

CITY COUNCIL MEETING  
OCTOBER 15, 1986

7

ELECTRIC UTILITY  
DEPARTMENT CLASS  
SPECIFICATIONS  
APPROVED

RES. NO. 86-158

CC-34

Council adopted Resolution No. 86-158 approving class specifications for the following classes in the Electric Utility Department, adopting salary ranges for new classifications, and declaring the Senior Utility Rate Analyst to be Mid-Management:

Senior Utility Rate Analyst  
Electric Engineering Tech.  
Electric Meter Technician  
Load Dispatcher

Senior Electrical Technician  
Electric Utility Rate Analyst  
Electrician

# COUNCIL COMMUNICATION

TO: THE CITY COUNCIL  
FROM: THE CITY MANAGER'S OFFICE

DATE: October 15, 1986

NO.

SUBJECT: JOB SPECIFICATIONS FOR VARIOUS CLASSES IN ELECTRIC UTILITY DEPARTMENT

PREPARED BY: Assistant City Manager

RECOMMENDED ACTION: That the City Council approve the attached class specifications for positions in the Electric Utility Department; adopt salary ranges for new classifications and declare the Sr. Utility Rate Analyst to be Mid-Management.

BACKGROUND INFORMATION: When the 1986 Budget was approved, new positions were added to the table of organization of the Electric Utility Department. Class specifications for the new position were prepared. At the same time, job specifications of other classifications were reviewed. Many of these descriptions were last prepared in the 1960's. Those class specifications have also been modified to reflect actual duties and responsibilities.

## NEW CLASSES

• Sr. Utility Rate Analyst - Mid-Management

Salary Range:	A	B	C	D	E
	2,766.44	2,905.11	3,050.37	3,202.89	3,363.03

• Electric Engineering Technician

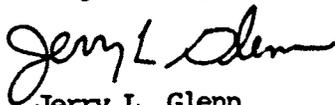
Salary Range:	A	B	C	D	E
	2,721.38	2,858.31	3,000.45	3,125.25	3,303.98

• Electric Meter Technician

Salary Range:	A	B	C	D	E
	2,721.38	2,858.31	3,000.45	3,125.25	3,303.98

Revised specifications - No change in salary: Sr. Electrical Technician  
Electric Utility Rate Analyst  
Electrician  
Load Dispatcher

Respectfully submitted,



Jerry L. Glenn  
Assistant City Manager

JLG:br

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SENIOR ELECTRIC UTILITY RATE ANALYST  
(Senior Rate Analyst)

DEFINITION

Plans, directs, performs and supervises a wide variety of computer-assisted data management activities in electric utility applications; develops, maintains, and utilizes computer programs for data analysis.

DISTINGUISHING CHARACTERISTICS

This is a supervisory/managerial position responsible for accomplishing rate, data analysis, and data management related tasks within the City's Electric Utility Department. The Senior Rate Analyst must possess supervisory capabilities, as well as superior analytical ability and the requisite technical knowledge of computer operations and programming.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the Electric Utility Director and his Assistant. Exercises direct supervision of the Electric Utility Rate Analyst.

EXAMPLES OF DUTIES - Duties may include, but are not limited to the following:

Develops goals, policies and priorities for Department data management activities.

Performs cost-of-service analysis and customer rate development.

Develops, maintains and utilizes methods to perform power cost accounting, analyze power generating costs and monitor and verify billing methods.

Forecasts the City's power requirements and evaluates new power resources.

Monitors the activities of joint-action agencies and state, federal and private agencies for their effect on the City of Lodi's electric power interests.

Works with technical staff to analyze data management needs; determines preferred computer methodologies.

Analyzes various types of utility data; operates Department computer equipment; develops appropriate software.

Responsible for Electric Utility Department computer applications in planning, engineering, system operations, etc.

Meets with other agency officials, individuals and representatives in discussing data management, analysis; forecasting; cost of service and rate problems.

Forecasts for the Electrical Engineering Division.

Performs related duties, as required.

City of Lodi  
Senior Electric Utility Rate Analyst (Continued)

QUALIFICATIONS

Knowledge of:

Mathematics and statistics required for electric utility engineering, cost and rate calculations.

Principles and techniques of computer operation, including programming processes, languages (specifically FORTRAN and BASIS) and operating systems.

Peripheral equipment operation and computer interface.

Ability to:

Think logically and analytically.

Operate computer equipment.

Design, develop and implement software from a general set of engineering guidelines.

Communicate clearly, orally and in writing.

Prepare and present oral and written reports.

Work independently, having responsibility for computer applications.

Effectively supervise the data management activities of the Department.

Maintain effective working relationships with a variety of City staff, outside agencies and utilities, vendors and others.

Experience and Education:

Any combination of experience and education that would likely produce the qualifying knowledge and ability. A typical combination is:

Experience:

Three year's experience in the same or a related field.

Education:

A Bachelor's Degree in mathematics, engineering, computer science, business administration or related field from an accredited college or university.

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

ELECTRICAL ENGINEERING TECHNICIAN

DEFINITION

Performs a wide variety of semi-professional technical tasks related to the Electric Utility engineering function, and does related work as required.

DISTINGUISHING CHARACTERISTICS

This position is responsible for the Electric Utility Department's construction standards; material specification, testing and evaluation; and is the Department's representative in dealings with suppliers and vendors on technical matters. The Electrical Engineering Technician also has responsibility for the Department's Hazardous Material handling program.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from higher level engineering positions.

Exercises supervision of a technical nature over lower level staff employees, as directed.

EXAMPLES OF DUTIES - Duties may include, but are not limited to the following:

- Develops and maintains construction standards.
- Develops and maintains material specifications.
- Develops and maintains approved vendor lists.
- Tests, inspects and evaluates material.
- Makes material purchase recommendations.
- Performs bid evaluations.
- Participates in field data collection for engineering survey and studies.
- Conducts system loading studies.
- Assists in determining standard operational procedures.
- Provides technical direction and training for other personnel.
- Operates computers and peripheral equipment.
- Conducts the Department's Hazardous Material handling program.
- Meets with other agency officials and individuals in discussing engineering problems.
- Performs other related duties as required.

City of Lodi  
Electrical Engineering Technician (continued)

QUALIFICATIONS

Knowledge of:

Drafting methods, techniques and equipment.

The principles and uses of algebra, geometry and trigonometry.

Electrical theory as applied in distribution engineering.

Ability to:

Do simple drafting neatly and accurately.

Follow oral and written directions.

Prepare and present written reports.

Perform a variety of office and field semi-professional engineering work.

Collect and analyze data.

Understand and apply laws, rules and regulations.

Interact professionally with vendors and suppliers.

Experience and Education

Any combination of experience and education that would likely produce the qualifying knowledge and ability. A typical combination is:

Experience:

Two years of semi-professional engineering work in the electric utility industry.

Education:

Completion of high school or its equivalent, supplemented by college-level courses in mathematics and engineering.

LICENSES

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

ELECTRIC METER TECHNICIAN

DEFINITION

Under general direction to plan, organize and supervise the Metering Division. Performs skilled work in the areas of maintenance, testing, repair and installation of electric meters; maintains records; provides training of other employees; participates in policy and standards development and does related work as required.

DISTINGUISHING CHARACTERISTICS

This is an advanced journey level position distinguished from that of the next lower position of Electrician in that it has supervisory and training responsibilities in addition to performing the more difficult metering tasks.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from the Electrical Engineer. Coordinates work schedules with the Electric Utility Superintendent and supervises Electrician as assigned to Metering Division.

EXAMPLES OF DUTIES

Performs shop and field calibrations of electric meters; repairs and rebuilds meters as necessary; installs current and voltage transformers with associated equipment and verifies the complete installation to assure accurate metering; installs and maintains load survey, load management and recording metering equipment; investigates customer complaints and takes corrective measures if necessary; handles vandalism and power diversion cases and makes reports to appropriate City staff; performs acceptance testing of metering material and equipment; conducts the scheduled testing and circuit analysis of existing revenue metering facilities; participates in the development of standards and specifications with other agencies and industry representatives.

QUALIFICATIONS

Knowledge of:

Various electric meters, their operation and the methods and equipment used in their testing and repair;

AC and DC circuits with particular reference to Ohm's Law and Kirchoff's Law;

Single and polyphase circuits and how to meter them;

Various electronic components and circuits;

Inductance, capacitance, power factor and vector analysis;

Applicable electrical codes;

Necessary precautions to be taken when working around energized equipment;

City of Lodi  
Electric Meter Technician (continued)  
QUALIFICATIONS (continued)

Ability to:

Use precision instruments and testing equipment to obtain specified performance;

Read and interpret electrical drawings, plans and specifications;

Understand and carry out written and oral instructions;

Effectively manage and supervise the activities of the Division;

Maintain effective working relationships with a variety of City staff, outside agencies and utilities, vendors and others;

Prepare and write reports and maintain records;

Deal tactfully and courteously with the general public;

Use mathematics including trigonometry.

Experience:

Attainment of journeyman Electrician Status through apprentice training (usually 48 months experience) and two years of relevant experience in the field of electric meter maintenance, testing, repair and installation including solid state circuitry.

Education:

Equivalent to completion of the twelfth grade, including trigonometry

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles

SENIOR ELECTRICAL TECHNICIAN

DEFINITION

Under general direction, to plan, organize, supervise and inspect the work of the Electrician Division in addition to specialize in high-voltage substation work, including switching, equipment maintenance and calibration. Performs skilled work in electrical construction, maintenance and trouble shooting of municipal facilities, including electric generating and distribution equipment, water and wastewater utility apparatus, traffic signals, street lights as well as building equipment and does related work as required.

DISTINGUISHING CHARACTERISTICS

This is an advanced journey level class performing highly skilled work. This position is distinguished from the Electrician class by its supervisory and training responsibilities in addition to performing the more specialized tasks in telemetering, communication and substation maintenance. The Senior Electrical Technician participates in a rotational standby duty for after hours call back to monitor a generating station.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from the Electric Utility Superintendent.

Exercises direct supervision over Electricians and others as assigned.

EXAMPLES OF DUTIES

Installs, tests, repairs and calibrates protective relays, compensators, indicating and recording instruments, supervisory and telemetering equipment, electric meters as well as solid state equipment including printed circuit boards; test and restores insulating oil in high-voltage equipment; installs, services, test and repairs transformers, motors, motor controls, automatic switchgear, auxiliary generating equipment, air conditioning units, alarm systems, controls boards, traffic signals, street lights, etc.; performs periodic substation inspections and maintenance work on high-voltage transformers, circuit breakers, switches and voltage regulators, etc.; maintains water, wastewater facility equipment and storm pumping facilities; answers emergency calls during and outside of normal working hours, evaluates City emergency problems, performs trouble-shooting of electrical equipment; locates high and low voltage cable faults; tests high voltage cable prior to energization; generally works independently in determining source of problems and making emergency repairs; communicates with and instructs electricians and other technicians, as necessary.

City of Lodi  
Senior Electrical Technician (continued)

QUALIFICATIONS

Knowledge of :

- General fundamentals of electrical theory, including solid state circuitry;
- General tools, methods and materials used in electrical work;
- Instrumentation and specialized testing equipment, precision tools;
- Electrical codes;
- Safe work practices and procedure;
- Maintenance and operation of pumping and telemetering equipment;
- Precautions necessary working with high voltage;

Ability to:

- Demonstrate a high degree of aptitude for electrical and mechanical work;
- Perform maintenance, trouble-shooting and repair of a wide variety of electrical equipment;
- Use precision instruments and testing equipment to obtain specified performance;
- Understand and carry out written and oral instructions;
- Read and interpret electrical drawings, plans, diagrams and specifications;
- Effectively manage and supervise the activities of the Division;
- Maintain effective working relationships with a variety of City staff, outside agencies and utilities vendors and others.
- Work independently with limited direct supervision;
- Establish preventative maintenance programs and keep appropriate records;
- Prepare and write reports.

Experience:

Attainment of journeyman status through apprentice training as an Apprentice Electrician (usually 48 month of experience) and five years of relevant experience in the field of electrical maintenance and trouble-shooting, including solid state circuitry and computer based control and monitoring systems.

Education:

Equivalent to completion of the twelfth grade.

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

ELECTRIC UTILITY RATE ANALYST  
(Rate Analyst)

DEFINITION

Under direction, performs a wide variety of computer assisted data management activities in electric utility applications; develops computer programs for data analysis; recommends data system modifications and performs related duties, as required.

DISTINGUISHING CHARACTERISTICS

This position is responsible for assisting in data management and analysis within the City's Electric Utility Department. The Rate Analyst must possess superior analytical ability, as well as sufficient technical knowledge of computer operations and programming.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the Senior Electric Utility Rate Analyst.

EXAMPLES OF DUTIES - Duties may include, but are not limited to the following:

Assists in the development of goals, policies and priorities in Department data management and analysis activities.

Works with technical staff to analyze data management needs; determines preferred computer methodologies.

Analyzes various types of utility data; operates Department computer equipment; develops appropriate software.

Responsible for Electric Utility Department computer applications in planning, engineering, system operations, record keeping, etc.

Represents Department to others, such as City data processing staff, outside utilities, data processing vendors, etc.

QUALIFICATIONS

Knowledge of:

Mathematics and statistics required for electric utility engineering, cost and rate calculations.

Principles and techniques of computer operation, including programming processes, languages (specifically FORTRAN and BASIC) and operating systems.

Peripheral equipment operation and computer interface.

City of Lodi  
Electric Utility Rate Analyst (Continued)

QUALIFICATIONS (Continued)

Ability to:

Think logically and analytically.

Operate computer equipment.

Design, develop and implement software from a general set of engineering guidelines.

Communicate clearly, orally and in writing.

Maintain effective working relationships with a variety of City staff, outside utilities, vendors and others.

Act on behalf of the Senior Electric Utility Rate Analyst, in his absence.

Experience and Education:

Any combination of experience and education that would likely produce the qualifying knowledge and ability. A typical combination is:

Experience:

One year's experience in the same or a related field.

Education:

A Bachelor's Degree in mathematics, engineering, computer science, business administration or related field from an accredited college or university.

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

ELECTRICIAN

DEFINITION

Under direction, performs skilled work in electrical construction, maintenance and trouble shooting of municipal facilities, including electric generating and distribution equipment water and waste water utility apparatus, traffic signals, streetlights as well as building equipment and does related work as required.

DISTINGUISHING CHARACTERISTICS

This is a journey level class position. Positions in this class perform skilled tasks independently with limited direct supervision and participates in a rotational standby duty for after hours call back to monitor a generating station.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the Senior Electrical Technician or from other supervisors as assigned.

EXAMPLES OF DUTIES

Installs, services, tests and repairs transformers, motors, motor controls, automatic switchgear, auxiliary generating equipment, air conditioning units, alarm systems, telemetering equipment, control boards, traffic signals, street lights, etc.; performs substation maintenance work on high-voltage transformers, circuit breakers and switches, protective relays, automatic recording instruments, voltage regulators, utility supervisory equipment, etc.; maintains water, waste-water facility equipment and storm pumping facilities; test, calibrates and repairs electric meter; answers emergency calls during and outside of normal working hours, evaluates City emergency problems, performs trouble-shooting of electrical equipment; cleans, lubricates and inspects electrical equipment; assists in the maintenance of City-owned and leased communications equipment; locates and makes recommendations to correct radio interference; locates high and low voltage cable faults; tests high-voltage cable prior to energizing; performs switching; communicates with and instructs others, as necessary.

QUALIFICATIONS

Knowledge of:

General fundamentals of electrical theory, including solid state circuitry;

General tools, methods and materials used in electrical work;

Instrumentation equipment and precision tools;

Electrical codes;

Safe work practices and procedures;

Maintenance and operation of pumping and telemetering equipment;

Precautions necessary working with high voltage;

City of Lodi  
Electrician (continued)  
QUALIFICATIONS (continued)

Ability to:

- Demonstrate a high degree of aptitude for electrical and mechanical work;
- Perform maintenance, trouble-shooting and repair of a wide variety of electrical equipment;
- Use precision instruments and testing equipment to obtain specified performance;
- Understand and carry out written and oral instructions;
- Read and interpret electrical drawings, plans, diagrams and specifications
- Establish and maintain cooperative working relationship with other employees and the public;
- Work independently with limited direct supervision;
- Establish preventative maintenance programs and keep appropriate records;
- Prepare and write reports.

Experience:

Attainment of journeyman status through apprentice training as an Apprentice Electrician (usually 48 months of experience) and two years of relevant experience in the field of electrical maintenance and trouble shooting. Experience with solid state circuitry and computer based control systems required.

Education:

Equivalent to completion of the twelfth grade.

LICENSE:

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

LOAD DISPATCHER

DEFINITION

Under general supervision and in accordance with established regulations plans, organizes, directs and participates in the operation and control of the City's electric and water utility system. Supervises and trains system operators. Acts as relief operator and does related work as required.

DISTINGUISHING CHARACTERISTICS

The class of Load Dispatcher is distinguished from the next lower class of Utility Service Operator in that it is a supervisory level position and is directly responsible for the operation and control of the electric and water utility system including such items as system switching, operating rules and procedures and operator training. The Load Dispatcher is expected to possess thorough technical and working knowledge of electric and water utility systems, their components, devices and functions as well as computer based SCADA system operation and programming.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the Assistant Electric Utility Director. Coordinates systems configuration with the Electrical Engineer and Public Works Department supervisors. Arranges switching schedules with the Electric Utility Superintendent. Supervises the Utility Service Operator(s).

EXAMPLES OF DUTIES

Duties may include, but are not limited to, the following:

Assumes responsibility for operation of the electric and water utility plant.

Operates base radio telephone transmitting and receiving equipment.

Initiates and issues switching orders and clearances in accordance with established City procedures.

Dispatches and coordinates mobile units and personnel to handle emergency operations.

Verifies that proper switching procedures are followed in the field as well as in the substation.

Programs and maintains programming of the SCADA system.

Supervises and trains operating personnel.

Assists in developing safety practices for the protection of all personnel.

Performs first-degree maintenances on supervisory and control equipment.

Evaluates relay, breaker and fuse operations and takes proper remedial action.

Reviews and verifies data on interruption reports.

LOAD DISPATCHER (continued)

EXAMPLE OF DUTIES (continued)

Coordinates service on the City's mobile radio telephone equipment and maintains appropriate logs.

Maintains the Division's data management responsibility i.e. logs, maps, charts and hourly data collections.

Prepares reports regarding electric and water operations.

Analyzes electrical and water data to redistribute systems to affect economies.

Receives telephone orders and complaints and takes appropriate actions.

DESIRABLE QUALIFICATIONS

Knowledge of:

Principles of the operation of electric distribution systems as well as water productions systems.

Electrical switching procedures and practices and electrical switching equipment.

Potential hazards involved to life and property resulting from switching operations.

Principles of effective supervisory practices.

Safe work practices.

Effective training practices and procedures.

Ability to:

Use good judgment and take effective courses of action in emergencies.

Work without direct supervision.

Prepare switching procedures and policies and develop standard safety practices.

Train electric utility operating personnel.

Make electrical calculations both single and three-phase and other related arithmetical calculations.

Maintain accurate records and to prepare reports.

Program and maintain a computer bases SCADA system.

Read and interpret gauges, charts and other measuring devices and to recognize unsatisfactory conditions.

Establish and maintain cooperative working relationships with other employees and the public.

LOAD DISPATCHER (continued)

Ability to: (continued)

Learn, understand and implement the operation and procedures of the City organization, particularly the Electric Utility, Public Works, Police and Fire Departments.

Experience and Education:

Any combination of experience and education that would likely produce the qualifying knowledge and ability. A typical combination is:

Experience:

Three years experience as an electrical distribution substation operator including experience with computer based control systems and increasingly responsible work in the areas of system operation, safety practices and training.

Education:

Equivalent to completion of the twelfth grade preferably supplemented with computer programming courses.

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

RESOLUTION NO. 86-158

RESOLUTION APPROVING VARIOUS ACTIONS ASSOCIATED WITH  
VARIOUS CLASSES IN THE ELECTRIC UTILITY DEPARTMENT

RESOLVED, that the City Council of the City of Lodi does hereby approve the following class specifications makred Exhibit "A" for vartious classes in the Electric Utility Department:

Sr. Utility Rate Analyst  
Electric Engineering Technician  
Electric Meter Technician  
Sr. Electrical Technician  
Electric Utility Rate Analyst  
Electrician  
Load Dispatcher

BE IT FURTHER RESOLVED, that the City Council of the City of Lodi does hereby establish the following salary ranges for various classes in the Electric Utility Department:

. Sr. Utility Rate Analyst - Mid-Management

Salary Range:	A	B	C	D	E
	2,766.44	2,905.11	3,050.37	3,202.89	3,363.03

. Electric Engineering Technician

Salary Range:	A	B	C	D	E
	2,721.38	2,858.31	3,000.45	3,125.25	3,303.98

. Electric Meter Technician

Salary Range:	A	B	C	D	E
	2,721.38	2,858.31	3,000.45	3,125.25	3,303.98

Revised specifications - No change in salary: Sr. Electrical Technician  
Electric Utility Rate Analyst  
Electrician  
Load Dispatcher

BE IT FURTHER RESOLVED that the City Council of the City of Lodi does hereby declare the Senior Rate Analyst to be a Mid-Management position.

Dated: October 15, 1986

I hereby certify that Resolution No. 86-158  
was passed and adopted by the City Council  
of the City of Lodi in a regular meeting  
held October 15, 1986 by the following vote:

Ayes: Council Members - Olson, Pinkerton,  
Hinchman, Snider, and  
Reid (Mayor)

Noes: Council Members - None

Absent: Council Members - None

*Alice M. Reimche*  
Alice M. Reimche  
City Clerk

EXHIBIT A

City of Lodi

September 1986

SENIOR ELECTRIC UTILITY RATE ANALYST  
(Senior Rate Analyst)

DEFINITION

Plans, directs, performs and supervises a wide variety of computer-assisted data management activities in electric utility applications; develops, maintains, and utilizes computer programs for data analysis.

DISTINGUISHING CHARACTERISTICS

This is a supervisory/managerial position responsible for accomplishing rate, data analysis, and data management related tasks within the City's Electric Utility Department. The Senior Rate Analyst must possess supervisory capabilities, as well as superior analytical ability and the requisite technical knowledge of computer operations and programming.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the Electric Utility Director and his Assistant. Exercises direct supervision of the Electric Utility Rate Analyst.

EXAMPLES OF DUTIES - Duties may include, but are not limited to the following:

Develops goals, policies and priorities for Department data management activities.

Performs cost-of-service analysis and customer rate development.

Develops, maintains and utilizes methods to perform power cost accounting, analyze power generating costs and monitor and verify billing methods.

Forecasts the City's power requirements and evaluates new power resources.

Monitors the activities of joint-action agencies and state, federal and private agencies for their effect on the City of Lodi's electric power interests.

Works with technical staff to analyze data management needs; determines preferred computer methodologies.

Analyzes various types of utility data; operates Department computer equipment; develops appropriate software.

Responsible for Electric Utility Department computer applications in planning, engineering, system operations, etc.

Meets with other agency officials, individuals and representatives in discussing data management, analysis; forecasting; cost of service and rate problems.

Forecasts for the Electrical Engineering Division.

Performs related duties, as required.

City of Lodi  
Senior Electric Utility Rate Analyst (Continued)

QUALIFICATIONS

Knowledge of:

Mathematics and statistics required for electric utility engineering, cost and rate calculations.

Principles and techniques of computer operation, including programming processes, languages (specifically FORTRAN and BASIS) and operating systems.

Peripheral equipment operation and computer interface.

Ability to:

Think logically and analytically.

Operate computer equipment.

Design, develop and implement software from a general set of engineering guidelines.

Communicate clearly, orally and in writing.

Prepare and present oral and written reports.

Work independently, having responsibility for computer applications.

Effectively supervise the data management activities of the Department.

Maintain effective working relationships with a variety of City staff, outside agencies and utilities, vendors and others.

Experience and Education:

Any combination of experience and education that would likely produce the qualifying knowledge and ability. A typical combination is:

Experience:

Three year's experience in the same or a related field.

Education:

A Bachelor's Degree in mathematics, engineering, computer science, business administration or related field from an accredited college or university.

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

EXHIBIT A

City of Lodi

September 1986

ELECTRICAL ENGINEERING TECHNICIAN

DEFINITION

Performs a wide variety of semi-professional technical tasks related to the Electric Utility engineering function, and does related work as required.

DISTINGUISHING CHARACTERISTICS

This position is responsible for the Electric Utility Department's construction standards; material specification, testing and evaluation; and is the Department's representative in dealings with suppliers and vendors on technical matters. The Electrical Engineering Technician also has responsibility for the Department's Hazardous Material handling program.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from higher level engineering positions.

Exercises supervision of a technical nature over lower level staff employees, as directed.

EXAMPLES OF DUTIES - Duties may include, but are not limited to the following:

- Develops and maintains construction standards.
- Develops and maintains material specifications.
- Develops and maintains approved vendor lists.
- Tests, inspects and evaluates material.
- Makes material purchase recommendations.
- Performs bid evaluations.
- Participates in field data collection for engineering survey and studies.
- Conducts system loading studies.
- Assists in determining standard operational procedures.
- Provides technical direction and training for other personnel.
- Operates computers and peripheral equipment.
- Conducts the Department's Hazardous Material handling program.
- Meets with other agency officials and individuals in discussing engineering problems.
- Performs other related duties as required.

City of Lodi  
Electrical Engineering Technician (continued)

QUALIFICATIONS

Knowledge of:

Drafting methods, techniques and equipment.

The principles and uses of algebra, geometry and trigonometry.

Electrical theory as applied in distribution engineering.

Ability to:

Do simple drafting neatly and accurately.

Follow oral and written directions.

Prepare and present written reports.

Perform a variety of office and field semi-professional engineering work.

Collect and analyze data.

Understand and apply laws, rules and regulations.

Interact professionally with vendors and suppliers.

Experience and Education

Any combination of experience and education that would likely produce the qualifying knowledge and ability. A typical combination is:

Experience:

Two years of semi-professional engineering work in the electric utility industry.

Education:

Completion of high school or its equivalent, supplemented by college-level courses in mathematics and engineering.

LICENSES

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

EXHIBIT A

City of Lodi

September 1986

ELECTRIC METER TECHNICIAN

DEFINITION

Under general direction to plan, organize and supervise the Metering Division. Performs skilled work in the areas of maintenance, testing, repair and installation of electric meters; maintains records; provides training of other employees; participates in policy and standards development and does related work as required.

DISTINGUISHING CHARACTERISTICS

This is an advanced journey level position distinguished from that of the next lower position of Electrician in that it has supervisory and training responsibilities in addition to performing the more difficult metering tasks.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from the Electrical Engineer. Coordinates work schedules with the Electric Utility Superintendent and supervises Electrician as assigned to Metering Division.

EXAMPLES OF DUTIES

Performs shop and field calibrations of electric meters; repairs and rebuilds meters as necessary; installs current and voltage transformers with associated equipment and verifies the complete installation to assure accurate metering; installs and maintains load survey, load management and recording metering equipment; investigates customer complaints and takes corrective measures if necessary; handles vandalism and power diversion cases and makes reports to appropriate City staff; performs acceptance testing of metering material and equipment; conducts the scheduled testing and circuit analysis of existing revenue metering facilities; participates in the development of standards and specifications with other agencies and industry representatives.

QUALIFICATIONS

Knowledge of:

Various electric meters, their operation and the methods and equipment used in their testing and repair;

AC and DC circuits with particular reference to Ohm's Law and Kirchoff's Law;

Single and polyphase circuits and how to meter them;

Various electronic components and circuits;

Inductance, capacitance, power factor and vector analysis;

Applicable electrical codes;

Necessary precautions to be taken when working around energized equipment;

City of Lodi  
Electric Meter Technician (continued)  
QUALIFICATIONS (continued)

Ability to:

Use precision instruments and testing equipment to obtain specified performance;

Read and interpret electrical drawings, plans and specifications;

Understand and carry out written and oral instructions;

Effectively manage and supervise the activities of the Division;

Maintain effective working relationships with a variety of City staff, outside agencies and utilities, vendors and others;

Prepare and write reports and maintain records;

Deal tactfully and courteously with the general public;

Use mathematics including trigonometry.

Experience:

Attainment of journeyman Electrician Status through apprentice training (usually 48 months experience) and two years of relevant experience in the field of electric meter maintenance, testing, repair and installation including solid state circuitry.

Education:

Equivalent to completion of the twelfth grade, including trigonometry

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles

City of Lodi

September 1986

SENIOR ELECTRICAL TECHNICIAN

DEFINITION

Under general direction, to plan, organize, supervise and inspect the work of the Electrician Division in addition to specialize in high-voltage substation work, including switching, equipment maintenance and calibration. Performs skilled work in electrical construction, maintenance and trouble shooting of municipal facilities, including electric generating and distribution equipment, water and wastewater utility apparatus, traffic signals, street lights as well as building equipment and does related work as required.

DISTINGUISHING CHARACTERISTICS

This is an advanced journey level class performing highly skilled work. This position is distinguished from the Electrician class by its supervisory and training responsibilities in addition to performing the more specialized tasks in telemetering, communication and substation maintenance. The Senior Electrical Technician participates in a rotational standby duty for after hours call back to monitor a generating station.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from the Electric Utility Superintendent.

Exercises direct supervision over Electricians and others as assigned.

EXAMPLES OF DUTIES

Installs, tests, repairs and calibrates protective relays, compensators, indicating and recording instruments, supervisory and telemetering equipment, electric meters as well as solid state equipment including printed circuit boards; test and restores insulating oil in high-voltage equipment; installs, services, test and repairs transformers, motors, motor controls, automatic switchgear, auxiliary generating equipment, air conditioning units, alarm systems, controls boards, traffic signals, street lights, etc.; performs periodic substation inspections and maintenance work on high-voltage transformers, circuit breakers, switches and voltage regulators, etc.; maintains water, wastewater facility equipment and storm pumping facilities; answers emergency calls during and outside of normal working hours, evaluates City emergency problems, performs trouble-shooting of electrical equipment; locates high and low voltage cable faults; tests high voltage cable prior to energization; generally works independently in determining source of problems and making emergency repairs; communicates with and instructs electricians and other technicians, as necessary.

City of Lodi  
Senior Electrical Technician (continued)

QUALIFICATIONS

Knowledge of :

- General fundamentals of electrical theory, including solid state circuitry;
- General tools, methods and materials used in electrical work;
- Instrumentation and specialized testing equipment, precision tools;
- Electrical codes;
- Safe work practices and procedure;
- Maintenance and operation of pumping and telemetering equipment;
- Precautions necessary working with high voltage;

Ability to:

- Demonstrate a high degree of aptitude for electrical and mechanical work;
- Perform maintenance, trouble-shooting and repair of a wide variety of electrical equipment;
- Use precision instruments and testing equipment to obtain specified performance;
- Understand and carry out written and oral instructions;
- Read and interpret electrical drawings, plans, diagrams and specifications;
- Effectively manage and supervise the activities of the Division;
- Maintain effective working relationships with a variety of City staff, outside agencies and utilities vendors and others.
- Work independently with limited direct supervision;
- Establish preventative maintenance programs and keep appropriate records;
- Prepare and write reports.

Experience:

Attainment of journeyman status through apprentice training as an Apprentice Electrician (usually 48 month of experience) and five years of relevant experience in the field of electrical maintenance and trouble-shooting, including solid state circuitry and computer based control and monitoring systems.

Education:

Equivalent to completion of the twelfth grade.

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

EXHIBIT A

City of Lodi

September 1986

ELECTRIC UTILITY RATE ANALYST  
(Rate Analyst)

DEFINITION

Under direction, performs a wide variety of computer assisted data management activities in electric utility applications; develops computer programs for data analysis; recommends data system modifications and performs related duties, as required.

DISTINGUISHING CHARACTERISTICS

This position is responsible for assisting in data management and analysis within the City's Electric Utility Department. The Rate Analyst must possess superior analytical ability, as well as sufficient technical knowledge of computer operations and programming.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the Senior Electric Utility Rate Analyst.

EXAMPLES OF DUTIES - Duties may include, but are not limited to the following:

Assists in the development of goals, policies and priorities in Department data management and analysis activities.

Works with technical staff to analyze data management needs; determines preferred computer methodologies.

Analyzes various types of utility data; operates Department computer equipment; develops appropriate software.

Responsible for Electric Utility Department computer applications in planning, engineering, system operations, record keeping, etc.

Represents Department to others, such as City data processing staff, outside utilities, data processing vendors, etc.

QUALIFICATIONS

Knowledge of:

Mathematics and statistics required for electric utility engineering, cost and rate calculations.

Principles and techniques of computer operation, including programming processes, languages (specifically FORTRAN and BASIC) and operating systems.

Peripheral equipment operation and computer interface.

City of Lodi  
Electric Utility Rate Analyst (Continued)

QUALIFICATIONS (Continued)

Ability to:

Think logically and analytically.

Operate computer equipment.

Design, develop and implement software from a general set of engineering guidelines.

Communicate clearly, orally and in writing.

Maintain effective working relationships with a variety of City staff, outside utilities, vendors and others.

Act on behalf of the Senior Electric Utility Rate Analyst, in his absence.

Experience and Education:

Any combination of experience and education that would likely produce the qualifying knowledge and ability. A typical combination is:

Experience:

One year's experience in the same or a related field.

Education:

A Bachelor's Degree in mathematics, engineering, computer science, business administration or related field from an accredited college or university.

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

City of Lodi

September 1986

ELECTRICIAN

DEFINITION

Under direction, performs skilled work in electrical construction, maintenance and trouble shooting of municipal facilities, including electric generating and distribution equipment water and waste water utility apparatus, traffic signals, streetlights as well as building equipment and does related work as required.

DISTINGUISHING CHARACTERISTICS

This is a journey level class position. Positions in this class perform skilled tasks independently with limited direct supervision and participates in a rotational standby duty for after hours call back to monitor a generating station.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the Senior Electrical Technician or from other supervisors as assigned.

EXAMPLES OF DUTIES

Installs, services, tests and repairs transformers, motors, motor controls, automatic switchgear, auxiliary generating equipment, air conditioning units, alarm systems, telemetering equipment, control boards, traffic signals, street lights, etc.; performs substation maintenance work on high-voltage transformers, circuit breakers and switches, protective relays, automatic recording instruments, voltage regulators, utility supervisory equipment, etc.; maintains water, waste-water facility equipment and storm pumping facilities; test, calibrates and repairs electric meter; answers emergency calls during and outside of normal working hours, evaluates City emergency problems, performs trouble-shooting of electrical equipment; cleans, lubricates and inspects electrical equipment; assists in the maintenance of City-owned and leased communications equipment; locates and makes recommendations to correct radio interference; locates high and low voltage cable faults; tests high-voltage cable prior to energizing; performs switching; communicates with and instructs others, as necessary.

QUALIFICATIONS

Knowledge of:

General fundamentals of electrical theory, including solid state circuitry;

General tools, methods and materials used in electrical work;

Instrumentation equipment and precision tools;

Electrical codes;

Safe work practices and procedures;

Maintenance and operation of pumping and telemetering equipment;

Precautions necessary working with high voltage;

City of Lodi  
Electrician (continued)  
QUALIFICATIONS (continued)

Ability to:

Demonstrate a high degree of aptitude for electrical and mechanical work;

Perform maintenance, trouble-shooting and repair of a wide variety of electrical equipment;

Use precision instruments and testing equipment to obtain specified performance;

Understand and carry out written and oral instructions;

Read and interpret electrical drawings, plans, diagrams and specifications

Establish and maintain cooperative working relationship with other employees and the public;

Work independently with limited direct supervision;

Establish preventative maintenance programs and keep appropriate records;

Prepare and write reports.

Experience:

Attainment of journeyman status through apprentice training as an Apprentice Electrician (usually 48 months of experience) and two years of relevant experience in the field of electrical maintenance and trouble shooting. Experience with solid state circuitry and computer based control systems required.

Education:

Equivalent to completion of the twelfth grade.

LICENSE:

Possession of a valid driver's license issued from the California Department of Motor Vehicles.

EXHIBIT A

City of Lodi

September 1986

LOAD DISPATCHER

DEFINITION

Under general supervision and in accordance with established regulations plans, organizes, directs and participates in the operation and control of the City's electric and water utility system. Supervises and trains system operators. Acts as relief operator and does related work as required.

DISTINGUISHING CHARACTERISTICS

The class of Load Dispatcher is distinguished from the next lower class of Utility Service Operator in that it is a supervisory level position and is directly responsible for the operation and control of the electric and water utility system including such items as system switching, operating rules and procedures and operator training. The Load Dispatcher is expected to possess thorough technical and working knowledge of electric and water utility systems, their components, devices and functions as well as computer based SCADA system operation and programming.

SUPERVISION RECEIVED AND EXERCISED

Receives general direction from the Assistant Electric Utility Director. Coordinates systems configuration with the Electrical Engineer and Public Works Department supervisors. Arranges switching schedules with the Electric Utility Superintendent. Supervises the Utility Service Operator(s).

EXAMPLES OF DUTIES

Duties may include, but are not limited to, the following:

Assumes responsibility for operation of the electric and water utility plant.

Operates base radio telephone transmitting and receiving equipment.

Initiates and issues switching orders and clearances in accordance with established City procedures.

Dispatches and coordinates mobile units and personnel to handle emergency operations.

Verifies that proper switching procedures are followed in the field as well as in the substation.

Programs and maintains programming of the SCADA system.

Supervises and trains operating personnel.

Assists in developing safety practices for the protection of all personnel.

Performs first-degree maintenances on supervisory and control equipment.

Evaluates relay, breaker and fuse operations and takes proper remedial action.

Reviews and verifies data on interruption reports.

LOAD DISPATCHER (continued)

EXAMPLE OF DUTIES (continued)

Coordinates service on the City's mobile radio telephone equipment and maintains appropriate logs.

Maintains the Division's data management responsibility i.e. logs, maps, charts and hourly data collections.

Prepares reports regarding electric and water operations.

Analyzes electrical and water data to redistribute systems to affect economies.

Receives telephone orders and complaints and takes appropriate actions.

DESIRABLE QUALIFICATIONS

Knowledge of:

Principles of the operation of electric distribution systems as well as water productions systems.

Electrical switching procedures and practices and electrical switching equipment.

Potential hazards involved to life and property resulting from switching operations.

Principles of effective supervisory practices.

Safe work practices.

Effective training practices and procedures.

Ability to:

Use good judgment and take effective courses of action in emergencies.

Work without direct supervision.

Prepare switching procedures and policies and develop standard safety practices.

Train electric utility operating personnel.

Make electrical calculations both single and three-phase and other related arithmetical calculations.

Maintain accurate records and to prepare reports.

Program and maintain a computer bases SCADA system.

Read and interpret gauges, charts and other measuring devices and to recognize unsatisfactory conditions.

Establish and maintain cooperative working relationships with other employees and the public.

LOAD DISPATCHER (continued)

Ability to: (continued)

Learn, understand and implement the operation and procedures of the City organization, particularly the Electric Utility, Public Works, Police and Fire Departments.

Experience and Education:

Any combination of experience and education that would likely produce the qualifying knowledge and ability. A typical combination is:

Experience:

Three years experience as an electrical distribution substation operator including experience with computer based control systems and increasingly responsible work in the areas of system operation, safety practices and training.

Education:

Equivalent to completion of the twelfth grade preferably supplemented with computer programming courses.

LICENSE

Possession of a valid driver's license issued from the California Department of Motor Vehicles.