Pacific Gas and Electric Company

LETTER AGREEMENT NO. 11-37-PGE

IBEW

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LABOR RELATIONS AND HUMAN RESOURCESDEPARTMENT
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INTERNATIONAL BROTHERHOOD OF
ELECTRICAL WORKERS, AFL-CIO
LOCAL UNION 1245, I.B.E.W.
P.O. BOX 2547
VACAVILLE, CALIFORNIA 95696
(707) 452-2700
TOM DALZELL,
BUSINESS MANAGER

August 29, 2011

Mr. Tom Dalzell, Business Manager
Local Union No. 1245
International Brotherhood of
Electrical Workers, AFL-CIO
P. O. Box 2547
Vacaville, CA 95696

Dear Mr. Dalzell:

The Company and IBEW Electrician Subcommittee established and maintained to provide oversight over related training issues presented the attached Substation Apprentice Electrician Training Program and Guidelines to the Joint Apprenticeship Training Committee (JATC) for review. The proposed revision includes a recommendation to create separate apprenticeship guidelines for Title 200 and Title 300 classifications replacing the training program and guidelines in Letter of Agreement 01-39, which consolidated the two programs in to one. In addition, the revisions build in a number of enhancements that uphold rigorous Standards of Achievement and support the success of apprentices entering these programs.

Current apprentices that are 3rd step and above will continue in and complete the existing program. Current apprentices that are 2nd step and below will be completing the revised program specific to their position. The transition to the new program for those currently enrolled will be seamless and without impact. The JATC recommends this proposed training program be approved to replace the existing training guidelines in LA 01-39.

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

Very truly yours,

PACIFIC GAS & ELECTRIC COMPANY

By: _____
Stephen A. Rayburn
Director and Chief Negotiator

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

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

July 9, 2012, 2011

By: _____
Tom Dalzell
Business Manager

Guidelines for the Substation Maintenance Electrician Apprenticeship

January, 2011

Substation Maintenance Electrician Apprenticeship

Table of Contents

Substation Maintenance Electrician Apprenticeship

1.0 - Introduction

1.1 Objective

The need for trained and qualified employees to accomplish the duties of a journeyman Maintenance Electrician in a manner consistent with the company's safety and performance standards has resulted in this apprenticeship. This apprenticeship consists of extensive on-the-job and related academic training which provides the apprentice with a systematic approach to acquire the required knowledge and skill. The training offers the apprentice a vehicle to attain competence, self-confidence, and satisfaction in performing the work of a Substation Maintenance Electrician.

1.2 Overview

- The Master Apprenticeship Agreement (MAA) - Division governs this apprenticeship program.
- The apprenticeship is divided into six step levels and each step level is to be completed within a six month time period.
- The first five steps of the apprenticeship have required on-the-job-training (OJT) that is tracked in hours by the apprentice.
- At the sixth step level there is no specific OJT or course to attend. The purpose of this step is for "rounding-out" the apprentice's learning and experience.
- An apprentice at the sixth step level, who has completed all required training, may bid a journeyman position. If the apprentice is the successful bidder, he/she will be promoted to journeyman and still receive a state apprenticeship certificate.
- An apprentice not meeting the standards of achievement for a given step can be delayed progression until the cause is remedied. If the cause is not remedied within the allotted time, the apprentice may be removed from the apprenticeship in accordance with the MAA.

2.0 – Orientation and Enrollment

2.1 - Orientation and enrollment meeting	Soon after entering the apprenticeship, the Training Coordinator schedules a meeting with the apprentice and apprentice's supervisor to review the details of the apprenticeship and to enroll the apprentice in this state certified apprenticeship.
2.2 - Apprentice Agreement	The apprentice completes and signs the Apprenticeship Agreement, which is an agreement with the apprentice, PG&E, and the state Division of Apprenticeship Standards. After all required parties sign the agreement the apprentice and supervisor receive a copy for their records. Upon completion of the apprenticeship the apprentice receives a certificate issued by the state.
2.3 – Veterans benefits	An apprentice who is a veteran and is interested using his/her benefits through the apprenticeship can contact Labor Relations at company number 270-2914 or outside line at 925-270-2914 or on-line at http://edu.military.com/gibill/.
2.4 – Materials received	During the orientation meeting the apprentice receives the following: • A copy of the Master Apprenticeship Agreement - Division • Apprenticeship Standard of the PG&E Joint Apprenticeship Committee. • Individual Program Standard • Substation Construction Electrician Apprenticeship Training Guidelines • Exhibit X • An Apprenticeship Course and OJT Record

3.0 – Apprenticeship Administrative Roles

3.1 - Overview	To have a successful training program it is essential to have an effective administration system. The following lists the roles identified to administer this training program
3.1 – Joint Apprenticeship and Training Committee (JATC)	The JATC consists of company management and union representatives that oversee all apprenticeships and other training programs within the company. This committee is responsible for ensuring the apprenticeships are in compliance with state mandates and laws.

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3.0 – Apprenticeship Administrative Roles, Continued

3.2 – Substation Electrician Apprenticeship (SEA) Committee

The SEA Committee consists of equal numbers of management employees and journeyman electricians. This committee is a sub-committee to the JATC that meets regularly to address Substation Maintenance Electrician Apprenticeship issues. Duties of this committee include:

- Ensuring the apprenticeship provides adequate training.
- Reviewing and updating training requirements.
- Developing the apprenticeship guidelines and OJT record.
- May perform evaluations of apprentices who are on action plans.

3.3 – Maintenance Supervisor

The supervisor plays a major role in the apprentice's training by ensuring the apprentice is exposed to all elements required of the job. Listed are the responsibilities for this role:

- Assigns work that aligns with the apprentice's training.
- Ensures the apprentice has adequate on-the-job-training (OJT) by an OJT Trainer.
- Maintains the master copy of the apprentice's Course and OJT Record
- Conducts 90-day progress reviews with the apprentice.
- Does sign-offs on the apprentice's Course and OJT Record when the apprentice is qualified.
- Coordinates with the Training Coordinator.

3.4 – Training Coordinator

The Training Coordinator is responsible for the overall performance of the apprenticeship. Responsibilities of the coordinator are as follows:

- Reports monthly to the JATC on the apprenticeship status, SEA Committee updates, and individual apprentice issues.
- Schedules and conducts SEA Committee meetings.
- Produces a monthly apprenticeship progress report for the director, superintendents, and supervisors.
- Verifies 90-day reviews are accurate and stored in a central location.
- Ensures apprentices attend mandated apprenticeship courses.
- Issues letters and develops action plans for apprentices who do not meet the Standards of Achievement.

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3.0 – Apprenticeship Administrative Roles, Continued

3.5 – Apprentice Electrician

Although the main concern of the apprentice is learning the job, there are administrative responsibilities as well.

- The apprentice is responsible for an accurate Course and OJT Record.
- The apprentice is responsible for communicating to the supervisor areas where training is needed.
- Acquires sign-offs by a supervisor and OJT Trainer when he/she becomes qualified to perform a task unsupervised.

3.6 – OJT Trainer

Most often the OJT Trainer role is fulfilled by a Journeyman Electrician, but an OJT Trainer could be any person who by the nature of the work is deemed qualified to perform a given task. Responsibilities of the OJT Trainer include:

- Providing OJT for the apprentice.
- Signing-off on the apprentice's Course and OJT Record when the apprentice demonstrates he/she is qualified to perform a task.

3.7 – Course Trainer

The role of the Course Trainer is to provide classroom and lab training. Administrative responsibilities include:

- Signing-off on the apprentice's Course and OJT Record when the apprentice passes a course.
- When an apprentice fails a course, the trainer provides counseling; identifying areas the apprentice needs to study and practice in order to pass the course.
- Notifies the Training Coordinator of class status for all apprentices attending a course.

4.0 – Course and OJT Record System

4.1 – Course and OJT Record

Each apprentice has a personal Course and OJT Record. The apprentice uses this record for the following:

- Recording OJT hours daily.
- Tracks tasks and courses "signed-off" by a supervisor, OJT trainer, or course trainer.
- Presents the Course and OJT Record to the supervisor during 90-day reviews for updates.

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4.0 – Course and OJT Record System, Continued

4.2 – Record layout

On the cover page the apprentice's name and position date are listed. On page 2 are all the courses required for the apprenticeship. Pages 3 through 11 contain the OJT tasks with the required hours and sign-offs. The remaining 2 pages are for the 90-day progress review.

4.3 – Course completion records

The apprentice brings the Course and OJT Record to all apprenticeship courses. Providing the apprentice passes the course, the trainer will sign-off on the course. The apprentice signs-off as well acknowledging he/she passed the course. There are 10 courses with a total of 408 hours within the apprenticeship.

4.4 – OJT hours

There are 1,655 OJT hours required of the total 6,000 hours of the apprenticeship. One box on the record represents one OJT hour. While some tasks require the hours be completed within a certain step other tasks are spread across more than one step. The combined course and OJT total 2,063 hours. To stay on track the apprentice needs to average approximately 376 OJT hours for each step over five steps. For each hour an apprentice practices performing the task, the apprentice fills a box on the record. Time spent reading and studying are not included in the OJT hours. The apprentice is expected to fill the OJT boxes daily, but at a minimum of once each week. It is not imperative that 40 hours are recorded each week as some job activities may not have a place on the OJT card.

4.5 – OJT Tasks and task sign-offs

There are 18 OJT sections with a total of 86 tasks and sub-tasks. The apprentice fills the boxes in completing the OJT hours while becoming qualified to perform a task. When the apprentice becomes qualified to perform a task, the apprentice, OJT trainer, and supervisor sign-off on the task. Sign-offs by the apprentice and OJT trainer occur when the apprentice demonstrates he/she is qualified to perform the task, while sign-offs by the supervisor normally occur during the 90-day review meetings. The supervisor may do a sign-off as the OJT Trainer as well as the Supervisor. Not until all three sign-off on a task is the apprentice deemed qualified and allowed to perform the task without supervision.

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4.0 – Course and OJT Record System, Continued

4.8 – Required OJT hours and task sign-offs

For the first step, the minimum OJT the apprentice must complete is 330 hours and the minimum number of tasks to be qualified is 14. Included in the 330 hours, are 152 course hours. By the end of the second step the apprentice's cumulative OJT hours must be a minimum of 702 hours, which includes 96 course hours and another 13 tasks.

Required OJT hours and task sign-offs (continued)

The table below shows the average and minimum required hours and task qualifications required for each step.

OJT hours per step requirements	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**	**Step 6**
Average Hours/Step	413	413	413	413	411	
Minimum Accumulative Hours	330	702	1115	1569	2063	
Percent of Average Total Hours	80%	85%	90%	95%	100%	
Task qualifications	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**	**Step 6**
Average Tasks /Step	17	17	17	17	18	
Minimum Accumulative Tasks	14	27	43	61	82	86
Percent of Average Total Tasks	80%	80%	85%	90%	95%	100%

Note: Refer to "Step Requirements" beginning on page 12 for the specific tasks to become qualified to perform for each step.

5.0 – OJT Progress and 90-Day Reviews

5.1 - Initial meeting

Soon after the apprentice is enrolled, the apprentice and the supervisor meet to discuss expectations for the apprentice in regards to completing the Course and OJT Record. The supervisor's copy is the master record and the apprentice's copy becomes the working copy. During this initial meeting the supervisor assigns the apprentice OJT tasks to begin tracking hours. Accuracy of the information on the Course and OJT Record is the responsibility of the apprentice.

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5.0 – OJT Progress and 90-Day Reviews, Continued

5.2 – 90-day reviews

After the initial meeting and approximately every 90 days thereafter, the supervisor meets with the apprentice to review the apprentice's progress, do sign-offs, and to plan training for the next 90-days. This review is documented on the 90-Day Apprentice Performance Review on the last two pages of the Course and OJT Record.

5.3 – OJT Task sign-offs

During the 90-day review meeting, the apprentice and the supervisor discuss the training and work experience the apprentice accomplished during the previous 90 days. The apprentice indicates on the Course and OJT Record the completed OJT hours and which tasks he/she has become qualified.

The apprentice indicates he/she is qualified by signing-off for the task. The OJT trainer also signs-off for the task when the apprentice demonstrates he/she is qualified.

"Qualified" means the apprentice is fully proficient and can accomplish the task at the journeyman level without assistance.

When the supervisor, through first hand observations or reliable sources agrees that the apprentice is qualified, then the supervisor signs-off on the record and dates the entry.

The apprentice is officially qualified to perform a task after all three sign-offs are recorded on the Course and OJT Record.

It is not required that all the OJT boxes be filled, in order for an apprentice to be deemed qualified. However, the OJT hours must still be completed even though the apprentice is signed-off and qualified to perform a task.

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5.0 – OJT Progress and 90-Day Reviews, Continued

5.4 – review conclusion

At the conclusion of the 90-day review meeting, the supervisor completes progress review form on the last 2 pages of the record. The apprentice and supervisor both sign the review and date it.

Copies of the Course and OJT Record are made for (1) the supervisor's master copy, (2) the apprentice's working copy, (3) the training coordinator's second master, and if the apprentice is a veteran, (4) a copy for Labor Relations.

The apprentice uses the updated OJT record as the working copy until the next review.

The training coordinator's copy is reviewed for accuracy and apprenticeship compliance. The copy is then stored in a central location for audit purposes.

The copy for Labor Relations is to ensure compliance with the Veterans Administration and that participating veterans receive their benefits.

6.0 – Apprenticeship Courses

6.1 – Course Enrollment

The Training Coordinator arranges for courses to be available for the apprentice at the appropriate step and that the apprentice is enrolled. The apprentice and supervisor are notified of the enrollment by e-mail. Approximately a week in advance of the course the apprentice and supervisor receive another e-mail reconfirming the enrollment and other information such as class hours, materials to bring, and clothing requirements.

6.2 – Out of step Enrollments

When a situation arises where the apprentice is not enrolled into a course at the required step and the apprentice is not at fault, the apprentice's step progression is not delayed.

6.3 – Changing enrollments

The apprentice is normally given adequate notification of upcoming courses and is expected to attend. When circumstances arise, such as a family emergency or illness, the Training Coordinator will reschedule the apprentice for the next available course. If the next available course is beyond the required step, the apprentice is not held a step progression.

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6.0 – Apprenticeship Courses, Continued

6.4 – Attending courses

Courses are held on consecutive days and attendance is required for all days. If an apprentice fails to show for a course and cannot be rescheduled to attend at the required step, the apprentice's step progression is delayed.

For most courses, if the apprentice is absent a day the apprentice is dropped from the course and rescheduled. If the absence is an excused absence, the apprentice is rescheduled and the step progression is not held. If the absence is an unexcused absence, the step progression will be delayed.

6.5 – Passing a course

All courses have written tests and most have a significant amount of lab work. In order to pass, the apprentice must pass the written tests and complete all lab work.

6.4 – Course failure

The apprentice can fail a course by not passing the written test or by not completing the lab work. When an apprentice fails a course, the apprentice and trainer will review the test and lab work identifying areas the apprentice needs to improve. Notification of the failure, along with an action plan that include the areas to study and tasks to practice, will be e-mailed to the supervisor, the apprentice, and the JATC.

6.5 – Making up a course failure

An apprentice who fails a course is scheduled by the Training Coordinator to repeat the course. If a course cannot be scheduled within the apprentice's current step the apprentice is deemed to have not met the Standards of Achievement (See section 7.0 regarding the Standards of Achievement).

The apprentice who fails a course on the second attempt can expect to be removed from the apprenticeship. The final decision for removal is the responsibility the JATC.

After a course failure the apprentice continues his/her OJT, but is not allowed to bypass the apprenticeship course sequence. Refer to the Step Requirements beginning with Section 8, on page 12 for course sequencing. After the apprentice attends and passes the previously failed course the apprentice continues the apprenticeship course sequence.

7.0 – Standards of Achievement

7.1 – Overview

Section F of the Master Apprenticeship Agreement (MAA) – Division spells out the consequences for not meeting Standards of Achievement (SOA). The apprentice is recommended to read the MAA for general knowledge and in the event he/she does not meet the SOA.

7.2 – Not meeting Standards of Achievement (SOA)

If the apprentice is not given the opportunity to acquire OJT hours for the required tasks, the apprentice is not at fault and is not held for not meeting the standards.

The Apprentice is deemed to have not met the Standards of Achievement for a given step when one or more of the following occurs:

- The minimum number of OJT hours was not achieved for the step.
- The required OJT hours are completed for a task, but a sign-off to perform the task is not achieved.
- The minimum task sign-offs for a given step are not achieved.
- A required task for a given step is not signed-off.
- The apprentice fails a course and cannot make-up the course before a step change.
- The apprentice fails to show for a scheduled course.
- The apprentice is dropped from a course due to an unexcused absence.

7.3 – Standards of Achievement notification

When the apprentice has not met the Standards of Achievement, the Training Coordinator provides written notification to the apprentice. The notification is also given to the supervisor, JATC, and union business representative. The apprentice is allowed a maximum of three months to remedy the cause and is held at the current step. If during the three months extension the apprentice meets the standards, he/she receives the next higher step effective the date the standards are met.

7.4 – Action plans

An apprentice who is delayed step progression is placed on an action plan. The plan details the areas for study, tasks to be accomplished, the time frames for completion, the task evaluation method, and other pertinent information in order for the apprentice to meet the Standards of Achievement.

7.5 – Step progression after a delay

When the apprentice meets the Standards of Achievement after a step delay the apprentice is given a new step start date. The apprentice is eligible for the next step progression in six months providing he/she meets the standards for the next step.

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7.0 – Standards of Achievement, Continued

7.6 – Failure to progress after step delay

Section F.6 of the MAA provides procedures for the apprentice who does not meet the Standards of Achievement after the apprentice has been held for three months.

8.0 – Requirements for Step 1 (0 – 6 Months)

8.1 – Step 1 OJT hours and tasks

For the first five steps the apprentice should average 376 OJT hours to complete the 2,063 hours required for the apprenticeship. However, the minimum required OJT hours that must be completed during step 1 is 330, which include 152 course hours. Included in these hours the apprentice must complete the OJT hours for section 1 tasks 1.1 – 1.4, section 2, and tasks 18.1 and 18.2.

On average, the apprentice ought to become qualified for 17 tasks for the first 4 steps and 18 tasks for the 5th step in order to complete the apprenticeship's 86 tasks. For step 1, there are a minimum of 14 tasks. The required tasks are:

- Tasks 1.1 through 1.4 in Section 1 – Tools and Ladders
- All three tasks in Section 2 – Hardware
- Task 18.1 – Install and Remove Vehicle and Equipment Grounds
- Task 18.2 – Perform Protective Ground Inspections

8.2 – Step 1 Courses

During step 1 the apprentice is expected to attend and pass the following courses:

- Tower Climbing (ELEC-0201) – 16 hours
  After completing this course, the apprentice will be able to properly dress themselves with their Personal Protection Equipment as required by the Safety at Heights Program and move about a steel structure in a manner that allows safe movement and good working practice.

- Electrician Math (PSOS-0072) – 16 hours
  The apprentice will be able to pass a written test with a score of 80% or better on common fractions, decimal fractions, ratios and proportions, powers and roots, geometry, algebra, and trigonometry.
  This course is prerequisite to the Electricity and Electronics Course.

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8.0 – Requirements for Step 1 (0 – 6 Months), Continued

8.2 – Step 1 Courses (continued)

- Electricity and Electronics (PSOS-0064) – 120 hours
  The apprentice will be able to construct dc circuits, ac circuits, electromagnets, transformer banks, rectifiers and logic gates. The apprentice will measure DC and AC, voltage, DC and AC current, and resistance. The apprentice will solve for electrical circuit values, such as voltage, resistance, impedance, current, power, apparent power, reactive power, and power factor. The apprentice will analyze open and short circuits, magnetomotive force, the effects of adding capacitance to an inductive circuit, and AC to DC rectification.

This course is prerequisite to the Introduction to Schematics Course.

9.0 – Requirements for Step 2 (6 – 12 Months)

9.1 – Step 2 OJT hours and tasks

During step 2 the apprentice must complete a minimum of another 372 OJT hours, which includes 96 course hours, for an accumulative total of 702 hours. The apprentice must complete the OJT hours for task 5.1.

The apprentice must be qualified for a minimum of another 13 tasks or an accumulative total of 27 tasks. Of these tasks the following task must be included: Task 5.1 – Qualified to Install Flex Conduit

9.2 – Step 2 Courses

During step 2 the apprentice is expected to attend and pass the following courses:

- Introduction to Schematics (PSOS-0080) – 40 hours
  After completing this course, the apprentice will be able to: interpret electrical schemes, wire a project board from a schematic, and perform electrical troubleshooting.
  This course is prerequisite to the Power Circuit Breaker Course.

- Power Circuit Breakers (PSOS-0066) – 40 hours
  The apprentice will be able to explain each type of interrupting device according to its function, application, and limitations in the power system. The apprentice will be able to describe the procedures required for the installation of power circuit breakers.
  This course is prerequisite to the Power Transformers Course.

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9.0 – Requirements for Step 2 (6 – 12 Months), Continued

9.2 –
9.2 – (continued)

- Substation Grounding Fundamentals (PSOS-5000) – 16 hours
  The apprentice will be able to describe the importance and benefits of following grounding safety rules, policies, and procedures. The apprentice will be able to describe the roles and responsibilities of the employees responsible for completing protective grounding; locate and apply documented policies, work procedures, rules, and information resources that support safe and effective protective grounding.

10.0 – Requirements for Step 3 (12 – 18 Months)

10.1 – Step 3 OJT hours and tasks

During step 3 the apprentice must complete a minimum of another 413 OJT hours or an accumulative total of 1,115 hours, which includes 40 course hours. The apprentice must complete the OJT hours for tasks 1.5, 1.6, 7.3, 7.4, 15.3, and 15.4.

The apprentice must be qualified for a minimum of an additional 16 tasks or an accumulative total of 43 tasks. Of these tasks the following tasks must be included:

- Task 1.5 – Manual and Hydraulic Knock-out Sets
- Task 1.6 – Cable and Tubing Compression Fittings
- Task 7.3 – Indoor Wire Installation Energized Panels
- Task 7.4 – Indoor Wire Installation De-Energized Panels
- Task 15.3 – Test Circuits De-Energized
- Task 18.4 – Install and Remove Protective Grounds

10.2 – Step 3 Courses

During step 3 the apprentice is expected to attend and pass the Power Transformer Course (PSOS-0065) – 40 hours.
The apprentice will be able to:

- Identify and describe the components of a power transformer.
- Identify wye and delta connected transformers.
- Identify and describe the function of transformer accessories.
- Describe the function of typical transformer nameplate information.
- Explain installation procedures.
- Perform diagnostic tests.

11.0 – Requirements for Step 4 (18 – 24 Months)

11.1 – Step 4 OJT hours and tasks

For step 4 the apprentice must complete a minimum of an accumulative total of 1,569 hours. If the apprentice had the minimum number of OJT hours from step 3, a minimum of 454 OJT hours, including 40 course hours, will need to be completed for this step. Of the hours completed, the apprentice must complete the OJT hours for section 6 and task 11.1.

The apprentice must be qualified for a minimum of an accumulative total of 61 tasks. If the minimum number of tasks were completed in step 3, the apprentice will need to be qualified for 18 tasks in this step. Of these tasks the following sections must be included:

- 5 tasks in section 6 – Drawings, Schedules, and Bill of Materials
- Task 11.1 – Perform Transformer Maintenance Testing

Note: Task 11.1 consists of 6 sub-tasks

11.2 – Step 4 Courses

For step 4 the apprentice is expected to attend and pass the Load Tap Changer Maintenance Course (PSOS-0081) – 40 hours. The apprentice will be able to:

- Identify components and their functions
- Set controls on the Siemens MJ3A
- Adjust contacts of a Allis Chalmers THL21
- Perform routine maintenance on the McGraw Edison 550C, the Waukesha UZDRT, and the Federal Pacific TC25

- Station Inspection Training – 8 hours

  After completing this course the apprentice will be able to:

  - Demonstrate knowledge on the importance of a quality Substation Inspection with emphasis on safety and reliability.
  - Demonstrate knowledge of his/her role and responsibility for conducting an inspection with its impacts on our preventative or corrective work performed.
  - Demonstrate ability to use judgment, skills, resources, and experience to perform a effective condition assessment.
  - Document any abnormal conditions found that cannot be safely corrected during the inspection.
  - Assess abnormal conditions for priority service work.

12.0 Requirements for Step 5 (24 – 30 Months)

12.1 – Step 5 – OJT hours and tasks

For step 5 the apprentice must complete the remaining apprenticeship OJT hours. If the accumulative total from step 4 was the minimum hours, the apprentice will need to complete 494 OJT hours to have an accumulative total of 2,063 hours and includes 80 course hours. Of the hours completed, the apprentice must complete the OJT hours for the remaining sections and tasks. If the minimum was completed for the previous steps the following sections and tasks must be completed: section 3, section 4, section 8, section 9, section 10, section 12, section 13, section 14, section 16, section 17, section 18, and tasks 7.1, 7.2, 11.2, 11.3, 15.5, and 15.6. The apprentice as a minimum must be qualified for 95% of all tasks.

The apprentice must be qualified for a minimum of an accumulative total of 82 tasks. Of the 59 tasks listed at least 34 must have already been completed with 25 remaining. The apprentice must be qualified for a minimum of 21 tasks listed by the end of this step:

- 5 tasks in section 3 – Rigging
- 2 tasks in section 4 – Wire Pulls
- 2 tasks in section 8 – Air Switches
- 6 tasks with 14 sub-tasks in section 9 – Power Circuit Breakers
- 2 tasks with 3 sub-tasks in section 10 – Circuit Switchers
- 3 tasks in section 12 – Substation Inspections
- 3 tasks in section 13 – Capacitor Banks
- 5 tasks in section 14 – Insulator Washing
- 1 tasks in section 16 – Ground Grid Repair
- 1 task in section 17 – Circuit Breaker Removal
- 1 task in section 18 – Substation Distribution Switching
- Task 7.1 – Perform Control Wire Marking
- Task 7.2 – Perform Outdoor Wire Installation
- Task 11.2 with 7 sub-tasks - Regulator / LTC Maintenance Testing
- Task 11.3 with 4 sub-tasks – Current Transformer and Relay Testing

Note: Tasks 15.5 and 15.6 cannot be completed until the apprentice becomes a Qualified Electrical Worker (QEW) at the 5th step.

- Task 15.5 – Perform as a Grounding Observer

Task 15.6 – Plan and Perform Grounding Tailboards

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12.0 Requirements for Step 5 (24 – 30 Months), Continued

12.2 – Step 5 Course

For step 5 the apprentice attends the following two courses:

- Electrician's Basic Switchman Course – 72 hours.
  After completing this course, the apprentice will be able to demonstrate the ability to safely perform as switchman in a substation.

13.0 Requirements for Step 6 (31 – 36 Months)

13.1 – Meeting Standards of Achievement

Step 6 has no regular OJT hours or courses for the apprenticeship and as a minimum the apprentice has qualified for at least 95% of the OJT tasks. The apprentice may use this step to qualify for the remaining 4 tasks to reach 100% completion. The apprentice is not qualified to bid a journeyman position until he/she has qualified for all tasks.

13.2 – Rounding out

Step 6 is for the purpose of "rounding-out." A term used when the apprentice has been signed-off and qualified for all tasks, passed all required courses and is practicing tasks for added experience before becoming a journeyman electrician. A 6^{th} step apprentice who has completed all required training is eligible to bid a journeyman position.

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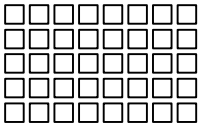
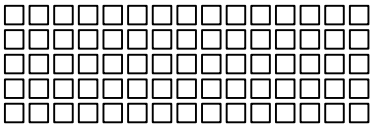
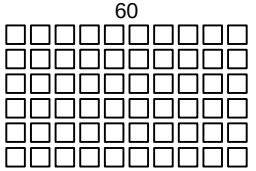
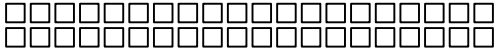
Substation Construction
Electrician Training History

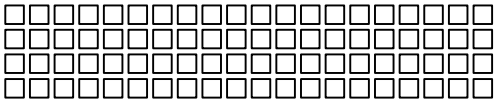
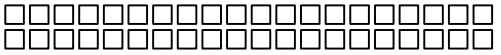
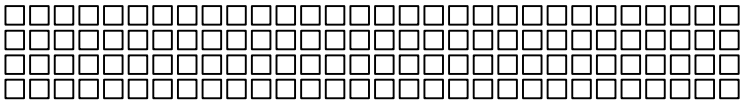
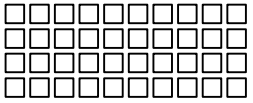
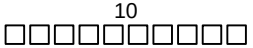
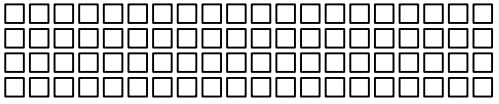
Name: _____ Apprentice Position Date: _____

Important: ***OJT sign-off by the supervisor indicates the apprentice is qualified to perform the task without supervision.***

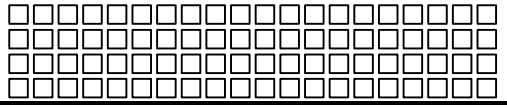
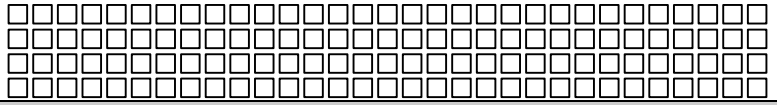
Apprentice Courses				Apprenticeship Step and Allocated Time				
Course Title and Course Code	**Trainer Sign-Off**	**Apprentice Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
Tower Climbing ELEC-0201				16 hours				
Electrician Math PSOS-0072				16 hours				
Electricity and Electronics PSOS-0064				120 hours				
Introduction to Schematics PSOS-0080					40 hours			
Power Circuit Breakers PSOS-0066					40 hours			
Protective Grounding PSOS-5000					16 hours			
Power Transformers PSOS-0065						40 hours		
Load Tap Changer Overview PSOS-0082							16 hours	

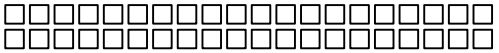
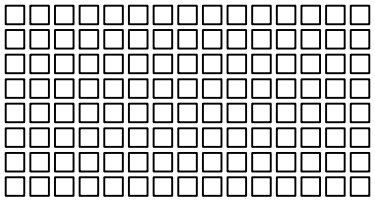
On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
1. Tools and Ladders. **The Apprentice is qualified to use:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
1.1 Hand Tools **1.2 Power Tools** **1.3 Manual and Hydraulic Knock Out Sets** **1.4 Cable and Tubing Compression Fittings** **1.5 Step Ladders** **1.6 Extension Ladders**				40				
2. Hardware. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
2.1 Select Proper Bolts, Nuts, & Washers **2.2 Torque Bolts & Nuts** **2.3 Perform Surface Preparation**				40				
3. Excavation and Backfilling. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
3.1 Hand Excavate a Trench for Conduits and/or Grounds **3.2 Backfill a Trench Utilizing Proper Compaction Technique**						40		

On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
4. Rigging. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
4.1 Tie Six Basic Knots	_____	_____	_____	40 				
4.2 Use Slings and Shackles	_____	_____	_____					
4.3 Perform Mobile Crane Hand Signals	_____	_____	_____					
4.4 Rig Loads	_____	_____	_____					
4.5 Operate Tag Lines	_____	_____	_____					
5. Steel Structures. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
5.1 Install, Plumb and Level Steel Structures	_____	_____	_____	80 				
5.2 Grout Steel Structures	_____	_____	_____					
6. Drawings, Schedules, and Bill of Materials **The apprentice is qualified to use:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
6.1 Indoor and Outdoor Arrangement Drawings	_____	_____	_____	60 				
6.2 Circuit Schedules	_____	_____	_____					
6.3 Conduit Schedules	_____	_____	_____					
6.4 Bill of Materials	_____	_____	_____					
6.5 Single Line Diagrams	_____	_____	_____	40 				

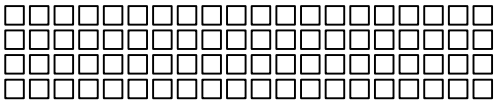
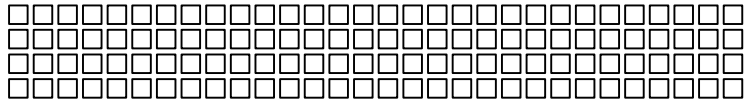
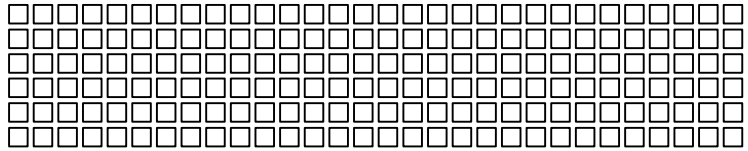
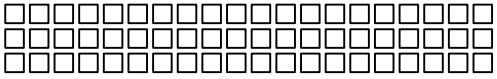
On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
7. Wire Pulls. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
7.1 Preplan and Execute Proper Layout and Routing Using a Circuit and Conduit Schedule	_____	_____	_____	80 				
7.2 Perform a Wire Pull	_____	_____	_____	40 				
8. Conduit Installation. **The Apprentice is qualified to install:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
8.1 Thin Wall Conduit **8.2 Rigid Conduit**	_____ _____	_____ _____	_____ _____	120 				
8.3 PVC Conduit	_____	_____	_____	40 				
8.4 Flex Conduit	_____	_____	_____	10 				
9. Control Wiring. **The Apprentice is qualified to perform:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
9.1 Control Wire Markings	_____	_____	_____		80 			

On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
9. Control Wiring, *Continued.* **The Apprentice is qualified to perform:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
9.2 Outdoor Wire Installation	_____	_____	_____	200				
9.3 Indoor Wire Installation Energized Panels **9.4 Indoor Wire Installation De-Energized Panels**	_____ _____	_____ _____	_____ _____	480				
9.5 As Built Drawings	_____	_____	_____		80			

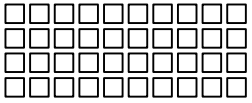
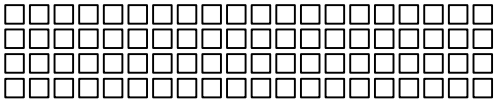
On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
10. Air Switches. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
10.1 Install and Adjust Distribution Class Switches	_____	_____	_____			80 		
10.2 Install and Adjust Transmission Class Switches	_____	_____	_____			160 		

11. Power Circuit Breakers. **The apprentice is qualified to perform:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
11.1 Installation of Circuit Breaker Transmission & Distribution	_____	_____	_____		40 			
11.2. Installation Commission Testing • **Insulation Resistance Transmission & Distribution** • **Contact Resistance Transmission & Distribution** • **Mechanism Measurements Transmission & Distribution** • **Vacuum Bottle Hipot Testing Distribution** • **Time Analysis Test Transmission** • **Time Analysis Test Distribution** • **SF6 Gas Sampling**	_____ _____ _____ _____ _____ _____ _____	_____ _____ _____ _____ _____ _____ _____	_____ _____ _____ _____ _____ _____ _____		120 			

On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
12. Circuit Switchers. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
12.1 Install, Take Measurements and Adjust Circuit Switcher	_____	_____	_____	60 □□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□				
12.2 Perform Installation Commission Testing • **Insulation Resistance** • **Contact Resistance** • **Time Analysis**	_____ _____ _____	_____ _____ _____	_____ _____ _____		30 □□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□			
13. Transformers, Regulators, Metering Pots & CCVT's. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
13.1 Install Transformers, Regulators, Metering Pots & CCVT's	_____	_____	_____	30 □□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□				
13.2 Perform Installation Commission Testing • **Transformer Turns Ratio** • **Insulation Resistance**	_____ _____	_____ _____	_____ _____			30 □□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□		
14. Oil Sampling. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
14.1 Take Oil Samples for Lab Analysis	_____	_____	_____	5 □□□□□				

On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
15. High Voltage Conductors. The Apprentice is qualified to:	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
15.1 Install Overhead Line Conductors with Insulators	_____	_____	_____		80 			
15.2 Install Overhead Rigid Tubing and Bus Work with Insulators	_____	_____	_____		120 			
16. Control Panels and Trays. The Apprentice is qualified to:	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
16.1 Install Indoor, Outdoor Panels, AC/DC Panels, Control and Relay Racks and Panels	_____	_____	_____		180 			
16.2 Install Wireways, Trays, Gutters and Troughs	_____	_____	_____		60 			
16.3 Layout Control and Relay Panels and Plasma Cut	_____	_____	_____		40 			

On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
17. Station Batteries. **The Apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
17.1 Install Station Battery Racks and Cells, Interconnections, Chargers and Commission Testing	_____	_____	_____		80 □□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□			
18. Protective Grounding **The apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
18.1 Install and Remove Vehicle and Equipment Grounds	_____	_____	_____	5 □□□□□				
18.2 Perform Protective Ground Inspections	_____	_____	_____	5 □□□□□				
18.3 Test Circuits De-Energized **18.4 Install and Remove Protective Grounds**	_____ _____	_____ _____	_____ _____		40 □□□□□□□□□□ □□□□□□□□□□ □□□□□□□□□□ □□□□□□□□□□			
18.5 Perform as a Grounding Observer (QEW)	_____	_____	_____					5 □□□□□
18.6 Plan and Perform Grounding Tailboards (QEW)	_____	_____	_____					20 □□□□ □□□□□□ □□□□□□ □□□□
19. Ground Grid. **The apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
19.1 Perform Ground Grid Installation and Repair	_____	_____	_____	40 □□□□□□□□□□ □□□□□□□□□□ □□□□□□□□□□ □□□□□□□□□□				

On-the-Job (OJT) Training and Sign-off				Apprenticeship Step and Allocated Time				
20. Removal. **The apprentice is qualified to:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
20.1 Disassemble / Decommission Oil Circuit Breakers	_____	_____	_____	40 				
20.2 Perform Demolition / Disassembly of Structures, Lines, Switches	_____	_____	_____	80 				

On-the-Job (OJT) Training and Sign-off			
21. Equipment Qualifications. **The apprentice has had required training and is qualified to operate:**	**Apprentice Sign-Off**	**Supervisor Sign-Off**	**Date**
21.1 Bobcat	_____	_____	_____
21.2 Aerial Lift	_____	_____	_____
21.3 Scissor Lift	_____	_____	_____
21.4 Mini Excavator	_____	_____	_____
21.5 Loader	_____	_____	_____
21.6 Forklift	_____	_____	_____
21.7 Grade All	_____	_____	_____
21.8 Boom Truck	_____	_____	_____

90 DAY APPRENTICE PERFORMANCE REVIEW

APPRENITCE NAME: _____	DATE: _____	STEP: ___

Is the Apprentice Receiving Veteran Benefits For Training? if the Apprentice receives VA Benefits, a copy of this document is sent to Dianna Sutherland in Labor Relations - Fax 459-7233	Yes ☐ No ☐

Is the Apprentice On Track? ☐ Yes ☐ No

OJT Hours		
Hours total last report = _____	Hours total this report = _____	Hours total = _____

Tasks qualified this period					
1.		2.		3.	
4.		5.		6.	
7.		8.		9.	
10.		11.		12.	
13.		14.		15.	
16.		17.		18.	
19.		20.		21.	

Courses completed this period:					
1.		2.		3.	

Continued on next page

90 DAY APPRENTICE PERFORMANCE REVIEW, *CONTINUED*

General Comments: (Please Summarize Apprentice Progress)
_____
_____
_____
_____
_____
_____

Planned work activities for the next 3 months:
_____
_____
_____
_____
_____
_____

Review signatures (Sign in Ink & Place in Apprentice Permanent File	
Apprentice: _____	Date: _____
Supervisor: _____	
Coordinator: _____	Date: _____