Wisconsin Electric POWER COMPANY
231 W. MICHIGAN, P.O. BOX 2046, MILWAUKEE, WI 53201

August 1, 1985

Mr. H. R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. NUCLEAR REGULATORY COMMISSION
Washington, D.C. 20555

Attention: Mr. Edward Butcher, Acting Chief
Operator Reactor Branch No. 3

Dear Mr. Denton:

DOCKET NOS. 50-266 AND 50-301
ADDITIONAL INFORMATION-SAFETY ASSESSMENT SYSTEM
POINT BEACH NUCLEAR PLANT

In telephone conversations held on June 13, 1985, Mr. Tim Colburn of your staff requested additional information concerning the development and implementation schedule for the Point Beach Nuclear Plant safety parameter display system, hereafter referred to as the Safety Assessment System (SAS). Mr. Colburn's inquiries were primarily in the areas of project schedule and justifications for the proposed completion date. Mr. Colburn also asked about specific contractor incentives and penalties, the capability to use portions of the SAS equipment developed by the contractor in default, and status of the compensatory action items identified in our letter to you dated January 17, 1985.

During this phone call Messrs. Roger Newton and Steven Schellin were able to address most of Mr. Colburn's inquiries. We agreed to provide this information in written form. The attachment to this letter contains our formal response to this request for additional information. We believe that the information presented in this attachment demonstrates that Wisconsin Electric is making "best effort" progress in providing a viable SAS. As can be expected, we have made these commitments in time and personnel at the expense of other items. Specifically, the safety analysis and implementation plan for the SAS has been delayed until June 30, 1986, or after the inservice date of the computer system. While we will attempt to make personnel available to complete the safety analysis and implementation plan at an earlier date, we do not believe we can commit to a change in schedule at this time.

Please contact us if you have any questions concerning the attached information or additional questions regarding our SAS planning.

Very truly yours,

R. W. Britt
President

CWK/jg

Attachment

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ADDITIONAL INFORMATION - SAFETY ASSESSMENT SYSTEM
POINT BEACH NUCLEAR PLANT

1. Compensatory Action Completion Status

The compensatory actions which Wisconsin Electric has taken in lieu of the originally scheduled completion of the Safety Assessment System/Plant Process Computer System were described in detail and discussed in our October 1, 1984 letter. We have verified that those compensatory actions have been completed. Those items included the installation of new thermocouple monitoring and display equipment and subcooling and reactor vessel water level monitoring display equipment. They are in the form of four two-pen computer trend recorders located on the auxiliary safety instrumentation panel for each unit which display the current value and record the history of these parameters. Reactor vessel water level is displayed and recorded for both wide range and narrow range. These recorders will eventually display parameters accessible through the plant process computer system, but are currently hardwired to display information from the Foxboro Spec 200 instrumentation racks for the above parameters. Tables 1 and 2 attached to the October 1, 1984 letter provide a more complete description of the control room recorders and the auxiliary safety instrumentation panel instrumentation, including the ranges for the equipment and the engineering units of the parameters being monitored. This provides a description of the compensatory actions and equipment available in lieu of the safety assessment system displays which will be part of the computer system.

2. Useability of EAI Supplied Equipment and Software on the New Computer System

After termination of work by Electronic Associates, Incorporated, Wisconsin Electric and two other utilities placed a contract with Scientific Applications International Corporation to evaluate the multiplexing units which were being developed by EAI for use in the computer system. Their evaluation showed that the multiplexing units were of little value to any subsequent supplier of the computer system. These units comprised more than 50% of the hardware costs spent on the computer system by Wisconsin Electric. Approximately equal in cost was the system software under development by EAI. The entire amount of the software was determined to be useless due to its incomplete state.

The next group of equipment to be examined were those items which were purchased as commercial units by EAI for use in the system. A number of these items were determined to be salvageable equipment and were lisied as available hardware to the vendors who bid on the completion of the computer system. Typical of this equipment were Model 43KSR Teletype units with and without paper tape, Chromatics CRT Model CG3999 and CG7900, CDC80 300 megabyte disc drives, CGC Model 8175 floppy disc drives, NEC L300 line printers, Pertec 75 IPS tape drives, and Gould 32/27 and 32/77 computers. These items were evaluated by each of the individual vendors as part of their bid and their usefulness was identified in each vendor's proposal. Where any of this equipment could be used effectively, it was included as equipment to be supplied by Wisconsin Electric in the vendor proposal. By this process, we were able to determine what hardware was salvageable and useable by a subsequent contractor.

The third category was that equipment which was comprised of commercially available components assembled by EAI. These included the two operator consoles, seismic display units, control board display units, fiber optic modems, and cabling. Initially, the majority of this equipment was determined to be useful to a subsequent contractor. This value amounted to approximately 15% of the initial cost of the system hardware. The balance of the value of miscellaneous items, spares, and other parts were generally determined not to be useable as either components or salvagable items.

Subsequent to this evaluation and placement of the computer system contract with Combustion Engineering, Incorporated, the equipment that was determined to be able to be used by the new computer vendor was shipped to their location. After shipment, it was determined that the seismic display units which were intended for mounting in the ASIP were unsuitable for use with the new system based on their uniqueness, unavailability of spare parts, and insufficient documentation to repair them independent of any outside support organization. Consequently, we have had to purchase other commercial equipment and go through a seismic qualification evaluation and testing of new units.

In summary, none of the EAI software intended for the computer system was salvageable and able to be used by a subsequent vendor. In terms of the hardware only 10% of the original hardware was determined to be useful in the new computer system configuration. Another 5% was determined to be useful for retention by Wisconsin Electric for other uses at the original cost value, the balance was either completely unusable or salvageable at a fraction of the value ranging from 2% to 20% based on current estimates of individual components that may be resold either as complete units or spare parts. In contrast to the non-useability of the EAI equipment, equipment procured by Wisconsin Electric in preparation for installation of the computer system remains useful and useable in its installed condition with minor modifications. This includes equipment support structures and power and signal raceways and cabling.

3. Contractor and Wisconsin Electric Commitments, Incentives, and Penalties Toward Completion of the Project on Schedule

3.1 Wisconsin Electric Commitments and Organization

Per the organization chart, Attachment 1, Wisconsin Electric has committed specific personnel to the computer system project. These personnel for the most part dedicate a majority of their time to the oversight, interface, and implementation of the plant computer system. There are three personnel dedicated full time to the computer system project. These being the Project Engineer - Computer Systems, Engineer - Computer Systems, and Reactor Engineer - PBNP. In addition an Electrical Engineer and Computer Analyst are devoting approximately 50% of their engineering and analytical time to the computer systems project. A second Reactor Engineer - PBNP is devoting a significant amount of his time, when not required by plant operational duties, to the

review and interface of the existing computer system programs and applications relative to their implementation on the new computer system. The Engineer - Quality Assurance who will be involved with the oversight of the computer system Quality Assurance and Quality Control programs as implemented by the vendor and within Wisconsin Electric has been assigned. Additional support is being provided by the Project Engineer - Electrical Engineering, regarding technical interfaces with the other systems implemented to meet post-TMI requirements of NUREG-0737. Management attention to this project is closely coupled to the Vice President - Nuclear Power Department to provide direct feedback on a prompt basis such that problems can be quickly identified and elevated through the organization in order to resolve problems quickly. Wisconsin Electric has committed personnel and time sufficient to meet the items scheduled by the vendor such that the schedule can be met.

As an incentive to the computer system vendor, Wisconsin Electric has placed the contract on a fixed-price basis with no renumeration to the vendor on the base contract until completion of specific items. This provides distinct incentives for timely completion of the project by the vendor as well as completion of the project in a working configuration prior to shipment so that changes and modifications at the site will be minimized.

In addition to these incentives for meeting the vendor schedule, Wisconsin Electric recognized that early delivery would allow installation of the system during the spring 1986 Unit 1 refueling outage. To provide this possibility, Wisconsin Electric is willing to pay a bonus for acceptable completion of the computer system and delivery to the site by April 4, 1986. This coincides with the beginning of the Unit 1 outage scheduled for spring 1986 and would provide a minimum amount of time for installation of the system. To be able to meet this outage, there must be no delays or problems with the delivery, handling of the new computer system, removal of the existing Unit 1 computer system, transfer and startup of the instrumentation from the existing Unit 1 system to the new system, and training of operating personnel. It is recognized that this may not be able to be achieved, therefore, Wisconsin Electric also required that a penalty after a two month grace period from the contract delivery date be part of the agreement. This penalty is on a daily basis with an accumulated maximum comensurate with the value of the bonus for early delivery. The penalty after the grace period should ensure maximum vendor effort to complete the system within a reasonable time of the vendor schedule. Should it become apparent that delivery by the spring 1986 outage will not be able to be made, Wisconsin Electric may elect, at its option, to delay the delivery until just prior to the spring 1987 outage. The only reason to exercise this delay is that the computer system cannot be safely installed with the nuclear units on line, in which case the installation will have to wait until the next Unit 1 outage.

In addition to these economic and organizational incentives, Wisconsin Electric has placed the full time Reactor Engineer - PBNP at the vendor's site on a full time basis as a technical support consultant. He will be aware of all project items on a daily basis, attend all vendor project meetings, be trained in the system during its development, and based on his prior experience and expertise with the existing Point Beach Nuclear Plant computer system, be available to review and comment on the vendor's work.

3.2 Contractor Commitments Incentives and Penalties

The contractor incentives and penalties have been described above relative to the early delivery bonus and the late delivery penalties associated with the basic contract. In addition to these, the vendor has incentives to delivery on time in order to free up his personnel and work staging areas for use by other projects.

The vendor has committed to utilize the experience and personnel associated with a recently delivered computer system for another utility. The basis for the Wisconsin Electric project is the software successfully implemented for this utility with appropriate modifications for plant specific configurations and applications. This means that the Wisconsin Electric project starts with a basic well-defined and documented system. In addition, personnel who were utilized in the development of this system have been either reassigned and remain available as consultants to the Wisconsin Electric project team assembled by the vendor or have been directly integrated into the Wisconsin Electric project team.

3.3 Schedule Milestones and Critical Path

The overall schedule is given in Attachment 2. It consists of three major stages. The first stage covers that period of time from receipt of order by the vendor through delivery to the site. This portion of the schedule consists of hardware procurement and staging, software development and testing and a one month factory acceptance test prior to shipment. The second stage of the schedule consists of installation and testing at the site. It consists of three work segments; 1) installation of the computer system and preliminary site acceptance tests, 2) removal of the Unit 1 P250, installation of the multiplexing units, transfer of the instrument wiring, startup of the multiplexing units, and culminating with the Unit 1 site acceptance test, and 3) transfer of the Unit 2 instrumentation wiring, removal of the Unit 2 P250, and site acceptance test of the computer system with both Units 1 and 2 running. The third major stage of the overall schedule is a 3 1/2 month availablity test of the entire system to determine system availability and reliability.

The starting date for the computer system contract was January 4, 1985. This starting date resulted from the default of Electronic Associates, Incorporated in August of 1984, the subsequent negotiations for termination and acquiring of the Wisconsin Electric computer equipment from EAI, EAI hardware and software evaluation for use by a subsequent vendor, the time needed to develop a revised request for quotation from vendors, time for vendors to prepare and submit proposals, and time needed for Wisconsin Electric to determine the successful vendor. Relative to normal procurement of construction items and similar projects, this was a very accelerated schedule for procurement. It can be seen from the scheduled time line that the vendor computer delivery, schedule A, is not compatible with installation of the multiplexing units during the 1986 scheduled shutdown of the unit. This would be the schedule that would be met if it was possible to install the computer system on-line. Because this did not correspond to the start of a scheduled outage, an attempt is being made to secure early delivery of the computer system from the vendor so that it will be available at the start of the spring 1986 outage. At that time, the first two phases of site installation would have to be carried on in parallel. This is, the installation of the computer system and preliminary site acceptance test of the computer system without instrumentation input, and the removal of the existing Unit 1 computer, installation of the multiplexing units and transferring of the instrumentation wiring. This accelerated schedule is schedule B and is shown on the second line of Attachment 2.

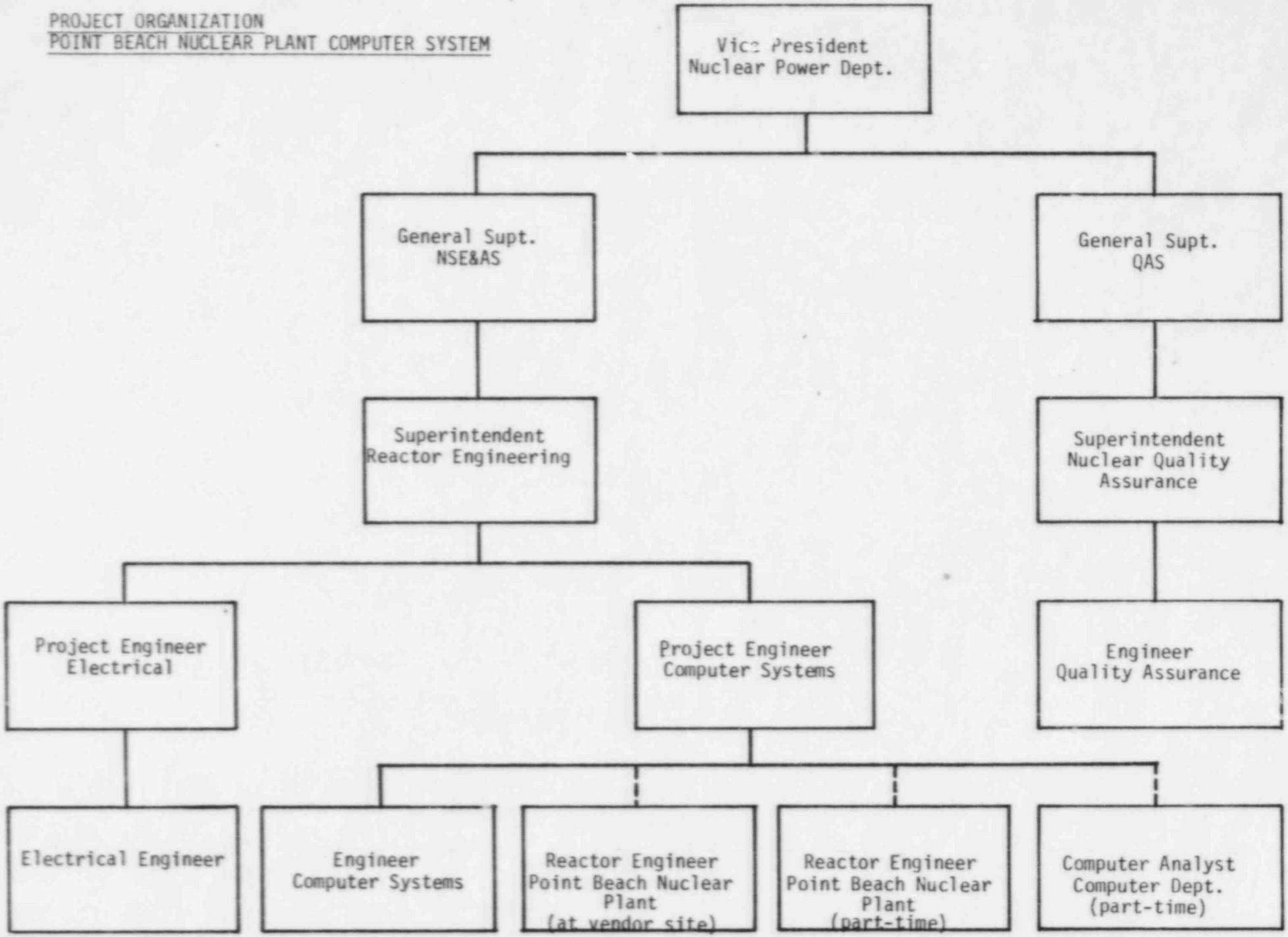
The third line of Attachment 2 shows the licensing schedule, schedule C, which we believe has the highest probability of being met. This schedule shows the development and delivery of the system in accordance with the normal schedule of the contract and with the computer installed at the next available Unit 1 outage which would be the spring of 1987. This would allow an extended period of time for solving any problems both prior to and after shipment, it would allow for installation of the computer system and complete testing prior to removal of any of the existing Unit 1 computer functions, and would only require the removal of the existing Unit 1 computer for the installation of the multiplexors and the wiring transfers to occur during an outage period. With the computer system installed prior to the Unit 1 spring outage in 1987 and completely tested prior to the input transferring installation, it may not be necessary to extend the schedule to the fall of 1987 for removal of the existing Unit 2 computer and transfer of the inputs to the computer system at that delayed date. The reason for this is that once the computer system is operational with the multiplexing units in place, it is felt that the existing Unit 2 computer can continue to run as inputs are transferred and checked out on the new computer without any significant loss of function in the interim time period. This may be accomplished because the location of the existing Unit 2 computer does not interfere with any of the locations of the new computer system input or output equipment. This is not the case for Unit 1. The existing Unit 1 computer is in the same location as that of the new multiplexing units which provide all of the inputs to the new computer system.

It is estimated that there is a 50% chance of achieving the accelerated schedule (B) and installation of the new system in place of the existing Unit 1 computer during the spring 1986 outage with subsequent replacement of the Unit 2 computer during the fall 1986 outage. This would provide an extended period during the summer where the existing Unit 2 computer would be able to carry some of the functions of the removed Unit 1 computer, such as incore detector system flux mapping, while any problems with the Unit 1 transfer and new computer system startup are ironed out. The next likely schedule is that of receipt of the computer system based on the vendor schedule (A) and installation during operation of both units. It is estimated to be approximately a 75% probability of meeting this schedule, but it is more likely that problems will be encountered during this installation as functions will be lost during plant operations for a period of time. We deem the achievement of the licensing schedule (C), that is receipt of the computer system prior to the spring 1987 Unit 1 outage, to have almost a 100% probability of being met. Note that the "hardware" schedule shown for (C) reflects the actual procurement and staging to date. This is the schedule that we have committed to in our submittal to the NRC. We are continuing work in other areas at a rate which could achieve the accelerated delivery schedule and installation of the computer system during 1986.

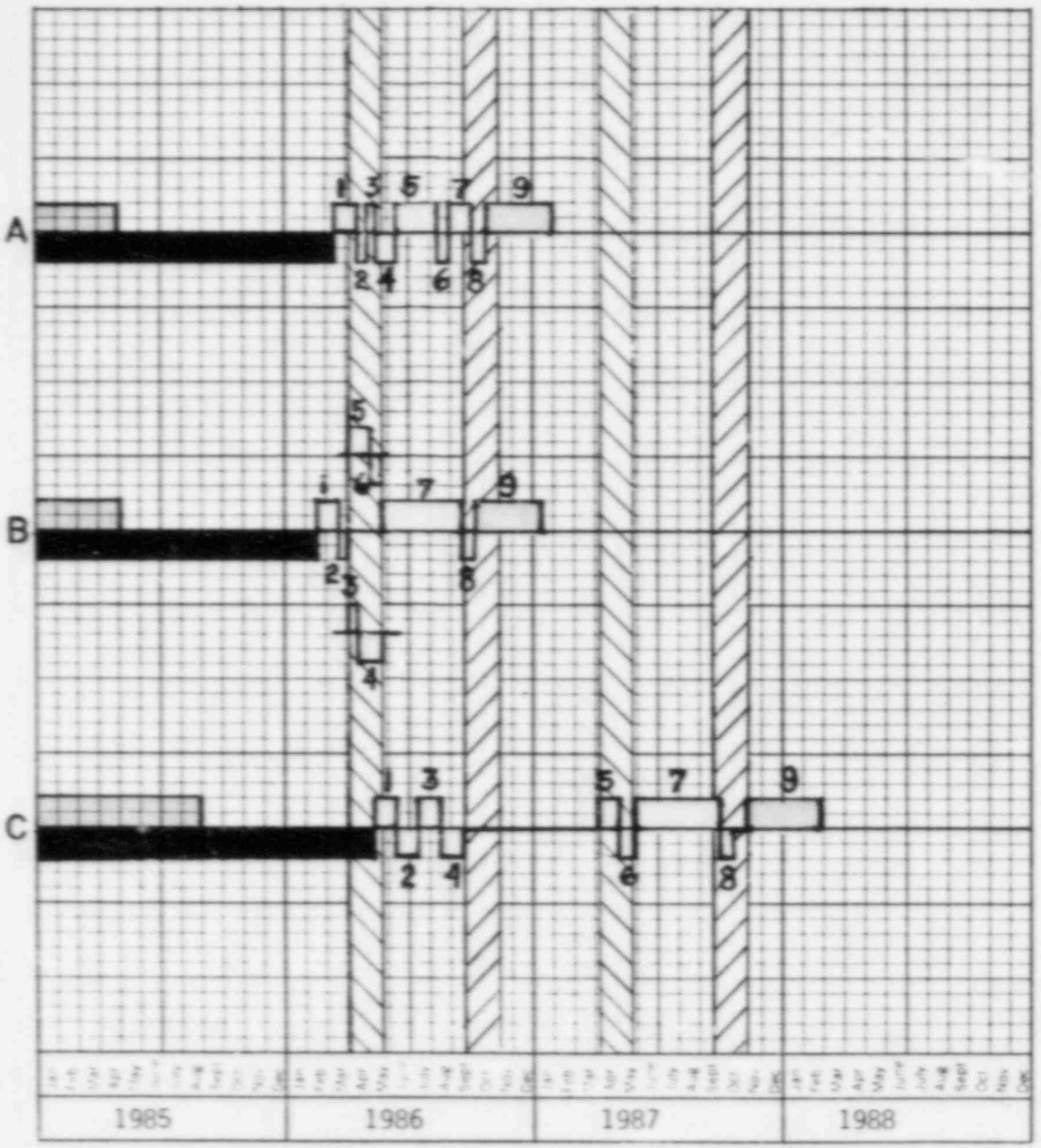
The critical path for the vendor is the hardware ordering, receipt, and staging; software development and debugging; and factory testing during the system development prior to shipment. The critical path work on-site consists of the computer system installation, Unit 1 computer removal, multiplexor installation, transfer of the Unit 1 inputs to the new computer system, and system testing. After that point, the system will be operational for Unit 1, and partially operational for Unit 2 in stages as the instrumentation is transferred. Only these critical path items are shown on each schedule.

Attachment 1

PROJECT ORGANIZATION
POINT BEACH NUCLEAR PLANT COMPUTER SYSTEM



Attachment 2



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A Vendor Schedule.

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Software development and debugging.

1 Factory acceptance test (FAT).

2 Shipping.

3 Computer installation at site.

4 Preliminary site acceptance test (PSAT) of the computer only (NO I/O).

5 Unit 1 P250 removal, MUXs installed, U1 wiring transfers, and wiring check.

6 Unit 1 SAT.

7 Unit 2 P250 wiring transfers and check.

8 Unit 2 SAT.

9 Availability test run.

NOTE:

1 Only 1986 and 1987 scheduled unit outages are related to the computer system installation. Outages not shown for other years.

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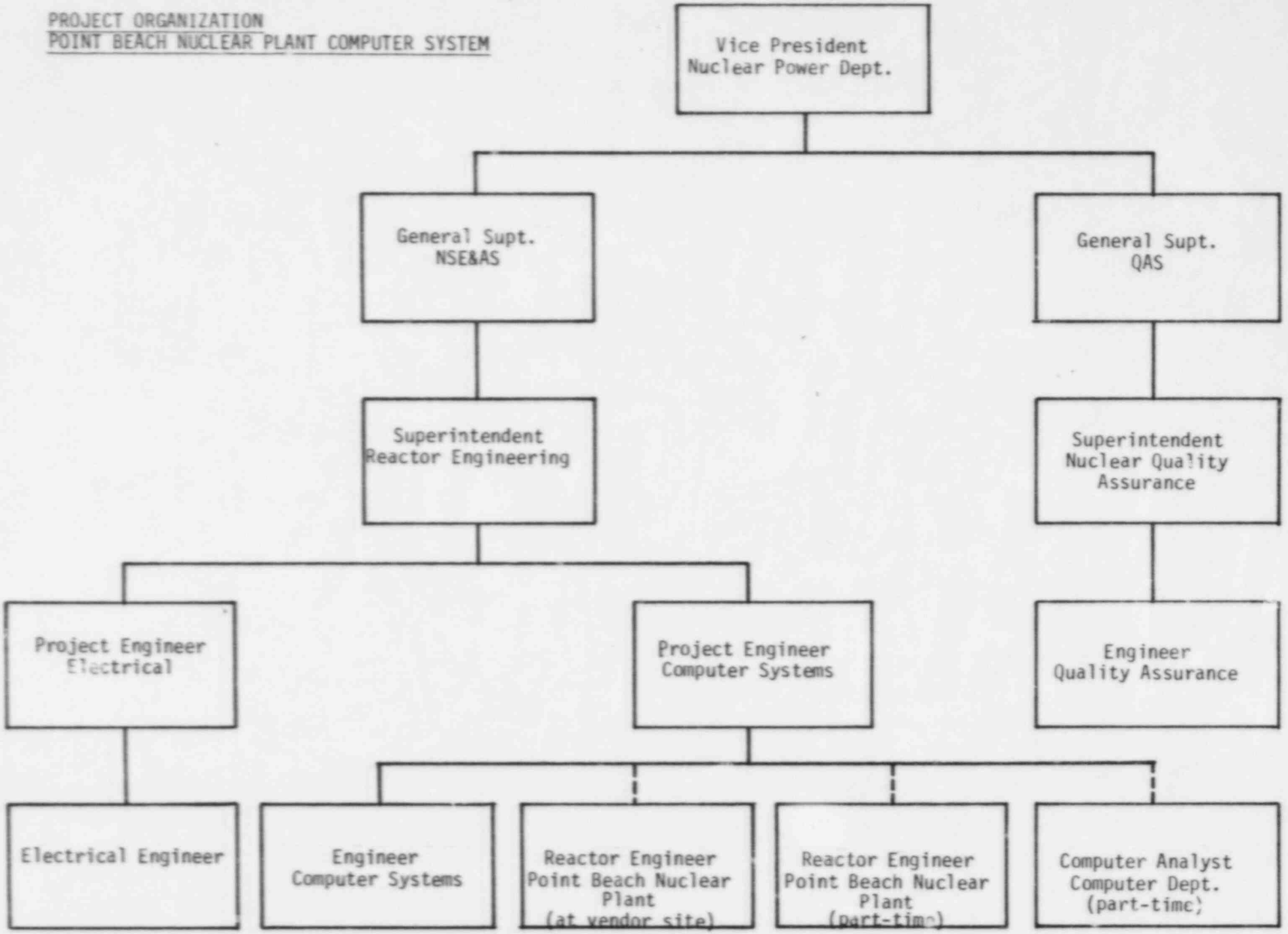

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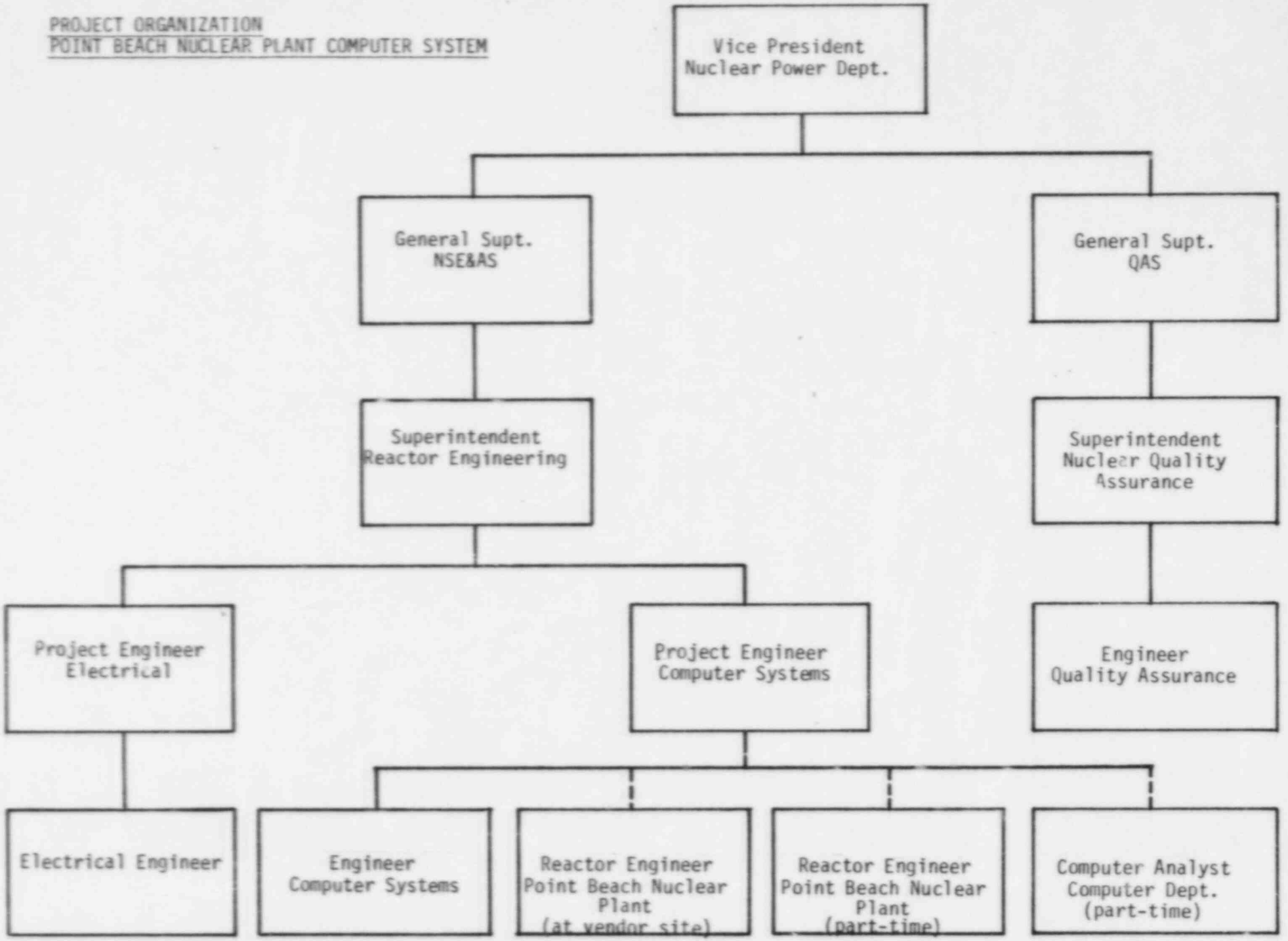

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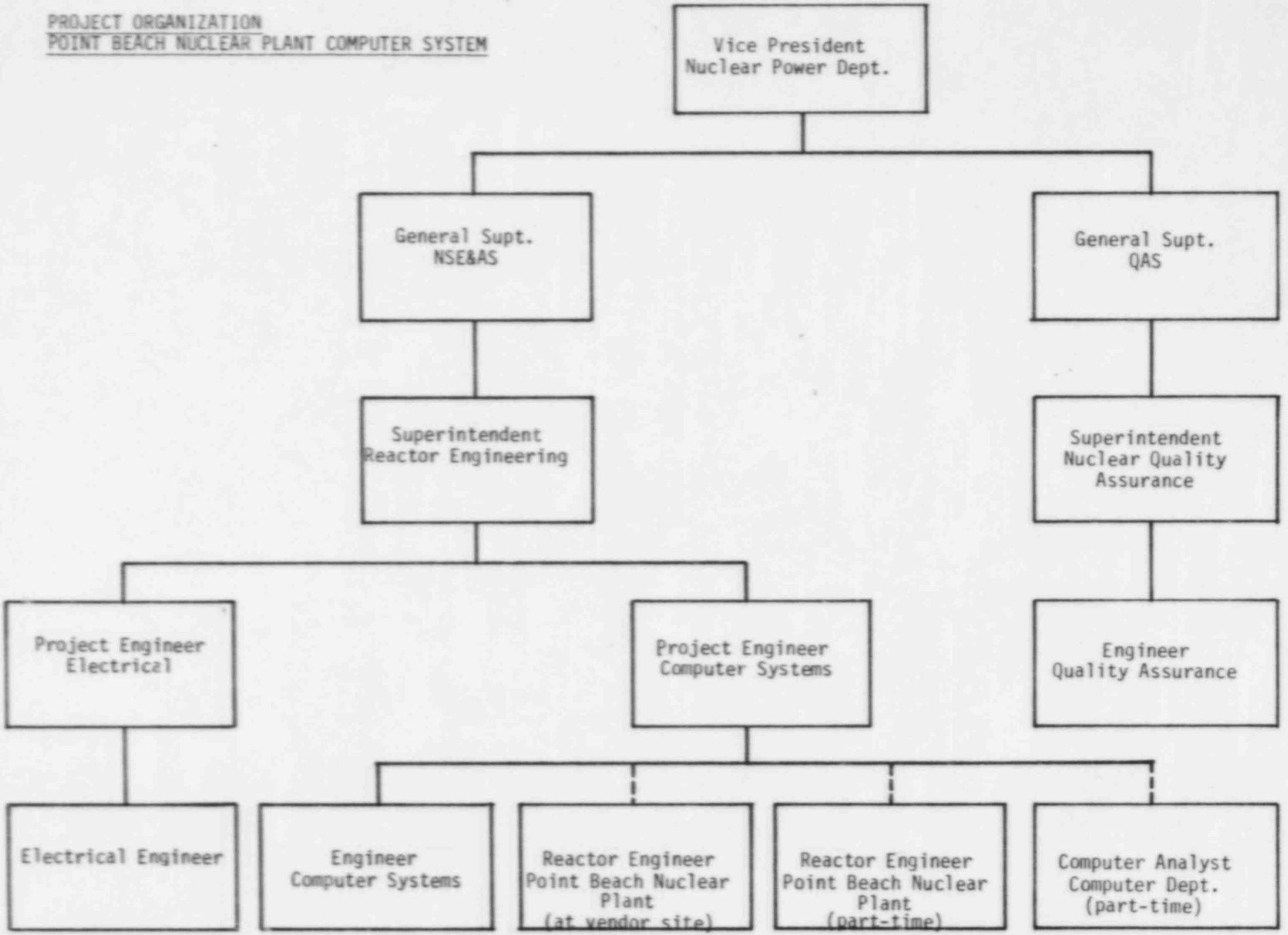

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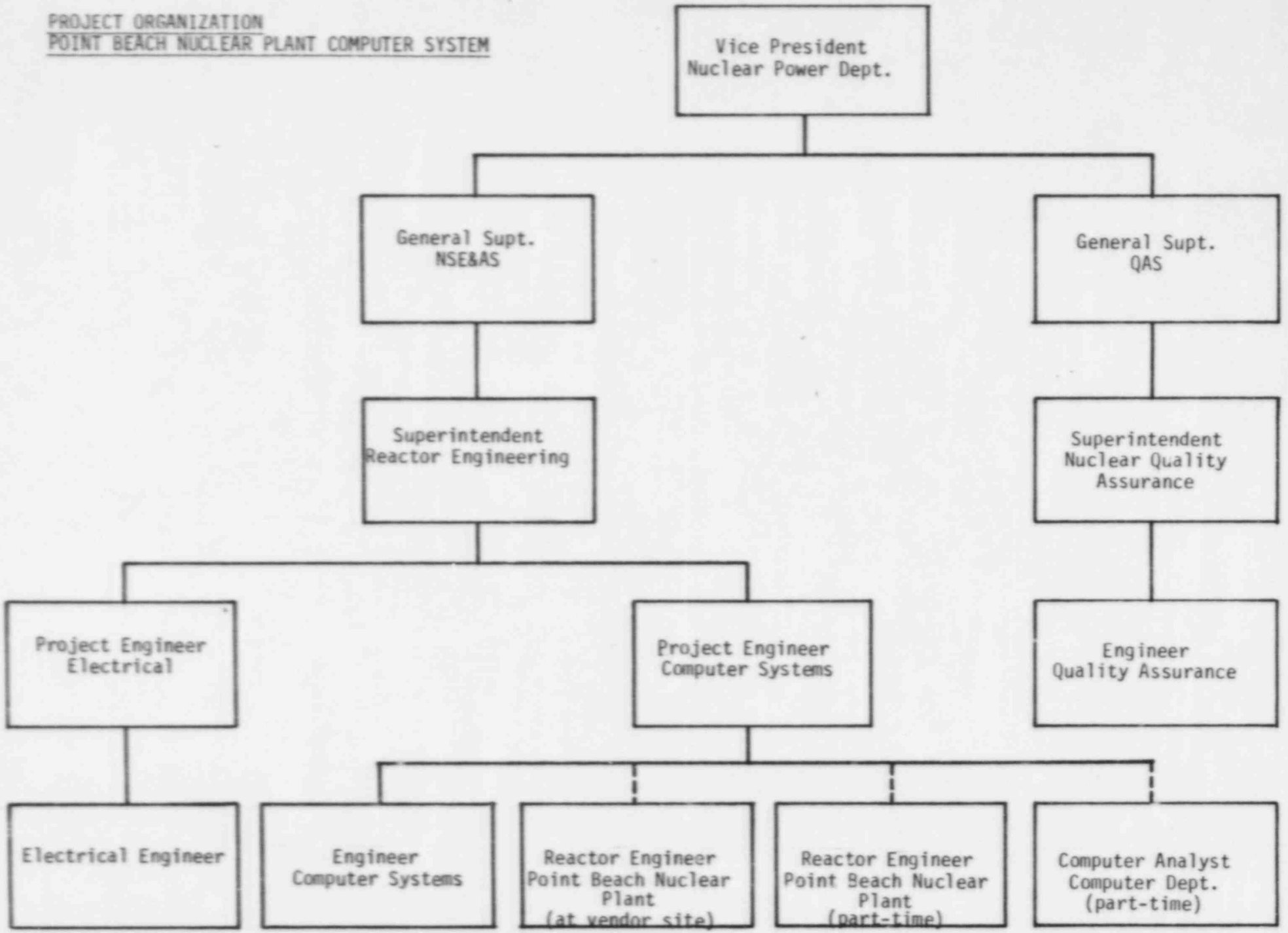

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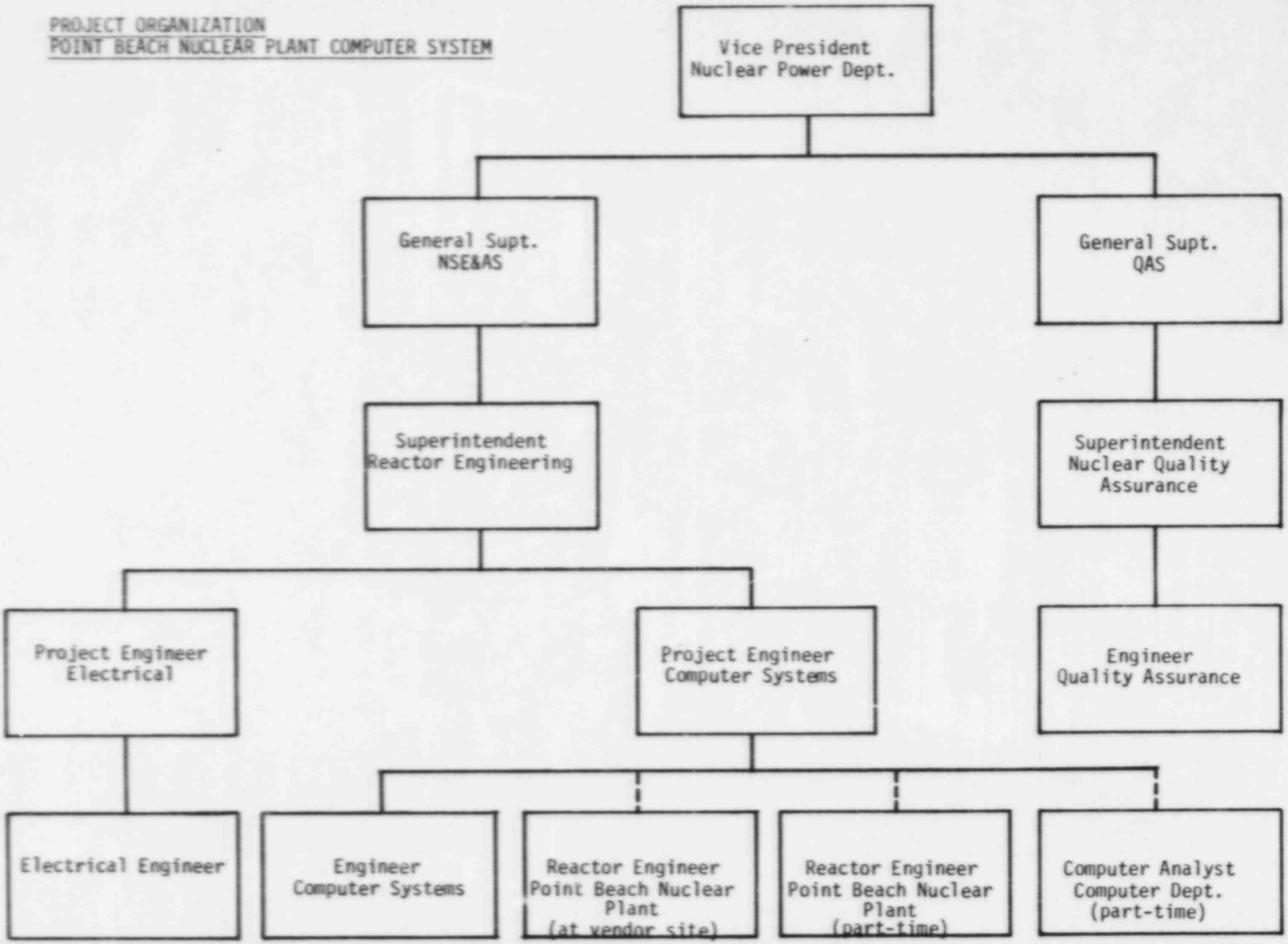

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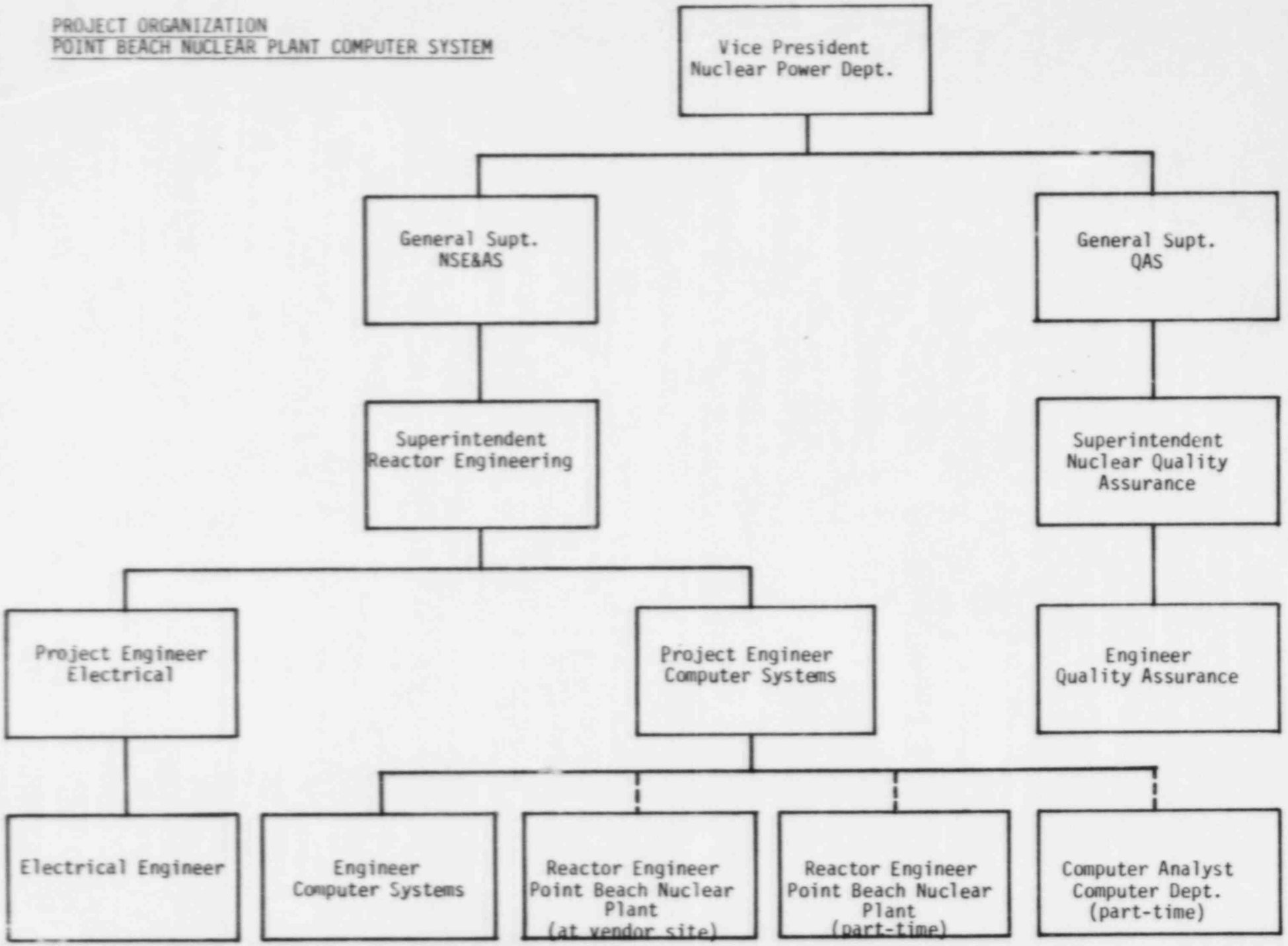

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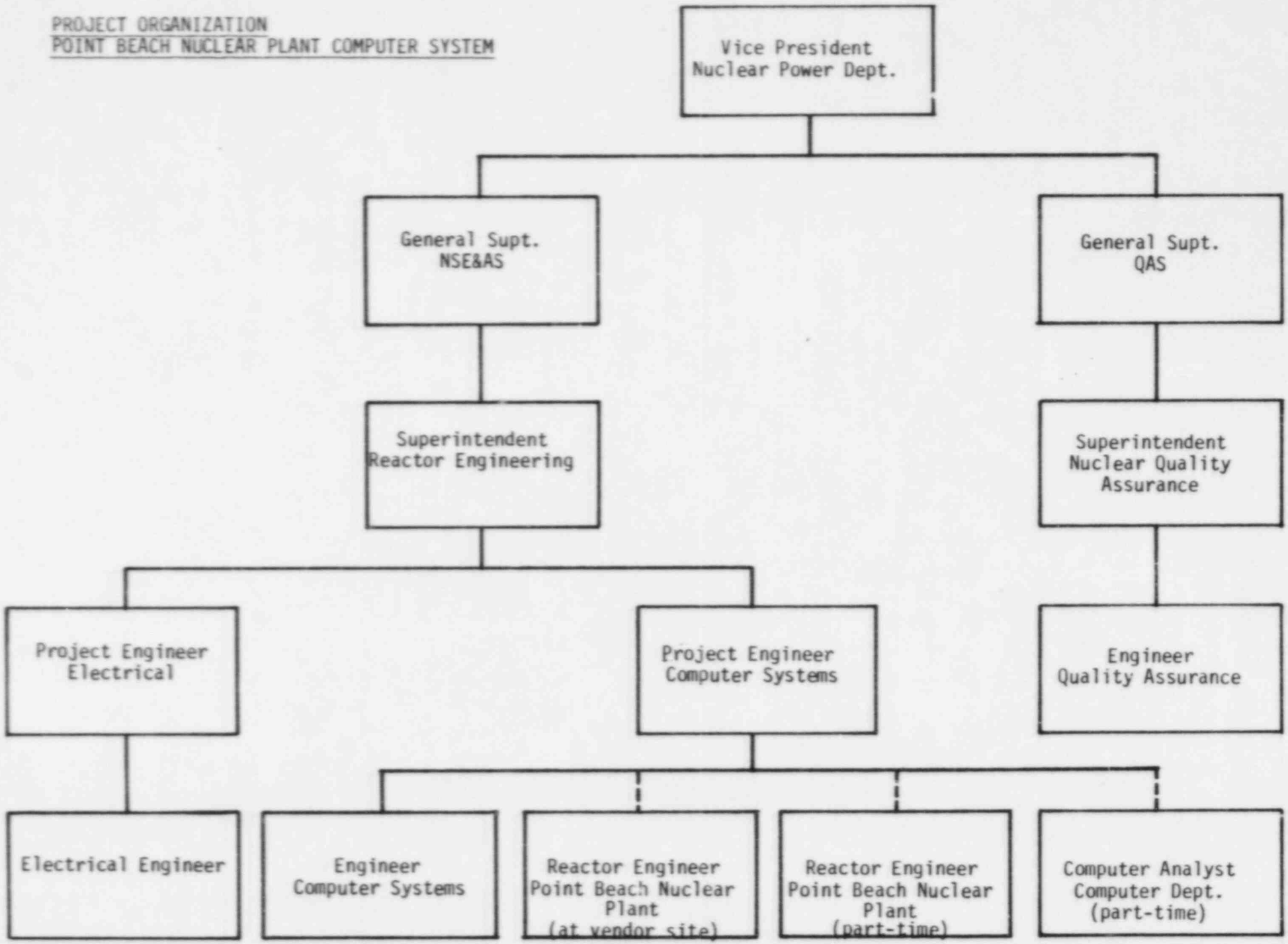

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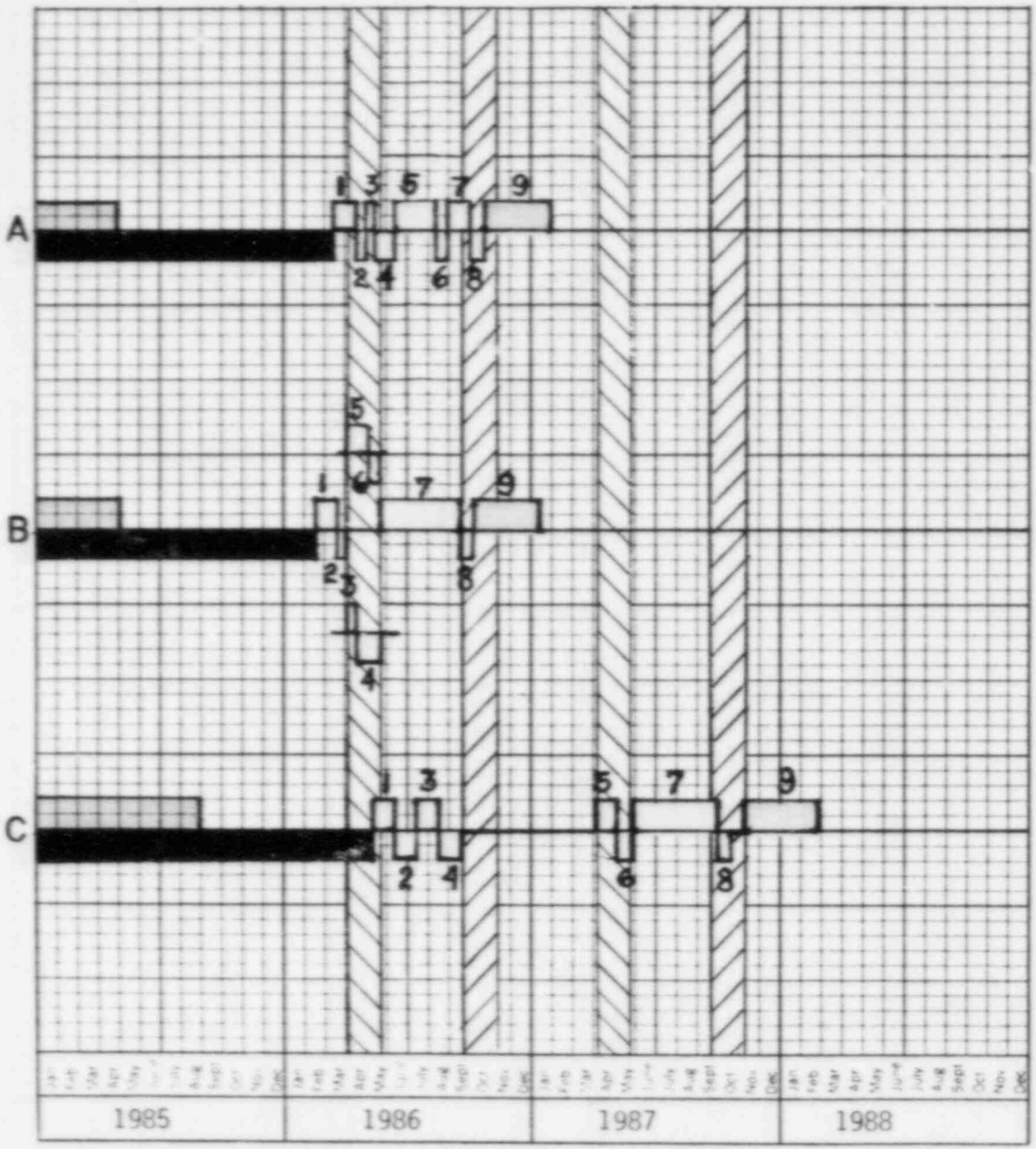

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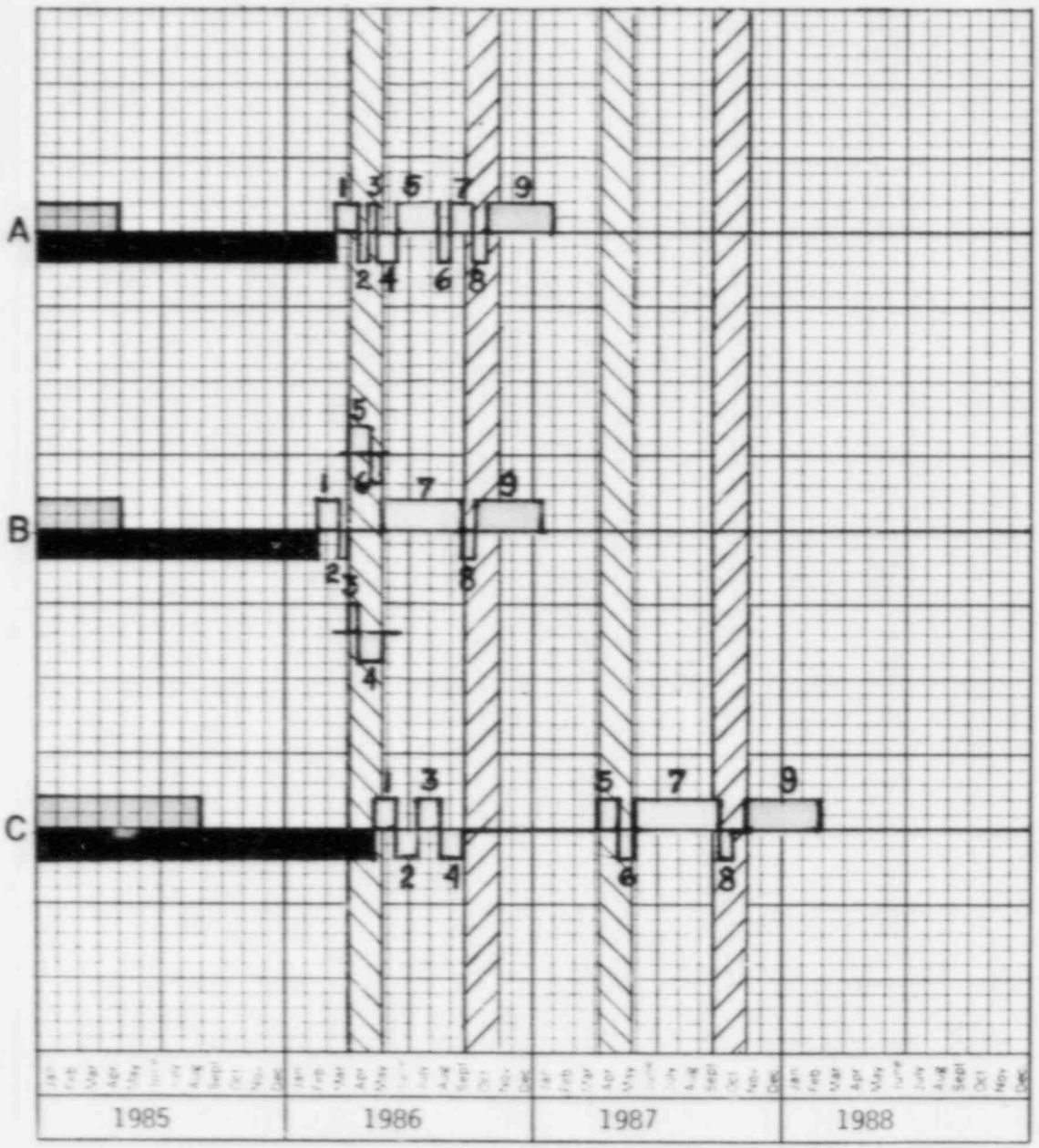

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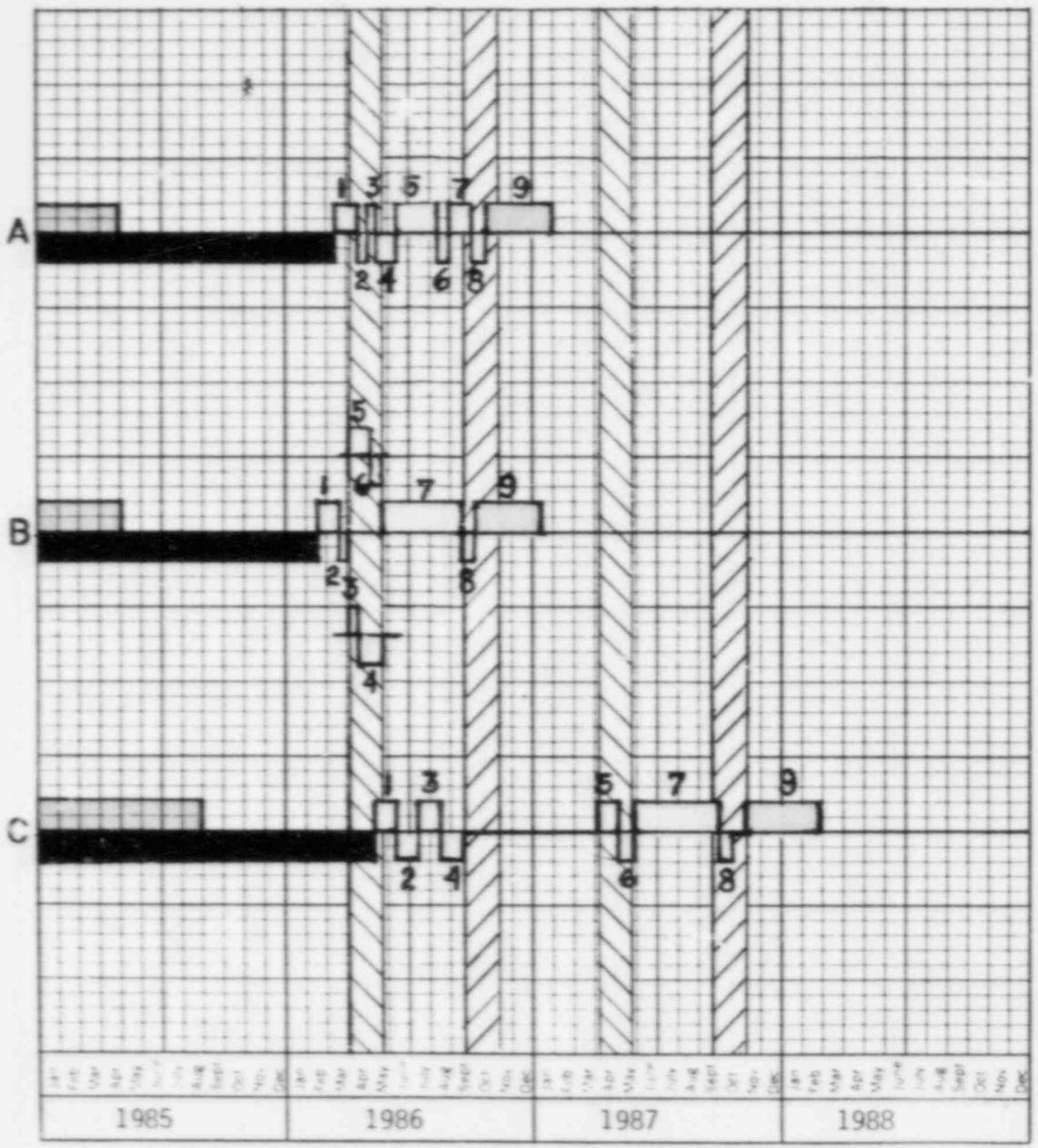

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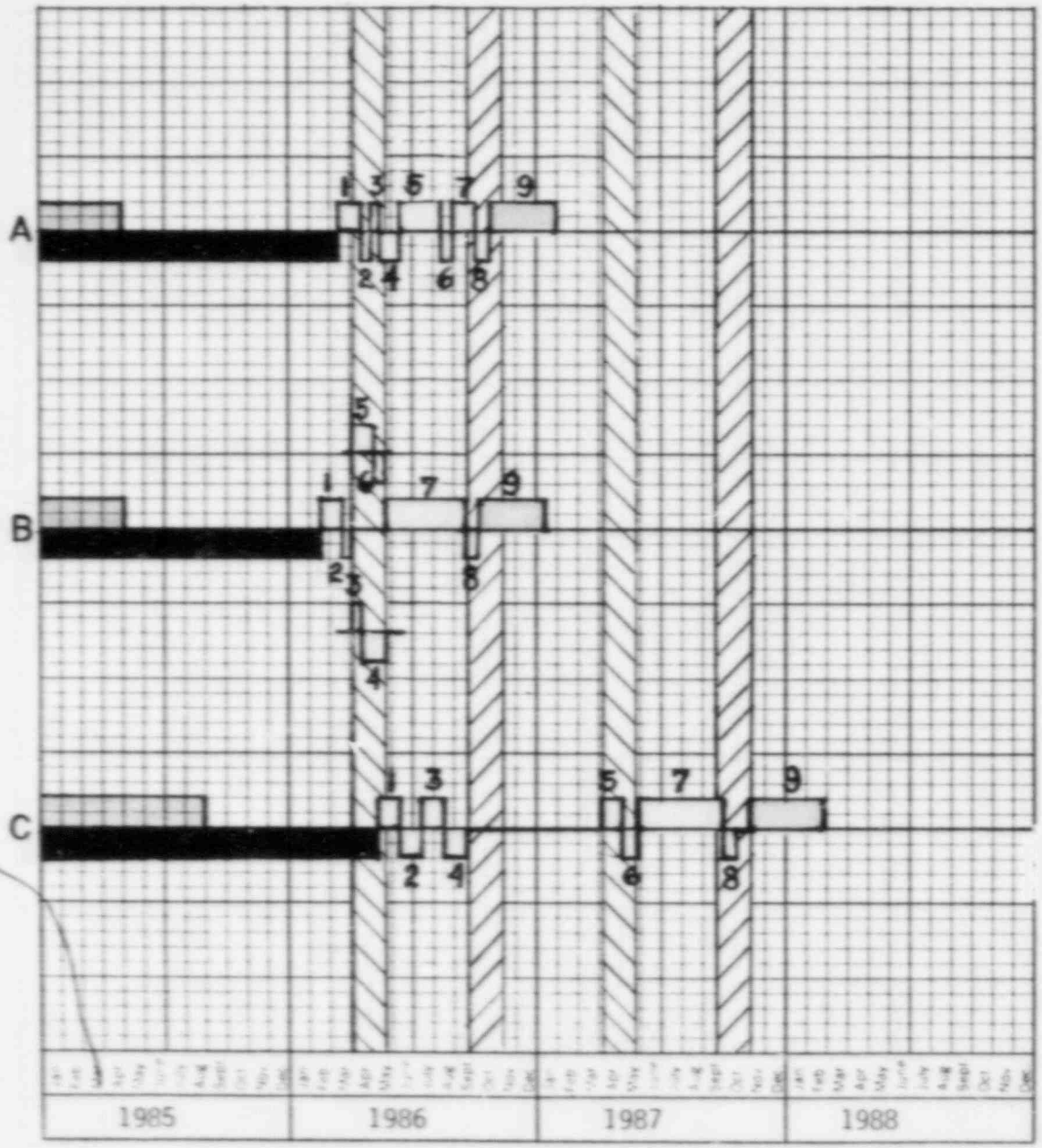

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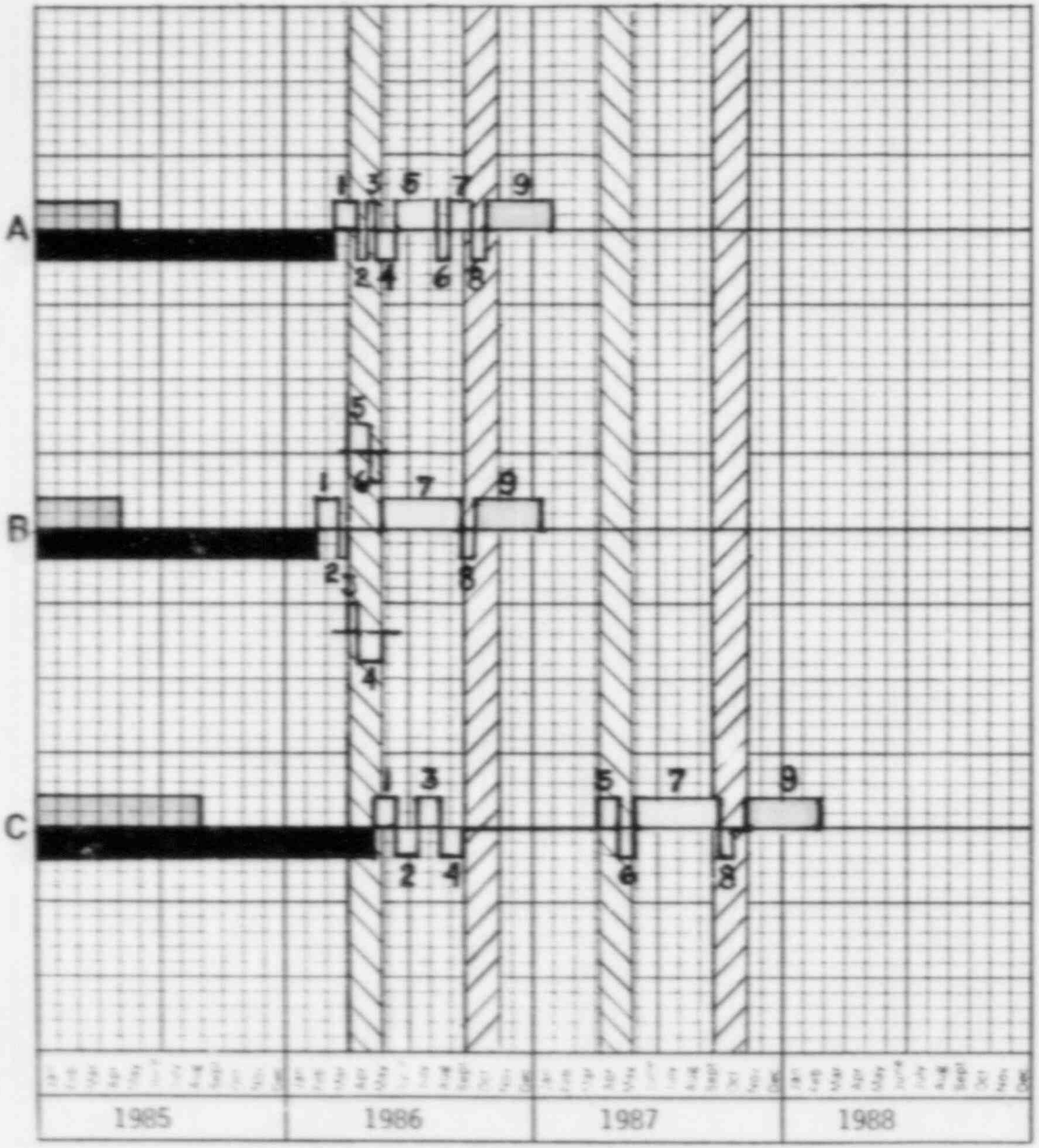

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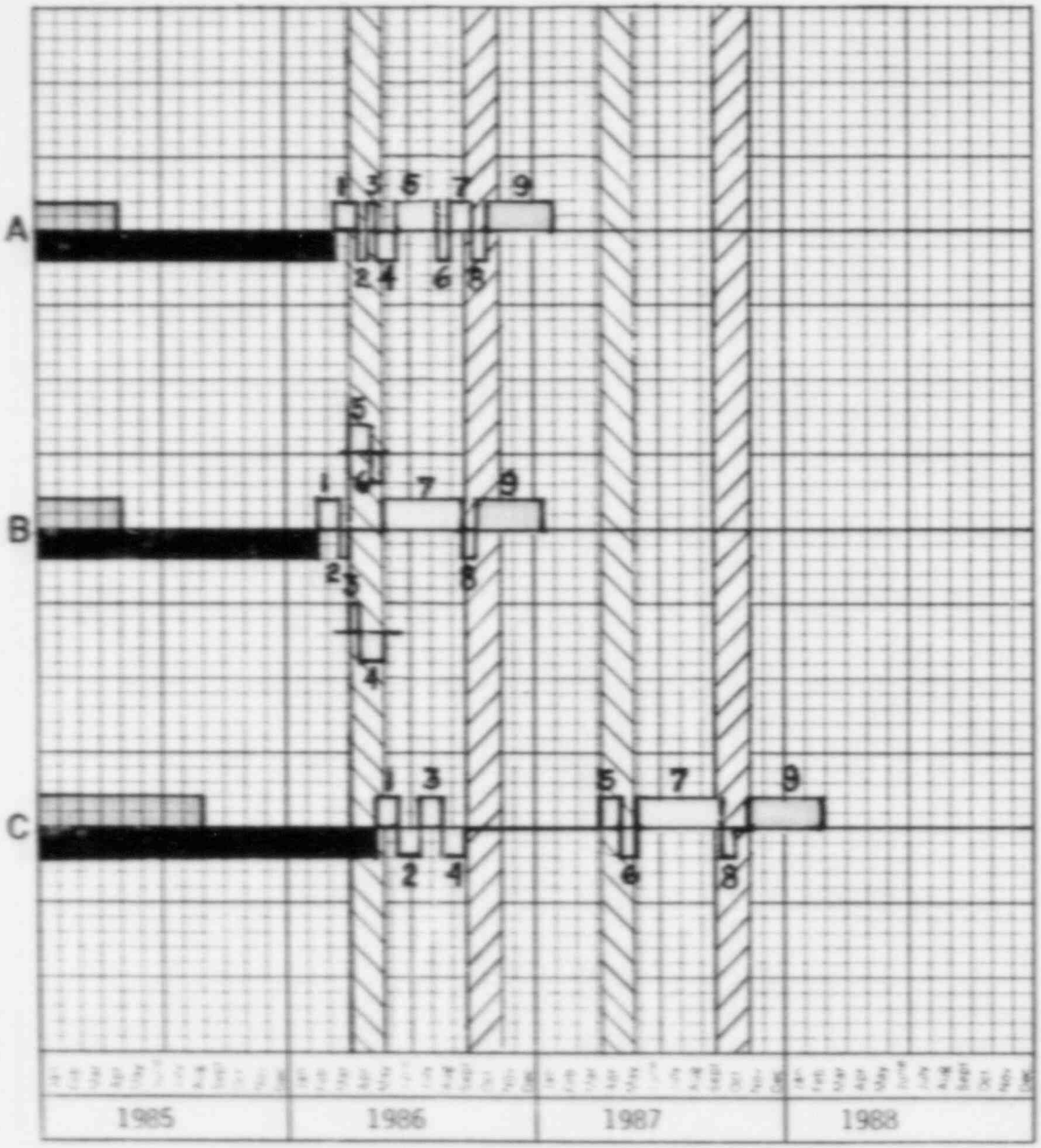

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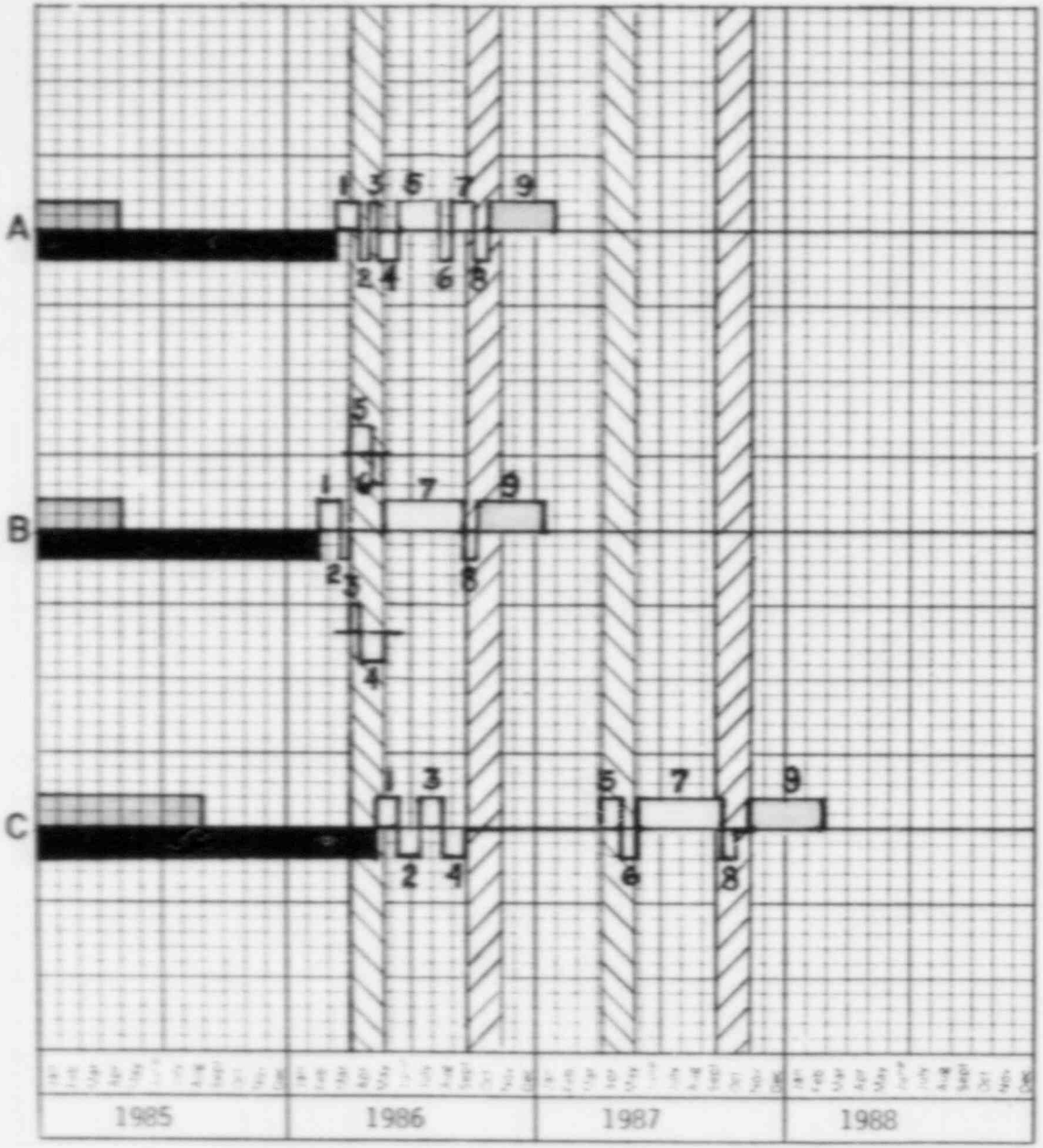

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