JAN83  | 13.0             |
| A0630 | A0679 | DUNHY                             | 0.0     | 0.0       | G         |           | 07JUL82   | 07JUL82   | 07JUL82   | 19OCT82  | 14.6             |
| A0685 | A0690 | T/O & S/U OF ALL SYS-EL 313       | 86.0    | 86.0      | G         |           | 19OCT82   | 28JUN84   | 19OCT82   | 01OCT84  | 13.0             |
| A0690 | A0245 | DUNHY                             | 0.0     | 0.0       | G         |           | 28JUN84   | 28JUN84   | 28JUN84   | 01OCT84  | 13.0             |
| A0703 | A0705 | WEATHER ALLOWANCE                 | 2.0     | 2.0       | E         |           | 03MAR77   | 17MAR77   | 03MAR77   | 29JUN77  | 14.6             |
| A0705 | A0710 | EL 253 ON MECH/EL BULK INST 290.0 | 290.0   | 290.0     | E         |           | 17MAR77   | 04DEC82   | 17MAR77   | 21MAR83  | 14.6             |
|       | RES   | PF 786.2/                         | QD=01   | EL 428.7/ | QD=01     | DT 213.7/ |           |           |           |          |                  |
|       | SEGI  | DT/ 0.5                           | EL/ 0.2 | QD=01     | DT 213.7/ | DT/ 0.1   |           |           |           |          | DUR =290.0/290.0 |
| A0705 | A0715 | EL 253 SC MECH/EL BULK INST 290.0 | 290.0   | 290.0     | E         |           | 17MAR77   | 04DEC82   | 17MAR77   | 21MAR83  | 14.6             |
|       | RES   | DT 403.7/                         | QD=01   |           |           |           |           |           |           |          |                  |
|       | SEGI  | DT/ 0.2                           |         |           |           |           |           |           |           |          | DUR =290.0/290.0 |
| A0710 | A0720 | BLUE TAG TESTING                  | 13.0    | 13.0      | E         |           | 20DEC82   | 23MAR83   | N 20DEC82 | 21JUN83  | 12.6             |
| A0715 | A0710 | DUNHY                             | 0.0     | 0.0       | E         |           | 06DEC82   | 06DEC82   | 06DEC82   | 21MAR83  | 14.6             |
| A0720 | A0725 | T/O & S/U OF ALL SYS-EL 253       | 65.0    | 65.0      | E         |           | 23MAR83   | 30JUN84   | 23MAR83   | 01OCT84  | 12.6             |
| A0725 | A0245 | DUNHY                             | 0.0     | 0.0       | E         |           | 02JUL84   | 02JUL84   | 02JUL84   | 01OCT84  | 12.6             |
| A0905 | A0906 | OPERATING ENGR STRIKE             | 5.0     | 0.0       | C         |           | A 05MAY75 | A 09JUN75 | A 09JUN75 | COMPLETE |                  |
| A0906 | A0907 | CAPLI WALLS TO EL 217             | 17.0    | 0.0       | C         |           | A 09JUN75 | A 12SEP75 | ACTIVITY  | COMPLETE |                  |

3-A  
12

| MODE  | NODE  | ACTIVITY DESCRIPTION                        | DUR   | REM       | DUR    | CODES | START     | FINISH    | ACTIVITY  | COMPLETE | REH              |
|-------|-------|---|-------|-----------|--------|-------|-----------|-----------|-----------|----------|------------------|
| A0907 | A0335 | WALLS @ 217 - 253                           | 30.0  | 0.0       | D      |       | A 12SEP75 | A 28APR76 |           |          |                  |
| A0907 | A0908 | SLAB AT EL 217                              | 39.4  | 2.0       | C      |       | 01JUN76   | 15JUN76   | A 12SEP75 | 28SEP76  | 14.6             |
| A0908 | A0910 | WEATHER ALLOWANCE                           | 1.0   | 1.0       | C      |       | 15JUN76   | 22JUN76   | 15JUN76   | 05OCT76  | 14.6             |
| A0910 | A0914 | EL 201 DH MECH/EL BULK INST 324.0 324.0 C   | 00=01 | 01        | 122.5/ |       | 22JUN76   | 11NOV82   | 22JUN76   | 28FEB83  | 14.6             |
|       | RES   | PF 448.7/                                   | 00=01 | EL 245.0/ | 00=01  | 01    | 00=01     |           |           |          | DUR =324.0/324.0 |
|       | SEG1  | REF/ 0.2                                    | EL/   | 0.1       |        |       | 01/       | 0.0       |           |          |                  |
| A0910 | A0915 | EL 201 SC MECH/EL BULK INST 324.0 324.0 C   |       |           |        |       | 22JUN76   | 11NOV82   | 22JUN76   | 28FEB83  | 14.6             |
|       | RES   | DT 231.2/                                   | 00=01 |           |        |       |           |           |           |          | DUR =324.0/324.0 |
|       | SEG1  | DT/ 0.1                                     |       |           |        |       |           |           |           |          |                  |
| A0914 | A0920 | BLUE TAG TESTING                            | 13.0  | 13.0      | C      |       | 29NOV82   | 02MAR83   | N 29NOV82 | 31MAY83  | 12.6             |
| A0915 | A0914 | DUMMY                                       | 0.0   | 0.0       | C      |       | 11NOV82   | 11NOV82   | 11NOV82   | 28FEB83  | 14.6             |
| A0920 | A0925 | T/O & S/U OF ALL SYS-EL 201                 | 68.0  | 68.0      | C      |       | 02MAR83   | 30JUN84   | 02MAR83   | 01OCT84  | 12.6             |
| A0925 | A0245 | DUMMY                                       | 0.0   | 0.0       | C      |       | 02JUL84   | 02JUL84   | 02JUL84   | 01OCT84  | 12.6             |
| A1500 | A1501 | ATWS  | 0.0   | 0.0       | J      |       | 31JAN80   | 31JAN80   | N 31JAN80 | 31JAN80  | 0.0              |
| A1501 | A1505 | ATWS CONCEPTUAL DESIGN                      | 89.0  | 89.0      | J      |       | 31JAN80   | 29OCT81   | 31JAN80   | 29OCT81  | 0.0              |
| A1505 | A1510 | ATWS ENGINEERING                            | 63.0  | 63.0      | J      |       | 29OCT81   | 26JAN83   | 29OCT81   | 28JAN83  | 0.0              |
| A1510 | A1515 | ATWS CONSTRUCTION                           | 59.6  | 59.6      | J      |       | 28JAN83   | 30MAR84   | 28JAN83   | 30MAR84  | 0.0              |
| A1515 | A1520 | ATWS TESTING & MODIFICATION                 | 25.6  | 25.6      | J      |       | 30MAR84   | 29SEP84   | 30MAR84   | 01OCT84  | 0.0              |
| A1520 | A0245 | DUMMY                                       | 0.0   | 0.0       | J      |       | 01OCT84   | 01OCT84   | 01OCT84   | 01OCT84  | 0.0              |
| A1550 | A1555 | RMS   | 0.0   | 0.0       | J      |       | 01FEB80   | 01FEB80   | N 01FEB80 | 01MAY80  | 12.8             |
| A1555 | A1560 | PRELIM INVESTIGATION                        | 195.0 | 195.0     | J      |       | 01FEB80   | 03DEC83   | 01FEB80   | 06MAR84  | 12.8             |
| A1560 | A1565 | INSTALLATION & TESTING                      | 29.2  | 29.2      | J      |       | 05DEC83   | 29JUN84   | 05DEC83   | 01OCT84  | 12.8             |
| A1565 | A0245 | DUMMY                                       | 0.0   | 0.0       | J      |       | 29JUN84   | 29JUN84   | 29JUN84   | 01OCT84  | 12.8             |
| A1600 | A1605 | EOPMNT QUALIF                               | 0.0   | 0.0       | J      |       | 31JAN79   | 31JAN79   | N 31JAN79 | 28FEB79  | 4.0              |
| A1605 | A1610 | ENGR,PROCUREMENT,INSTALL TEST 284.0 284.0 J |       |           |        |       | 31JAN79   | 31AUG84   | 31JAN79   | 01OCT84  | 4.0              |

(7)

| MODE  | NODE  | ACTIVITY DESCRIPTION              | ORG | DUR   | REN   | DUR | CODES | START   | FINISH  | EARLY | LATE    | FINISH  | FINISH | REM   |
|-------|-------|-----------------------------------|-----|-------|-------|-----|-------|---------|---------|-------|---------|---------|--------|-------|
| A1610 | A0245 | DUMMY                             |     | 0.0   | 0.0   | J   |       | 31AUG84 | 31AUG84 |       | 01OCT84 |         |        | 4.0   |
| A1650 | A1655 | FIRE PROTECTION (SSD)             |     | 0.0   | 0.0   | J   |       | 01OCT81 | 01OCT81 | N     | 01OCT81 | 05APR82 |        | 25.6  |
| A1655 | A1660 | ENGR. DESIGN & TESTING            |     | 97.4  | 97.4  | J   |       | 01OCT81 | 01SEP83 |       | 01OCT81 | 06MAR84 |        | 25.6  |
| A1660 | A1665 | CONSTRUCTION                      |     | 29.2  | 29.2  | J   |       | 01SEP83 | 30MAR84 |       | 01SEP83 | 01OCT84 |        | 25.6  |
| A1665 | A0245 | DUMMY                             |     | 0.0   | 0.0   | J   |       | 30MAR84 | 30MAR84 |       | 30MAR84 | 01OCT84 |        | 25.6  |
| A1700 | A1705 | CNTRL RM DESIGN REVIEW            |     | 0.0   | 0.0   | J   |       | 03MAR80 | 03MAR80 | N     | 03MAR80 | 02APR80 |        | 4.4   |
| A1705 | A1710 | GENERIC PROBLEM DEVELOPMENT       |     | 72.0  | 72.0  | J   |       | 03MAR80 | 31JUL81 |       | 03MAR80 | 01SEP81 |        | 4.4   |
| A1710 | A1715 | NRC REVIEW                        |     | 84.0  | 84.0  | J   |       | 31JUL81 | 29MAR83 |       | 31JUL81 | 28APR83 |        | 4.4   |
| A1715 | A1720 | ENGR REVIEW                       |     | 60.0  | 60.0  | J   |       | 29MAR83 | 01JUN84 |       | 29MAR83 | 03JUL84 |        | 4.4   |
| A1720 | A1725 | CONSTRUCTION                      |     | 12.4  | 12.4  | J   |       | 01JUN84 | 29AUG84 |       | 01JUN84 | 01OCT84 |        | 4.4   |
| A1725 | A0245 | DUMMY                             |     | 0.0   | 0.0   | J   |       | 29AUG84 | 29AUG84 |       | 29AUG84 | 01OCT84 |        | 4.4   |
| A1900 | A1805 | OPERATING LICENSE                 |     | 0.0   | 0.0   | K   |       | 01SEP78 | 01SEP78 | N     | 01SEP78 | 07JUN82 |        | 190.8 |
| A1805 | A1810 | SUBMIT D.L. APPLICATION           |     | 16.2  | 16.2  | K   |       | 01SEP78 | 29DEC78 |       | 01SEP78 | 30SEP82 |        | 190.8 |
| A1810 | A1815 | APPLICATION DOKRETED              |     | 101.6 | 101.6 | K   |       | 29DEC78 | 30DEC80 |       | 29DEC78 | 01OCT84 |        | 190.8 |
| A1815 | A1820 | NRC ISSUES SER                    |     | 0.0   | 0.0   | K   |       | 30DEC80 | 30DEC80 |       | 30DEC80 | 01OCT84 |        | 190.8 |
| A1820 | A1825 | DUMMY                             |     | 0.0   | 0.0   | K   |       | 30DEC80 | 30DEC80 |       | 30DEC80 | 01OCT84 |        | 190.8 |
| A1825 | A1830 | OPERATING LICENSE ISSUED          |     | 0.0   | 0.0   | K   |       | 14MAY84 | 14MAY84 | N     | 14MAY84 | 01OCT84 |        | 19.4  |
| A1830 | A0245 | DUMMY                             |     | 0.0   | 0.0   | K   |       | 14MAY84 | 14MAY84 |       | 14MAY84 | 01OCT84 |        | 19.4  |
| A1900 | A1905 | PRA/SARA                          |     | 0.0   | 0.0   | K   |       | 01APR80 | 01APR80 | N     | 01APR80 | 30JUN80 |        | 12.6  |
| A1905 | A1910 | NRC RVWS NECESSITY FOR PRA AT LGS |     | 46.0  | 46.0  | K   |       | 01APR80 | 26FEB81 |       | 01APR80 | 27MAY81 |        | 12.6  |
| A1910 | A1920 | PECO SUBMITS PAA                  |     | 26.0  | 26.0  | K   |       | 26FEB81 | 29AUG81 |       | 26FEB81 | 01DEC81 |        | 12.6  |
| A1920 | A1925 | PECO SUBMITS REV 1                |     | 12.4  | 12.4  | K   |       | 31AUG81 | 26NOV81 |       | 31AUG81 | 01MAR82 |        | 12.6  |

(2) 6-7

| E | NODE  | ACTIVITY DESCRIPTION        | ORG  |      | REM   |       | START   | FINISH  | EARLY START | LATE FINISH | REM FLOAT |
|---|-------|-----------------------------|------|------|-------|-------|---------|---------|-------------|-------------|-----------|
|   |       |                             | DUR  | DUR  | CODES | CODES |         |         |             |             |           |
| 5 | A1930 | PECO SUBMITS REV 2          | 80.4 | 80.4 | K     |       | 30NOV81 | 29JUN85 | 30NOV81     | 28SEP85     | 12.6      |
| 0 | A1935 | PECO SUBMITS SARA INPUT-NRC | 21.2 | 21.2 | K     |       | 29JUN83 | 30NOV85 | 29JUN85     | 29FEB84     | 12.6      |
| 5 | A1940 | SARA SUPPLEMENT SUBMITTED   | 0.0  | 0.0  | K     |       | 30NOV83 | 27JAN84 | 30NOV83     | 25APR84     | 12.6      |
| 0 | A1945 | CONTENTIONS FILED           | 22.0 | 22.0 | K     |       | 27JAN84 | 30JUN84 | 27JAN84     | 01OCT84     | 12.6      |
| 5 | A1950 | ASLB DECIDES IN PEGOS FAVOR | 0.0  | 0.0  | K     |       | 02JUL84 | 02JUL84 | 02JUL84     | 01OCT84     | 12.6      |
|   |       | LDW PWR LICENSING COMPLETE  |      |      |       |       |         |         |             |             |           |
| 0 | A3245 | DUMMY                       | 0.0  | 0.0  | K     |       | 02JUL84 | 02JUL84 | 02JUL84     | 01OCT84     | 12.6      |

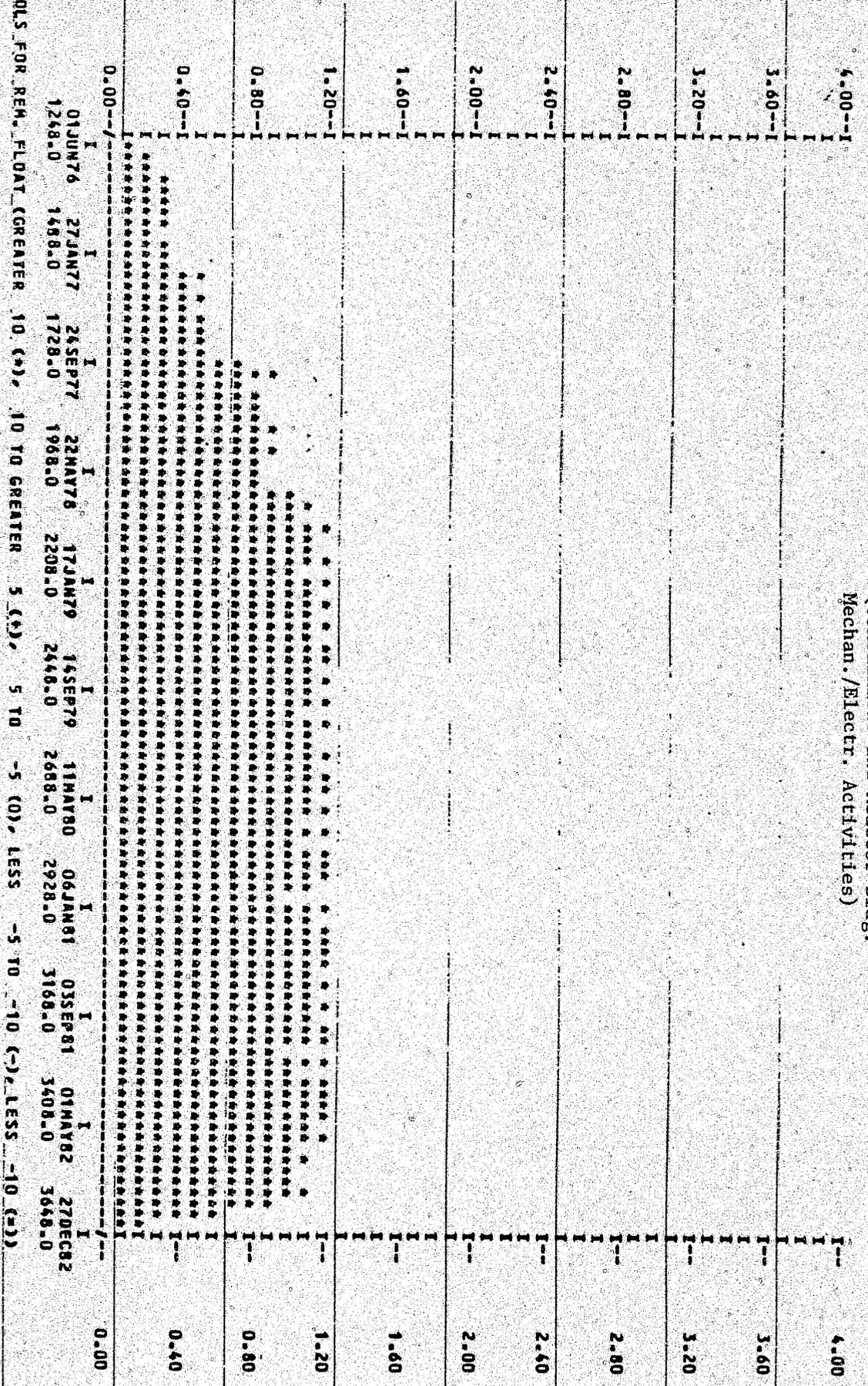
SCHEDULE PLOTTED IS (LEVEL)  
 (Containment and Reactor Bldg.  
 Mechan./Electr. Activities)

| RESOURCES | X 100 | 01JUN76 | 27JUN77 | 26SEP77 | 23MAY78 | 17JAN79 | 14SEP79 | 11MAY80 | 06JAN81 | 03SEP81 | 01MAY82 | 27DEC82 |
|-----------|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 6.00--I   | I     | 1248.0  | 1488.0  | 1728.0  | 1968.0  | 2208.0  | 2448.0  | 2688.0  | 2928.0  | 3168.0  | 3408.0  | 3648.0  |
| 5.40--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 4.80--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 4.20--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 3.60--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 3.00--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 2.40--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 1.80--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 1.20--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 0.60--I   | I     |         |         |         |         |         |         |         |         |         |         |         |
| 0.00--I   | I     |         |         |         |         |         |         |         |         |         |         |         |

01JUN76 27JUN77 26SEP77 23MAY78 17JAN79 14SEP79 11MAY80 06JAN81 03SEP81 01MAY82 27DEC82  
 1248.0 1488.0 1728.0 1968.0 2208.0 2448.0 2688.0 2928.0 3168.0 3408.0 3648.0  
 01'S FOR REM. FLOAT (GREATER 10 (+), 10 TO GREATER 5 (+), 5 TO -5 (0), LESS -5 TO -10 (-), LESS -10 (-))

SCHEDULE PLOTTED IS (LEVEL)  
 (Containment and Reactor Bldg.  
 Mechan./Electr. Activities)

INCREMENTAL



PLS. FOR REM. FLOAT (GREATER 10. (\*), 10 TO GREATER 5 (\*), 5 TO -5 (0), LESS -5 TO -10 (-), LESS -10 (=))



OVERSIZE

DOCUMENTS

PECO EXHIBIT JJC-2

R-850152 3/17/36

May 12

PENNSYLVANIA PUBLIC  
UTILITY COMMISSION

v.

PHILADELPHIA ELECTRIC COMPANY,  
DOCKET NO. R-850152

RECEIVED

MAR 19 1936

SECRETARIES OFFICE  
Public Utility Commission

ELECTRICAL AND MECHANICAL COMMODITIES  
INSTALLED IN LIMERICK 1  
CONFINEMENT DRAWING

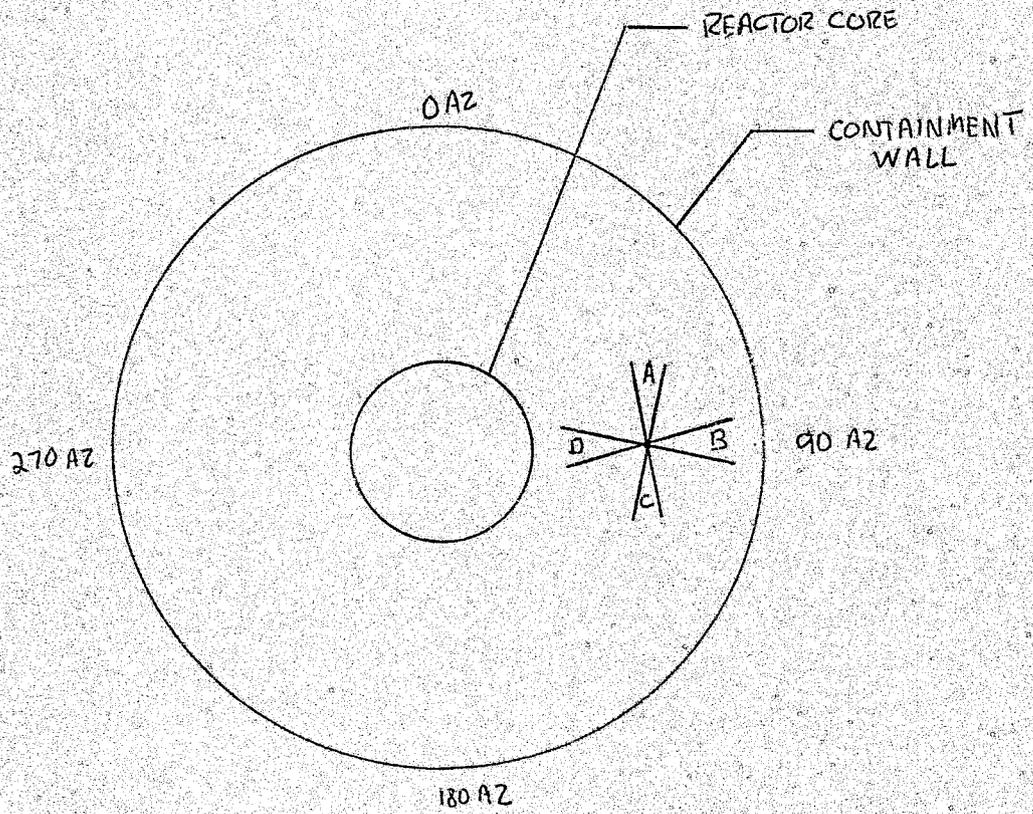
MAR 2 1936

EXHIBIT  
HOLDER

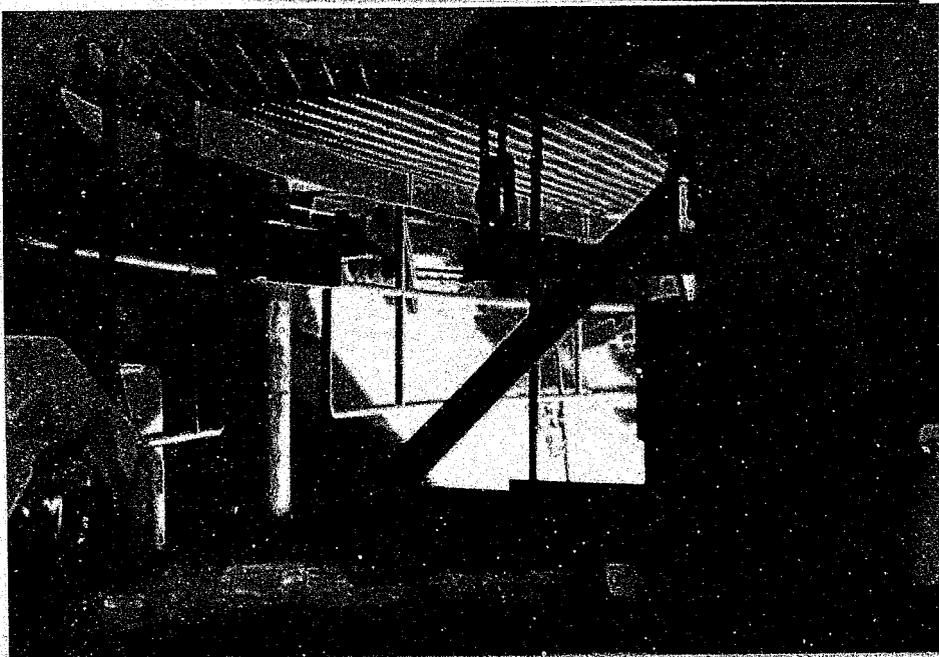
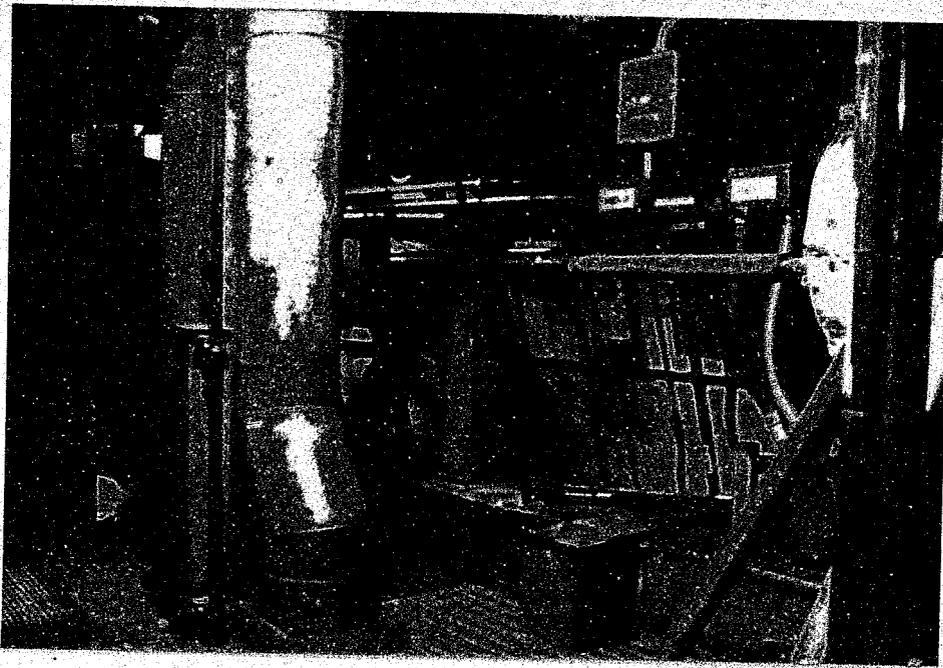
FEBRUARY 19, 1936

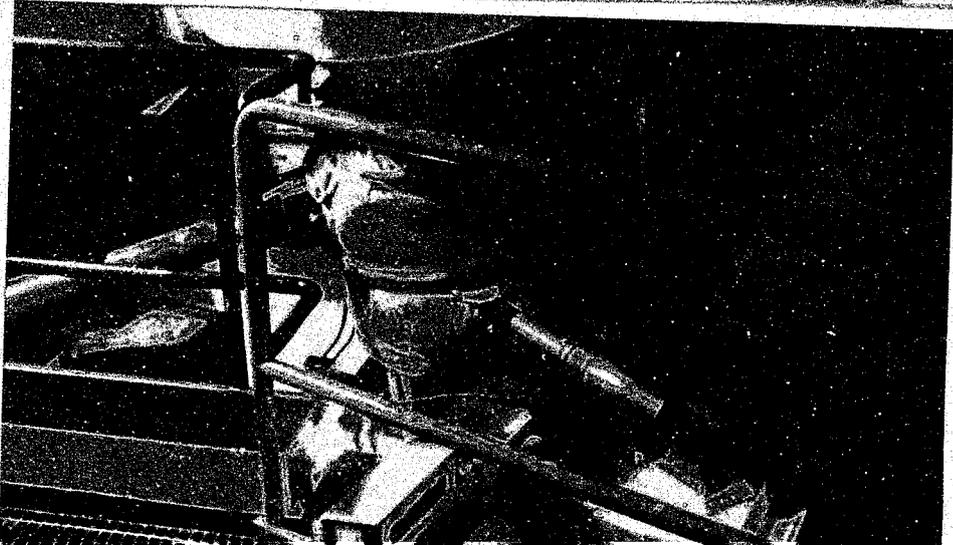
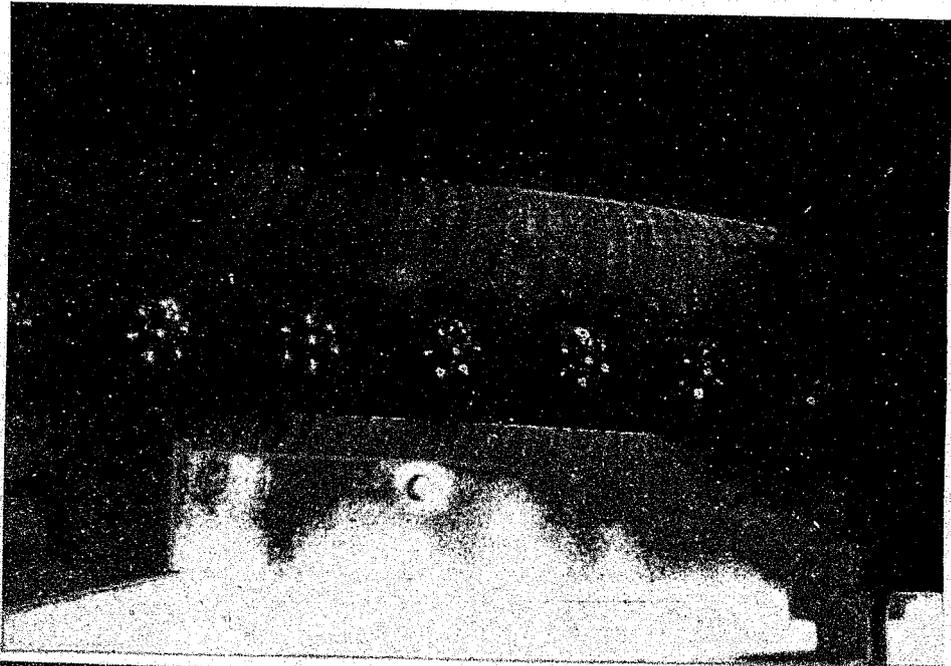
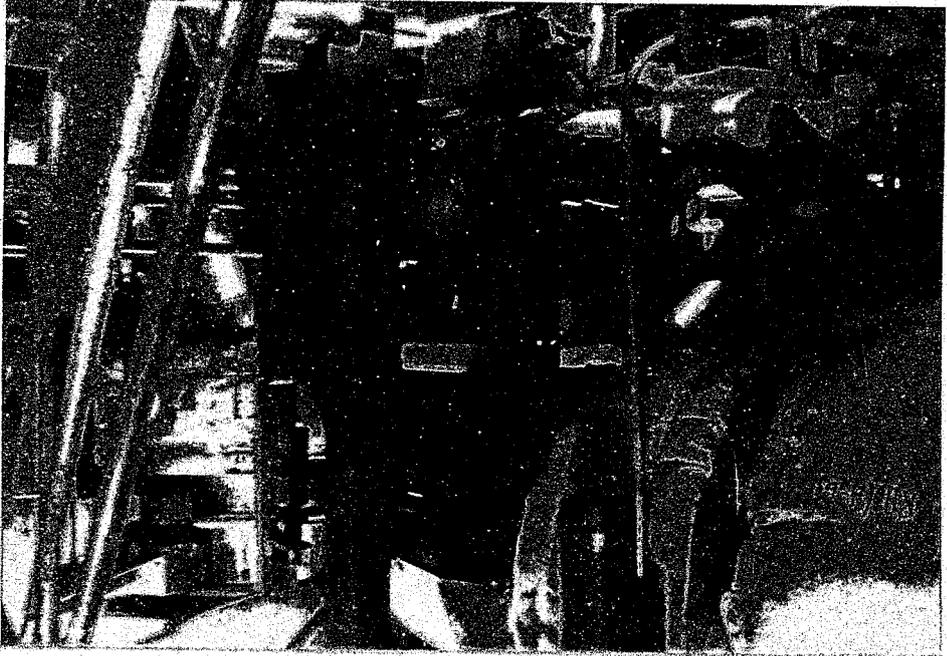
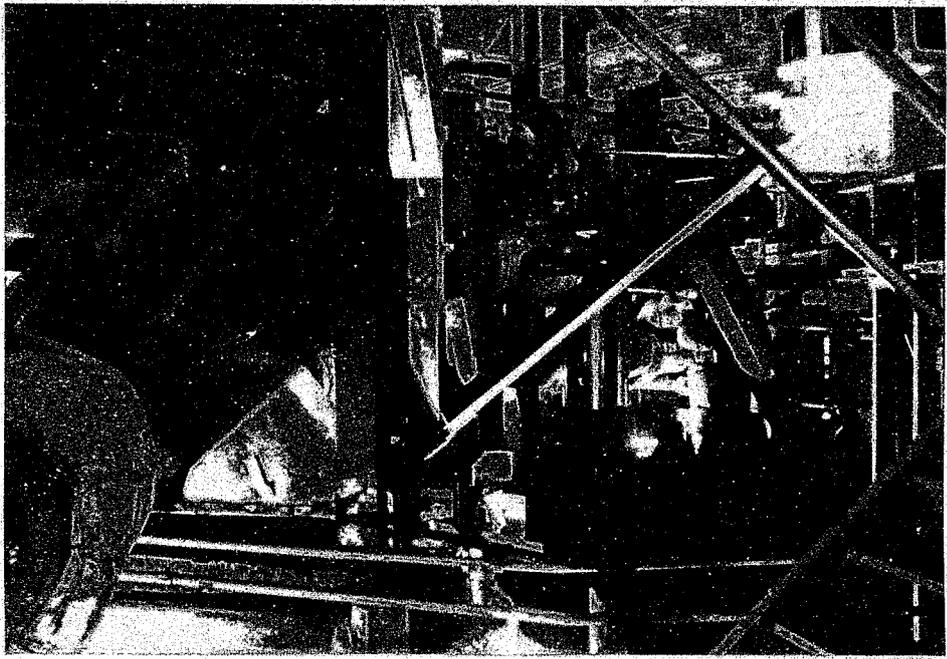
This Exhibit contains photographs which depict the containment drywell at Limerick. These photographs which were selected under the direction of Mr. James J. Clarey, were taken at various elevations within the drywell and illustrate the substantial additional commodities which had to be installed in order to construct a licensable plant. These commodities include large and small pipe, pipe hangers, cable tray and conduit. As indicated by these photographs, these additional commodities resulted in increased congestion and design complexity and, therefore, substantially contributed to the restrictive manpower density limitations in the drywell and other plant areas.

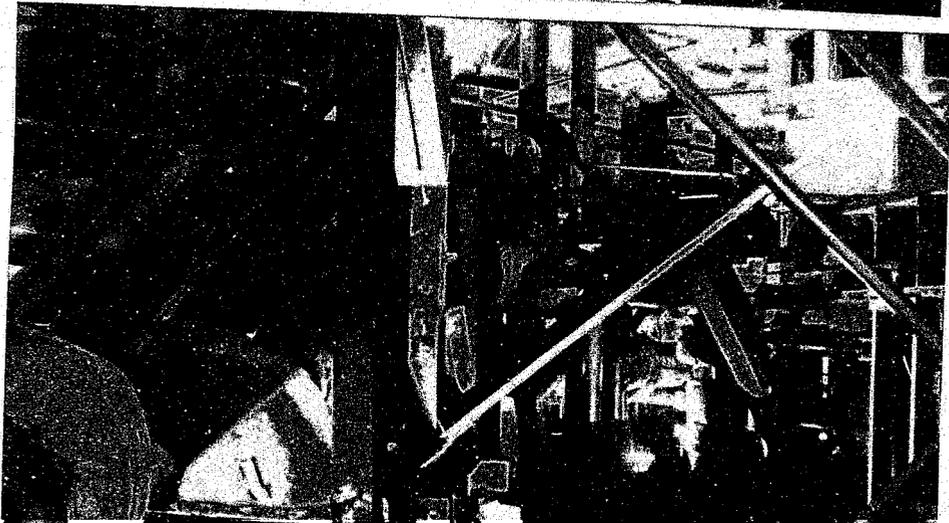
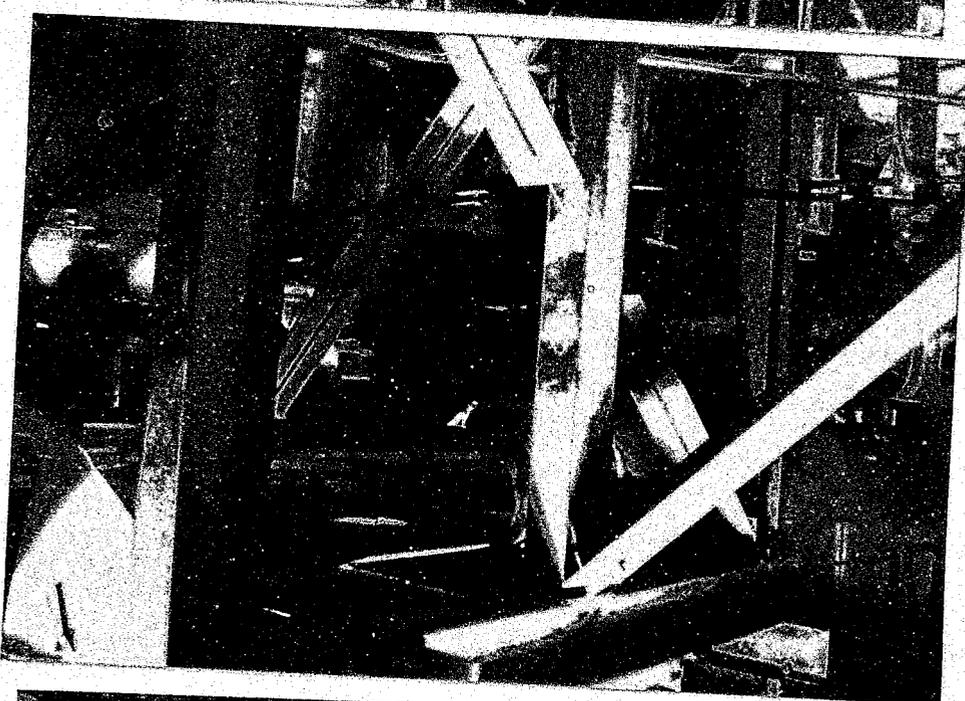
# LEGEND

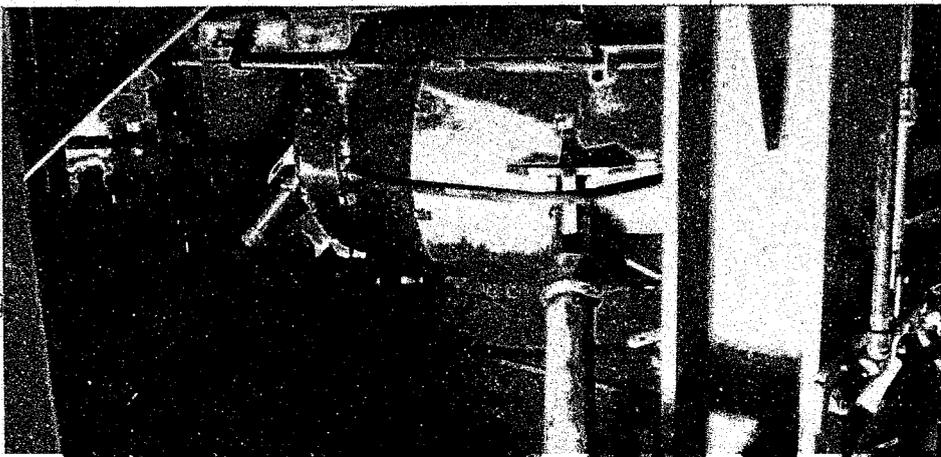
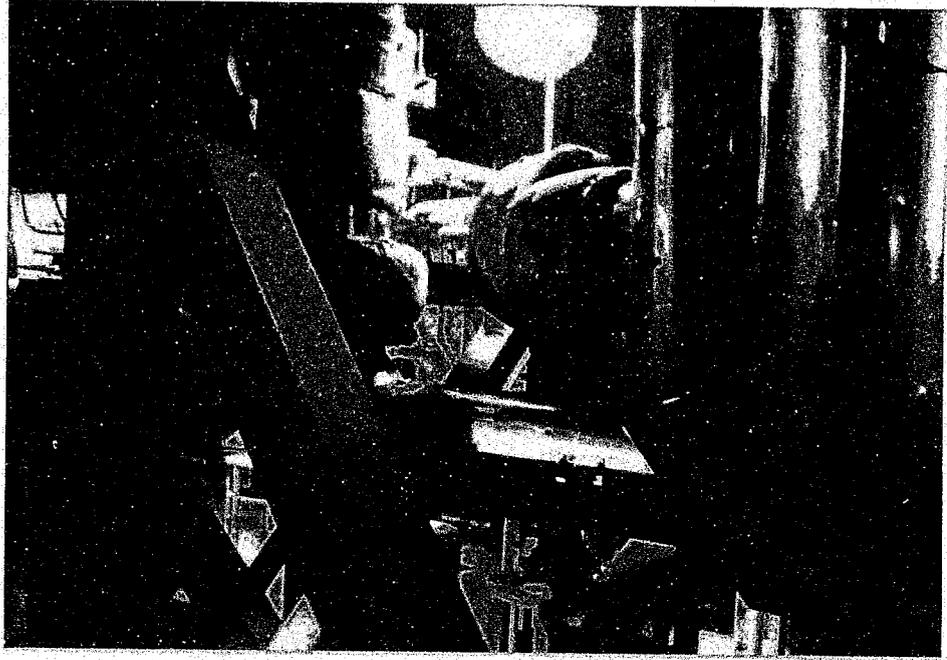
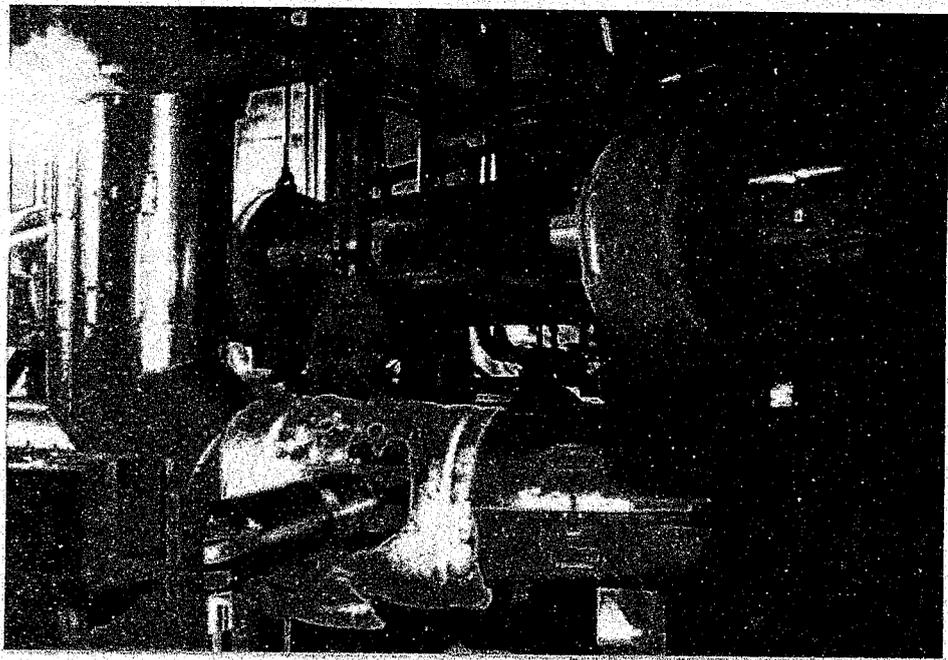


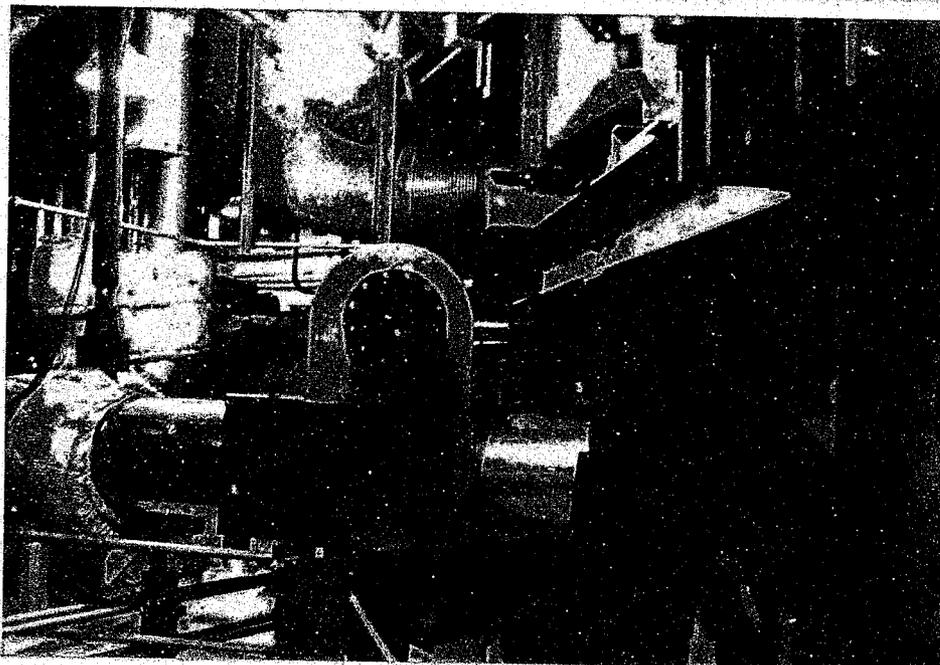
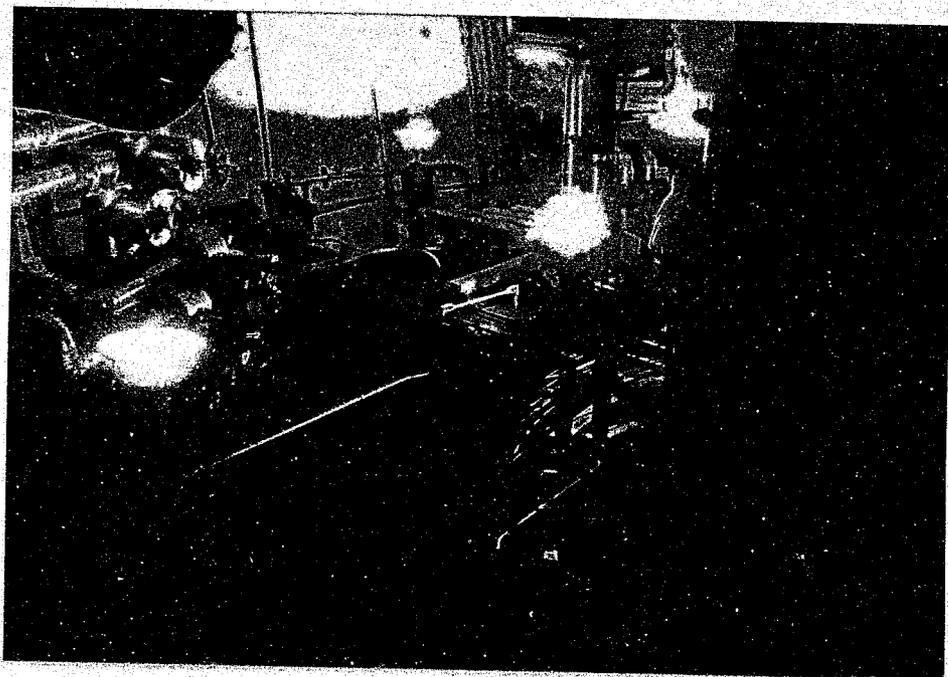
- SHOT A  $\Rightarrow$  90 CCW
- SHOT B  $\Rightarrow$  90 CCW (C)
- SHOT C  $\Rightarrow$  90 CW
- SHOT D  $\Rightarrow$  90 CCW (R)

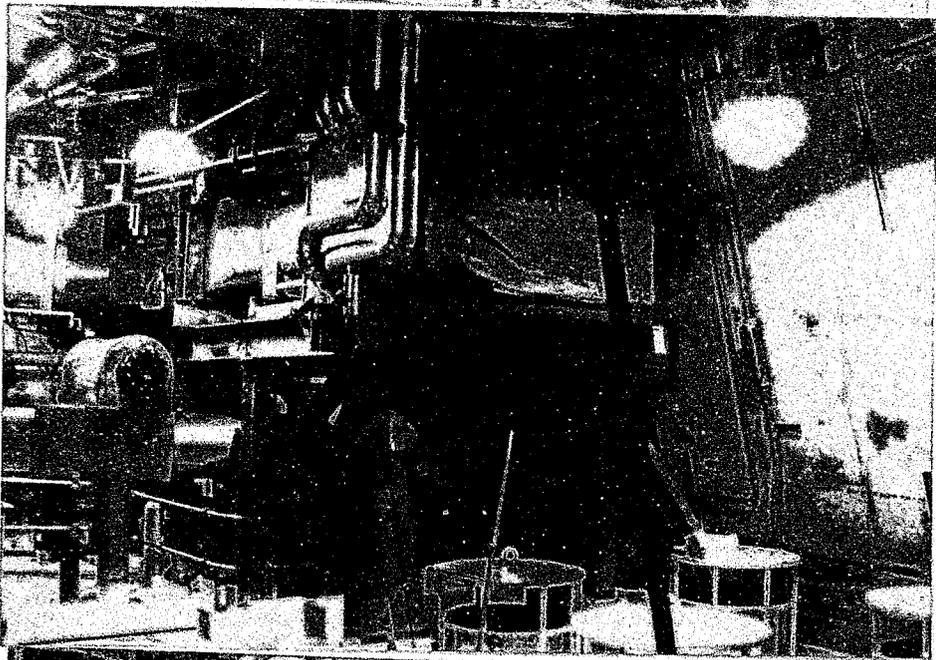
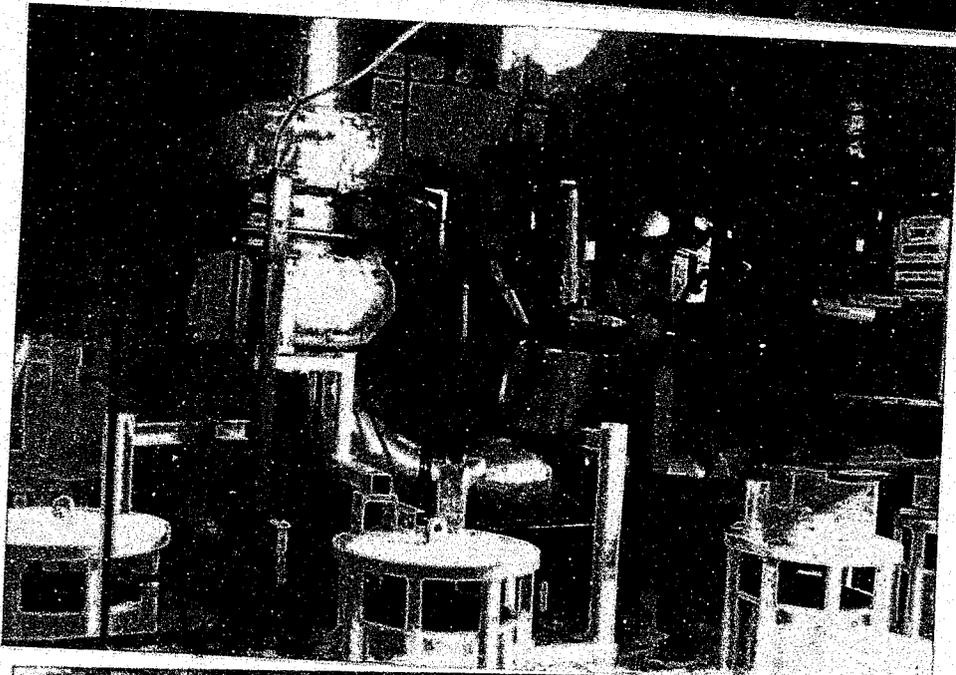
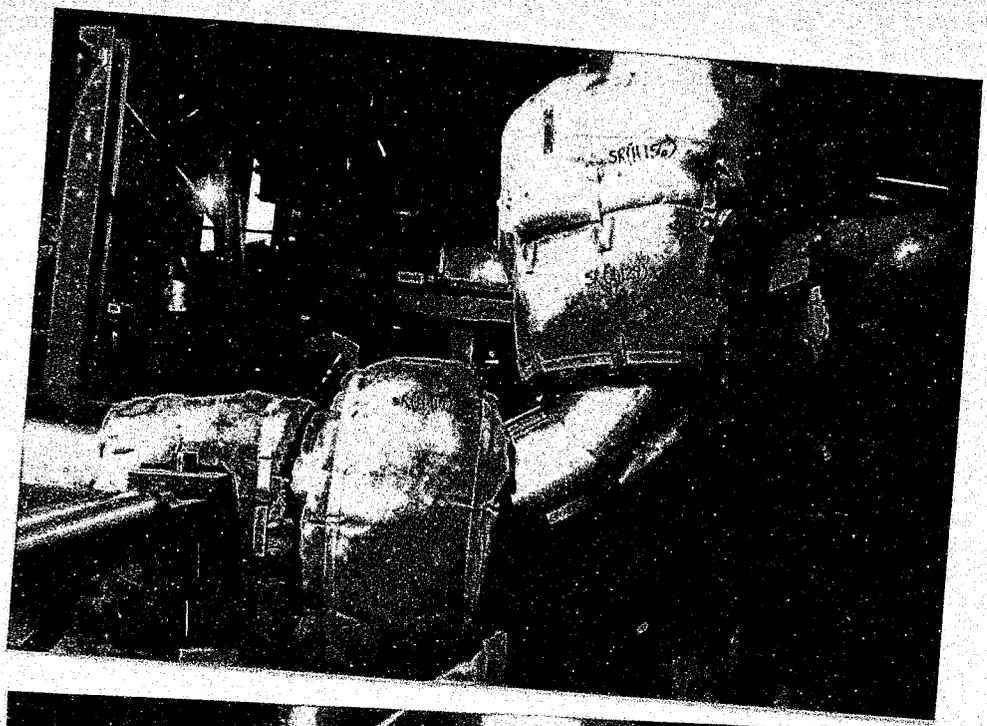


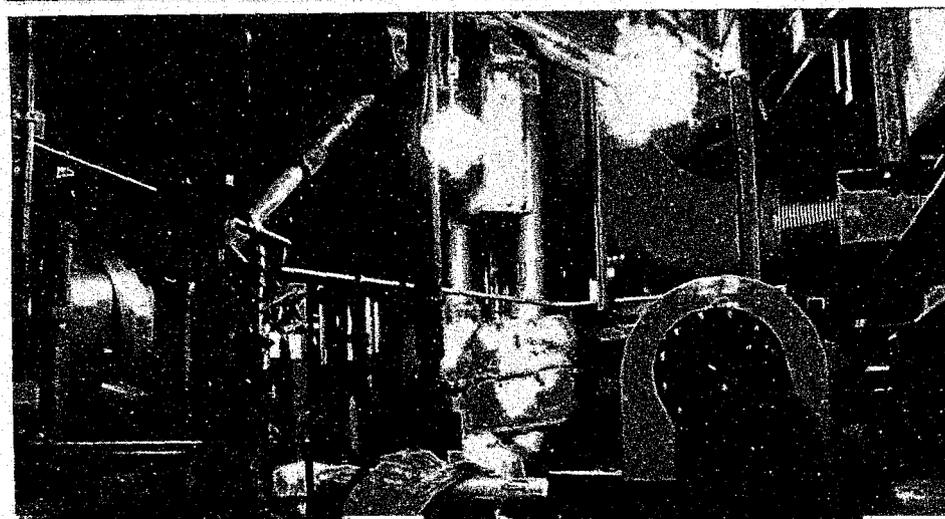
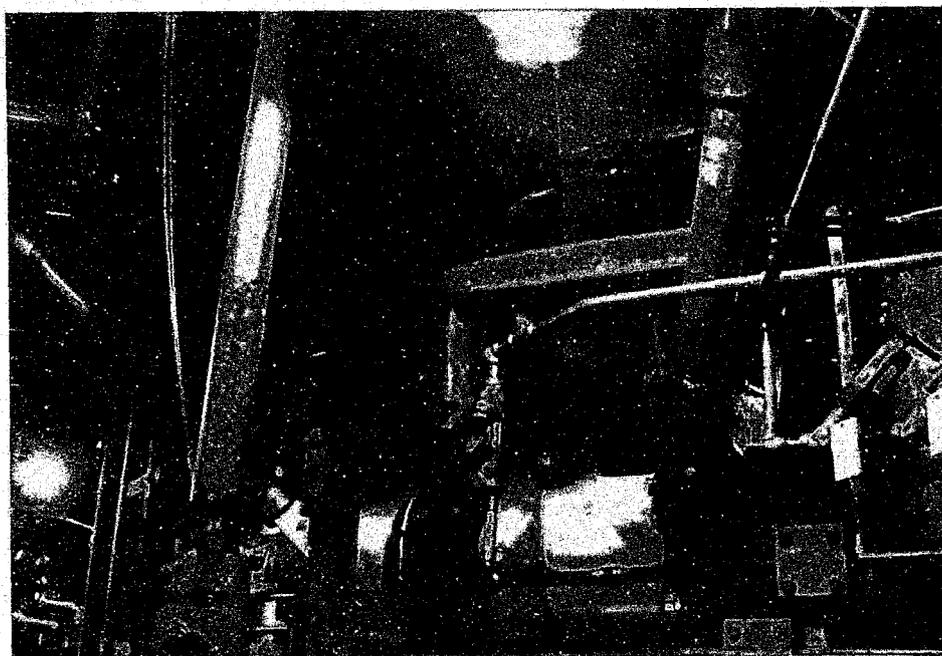
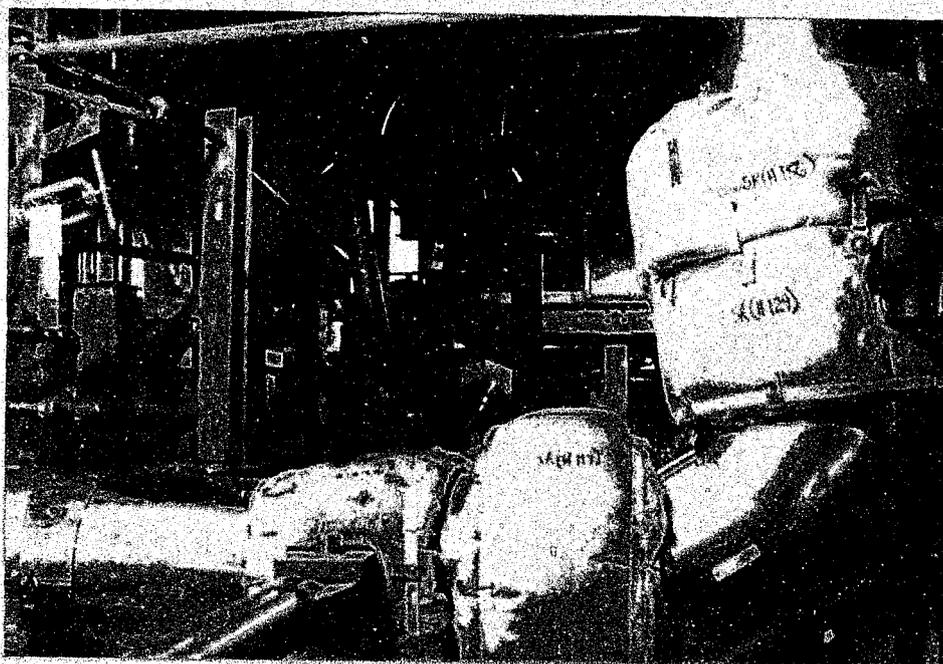


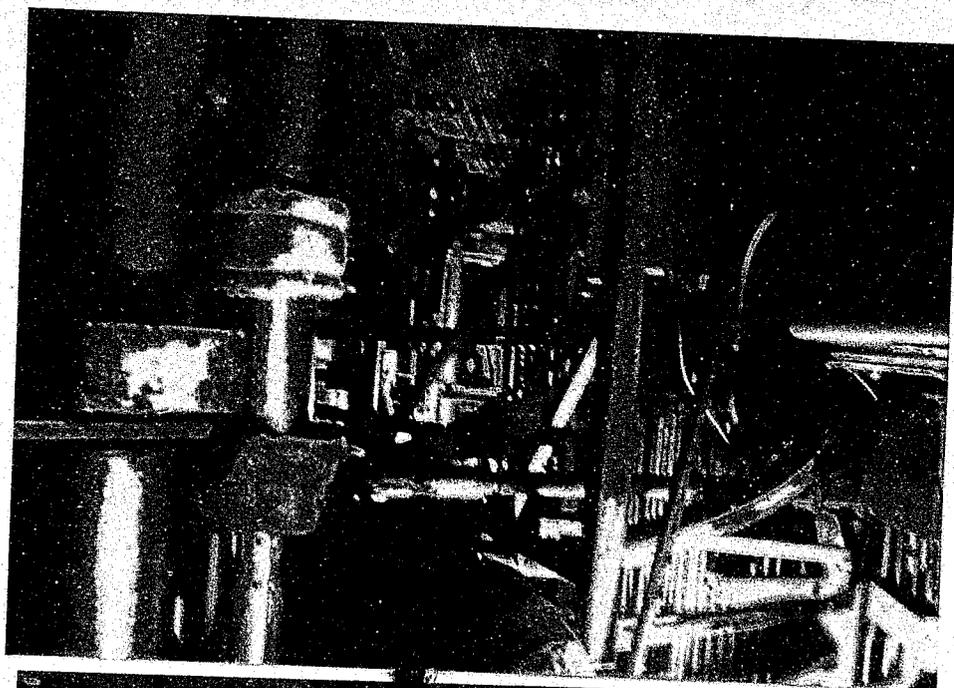


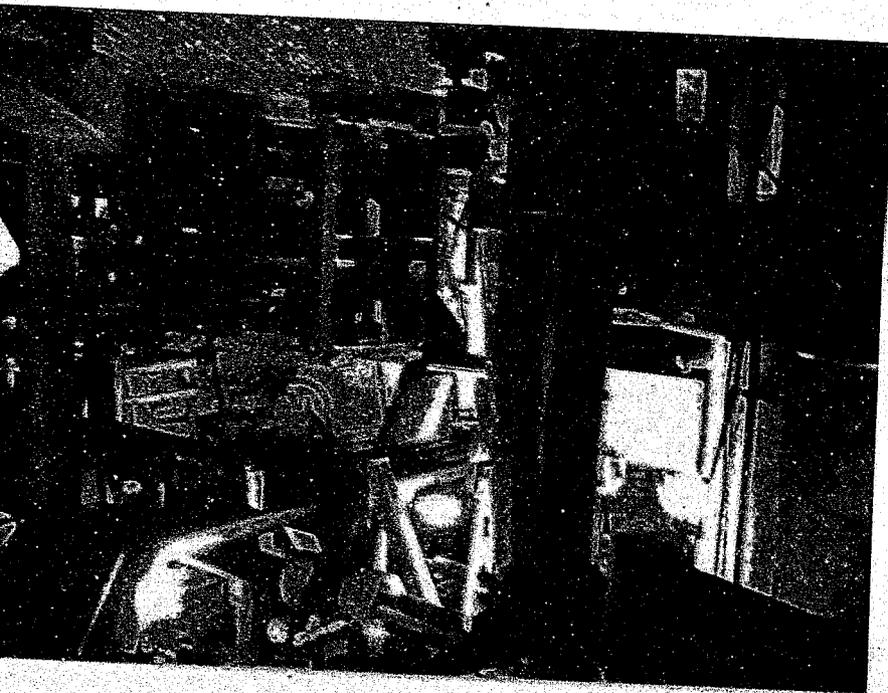
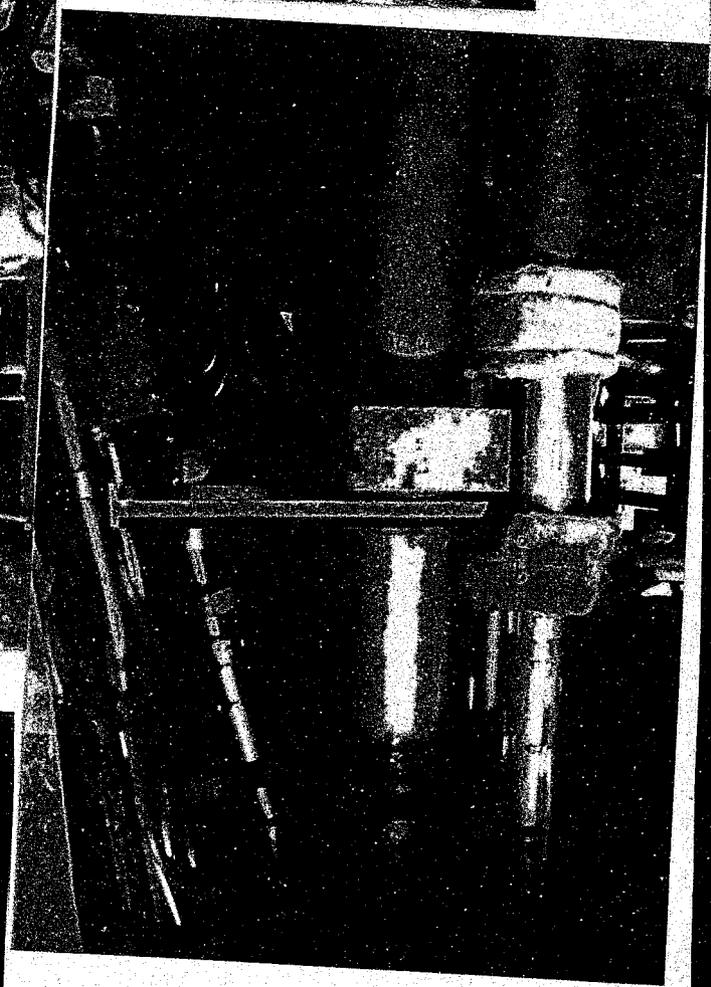
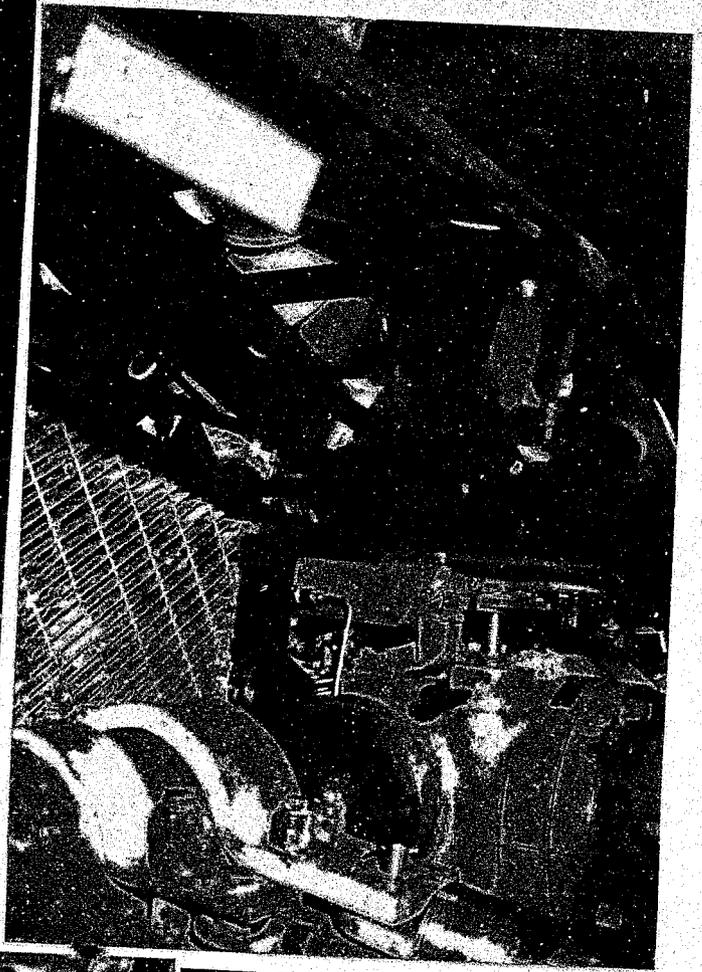


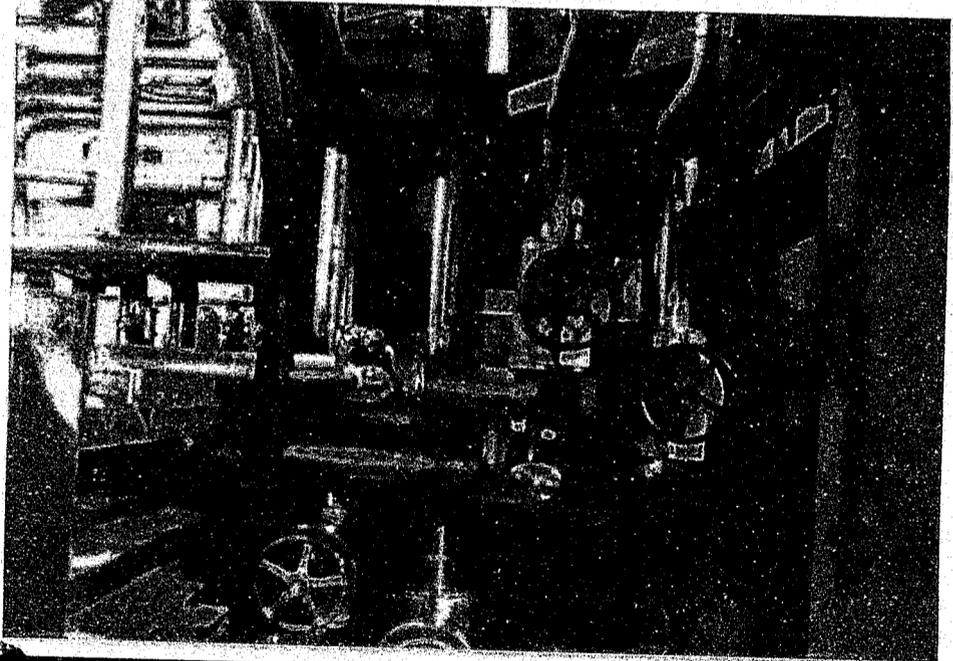
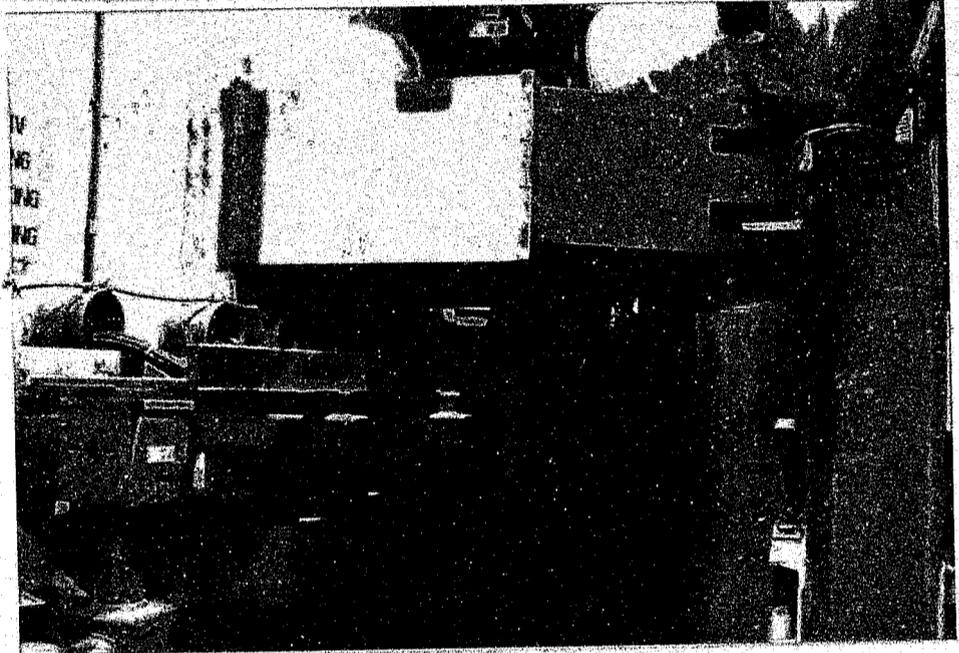
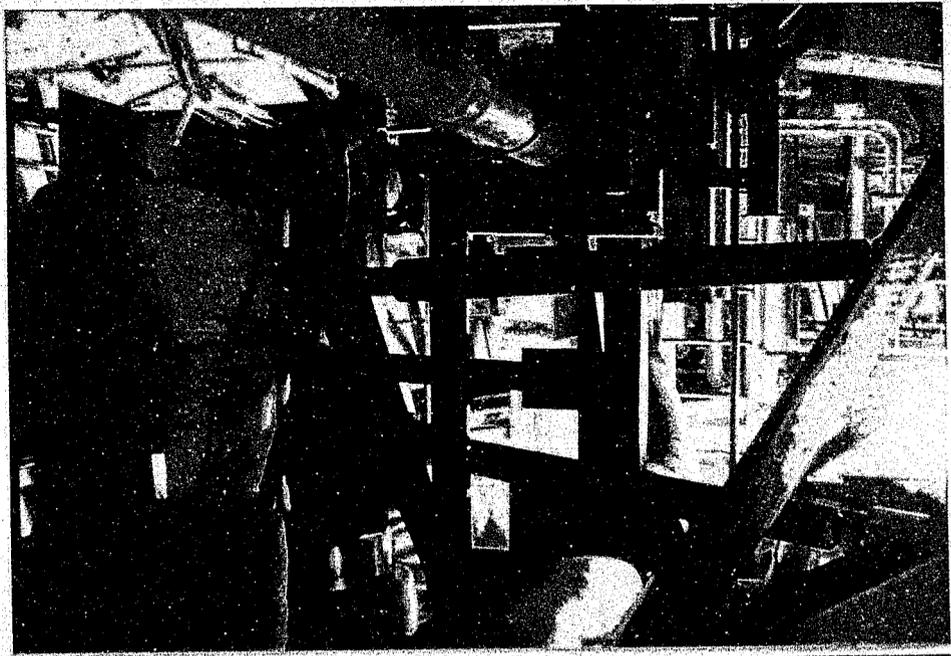


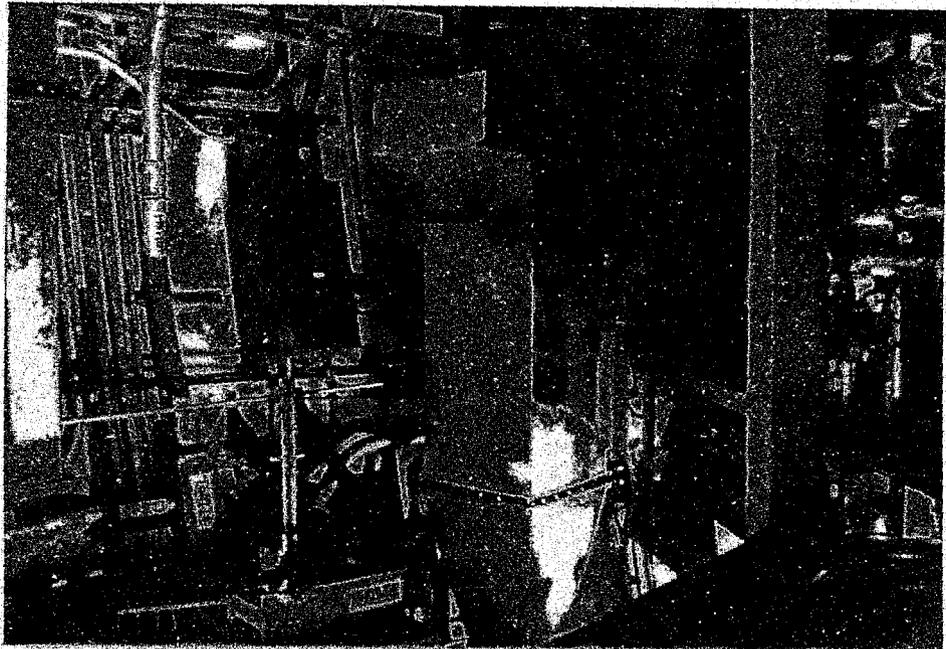
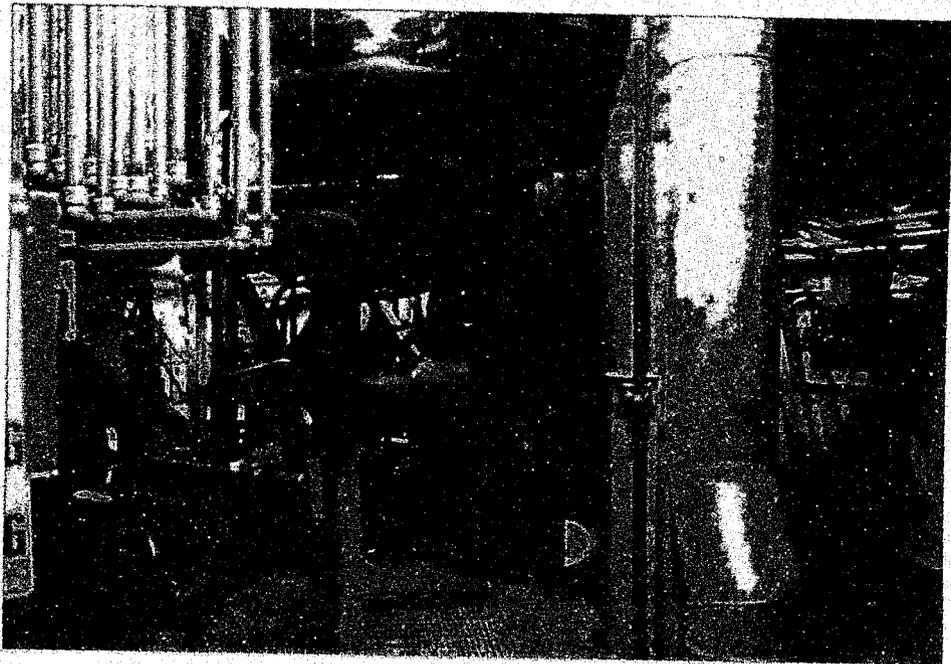
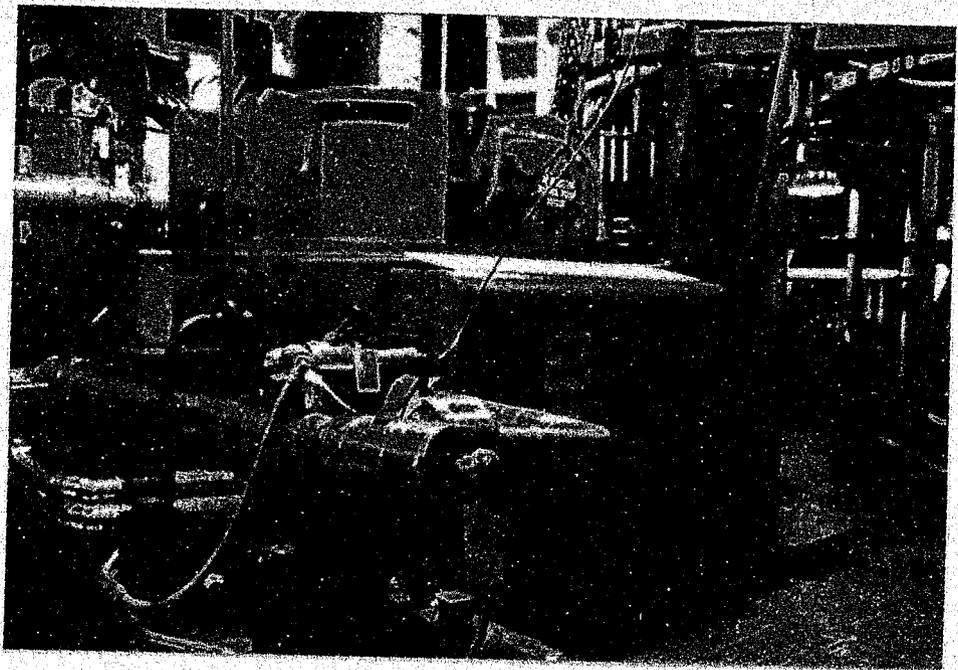


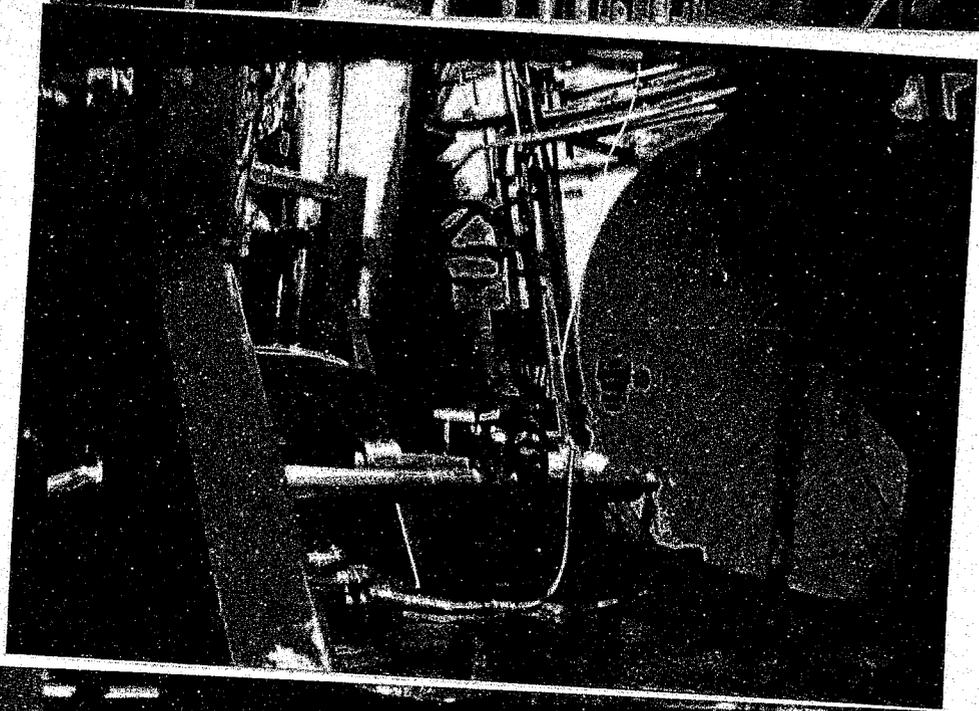
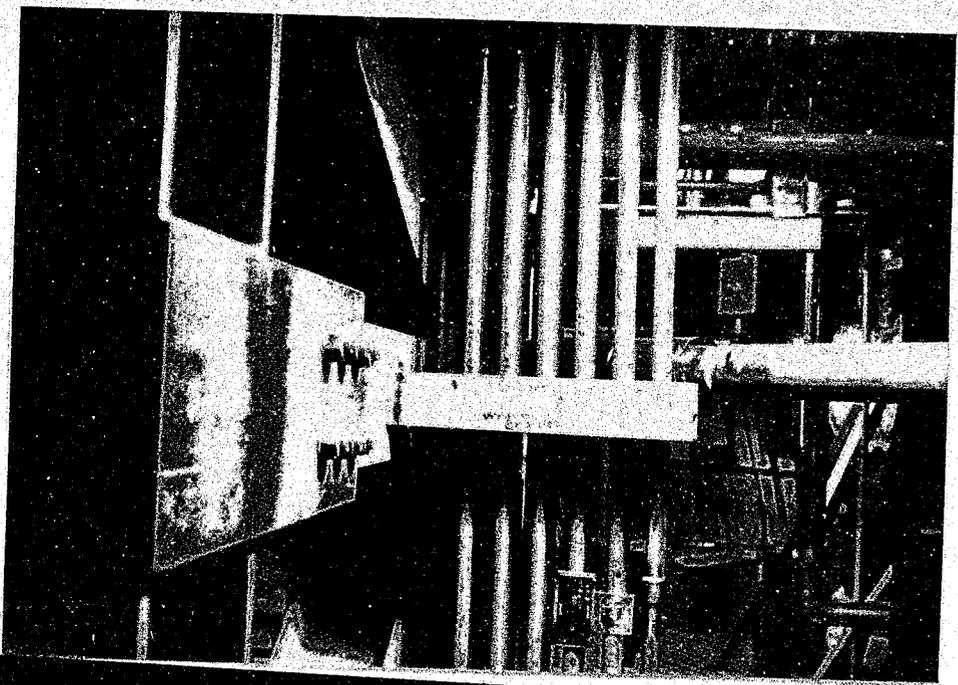


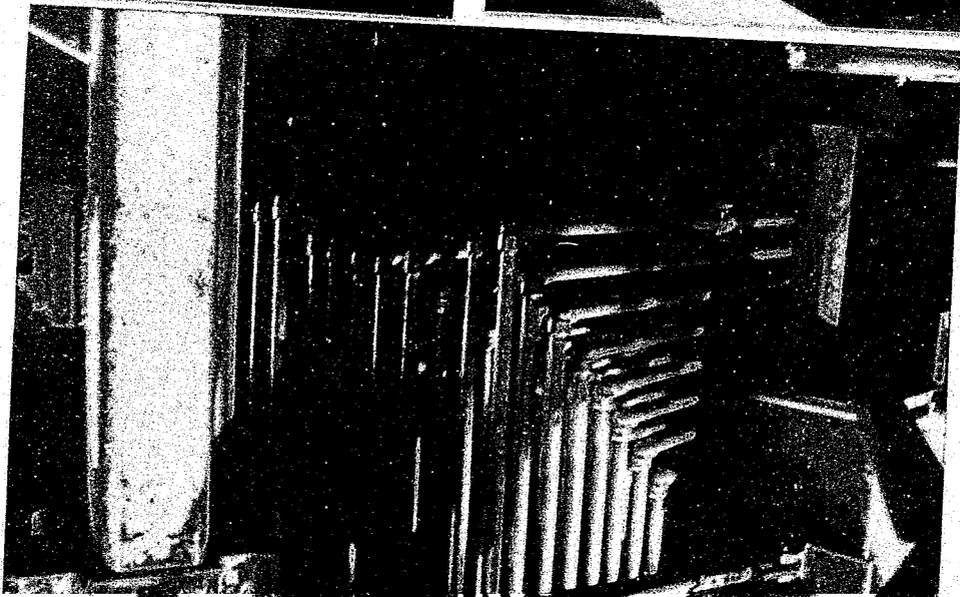
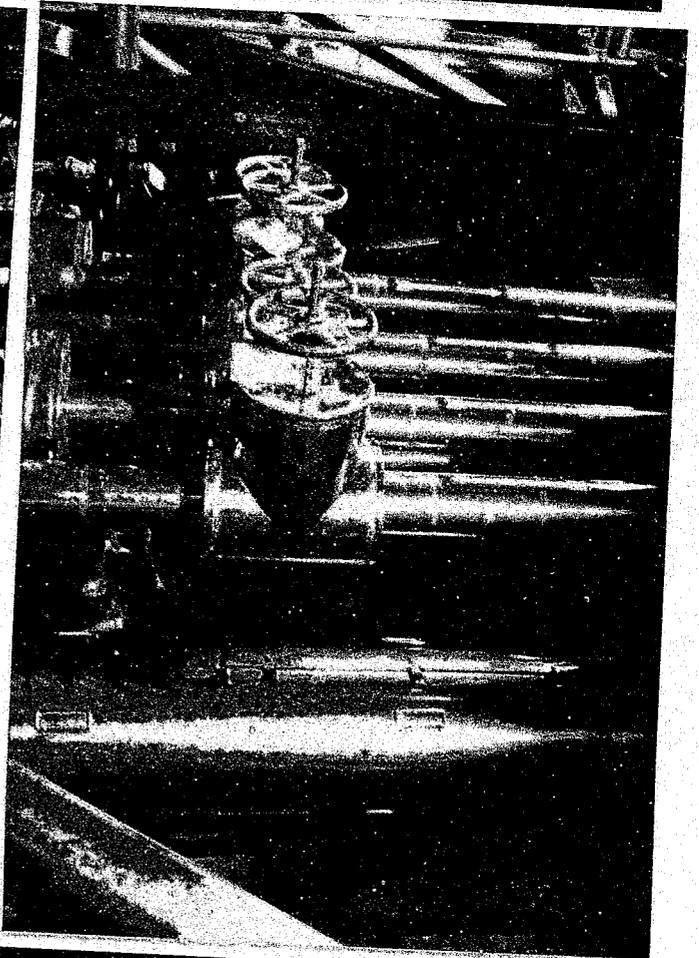
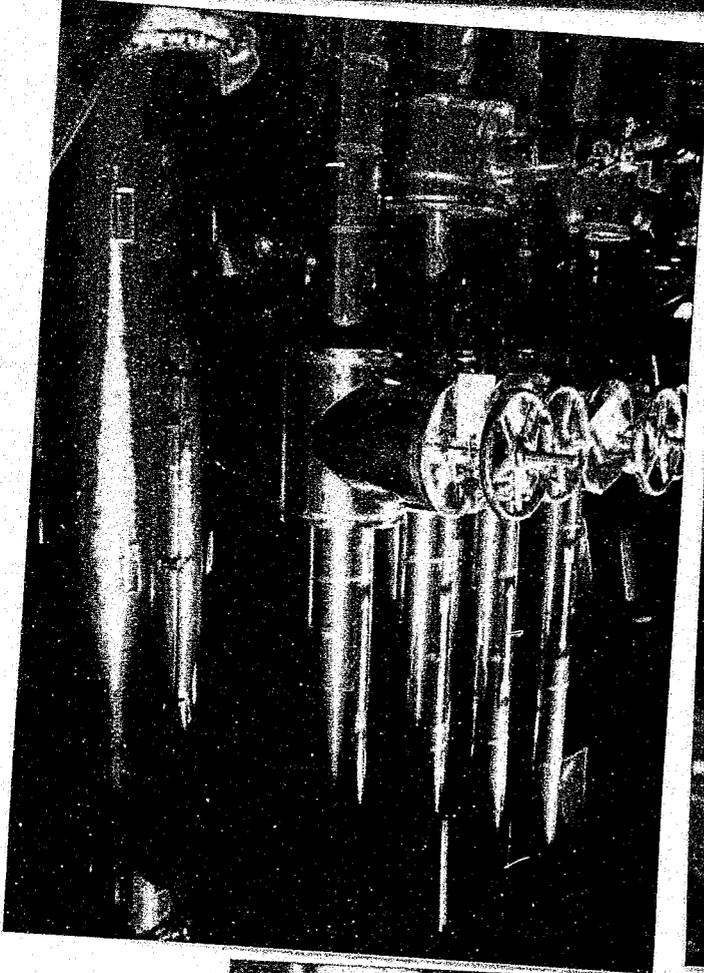
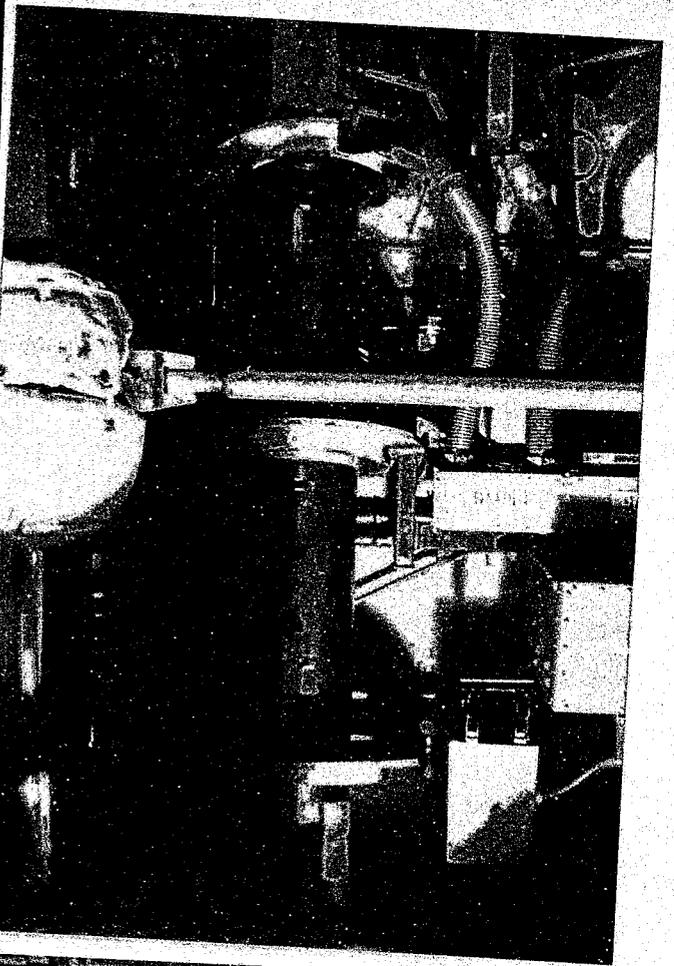
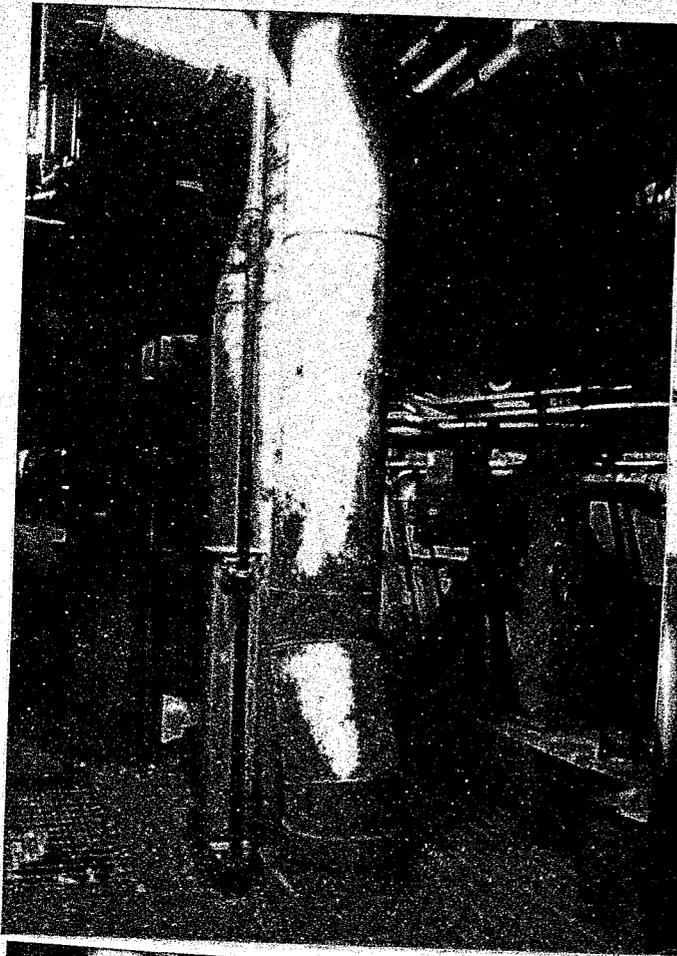


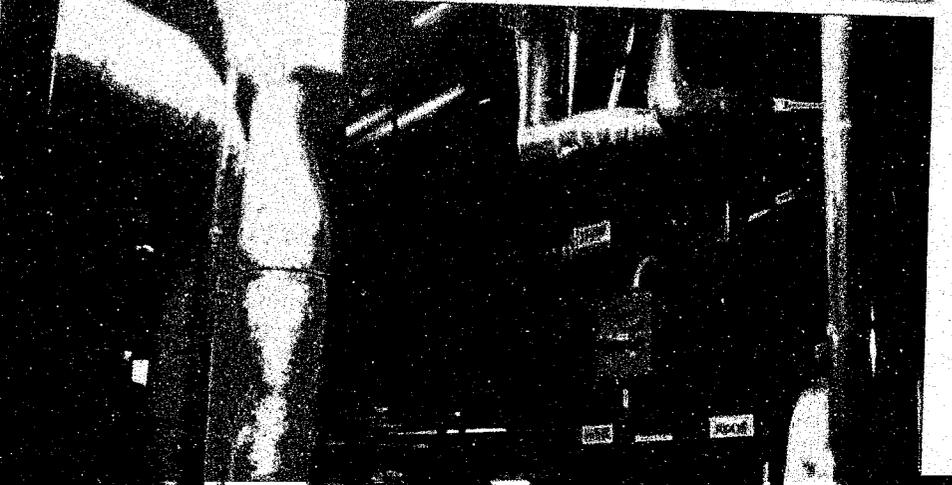
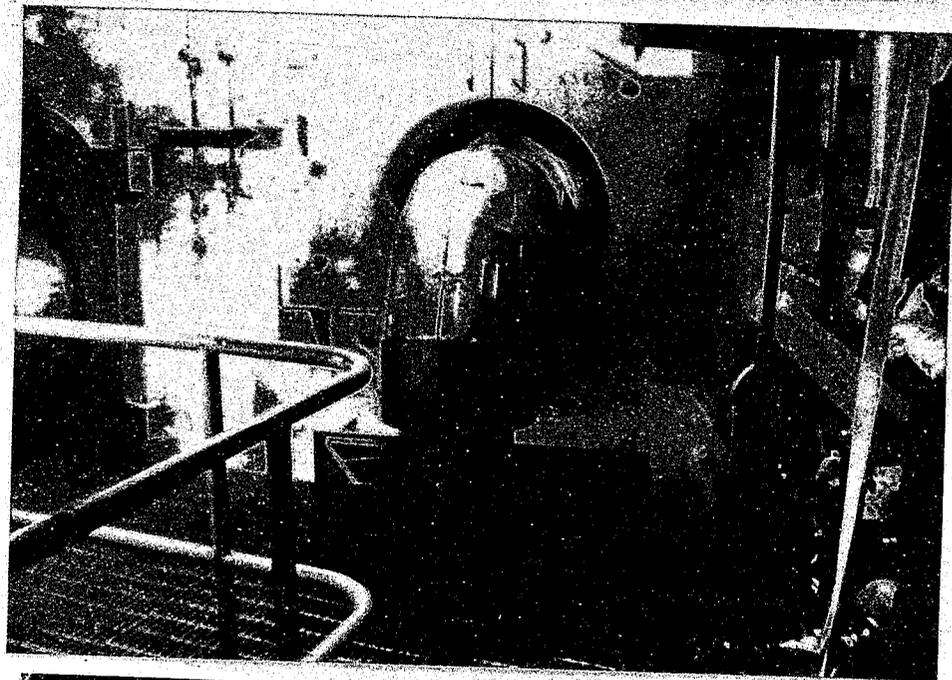
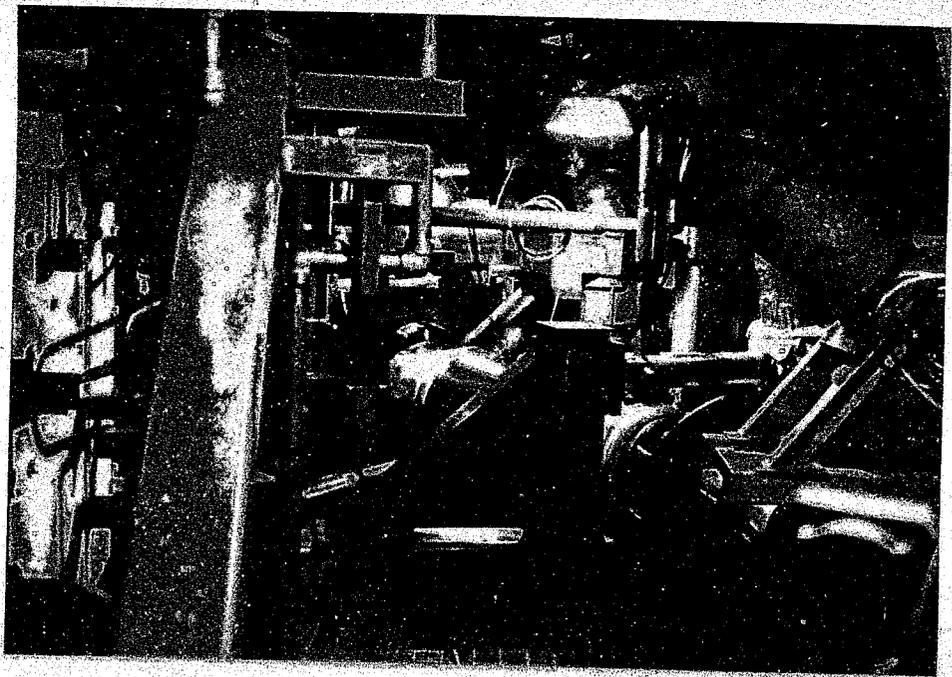


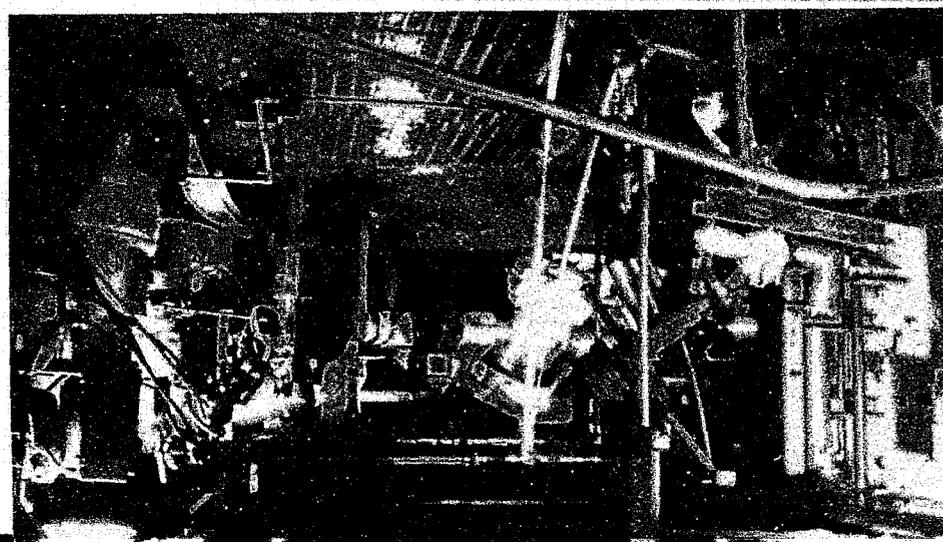
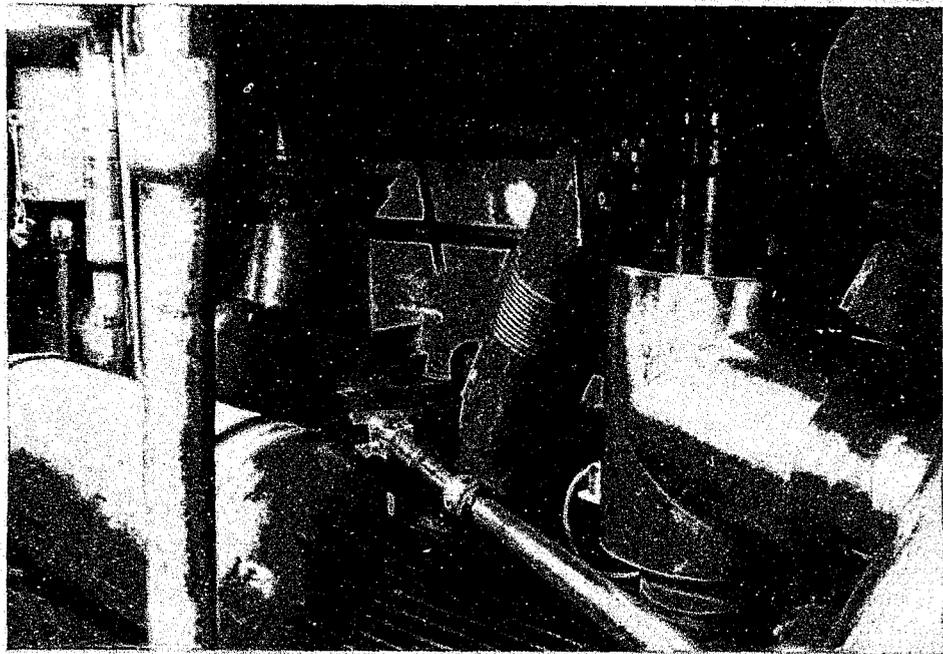
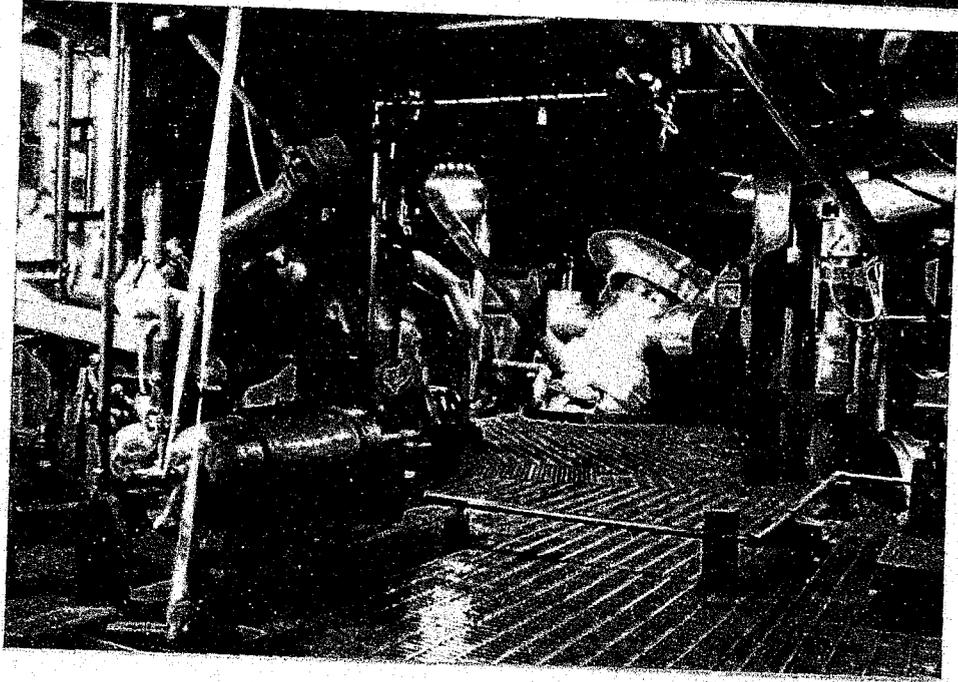
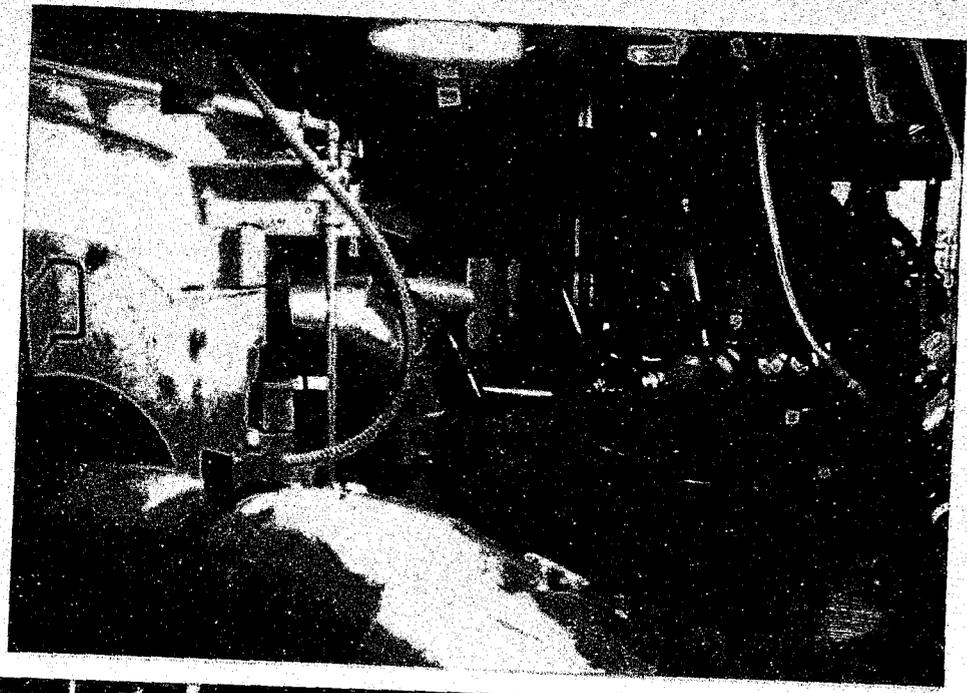


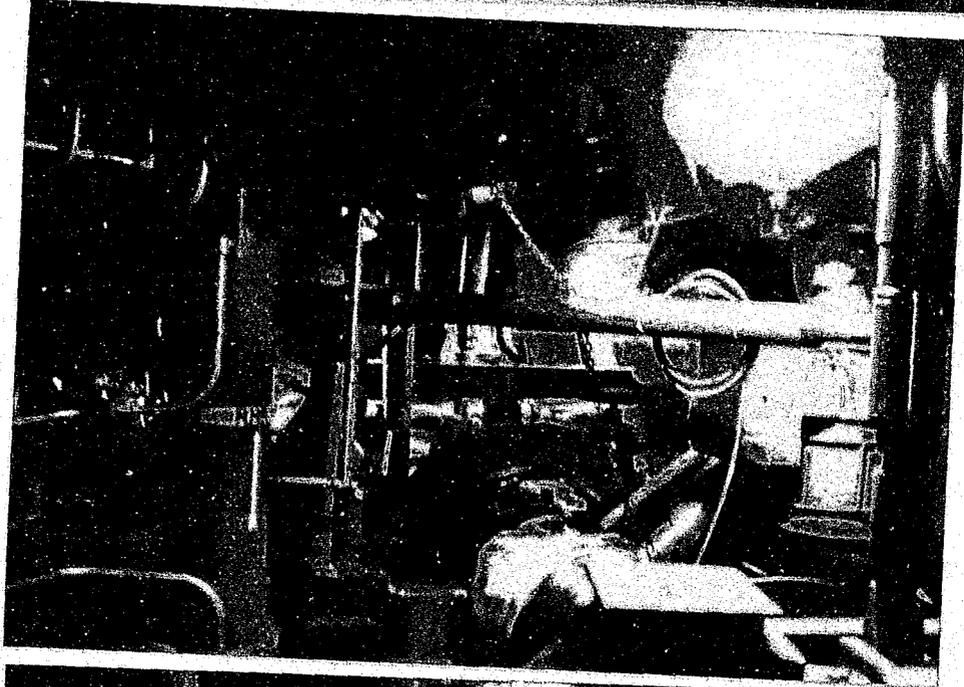
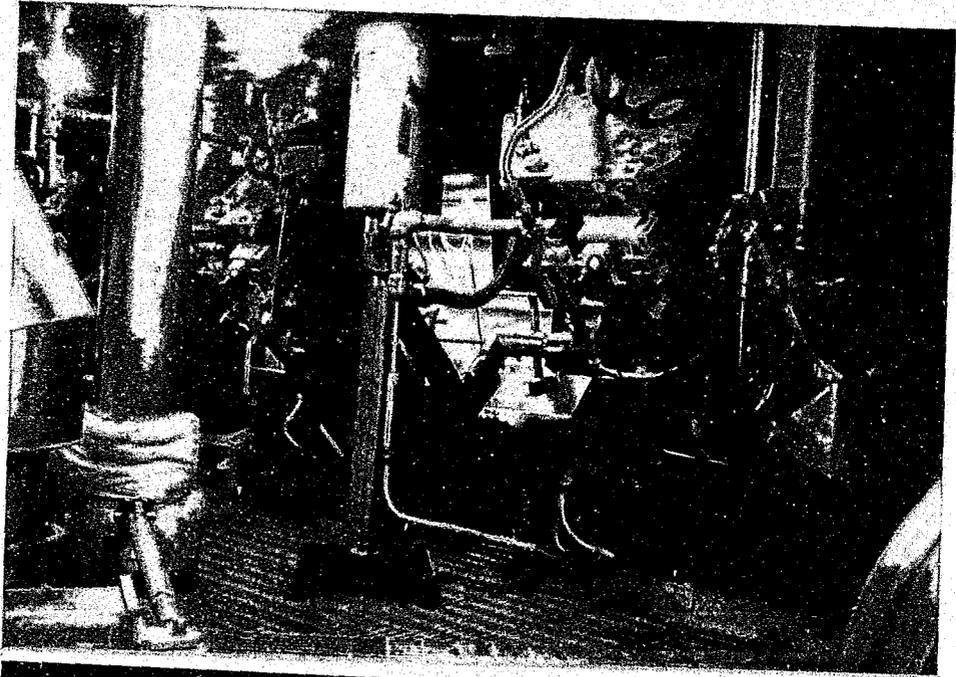
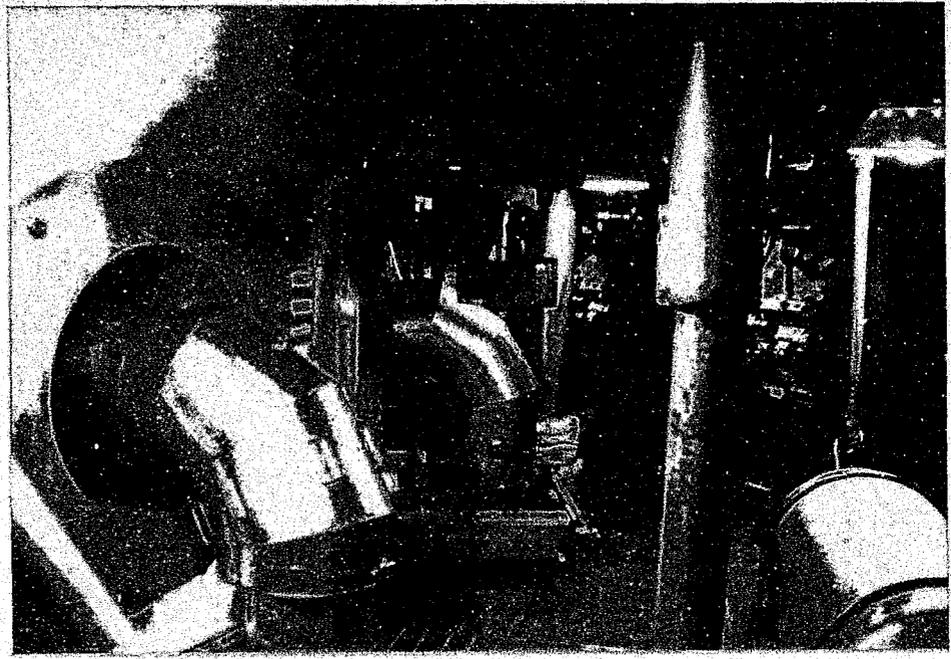


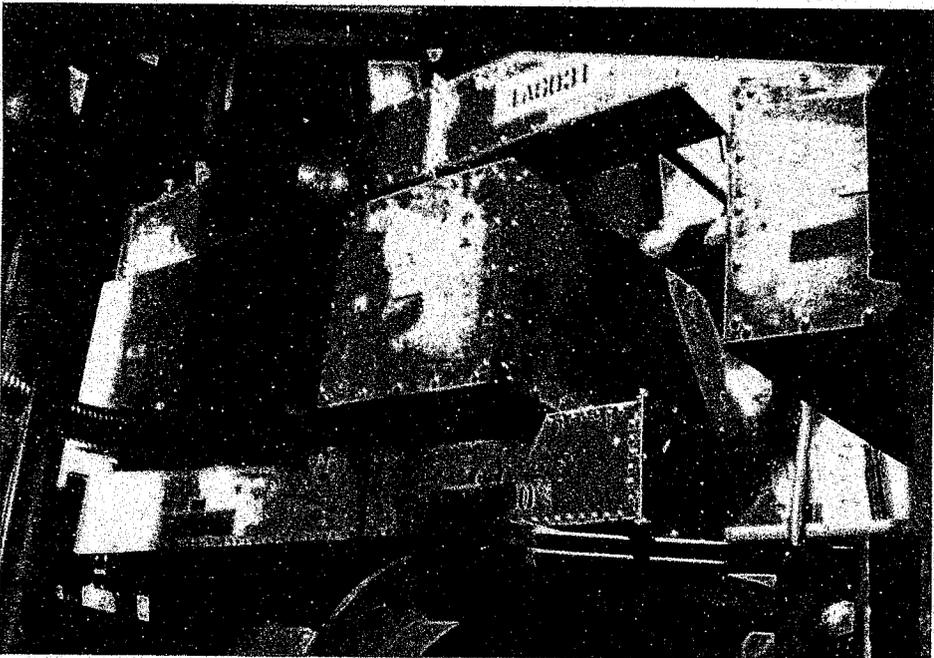
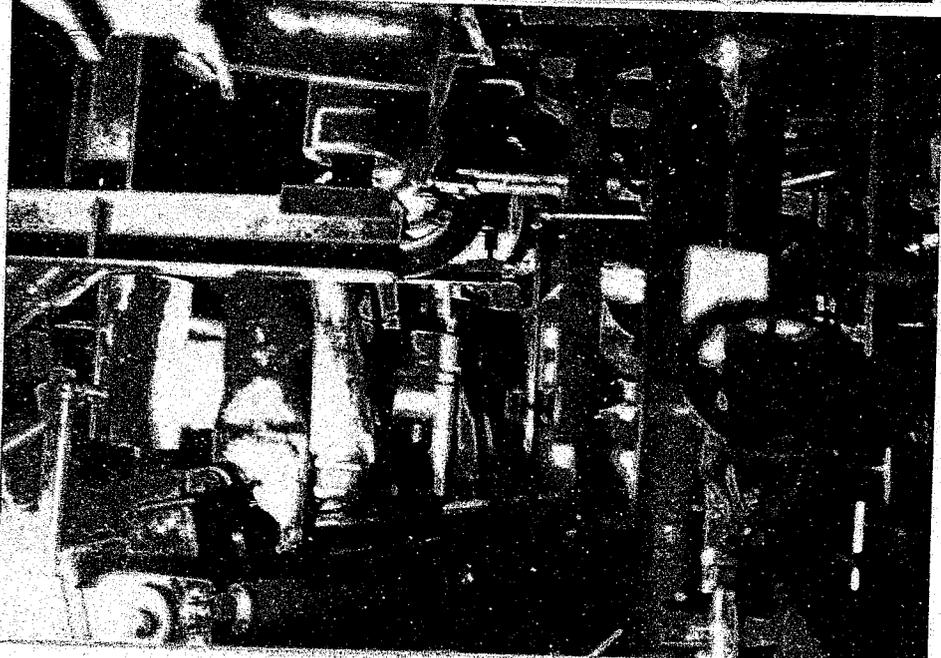
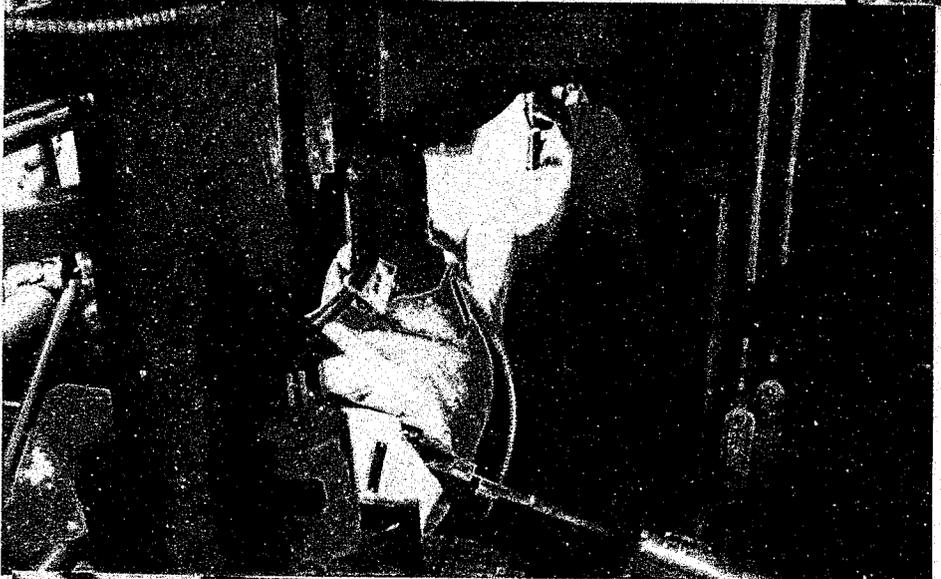
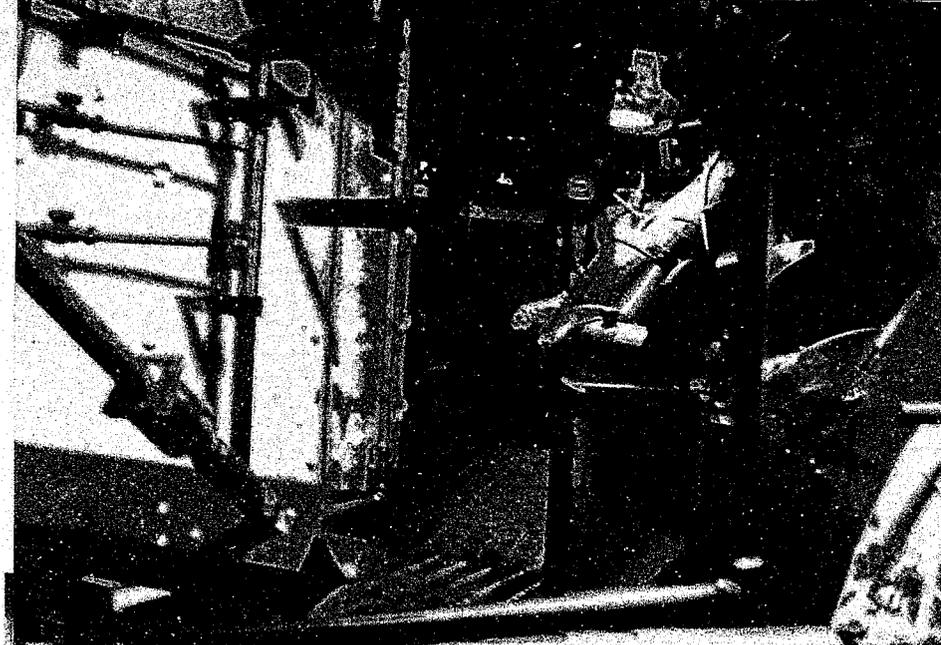


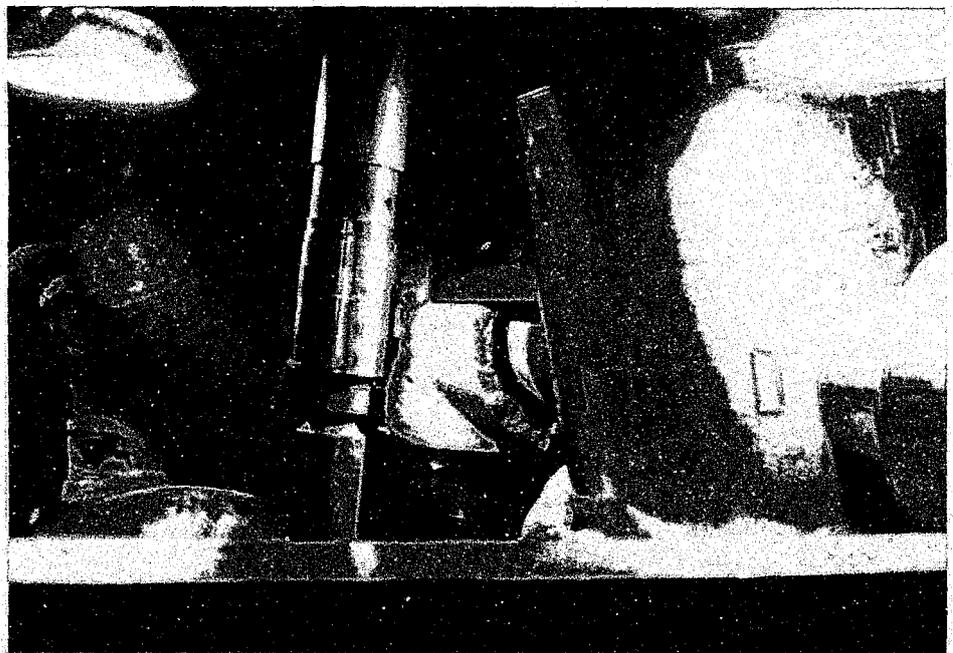
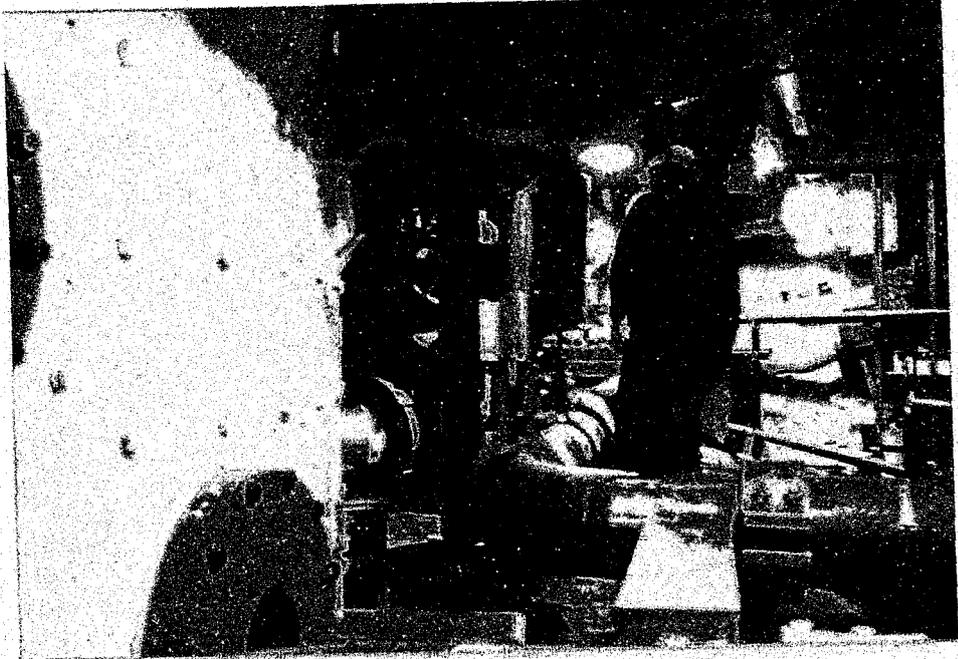
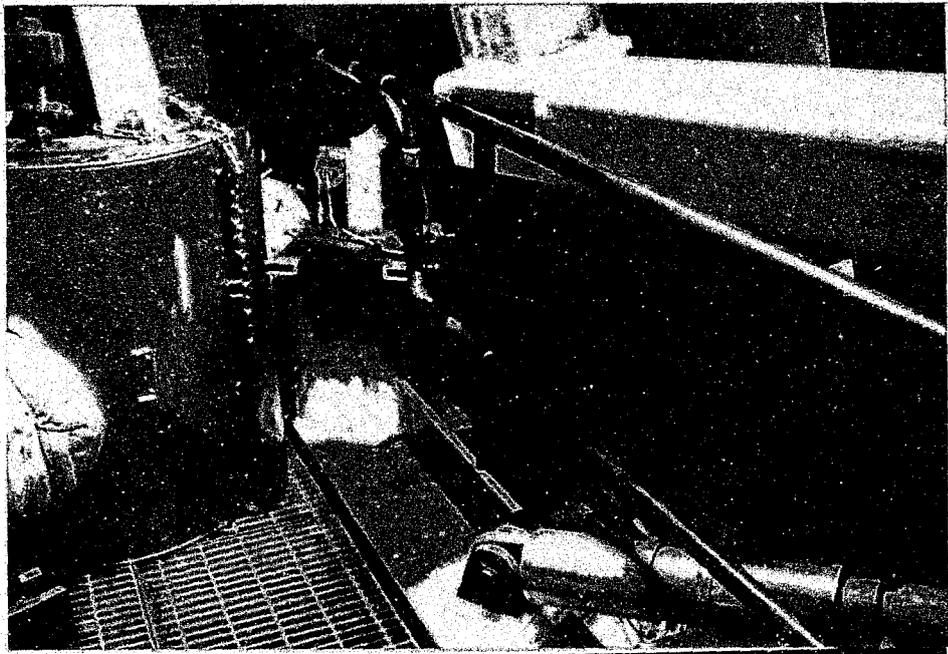


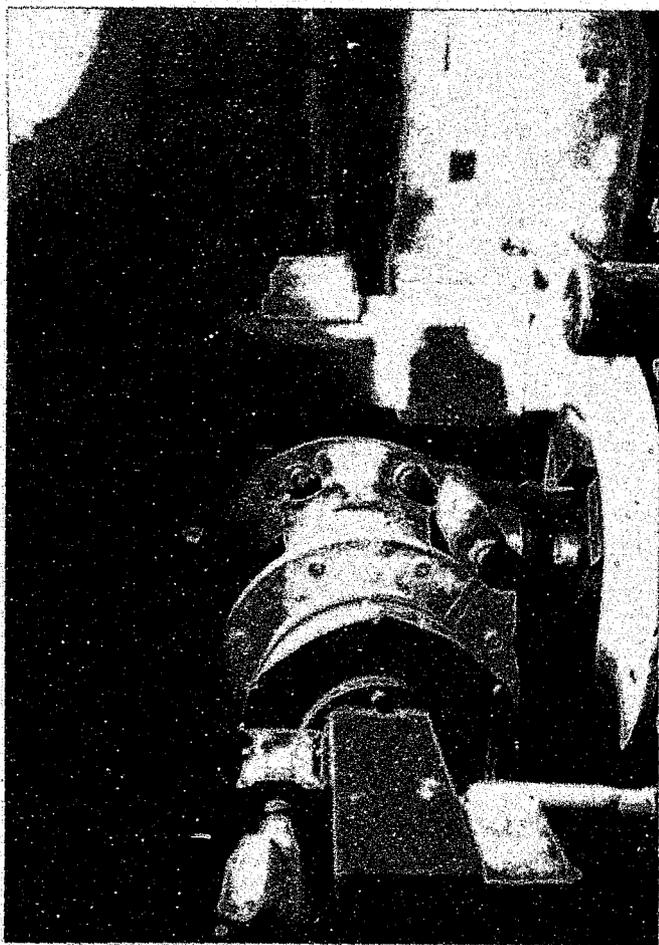
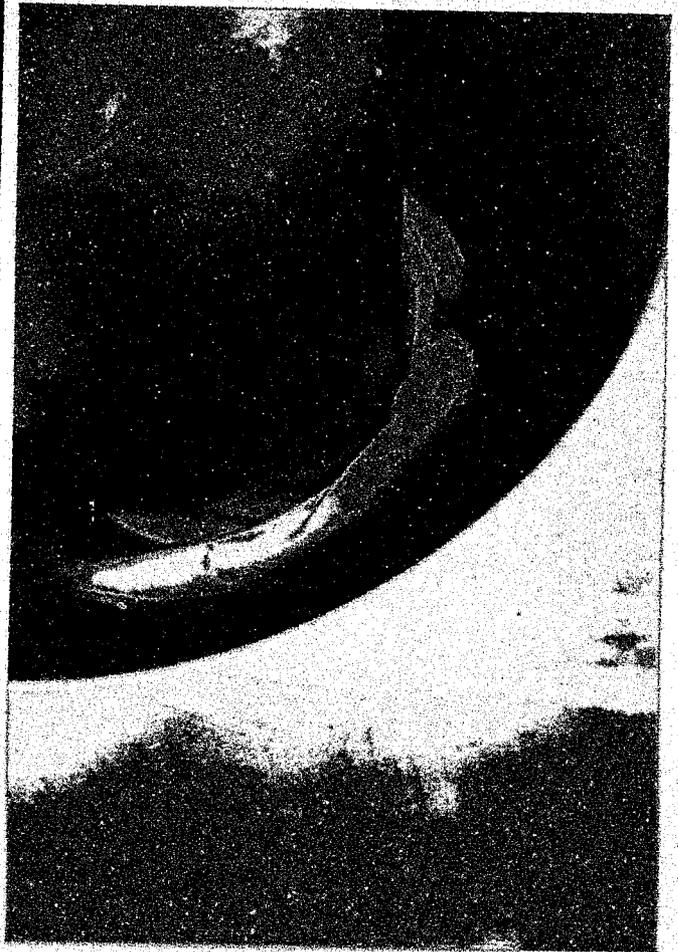
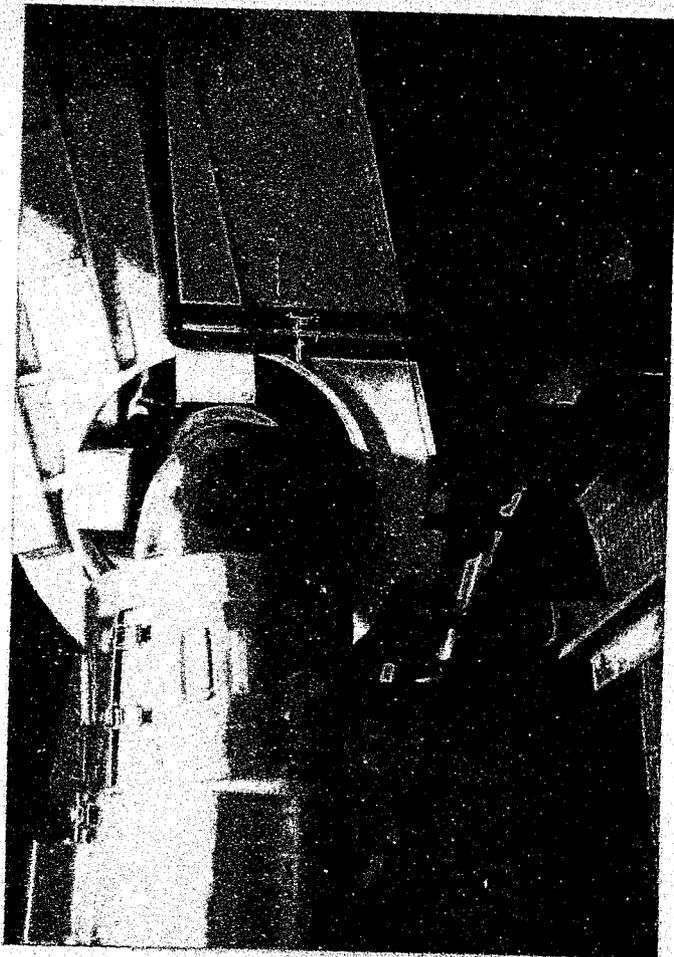


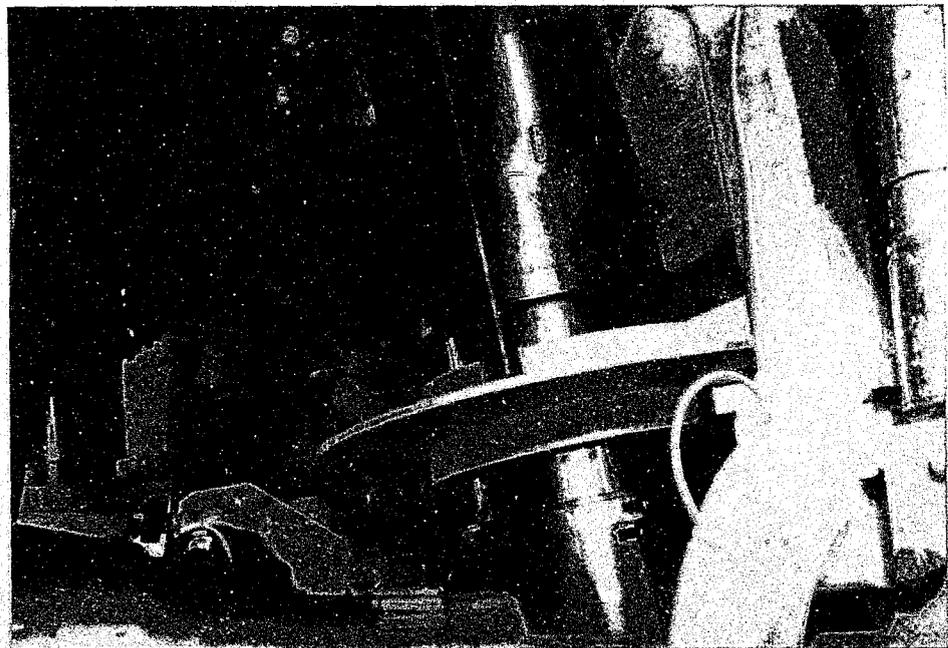
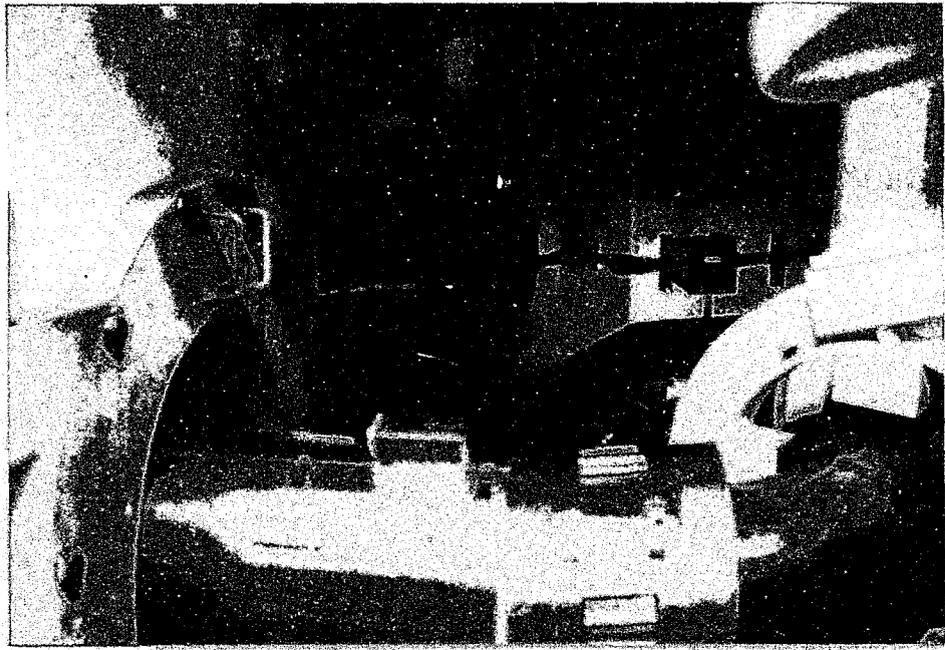
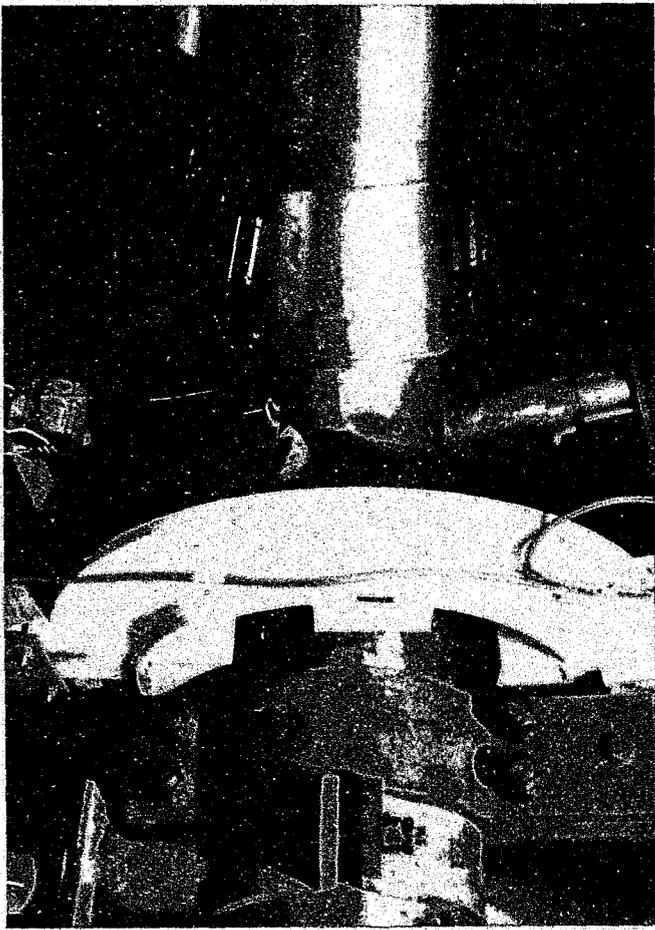


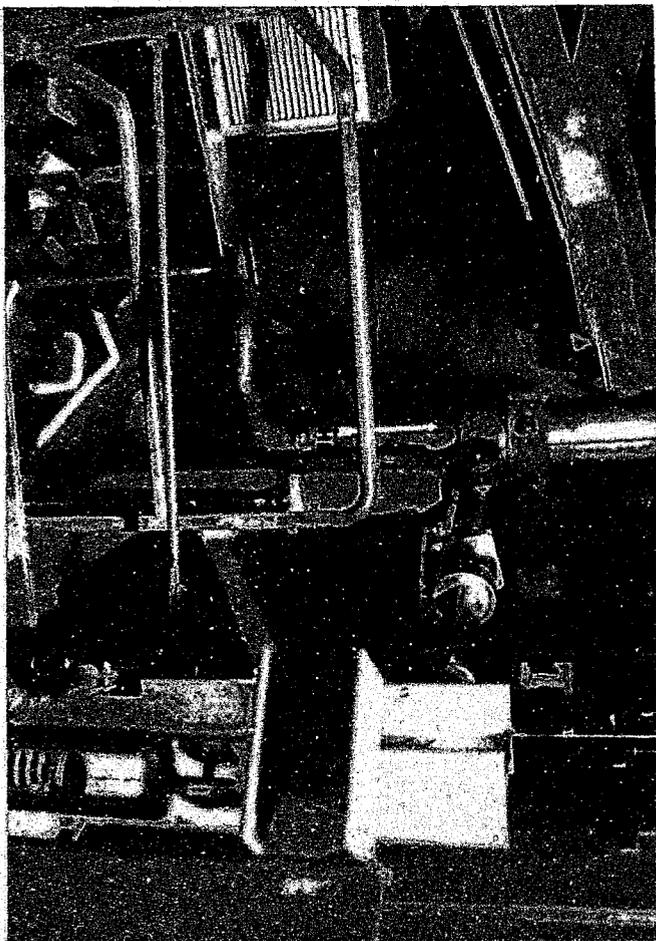
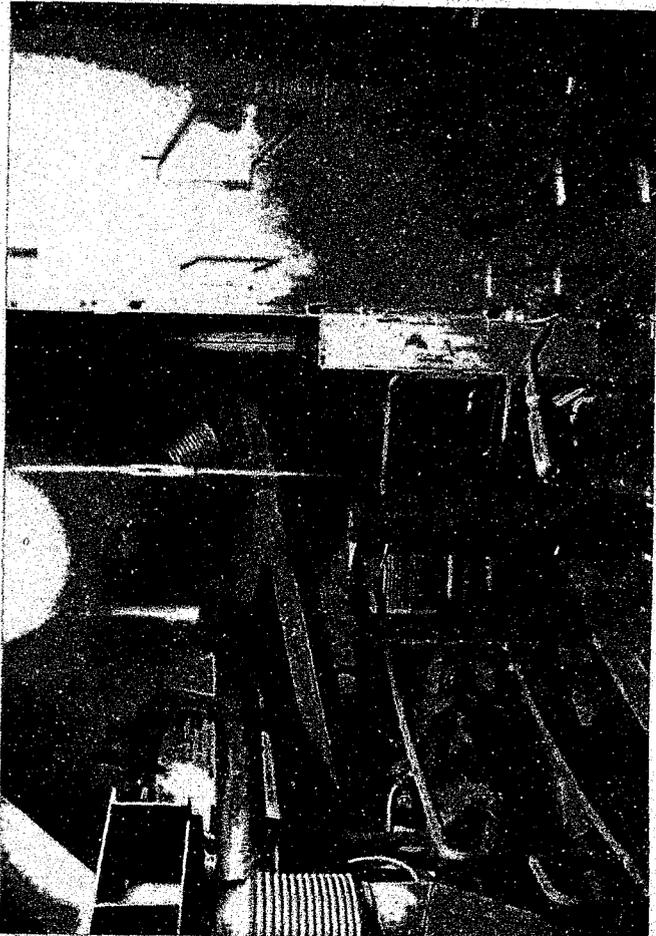
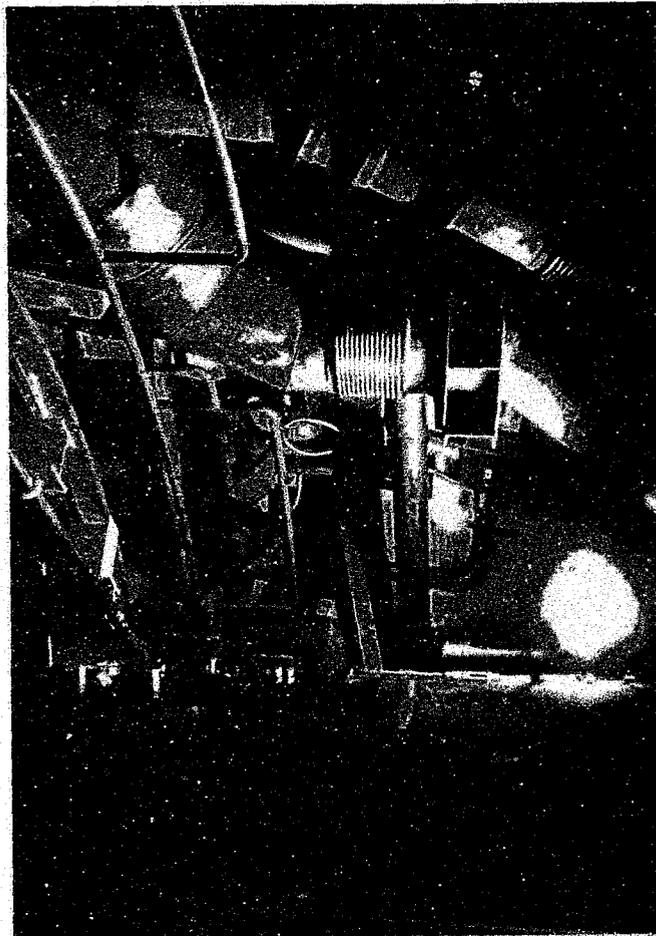












PECO EXHIBIT JRC-2

R-850152 JK

3/17/86 Hbg

PENNSYLVANIA PUBLIC UTILITY COMMISSION  
v.  
PHILADELPHIA ELECTRIC COMPANY  
DOCKET NO. R-850152

RECEIVED

MAR 19 1986

SECRETARY'S OFFICE  
Public Utility Commission

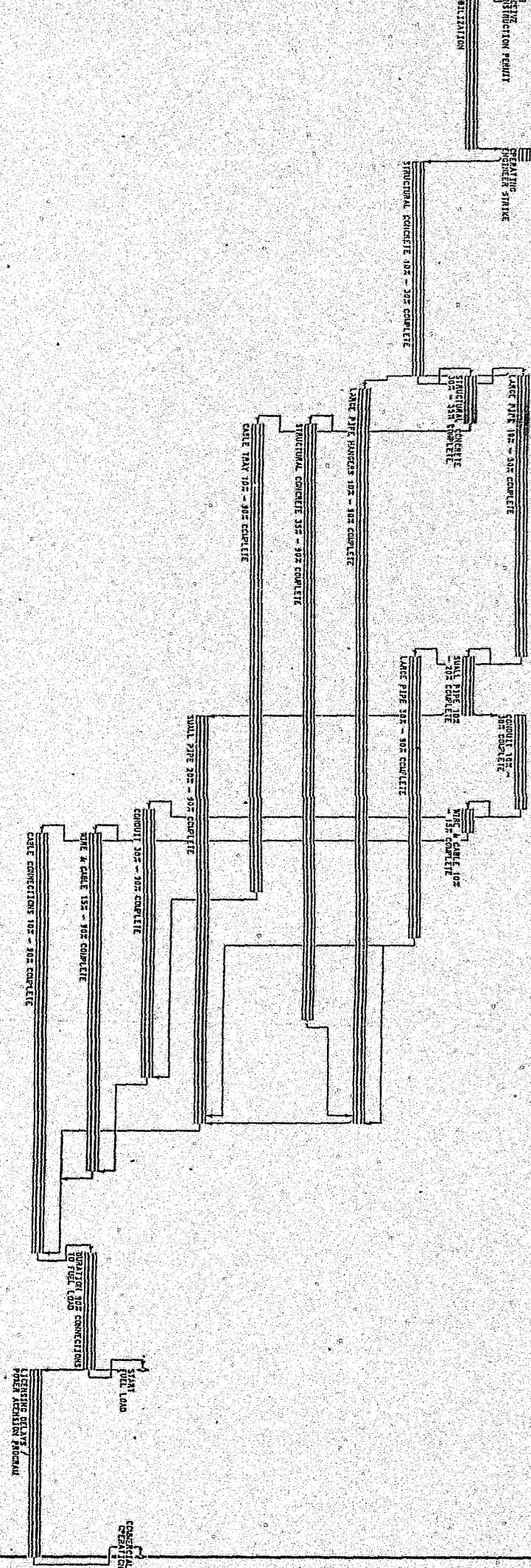
SCHEDULE ANALYSIS BASED ON  
SUSQUEHANNA COMMODITY INSTALLATION RATES AND  
PHASING RELATIONSHIPS WITH ACTUAL  
LIMERICK COMMODITY LEVELS

DOCKETED

MAR 24 1986

DOCUMENT  
HOLDER

FEBRUARY 19, 1986



Legend:

- Activity bar/entry date
- Critical activity
- Progress bar

Primavera Systems, Inc. 1984, 1993

Project Start: 21JUN74  
Project Finish: 1AUG85

PHILADELPHIA ELECTRIC CO.  
LIMERICK UNIT 1 RATE CASE STUDY  
LGS DATES - LGS QUANTITY/SSES RATES

Sheet 1 of 1  
Date Date: 1AUG85  
Plot Date: 14FEB85

LCR SCHEDULE BASED ON LGS QUANTITIES/SSES RATES

| DATE | REVISION | CHANGED | APPROVED |
|------|----------|---------|----------|
|      |          |         |          |
|      |          |         |          |
|      |          |         |          |
|      |          |         |          |

UNIT DATE 1/28/85 RAN NO. 7 LOS SCHEDULE BASED ON LOS QUANTITIES/SECS MATES START DATE 21JUN74 FIN DATE 1AUG85

Activity Predecessor/Successor Report Listing

DATA DATE 1AUG85 PAGE NO. 1

| ACTIVITY NUMBER | DATE BEG | DATE END | PCT | CODE | ACTIVITY DESCRIPTION                   | EARLY START | EARLY FINISH | LATE START | LATE FINISH | TOTAL FLOAT |
|-----------------|----------|----------|-----|------|--|-------------|--------------|------------|-------------|-------------|
| 100             | 0        | 0        | 100 |      | RECEIVE CONSTRUCTION PERMIT            | 21JUN74     | 21JUN74      |            |             |             |
| 110             | 405      | 0        | 100 | SLOC | MOBILIZATION                           | 22JUN74     | 31JUL75      |            |             |             |
| 110             | 405      | 0        | 100 |      | MOBILIZATION                           | 22JUN74     | 31JUL75      |            |             |             |
| 100             | 0        | 0        | 100 | PREB | RECEIVE CONSTRUCTION PERMIT            | 21JUN74     | 21JUN74      |            |             |             |
| 120             | 31       | 0        | 100 | SLOC | OPERATING ENGINEER STRIVE              | 19AUG75     | 31AUG75      |            |             |             |
| 120             | 31       | 0        | 100 |      | OPERATING ENGINEER STRIVE              | 19AUG75     | 31AUG75      |            |             |             |
| 120             | 31       | 0        | 100 |      | OPERATING ENGINEER STRIVE              | 19AUG75     | 31AUG75      |            |             |             |
| 110             | 405      | 0        | 100 | PREB | MOBILIZATION                           | 22JUN74     | 31JUL75      |            |             |             |
| 200             | 517      | 0        | 100 | SLOC | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 15SEP75     | 28SEP75      |            |             |             |
| 200             | 517      | 0        | 100 |      | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 15SEP75     | 28SEP75      |            |             |             |
| 200             | 517      | 0        | 100 |      | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 15SEP75     | 28SEP75      |            |             |             |
| 120             | 31       | 0        | 100 | PREB | OPERATING ENGINEER STRIVE              | 19AUG75     | 31AUG75      |            |             |             |
| 120             | 31       | 0        | 100 |      | OPERATING ENGINEER STRIVE              | 19AUG75     | 31AUG75      |            |             |             |
| 210             | 122      | 0        | 100 |      | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 19AUG74     | 30JUN74      |            |             |             |
| 210             | 122      | 0        | 100 |      | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 19AUG74     | 30JUN74      |            |             |             |
| 200             | 517      | 0        | 100 | PREB | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 15SEP75     | 28SEP75      |            |             |             |
| 200             | 517      | 0        | 100 |      | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 15SEP75     | 28SEP75      |            |             |             |
| 220             | 1553     | 0        | 100 | SLOC | STRUCTURAL CONCRETE 35X - 90X COMPLETE | 11JUL74     | 30SEP74      |            |             |             |
| 220             | 1553     | 0        | 100 |      | STRUCTURAL CONCRETE 35X - 90X COMPLETE | 11JUL74     | 30SEP74      |            |             |             |
| 500             | 1219     | 0        | 100 | SLOC | COBLE TRAY 10X - 90X COMPLETE          | 11JUL74     | 31OCT74      |            |             |             |
| 500             | 1219     | 0        | 100 |      | COBLE TRAY 10X - 90X COMPLETE          | 11JUL74     | 31OCT74      |            |             |             |
| 300             | 730      | 0        | 100 |      | LARGE PIPE 10X - 50X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 300             | 730      | 0        | 100 |      | LARGE PIPE 10X - 50X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 200             | 517      | 0        | 100 | PREB | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 15SEP75     | 28SEP75      |            |             |             |
| 200             | 517      | 0        | 100 |      | STRUCTURAL CONCRETE 10X - 30X COMPLETE | 15SEP75     | 28SEP75      |            |             |             |
| 310             | 731      | 0        | 100 | SLOC | LARGE PIPE 50X - 90X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 310             | 731      | 0        | 100 |      | LARGE PIPE 50X - 90X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 400             | 1917     | 0        | 100 | SLOC | SMALL PIPE 10X - 20X COMPLETE          | 19AUG74     | 30JUN74      |            |             |             |
| 400             | 1917     | 0        | 100 |      | SMALL PIPE 10X - 20X COMPLETE          | 19AUG74     | 30JUN74      |            |             |             |
| 600             | 153      | 0        | 100 | SLOC | LARGE PIPE 10X - 50X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 600             | 153      | 0        | 100 |      | LARGE PIPE 10X - 50X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 400             | 1917     | 0        | 100 |      | LARGE PIPE 10X - 50X COMPLETE          | 19AUG74     | 30JUN74      |            |             |             |
| 300             | 730      | 0        | 100 | PREB | LARGE PIPE 10X - 50X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 300             | 730      | 0        | 100 |      | LARGE PIPE 10X - 50X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 220             | 1553     | 0        | 100 | PREB | STRUCTURAL CONCRETE 35X - 90X COMPLETE | 11JUL74     | 30SEP74      |            |             |             |
| 220             | 1553     | 0        | 100 |      | STRUCTURAL CONCRETE 35X - 90X COMPLETE | 11JUL74     | 30SEP74      |            |             |             |
| 310             | 731      | 0        | 100 | PREB | LARGE PIPE 50X - 90X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 310             | 731      | 0        | 100 |      | LARGE PIPE 50X - 90X COMPLETE          | 19AUG74     | 28SEP74      |            |             |             |
| 610             | 1865     | 0        | 100 | SLOC | F 0 SMALL PIPE 20X - 30X COMPLETE      | 19AUG79     | 30JUN80      |            |             |             |
| 610             | 1865     | 0        | 100 |      | F 0 SMALL PIPE 20X - 30X COMPLETE      | 19AUG79     | 30JUN80      |            |             |             |



| IVITY | QNTY | UNIT | CODE | ACTIVITY DESCRIPTION                       | EAR Y   | EAR Y   | DATE  | LATE   | TOTAL |
|-------|------|------|------|--|---------|---------|-------|--------|-------|
| WBR   | DN   | DN   | PCT  |  | START   | FINISH  | START | FINISH | FLAT  |
| 700   | 244  | 0    | 100  | CONDUIT 10K - 30K COMPLETE                 | 1/10/84 | 2/10/84 |       |        |       |
| 810   | 803  | 0    | 100  | WIRE 1 CABLE 15K - 30K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 800   | 61   | 0    | 100  | WIRE 1 CABLE 10K - 15K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 700   | 244  | 0    | 100  | CONDUIT 10K - 30K COMPLETE                 | 1/10/84 | 2/10/84 |       |        |       |
| 810   | 803  | 0    | 100  | WIRE 1 CABLE 15K - 30K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 900   | 1095 | 0    | 100  | CABLE CONNECTIONS 10K - 30K COMPLETE       | 1/10/84 | 2/10/84 |       |        |       |
| 810   | 803  | 0    | 100  | WIRE 1 CABLE 15K - 30K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 710   | 639  | 0    | 100  | WIRE 1 CABLE 10K - 15K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 800   | 61   | 0    | 100  | WIRE 1 CABLE 10K - 15K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 900   | 1095 | 0    | 100  | CABLE CONNECTIONS 10K - 30K COMPLETE       | 1/10/84 | 2/10/84 |       |        |       |
| 900   | 1095 | 0    | 100  | CABLE CONNECTIONS 10K - 30K COMPLETE       | 1/10/84 | 2/10/84 |       |        |       |
| 900   | 1095 | 0    | 100  | CABLE CONNECTIONS 10K - 30K COMPLETE       | 1/10/84 | 2/10/84 |       |        |       |
| 810   | 803  | 0    | 100  | WIRE 1 CABLE 10K - 15K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 800   | 61   | 0    | 100  | WIRE 1 CABLE 10K - 15K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 810   | 803  | 0    | 100  | WIRE 1 CABLE 15K - 30K COMPLETE            | 1/10/84 | 2/10/84 |       |        |       |
| 910   | 305  | 0    | 100  | DURATION 90K CONNECTIONS TO REL LOAD       | 1/10/84 | 2/10/84 |       |        |       |
| 910   | 305  | 0    | 100  | CABLE CONNECTIONS 10K - 30K COMPLETE       | 1/10/84 | 2/10/84 |       |        |       |
| 900   | 1095 | 0    | 100  | CABLE CONNECTIONS 10K - 30K COMPLETE       | 1/10/84 | 2/10/84 |       |        |       |
| 1000  | 0    | 0    | 100  | START REL LOAD                             | 1/10/84 | 1/10/84 |       |        |       |
| 910   | 305  | 0    | 100  | DURATION 90K CONNECTIONS TO REL LOAD       | 1/10/84 | 2/10/84 |       |        |       |
| 1010  | 487  | 0    | 100  | LICENSING DELAYS / POWER EXTENSION PROGRAM | 1/10/84 | 2/10/84 |       |        |       |
| 1010  | 487  | 0    | 100  | LICENSING DELAYS / POWER EXTENSION PROGRAM | 1/10/84 | 2/10/84 |       |        |       |
| 1010  | 487  | 0    | 100  | LICENSING DELAYS / POWER EXTENSION PROGRAM | 1/10/84 | 2/10/84 |       |        |       |
| 1020  | 0    | 0    | 100  | CONNECTIVE DEVIATION                       | 1/10/84 | 1/10/84 |       |        |       |

| ACTIVITY NUMBER | DATE | REN | DUR | PCT | CODE | ACTIVITY DESCRIPTION                         | EARLY   |         | LATE  |        | TOTAL |
|-----------------|------|-----|-----|-----|------|--|---------|---------|-------|--------|-------|
|                 |      |     |     |     |      |  | START   | FINISH  | START | FINISH |       |
| 1020            | 0    | 0   | 100 |     |      | COMMERCIAL OPERATION                         | 14JUN85 | 14JUN85 |       |        |       |
| 1010*           | 487  | 0   | 100 |     |      | LICENSING DELAYS / POWER ACQUISITION PROGRAM | 18MAY84 | 31JUL85 |       |        |       |

PRINCEBORN  
PROJECT PLANNER

TIMESCALE BAR CHART

LEGEND

---

- - EARLY DATES
- - LATE DATES
- ↑ - POSITIVE FLOAT
- - NEGATIVE FLOAT
- - EARLY/LATE OVER GP
- - ACTUAL DATES
- - DATA DATE
- - HOLIDAY
- - LEVELLED DATES













XXXXXXXXXXXXXXXXXXXX  
T NO. 710 X

XXXXXXXXXXXXXXXXXXXX  
DROUT 295 - 29 X F 0  
( COMPLETE X )

XXXXXXXXXXXXXXXXXXXX  
FROM X  
X TF 457 X

XXXXXXXXXXXXXXXXXXXX  
599 00 599 OCT 01 X  
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX  
H00000 EF 27E002 X

XXXXXXXXXXXXXXXXXXXX  
T NO. 000 X

XXXXXXXXXXXXXXXXXXXX  
WIRE 4 CABLE 104 X  
- 1ST COMPLETE X )

XXXXXXXXXXXXXXXXXXXX  
61 20 61 OCT 01 X TF 0  
XXXXXXXXXXXXXXXXXXXX  
H00000 EF 30W0100 X

XXXXXXXXXXXXXXXXXXXX  
1 0  
XXXXXXXXXXXXXXXXXXXX  
T NO. 010 X

XXXXXXXXXXXXXXXXXXXX  
WIRE 4 CABLE 15X X  
- 90% COMPLETE X )

XXXXXXXXXXXXXXXXXXXX  
K00 003 00 003 OCT 01 X  
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX  
ES 31H0100 EF 30OCT00 X

XXXXXXXXXXXXXXXXXXXX  
1 1  
XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 300 X  
 X  
 X LARGE PIPE 10K - X S 31  
 X 50K COMPLETE X FROM  
 X IF 0  
 X  
 X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 28FEB77 EF 27FEB79

XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 220 X  
 X  
 X STRUCTURE CONC X F 0  
 X EYE 35X - 90X CO X FROM  
 X W/LETE X IF 600  
 X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 30JUN77 EF 29FEB91

XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 310 X  
 X  
 X LARGE PIPE 50K - X F 0  
 X 50K COMPLETE X FROM  
 X IF 625  
 X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 28FEB79 EF 27FEB81

V  
 XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 400 X  
 X  
 X LARGE PIPE 10K X F 0  
 X 10K - 90K COM X FROM  
 X IF 0  
 X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 31JUN77 EF 29JUN82

XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 610 X  
 X  
 X SMALL PIPE 20K - X FROM  
 X IF 0  
 X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 31JUN79 EF 29JUN82



```

XXXXXXXXXXXXXXXXXXXX
X PCT NO. 588 X
X X
X CABLE 180V 10% - I F 0
X 98% COMPLETE I-----I
X X FROM I
X XOD/219 80/219 PCT 0% I TF 94% I
XXXXXXXXXXXXXXXXXXXX
EG 30/10/77 EF 30/01/80
XXXXXXXXXXXXXXXXXXXX
X PCT NO. 788 X
X X
X CDDUIT 10% - 30 X
X X COMPLETE X-----X
X X FROM X
X XOD 244 80 244 PCT 0% X TF 0
XXXXXXXXXXXXXXXXXXXX
ES 31/11/79 EF 30/06/80
  
```

```

XXXXXXXXXXXXXXXXXXXX
X PCT NO. 710 X
X X
X CDDUIT 38% - 98 X
X X COMPLETE X-----X
X XOD 699 80 699 PCT 0% X
XXXXXXXXXXXXXXXXXXXX
ES 31/08/80 EF 27/08/82
  
```

```

V
XXXXXXXXXXXXXXXXXXXX
X PCT NO. 810 X
X X
X WIRE & CABLE 15% X
X X COMPLETE X-----X
X XOD 883 80 883 PCT 0% X
XXXXXXXXXXXXXXXXXXXX
ES 31/09/80 EF 30/01/82
  
```

XXXXXXXXXXXXXXXXXXXX  
 X PCT NO. 200 X X  
 X STRUCTURAL CONC'R X  
 X ETE 104 - 304 CD X  
 X W/LETE X FROM  
 X X TF 0  
 XOD 547 RD 547 PCT 0X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 3104915 EF 3104917

V  
 XXXXXXXXXXXXXXXXXXXX  
 X PCT NO. 210 X X  
 X STRUCTURAL CONC'R X  
 X ETE 304 - 354 CD X  
 X W/LETE X X  
 XOD 122 RD 122 PCT 0X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 296877 EF 296877

V  
 XXXXXXXXXXXXXXXXXXXX  
 X PCT NO. 400 X X  
 X LARGE PIPE INVOICE X  
 X ES 184 - 905 COM X  
 X W/LETE X X  
 XOD 1917 RD 1917 PCT 0X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 3104917 EF 3104917



XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 348 X  
 X  
 X LARGE PIPE 104 X  
 X 50% COMPLETE X  
 X FROM X  
 X TF 0 X  
 X  
 X 100 730 RD 730 PCT 0X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 2/6/87 EF 2/7/89

Y  
 XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 318 X  
 X  
 X LARGE PIPE 541 X  
 X 50% COMPLETE X  
 X  
 X 100 731 RD 731 PCT 0X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 2/6/87 EF 2/7/89

Y  
 XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 610 X  
 X  
 X SMALL PIPE 294 X  
 X 50% COMPLETE X  
 X  
 X 100 315 X  
 XXXXXXXXXXXXXXXXXXXX  
 XODINGS ROLLS PCT 0X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 3/10/79 EF 2/31/82

Y  
 XXXXXXXXXXXXXXXXXXXX  
 X ACT NO. 489 X  
 X  
 X LARGE PIPE 198 X  
 X 50% COMPLETE X  
 X  
 X 100 335 X  
 XXXXXXXXXXXXXXXXXXXX  
 XOD1917 801917 PCT 0X  
 XXXXXXXXXXXXXXXXXXXX  
 ES 3/10/87 EF 2/31/82