



# LETTER AGREEMENT

## No. R1-94-31-PGE



Pacific Gas and Electric Company  
Industrial Relations Department  
201 Mission Street, 1513A  
San Francisco, California 94105  
[415] 973-3420

International Brotherhood of  
Electrical Workers, AFL-CIO  
Local Union 1245, IBEW  
P.O. Box 4790  
Walnut Creek, California 94596  
[415] 933-6060

Ronald L. Bailey, Manager or  
David J. Bergman, Director and Chief Negotiator

Jack McNally, Business Manager

April 8, 1994

Pacific Gas and Electric Company  
Industrial Relations Department  
201 Mission Street, Rm. 1513A  
San Francisco, CA 94105

Attention: Mr. Ronald Bailey, Manager of Industrial Relations

Gentlemen:

This letter cancels and supersedes our letter of March 31, 1994 on the same subject to reflect corrections cited in Doris Spingola's E-mail letter dated April 6, 1994.

Attached is a proposed update of the **Electric Meter Job Definitions and Lines of Progression**, Section 600.12, Exhibit VI-L. Corrections made concerning the renaming of the job title of Electric Meter Crew Foreman in to Electric Meter Crew *Leader*.

If you are in accord with the foregoing and attachment and agree thereto, please so indicate in the space provided below and return one executed copy of this letter to the Company.

Yours very truly,

LOCAL UNION NO. 1245, INTERNATIONAL  
BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO

By

  
Business Manager

The Company is in accord with the foregoing and it agrees thereto as of the date hereof.

PACIFIC GAS AND ELECTRIC COMPANY

APR. 12, 1994

By

  
Manager of Industrial Relations

Attachment: a/s

:LM



**PACIFIC GAS AND ELECTRIC COMPANY**

**AND**

**IBEW, LOCAL UNION 1245**

**ELECTRIC METER DEPARTMENT**

**JOB DEFINITIONS AND LINES OF PROGRESSION**

**Exhibit VI-L, Section No. 600.12**

**Updated April, 1994**  
**Replaces Book Dated April 24, 1989**

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**ELECTRIC METER DEPARTMENT  
Job Definitions and Lines of Progression**

**0760 ELECTRIC METER CREW LEADER**

An employee who is a Working Foreman in charge of a crew of not more than four men (exclusive of himself) engaged in performing all classes of work on electric meters and associated equipment; or

An employee who is an assistant to the Foreman in a large shop where all classes of work are performed on electric meters and associated equipment.

In either case *an employee* shall have the personal qualifications of leadership and supervisory ability, the craft qualifications of a Senior Meterperson and must be familiar with meter installation, standards, testing procedures, accounting practices and safety rules.

Next Lower Classification(s)

1480 (1486) Senior Meterperson  
& (Un.)

Same or Higher Classification(s)

0760 Electric Meter Crew Leader  
2411 (2422) Metering Electronics Tech.  
& (Un.)

**1480 SENIOR METERPERSON**

An employee who is a journeyman engaged in performing without direct supervision all types of meter setting, servicing, testing and repairing; may be required to test and repair instrument transformers and perform various investigations such as current diversion, lost meters, obtaining information for setting up charges and similar items. Pre-inspects meter sets for conformance to Company and governmental requirements and, when required, obtains advance permission for installation of temporary meters. Background of apprenticeship and experience must be such as to qualify *an employee* to perform those duties with skill and efficiency.

Next Lower Classification(s)

1488 Appr. Meterperson

Same or Higher Classification(s)

0760 Electric Meter Crew Leader  
1480 (1486) Senior Meterperson & (Un.)  
2411 (2422) Metering Electronics Tech.  
& (Un.)

## **1488 APPRENTICE METERPERSON**

An employee who normally performs Senior Meterperson's work as an assistant to or under the general direction of a journeyman, and may be required to perform Service Meterperson work that will not interfere with normal training and progression in the apprenticeship program as determined by *an employee's* supervisor. In order to gain experience for advancement to Senior Meterperson, may work alone, or under indirect supervision, on jobs for which *an employee* has been trained and instructed. The employee's educational and general qualifications must be such that *an employee* is considered capable of attaining journeyman status.

### Next Lower Classification(s)

0924 *Utility Worker* (Electric Meter)

### Same or Higher Classification(s)

1485 *Shop Meterperson* (PIO)  
1488 *Appr. Meterperson*  
1489 *Shop Meterperson*  
1490 *Service Meterperson*  
2411 (2422) *Metering Electronics Tech. & (Un.)*  
2421 *Appr. Metering Electronics Tech.*

Note: *Shop Meterperson* (PIO) upon meeting the entrance requirement of the *Apprentice Meterperson* classification and who are successful bidders to vacancies in the *Apprentice Meterperson* classification will be placed in a rate step commensurate with their progress in the Related Academic Training Program not to exceed the two-year rate step.

*See page 12, Guidelines for the Apprentice Meterperson Training Program, LA 83-125.*

## **2411 METERING ELECTRONICS TECHNICIAN**

An employee who is permanently assigned to and normally works in a system meter test and repair facility without direct supervision and regularly performs product analysis, testing, calibrating and repair of electronic circuits and components related to metering equipment and associated systems. The background of training and experience must be such as to qualify the employee to perform these duties with skill and efficiency.

Note: A test and study guide have been established by written agreement between Company and Union (LA 86-78-PGE, *page 26*) under the provisions of Section 205.11. The successful bidder, applicant, or new hire shall be required to pass the test. A total score of 70 percent is necessary to meet this test requirement. This test will only apply in the event that there are no qualified bidders from the established line of progression for this position.

Next Lower Classification(s)

Same or Higher Classification(s)

2421 Appr. Metering  
Electronics Tech.

0760 Electric Meter Crew *Leader*  
2411 (2422) Metering Electronics Tech.  
& (Un.)

**2421 APPRENTICE METERING ELECTRONICS TECHNICIAN**

An employee engaged in performing Metering Electronics Technician's work as an assistant to or under the general direction of a technician. To gain experience for advancement to Metering Electronics Technician, an apprentice may work alone or under indirect supervision on jobs for which the employee has been trained and instructed. The employee's educational and general qualifications must be such that the employee is considered capable of attaining technician status.

Next Lower Classification(s)

Same or Higher Classification(s)

1488 Appr. Meterperson (2-year  
step or above)  
1489 Shop Meterperson (2-year  
step or above)

0760 Electric Meter Crew *Leader*  
1480 (1486) Senior Meterperson & (Un.)  
2421 Appr. Metering Electronics Tech.

A Senior Meterperson, Electric Meter Crew *Leader* or Shop Meterperson who is the successful bidder on a vacancy in the Apprentice Metering Electronics Technician classification will be placed at the wage rate step applicable at the end of 18 months. Such employee will not have subsequent bids on Metering Electronics Technician vacancies considered under Subsection 205.7(b) until the employee has accrued 18 months' classification seniority as an Apprentice Metering Electronics Technician. In addition, the employee will not be considered for automatic progression to Unassigned Metering Electronics Technician under the provisions of the Master Apprenticeship Agreement until the employee has accrued 24 months' classification seniority as an Apprentice Metering Electronics Technician.

Note: An apprentice qualifying test and comprehensive study guide *have been* established by written agreement between Company and Union (LA 90-168, page 33) under the provisions of Section 205.11.

*See page 28, Guidelines for the Apprentice Metering Electronics Technician Training program, LA 88-24.*

**1485 SHOP METERPERSON**  
(Present Incumbent Only)

An employee who is engaged in performing shop tests on all types of electric meters and associated equipment. Completes job tags and performs other paper work in connection with *an employee's* job. When qualified, may be required to drive Company vehicles.

Notes: (LA 89-28)

- a) *Will be used only for those employees who are currently in this classification and who fail the Shop Meterperson Training Program (page 6).*
- b) *All Shop Meterpersons and Utility Workers currently at the System Electric Meter Test and Repair Facility will be required to successfully complete the Shop Meterperson Training Program. Failure to successfully complete the program will result in the return of Shop Meterperson to Shop Meterperson (PIO). Incumbent Utility Workers who fail will be returned to and/or held at the second step of Shop Meterperson until such time as they meet the requirements of Section F, paragraph 2 of the Training Guidelines and will be required to assist in the shop, prepare and handle tools, and all related material work in the warehouse. May be required to drive a light truck and operate a forklift.*

### **1489 SHOP METERPERSON**

An employee who is regularly assigned to work at a System Test and Repair Facility and who tests, calibrates and performs repairs on all types of electric meters and associated equipment in the facility. Works as an assistant to Metering Electronics Technician when required.

Shop Meterperson will be required to complete the Shop Meterperson Training Program (page 6) as provided in the training guidelines.

Placement into the Shop Meterperson classification from Apprentice Meterperson or from Shop Meterperson to Apprentice Meterperson will be made in accordance with the following schedule. Employee so placed will be required to complete the required Apprentice Meterperson Academic Training Program (page 12) up to that wage step.

Beginner's Classification.

#### **Shop Meterperson**

End 6 mos  
End 1 yr  
End 18 mos  
End 2 yrs  
End 30 mos

#### **Apprentice Meterperson**

Start  
End 6 mos  
End 1 yr  
End 18 mos  
End 24 mos

### **1490 SERVICE METERPERSON**

An employee who, in the field, services (cleans recording heads, tests circuits for impulses at the recorder, tests and replaces batteries, replaces inoperative tape recording units, and resets clock time), reads and changes tapes on magnetic-tape recording demand meters; reads other recording and indicating meters, verifies the accuracy of single-phase watt-hour meters by using the self-contained meter



evaluator (or similar device) for high bill complains and office inquiries; investigates broken seals, diversion, meter tampering, vandalism, lost meters and other instances of energy theft; proves meter-apartment addresses; verifies meter numbers, performs necessary paper work in connection with the above activities. May be assigned the duties of a Shop Meterperson in an Electric Meter Shop.

Effective January, 1984, all employees in the classification of Service Meterperson will be reclassified to Apprentice Meterperson after meeting the entrance requirements of the Apprentice Meterperson classification. Each employee will be credited with time worked as a Service Meterperson and placed in a rate step commensurate with *an employee's* progression in the Related Academic Training Program but not to exceed the two-year rate step.

After January 1, 1984, any placement of employees in the Service Meterperson classification shall be from other Electric Meter classifications as agreed to by Company and Union.

Next Lower Classification(s)

Same or Higher Classification(s)

0924 *Utility Worker* (Electric Meter)

0760 *Electric Meter Crew Leader*  
 1480 (1486) *Senior Meterperson & (Un.)*  
 1485 *Shop Meterperson (PIO)*  
 1488 *Apprentice Meterperson*  
 1489 *Shop Meterperson*  
 1490 *Service Meterperson*

**0924 UTILITY WORKER**

An employee who assists in the field or shop with service and meter testing work; prepares and handles tools and material.

Beginner's Classification.

*Notes: (LA 89-28)*

- a) *Will no longer be used in a System Electric Meter Test and Repair Facility.*
- b) *All Shop Meterpersons and Utility Workers currently at the System Electric Meter Test and Repair Facility will be required to successfully complete the Shop Meterperson Training Program. Failure to successfully complete the program will result in the return of Shop Meterperson to Shop Meterperson (PIO). Incumbent Utility Workers who fail will be returned to and/or held at the second step of Shop Meterperson until such time as they meet the requirements of Section F, paragraph 2 of the Training Guidelines and will be required to assist in the shop, prepare and handle tools, and all related material work in the warehouse. May be required to drive a light truck and operate a forklift.*

**GUIDELINES FOR THE  
SHOP METERPERSON TRAINING PROGRAM**

**A. PLACEMENT**

An employee appointed to the Shop Meterperson classification will be placed at the beginning step of the classification and progress through the training program. Placement at other than the beginning will require agreement between the Company and Union except as provided for in the job description for the Apprentice Meterperson.

**B. DURATION**

The duration of the Shop Meterperson training program is 30 months, divided into five time periods which coincide with the wage progression steps of the classification.

**C. PROGRESSION**

An employee in the program who has spent six months at the current wage step and who meets the established standards of achievement shall be advanced to the next higher wage step of the progressive wage rate.

If training is not given or is not timely in relation to the Standards of Achievement, the employee's progression within the training program shall not be delayed.

An employee who is due to progress to the next higher wage step in the wage progression who fails to meet the established standards of achievement shall:

1. Be notified of inadequate performance in writing prior to the date the employee is scheduled to receive the next higher wage step, and
2. Be held in the present wage step.

A copy of the written notification shall be furnished to the Union's Business Representative.

Failure to complete any of the training modules and pass the agreed-upon tests three months after the end of the training period in which they are scheduled will be cause for the employee's removal from the classification in accordance with Section F.

If, during such three-month period, the employee meets the established standards, the employee shall receive the next higher step wage rate effective the date such standards are met. The employee will not be eligible for further progression in the wage rate until six months have elapsed since the date that such wage increase was granted and until the standards for the next higher wage step have been met.

D. STANDARDS OF ACHIEVEMENT

Agreed-upon progress tests will be given at the end of each training module as outlined in Section E and shall serve as the standards of achievement for the various levels of the wage rate progression. The minimum passing score for the progress test will be 70 percent. The employee will be required to pass each progress test within the six-month period that it is scheduled before proceeding to the next wage step.

After any failure, the employee upon request shall be allowed to retake the test any time after one month's time from his/her failure. Shall be allowed two retests, spaced at least one month apart.

E. ACADEMIC TRAINING

The academic portion of the program consists of self-study training and will normally be completed in the first 24 months of entry into the classification. The training resource used in the program are ICS-Intext Self Study Texts from the National Education Training Corp. Self-check tests are provided throughout the academic training period to provide feedback to the employee on progress in the program.

Guidelines for Training Periods

0 to 6 Month's Step

During this period, the employee will complete the following:

44 hrs.        X0301-1 PERSONAL SAFETY (Part 1)  
                  X0302-1 PERSONAL SAFETY (Part 2)  
                  X0303-1 SAFE USE OF HAND TOOLS  
                  X0103-1 FRACTIONS AND DECIMALS  
                  X0104-1 SI METRIC  
                  X0110-1 FORMULAS  
                  X0111-1 EQUATIONS

PROGRESS TEST 1

65 hrs.        A0101-1 NATURE OF ELECTRICITY  
                  A0103-1 ELECTRICAL CELLS AND BATTERIES  
                  A0104-1 ELECTRICAL COMPONENTS AND OHM'S LAW  
                  A0105-1 BASIC CIRCUITS ARRANGEMENTS  
                  A0107-1 MAGNETISM AND ELECTROMAGNETISM  
                  A0201-1 ALTERNATING CURRENT  
                  A0202-1 ALTERNATORS  
                  A0203-1 TRANSFORMERS  
                  A0204-1 INDUCTORS AND CAPACITORS  
                  A0205-1 AC CIRCUITS

**A0206-1 RECTIFICATION AND ELECTRONIC DEVICES  
A0207-1 ELECTRIC ENERGY DISTRIBUTION  
A0208-1 TYPES OF ELECTRIC CIRCUITS**

**PROGRESS TEST 2**

**7 to 12 Month's Step**

During this period, the employee will complete the following:

40 hrs.        4019A-5 ELECTRIC POWER MEASUREMENT (Part 1)  
                  A0301-1 CHECKING SIMPLE CIRCUITS  
                  A0302-1 TROUBLESHOOTING WITH BASIC METERS  
                  A0303-1 HOW A VOLT METER WORKS  
                  A0304-1 HOW AN AMMETER WORKS  
                  A0305-1 AC MEASURING INSTRUMENTS  
                  A0306-1 MISC. ELECTRICAL MEASURING INSTRUMENTS

**PROGRESS TEST 3**

40 hrs.        X0201-1 ALGEBRA: MONOMIALS AND POLYNOMIALS  
                  X0202-1 ALGEBRA: FACTORING  
                  X0203-1 ALGEBRA: ADDING AND SUBTRACTING FRACTIONS  
                  X0204-1 ALGEBRA: MULTIPLYING AND DIVIDING FRACTIONS

**PROGRESS TEST 4**

**13 to 18 Month's Step**

During this period, the employee will complete the following:

45 hrs.        4019B-3 POWER MEASUREMENTS (Part 2)  
                  X0211-1 APPLIED GEOMETRY  
                  X0212-1 PRACTICAL TRIGONOMETRY  
                  X0231-1 TRIGONOMETRIC TABLES  
                  A0404-1 CONDUCTOR PROPERTIES AND INSTALLATIONS  
                  A0405-1 CONDUIT CHARACTERISTICS AND INSTALLATIONS  
                  A0406-1 ELECTRICAL FITTINGS AND CONDUIT BENDING

**PROGRESS TEST 5**

60 hrs.        B0301-1 R. C. AND I. COMPONENTS  
                  B0302-1 BASIC SEMICONDUCTOR COMPONENTS  
                  B0303-1 SEMICONDUCTOR SWITCHING DEVICES  
                  B0304-1 SPECIAL SEMICONDUCTOR DEVICES

B0305-1 RECTIFIERS AND ELECTRON TUBES  
B0306-1 SWITCHING AND CONNECTING DEVICES

PROGRESS TEST 6

19 to 24 Month's Step

During this period, the employee will complete the following:

40 hrs.            B0405-1 SWITCHING CIRCUITS  
                      B0406-1 LOGIC CIRCUITS  
                      B0407-1 GATING AND COUNTING CIRCUITS  
                      B0408-1 PULSE AND DIGITAL CIRCUITS

PROGRESS TEST 7

20 hrs.            6793-5 INSTRUMENT TRANSFORMERS  
                      5177-X NATIONAL ELECTRICAL CODE

PROGRESS TEST 8

24 to 30 Month's Step

No academic training in this period.

F. REMOVAL

1. If an employee who is attempting to meet the standards established to progress in the allotted time fails, the employee shall be removed from the classification and demoted to a Groundman or *Utility Worker* classification in the Electric Department in the Division, provided such employee possesses the necessary qualifications to progress in the line of progression to which transferred and is able to perform the duties of the Groundman or *Utility Worker* classification. As a *Utility Worker* or Groundman, shall either fill a vacancy if one exists or displace the junior employee in the classification provided such junior employee does not have greater service.
2. An employee without one year of demotion from the Shop Meterperson Program under the provisions of Paragraph 1 above, upon presentation of acceptable evidence that the deficiencies are remedial which caused demotion or, if demotion was due to academic failure, that the employee has pursued an outside study program and by completing the required tests meets the established standards for the wage step that was left, shall have application for transfer to a vacancy in the appropriate Shop Meterperson Program classification considered under the provisions of Title 205. If transferred, the employee shall be restored to the training program at the wage step left, and will progress as outlined in C above to the next higher wage step six months after re-enter into the program.

3. An employee who has voluntarily been removed from the Shop Meterperson Training Program, or an employee who was demoted for reasons other than failure to meet the standards and who is a successful transferee to return to a vacancy in the line of progression shall be placed by Company in the wage step of the training classification with his/her current knowledge, skill, efficiency, adaptability and physical ability. Company shall notify Union's Business Representative of any such placement.
4. An employee is entitled to two opportunities to participate in the Shop Meterperson Training Program. Subsequent application for transfer to fill a job vacancy in the classification will not receive consideration under the provisions of Title 205.

#### G. RECORDS

1. It will be the responsibility of the employee to maintain an individual record of progress in the academic portion of the program in collaboration with the supervisor. Progress reviews will be conducted periodically (three month maximum) with the employee and so noted by the employee's and supervisor's signature on the progress record.
2. It shall be the responsibility of each Supervisor to maintain necessary files of records on each employee and to ascertain that each employee has a reasonable opportunity of meeting the standards of achievement set forth in these guidelines.
3. Such records shall at all time be available during the training period for review by supervision, representatives of Union, and the employee.

#### H. GENERAL

1. Should a grievance arise concerning the administration of any portion of this agreement, it shall be determined by the procedure established under the provisions of Subsections 102.3(a)(2) and 102.6(3)(b) of the Agreement; however,
2. If the grievance pertains to:
  - a. the fairness of administration or correction of a test required in the program, or
  - b. the attainment of a standard or proficiency which does not require a test as such, the Local Investigating Committee, prior to its decision and as part of its deliberations, may refer such grievance to the Apprenticeship Training Committee for its recommendations, pursuant to Section 109.2
3. The Shop Meterperson Training Program may be amended by written agreement between Company and Union.

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REVIEW COMMITTEE

East Bay Region Grievance No. 1-2501-86-144  
San Joaquin Valley Region Grievance Nos. 25-339-80-11 & 25-878-86-40  
**Review Committe File No. 1516-80-42**

JOHN P. BRENNAN, Company Member  
East Bay Region  
Local Investigating Committee

FRANK SAXSENMEIER, Union Member  
East Bay Region  
Local Investigating Committee

TOM C. PHEBUS, Company Member  
San Joaquin Valley Region  
Local Investigating Committee

FRANK HUTCHINS, Union Member  
San Joaquin Valley Region  
Local Investigating Committee

The Ad Hoc Committee reached agreement on a revised Electric Meter line of progression, wage rates and job description. As a result of reaching agreement, the Ad Hoc Committee has recommended an equity settlement to resolve these cases as follows:

San Joaquin Grievance No. 25-339-80-11

Company will pay the grievant, Brian Schroeder, \$2,255 as an equity settlement.

San Joaquin Grievance No. 25-878-86-40

Closed without adjustment.

East Bay Grievance No. 1-2501-86-144

Company will pay the grievant, Wayne Johnson, \$2,255 as an equity settlement.

The Review Committee concurs with the recommendation of the Ad Hoc Committee, and this case is closed in accordance with those recommendations.

/s/ DAVID J. BERGMAN, Chairman  
Review Committee

/s/ ROGER W. STALCUP, Secretary  
Review Committee

Attachment: (Refer to LA 89-28)

GUIDELINES FOR THE  
APPRENTICE METERPERSON TRAINING PROGRAM  
(LA 83-125-PGE)

I. Objective of the Apprentice Meterperson Training Program

The need for trained and fully qualified employees to accomplish the duties specified in the Senior Meterperson definition in a manner consistent with Company's Standards of Construction, Safety, and Performance has resulted in this program which coordinates extensive on-the-job and related academic training. The systematic acquisition of knowledge and skill offers the employee in training the vehicle to attain self-confidence, assuredness and satisfaction in *employee's* work and the correct and safe method of performing Company's work.

II. Training

During the 36 months of apprenticeship, the apprentice will be offered job training divided into six time periods which coincide with the wage steps of the classification. In order that uniform and safe practices will be followed in the training period, assignment of duties and work procedures shall be provided in each of the wage steps as outlined in these guidelines and the attached schedule. The amounts of time or units of work as indicated in the schedule are believed sufficient to permit the apprentice to develop proficiency in such duty or work procedures, but should not be considered as inflexible dependent on the demonstrated ability of each individual apprentice.

The attached schedule also specifies those training periods in which the apprentice shall receive related academic or class training.

On-the-job training in the duties and amount of such training as specified in the schedule shall apply to the extent that such duties are performed by journeymen where the apprentice is headquartered. In the event such duty is not performed by journeyman at *employee's* headquarters and, therefore, not available in the training of an apprentice, it shall be noted in *employee's* work record. However, *employee's* progression through the apprenticeship or to journeyman or to higher classifications shall not be deterred for this reason.

If in the course of *employee's* apprenticeship or as a journeyman such duty later becomes available, shall receive on-the-job training as may be required to attain expected journeyman proficiency. If, after a reasonable opportunity, *an employee* fails to attain such proficiency, bids for progression to higher classifications may be subject to the provisions of Section 205.11 of the agreement.

A. General Guidelines

1. It is intended that assignment of the specified hours of training on the job for each period of the apprenticeship will be made to the apprentice as



early in the period as is practicable.

2. Hours shown on the schedule exclude any travel time needed to reach the place where training is to be given; however, such hours include time needed to prepare tools and equipment.
3. Except where otherwise specified, apprentices shall be trained by assignment to work with qualified journeyman.
4. Progressive work experience in all phases of meter work will be provided throughout the first five periods of the apprenticeship in accordance with the attached schedule.
5. Assignments during the last or sixth period will be made for the purpose of rounding out the apprentice's experience.
6. Upon entering each new wage step and period of training, the work assignments in the period shall be such that the apprentice will gain the basic knowledge and confidence in himself, the equipment and the procedure being used. More complex assignments shall be made progressively as the apprentice gains in knowledge and capability.
7. Assignments of duties and work procedures in any period of training shall be confined to those specified for the period or of a prior period.
8. During the first year, an apprentice shall not be assigned to work on any circuit energized in excess of 750 volts.
9. As an apprentice, may be assigned to work without direct supervision only after *an employee* has been instructed and trained on the duties or work procedures required, has performed such work under direct supervision, and is capable of performing such work safely.
10. Working alone as an apprentice, may be assigned to perform certain of the duties of a Shop Meterperson or Senior Meterperson. Those certain duties of these classifications to which *an employee* may be assigned shall be limited to those duties within *employee's* current or prior training periods for which *an employee* is qualified and which are within the duties normally performed by a journeyman in the course of *employee's* work. Further, such assignments shall include as a purpose the development of the apprentice's proficiency and self-confidence to perform such work as a journeyman and shall not be made to the extent that the apprentice is in jeopardy of failing to attain goals set forth in the attached schedule.
11. Although d. c. metering training is not provided specifically in the Schedule, it is expected that in those divisions where d. c. facilities are located, training on d. c. metering shall be given in the same manner as a. c. metering.

12. Notices

- a. An apprentice who is scheduled to attend any of the centralized training programs shall be given notice of such assignment as early as possible by division supervision.
- b. At their request, Union's representatives or their designates will be informed by division representatives of Company's intentions in scheduling individuals to attend centralized training sessions.
- c. When the roster is available, Company shall notify the Union's Apprenticeship Committee of the apprentices attending a centralized training school.
- d. When an apprentice attending a centralized training school is not maintaining an acceptable level of work, notice shall be given to the Union's Apprenticeship Committee. Such notice shall also be given in the event he fails the school or if he is dropped from the school by Company.
- e. If an apprentice does not maintain an acceptable on-the-job work level, notice shall be given to Union's business representative or his designate.

B. Guidelines for Training Periods

1. 0 to 6 Months' Step

During this period, the apprentice will be instructed in the following areas:

a. Shop Operations and Practices

- (1) Learn different methods of cleaning meters
- (2) Learn safety precautions
- (3) Learn how to identify and number meters
- (4) Learn how to determine when a meter should be retired
- (5) Learn how to check metering equipment in and out of shop
- (6) Learn test procedures for single phase meters.

b. Academic Training at Emeryville (4 Weeks)

- (1) Review elementary mathematics - Company outline
- (2) Learn the fundamental laws and concepts of magnetism, voltage, current, resistance, and power in electric circuits.
- (3) Transformers; theory and operation - Company outline

c. Methods of Installation

- (1) Learn the various types of conduit, wire and cable and their characteristics
- (2) Learn how to make a good soldered connection
- (3) Learn how to make a good clamp type (pressure)
- (4) Learn how to use metering tools and keep them in good condition

d. Field Testing (None in This Period)

e. Field Operation and Maintenance of Metering Equipment

- (1) Observe and assist Senior Meterman

f. Electrical Instruments and Calibration

- (1) Learn the proper use and care of test instruments
- (2) Learn to accurately read ammeters, voltmeters, and wattmeters, and to compare them to test instruments

g. Instruction Books and Circuit Diagrams

- (1) Become familiar with the schematic symbols used to represent metering equipment

h. Records and Related Procedures

- (1) Learn the daily field job assignment procedure
- (2) Learn how to make out a satisfactory time card and pink accident form
- (3) Become familiar with warehousing procedures and clerical functions as related to the electric meter shop

i. Self-Reliance, Aptitude, and Leadership

- (1) Learn to keep busy
- (2) Learn to contribute intelligently to the progress of any assigned job
- (3) Be courteous and cooperative in working with customers and other Company departments

Shall be trained in the duties of a Senior Meterperson, as indicated for the 0 to 6 month's period. In conjunction with such work, may use test equipment when *an employee* has been properly trained and instructed in the use of such equipment. Such work will not be performed in such position that the apprentice may bring himself/herself or the equipment into a position where *an employee* encroaches on the contact area or into

the safe working distance with respect to the primary voltage.

As early as possible in this training period, shall be assigned to the basic electricity course (Emeryville) for the mathematic's review and training in electricity and transformers.

- a. An agreed-upon test will be given at the close of the school, and should be given notice in writing of the areas which caused his failure.
- b. After such failure, shall be allowed to retake the test upon *an employee's* request any time after one month's time from *an employee's* failure. Shall be allowed two additional retests, spaced at lease one month apart.
- c. Shall complete the course and pass the agreed-upon test not later than the end of *an employee's* ninth month of training, regardless of the number of retests that *an employee* has requested. Failure to meet this standard of achievement will be cause for *an employee's* removal from the classification in accordance with Paragraph G 6 of the Master Apprenticeship Agreement.
- d. Progression to the second step of the apprentice classification shall be in accordance with Paragraph G 3 and 4 of the Master Apprenticeship Agreement.

2. 7 to 12 Months' Step

Shall continue to perform the functions of the prior period and in addition shall be instructed in the following:

a. Shop Operations and Practices

- (1) Learn to work safely around energized meters
- (2) Learn how to use test equipment to identify single phase, three phase, power legs, etc.
- (3) Learn how to repair single phase watt-hour meters
- (4) Learn how to make shop test records
- (5) Learn how to test and adjust single phase meters
- (6) Learn how to check register ratio and disc constant

b. Academic Training (Metermen's Handbook, 7th Edition)

- |  |                |
|--|----------------|
| (1) Introduction to Meter Department, Chapter 1 (Safety) | 2 hrs.         |
| (2) Math, Chapter 3 including Trig supplement            | 16 hrs.        |
| (3) D. C., Chapter 4 (Review)                            | 4 hrs.         |
| (4) A. C., Chapter 5 (Review)                            | 8 hrs.         |
| (5) Watt-Hour Meters, Chapter 7 including supplement     | <u>26 hrs.</u> |
|  | 56 hrs.        |

- c. As early as possible in this training period, shall be assigned to the Basic Electronics course in Emeryville.
  - (1) Agree-upon tests will be given at the conclusion of the school and if *an employee* failed to receive a passing score, the apprentice shall be notified in writing of the reasons for failing.
  - (2) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph B-1 of these guidelines. In the event of failure to meet this academic standard of achievement, progression shall be in accordance with Paragraph G 4, 5, and 6 of the Master Apprenticeship Agreement.
  
- d. Methods of Field Installation
  - (1) Learn the reasons for keeping metered and unmetered wiring separate
  - (2) Learn how to pull wire into conduit
  - (3) Learn how to test and identify wires installed in conduit
  - (4) Become acquainted with the various types of race-ways suitable for meter wiring.
  - (5) Become familiar with Company standards and learn how to read a meter drawing
  
- e. Field Testing
  - (1) Assist in the testing of self-contained meters
  - (2) Learn proper conduct on customer's premises
  - (3) Learn the methods of locating meters to tested
  - (4) Learn to check for proper meter connections
  - (5) Learn how to make test connections
  - (6) Learn the sequence of operations for recording data and testing
  
- f. Field Operations and Maintenance of Metering Equipment
  - (1) Learn the characteristics of three phase meters with different loads and connections
  - (2) Be able to make minor repairs to meters in the field
  - (3) Learn how to originate and complete a field test tag
  
- g. Electrical Instruments and Calibrations
  - (1) Learn connections and use of ammeter, voltmeter, ohmmeter, and phase angle meters.
  - (2) Learn the application of current and potential transformers and the safety precautions to be observed when they are energized.

**h. Instruction books and Circuit Diagrams**

- (1) Learn to use the more common elementary electrical drawings
- (2) Become familiar with the P. G. and E. meter drawings
- (3) Become familiar with the P. G. and E. requirements for metering
- (4) Learn to select the proper size meters and instrument transformers for given load

**i. Records and Related Procedures**

- (1) Learn to use shop files and records
- (2) Learn to use forms for meter testing and installation
- (3) Become familiar with Company's accounting procedures

**j. Self-Reliance, Aptitude, and Leadership**

- (1) Learn to carry on a job without continuous supervision

Agreed-upon tests will be given at the conclusion of the 7 to 12 month's academic training, and if *an employee* fails to receive a passing score, the apprentice shall be notified in writing of the reason for failing.

Retesting opportunities shall be in accordance with the schedule outlined in Paragraph 1 of these guidelines. In the event of failure to meet either the academic or on-the-job standards of achievement, progression shall be in accordance with Paragraph G 4, 5, and 6 of the Master Apprenticeship Agreement.

**3. 13 to 18 Months' Step**

Shall continue to perform the duties specified for prior periods and, in addition, learn the duties outlined on the schedule for this period of apprenticeship.

As early as possible in this training period, shall be assigned to more advanced duties in the shop and field.

**a. Shop Operations and Practices**

- (1) Learn how to determine if metering equipment is safe to work on
- (2) Learn to test current transformers
- (3) Learn how to clean and repair demand registers
- (4) Learn how to make minor repairs to shop test equipment
- (5) Learn how to test and adjust transformer rated meters with watt-hour demand registers
- (6) Learn to wire test blocks and switches to meters

b. Academic Training (Metermen's Handbook, 7th Edition)

(1) Meter Reading, Chapter 18	4 hrs.
(2) Watt-Hour Meter Testing, Chapter 15	8 hrs.
(3) Meter Test Tables, Chapter 19	8 hrs.
(4) Demand Meters, Chapter 8	12 hrs.
(5) Demand Meter Testing, Chapter 16	8 hrs.
(6) RKVA Meters, Chapter 9 including supplement	16 hrs.
(7) Telemetry and Totalization, Chapter 10	16 hrs.
(8) Instrument Transformers, Chapter 11	20 hrs.
(9) Compensating Metering, Chapter 12	4 hrs.
(10) Duncan and G. E. Meters, Chapters 20 and 21	4 hrs.
(11) Sangamo and Westinghouse, Chapters 22 and 23	4 hrs.

c. As early as possible in this training period, shall be assigned to the Metering Vectors course in Emeryville.

- (1) Agreed-upon tests will be given at the conclusion of the school and if failed to receive a passing score, the apprentice shall be notified in writing of the reasons for failing.
- (2) Retesting opportunities shall be in accordance with the schedule outlined in Paragraph B-1 of these guidelines. In the event of failure to meet this academic standard of achievement, progression shall be in accordance with Paragraphs G 4, 5, and 6 of the Master Apprenticeship Agreement.

d. Methods of Installation

- (1) Learn how to determine the permissible number of conductors of various sizes allowed in different conduit sizes
- (2) Learn about the provisions contained in the National Electrical Code with reference to industrial and power applications
- (3) Be familiar with the P. G. and E. system of numbering wires in current and potential metering circuits
- (4) Learn the importance of neatness in the installation of electrical equipment
- (5) Learn to install CTs and PTs
- (6) Be able to install or remove self-contained meters without supervision

e. Field Testing

- (1) Be able to test self-contained meter without direct supervision
- (2) Learn to interpret meter test readings
- (3) Learn the value of recording operating loads and separate element rotation tests

- (4) Learn to test indicating demand and transformer rated meters under supervision
- (5) Learn the voltage check points of reactiformers

f. Field Operation and Maintenance of Metering Equipment

- (1) Learn the characteristics of "demand meters" in field use
- (2) Be able to make demand register replacements in the field
- (3) Learn the characteristics of instrument transformers under field conditions and precautions to be observed
- (4) Learn the characteristics of varhour meters under different load conditions

g. Electrical Instruments and Calibration

- (1) Learn how to use and purpose of the current transformer test equipment
- (2) Learn the application and use of rheostats, variacs, voltmeters, ammeters, etc.

h. Instruction Books and Circuit Diagrams

- (1) Become familiar with the more complex metering drawings
- (2) Be able to trace a meter circuit on the wiring diagram and make a readable copy of the circuit
- (3) When maintaining or repairing a piece of equipment, be able to use the manufacturer's instruction books to do a more efficient job

i. Records and Related Procedures

- (1) Learn to maintain meter files and records in an intelligible manner

j. Self-Reliance, Aptitude, and Leadership

- (1) Learn to plan and complete minor jobs alone
- (2) Take an active interests in the various jobs that are being done by fellow workers

4. 19 to 24 Months' Step

The appearance shall continue to work as provided in the prior periods and, in addition, will be instructed in the following areas:

a. Shop Operations and Practices

- (1) Learn to safely test potential transformers
- (2) Learn to assemble a watt-hour meter field test set
- (3) Learn to repair printing, graphic and magnetic tape demand meters



- (4) Learn how to test and adjust pulse operated demand meters and meter pulse initiator
- b. Academic Training (Metermen's Handbook, 7<sup>th</sup> Edition)
- |   |         |
|---|---------|
| (1) Terms, Chapter 2  | 2 hrs.  |
| (2) Meter Laboratory, Chapter 17  | 4 hrs.  |
| (3) Instruments, Chapter 6  | 16 hrs. |
| (4) Meter Wiring Diagrams, Chapter 13   | 20 hrs. |
| (5) Services and Installations, Chapter 14<br>(P.G.andE. requirements Eng. Stds.) | 20 hrs. |
| (6) Necessary standard practices letters, etc.                                    | 4 hrs.  |
- c. Electronic, Application to Metering
- (1) Become familiar with the use of resistors, capacitors, and inductance coils, etc., as applied in metering circuits
  - (2) Know the application of diodes, transistors, and Hall crystals
  - (3) Learn to interpret symbols for electronic components used in metering
  - (4) Learn how to check and service amplifiers and oscillators used in impulse generators
  - (5) Learn to use instruments and schematic diagrams to maintain electronic equipment, such as pulse generators, magnetic tape recorders, totalizers, etc.
- d. Methods of Installation
- (1) Learn the wiring connections for switchboard type meters
  - (2) Learn to trace a metering circuit and make a sketch
  - (3) Learn how to locate a ground on a circuit
  - (4) Learn the precautions to be observed when making meter changes on energized circuits
- e. Field Testing
- (1) Be able to test demand and transformer rated meters
  - (2) Be able to use a phase angle meter and draw vectors for any meter installation
  - (3) Learn to test and check contacts and associated demand devices
  - (4) Learn to check totalizing relays
- f. Field Operation and Maintenance of Metering Equipment
- (1) Know the operation, construction, and maintenance requirements of all revenue meters and accessories
  - (2) Know the operation and maintenance of demand meter contacts (mechanical, electrical)

- (3) Be able to change magnetic tapes, charts and maintain inking on graphic demands

g. Electrical Instruments and Calibration

- (1) Learn the basic principles of design and operation of rotating standards
- (2) Know the use of wattmeters and varimeters
- (3) Know the use of special test equipment, such as phase angle meter, phase shifter, etc.

h. Instruction Books and Circuit Diagrams

- (1) Be able to check the continuity of a circuit using an ohmmeter
- (2) Learn to draw diagrams as a means of recording the connections of metering circuits

i. Records and Related Procedures

- (1) Learn to make out meter report forms

j. Self-Reliance, Aptitude, and Leadership

- (1) Be able to assist fellow workers who have less experience
- (2) Learn when it is necessary to secure assistance from other sources

5. 25 to 30 Months' Step

The apprentice will be allowed to do any work normally performed by a Journeyman under the direction of the Foreman, Subforeman, or a Journeyman as required by the job, and in addition, learn the duties outlined on the Schedule for this period of his apprenticeship.

a. Shop Operations and Practices

- (1) Learn to safely perform all shop duties
- (2) Learn to prefabricate meter panels for KVAR and other complex installations
- (3) Learn to shoot trouble and make repairs on field test set
- (4) Be able to shoot trouble and repair totalizing demand installations
- (5) Be able to test and adjust totalizing demand meter installations

b. Electronics On-the-Job

- (1) Testing and checking pulse generating, totalizing, and recording equipment

c. Methods of Installation

- (1) Be able to "shoot trouble" on meter wiring on a new switchboard or on additions to an existing switchboard
- (2) Learn how to make a neat installation
- (3) Be able to install any of the metering equipment used in the P.G. and E. system

d. Field Testing

- (1) Be able to test any meter installation without supervision
- (2) Know the limitations of various meters and systems
- (3) Be able to apply the various checks to determine if the metering is operating properly
- (4) Be able to determine when maintenance is required
- (5) Know how various kinds of customer's loads influence meter operation

e. Field Operation and Maintenance of Metering Equipment

- (1) Become acquainted with the construction, characteristics and maintenance requirements of all specialized equipment
- (2) Be able to identify trouble on any metering system
- (3) Be able to replace worn or damaged parts on complex meter systems
- (4) Become acquainted with test procedures on intertie metering

f. Electrical Instruments and Calibration

- (1) Learn to clean, test, and make minor repairs to the common electrical instruments used
- (2) Know the required frequency of checking rotating standards
- (3) Be able to recognize errors or defects in test equipment

g. Instruction Books and Circuit Diagrams

- (1) Learn to adjust metering equipment according to written instructions
- (2) Learn to make corrections to a metering print and be able to make circuit changes as shown on a drawing
- (3) Be familiar with all drawings pertaining to metering
- (4) Know all applicable standard practices and rules

h. Self-Reliance, Aptitude, and Leadership

- (1) Be able to accept responsibility for the satisfactory completion of all revenue metering jobs
- (2) Learn to offer constructive ideas

- (3) Be courteous and intelligent in discussing metering problems with customers, electricians, and contractors
- (4) Be able to secure cooperation from others in altering installations to comply with P.G. and E. standards

6. 31 to 36 Months' Topping Off

The apprentice will be allowed to do any work normally performed by a journeyman. It will be the object of this step to attain satisfactory proficiency in all the areas where the apprentice has been instructed.

7. Records

- (a) It shall be the responsibility of each apprentice to maintain *their* own record in collaboration with each Foreman or Subforeman to whom *an apprentice* is assigned. Upon completion, each periodic record shall be submitted to the Division Meter Foreman.
- (b) It shall be the responsibility of each Meter Foreman to keep necessary files of records on each apprentice and to ascertain that each apprentice has a reasonable opportunity of meeting the Standards of Achievement set forth in these guidelines.
- (c) Such records shall at all times be available during the apprenticeship for review by the Division Meter Foreman or higher levels of supervision, the employee, and representatives of Union.
- (d) In addition to and precedent to these guidelines, the provisions of the Master Apprenticeship Agreement are applicable.

## SCHEDULE

<u>ACADEMIC ASSIGNMENT MONTH</u>	<u>0 - 6</u>	<u>7-12</u>	<u>13-18</u>	<u>19-24</u>	<u>25-30</u>
A. Basic Electricity Course - Emeryville	160				
B. Basic Electronics Course - Emeryville		120			
C. Metering Vectors Course - Emeryville			120		
D. Metermen's Handbook, <u>"On-the-Job Procedure and Duties"</u>		56	104	66	
1. Safety, First Aid, and Resuscitation	8	8	8	8	8 ☉
2. Shop Operations and Practices	180	128 ●	60	40	10 ☆
1013. Electronics				32	68 ☉
4. Methods of Installation	64	64	110 ●	100	94 ☆
5. Field Testing		48	166 ●	164	204 ☆
6. Field Operation and Maintenance	48	48	60 ●	60	40 ☆
7. Electrical Instruments & Calibration	48	48	60	60●	40 ☆
8. Instruction Books & Circuit Diagrams	96	96	20 ●	20	20 ☆
9. Records and Related Procedures	60	64 ●	20	20	20 ☆
10. Self-Reliance, Aptitude, & Leadership	4	4	4	4	4 ☉

● Indicates point at which apprentice can be expected to know all aspects of specified work but with limited proficiency to perform such work.

☆ Indicates point at which full knowledge and proficiency is a requirement.

**STUDY GUIDE FOR  
METERING ELECTRONICS TECHNICIAN  
QUALIFYING TEST  
(LA 86-78-PGE)**

**ABOUT THE TEST**

- 60 questions
- 70 percent correct overall required to pass with no less than 60 percent correct in any category
- A maximum of three hours will be allowed to complete the test
- The questions will be selected from the categories according to the following:

AC-DC Theory	10 questions
Electronic components	10 questions
Electronic circuits	30 questions
Test and troubleshooting	10 questions

**MATERIAL COVERED IN THE TEST**

**I. AC-DC Theory (Circuit analysis, quantitative relationships, calculations, recognition)**

DC circuits  
Single phase AC circuits  
Poly phase AC circuits  
Series and parallel RCL circuits

**II. Electronic Components (Characteristics, types, ratings, connections, families)**

Resistors, capacitors and inductors  
Transformers  
Batteries  
Bipolar devices  
IC devices

**III. Electronic Circuits (Circuit analysis, recognition, characteristics, connections, functions)**

Oscillators  
Amplifiers  
Miscellaneous circuits  
Power supplies  
Pulse circuits  
Counters  
Registers and adders  
Logic  
Microprocessors

**IV. Test and Troubleshooting (Circuits and components, repair practices, use of test equipment)**

**General**

**Grounding**

**Components**

**Circuits**

**Logic**

**Test equipment**

**GUIDELINES FOR THE  
APPRENTICE METERING ELECTRONICS TECHNICIAN  
TRAINING PROGRAM  
(LA 88-24-PGE)**

**I. OBJECTIVE**

Pacific Gas and Electric Company has a need for fully qualified employees to perform the duties of the Metering Electronics Technician classification. These duties include testing and repairing all types of electronic metering equipment and associated systems according to company standards and governmental regulations. This program has been created to provide a combination of Academic and On-the-Job training to allow the development of trained journeymen who can perform these duties safely and skillfully.

**II. DURATION**

The duration of the Apprentice Metering Electronics Technician program is 24 months, divided into four time periods which coincide with the wage progression steps of the classification.

**III. QUALIFYING TEST**

To enter the Apprentice Metering Electronics Technician classification, an employee will be required to pass a written examination based on the minimum acceptable electronics knowledge necessary to enter the academic training portion of the program.

**IV. ACADEMIC TRAINING**

The academic portion of the program consists of self-study training courses and will normally be completed in the first 18 months of the apprenticeship. The training resources used in the program are ICS-INTEXT texts as listed in appendix A.

Self-check quizzes are included throughout the academic training period to provide feed back to the apprentice on progress in the program. Progress tests will be given as outlined in the ICS-INTEXT program and shall serve as the Standards of Achievement for the academic portion of training for the various levels of the wage rate progression. The minimum passing score for the progress tests will be consistent with the level established by ICS-INTEXT for satisfactory completion of the training courses.

**V. ON-THE-JOB-TRAINING**

Progressive work experience in all phases of electric metering electronics will be provided to the apprentice by assignment to job duties at the System Electric



Meter Test and Repair Facility. Apprentices will normally be trained by assignment to work with qualified Metering Electronics Technicians, however, assignment to work alone may be made in accordance with Section G of the Master Apprenticeship Agreement and Exhibit VI-L, Job Definitions and Lines of Progression, of the Agreement between PG&E and IBEW Local 1245. Such assignments to work alone shall not be made to the extent that the apprentice is in jeopardy of failing to attain goals set forth in these Guidelines.

## VI. GUIDELINES

### A. General Guidelines

1. Except where otherwise specified, apprentices shall be trained by assignment to work with qualified journeyman.
2. Progressive work experience will be provided throughout the first three periods of the apprenticeship.
3. Assignments during the last or fourth period will be made for the purpose of rounding out the apprentice's experience.
4. Upon entering each new wage step and period of training, the work assignments in the period shall be such that the apprentice will gain the basic knowledge and confidence in himself/*herself*, the equipment and the equipment and the procedure being used. More complex assignments shall be made progressively as the apprentice gains in knowledge and capability.
5. When an apprentice is not maintaining an acceptable level of effort in the academic training or on-the-job training portions of the program, notice shall be given to the Apprenticeship Committee.

### B. Guidelines for Training Periods

#### 1. 0 - 6 Months' Step

During this period, the apprentice will be instructed in the following areas:

##### a. Academic Training

- 98 Hrs.      1. Complete ICS-INTEXT Block B05, Electronic Systems and Block B06, Troubleshooting Electronic Equipment and Systems

##### b. On-The-Job Training

- 800 Hrs.      1. The apprentice will normally receive work experience by assigned to work with a Metering Electronics Technician in

areas that will reinforce the academic portion of the program in process. However, due to the limitations of personnel and job assignments at the System Electric Meter Test and Repair Facility the apprentice may, at times, assist in work that will exceed his/*her* technical ability. In these cases, will not be expected to perform any duty that is inconsistent with his/*her* level of academic training in this program.

2. 7 to 12 Months' Step

The apprentice shall continue to perform the functions of the prior period and in addition shall be instructed in the following:

a. Academic Training

- 98 Hrs. 1. Complete ICS-INTEXT Block B08, Logic Circuits and Block 09, Linear/Digital Integrated Circuits.

b. On-The-Job Training

- 800 Hrs. 1. The apprentice will normally receive work experience by assignment to work with a Metering Electronics Technician in areas that will reinforce the academic portion of the program in process. However, due to the limitations of personnel and job assignments at the System Electric Meter Test and Repair Facility the apprentice may, at times, assist in work that will exceed his/*her* technical ability. In these cases, will not be expected to perform any duty that is inconsistent with his/*her* level of academic training in this program.

3. 13 to 18 Months' Step

The apprentice shall continue to perform the duties specified for prior periods and in addition learn the duties outlined for this period of his apprenticeship.

a. Academic Training

1. Complete ICS-INTEXT Block B11, Introduction to Microprocessors and Block B12, Microprocessor Applications

b. On-The-Job Training

- 800 Hrs. 1. The apprentice will normally receive work experience by assignment to work with a Metering Electronics Technician in areas that will reinforce the academic portion of the program in process. However, due to the limitations of personnel and job assignments at the System Electric Meter Test and Repair

Facility the apprentice may, at times, assist in work that will exceed his/*her* technical ability. In these cases, will not be expected to perform any duty that is inconsistent with his/*her* level of academic training in this program.

4. 19 to 24 Months' Step

The apprentice will be allowed to do any work normally performed by a journeyman. It will be the object of this step to attain satisfactory proficiency in all the areas where the apprentice has been instructed.

VI. RECORDS

- A. It will be the responsibility of the apprentice to maintain an individual record of progress in the academic portion of the program in collaboration with the supervisor. Progress reviews will be conducted periodically (three month maximum) with the apprentice and so noted by the apprentice's and supervisor's signature on the progress record.
- B. It shall be the responsibility of each Supervisor to maintain necessary files of records on each apprentice and to ascertain that each apprentice has a reasonable opportunity of meeting the Standards of Achievement set forth in these guidelines.
- C. Such records shall at all times be available during the apprenticeship for review by the Regional Staff of higher levels of supervision, the employee, and representative of Union.
- D. In addition to and precedent to these guidelines, the provisions of the Master Apprenticeship Agreement are applicable.

ACADEMIC TRAINING RESOURCES

BLOCK B05 ELECTRONIC SYSTEMS

- B0501 Electronic Devices and Amplification
- B0502 Audio and RF Circuits
- B0503 Oscillators, Feedback, and Waveform Generators
- B0504 Industrial Receivers, Transmitters, and Video Systems
- B0506 Servo and Control Systems
- B0507 Pulse and Logic Circuits
- B0508 Programmable Controllers and Microprocessors

## BLOCK B06 TROUBLESHOOTING ELECTRONIC EQUIPMENT AND SYSTEMS

- B0601 Introduction to Troubleshooting
- B0602 Basic Troubleshooting Methods
- B0603 Selecting Instruments for Troubleshooting
- B0604 Measuring Techniques in Troubleshooting
- B0605 Support Services for Troubleshooting
- B0606 Practical Troubleshooting Problems

## BLOCK B08 LOGIC CIRCUITS

- B0801 Logic Circuit Fundamentals
- B0802 Introduction to Number Systems
- B0803 Logic Devices and Diagrams
- B0804 Logic Families
- B0805 Applications of Logic Circuits
- B0806 Troubleshooting Logic Circuits

## BLOCK B09 LINEAR/DIGITAL INTEGRATED CIRCUITS

- B0901 Linear/Digital Principles
- B0902 Integrated Circuit Techniques
- B0903 Linear Integrated Circuits
- B0904 Digital Integrated Circuits
- B0905 Integrated Circuit Logic
- B0906 Troubleshooting Integrated Circuit Systems

## BLOCK B11 INTRODUCTION TO MICROPROCESSORS

- B1101 Introduction to Computers
- B1102 Introduction to Microprocessor Applications
- B1103 Microprocessor Basics, Part 1
- B1104 Microprocessor Basics, Part 2

## BLOCK B12 MICROPROCESSOR APPLICATIONS

- B1201 Working with an Uncomplicated Microprocessor, the MC6802, Part 1
- B1202 Microprocessor Programming Principles, Part 1
- B1203 Working with an Uncomplicated Microprocessor, the MC6802, Part 2
- B1204 Microprocessor Programming Principles, Part 2
- B1205 Interfacing Through Serial and Parallel Ports
- B1206 Troubleshooting Microprocessor Equipment, Part 1
- B1207 Troubleshooting Microprocessor Equipment, Part 2
- B1208 Other Families of Microprocessors
  
- XK-200 Digital Trainer and Associated Experiments Workbook
- Xk-300 Microprocessor Trainer and Associated Workbook

- COPY -

**LA 90-168-PGE**

July 18, 1990

Local Union No. 1245  
International Brotherhood of  
Electrical Workers, AFL-CIO  
P.O. Box 4790  
Walnut Creek, CA 94596

Attention: Mr. Jack McNally, Business Manager

Gentlemen:

Company proposes pursuant to Subsection 205.11(b) of the Agreement an Entrance Test and Study Guide for the Apprentice Metering Electronics Technician. The test is a prerequisite for entry into the Apprentice Metering Electronics Technician as required under the provisions of Letter Agreement 86-78.

The testing procedure is as follows and in accordance with Letter Agreement 86-25.

All employees wishing to take any of the appropriate entry examinations may request in writing to their respective Human Resources Departments that they be tested.

1<sup>st</sup> Testing - Upon employee's request or employee is the otherwise successful bidder to an authorized vacancy.

2<sup>nd</sup> Testing - Three (3) months, or thereafter, following the date of the first testing.

3<sup>rd</sup> Testing - Six (6) months, or thereafter, following the date of the second testing.

4<sup>th</sup> Testing - Six (6) months, or thereafter, following the date of the third testing provided that the employee is able to show satisfactory evidence that the employee has prepared himself or herself to pass the test.

An employee taking the above examination who fails will not be eligible to be retested except as provided by the above procedure.

The test and study guide have been provided to Mr. Ron Fitzsimmons of your staff.

If you are in accord with the foregoing and agree thereto, please so indicate in the space provided below and return one executed copy of this letter to the Company.

Very truly yours,

PACIFIC GAS AND ELECTRIC COMPANY

By:       /s/ Richard B. Bradford        
      Manager of Industrial Relations

The Union is in accord with the foregoing and it agrees thereto as of the date hereof.

LOCAL UNION NO. 1245, INTERNATIONAL  
BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO

July 31, 1990

By:       /s/ Jack McNally        
      Business Manager