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LA CROSSE BOILING WATER REACTOR

OPERATING MANUAL

VOLUME XI: INDUSTRIAL SAFETY

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Prepared for
The United States Atomic Energy Commission
under
AEC Contract No. AT(11-1)-850

August, 1968

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PREFACE

The Operating Manual for the La Crosse Boiling Water Reactor is being published in 11 volumes. This is Volume XI, Industrial Safety (ACNP-68505K). The volumes that comprise the Operating Manual are listed below.

Volume I:	Integrated Plant Operation	(ACNP-68505A)
Volume II:	Reactor Process Systems	(ACNP-68505B)
Volume III:	Turbine Generator Systems	(ACNP-68505C)
Volume IV:	Instrumentation, Control, and Electrical Distribution	(ACNP-68505D)
Volume V:	Service System	(ACNP-68505E)
Volume VI:	Refueling	(ACNP-68505F)
Volume VII:	Waste Collection and Treatment	(ACNP-68505G)
Volume VIII:	Water Chemistry	(ACNP-68505H)
Volume IX:	Nuclear Materials Accountability Procedures	(ACNP-68505I)
Volume X:	Health Physics Procedures	(ACNP-68505J)
Volume XI:	Industrial Safety	(ACNP-68505K)

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INDUSTRIAL SAFETY

1. ORGANIZATION AND PROGRAM

1.1 ORGANIZATION

1.1.1 General

The following general responsibilities apply to the safety organization:

1. The LACBWR Plant Superintendent is responsible for establishing and maintaining an organization that will assure a safe work environment for all LACBWR employees and for ensuring that all operations are performed in a manner that will minimize the possibility of personal injury or damage to equipment, materials and property.

2. The LACBWR Health and Safety Engineer is responsible to the Plant Superintendent for the organization and administration of a program capable of meeting the above objectives.

3. All LACBWR Supervisors are responsible for the enforcement of established safety regulations.

4. Safety shall be an integral part of all operations performed at LACBWR, and each employee is responsible for his own safety as well as that of his fellow workers.

5. The Dairyland Power Cooperative Safety Manual is included in Sec. 17 of this volume, and it is to be considered an integral part of the LACBWR safety program.

6. The Health and Safety Department will act as consultants to all LACBWR personnel in the safety design of any task.

1.1.2 Objectives

The following are objectives of the Health and Safety organization:

1. The prevention of accidents and fires.
2. The development of a comprehensive safety and fire prevention program.
3. The implementation of this program.
4. The encouragement of employee participation in all safety programs.

1.1.3 Safety and Fire Prevention

Health and Safety personnel have the following responsibilities:

1. Health and Safety Department personnel shall assist management and supervisors in carrying out all phases of the plant safety program.

2. Health and Safety Department personnel shall periodically review and, as necessary, recommend changes in conditions and practices which affect the safety and health of employees or the general public and in conditions which affect the protection of equipment, materials and property from accidental damage.

1.1.4 Medical

Medical equipment and training shall be provided to an extent which assures adequate first aid for those suffering injuries and illnesses at the LACBWR plant. Outside assistance will be summoned when necessary.

1.1.5 Fire Protection

The plant fire protection system has been developed with the philosophy of being as self-sufficient as possible. LACBWR fire protection equipment and personnel training are supplemented by outside groups to an extent which provides fire protection capability against all types of fires at LACBWR.

1.1.6 Equipment and Facilities

General information on available equipment and facilities is given below.

1. Adequate equipment and facilities are provided for reducing or controlling and surveying all accident, fire and health hazards.

2. Equipment and facilities are provided for coping with emergencies such as fires, harmful atmospheric contamination, personal injuries, and property damage. Equipment and facilities such as ambulance service, first-aid equipment, sprinklers, safety showers, face masks and personal protective clothing are provided. Automatic equipment is used wherever applicable and practicable.

3. Procedures are provided for notification of designated personnel in the event of an emergency.

1.2 PROGRAM

1.2.1 General

General safety program information is listed below.

1. It is the intent of management to have a comprehensive safety and fire prevention program covering all pertinent phases of safety engineering. This program will involve all LACBWR plant employees.

2. An education and training program covering all pertinent phases of safety shall be established and conducted on a regularly-scheduled basis. The overall objective of the program shall be the elimination of unsafe acts and conditions by having well-informed and trained employees.

3. Education and training shall include such items as the following:

- a. Safe practices and written procedures.
- b. Location and use of safety, first-aid, and firefighting equipment.
- c. First-aid training.
- d. Procedures for reporting emergencies.
- e. Emergency evacuation procedures.
- f. Investigating and reporting accidents or injuries.
- g. Fire brigade activities.
- h. Operation of equipment and use of personal protective safety equipment.

1.2.2 Training

Training shall cover safety philosophy, equipments, procedures, and first aid.

1. Plant safety meetings. It is intended that every LACBWR plant employee shall have the opportunity to attend and take part in a safety meeting at least once every month. Due to shift work, it will be necessary that most of these meetings be held at slack times on either the 4-12 or 12-8 shift and will be conducted by the Shift Supervisor or his delegate. The Health and Safety Department will cooperate in this effort

by providing the materials necessary for a practical and informative type of meeting. Safety meetings for straight day shift personnel will be conducted by the Supervisors, who may request assistance from the Health and Safety Department. These meetings may also be attended by the operating crew on day shift.

2. Safety Equipment. The LACBWR Health and Safety Department will be responsible for obtaining complete information on the use and care of all safety equipment used in the plant. It will also provide training to other LACBWR employees to insure that the safety equipment is used properly.

3. Operation. The initial effort for training of personnel in the safe operation and maintenance of all plant components and machinery will be the joint responsibility of Allis-Chalmers, LACBWR Supervision and the LACBWR Health and Safety Department. Safety practices and requirements will be incorporated in the writing of operating procedures. All operations must be accomplished with proper regard for established rules and consideration of special or unusual hazards involved.

4. Emergency Procedures. All LACBWR employees will become familiar with and participate in routine drilling on emergency procedures as detailed in Vols. I and XI of this manual.

5. First Aid. Due to the isolated location of LACBWR in relation to medical services, it is considered necessary that operating crews be provided with sound first-aid training to help reduce the effect of any serious injuries or illnesses that might occur. This training will be accomplished through the use of a certified Red Cross first-aid instructor.

1.2.3 Education and Information

Education and information will utilize a variety of media.

1. Library. A section of the plant library will be utilized for materials on health and safety. Included will be manuals, current bulletins, books and other items of health and safety interest.

2. Bulletin Board. Plant bulletin boards will be used for displaying notices to employees, posters, etc.

3. Films. Many good films on health and safety are available on a loan or rental basis. These can be scheduled for safety meetings or special showings.

4. Signs. Warning and advisory signs will be posted at work locations throughout the plant to point out specific hazards and provide information as necessary.

5. Manuals. Plant Operating Procedures will be continually reviewed and updated to insure that all rules and information are current and workable.

1.2.4 Miscellaneous

In addition to the other information presented above, the following should be noted.

1. A system will be maintained for the routine inspection, testing and maintenance of all safety equipment and facilities.
2. Regular inspections shall be made to detect and eliminate accident, fire, health and sanitary hazards.
3. All personal injuries, fires and property damage accidents shall be reported to supervision in accordance with written instructions.

2. PLANT DESIGN AND LAYOUT

2.1 GENERAL

Safety and fire protection features have been incorporated in the design and layout of the LACBWR plant. Any alterations of existing plant facilities or new construction must be reviewed by LACBWR Health and Safety to ensure that safety factors are not overlooked.

2.2 GENERAL FACTORS

2.2.1 Location and Design of Buildings

General factors for major areas are summarized below.

1. Generator Building. Portions of the generator building containing flammable liquid storage tanks have been isolated by use of fireproof construction and/or fire doors. Fire doors shall be kept closed when not in use. It should be kept in mind that this procedure will maintain a balanced ventilation system as well as isolating potential fire hazards. Fire doors are identified by the Underwriters Laboratory label attached to the inside edge.

2. Reactor Building. The design of this building provides complete isolation from other sections of the plant, and it is free of major fire hazards. Care must be taken not to allow combustible materials to accumulate inside the reactor building.

2.2.2 Outside Storage Areas

Any combustibles, flammable liquids, etc., stored in outside areas shall be kept at least 100 ft from any buildings, storage tanks, or other existing structure. They should be kept within a workable distance of a plant fire hydrant.

2.2.3 Sewers and Waste Disposal

The following requirements shall be strictly observed:

1. Flammable liquids shall not be discharged into the sanitary sewer system, nor should they be discharged to the river without first being rendered chemically inactive.

2. Combinations of chemicals which may form explosive mixtures shall not be discharged to sewers.

3. Any chemicals which may deter bacterial action shall not be discharged to the sanitary sewer.

2.3 SPACE REQUIREMENTS

General space requirements for the various major areas are summarized below.

2.3.1 Head Room

A minimum vertical clearance of 7 ft shall be maintained over aisles, passageways and stairways. Where this is impossible, the overhead obstruction will be clearly marked.

2.3.2 Storage Space

Combustibles, compressed gases, certain chemicals, solvents, oils, etc., are to be stored in approved locations. Adequate aisle space will be maintained for internal transportation and for pedestrian traffic.

2.3.3 First-Aid Appliances

Adequate space shall be maintained for good visibility and ready access to all first-aid, safety, and fire appliances such as self-contained breathing apparatus, safety showers, fire extinguishers, emergency valves, etc.

2.4 EXHAUST AND VENTILATION

The following precautions must be observed to ensure that exhaust and ventilation is adequate:

1. The existing ventilation system is adequate for most operations encountered at LACBWR. However, care must be taken to ensure that all fans and dampers are operating and that doors and windows are closed according to procedure.

2. Special operations involving the generation of large quantities of fumes, gases, dusts or vapors shall be accomplished by use of auxiliary ventilation portable blowers, fume hoods, or protective breathing apparatus.

2.5 LIGHTING

The original lighting design at LACBWR is of a type and intensity to provide good illumination in work areas. An effort must be made to keep all facilities in full operation and to see that special work areas are adequately lighted.

3. OPERATIONS AND MAINTENANCE

3.1 GENERAL

In all operations at LACBWR, provisions shall be made for safe operation and for protection to employees, the public, and property.

3.2 HOUSEKEEPING

The following requirements must be observed:

1. Housekeeping shall be an integral part of every operation.
2. Receptacles will be used for all usual waste and debris.
3. Cleaning and removal of dirt, wastes, debris and dusts shall be done frequently.
4. Where smoking is permitted, receptacles shall be provided and shall be used for all ashes, butts and matches.
5. All stairways, aisles, corridors and passageways shall be kept free from loose material and debris. No such space shall be used for storage.
6. All areas shall be kept free of tripping hazards such as tools, lines, etc.
7. Locker rooms, wash rooms, toilets, drinking fountains, and similar facilities shall be constantly maintained in a sanitary condition.

3.3 MAINTENANCE

The following maintenance requirements must be observed:

1. All equipment, machines, and tools (including fire protection and safety equipment) shall be inspected, tested and maintained, on a scheduled basis and otherwise, as frequently as is required to maintain it safe and in good operating condition. Maintenance records shall be kept on safety and fire protection equipment.
2. Maintenance work performed in equipment operating areas shall be covered by protective procedures that will reduce the possibility of injury to personnel or damage to equipment.
3. To ensure protection of personnel and equipment, the plant's Lock and Tag Procedures (Sec. 18) shall be used when locking and tagging switches, valves and other controls and when disconnecting or blocking pipe lines.

4. Equipment, machines and tools in need of repair shall be reported promptly to supervision. Unsafe equipment, machines or tools will not be operated or used.

3.4 WELDING AND CUTTING

3.4.1 General

General requirements which must be met are listed below.

1. All persons engaged in the installation, maintenance, and operation of welding and cutting apparatus and equipment shall be qualified in safe methods by instruction and experience before being permitted to engage in such operations.

2. All welding and cutting apparatus and equipment shall be inspected before being placed in service and prior to each time that it is used. Any equipment found defective shall be replaced or repaired.

3. Before entering confined spaces, such as tanks or sewers, a check shall be made for the presence of explosives or toxic gases and for any oxygen deficiency.

4. In confined spaces, where the means of exit is a manhole or other small opening, means shall be provided for quickly removing workers in an emergency. An attendant shall be stationed outside the exit at all times while work is in progress.

5. All combustibles shall be removed from an area prior to the start of any welding or cutting operations. If this is impossible or impracticable, the combustibles shall be protected by asbestos or other means.

6. A fire extinguisher or hose must be available in any area outside the designated welding shop where welding and cutting operations are performed.

3.4.2 Arc Welding and Cutting

The following requirements apply for any arc welding and cutting operations:

1. All equipment shall regularly be checked to make certain that electrical connections and insulation on the holders and cables are in good order.

2. All electrode holders shall be fully insulated, specifically designed for arc welding, and of a capacity to safely handle the maximum rated current required by the electrodes with which the holder is intended to be used.

3. All welding cables shall be of the completely insulated, flexible type and of proper size, etc., for the maximum current requirements of the work.

4. Cable shall be free from splices for a minimum distance of 10 ft from the electrode holder. All splices shall be soldered and taped with insulation having qualities not less than the original.

5. Pipelines containing gases or flammable liquids, or conduits carrying electrical conductors, shall not be used for a ground return circuit.

6. Welding cable shall be kept dry where practicable and free from grease and oil.

7. When the operator has occasion to leave his work or to stop work for any appreciable time, all electrodes shall be removed from the holders, leads coiled at the machine, and equipment removed or disconnected from the source of power.

3.4.3 Gas Welding and Cutting

The following requirements apply during any gas welding and cutting operations:

1. Operators shall follow the procedure outlined by the manufacturer of the apparatus in use insofar as it deals with the sequence of operations for lighting, adjusting, and extinguishing blowpipe flames and connecting the apparatus to sources of gas.

2. No one shall attempt to mix gases in a cylinder, refill a cylinder, or use it for purposes other than intended by the supplier.

3. Handling and storage of compressed gas cylinders shall be in accordance with this volume's Sec. 6, Materials Handling and Storage.

4. Oxygen shall never be used as a substitute for compressed air at any time or for any purpose.

5. Keep oxygen cylinders and fittings away from oil and grease.

6. Valve protective caps shall always be in place except when cylinders are in use or connected for use.

7. A suitable cart, chain, or steadying device shall be used to secure cylinders in the upright position at all times.

8. Fuel gas or oxygen cylinders shall not be used without first attaching a regulator to the cylinder valve.

9. Cylinders shall be kept at sufficient distance from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them.

10. A minimum pressure of 5 psi shall be left in cylinders. Empty cylinders shall have protective caps replaced and shall be tagged empty. Cylinder valves shall be closed when work is finished and before the cylinder is moved.

11. Fuel gas cylinders found to have leaky valves or fittings which the closing of the valve will not stop shall be taken into the open away from any source of ignition and slowly drained of gas. The cylinder shall be tagged and the supplier notified.

12. Only hose in good condition shall be used, and an effort shall be made to protect the hose from mechanical damage.

3.4.4 Protective Clothing and Equipment

Protective clothing and equipment is available, and the following requirements will be observed:

1. Flame-proofed gauntlet gloves shall be worn by all operators.
2. Special protective equipment such as shoulder covers, flame-resistant coveralls, leggings, etc., shall be provided as work hazards require.
3. Appropriate welding helmets, flash goggles, or other approved eye protection will be used by all observers as well as by operators.
4. Wherever practicable, welders shall be enclosed in individual booths or by portable flame-proofed screens.

3.4.5 Ventilation

Ventilation requirements, local and general, are listed below.

1. When fluxing materials or metals being welded or cut away result in radioactive or toxic fumes, an assault mask, supplied air or local exhaust ventilation shall be used.
2. When welding or cutting operations are carried on inside small enclosed or restricted spaces (such as tanks, pressure vessels, etc.), these spaces shall be ventilated to prevent the accumulation of toxic gases or an oxygen deficiency. When it is impracticable to provide such ventilation, self-contained breathing apparatus shall be used.

3.5 LADDERS

The following safety requirements apply when ladders are to be used:

1. Ladders with weakened, broken, or missing treads, rungs, or cleats, or with broken side rails shall not be used. All ladders which have developed defects will be withdrawn from service.
2. Ladders shall be inspected regularly, repaired immediately when in need of repair, and stored properly.
3. Ladders placed where there is danger of slipping shall be secured by use of cleats, safety shoes, lashing, or other effective means.
4. Ladders shall not be placed in locations where they may be struck in any way unless they are barricaded or guarded at the ladder foot.
5. Metal ladders shall not be used around electrical gear.
6. Only one person shall be on a ladder at a time.
7. Tools or equipment shall not be carried in the hands or protrude from the pockets while ascending or descending a ladder.
8. All single ladders will be equipped with safety feet.
9. Ladders not in use are to be stored in their designated position.

3.6 CRANES

The special safety requirements to be observed when using cranes are as follows:

1. Only personnel authorized by the supervisor in charge may operate cranes.
2. Chokers, hooks, and all lifting devices should be inspected prior to use.
3. All crane hooks shall be equipped with a safety catch.
4. Loads heavier than the rated capacity of the crane should never be lifted.
5. Sudden starts or stops are to be avoided.
6. Standard hand signals shall be used, and the operator shall recognize signals from only one person during operation.
7. A tag line or guide rope shall be used on loads that swing freely.

8. Workmen shall not ride on loads, hooks, balls, etc.
9. Loads shall not be lifted over the heads of persons, and no one shall be permitted to walk under a load.
10. The operator shall remain at the controls while a load is suspended.
11. Hard hats are to be worn whenever cranes are being used.

3.7 SCAFFOLDS

The following safety requirements must be observed when scaffolds are used:

1. Scaffolds shall be provided for jobs that cannot be done safely from ladders or from a boatswain's chair.
2. All scaffolds and their supports shall be capable of supporting the load they are designed to carry with a safety factor of at least four.
3. Guard rails and toe boards shall be furnished on scaffolds which are 12 ft high or more, as measured from the ground or supporting area.
4. Any scaffold damaged or weakened from any cause shall be immediately repaired, and workmen shall not be allowed to use it until the repairs have been completed.
5. Scaffolds constructed of lumber shall utilize only high-grade, sound lumber.
6. Scaffolds shall be kept clear of unnecessary tools, material, and rubbish.
7. Safe means of access shall be provided to all scaffold platforms by proper ladders or stairs.
8. On manufactured scaffolds, keep all caster brakes locked and turned out when the tower is not in motion.
9. Secure all towers where the height exceeds three times the minimum base dimension.
10. No workman shall remain on the tower while it is in motion.

TABLE 3-1

HOUSEKEEPING AREAS

OPERATIONS DEPARTMENT - AREA I - SHIFT "A"

1. The grade floor of the Containment Building and the entire area above the grade floor.

AREA II - SHIFT "B"

1. The Turbine Building mezzanine floor including the top of the turbine lub. oil reservoir.
2. The Turbine Building staircases, including the landings, and all tile covered areas adjoining the stairs
3. The air ejector operating platform
4. The Containment Building airlocks

AREA III - SHIFT "C"

1. Turbine Building - entire grade floor

AREA IV - SHIFT "D"

1. Oil Storage Room
2. Control Room
3. Oil Transfer Shack
4. Crib House
5. Boiler Room
6. H₂ Bottle Pad Area
7. Pipe Tunnel

AREA V - DAY SHIFT

1. Basement of the Containment Building to the grade floor
2. Turbine Building - turbine floor

INSTRUMENT AND ELECTRICAL DEPARTMENT

1. Instrument Shop
2. Electrical Equipment Room
3. Communication Room
4. Electrical Penetration Area

Table 3-1 - Housekeeping Areas (cont'd)

HEALTH PHYSICS DEPARTMENT

1. Waste Disposal Building
2. Counting Room and Laboratory
3. Change Room

MAINTENANCE DEPARTMENT

1. Machine Shop and Storeroom
2. Warehouses and Grounds

CUSTODIAN

1. Office areas including washrooms, locker room and similar areas.

Shift	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>DAY</u>
January through March	I	II	III	IV	V
April through June	II	III	IV	I	V
July through September	III	IV	I	II	V
October through December	IV	I	II	III	V

SHIFT ASSIGNMENT FOR HOUSEKEEPING AREAS

FIG. 3.1

4. EQUIPMENT AND FACILITIES

4.1 PLANT RAILWAYS

4.1.1 General

Railroad operations shall be consistent with the existing operating regulations of the connecting railway company. All equipment shall be constantly maintained in safe operating condition.

4.1.2 Protection for Pedestrian and Vehicular Traffic

To protect pedestrians and vehicles, the following requirements have been established:

1. All cars left standing inside the plant area shall have the wheels blocked to prevent rolling in either direction.
2. Tank cars containing acid or corrosive liquids shall be clearly marked as to content, and signs shall be changed to indicate that the cars are empty after being unloaded.
3. While being unloaded, tank cars shall be barricaded 10 ft in each direction, and warning signs shall be posted on the barricade.
4. Tank cars containing flammable liquids shall be grounded prior to and during unloading operations.

4.2 BOILERS

4.2.1 General

The following general safety considerations apply:

1. The operation, inspection, testing, and maintenance of steam boilers shall be in accordance with standards of the American Society of Mechanical Engineers (ASME) and the Wisconsin Administrative Code, Chapter 41.
2. The operation, inspection, testing, and maintenance of steam boilers shall be done only by persons authorized by LACBWR management.
3. All boilers whose safety valves are set higher than 15-lb pressure shall be classified as high-pressure boilers and shall be under continuous surveillance of a qualified boiler operator.

4. All boilers will be operated within the rules provided in the manufacturer's manual unless approval for change is obtained from LACBWR management.

4.2.2 Operation

To ensure safe boiler operation, the following requirements must be observed:

1. Safety relief valves shall be tested at least twice a year. First, raise steam to the relief pressure of the valves; second, six months later, lift the valves by hand.

2. If any cracks, serious leaks, or other important defects are noticed, the boiler shall be taken out of service immediately.

3. Boilers shall be blown down at least once every week, or more often if required.

4.2.3 Maintenance

Requirements for boiler maintenance are listed below.

1. Repairs shall not be made while the boiler is under pressure.

2. All boiler and boiler parts shall be cool enough to allow men to work safely.

3. When work is done inside the boilers, adequate ventilation shall be provided.

4. The LACBWR Lock and Tag Procedure shall be used to protect men working on or inside boilers.

4.2.4 Personal Protective Equipment and Clothing

Protective equipment and clothing shall be worn as indicated by the work permit while operating, inspecting and repairing boilers.

4.3 FIRED AND UNFIRED PRESSURE VESSELS

4.3.1 General

General safety requirements for pressure vessels are listed below.

1. The installation, operation, inspection, testing, and maintenance of pressure vessels shall be in accordance with codes established by the American Society of Mechanical Engineers (ASME).

2. The installation, operation, inspection, testing, and maintenance of pressure vessels shall be done only by persons designated by LACBWR management.
3. Additional and replacement parts must meet standards of original equipment.

4.3.2 Safety Devices and Installation

Safety devices have been installed and must be protected by adherence to the following requirements:

1. Care must be taken on revisions or new installations to ensure that all required safety devices are installed properly.
2. Safety valves shall be so located that there are no stop valves between them and the vessel they are protecting.
3. All pressure vessels shall be equipped with an approved type of gauge to register the pressure.
4. Approved types of safety valves shall be provided on all pressure vessels.
5. The discharge from safety and relief valves shall be so located that it does not constitute a hazard to workmen.

4.3.3 Inspection and Test

Requirements for inspection and test of pressure vessels are as follows:

1. A regular schedule for inspecting and testing pressure vessels shall be established. Pressure vessels shall be inspected before being put into operation after initial installation, reinstallation, or major repairs.
2. Records shall be kept on each pressure vessel, including such information as design data, installation information, inspection records, process changes and repairs.

4.3.4 Maintenance

All maintenance work shall be performed under provisions for boilers. (See Sec. 4.2.3 of this volume.)

4.4 FLOORS

Precautions relevant to floor loadings and conditions are listed below.

1. Floor loadings shall not exceed posted or designed limits for that area.
2. Floor areas that are potentially hazardous due to oil, water, etc., will be provided with a nonslip surface.

4.5 TOWERS AND STACKS

Precautions relevant to towers and stacks are listed below.

1. Towers and stacks will be provided with warning lights in accordance with Federal Aviation Agency regulations. The Federal Aviation Agency shall be notified immediately of the failure of these lights, and it shall be notified again when the lights are returned to operation.
2. No one shall climb on the stack ladder unless authorized to do so by the LACBWR Superintendent.

4.6 PARKING LOT AND PLANT AREA

Precautions relevant to the parking lot and plant area are listed below.

1. The parking lot shall be kept well illuminated and free of debris.
2. The maximum vehicle speed limit inside the plant area shall be 10 miles per hour.
3. The car heater outlets in the parking lot are provided for employee convenience. Each employee is responsible for seeing that his leads to these outlets are maintained in good condition and incorporate a means for keeping the leads off the ground. Outlet caps shall be replaced when leads are disconnected.
4. Care should be taken to avoid bumping the car heater outlets.

5. GUARDING AND OPERATING MACHINERY

5.1 GUARDS AND SAFETY PRECAUTIONS

The following are requirements for guards and safety precautions:

1. All moving parts of machinery shall be guarded whenever such motion may constitute a hazard to personnel. All rotating or reciprocating parts within 7 ft of a floor or operating platform shall be construed to constitute a hazard to personnel.
2. Wooden guards shall be used only when a metal guard of satisfactory design cannot be developed, or where the presence of a metal guard would introduce a hazard.
3. Floors adjacent to the areas of operation of hazardous working machinery shall be covered with anti-slip material.
4. Each manually-operated machine will be provided with a proper starting and stopping device located within easy reach of the operator.

5.2 MAINTENANCE AND INSPECTION

The following are requirements for maintenance and inspection of machinery:

1. All machinery shall be inspected by the Plant Superintendent or by his designated representative prior to operation, and the machinery shall not be used until this inspector's approval is obtained.
2. Defective equipment shall be removed from service and repaired, and it shall be reinspected before being returned to service.
3. The LACBWR Lock and Tag Procedure shall be used on all machinery under repair or otherwise being serviced.

5.3 OPERATION

The following safety precautions are mandatory during the operation of machinery:

1. Guards shall be removed only as necessary and as authorized for adjustment, oiling, repairs, etc. Guards shall be replaced before operation is resumed.
2. The use of loose-fitting clothing by operators and service personnel is prohibited.

3. Necessary personal protective equipment for each operation shall be specified on the work permit, and the use of this equipment shall be enforced.
4. Machines shall be operated only by personnel designated by LACBWR supervision.
5. Work areas around machines shall be kept clean.
6. Machinery shall never be run unattended unless it is specifically designed for automatic operation.
7. Grinding wheels shall not be used at a speed above design safety.

6. MATERIALS HANDLING AND STORAGE

6.1 MANUAL HANDLING

6.1.1 Lifting

Each worker shall use proper lifting techniques and shall refrain from lifting loads over his personal capacity.

6.1.2 Carrying

Articles shall be carried in such a manner as to avoid falls or striking other persons or objects. Before grasping an object, the worker shall consider the distance to be traveled and the length of time for which the grip must be maintained.

6.1.3 Hand Trucks

Safety requirements to be observed when using hand trucks are listed below.

1. Hand trucks shall not be used for objects beyond their design as to size, weight, etc.
2. Specific storage spaces shall be provided for hand trucks not in use, and they shall be kept in these designated spaces when not in use.
3. All loads shall be placed on trucks as to prevent tipping, shifting and falling.
4. Trucks shall not be loaded to a height that will obscure the vision of the operator.

6.2 MECHANICAL HANDLING: CRANES AND HOISTS

Precautions to be observed while using cranes and hoists are listed below.

1. General operation, maintenance, and inspection of cranes shall be in accordance with Sec. 3.6 of this volume.
2. A standard signal system shall be used during hoisting operations, and signals shall be given only by a designated signalman.
3. The safe load capacity rating of each crane or hoist shall be posted on that piece of equipment, and this rating shall not be exceeded.

4. While hoisting equipment is in operation, the operator shall not leave his position at the controls.

6.3 SPECIAL HANDLING AND STORAGE

6.3.1 Radioactive or Fissionable Materials

The storage, handling, and shipment of fissionable materials shall be in accordance with Vol. X of this manual and applicable government regulations. Disposal of radioactive contaminated wastes shall be in accordance with Vol. X of this manual and 10 CFR 20.

6.3.2 Flammable Liquids

Safety requirements to be observed when handling flammable liquids are listed below.

1. Storage of flammable liquids shall be in approved locations, and approval for use of flammable liquids for cleaning or other purposes must be obtained from LACBWR supervision.

2. Storage of flammable liquids shall be in approved containers and locations. Lids of all containers shall be kept tightly closed, and each container shall be labeled as to its contents.

3. Whenever possible, inside storage of flammable liquids will be in a separate fire-resistant room, building or cabinet.

4. All pressurized spray cans shall be considered as flammable; when not stored in approved cabinets, they shall be kept away from heat sources.

6.3.3 Compressed Gases

While handling compressed gases, the following requirements must be observed:

1. Cylinders shall not be accepted from the vendor unless approved for use by the Interstate Commerce Commission.

2. Cylinders shall be moved by use of a hand truck having provisions for securing the cylinder to the truck.

3. Protection caps shall always be in place except when the cylinder is connected for use.

4. Cylinders shall be kept away from sources of heat.

4. While hoisting equipment is in operation, the operator shall not leave his position at the controls.

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3. Protection caps shall always be in place except when the cylinder is connected for use.

4. Cylinders shall be kept away from sources of heat.

5. Cylinders shall be stored in approved locations and shall be secured at all times.
6. Oxygen cylinders shall not be stored within 20 ft of acetyline or fuel gas cylinders unless there is a fire-resisting partition between the oxygen and the other type of cylinders.
7. Where cylinders are stored in the open, they shall be protected from accumulations of ice and snow and from the direct rays of the sun.
8. Cylinders shall be clearly identified as to contents.
9. The proper type and rated regulator shall be used for each gas.

7. ELECTRICAL HAZARDS

General precautions against electrical hazards are listed below.

1. The Dairyland Power Cooperative Safety Manual, which is included in Sec. 17 of this volume, shall be the guide where electrical hazards are of concern.

2. Installation and maintenance of electrical equipment shall be assigned only to qualified journeyman electricians.

3. All employees shall be responsible for observing warning signs, guards, protective devices, etc., which deal with electrical hazards.

4. A work permit shall be required for protection of personnel who are required to perform work on equipment connected to electrical systems of 600 v and above or to systems of below 600 v when these systems cannot be de-energized.

5. The LACBWR Lock and Tag Procedure shall be used for work on equipment supplied by 600 v or less which can be de-energized.

6. Check all extension and power tool cords before use. Protect cords from damage during use. Use only grounded tools.

8. CHEMICAL HAZARDS

8.1 GENERAL

The following general precautions must be observed:

1. All employees working with chemicals shall observe all specific rules included in the operating procedures.
2. Any employee handling corrosive liquids, caustics, or acids shall previously determine the location of the nearest safety shower, eyewash station, or other source of running water.
3. Suitable personal protective equipment shall be provided for employees engaged in handling hazardous chemicals, and employees so engaged shall be required to use such equipment.

8.2 PIPELINES

Specific precautions to be followed during pipeline work are listed below.

1. When it is necessary to open a line that contains hazardous chemicals, the LACBWR Lock and Tag Procedure shall be used to isolate all sources of supply.
2. Lines shall be depressurized, drained, and--if possible--flushed prior to being opened.
3. Personal protective equipment shall be worn as specified by the work permit.

8.3 PORTABLE CONTAINERS

8.3.1 Drums, Barrels and Carboys

The following safety requirements must be observed:

1. Leaking or open containers shall not be used for the storage of chemicals.
2. Chemicals shall be transported only in unbreakable containers.
3. Highly toxic and corrosive liquids shall be kept in the special containers provided by the manufacturer.

8.3.2 Storage Space

Incompatible chemicals shall be stored in separate storage areas whenever possible. All spills, leaks, etc., shall be hosed down and cleaned up as soon as possible.

8.3.3 Transportation

Only approved containers shall be used for intraplant transportation of acids, caustics and corrosive liquids. All personnel engaged in moving and storing liquids in portable containers shall wear necessary personal protective equipment.

8.4 TANK CARS

8.4.1 Protection of Cars on Siding

Safety precautions to be observed for tank cars while on the siding are as follows:

1. Before connections are made, tank cars must be protected on the siding by a barricade extending 10 ft in each direction. Signs must be posted; wheel checks inserted; and hand brakes set.

2. Tanks containing flammable liquids shall be grounded.

8.4.2 Unloading

During unloading, observe the following precautions:

1. Chemicals should be unloaded through the tank car dome.

2. If chemicals are unloading with pressure, the pressure must not exceed 15 psi, and the air line shall be equipped with a pressure gauge and safety valve.

3. Cars containing flammable liquids shall be pumped out or, if pressure is used, it shall be applied with an inert gas.

4. Running water shall be kept available during all unloading operations, and equipment shall be hosed down after use.

5. Personal protective equipment requirements shall be rigidly enforced during unloading operations.

8.5 CHEMICAL MIXING AND HANDLING

General guidelines for chemical mixing and handling are given below.

1. Review operating procedures for all tasks in which chemical mixing or handling is involved.
2. Know the compatibility of the chemicals to be mixed.
3. Wear required protective clothing.
4. Know the location of the nearest safety shower, eyewash station, or other source of running water.
5. Never add water to acid. Add acid to water while the water is being agitated.
6. Mix chemicals only where there is adequate ventilation.

8.6 LABORATORY OPERATIONS

Laboratory operations require the following precautions:

1. Pouring and mixing of toxic chemicals shall be done inside the fume hood.
2. Safety glasses are required at all times inside the laboratory.

8.7 CAUSTICS (NaOH or KOH)

8.7.1 Synonyms

Caustics are also known as caustic potash, caustic soda, potassium hydroxide, alkali, lye, and sodium hydroxide.

8.7.2 Required Protective Equipment

The following protective equipment is required and must be used:

1. Chemical-type goggles.
2. Rubber or plastic gloves and apron.
3. Rubber boots (tops covered by trousers).
4. Face shield.

5. Running water supply.

6. If caustic dusts or mists are present, it may be necessary to wear some form of protective breathing apparatus. Notify Health and Safety if such a condition exists.

8.7.3 Hazards

Caustics are strong primary skin irritants which can cause severe burns and deep ulceration of the skin. Prolonged contact of dilute solutions may produce skin irritation. Strong or dilute caustics may cause permanent damage or burns to the eyes.

8.7.4 First Aid and Medical Treatment

The following first-aid requirements are minimum and should be supplemented by medical attention as rapidly as possible:

1. Speed in removing caustic is of primary importance. Immediately flush area with large amounts of water, and continue flushing for at least 15 min.

2. In cases of severe burns and those covering a large area of the body, shock may occur at any time. Treat shock by placing victim in a supine position and keeping him warm.

3. If caustic should come in contact with the eye, the lids should be held apart and the eye flushed with water for at least 15 min. A soft stream of water, and preferably the eyewash fountain, should be used. All cases of eye injury should be treated by a physician.

8.8 SULFURIC ACID (H₂SO₄)

8.8.1 Synonyms

Sulfuric acid is also known as oil of Vitriol or dipping oil.

8.8.2 Required Protective Equipment

The following protective equipment is required and must be used:

1. Chemical-type goggles.
2. Rubber or plastic gloves and apron.
3. Rubber boots (tops covered by trousers).
4. Face shield.
5. Running water supply.

8.8.3 Hazards

The following hazards can occur, and the precautions noted must be observed:

1. Mists, vapors, or solutions of sulfuric acid can be corrosive to the skin and eyes, the severity of the burns being proportional to concentration and contact time. If the acid can be detected by odor or irritation, the maximum allowable concentration has been exceeded.

2. Water or caustic should never be added to sulfuric acid; violent reactions can take place.

3. Hydrogen gas is generated by the action of sulfuric acid on the metal in drums, storage tanks, and tank cars. Open flames should not be allowed in areas where sulfuric acid is being handled.

8.8.4 First Aid and Medical Treatment

The following requirements for first aid and medical treatment must be observed:

1. Speed in removing acid is of primary importance. Immediately flush the area with large amounts of water, and continue flushing for at least 15 min.

2. In cases of severe burns and those covering a large area of the body, shock may occur at any time. Treat shock by placing victim in a supine position and by keeping him warm.

3. If acid should come in contact with the eyes, the lids should be held apart and the eye flushed with water for at least 15 min. A soft stream of water, and preferably an eyewash fountain, should be used. All cases of eye injury should be treated by a physician.

4. Reagent bottles shall not be left on the floor.

5. All containers shall be clearly labeled as to their contents.

6. The mouth shall not be used for filling pipettes.

7. Rubber gloves shall be worn when handling containers of acid, caustic or corrosive liquids.

9. FIRE PROTECTION AND PREVENTION

9.1 ORGANIZATION

9.1.1 General

General information on the fire protection and prevention organization is summarized below.

1. The LACBWR plant has developed a system of fire protection and prevention which utilizes Dairyland Power Cooperative employees, outside groups, and all available equipment.

2. Facilities have been provided for preventing the spread of fire, for control and extinguishment of fires, and for safety of personnel in the event of a fire.

3. The LACBWR fire protection program will provide for maintenance of first-aid fire equipment and for training of personnel.

9.1.2 Fire Education

All employees shall be given training in the recognition of fire hazards, the location and use of first-aid firefighting equipment, and written procedures relative to initiation of alarms and evacuation.

9.1.3 Fire Inspections

Fire inspections are mandatory, and requirements for them are summarized below.

1. A program will be established for the inspection, test and maintenance of firefighting equipment and facilities, and this program will be carried out in accordance with recognized standards.

2. A program will be established and carried out for the detection and elimination of fire hazards and of deficiencies in firefighting facilities.

9.1.4 Outside Organizations

Should it be necessary to call on outside agencies to supplement plant personnel and/or equipment, the LACBWR supervisor on duty shall maintain overall authority due to the unique features of the LACBWR plant.

9.2 BUILDING DESIGN AND LAYOUT

9.2.1 General

The following general information on design and layout is relevant:

1. The inherent nature of the LACBWR plant is such that danger of a serious fire is not great. The type of construction, its nature of operation, and the separation of buildings for other purposes provide a natural protection from fire hazards.
2. Areas having hazardous contents, such as oil storage tanks, are separated from other areas by fire walls and fire doors.
3. Sprinkler systems have been provided in areas having oil storage tanks.

9.2.2 Fire Protection Apparatus Locations

General information on location of apparatus is given below.

1. The locations of portable fire extinguishers, fire hose stations, and other equipment at LACBWR are in accordance with recommendations of the Factory Mutual Engineering Corporation and of the Atomic Energy Commission.
2. All apparatus is approved by Underwriter Laboratories and by the Factory Mutual Engineering Corporation.
3. Each location of firefighting equipment is designated by a 2-in. white numeral amplified by use of red background paint.

9.3 WATER SUPPLY AND DISTRIBUTION SYSTEM

Some main features of this system are listed below.

1. An adequate supply of water for fire extinguishment purposes has been provided at LACBWR.
2. The high pressure service water pump and the auxiliary fire pumps ensure a source of high-pressure water.
3. The fire loop supplies water to five outside hydrants and to hose stations inside the generator plant and the reactor and waste disposal buildings. In addition, this loop feeds sprinkler systems located over the oil storage tanks.

9.4 FIRE EXTINGUISHING FACILITIES

9.4.1 Fixed Systems

The various types of fixed systems are discussed below.

1. Manually-controlled fog spray systems are provided over the tanks in the Oil Storage Room and over the Turbine Lube Oil System storage tank.
2. Five hose stations are provided in the Generator Building with 75 ft of 1-1/2-in. hose at each station.
3. The Reactor Building has a fire hose station located on each floor with 75 ft of 3/4-in. linen hose at each station.
4. One fire hose station containing 75 ft of hose is provided in the Waste Disposal Building.
5. Five outside fire hydrants are located around the plant; hose is available for these in two hose storage cabinets, each containing 300 ft of 1-1/2-in. high pressure linen hose and other necessary equipment. These hydrants can also be used by outside fire departments as a source of supply.

9.4.2 Portable Devices

Portable fire extinguishers of various types and sizes have been provided throughout the plant in locations recommended by professional fire protection groups. Specific instructions and training in the use of these devices will be provided to all employees.

9.5 COMMON HAZARDS

Certain common hazards exist and must be guarded against.

1. "No Smoking" signs must be observed, and ash receptacles shall be used in areas where smoking is permitted.
2. Combustible wastes shall be kept in approved containers and not allowed to accumulate.
3. Housekeeping shall be an integral part of every operation.
4. Special precautions shall be taken in disposal of highly flammable materials.

10. FLAMMABLE LIQUIDS

General safety measures are listed below.

1. Approved portable containers, bench cans, or dip tanks shall be used when handling flammable liquids.
2. All containers for flammable liquids shall be painted red and marked to show contents.
3. Flammable liquids which have a flash point of less than 100 F shall not be used as general cleaning solvents. During special cleaning processes when acetone must be used, all necessary fire protection precautions will be followed.
4. Smoking and the use of open flames are prohibited in areas where flammable liquids are stored, handled or used.
5. All maintenance work on systems containing flammable liquids shall be done under an approved work permit, and supervision approving the permit will be responsible for seeing that all necessary precautions are taken.

11. HAND AND PORTABLE POWER TOOLS

11.1. CONTROL

All plant personnel shall be responsible for seeing that all tools are maintained in good condition and that defective tools are removed from service. Tools will only be issued to personnel qualified to use them properly.

11.2. GENERAL PRECAUTIONS

The following general precautions must be observed:

1. In any operation where the use of a tool can cause particles to fly, eye protection of the appropriate type shall be utilized by the user of the tool and by other personnel who may be exposed to the flying particles.
2. When using sharp-edged tools, precautions shall be taken to prevent injury to personnel.
3. Only the proper tools shall be used for a specific job.

11.3. PORTABLE POWER TOOLS

11.3.1. General

General safety requirements applicable to portable power tools are listed below.

1. Portable electric tools shall not be used in the presence of flammable vapors, gases, etc., unless the tool is designed for such use.
2. Portable electric tools shall be grounded.
3. Switches shall be of the safety type.
4. Connecting cords shall be kept in good condition, and measures to protect them during use shall be taken.

11.3.2. Grinders

Use of grinders requires the following safety precautions:

1. Only wheels in good condition and manufactured for the speed of the respective grinder shall be used.

2. The best possible wheel guard, which should cover the unused portion of the wheel, shall be used.

3. Goggles shall be the minimum required eye protection when grinding. Face shields should be used to supplement the goggle protection.

11.3.3 Drills

Use of face shields, goggles, or safety glasses shall be required when drilling. Material to be drilled shall be secured.

11.3.4 Saws

Power-driven hand saws shall be equipped with a guard that completely surrounds the blade of the saw when it is not cutting, and which completely covers the unused portion when it is cutting, and a trigger switch that breaks contact whenever the operator releases the pressure of the handle.

12. MOTOR VEHICLE OPERATORS

General requirements for operators are listed below.

1. Every employee operating a motor vehicle while on official business for Dairyland Power Cooperative (DPC) shall have in his possession a valid state operator's drivers license issued by the State in which he resides.
2. All state and local traffic laws are to be observed by employees operating motor vehicles on official business.
3. Personal vehicles shall not be used for transportation of radioactive materials, and approval of the Health and Safety Department is required prior to use of DPC-owned vehicles for this purpose.
4. In the event of an accident, the employee operating the vehicle is required to complete the Report of Accident form kept in the glove box of DPC-owned vehicles and report to local authorities and LACBWR Supervision as soon as possible.
5. The operator of a DPC-owned vehicle shall wear the seat belt where provided and shall require passengers to also use seat belts where provided.
6. Employees shall be responsible for the inspection of DPC-owned vehicles in their use and for reporting any unsafe or unusual conditions they may find.

13. PERSONAL PROTECTIVE EQUIPMENT

13.1 RESPONSIBILITIES OF EMPLOYER AND EMPLOYEE

The mutual employer-employee responsibilities are listed below.

1. Dairyland Power Cooperative will supply adequate personal protective equipment for employees exposed to hazards which may arise.
2. Dairyland Power Cooperative will enforce use of, and replace when necessary, all personal protective equipment required at LACBWR.
3. It shall be the duty of the employee to properly use personal protective equipment provided for him and to exercise due care to maintain such equipment in an efficient and sanitary condition. Personal protective devices and clothing shall be worn as required.

13.2 RESPIRATORY PROTECTION PROGRAM

Requirements for this program are listed below.

1. This program is designed basically for protection against radiological materials, and it is outlined in more detail in Vol. X of this manual.
2. The self-contained breathing equipment will be available for emergency use in other circumstances, such as during fires.
3. Canister-type face masks are available for employees who are required to work in heavy concentrations of dusts, etc.
4. Provisions for training in the use and care of protective breathing equipment will be provided for all employees who might possibly be required to use such equipment.

13.3 HEAD AND EYE PROTECTION

13.3.1 Protective Hats

Protective hats shall be worn in all locations where employees may be exposed to injury from falling materials.

13.3.2 Acid Hoods and Clothing

When acid is handled in large quantities, acid hoods, rubber aprons, rubber gloves and boots shall be worn. For limited hazardous exposure, face shields and goggles may be substituted for acid hoods.

13.3.3 Chemical Goggles

When handling corrosive liquids, splashproof cup-type goggles shall be worn and supplemented by use of a face shield where required.

13.3.4 Impact Goggles

Whenever eye hazards exist due to flying objects, impact spectacles or cup-type goggles must be worn by exposed employees and by others entering such hazardous areas.

13.3.5 Face Shields

Where moderate exposure to flying particles or to splashes of corrosive liquids exists, full-face plastic shields may be worn.

13.3.6 Welding Masks

Welding helmets shall be worn during all arc-welding and cutting operations.

13.3.7 Safety Glasses

Requirements for the use of safety glasses are listed below.

1. Plant areas where the use of safety glasses is required will be posted, and the wearing of safety glasses in these areas will be enforced.

2. Personnel who do not normally wear eyeglasses will be fitted with a pair of noncorrective safety glasses. Employees who require prescription glasses shall provide a prescription from their own practitioners. The expenses involved for examination or for prescription services shall be borne by the employee. Only one pair of safety glasses will normally be provided by Dairyland Power Cooperative. Exceptions would be a prescription change or replacement of glasses broken during performance of duty.

13.4 FOOT AND HAND PROTECTION

13.4.1 Safety Shoes

Although safety shoes are not required at LACBWR, employees are encouraged to buy such shoes and wear them when on duty. Safety shoes may be ordered through the LACBWR Health and Safety Engineer, and they may be paid for either by cash or by payroll deduction.

13.4.2 Hand Protection

Hand protection is chiefly furnished by proper gloves, the requirements of which are listed below.

1. Rubber gloves shall be worn when handling any corrosive material.
2. Leather gloves shall be worn when working on or around thermally hot equipment, or on any job where there is a possibility of cutting, burning or bruising the hands.
3. Electrician's gloves are to be worn while working on energized electrical switchgear.
4. Work permits and operating procedures will indicate special hand-protection requirements.

13.5 PROTECTIVE EQUIPMENT FOR ELECTRICAL WORK

The Dairyland Power Cooperative Safety Manual, included in Sec. 17 of this volume, shall be the guide for use of protective equipment during performance of electrical work.

14. INDUSTRIAL HYGIENE

General requirements for industrial hygiene safety are listed below.

1. LACBWR Management will make all practicable provisions to protect employees from health hazards of any type. Any existing or potential hazards observed by employees should be reported to Supervision.
2. In most areas of the plant, ventilation is more than adequate for normal demands. Supplemental ventilation can be provided in cases where dust, toxic fumes, etc., are encountered.
3. Any industrial skin rashes resulting from exposure to chemical or physical agents should be reported to Supervision.
4. Extremes of cold or heat are not likely to be encountered at LACBWR, but Supervision should be notified if such conditions occur.
5. All employees are responsible for seeing that adequate lighting is maintained in their work areas.
6. Drinking water supplies are tested under supervision of the State of Wisconsin.
7. All employees are responsible for helping to maintain locker rooms, toilets, eating facilities, etc., in a clean and sanitary condition.
8. Ear protection devices are available for employee use, and they shall be worn in areas where noise is a hazard.

15. MATERIALS HANDLING EQUIPMENT

General requirements for equipment safety are listed below.

1. All slings, cables, chains, and other gear used in connection with cranes or hoists shall be in good condition and checked prior to each use.
2. The capacity of each crane shall be marked plainly on the block.
3. All hooks shall have a safety latch.
4. Ropes shall be kept dry and shall not be exposed to acids or other chemicals.
5. Hoisting cables, gears and other parts subject to wear shall have a safety factor of not less than eight. All other parts shall have a safety factor of not less than five.

16. MEDICAL SERVICE

General requirements for medical service are listed below.

1. Special notices will be issued to provide instructions for emergency first aid and for medical assistance in the event of injury or serious illness to anyone at the LACBWR plant. These notices are included as a part of this section.

2. All injuries shall be reported to LACBWR Supervision immediately.

3. LACBWR NOTICE 0001-A, entitled Emergency First Aid and Medical Assistance, is included herein for employees' information and guidance.

LACBWR NOTICE 0001-A

Revision A - January 17, 1966

FROM: LACBWR SUPERINTENDENT
TO: LACBWR EMPLOYEES
SUBJECT: EMERGENCY FIRST AID AND MEDICAL ASSISTANCE

1. Purpose - This notice is promulgated to set forth general information and procedures with regard to handling of serious accidents, injuries, and acute illnesses which may afflict LACBWR employees on duty at the LACBWR site. Additional guidance governing visitors calling upon the LACBWR organization and contractor personnel on the LACBWR job site is included.
2. Information - Permanent facilities and equipment for first aid and medical care in the vicinity of the LACBWR site are limited. At present, three small first aid kits containing -

- Burn Ointment
- Band-Aids
- Wire Splint (leg or arm)
- Army Tourniquet
- Merthiolate
- Triangular Bandage
- 2" Bandage Compress
- 4" Bandage Compress

are located in the Shift Supervisor's office, Health and Safety office, and the General Office.

First aid supplies and emergency medical equipment are located in the equipment room on the mezzanine floor. This area will be designated the LACBWR plant first aid treatment space. Personnel requiring or administering first aid will utilize this area when practicable, will insure that supplies are handled with care and that shortages are brought to attention of Health and Safety Engineer.

At present, the following supplies are available in the first aid treatment space:

4" Compress Bandages	Vaseline
2" Compress Bandages	Phisohex
1" x 6 Yards Gauze Roller Bandages	Tri-Wide Tape
2" x 6 Yards Gauze Roller Bandages	1" Tape
4" x 6 Yards Gauze Roller Bandages	3 Oz. Rubber Syringes
40" Triangular Bandages	Q-Tips
Absorbent Gauze Compress, Type D	Merthiolate
Foille Aerosol Spray	Eyewash with Eye Cup
Jet Bandage-Splint - Arm, Hand, Leg, Foot	1" Air Vent Tape
Ammonia Inhalants	Band-Aids
Jar of Foille Ointment	Collapsible Stretcher
Jar of Boric Acid Ointment	Cotton
Bandage Scissors	Cotton Balls
Aspirin Tablets	Alcohol
Hydrogen Peroxide	4" Elastic Bandage
Clean Towels and Washcloths	6" Elastic Bandage
	Cold Paks

A Stokes splint basket litter is stowed at the entrance of the personnel airlock. A crane sling will be available, if needed, for handling the basket in the reactor building or in other plant spaces.

Professional medical care is available at Vernon Memorial Hospital, Viroqua, Wisconsin and at hospitals in La Crosse, Wisconsin. Emergency ambulance service may be obtained from the Vernon County or La Crosse County Sheriffs. Normally, the Vernon County Sheriff will be contacted for assistance. The nearest patrol station wagon available will be dispatched by the Vernon County Sheriff's office to the LACBWR site for emergency ambulance service. Mr. Blair Spears, Town Marshall - De Soto - lives in Victory, Wisconsin and is equipped with a patrol station wagon outfitted as an ambulance. Two-way radio is installed with communication channels for both the La Crosse County Sheriff and Vernon County Sheriff. Local telephone number is 648-2059. In extreme emergencies involving numerous victims, additional ambulance service requests will be directed to the La Crosse County Sheriff's office. Driving time to Viroqua is approximately twenty (20) minutes. Should prompt medical attention or advice be required at the LACBWR site, it is recommended that requests be directed either to Viroqua, Westby, see enclosure (a), or to the Lutheran Hospital Emergency Ward, La Crosse, Wisconsin, phone number 785-0530.

3. Action - The following procedures should be followed as a general guide:

a. LACBWR PERSONNEL - CASUALTIES OR ILLNESS

a.1 Afflicted person, if ambulatory and able, administer self first aid and seek assistance as necessary.

- a.2 Person discovering accident or illness victim - render immediate first aid at the scene.
- a.3 Seek required assistance as soon as possible.
- a.4 Report incident to LACBWR supervision.
- a.5 In the event victim must be treated further at a hospital or medical clinic, and special handling is required, contact Vernon County Sheriff's office by telephone -

Viroqua, Wisconsin 637-3457 (Preferred)
637-7756

or

call Operator and ask for Sheriff's office and ambulance service.

If special handling is not required, victim may be transported to Lutheran Hospital Emergency Ward, La Crosse, Wisconsin, or other medical facility of his choice by plant or private vehicle.

If emergency ambulance service is required and prompt long distance telephone service is not available, utilize the Dairyland carrier or radio communication systems to alert the La Crosse dispatcher that assistance is required from the nearest available local agency. The Vernon Electric Cooperative, Westby, Wisconsin, may also be contacted by radio for appropriate assistance.

The communication procedures outlined above may also be employed to request emergency medical advice or to summon a physician to the scene.

- a.6 In the event victims are to be transported from LACBWR to distant medical facilities for care, and the destination is determined, an advance call should be made to alert the responsible organization.

In addition, the person designated by the victim, either verbally or as listed in personnel records to be notified in case of an emergency, shall be contacted and informed of the situation by the LACBWR Superintendent or delegated authority.

b. VISITORS - CASUALTIES OR ILLNESS

- b.1 Carry out procedures a.1 through a.6 as applicable.

- b.2 Person discovering accident or illness additionally secure victim's name and address. In extreme cases, i.e., unconsciousness, it may be necessary to determine person's identification. This action will be the responsibility of the supervisor called to the scene or first informed of incident.

4. Reports - Prepare original and one (1) copy of Personal Injury Report - DPC Form A-124 - and submit original to headquarters on the same day as accident. This form may also be used to record acute illness cases. Retain duplicate copy for LACBWR file. See Enclosure (b).

The following AEC report will be required:

Supervisor Report of Accident - Standard Form 92
(Ref. AEC Manual, Chapter 0502 and CH-CA 0502.)

5. Cancellation - The provisions of this notice will remain in effect until significant changes warrant revision.

/s/ R. E. Shimshak

R. E. Shimshak
Genoa Site Superintendent

Enclosure (a) State Medical Society of Wisconsin, Workmen's Compensation Panel
Enclosure (b) DPC Form A-124

Distribution -

LACBWR - All employees

AEC - John Floyd

Maxon Construction Company

Allis-Chalmers Manufacturing Co.

Dairyland Power - N. Moser, H. Burke, R. Preston, H. Gratke, & W. Dale

LACBWR File

A-124
DPC

PERSONAL INJURY REPORT

TO: Foreman or Workman in Charge.

Fill this out as completely as possible; turn it in or mail on the same day as the accident. Submit a supplemental report the day after the accident if all facts were not available at time of your first report.

Submit this report to: Accounting Department, Dairyland Power Cooperative, La Crosse, Wis.

Name of injured _____ Plant or Division _____

Date of Injury _____ 19__ Time of injury _____

Extent and type of injury to employee _____

Where did accident happen? _____

What was employee doing? _____

How was employee injured? _____

What medical attention did employee receive? _____

Date and time of first visit to physician _____

Physician's name and address _____

Witnesses _____

When did lost time start? _____

When will employee probably return to work? _____

How could this accident have been prevented? _____

Remarks _____

(Use reverse side for additional information)

Date this report was filled out _____ 19__ Signed _____
Foreman or Workman in Charge

Reviewed by _____ Dept. _____
Superintendent

Prepared by

THE STATE MEDICAL SOCIETY OF WISCONSIN

330 EAST LAKESIDE STREET • P. O. BOX 1109 • MADISON, WISCONSIN 53701 • 608-256-3101



WORKMEN'S COMPENSATION PANEL

1967 - 1969

DOCTORS OF MEDICINE

LA CROSSE COUNTY

The distribution of this panel by the State Medical Society of Wisconsin is undertaken as a public service. Its posting will provide a choice of medical care as required by statute.

NOTE: If you are located close to a county boundary and you or your employees wish to utilize physicians in an immediate neighborhood across the county line, please write us for a panel of the adjoining county, and post with this panel. Panels are furnished without charge.

IN CASE OF INJURY report at once to YOUR IMMEDIATE SUPERVISOR and secure an order for treatment. You may choose any physician listed below in your community.

NAME	OFFICE ADDRESS	OFFICE PHONE	NAME	OFFICE ADDRESS	OFFICE PHONE
	BANGOR			LA CROSSE (Continued)	
Ruppenthal, K. P.		486-2121	Phillips, P. W.	212 S. 11th St.	784-3050
	HOLMEN		Richter, J. R.	205 5th Ave., S.	782-1066
Rohde, E. P.	131 N. Main	526-3421	Satory, J. J.	1707 Main St.	782-2055
	LA CROSSE		Schmidt, L. R.	123 N. 4th St.	782-6724
Bach, A. C.	718 State St.	782-1526	Schneeberger, E. J.	421 Main St.	782-4740
Britt, A. G.	125 N. 4th St.	784-8221	Sevenants, J. J.	205 5th Ave., S.	782-3227
Buchman, D. M.	212 S. 11th St.	784-3050	Skemp, C. A.	312 State St.	784-1324
Ernst, F. W.	205 5th Ave. S.	782-1342	Skemp, F. C.	312 State St.	784-1324
Fisher, A. L.	401 Main St.	784-8855	Skemp, G. E.	312 State St.	784-1324
Flynn, R. E.	401 Main St.	782-1523	Tompkins, D. G.	1836 South Ave.	785-2400
Fox, J. C.	212 S. 11th St.	784-3050	Uhrich, G. I.	212 S. 11th St.	784-3050
Gallagher, W. B.	312 State St.	784-1324	Watunya, M. J.	205 5th Ave., S.	784-4140
Getz, Kaare	1836 South Ave.	785-2400	Whiteway, R. E.	1836 South Ave.	785-2400
Gilbert, R. L.	1707 Main St.	782-2055		<i>Eye, Ear, Nose and Throat</i>	
Gundersen, A. H.	1836 South Ave.	785-2400	*Anderson, P. D.	1707 Main St.	782-2055
Gundersen, S. B., Jr.	1836 South Ave.	785-2400	*Mansheim, B. J.	212 S. 11th St.	784-3050
Haidinyak, A. L.	1836 South Ave.	785-2400	*McNamara, T. B.	205 5th Ave., S.	782-6771
Hayden, J. W.	1836 South Ave.	785-2400	Simones, J. J.	630 S. 10th St.	784-6648
Hickey, A. W.	212 S. 11th St.	784-3050	*Skemp, S. J.	312 State St.	784-1324
Himmelsbach, W. A.	1707 Main St.	782-2055			
MacEwen, A. R.	1836 South Ave.	785-2400		WEST SALEM	
McGarty, M. A.	401 Main St.	784-5240	Lloyd, B. E.	134 N. Leonard	786-2021
Murphy, G. B., Jr.	1836 South Ave.	785-2400	Morris, D. L.	134 N. Leonard	786-2021
O'Meara, M. T.	1707 Main St.	782-2055			

* Eye cases only.

POST IN A PROMINENT PLACE

17. LOCK AND TAG PROCEDURE

17.1 PURPOSE

The LACBWR Lock and Tag Procedure is established for the purpose of providing safety for personnel and protection of equipment during the time that maintenance work is being performed or whenever equipment cannot be safely operated because of abnormal conditions. The procedure also includes provisions for tagging equipment with Special Information Tags to call attention to special operating or maintenance information.

17.2 PROCEDURE USE AND REGULATIONS

The use of this procedure is restricted to DPC employees. Persons other than DPC employees may be temporarily authorized to follow this procedure upon approval of the Plant Superintendent.

It is recognized that situations may arise where strict adherence to this procedure is impossible. In any case where it is impossible to follow the procedure, the Plant Superintendent shall have the authority to temporarily suspend all or any part of the procedure. This authority rests solely with the Plant Superintendent or with his designated representative when he is not available.

The Plant Superintendent shall retain a duplicate set of keys for the padlocks. If any employee removes a key or original copy of a Hold Card Record from the site, or places it where it is inaccessible, and if the key or original copy is required for plant operation, the employee shall be required to return to the plant when directed, on his own time, to make the required key or original copy available.

The fact that adherence to the procedure is considered impractical or results in inconvenience to any or all concerned is not sufficient reason for suspending the procedure or for using the duplicate keys.

Violation of any part of this procedure is sufficient cause for immediate dismissal of the employee or employees involved.

17.3 LOCK AND TAG EQUIPMENT

The following equipment is used to implement the procedure:

1. Red and White Numbered Metal Tags. These tags are normally used with chains and snaps to tag out equipment where no electrical hazard exists.
2. Red and White Numbered Plastic Tags. These tags are normally used with nonmetallic cords to tag out equipment where an electrical hazard may exist.

3. Red and White Emergency Tags. These tags are used in emergencies to prevent operation of equipment while the normal tagging procedure is being implemented.

4. Departmental Checks. These checks are used in conjunction with tags to hold a piece of equipment for two or more departments, thus avoiding the necessity for hanging duplicate tags.

5. H & S Hold Checks. These checks are hung on the tag board in place of tags, checks, or locks which are awaiting Health and Safety survey prior to their removal from radiation or contamination areas.

6. Padlocks and Keys. These locks are used whenever an employee requests protection beyond that provided by the tagging procedure.

7. Chains, Snaps and Cords. These devices are used for attaching tags and locks.

8. Hold Card Record Book. This book provides the records necessary for the procedure.

9. Tag Board. This board is mounted in the LACBWR Control Room. It provides storage for all tags, checks and locks; and it provides a quick method for determining plant equipment status.

10. Yellow Special Information Tags. These paper tags are used to transmit special information and/or instructions from shift to shift or crew to crew. They are not kept on the tag board and are supplementary to the Lock and Tag Procedure.

17.4 GENERAL RULES

The general rules listed below are to be followed by all LACBWR personnel.

1. The placing, removing and recording of tags and checks shall be the responsibility of the Shift Supervisor. Information as to when, what and why will be entered in the Control Room Log each time a Hold is placed.

2. Only Operations personnel are authorized to place and remove Hold Tags and checks. Health and Safety personnel may place and remove tags and checks on Liquid Waste System equipment.

3. Locks will be placed and removed only by the individual using them. The keys to these locks shall remain in that individual's possession at all times while the locks are in place.

4. No employee will ever be required to work on a piece of equipment until he is satisfied that it is properly tagged and/or locked out.
5. The primary tool of this procedure is the Red and White tag. It is the first tag to be placed and the last to be removed.
6. No departmental checks or locks will be placed on equipment unless a tag has been properly placed.
7. Tags shall not be removed until all departmental checks and locks are removed.
8. Normally, only one tag will be required on a given valve or switch.
9. An electrical breaker will never be tagged unless it is first racked out, and it will never be racked out unless it is to be tagged.
10. Tags will always be placed at the sources of energy nearest the equipment being held.
11. If a breaker which is operable from the control console is racked out, a Special Information Tag will be attached to the console control switch.
12. Hold Card Records shall only be released by the person requesting the Hold or by a person to whom the original copy of the Hold Card has been properly transferred.
13. If a system or a part of a system is isolated and tagged out, the maintenance craftsmen or other authorized personnel may open or close valves, rack breakers in or out, etc., if these equipments are specifically within the bounds of the isolated section and if the action is necessary for performance of the assigned function.

17.5 SPECIFIC PROCEDURES AND EXAMPLES

17.5.1 Tags, Checks and Locks

The head of a department or the Shift Supervisor will normally initiate this procedure; other employees may be delegated this responsibility when they have been assigned specific jobs.

The man desiring the Hold will contact the Shift Supervisor and request that a certain piece of equipment be tagged out for him. The Shift Supervisor and the man requesting the Hold will mutually agree on what is to be tagged.

The Shift Supervisor will fill out the necessary information in the Hold Card Record Book, and the man requesting the Hold will sign in the Held For space.

The Shift Supervisor will then remove the required number of tags from the tag board and give them to the operator who is to do the valving and/or switching and tagging.

The operator will make the necessary changes in the status of affected equipment, hang the tags, and report to the Shift Supervisor that the tags are hung. The Shift Supervisor will enter the last name of the operator and his own signature in the Placed By space, along with the date and time. He will tear out the stiff copy and hang it on the hook provided on the tag board. The white original copy will be given to the man that the equipment is being Held For. The pink copy remains in the Hold Card Record Book. The Shift Supervisor will instruct the person responsible for maintaining the Control Room Log to enter in the log the time, the equipment affected, and the reason for the Hold.

If a second department wishes to work on equipment being held for someone else, the employee in charge of the work shall contact the Shift Supervisor.

The second Hold is accomplished by means of the departmental checks. The check procedure is identical to the tag procedure, except that checks are used instead of tags. A new Hold Card Record is made out with a notation "MM(HS, I&E or OP) checks placed over Tag Nos. _____". A note shall be added to the pink and stiff copies of the card for the first Hold. This note shall state that departmental checks have been placed over part or all of the original tags. The second (and third, etc.) Hold Card Records are to be placed over the first Hold Card Record on the Tag Board.

In case additional tags are required, the new tags and the checks would be placed on the additional valve or switch at the same time. This ensures that the man with the first Hold will not inadvertently become responsible for tags he did not request. Conversely, it prevents the operator from mistakingly removing too many tags should the first Hold be released before the second Hold. (No tag may be removed until all checks are removed.)

If any employee working on the equipment desires the further protection of locks, he shall notify the Shift Supervisor, and the Shift Supervisor shall furnish him with the required number of locks. The employee will place the locks personally on any of the tagged devices he chooses. Notes will be made on the pink and stiff copies of the associated Hold Card Record when locks are placed and removed. The notes shall indicate the time, lock number, and person placing or removing lock. The employee will retain the keys for these locks. He will remove the locks when he is finished working, and he will then return the locks, together with the keys, to the Shift Supervisor. The keys are not to be transferred between employees, and the man holding them must remove the locks at the end of his work day. He may then replace them at the start of his next work day if he chooses.

Hold cards may be transferred from one employee to another if desired. To do this, the employee possessing the original copy gives it to the man who is accepting the Hold. The man accepting the Hold then dates and signs the original copy on the back. By his signature he acknowledges that he understands fully what is being held, and why, and that he accepts the responsibility for following the requirements of the Lock and Tag Procedure.

When a department completes its portion of the job, it releases its Hold Card. The procedure for this is as follows:

The man possessing the original copy of a Hold Card Record brings it to the Shift Supervisor and states that he is ready to release it. If all records are in order, the man requesting the release signs the Released By space of all three Hold Card Record copies.

The Shift Supervisor will then send an operator to remove all tags and/or checks released. If only tags are involved, he simply removes them, and the Hold is thus terminated. If only checks are involved, he removes the indicated checks, and the Hold remains in effect until all additional tags and/or checks are released. If both tags and checks are involved, he removes the tags and checks indicated, and the portion of the equipment held by the released tags is then made available. He reports back to the Shift Supervisor. His last name, the Shift Supervisor's signature, the time, and the date are listed in the Removed By space.

Adequate communication between supervisor and operator is essential to assure that the proper tags and/or checks were removed. This process is repeated until all checks and tags are removed. Whenever a Hold is released and another Hold or Holds remain in effect on the equipment or system, a note is to be added to the pink and stiff copies of the Hold Card Record(s) still in effect to indicate that one of the existing Holds has been released.

The removed tags, locks and checks are returned to their designated space on the tag board as soon as possible. If the department for which the tags are placed finishes its work before the department for which the checks are placed, the man holding the original copy of the Tag Hold Card Record brings it to the Shift Supervisor and signs in the Released By space. This step releases the Hold on all his tags which are not covered by the Check Hold. Any tags which are to be removed, if any, can be determined by referring to the pink copy of the Check Hold Card Record. As a further safeguard, the operator will not remove any tags which are covered by checks. If a tag, lock, or check has been used in an area where it must be surveyed by Health and Safety before being returned to the Tag Board, the person removing it will place it at a designated survey point and will then notify the Shift Supervisor. The Shift Supervisor will then place a special H&S Hold check on the Tag Board in place of the removed item. When the tag, lock or check has been surveyed and released by Health and

Safety, the Operations Department will return it to its peg and will then remove the H&S Hold check. In this manner, the Tag Board will always provide an up-to-date record of the location of all tags, checks and locks.

At times it may be desirable to reuse tags, locks, or checks in radiation or contaminated areas without returning them to the Tag Board. H&S Hold checks for tags, locks or checks reused in radiation or contaminated areas without survey will be removed from their spaces on the Tag Board.

Operations Department personnel will follow this procedure with the exception that the person's title or classification and initials, rather than his signature, will appear in the Held For and Released By spaces. The original copy will be stapled to the stiff copy and placed on the Tag Board. The Hold may be released by the responsible person in the same classification, i.e., the Hold transfers automatically between persons of the same classification on succeeding shifts with no endorsements required.

If more than one Shift Supervisor is on duty at the same time, only one will be the Duty Shift Supervisor. He is the only one who may release Shift Supervisor Holds.

Other authorized Supervisory and Technical personnel may use this procedure in the same manner as described above.

17.5.2 Special Information Tags

These tags may be placed by any employee whenever he feels that it is advisable to transmit special information regarding equipment status. The tags are not intended to provide protection. The Duty Shift Supervisor will be notified that the tag was hung and the reason for hanging the tag, and the information will be entered in the Control Room Log. Normally, the person placing a Special Information Tag would remove the tag when the need for information ceases. The Duty Shift Supervisor will also be notified when tags are removed.

17.5.3 Emergency Tags

These tags will be available at several prominent plant locations and will be used by operations personnel to prevent the operation of equipment where a definite hazard exists. They are to be used only for emergencies until regular tags can be obtained and placed. They will never remain on equipment from one shift to another.

17.6 DEFINITIONS

For purposes of this procedure, the Racked Out condition is defined as follows for the equipment listed:

1. 2400-v Breakers: front panel of carriage lines up with Disc line on chassis.
2. Field Breakers: carriage is withdrawn as far as possible.
3. 480-v Switchgroup 1A and 1B: the Disconnected line on the carriage is in line with the front panel.
4. AC and DC MCC Breakers: the operating handle is in the Off position, and the slide lock is inserted through the slot in the handle.
5. Generator metering and regulating potentials: carriage is fully withdrawn, with the carriage ground in contact with the chassis ground.

HOLD CARD RECORD			
Lock No. _____			No. _____
REASON FOR TAG	Workers <input type="checkbox"/> Safety	Equipment <input type="checkbox"/> Protection	Plant <input type="checkbox"/> Operation
			Tag No. _____
EQUIPMENT TAGGED _____			
TAG LOCATION _____			
PLACED BY _____	TIME _____	A M P M	DATE _____
HELD FOR _____			
RELEASED BY _____			
REMOVED BY _____	TIME _____	A M P M	DATE _____
REMARKS: _____			

EXAMPLE OF HOLD CARD RECORD

FIG. 17.1

18. FIREFIGHTING PROCEDURE

18.1 PURPOSE

The Firefighting Procedure has been established to make available general information and procedures with regard to the handling of a fire emergency at the LACBWR site. The primary considerations in such a situation are the safeguarding of personnel and of equipment.

18.2 AVAILABLE FIREFIGHTING EQUIPMENT

The following firefighting equipment is available in or at the LACBWR plant for use in combating fires:

18.2.1 Outside Areas

Two firefighting equipment cabinets are equipped with hose, standard and adjustable fog nozzles, spanner and hydrant wrenches and wye reducers to be used on the five outside hydrants. One cabinet is located beside hydrant No. 1 in front of the Crib House, and the other is located on the outside northeast corner of the Waste Treatment Building.

18.2.2 Crib House

One 20-lb ABC dry chemical extinguisher and one 15-lb carbon dioxide extinguisher are available, both located inside and adjacent to the Crib House entrance.

18.2.3 Fuel Oil Pump House

One 20-lb BC dry chemical extinguisher is located inside the Pump House.

18.2.4 Utility Building No. 1

One 20-lb ABC dry chemical extinguisher is located inside near the entrance.

18.2.5 Utility Building No. 2

Two 20-lb ABC dry chemical extinguishers are located inside near each entrance.

18.2.6 Utility Building No. 3

One 15-lb CO₂ extinguisher is located inside near the south entrance, and one 20-lb ABC dry chemical extinguisher is located inside near the north entrance.

18.2.7 Waste Treatment Building

One 15-lb CO₂ extinguisher and one hose cabinet are located inside adjacent to the entrance.

18.2.8 Office Building

One 20-lb BC dry chemical extinguisher is located inside the heating boiler room adjacent to the entrance. One 20-lb ABC dry chemical extinguisher is located in the laundry room; and one 20-lb ABC dry chemical extinguisher and one 15-lb CO₂ extinguisher are located in the main floor hallway.

18.2.9 Electrical Equipment Room

One 20-lb ABC dry chemical extinguisher and one 15-lb CO₂ extinguisher are located inside and adjacent to the north entrance.

18.2.10 Turbine Building

One 100-lb CO₂ wheeled-unit extinguisher and two hose cabinets are located on the main floor. One 15-lb CO₂ extinguisher and one hose cabinet are located on the mezzanine floor. Two 15-lb CO₂ extinguishers, two 20-lb BC dry chemical extinguishers, and two hose cabinets are located on the grade floor. Two 5-lb CO₂ extinguishers are located in the crawl space under the control room benchboard. One 15-lb CO₂ extinguisher is located in the control room. Additional protection is provided over the lube oil reservoir and in the oil storage room by manually-actuated fog spray systems. Manual valves for these two spray systems are located at the column between the control air dryer and the main condenser water box and outside the oil storage room door respectively. Two emergency tool kits are available. The kits contain the following items:

- Bolt Cutter
- Crescent Wrenches: 10, 12, and 15 in.
- Strap Wrenches
- Pipe Wrench: 18 in.
- Pipe Wrench: 14 in.
- Hatchet-Hammer, Combination
- Screwdriver, Large
- Channel Locks, Large
- Gloves, Electricians
- Radio, Walkie-Talkie (Channel Seven)

One kit is located in the electrical equipment room adjacent to the southwest entrance. The other kit is located in the maintenance shop on the north wall. Three sets of self-contained breathing apparatus and five full-face respirators are located in the electrical

equipment room adjacent to the southwest entrance. Two sets of self-contained breathing apparatus and five full-face respirators are located in the maintenance shop on the north wall.

18.2.11 Reactor Building

One 15-lb CO₂ extinguisher, one 20-lb ABC dry chemical extinguisher, and one hose cabinet are located in the basement. One 20-lb ABC dry chemical extinguisher is located at the upper control-rod-drive level. One 15-lb CO₂ extinguisher and one hose cabinet are located on the grade level. One 15-lb CO₂ extinguisher is located on the nuclear instrument tube platform. One 15-lb CO₂ extinguisher and one hose cabinet are located on the intermediate level, and one 15-lb CO₂ extinguisher and one hose cabinet are located on the 701-ft level.

18.3 AVAILABLE FIRST-AID EQUIPMENT

The following first-aid equipment is available at the LACBWR site for emergency use:

18.3.1 Outside Areas

One plant vehicle modified to accommodate a stretcher is available. An emergency oxygen supply is located in this plant vehicle.

18.3.2 Turbine Building

First-aid supplies and an emergency oxygen supply are located in the air-conditioning room. One wheel stretcher is located in the air-conditioning room. One Stokes stretcher is located in the maintenance shop on the northeast wall.

18.4 AVAILABLE OUTSIDE ASSISTANCE

The following assistance is available to the LACBWR plant. It is the responsibility of the Shift Supervisor on duty to brief the assisting personnel on the emergency and to see that they are provided with required protective items before they enter the plant.

18.4.1 Genoa Fire Department

The Genoa Fire Department is a volunteer organization and is available for firefighting assistance. They are to be called first if outside firefighting assistance is required. Call Genoa 689-2561.

18.4.2 Stoddard Fire Department

The Stoddard Fire Department is a volunteer organization and is available for firefighting assistance through the Genoa Fire Department.

18.4.3 La Crosse Fire Department

This department will respond to a call for assistance when requested to do so by the Genoa Fire Department.

18.4.4 Vernon County Sheriff

This office is on call 24 hr a day, and it will respond to a call for ambulance assistance when requested by any LACBWR person. Call Viroqua 637-2123.

18.5 PROCEDURE

The intent of this procedure is to establish responsibilities and outline instructions for quickly and effectively combating fires. The procedure also indicates necessary action to be taken in the event a fire is serious enough to require evacuation of a portion or all of the Reactor Building or Turbine-Generator Building.

Conditions which may call for evacuation due to a fire are not numerous. They could be due to radioactive airborne contamination caused by the fire, destruction of a radioactive source shield by the fire, smoke, and danger of an explosion from oil storage or hydrogen storage. Constant radiation monitoring is a must. It will be a part of any effort to control a fire in any restricted areas; it will be performed either by observation of the Radiation Monitoring System in the control room or by personal monitoring at the scene by a member of the Fire Control Party.

The primary considerations governing the course of action taken in the event of a fire on the LACBWR Site are safeguarding the general public, LACBWR plant personnel, and equipment.

18.5.1 General Responsibilities

General responsibilities for implementing this procedure are listed below.

1. Reporting the Fire. It is the responsibility of the individual detecting a fire to immediately report the fire and to ensure that the Control Room is alerted to its location and extent. If the Control Room does not respond to the phone call within 5 to 10 sec, dial 240 - Paging System, and slowly and clearly state "Fire - Location", twice. (Example: "Fire - Generator Bldg. Grade Floor - Motor Control Center 1B"). It is imperative that the Control Room be alerted to the fire. If normal means of communication are out of service, report the fire to the Control Room in person. The person who discovers the fire, after reporting, proceeds to the nearest location of emergency equipment, takes equipment, returns to the scene of the fire, and begins extinguishing the fire.

2. Control Room. When the fire report is received in the Control Room, it passes the word immediately by using the Page Override button to announce the fire and its location over the paging system. (Example: "Fire - Generator Bldg. Grade Floor - Motor Control Center 1B".) Repeat twice, slowly and clearly.

If normal means of communication are not available, any person not directly operating the Generator or Reactor Panels will be dispatched by the Control Room Operator to alert personnel of the fire by word-of-mouth.

If the fire is in a restricted area, the Control Room Operators will provide Radiation Monitoring coverage by observance of the Radiation Monitoring System until direct coverage at the scene of the fire is provided.

3. Shift Supervisor. In the event of a serious fire, the ultimate decision to evacuate a portion or all of the LACBWR plant rests with the Duty Shift Supervisor, unless he has been relieved by a higher authority.

It is assumed that prior to any decision to evacuate all possible steps to fight and/or contain the fire have been taken. This would include the use of all available firefighting equipment, activation of appropriate spray systems, securing ventilation, flooding, and other methods which are detailed in procedures for controlling fire.

18.5.2 Detailed Responsibilities

Detailed responsibilities for implementing this procedure are listed below.

1. Duty Shift Supervisor. The normal firefighting party is available on day shift. Therefore, the Duty Shift Supervisor will report to or will remain in the Control Room in the event of a fire.

The supervisor should cooperate closely with the person in charge at the scene of the fire. He should issue special instructions as needed. It shall be his responsibility to recognize and use any methods within his control which will help to extinguish the fire and minimize plant loss.

It shall be the Duty Shift Supervisor's duty to notify the plant superintendent or his designated assistant and to call the local fire department, if deemed necessary, as well as any or all off-duty personnel and other persons who have been designated to assist in such emergencies. If on backshift, he shall report immediately to the scene of the fire and render active assistance.

2. Control Room Operators. The Turbine-Generator Operator will remain in contact with the fire party. The Turbine-Generator Operator must act as coordinator until relieved by a higher authority.

The Reactor Operator must monitor the Radiation Monitoring System until Health and Safety coverage is provided at the fire scene. The Reactor Operator must also decide the plant's mode of operation during the emergency, whether continued operation is feasible and safe, and if outside assistance for fire control is necessary.

3. In Charge (Fire Chief): Maintenance or Instrument Supervisor. On the announcement of a fire, both the Maintenance Supervisor and the Electrical Supervisor will proceed to the area. The Supervisor first arriving at the scene will assume the role of fire chief. If both arrive at the scene, the Mechanical Supervisor will assume the role of fire chief, and the Instrumentation and Electrical Supervisor will leave the area if his services are not required. Outside fire assistance will function under the supervision of the LACBWR fire chief. While speed is essential in extinguishing fires, the first consideration is safety for the employees and for the public, and safeguarding property is the second consideration.

4. Immediate Action at Site of the Fire. The major steps usually taken after arrival at the fire scene will then be performed. These are:

(a) Size Up. Quickly appraise or size up the situation, and determine the best plan of attack with the facilities at hand or available from the outside.

(b) Protect Exposed Areas. Prevent the fire's spread to adjoining buildings, rooms, or equipment.

(c) Ventilation. Remove smoke, heat and gases so firefighters can get in to extinguish the fire.

(d) Salvage Operations. Remove equipment to prevent smoke and water damage.

(e) Extinguishment. Eliminate one of the three factors that feed the fire: heat, oxygen or fuel.

(f) Protect Personnel. Provide protection from radiation, heat and smoke.

18.5.3 Firefighting Organization - Day Shift

Firefighting responsibilities for employees on the day shift are outlined below.

1. Organization. A copy of the organization chart (Fig. 18.1) will be posted at appropriate locations throughout the plant. The purpose of the chart is to delegate responsibility for equipment required at the fire scene.

Two employees are designated as being responsible for insuring that specified equipment reaches the scene. This step is to ensure that the equipment will arrive, as it is highly

unlikely both employees will be absent from the plant simultaneously. In the event that one of these employees is absent because of vacation, prolonged illness, transfer, etc., it is his supervisor's responsibility to see that coverage is provided for the fire party. On day shift, coverage is provided by the standby fire party.

2. Fire Control Party. On a fire announcement, fire drill or other notification of fire, the fire party should respond in the following manner:

(a) Duty Shift Supervisor. Reports to Control Room immediately.

(b) Control Room Operator, Turbine-Generator. Turn on interplant communication radio, Channel 7; monitor phone and radio until communications are assumed by the Operations Supervisor.

(c) Control Room Operator, Reactor. Closely monitor the Radiation Monitoring System; assume the Duty Shift Supervisor's responsibilities until arrival of Duty Shift Supervisor in the Control Room.

(d) Employees Responsible for Self-Contained Breathing Apparatus. Each assigned man will carry one self-contained breathing apparatus to the scene. Normally, both men will enter the smoke-filled or hazardous area together, using the buddy system. If entry is made by one person, a safety line will be attached to the harness.

(e) Fire Extinguishers. Four employees are responsible for getting extinguishers to the scene. The electricians will bring the CO₂ extinguishers, and the mechanics will bring the dry chemical extinguishers.

(f) Tool Kit. Two electricians are assigned to the tool kit. Only one kit should arrive on the scene. There are two kits, each containing a walkie-talkie radio. The electricians will also act as a communication link between the control room and the standby party, which also has a walkie-talkie manned by the electrician on the standby fire control party.

(g) Fire Hose. The fire hose will be manned by the Instrument Technicians. Two men are assigned to the fire hose. They will proceed to the nearest hose cabinet, flake out the hose, and stand by at the scene. The above procedure applies to a fire drill as well as to an actual fire.

(h) Radiation Instruments. Two Health and Safety employees shall bring portable instruments as deemed necessary. They shall provide continuous coverage at the scene and shall make recommendations concerning potential hazards to the fire chief. In the event of an evacuation due to external or airborne radiation or due to other hazards, re-entry will not be made into the area unless it has been surveyed by a Health and Safety representative.

On a fire drill, the fire chief will notify the Control Room when the complete party is assembled.

3. Standby Fire Control Party. The Standby Fire Control Party will assemble in the Change Room with equipment designated on the Firefighting Organization Chart.

The Standby Party will be in communication with the Control Room and with the Fire Party at the scene. Additional equipment or personnel required at the scene will be provided from the Standby Party.

4. Unassigned Personnel. Employees not assigned to the Fire Control Party or to the Standby Fire Control Party will assemble in the Locker Room, and they will be assigned tasks as appropriate by the Fire Chief of the Standby Party.

5. Alternate Standby Fire Party Assembly Point. In the event conditions are such that assembly cannot be made in the Change Room, the Standby Party will assemble at the Main Building Entry. When conducting a fire drill, the Fire Chief of the Standby Party will report to Control Room when the party is manned and ready.

18.5.4 Firefighting Organization Back Shift

Firefighting responsibilities for employees on the back shift are outlined below.

1. Firefighting capabilities on Back Shift are very limited. Therefore, it is essential that any fire, no matter how small, be reported immediately. The person discovering the fire must report first, and then return to the scene to combat the fire. If there is any doubt as to whether the fire can be controlled easily by one person, notify the Control Room immediately and request outside assistance. It is the responsibility of the person discovering the fire to request outside assistance if the Control Room Operators or the Duty Shift Supervisor cannot be located.

2. Duty Shift Supervisor. The Duty Shift Supervisor must report immediately to the fire area upon an announcement of a fire. He must bring with him a radiation detection instrument. Once at the scene, he assumes the role of fire chief.

3. Auxiliary Operator. If the fire is discovered by other than operational personnel, the Auxiliary Operator will immediately report to the scene with a dry chemical extinguisher.

4. Health and Safety Personnel. Health and Safety employee on back shift will immediately report to the scene on an announcement of a fire. He will perform the function described in Sec. 18.5.3 of this volume.

5. LACBWR Personnel on Site on Back Shift. Any LACBWR personnel on the LACBWR site after day shift or normal working hours will report immediately to the Control Room to render assistance as necessary in the event of a fire.

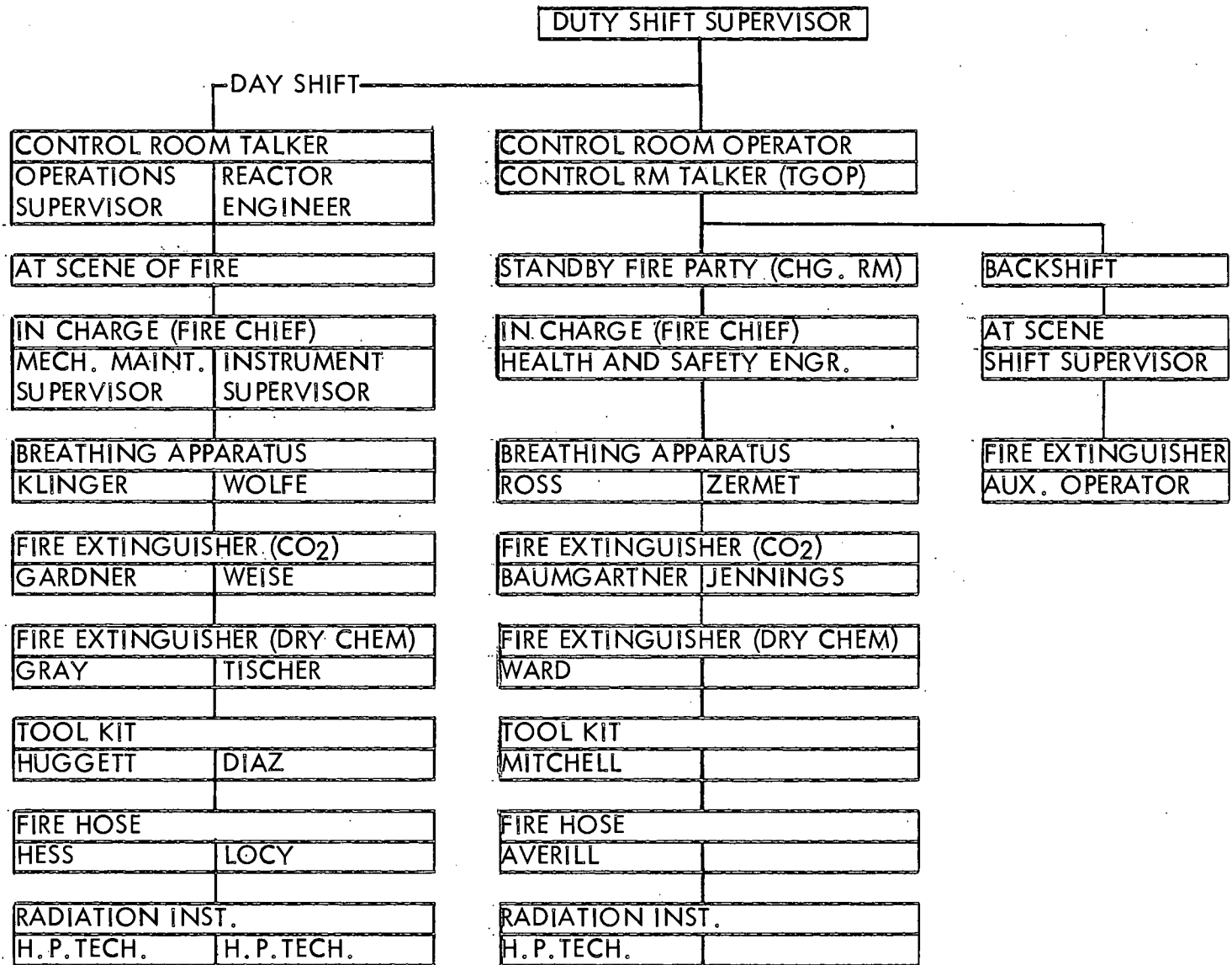
18.5.5 Evacuation Procedures

Evacuation procedures will be conducted as detailed in LACBWR Operating Manual, Vol. 1, Sec. 3.4.

18.5.6 Fire Drills

Fire drills will be conducted at least semiannually during the day shift. The drills will be conducted as realistically as possible. It is the responsibility of each individual to know precisely what his function is and the exact location of firefighting equipment. Operators of self-contained breathing apparatus must be proficient and thoroughly familiar with the equipment.

Health and Safety representatives will check firefighting equipment weekly, including the tool kits. If a breathing apparatus is used, it must be reported to Health and Safety to ensure that cleaning, survey, and air-tank charging is properly carried out.



18-10

LACBWR FIREFIGHTING ORGANIZATION

FIG. 18.1