

U. S. DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

Land Operations

Operation and Maintenance Handbook

55 BIAM Supplement 4

LAND OPERATIONS
OPERATION AND MAINTENANCE

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1.1 Irrigation Projects.

- A. Policy. The Bureau shall encourage the assumption of the responsibility for the operation and maintenance of irrigation projects by organized water users' organizations, but not forgetting that legislation is necessary before actual transfer of this responsibility for management can be accomplished.
- B. Responsibilities. Bureau responsibilities relating to the operation and maintenance of Indian irrigation projects or small irrigation facilities are as described in 55 IAM 1.1.
- C. Legislation. The several acts applying to Indian irrigation projects are published in the United States Statutes at Large. Statutory citations, together with a comprehensive discussion relating to the more important projects, appear in Section B7 of Chapter III of the "Handbook of Federal Indian Law, 1958 Edition," and United States Code Annotated, Title 25.
- D. Federal Register and Administrative Procedures Acts. The Federal Register Act of July 26, 1935 (49 Stat. 501; 44 USC 305), prescribes the classes of orders and regulations to be published in the Federal Register. Public Law 89-554 (80 Stat. 383; 5 U. S. C. 551 (Supp. II, 1965-1966)) requires publication in the Federal Register of notice of intention to amend orders, such as, orders fixing operation and maintenance charges.
- E. Regulations. Regulations relative to time of payment, delivery of water, penalties for non-payment, apportionment of water, and distinctions as to classes of water users and the effect of contracts in force with irrigation districts, water users' associations, municipalities or other groups and which are currently in force are published in 25 CFR, Indians. These regulations will be adhered to at all times.
- F. Fiscal Management.
- (1) Assessments.
- (a) Application. All lands suitable for irrigation to which water can be delivered through constructed works

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of the Indian irrigation projects are subject to assessment for operation and maintenance charges whether water is used or not unless excepted by legislation or specific regulation.

- (b) Fixing of Charges. Charges should be fixed so that the amounts assessed annually against the lands benefited by the system are sufficient to cover the actual expenditures for normal operation and maintenance. The assessment rate for normal operation and maintenance is defined for this purpose as the average per acre cost of all activities involved in delivering water and maintaining the completed irrigation facilities.
- (c) Assessment Orders. All orders fixing operation and maintenance assessments shall be prepared and published in accordance with the requirements of the Federal Register Act, P.L. 89-554, Part 303 of the Departmental Manual, and according to delegated authority. The extent of such authority that is delegated to the Area Directors is set forth in Section 200 of Commissioner's Order 551 (10 BIAM).
- (d) Tribal Lands. The official in charge of the project shall hold the tribe responsible for payment of operation and maintenance charges on tribal lands under an irrigation project. Assignment or lease of a tract of tribal land to an individual for use does not relieve the tribe of the obligations to pay operation and maintenance assessments. The individual user may pay the charges; in which event, credit shall be made to the particular tract and the tribe so advised.
- (e) Inability to Pay. When an individual Indian or Tribal group is unable to pay, refer to applicable regulations in 25 CFR, Indians.
- (f) Indian Land Not in Use. Where assessable Indian lands are not in use (idle), and the assessments thereon are impossible of collection during the current irrigation.

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season, the assessment shall be entered in the water users' ledger, a bill shall be prepared and kept on file, and a listing of all such lands and assessments shall be forwarded to the officer in charge of the reservation. This listing shall be kept on file in support of the annual request for appropriations for costs attributable to such lands.

- (2) Billing. It is the responsibility of the official in charge of an Indian irrigation project to bill the landowners (or assignees and lessees according to policy) for all irrigation operation and maintenance assessments and to maintain the water users' ledgers. Bills will be made in accordance with applicable rates and on approved forms and will be issued preferably 30 days but not later than 15 days before the due date.
- (3) Collections. Collections will be made by authorized Collector Agents or Field Collectors designated in accordance with 42 BIAM. Enter receipts issued by authorized collectors or Field Collector Agents in the water users' ledger as a credit to the applicable account.
- (4) Collection Enforcement. Relative to non-Indian lands, the responsible persons or organizations shall pay all the operation and maintenance charges on or before the date they fall due. Delinquent bills against non-Indian landowners shall be referred to the local U.S. Attorney for collection through the Regional Field Solicitor's office after reasonable effort toward collection has been made. The reference to the U.S. Attorney shall include complete information relative to the attempts at collection and all other pertinent information concerning the case. This action should be taken not less than 2 years after the first delinquency. Wherever the propriety of the charges is an issue, the adjustment thereof should be considered and acted upon before the U.S. Attorney is involved. Such consideration may eliminate the need for involvement of the Attorney.
- (5) Programs and Accounts. A Work Program is required in connection with the operation and maintenance of projects. In order to facilitate proper programing, accounts have

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been established. The accounts shall be maintained by the designated accounting office. Operating statements will be prepared from the established accounts and furnished to the Project Management and others to show financial status and for use in developing cost and other figures for future planning and programing.

To meet the requirements set forth above it is essential that all documents originating at projects be properly coded in accordance with the prescribed account.

G. Irrigation Operation and Maintenance.

- (1) Operation. The Area Director is responsible for proper operation by operating officials of Indian irrigation projects in his area. The basic requirement is that the operation be so administered as to provide maximum possible benefit from the project features for the purposes for which the facilities were constructed. The Area Director shall promulgate and enforce such instructions as are not inconsistent with regulations contained in 25 CFR that will insure safe, economical, beneficial, and equitable use of water supplies and optimum water conservation.
- (2) Maintenance. Proper maintenance of project facilities demands close and continuous examination of the system and timely repair and replacement programs. The ability and efficiency of the personnel assigned to operate and examine the system are of paramount importance. Project heads should keep current lists of all irrigation facilities needing repairs and work required to place them in efficient operating condition. Definite maintenance programs should be instituted which will provide for the necessary work to maintain the irrigation works properly. Included in the maintenance program, and financed with operation and maintenance funds, will be an orderly program for replacing irrigation structures and facilities which become structurally or functionally unsound.
- (3) Review of Maintenance Program. The Area Director is responsible for the satisfactory condition and functioning of irrigation structures and facilities on projects under his jurisdiction and should examine irrigation facilities as

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frequently as necessary to carry out this responsibility. An examination of project works should be programed by area personnel at least once every two years.

The expertise of the Chief Engineers Office of the Bureau of Reclamation is available and should be used as required in the examination of major structures. Arrangements for such services shall be made by the Area Director, with the Regional Director of the Bureau of Reclamation, having jurisdiction of the area in which the structure is located. A report on examinations shall be prepared and copies furnished to the Washington office, operating office, and water user organizations.

- (4) Water Conservation. Reliable measurement of irrigation water is of paramount importance in the control of waste and the attainment of maximum beneficial use. The negligent wasting of water shall not be permitted. Measurements will be made accurately as is practicable, and action will be taken to restrain overdelivery. Operational waste shall be held to a minimum and all practical protective and corrective measures taken to overcome seepage and leakage from irrigation systems. In cases of persistent misuse of water by an irrigator, the amount of water delivered to the water user may be reduced to that which the irrigator can use efficiently.
- (5) Reports and Records. (See 55 BIAM Supplement No. 5 - 1.3).
- (6) Safety. Every reasonable precaution should be taken to provide for the safety of employees and the public. Supervisory employees shall familiarize themselves with the safety regulations of the Bureau and promote safe practices among those working for them. Regular safety meetings shall be held and reported on, as prescribed in 25 BIAM, Safety Management. Every employee directly engaged in the operation and maintenance of the project should attend. Each should be encouraged to offer suggestions and actively participate in the discussion and formulation of safety measures.

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- (7) Emergencies. It is the duty of operation and maintenance personnel to foresee circumstances that may interrupt delivery of project water. The project engineer or other official in charge shall be responsible for developing project plans to cope with such circumstances as canal breaks or structure failures. He should be certain that all employees are fully informed of emergency plans and understand their respective assignments. The gate tenders and ditch riders, particularly, shall be familiar with emergency plans for structure or canal bank failures, weed jams, or other emergencies demanding immediate action.
- H. Ownership of Project Lands by Project Employees. The ownership or operation of project lands by permanent employees of a project shall not be generally approved. It is not practical to set acreage figures as guides in this matter for the reason that the kind of crops raised and land use practices followed vary greatly. For example, an employee with 2 acres of truck and fruit crops may need to spend 50 hours a week in managing it properly while another with 160 acres of pasture raising sheep or beef cattle may spend no more than 5 hours a week. It is necessarily a responsibility of the official in charge of the project to see that such activities do not interfere with an employee's proper handling of his job and especially that in distribution or division of water that the employee does not favor himself. Where possible and desirable project officials should make specific rules for control purposes in accordance with their local conditions. Where ditch riders are furnished Government quarters or employment is for the full 12 months greater restriction is possible.
- I. Allowance to Ditch Riders, Watermasters, or Other Operating Personnel for Use of Privately-Owned Vehicles. The authority for payment for the use of privately-owned vehicles is contained in Section I of the Act of June 25, 1946 (60 Stat. 306; 31 USC 692-3).

The approved formula for determining the monthly allowance for use of privately-owned vehicles and the basic rates, approved April 19, 1965 (I.O. File 7180-64-202.1), for use in the formula are shown as follows:

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Computation of monthly allowance:

Per month (operating season)

$$\sqrt{F \times .00008} + (A \times .082) + (B \times .11) \sqrt{M \times 1.10}$$

Per month (non-operating season)

$$\sqrt{C \times .082} + (D \times .11) \sqrt{N \times 1.10}$$

Monthly average for the year:

$$\frac{\sqrt{(\text{Per month operating season} \times \text{months operating season}) + (\text{Per month non-operating season} \times \text{months non-operating season})}}{12}$$

Legend of formula:

Number of farms served or stops made	F
Average monthly mileage-operating season	M
Per cent on paved roads (concrete, oil & asphalt)	A
Per cent on all other type roads (gravel, stone, sand, dirt, etc.)	B
Average monthly mileage - non-operating season	N
Per cent on paved roads (concrete, oil & asphalt)	C
Per cent on all other types of roads (gravel, stone, sand, dirt, etc.)	D

Approved Basic Rates:

Per farm served or stop made	\$0.00008 per mile
Per mile of paved road	0.082
Per mile of all other type roads	0.11
Emergency Allowance	10 per cent

Allowances derived from the above formula shall not be used to adjust the rate of compensation for personal services, and shall be reviewed periodically as to adequacy and conformity with actual conditions.

J. Project Equipment Rental.

- (1) Policy. It is the policy of the Bureau to manage the distribution and use of Government-owned equipment in

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such a manner as to derive maximum efficiency therefrom consistent with the need for which it is procured.

It must be recognized, however, that in general, irrigation project equipment is held in a special ownership category not always fully understood. Whether or not the project equipment is procured through use of collected or appropriated funds, it, in actuality, belongs to the water users and is procured, managed, and maintained for their benefit. The fact that some equipment has been procured with appropriated funds in no way changes its status. Appropriated funds so used are reimbursable and are covered by liens on the lands of the individual water users or of a tribe according to ownership. Certain project lands are, in effect, mortgaged to finance the procurement of such equipment. It is, therefore, important that the status of irrigation project equipment be kept in mind in all dealings having to do with non-project use.

- (2) Rules. When such equipment is desired for use by others and it can be managed without cost or loss to the project, either in upkeep or replacement, or in time needed on project work, arrangements shall be made subject to rules in the following sections:
- (a) Irrigation equipment may be rented to other activities or projects of the Bureau of Indian Affairs and to other Government agencies.
 - (b) Irrigation equipment may be rented to contractors, in cases of emergency, when for use on contracted Bureau irrigation work, but only in cases where the contractor is unable to acquire the necessary equipment from other sources such as equipment rental agencies, other contractors, etc. This shall not apply in cases where the furnishing of equipment is part of a contracted obligation.
 - (c) Equipment items subject to rental will preferably consist of those that are mobile or can be readily transported by truck or trailer. A list of this type of equipment is given in 1.1 J (5) (d). Additions to this list may be made from time to

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time by the Project Engineer or other official in charge of irrigation equipment.

(3) Basic Requirements.

- (a) All equipment rented is required to be maintained in condition to insure maximum operating efficiency at time of leasing.
- (b) Equipment rented will be maintained in good operating condition at lessee's expense and excepting for normal wear and tear shall be returned in like condition.

(4) Rental Rates.

- (a) The schedule shown in 1.1 J (5) (d) below has set up a basis for the determination of fair rates for the rental of equipment adaptable for use where required for construction and maintenance activities.
- (b) Rental rates cover the use of equipment only and make no allowance for operator's wages, cost of fuel, lubricants, operating supplies or for the lessor's profit.
- (c) Major replacements of equipment parts which will prolong the useful life of the equipment do not justify any increase in the equipment rental rates. These costs have been predetermined and incorporated in the coefficient shown.
- (d) Lessees shall be charged for the time the equipment is operated including holidays and Sundays. For each machine a period of idle time each year is allowed, hence no charge will be made for time consumed in moving equipment to and from a job or for time out for extensive repairs, except that when the equipment moves under its own power, rent shall be charged for time consumed in moving it to and from or for short moves in the vicinity of the job. The time used for servicing the equipment such as fueling, lubricating and checking as well as adjustment and repair time up to two hours per shift shall be considered as operating time. Charges for equipment

employed two or more shifts during any one day shall be computed on the basis of 75% of the basic 8-hour shift rate for the second shift or proportionate share thereof and 50% of the basic 8-hour shift rate for the third shift or proportionate share thereof.

(5) Rate Schedule.

(a) How Derived. The rate schedule in 1.1 J (5) (d) below is derived from a straight line depreciation formula which includes allowances for normal obsolescence plus a major repair allowance of from 50 to 90 per cent of the basic cost of the equipment. The schedule is based on information taken from the Associated General Contractors Manual, "Contractors Equipment Ownership Expense." The coefficients contained herein, however, do not include such features as interest on investment, storage and equipment overhead, insurance or taxes that are usually found in contractor's schedules. The average useful lifetime of the equipment listed is tabulated on an 8-hour shift basis and is considered equitable for the purpose under which the equipment is used on irrigation projects.

(b) Definitions. In order that additional equipment may be added to the list shown at the end of this section, the definition of depreciation and major repairs and overhaul are herewith given for information purposes.

Depreciation. Depreciation rates are based on average job conditions and are figured on a straight-line method by which a uniform percentage of the cost of a piece of equipment is charged off each year during the life of the equipment. No salvage or scrap value is considered as this is usually neglected in contractor's equipment.

Major Repairs and Overhaul. Major or shop repairs include those which usually keep a machine idle for an extended period in contrast to minor or field repairs which entail comparatively little delay, but which are necessary to keep the machine in operation.

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The line of demarcation between major repairs and minor repairs can be determined only by the man on the job and hence is for determination by the Project Engineer or other official in charge of irrigation. Likewise, the determination of repair costs for any piece of equipment during its lifetime should be determined usually on a 50 to 90 per cent basis before equipment is included in the schedule.

- (c) Revisions. Revisions in the rate schedules may be effected by using current purchase price of equipment in place of card value (original purchase price) of equipment as carried in official property accounts.

Note: This method of revising rate is given for that purpose only. No actual change shall be made in Property Card (asset) value of equipment which must always be carried at original purchase price (dealers invoice only).

- (d) See next page.

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(d) EQUIPMENT RENTAL RATE SCHEDULE

	<u>Average Lifetime Shifts</u>	<u>Rental Coefficient</u>
Air Compressor	900	.002
Autos, passenger	600	.003
Bins	900	.002
Concrete Mixers	960	.002
Crushers, Stone	1080	.0019
Distributor, asphalt	900	.002
Dozers	960	.0018
Draglines and Back hoes	960	.0016
Drills, Air	1080	.0025
Engines	720	.002
Graders, Motor	1050	.0016
Graders, Pull	1200	.0015
Hoists	1000	.0013
Loaders, tractor	1200	.002
Mowers, weed	900	.0018
Pile Drivers	960	.0018
Plants, gravel, sand, portable	1000	.0018
Plants, Electric light, portable	1080	.0016
Power Control Units	1470	.0014
Pumps, dewatering with engine	960	.0018
Rippers, scarifiers	900	.0021
Rollers, sheep's foot	1050	.0021
Scrapers	960	.0018
Shovels	1200	.0016
Snow plows	1080	.0016
Tractors	760	.0023
Trailers	900	.002
Trucks, pickup	900	.002
Trucks, light	600	.0031
Trucks, heavy, incl, tractor trucks	1080	.0016
Welders	1200	.0014

Formula (Original Invoice Price) or (Current Purchase Price)
x Rental Coefficient = Rate Per Shift.

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- (6) Reimbursement for the Use of Rented Equipment. Billing for the rental use of equipment will be supported by Equipment Usage Report forms. The usage report will identify the equipment, Bureau Property Identification Number, make and model. Usage Report forms will be coded and forwarded to the office where bills, adjusting or charging documents are prepared.

All credits for equipment rental shall be taken up as revenue to Operation and Maintenance Collections.

K. Claims Relating to Irrigation.

- (1) Nature of Claims. Damage (tort) claims arise out of the construction, operation and maintenance of Indian irrigation projects from such mishaps as collision of Government-owned and operated vehicles, drowning of livestock in irrigation canals, and the spreading of fires from the burning of weeds or other debris in ditch cleaning work.
- (2) Processing of Claims. For the procedures to be followed in processing tort claims against the United States see Part 451 of the Interior Department Manual (451 IM 2.6). It should be noted that only the Solicitor, and the Regional and Field Solicitors have been delegated the Secretary's authority to settle tort claims. The function of the Bureau is limited to the prevention and reduction of situations which may cause tort claims, and the proper investigation, documentation, and processing of tort claims.
- (3) Authority to Settle Irrigation Claims. In addition to the authority conferred upon the Solicitor and the Regional and Field Solicitor to settle general tort claims of \$2,500 or less, pursuant to the Federal Tort Claims Act (28 U.S.C. 2671-2680), as amended by the Act of July 18, 1966 (80 Stat. 306), (see Release 961 of July 7, 1967, Part 451 of the Interior Department Manual 451.1.18), these officials are authorized to determine claims arising on Indian irrigation projects in amounts not

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exceeding \$15,000 pursuant to 25 U.S.C. 388. (See Solicitor's Regulation 5, dated September 24, 1954, as amended October 5, 1965.)

- (4) Liquidated Damages. The Congress has given to the Comptroller General the authority to remit liquidated damages to the extent that he considers just and equitable and upon recommendation of the head of the Government agency concerned (Federal Property Act of 1949 as amended 64 Stat. 591). Section 27 of Order No. 2509, as amended, December 18, 1950 (15 FR 9529), provides that where the Solicitor of the Department of the Interior determines that as a matter of justice and equity, liquidated damages assessed on or after July 1, 1949, because of delays by a party under a contract made by the Department of the Interior or one of its agencies on behalf of the Government, should be remitted, he is authorized to recommend to the Comptroller General that such remission be made. Such cases of assessed liquidated damages should be referred by the Area Director direct to the Solicitor for consideration.

1.2 Power Projects.

A. Policy. The policies of the Bureau regarding electric power generation and distribution on Indian reservations are as follows:

- (1) To secure optimum development and utilization of reservation power possibilities consistent with the needs of the project and the area served.
- (2) To develop power for the purpose of irrigation and drainage pumping for the benefit of Indians residing on the reservation, for public bodies, cooperatives, and local communities where power is not reasonably available from other sources.

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- (3) To make surplus power available to industrial enterprises as a means of developing the resources of the reservation and to secure a sufficiently high load factor to permit reduced rates which will in turn encourage and increase rural and domestic use.
- (4) To construct power plants only on Indian reservations not adequately supplied with power at reasonable rates from an existing power network.

B. Requirements.

- (1) The following principles relating to the development of power resources and systems shall be observed in carrying out the above policies:
 - (a) Hydroelectric generating facilities shall be designed and installed on projects where considered economically feasible, after authorization. The projects may also install diesel stand-by and reserve facilities where necessary to provide adequate service on an economical and efficient basis.
 - (b) Adequate facilities will be designed and installed to provide the type of power and service required by the project, resident Indians, cooperatives and public agencies.
 - (c) Project plants shall be integrated where practicable by transmission ties with other plants.
 - (d) Transmission outlets to existing and potential wholesale markets so far as feasible shall be adequate to deliver power to customers upon fair and reasonable terms and at rates adequate to return a reasonable profit to the Irrigation Project.
- (2) The following relates to operation and maintenance of power systems:
 - (a) Operation and maintenance shall be adequate to insure

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the highest grade of service consistent with economy and efficiency.

- (b) Maintenance shall be of the preventive type, planned to keep all equipment in the state of highest efficiency consistent with sound business principles.
- (c) Replacements shall be made to keep all equipment in sound operating condition and to offset depreciation and obsolescence consistent with sound business practice.

C. Responsibility

(1) Operation and Maintenance Responsibility.

The Area Engineer is responsible for the compilation of power studies in connection with the operation of the power plant and connecting transmission lines. He may request the aid of specialists for any special study, or solution of any problem encountered in connection with the operation and maintenance of the generating and distribution plants.

(2) Programs.

Power maintenance programs shall be prepared to assure that continuity of service and production economy will be maintained, and that repair costs shall be kept at a minimum. The program shall provide for recurring maintenance work, inspections which must be repeated at definite time intervals, and also for major repair and rebuilding operations that are found to be necessary by inspections.

(a) Recurring Maintenance Program.

For recurring maintenance, a system shall be established that will insure checking of all

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parts of the equipment at regular intervals. Minor repairs that can be made with materials and tools on hand, and without an outage of the main generating equipment shall be made at the time of the inspection.

(b) Major Maintenance Program.

Major maintenance is different in that during the maintenance operations, the plant capacity is generally decreased; parts and supplies in excess of the amounts carried in stock are often needed; special tools, instruments, and personnel are often required; and the expense of the maintenance is such that financial arrangements must sometimes be made in advance of work. It is essential, therefore, that these operations be programmed in advance of actual repairs. Using the information obtained from periodic and special inspections and the history of the machine as a base, all major maintenance items should be scheduled a year in advance. There may be additional repair operations that cannot be foreseen and which cannot be postponed. These items must be programmed on a priority basis consistent with applicable funds.

(3) Responsibilities of Project Management.

The engineer in charge shall set up and maintain the recurring system of maintenance referred to in the above sections. From knowledge obtained from regular and special inspections he shall prepare a program of special maintenance. This program shall be prepared in advance for each year and shall include all foreseeable maintenance work that requires special arrangements. A copy of the program shall be sent to the Area Office for review and approval. With this program there should be forwarded estimates of the lengths of the power outages, estimates of special funds that will be necessary, and requests for special equipment and personnel that are not available on the irrigation project.

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(4) Responsibilities of Area Office.

It is the responsibility of the Area Office to inaugurate a system of programming maintenance operations for project responsible for power equipment. The programs for recurring maintenance operations for each project shall be reviewed to see that all equipment is covered and that the frequency of the inspections and repairs is satisfactory. The Area Office will also inspect the records from time to time to see that the program is being followed and that the reports are in satisfactory form.

(5) Responsibilities of Central Office.

When requested by the Area Office, advice will be provided by the Central Office on problems regarding maintenance programs. This advice will be in the form of correspondence regarding special problems, allotment of available funds for emergency conditions, procurement of priorities for the purchase of new equipment and other actions necessary for the continued operation of the power plant and connecting lines.

D. Power Operations.

(1) Duties and Qualifications of Operating Organizations.

The most important factors in the attainment of good operation are the experience and judgment of the operating personnel. The complex relationship between steamflow, reservoir capacity, head, turbine and generator characteristics, the different classes of power and load factor and power factor, to mention only the major items of an operating organization's official concern, must be thoroughly understood if the organization is to perform properly the duties in coordinating these factors to secure the maximum output from the available water and facilities; serve properly the project needs and customer demands; and reduce service fluctuations and outages to the minimum. It must be competent also to apply corrective measures quickly and with assurance in times of emergency.

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(2) Control of Plants.

In a plant without interconnection, serving only its electric system and independent in its water control of any other demand, all operating procedures may originate on the project; but in cases involving interconnection of two or more electric systems or in which the use of the water materially affects the output of other plants, over-all control is required.

(3) Power System Records.

Each project shall record and keep data on the operation of each power plant and attended substation. These data shall consist of hourly log sheets and, in some cases, daily operating reports. These reports will vary in content and form to fit the needs and conditions on each project.

(a) Log Sheets.

Log sheets shall be kept by the operators at each power plant and attended substation so as to have a continuous record of plant operation which can be referred to at a future date to verify conditions which exist on the power system at any time, such as load and voltage conditions, transmission affected a customer or caused an accident, and conditions of equipment which might be a clue to the cause of a subsequent power failure. The log sheet data are also useful in preparing reports required by the Area Office, Central Office and other agencies. Readings shall be taken on the hour of important instrument indications and other data which will show the load being carried by each unit and line as well as other data which will show conditions in and around the plant. The actual data to be recorded varies with different plants.

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(b) Other Reports.

Daily or weekly reports are optional with the Area Office and will be based upon the need for information required. Monthly narrative reports shall be made in the manner prescribed in 55 BIAM Supplement No. 5. Time is important in this regard and every effort should be made to forward copies of the report to the specified offices at the earliest date possible. Annual reports shall be made as soon after the end of the year as practicable and forwarded to the Central Office. The report for the 12-month period should show the generation at each plant, energy sales and revenues by customers and also by classification of customer, energy receipts to other systems, if any, and other pertinent power data. Reports required by the Department and by Federal Power Commission shall be prepared and forwarded to the Central Office for review before being transmitted to the above-mentioned agencies.

E. Power Maintenance.

(1) Uniform Standards and Procedures.

All operating offices shall operate under uniform standards in all matters pertaining to power maintenance so far as possible. The procedure outlined herein is of a general nature and is based on the desired uniform practice. The apparatus, structures and transmission lines, which are a part of the power system shall be maintained in the best possible operating condition at all times, to provide good service to power customers, reduce equipment failures, and obtain longer life for the equipment. The maintenance work shall be performed by the operating personnel with such supervision and advice from the Area Office as is necessary.

(2) Preventive Maintenance System to be Used.

A continuous program of preventive maintenance, combined with periodic major maintenance at rather long intervals, shall

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be used. This method consists of persistently making repairs and adjustments to the critical items of a structure or mechanism in a scheduled and organized manner in order that special inspection and the necessity for major repairs may be reduced to a minimum. The maintenance is applied more specifically to the parts which are known to need repairs and replacement most often. The underlying theory is that proper lubrication, adjustment, and small repairs applied often enough to the critical parts will minimize the necessity for complete periodic overhaul and reduce the number of forced equipment outages. Experience shows that breakdowns are reduced, outages shortened, necessity for periodic overhaul of most facilities is lessened, and the periods between general overhauls lengthened when preventive maintenance is followed. Depreciation and obsolescence of equipment may often be reduced by using improved repair materials and parts which are superior to the original.

(3) Work Schedules.

All maintenance work, except emergency work, shall be done in accordance with prearranged schedules so as to make the best use of available personnel to coincide with favorable weather so far as possible, and to coincide with periods in which outages of the equipment can best be tolerated. In following the preventive maintenance method, the work to be done is spread out over the entire year and there is a job to be done each day. This makes more efficient use of personnel, creates better working morale, and makes it possible to maintain a nearly fixed number of men in the maintenance crews throughout the year. Outdoor work should be scheduled in the summer and indoor work in the winter, except on southern projects where weather may not be a governing factor. Better and faster work will be produced when done under favorable weather conditions.

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(4) Inspections.

Each piece of equipment shall be inspected at specified intervals and records kept of such inspections and the findings. In order to carry out such a program it is necessary to follow an effective but simple method of scheduling the work and keeping records of inspections and repairs. The use of inspection check lists with certification by the responsible employee is important for that purpose. Routine inspections are those which should be checked at attended stations by an operator while on his tour of duty, or at unattended stations by a maintenance man. Routine checks and inspections should be of a visual nature not requiring the use of tools or equipment, and are intended to detect troubles in their early stages so that corrective measures can be applied before serious trouble develops. It also provides a basis for estimating what spare parts should be kept on hand and how often repairs will be necessary.

(5) Safety.

As some risk is involved in many emergency repair operations, every effort should be made to avoid accidents by following the rules of a standard Safety Handbook, such as that of the Bureau of Reclamation or other power organizations as well as other common sense rules of safety.

F. Fiscal Management.

(1) Rates and Regulations.

(a) Reviews and Changes.

The Area Director shall make periodic studies of power and energy rates and regulations governing the management of the power system at appropriate intervals and submit recommendations for proposed changes in rates and regulations to the Central Office for transmission to the Secretary for review and publication in the Federal Register.

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(b) Collection Procedure.

Meter sheets whereon is entered manually the readings from the individual customer's meter are the basic record for issuing the customer's bills. From the readings the consumption of energy shall be computed and the amount due shall be calculated as per applicable rate schedules. Bills for individual services shall be prepared from the meter sheets and checked to eliminate possible errors. Bills for electric service will be rendered at regular intervals on Standard Form DI-1040, or Bureau Form 5-461 or 5-464, before the due date to individual customers. Entries shall be made in detail in the Consumers Ledger (Form 5-466A).

Collections will be made by authorized collector agents or designated field collector agents. Receipts issued by authorized collectors or field collector agents shall be credited to the applicable account in the Consumers Ledger.

(2) Programs and Accounts.

A work program is essential in connection with the operation and maintenance of projects. In order to facilitate proper programming, accounts have been established and the program shall be in form prescribed. The accounts are maintained by the designated accounting office and periodic operating statements prepared from the established accounts and will be furnished the Project employees in charge and others to show financial status and to develop cost and other figures for future planning and programming. To meet these needs it is essential that all documents originating at Projects be properly coded in accordance with the prescribed accounting procedure.

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(3) Progress and Narrative Reports.

- (a) Progress and Narrative Reports in duplicate shall be prepared and transmitted to the Area Office, one of which shall be forwarded to the Central Office each month reflecting progress of the work being done and indicating power generated, power purchased, power sold, stored water, pumping requirements, weather conditions and other pertinent information, except for the months of June and December when semi-annual reports are to be prepared.
- (b) A requirement of the Federal Power Commission which shall be strictly complied with is the filing each year on forms furnished by the F.P.C. of information relative to the production, distribution, use and sale of project electrical energy, from the project's power systems. The forms furnished include instructions and require engineering study and analysis of project functions.

(4) Determination by Area Director.

The Area Director is charged with the function of recommending appropriate power rates and schedules that will provide funds to meet the financial obligations of the power and irrigation facilities in conformity with existing legislation.

(5) Review by Central Office.

The Central Office will render assistance and advice as requested by the Area Director and will review rate schedules submitted and transmit them with appropriate recommendation to the Secretary for publication in the Federal Register.

(6) Current Rates.

Regulations and rates for the three Indian Bureau Projects engaged in producing and/or distributing electrical energy

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may be found in 25 CFR Indians under individual Parts 231, 232 and 233.

The three projects concerned are:

1. The Flathead Irrigation Project-Generation & Distribution
2. The San Carlos " " " " "
3. The Colorado River" " -Distribution only

(7) Covering Legislation.

The application of revenues is well defined in the act of August 7, 1946 (60 Stat. 895 as amended by the act of August 31, 1951 65 Stat. 254). This act modifies Section 4 and 20 of the Permanent Appropriation Repeal Act, 1934 (48 Stat. 1227), with reference to certain funds collected in connection with the operation of Indian Service Irrigation projects, and for other purposes. Section 3 of the act defines the purpose and priority governing the application of power revenues as follows:

"Section 3. Revenues hereafter collected from power operations on each Indian irrigation project and deposited into the Treasury for credit to miscellaneous receipts pursuant to section 4 of the Permanent Appropriation Repeal Act, 1934 (48 Stat. 1227), or pursuant to other provisions of law, are hereby authorized to be appropriated annually, in specific or in indefinite amounts, equal to the collections so credited, for the following purposes in connection with the respective projects from which such revenues are derived: (1) Payment of the expenses of operating and maintaining the power system; (2) creation and maintenance of reserve funds to be available for making repairs and replacements to, defraying emergency expenses, and insuring continuous operation of the power system, the fund for each project to be maintained at such level, within limits set by the Director of the Bureau of the Budget, as may from time to time be prescribed by the Secretary of the Interior;

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(3) amortization, in accordance with the repayment provisions of the applicable statutes or contracts, of construction costs allocated to be returned from power revenues; and (4) payment of other expenses and obligations chargeable to power revenues to the extent required or permitted by law, approved August 7, 1946."

The act of August 31, 1951, supra, provides as follows:

"Sums not in excess of the amount of power revenues covered into the Treasury during the current and each succeeding fiscal year to the credit of each of the power projects, including revenues credited prior to August 7, 1946, to remain available until expended for the purposes authorized by section 3 of the Act of August 7, 1946, as amended (31 U.S.C. 725s-3), in connection with the respective projects from which such revenues are derived."

(8) Legislation - Flathead Indian Irrigation Project.

The Act of May 25, 1948 (62 Stat. 269-273), provides for the adjustment of irrigation charges on the Flathead Indian Irrigation Project, Montana, and for other purposes. This act applies specifically to the Flathead Project and provides that power revenues heretofore accumulated and those to be accumulated in the future shall be applied to reduce the reimbursable costs of certain specified divisions of the project as therein set forth. The Act, among other things, deals with the application of power revenues and the priorities for the use of such revenues.

(9) Legislation - San Carlos Project.

The Act of Congress approved March 7, 1928 (45 Stat. 200, 210-211), authorized the Secretary of the Interior to incur obligations and enter into a contract for the development of electric power at the dam as an incident to the use of San Carlos reservoir for irrigation, subject to the proviso that no obligation should be

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incurred or contract entered into until a contract satisfactory to the Secretary of the Interior has been executed by the Florence Casa Grande Waterusers Association providing inter alia for the repayment of the cost of construction of the power plant as a part of the cost of the irrigation project. The 1928 Act further provided (45 Stat. 211):

"That the Secretary of the Interior is authorized to sell surplus power developed at the Coolidge Dam in such manner and upon such terms and for such prices as he shall think best, and the net revenues from such and all sales of power at that plant shall be devoted, first, to reimbursing the United States for the cost of developing such electrical power and the cost shall be determined by the Secretary of the Interior; second to reimbursing the United States for the cost of the San Carlos irrigation project; third, to payment of operation and maintenance charges, and the making of repairs and improvements on said projects: Provided further, that reimbursements to the United States from power revenues shall not reduce the annual payments from landowners on account of the principal sum constituting the cost of construction of the power plant or the project works until such sum shall have been paid in full * * *."

.3 Livestock Water Developments

All future livestock water developments made on Indian range lands shall be made only upon written requests by the Indians and with a signed agreement by them that they will be responsible for the maintenance and operation of the well, spring, pump, mill, engine, dike, dam, pipeline or whatever other structure or equipment may be included in the water development.

Every effort should be put forth to have Indians take over operation and maintenance of all present livestock water developments as soon as they are able to do so.

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1.4 Soil and moisture Conservation Performance Inventory and Utilization Checks.

The job of proper land use is only just begun when the plan of conservation operations has been prepared and accepted by the land operator. It may take years to complete and put into effect all the provisions of the prepared plan; the conservationist will make periodic inspections and consultations with the land users or a means of further explaining the plan of conservation operation and encouraging the land user toward more complete application and maintenance of the plan.

A. Requirements.

In making the performance inventory, of which utilization checks are a part, the conservationist and the land user go over every portion of the farm or ranch to ascertain whether:

- (1) The farm plan of conservation operations or land use stipulations have been properly prepared, is understood by the farmer, and meets conditions. Modifications shall be made as needed. Utilization checks will indicate whether the stocking capacity and range management plan as set forth in the plan of conservation operations is proper to accomplish the vegetative recovery and growth necessary to protect the soil.
- (2) The structural devices have fulfilled the purpose for which they were designed. Changes or extensions should be provided for as needed.
- (3) The land user has followed provisions of the plan and maintained structural work with the exception of major works for bank protection of large watercourses, flood and sediment control. While making the performance inventory with the land user, the soil conservationist can best bring him up-to-date in the latest soil conservation and range management practices and improve practices as found desirable.