

Reference Guide

FORM 69-A66
(11-69)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS



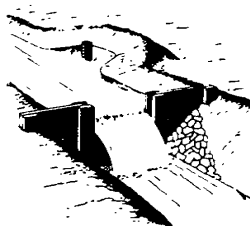
REFERENCE GUIDE

1969

CENSUS OF IRRIGATION ORGANIZATIONS

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Part A--General Comments

WHO SHOULD FILL OUT THIS FORM?

A questionnaire should be completed for any organization conforming to the following definition: "An irrigation organization refers to any irrigation facilities providing irrigation water for two or more farms or ranches, whether owned or operated by individuals, a partnership, a company, a cooperative, or a district."

Following are the major kinds of irrigation facilities for which a report should be completed:

1. An individual farmer who owns and operates an irrigation system which serves one or more other farmers;
2. A single business proprietor or company that serves two or more farmers or ranchers, even though irrigation service is a minor part of the business;
3. Two or more neighboring farmers who operate a common water supply system for their own use, whether they have any formal organization or not;
4. Formally organized cooperatives or mutuals which provide irrigation water either as a sideline or a major part of the operation;
5. Publicly organized districts;
6. Corporations;
7. A city or town which supplies irrigation water to 100 acres or more.

If a farmer or rancher provides water only for himself, he should explain his situation in the "REMARKS" section on the last page of the questionnaire and not complete the questionnaire beyond item 1. If he supplies irrigation water to two or more farms, including his own, he should complete the entire questionnaire.

A separate questionnaire is not required for a lateral ditch or small group of water users who merely divide water obtained from a parent supply company and pay fees individually and directly to the parent company. The parent company will normally include such operations in its report.

If an irrigation organization has works which are normally used to convey or store water for irrigation, but no irrigation water was conveyed in 1969 because of water shortage or other reasons, such an organization should still report. In such cases, omit the sections of the form which do not apply and explain in the "REMARKS" section of the questionnaire the reasons water was not delivered in 1969.

Only one form should be filled out for each organization. Mark any duplicate forms you or any other member of your organization may receive with "THIS DUPLICATES THE ORGANIZATION SHOWN ON QUESTIONNAIRE NO. ____." (Use the serial number at the upper left-hand corner of the address table on the questionnaire.)

Please keep your file copy of the questionnaire and the Reference Guide. Return the questionnaire and map. If your organization does not fit the Census definition of an irrigation organization, please explain briefly in the "REMARKS" section of the form.

RULES FOR COMPLETING THE FORM

You have received either a **Single-Basin Organization** questionnaire or a **Multi-Basin Organization** questionnaire. These forms are identical, except that multi-basin organizations are asked to report information by drainage basins in Sections IV, V, and IX.

Explanations given for parts A and B of this reference guide apply to both questionnaires; however, if you receive a Multi-Basin Organization questionnaire, please see the special comments beginning with part C of this guide.

You may find that some questions and perhaps whole sections may not be applicable to your organization. Wherever possible, we have provided "No" boxes which enable you to pass over items and sections of the questionnaire irrelevant to your organization.

In some cases where the form calls for certain measured quantities (such as acre-feet, gallons or miles), the exact measurement may not be available. In such instances, please report your best estimates. You may mark beside the answer "EST" if you wish.

For all dollar items, we need only whole dollars. However a "cents" column is provided for those who wish to use it. If you prefer to report both dollars and cents, be sure to enter the cents in the "cents" column to avoid the risk that they may be mistaken for dollars. For instance, \$65,220.18 should be entered:

CENTS NOT REQUIRED		OR	CENTS NOT REQUIRED	
Dollars	Cents		Dollars	Cents
445			447	
\$65,220			\$65,220	18

not	CENTS NOT REQUIRED	
	Dollars	Cents
446	\$65,220.18	

Please do NOT include fractions in your answers, except where called for. Where fractions are called for, report the fractions in tenths, and enter the fractions in the "Tenths" part of the answer space. For example:

3	5/10	Acre-feet	and	Miles	Tenths
		for 3 1/2 acre-feet		149	7
					4

Fractions may be converted to tenths on the following basis:

Report 1/8 as 1/10 or	1
1/6 as 2/10 or	2
1/4 as 2/10 or	2
1/3 as 3/10 or	3
5/8 as 6/10 or	6

Acre-foot is a term used to measure water in many irrigated areas. It is used frequently in the questionnaire. If you are not familiar with the term, an acre-foot is the quantity of water required to cover one acre, one-foot deep. There are 43,560 cubic feet or 325,850 gallons of water in one acre-foot.

If you ever need to clarify any answer you give, please use the "REMARKS" section at the end of the questionnaire or attach an additional sheet of paper for this purpose.

Part B—Detailed Explanations

Key to using the remaining explanations:

When in doubt about a particular part of the questionnaire, observe the section number and item number to help you locate the appropriate comment below.

Section I—TYPE OF IRRIGATION ORGANIZATION

- Item 2--Type of irrigation organization
- **Group of neighbors, partnership, unincorporated mutual, etc.:** Mutual or cooperative organizations are private organizations, controlled by, and operated for the benefit of two or more water users. These organizations are owned by the water users and irrigation service is provided to them at cost. Include in this category partnerships or informal groups of two or more farmers who operate irrigation supply works for their own needs.
 - **Incorporated mutual or cooperative:** This type of organization differs from an unincorporated mutual or cooperative in that it is a legally constituted corporation. It generally has an elected secretary who keeps the records. He, or another official, should complete the questionnaire for the entire organization.
 - **District:** Like mutuals or cooperatives, districts are nonprofit organizations. However, districts are public corporations or special-purpose governmental units which can make use of taxing powers and have the right of eminent domain. If a district's facilities were operated in 1969 by the Bureau of Reclamation or Indian Affairs, check that box on the form.

Check this item for a district which has taken over operation from the U.S. Bureau of Reclamation or Indian Affairs.

District names may indicate that their major function is drainage, conservation, reclamation or domestic water supply, among others. Any of these may provide irrigation water service as a primary or an incidental function. For this census all are to be considered irrigation organizations if irrigation water service is provided.
 - **Commercial Company:** Commercial enterprises are usually profit-oriented organizations controlled by the owners rather than the user-customers. Irrigation water service may be an incidental function.
 - **Project operated by the U.S. Bureau of Reclamation:** Mark this item only if operation of the irrigation works has not been transferred from the USBR to your organization. If part of the works of an irrigation project are operated by the Bureau of Reclamation and part by your organization, each agency should complete a separate questionnaire for the works under their direct control.

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- **Project operated by the U.S. Bureau of Indian Affairs:** The remarks for the Bureau of Reclamation also apply here.
- **City or town municipal system:** Report this item if this is a city, or similar governmental division, which supplies water for the irrigation of 100 or more acres of farmland as part of its total function.
- **Farmer or rancher supplying water to others:** A water supply system owned by a farmer or rancher who supplies water for irrigation purposes to one or more other farms or ranches.
- **Other:** Describe here any organization which cannot be placed in any of the classifications above.

Section II--PURPOSES OF OPERATION

- Report all purposes for which the facilities of this organization are specifically operated and maintained. For instance, you should check the box for "Recreation" only if facilities have been constructed or improved for recreation. If flood control, recreational use, etc., result incidentally, without any specific management for such uses, do not indicate as a purpose.

Section III--SOURCE OF WATER IN 1969

- Only the immediate sources of water for this organization should be shown. For instance, if you obtain water from another irrigation organization which in turn obtains water from a stream, you would mark "Another irrigation organization," not a "Natural stream."

Any water obtained from a natural stream should be so reported, even though it may have been released to the natural stream by another irrigation organization.

Section IV--EXCHANGE OF WATER WITH OTHER ORGANIZATIONS IN 1969

- Item 7--Water delivered to other organizations
- If another organization obtains water from yours, and collects charges from its users, the information asked in this item should be given. If your organization delivers to groups of farmers (usually laterals) who distribute water among themselves, but each farmer pays his charges directly to you, consider these groups to be part of your organization.

Section V--WATER USERS AND ACRES SERVED BY THIS ORGANIZATION IN 1969

- Item 8--Water users served
- Do not duplicate--**If a consumer served by this organization qualifies in more than one given category (a, b, or c), report him only once in the first appropriate category.
- Item 9--Land in farms and ranches
- Farms served by another organization which obtains water from your organization should be excluded from consideration to avoid duplication between your report and that of the other organization.
- Item 9a--Acres developed for irrigation
- Include all acreage which has been sufficiently developed for irrigation on the farms served by your organization, and for which your canals or pipelines have the capacity to provide water when adequate supplies are available.

- Item 12--Rate of application from all sources

Water from "all sources" includes:

1. water supplied by **your water supply works**;
2. water supplied by **other organizations** to the same farms and ranches;
3. water obtained from **on-farm sources** such as wells, springs, or streams, etc.

In many cases this estimate must be an approximation based on your knowledge of the amount of water used per acre by farmers in your service area.

Section VI--IRRIGATION FACILITIES OF THIS ORGANIZATION IN 1969

- This section is designed to account for facilities used in the operations of irrigation organizations. In some cases such facilities are owned and/or operated jointly by two or more organizations. If this organization is jointly involved with another in the operation of any facilities, please indicate so by writing the word "SHARED" in the margin beside the appropriate facility and list the other organization by name in the "REMARKS" section of the questionnaire.

- Item 13--Diversion dams

Report all dams or headgates built in a stream or river which are used to divert water into the water supply works of this organization. Do not include in this item, diversions or headgates which are part of a storage reservoir. Information on storage reservoirs is to be reported in Section VII.

- Item 15--Other wells

In addition to the number of other wells, report the average depth to water of these wells by adding the individual distances from ground surface to water level for all wells, and dividing this figure by the number of wells.

- Item 16--Pumps

In column 1, report the total number of all supply pumps, relift pumps, and drainage pumps by purpose for which used. Report all pumps on hand, whether they are in service or in reserve.

Both columns 2 and 3 relate to pumping capacity; they differ only in units of measurement. Either or both columns may be used according to convenience, but do not duplicate data by recording an individual pump in both columns on the same line. Add the pumping capacities of all pumps reported in column (1).

In column 4, report the lift only for those pumps presently in service. Add together the vertical lift of each individual pump and divide that figure by the number of such pumps. Vertical lift includes the distance in feet from water level to ground surface, plus the vertical distance from the pump to the pipe outlet.

- Item 17--Length of conveyance facilities

The first column should include the total length of all waterways which are a part of your organization's conveyance system. The last column is to provide a measure of that part of your canals and pipelines which can carry 50 cubic feet per second or more. We recognize that you may not know the exact point at which your waterways change from 50 cubic feet per second to less than that. Your judgement will be better than any other source.

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Section VII--IRRIGATION WATER STORAGE RESERVOIRS

- Reservoirs are to be reported in three categories in this section:

- All reservoirs having less than 1,000 acre-feet capacity (item 19)
- Reservoirs with a capacity of over 1,000 acre-feet, but which are "off-stream" (item 20).
- Reservoirs with a capacity of over 1,000 acre-feet, but which are "on-stream" (item 21).

Item 19--Reservoirs--capacity under 1,000 acre-feet
In addition to reporting the number of these smaller reservoirs, add the individual capacities and enter as one figure.

Item 20--Off-stream reservoirs--capacity 1,000 acre-feet and over
Although the dam which creates a reservoir may be built across a small stream, classify the reservoir as "off-stream" if most of the water is supplied to the reservoir through canals, pipelines or is pumped.

In column 4 (water withdrawn "Into distribution system") report the water taken from each reservoir directly into the canals or pipelines of the irrigation system. If water is discharged from the reservoir into a drainage channel as waste, as overflow, to maintain stream flow or is used directly from the reservoir in electric generation, report as "All other releases" in column 6.

Item 21--On stream reservoirs--capacity 1,000 acre-feet and over
If the chief source of water to a reservoir is the stream across which the dam is built, enter the information for such an "on-stream" reservoir in item 21.

Water withdrawn into your organization's irrigation canals or pipelines should be shown in column (4); whether it is to be delivered to farms served directly by you, or delivered to another irrigation organization.

No releases from an on-stream reservoir to the down-stream channel should be shown in column 6, except where specific quantities were released for another irrigation organization to divert downstream. In column 6 of item 21 do not include as releases overflow, water used for power generation or water released to maintain stream flow.

Section IX--SUPPLY AND DISPOSITION OF WATER BY THIS ORGANIZATION IN 1969

General remarks (Calendar vs water year; units of measurement, etc.):

Respondents reporting on multi-basin forms, please also see special instructions in part C, of this guide.

Report all quantities of water on a 1969-calendar-year basis, if possible (January 1 through December 31, 1969).

If records are kept on a water-year basis, these figures may be reported provided the 1968-69 water year did not end before September 30, 1969. If the water year 1968-69 did end prior to September 30, 1969, estimate and adjust the water-year figures to obtain reasonably accurate calendar year figures.

Regard water as being obtained at the point(s) where it first entered facilities maintained by this organization, and as being disposed of at the point(s) where it leaves the facilities maintained by this organization. Report quantities of water flowing through the facilities of this organization, regardless of ownership of water or water rights.

Units of measurement--Report all water quantities in units of acre-feet when possible. In some parts of the country and for some smaller irrigation organizations, quantities in acre-feet may not be known. Consequently, this section of the single-basin questionnaire provides three alternative units of measurement: gallons per minute, cubic feet per second, and miners inches. These are measurements of flow rate. If quantities are reported in any of these three units, the duration in days must also be shown. Without a figure for both rate and duration, the quantity of water cannot be determined.

Item 24--Supply of water
Report, according to direct source, all water which entered the facilities of this organization. Consider direct source to be that point where water first enters any facilities owned or maintained by this organization (canals, pipelines, reservoirs, etc.). If any water supply facilities are operated jointly by this organization and one or more others, report only quantities allotted to this organization.

Item 24a--From another organization
Report all water purchased (or traded for) from another organization which flows into the conveyance system of your organization directly from the facilities of the other organization. Water supplied by another organization through natural stream channels should not be reported here. It should be reported in part "b" of this item, "from a surface source."

Item 24b--From surface sources
Report all water which was diverted or pumped directly from a stream, lake, an on-stream reservoir or any other surface source.

Water supplied to an off-stream reservoir should be reported on line 24a, 24b, or 24c. However, water taken from an off-stream reservoir should not be shown anywhere in Section IX.

Item 25--Disposition or use of water
"Disposed of" means that the water was diverted from or otherwise left the system of canals and pipes operated by this organization to be delivered to water users, to other organizations, or was returned to a stream or drainage ditch.

Item 25a--Water delivered directly for irrigation
The quantity of water to be reported in this item should relate to the farm and ranch irrigation water users reported in item 8a and the acres actually irrigated in item 9b.

If your organization does not measure deliveries to farms, estimate the amount on the basis of: a. total supply less conveyance losses and waste, or b. your knowledge of the average acre-feet used per acre by farmers in your area.

Item 25b--Water delivered solely for residential use
Include only water delivered to residential or domestic water users who do not also obtain irrigation water from this organization. Water delivered to farms and ranches for both irrigation and domestic use is to be reported only in item 25a.

Method of estimating--If it is necessary to estimate this figure, estimate the average amount of water delivered to each domestic and residential user reported in item 8b and multiply by total number of users.

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Item 25c--Water to another irrigation organization Do not include **downstream releases** from on-stream reservoirs in item 25c, even if they are intended for diversion from a downstream point by another organization.

Item 25d--Water to other users Include water delivered: (1) to municipal or suburban water systems, (2) for industrial use, (3) for recharge of ground water supplies, and (4) for power production by another company or organization. Do not report here any water delivered to another irrigation organization.

Item 25e--Released for power production Report only water released from the irrigation conveyance system of this organization specifically for power production in your own organization's plant without also being used for irrigation or any other purpose reported in parts a through d of this item. Do not include water released at on-stream dams into stream channel for any purpose other than power production.

Item 25f--Other releases Estimate the quantity of water which was spilled or wasted from the conveyance system without being delivered directly to any user or used for power production.

Item 25g--Conveyance loss Seepage and evaporation are the two major causes of loss during conveyance. Two examples of different situations may assist you in estimating these losses:

- Example 1: A system which: a. does not contain an off-stream reservoir; b. does not have unmeasured flows of water into the system from springs, small streams, surface drainage, etc.; and c. does not reuse water which drains from lands served. In this situation the total supply less the total distribution should equal conveyance loss (line 24d minus the sum of lines 25a-f).

- Example 2: A system containing: a. an off-stream reservoir, b. with an unmeasured flow of water into the system or, c. reuses water wasted from farms. If these conditions exist, the only way to estimate conveyance loss is on the basis of some percentage. *For example*, if you estimate your conveyance loss to be 12 percent and your total supply (line 24d) is 5,000 acre-feet, the estimate of conveyance loss would be .12 x 5,000 = 600 acre-feet.

Note: On the multi-basin form the "total supply" line is 24g.

Item 25h--Total water delivered, released or lost In many cases this figure should approximate that for total supply reported in item 24d. Exceptional cases arise when drainage water is collected and recirculated through the irrigation conveyance system or when off-stream storage reservoirs are part of the system. In these cases total disposition figures may exceed or be less than total supply figures.

Section X--NEW CAPITAL INVESTMENT 1960-1969

Item 26--New capital investment--1960-1969 The purpose of this item is to obtain data on **improvements** to existing facilities and construction of **additional** irrigation facilities during the past 10 years.

- **Improvements**--It is sometimes difficult to distinguish between an **improvement** to and a **repair** of an existing facility. Frequently, both are involved. Your judgement must be relied upon. Where both repair and improvement are involved, report in 26a, 26b, and 26c your estimate of that portion of the cost which represents actual improvement.

If a facility or piece of equipment is replaced with a similar one, it is not considered an improvement. However, if the new facility or piece of equipment is larger or significantly better, some improvement exists. The amount of the improvement is the difference between the cost of the item purchased and one which would only replace the old one.

- **New construction**--Construction contracts frequently cover work on a number of different kinds of facilities. In these cases, the exact cost of each kind of facility may not be known. Your estimate of the portion of a contract which should be allocated to each kind of facility will be better than can be made by the Census Bureau.

- **Lining of canals**--It is assumed that canal lining will normally consist of concrete, asphalt or compacted earth. If a different material is used for lining, please describe in the margin or in "Remarks." Compacted earth linings should involve selection of earth material which will compact into a reasonably impervious lining through the use of heavy compacting equipment.

- **Wells**--If existing wells were drilled deeper during the 10-year period, show this in item 26b. If new wells were drilled, indicate in item 26j.

Item 28--Total indebtedness For Census purposes, consider repayment obligation to the Bureau of Reclamation to be indebtedness. Include such repayment obligations in the item 28a total, and show the amount of the repayment obligation separately in item 28b.

Section XI--OPERATION AND MAINTENANCE

For many of the smaller ditch companies, operation and maintenance costs will include all of the dollar expenditures made during the year. However, if major new construction is performed, additional equipment purchased, or payments made on debt, these should not be included in this item. They will have been shown in previous sections.

Section XII--REVENUE COLLECTED BY THIS ORGANIZATION IN 1969

Item 30--Money received from water users in 1969 Methods of obtaining funds for operation and maintenance vary greatly among irrigation organizations. The key characteristics for what to include in this item are:

1. Source of funds

Only those funds obtained from water users (including farmers, ranchers, residential users, other irrigation organizations, municipalities, etc.) for water service should be included.

Do not include money received from people or businesses not receiving water service, even though they may be taxed to help support irrigation.

2. Use of funds

Include only funds obtained for irrigation activities (operation and maintenance, payment of debt, or additions to the irrigation facilities). Exclude funds collected for flood control, power production or maintenance of a drainage system not associated with irrigation.

3. Method of collection

Any funds obtained from people or organizations benefiting directly from the irrigation systems should be included without regard to the method of collection. As indicated on the report form in item 30, methods may vary all the way from payment for specific amounts of water sold to collection through county taxes based on assessed values of properties served.

Section XIII--LOCATION OF DIVERSION AND DELIVERY POINTS

Item 32--Marking the map Locate the area of operation and supply facilities requested in items 32a through 32e and mark their location on the map using the proper symbol. Exact locations may be difficult to pinpoint so your best approximation will be sufficient. **Please be sure to return the map with your questionnaire as this information is very important in solving problems and eliminating duplications and omissions.**

Item 33--Transfer of water across State, basin, or county boundaries Before checking the boxes in this item, mark the map as indicated in item 32. Locate the area of operation of your organization or water supply facilities on the map. If the system of canals and pipelines of this organization conveys water across State, drainage basin, or county boundaries, mark the appropriate box(es). **Do not** include any water which crossed these boundaries by way of a natural stream or river.

Part C—Multi-Basin Organizations: Special Instructions

The following comments apply only to Sections IV, V, and IX of the multi-basin form. All previous notes in this guide apply equally to both multi- and single-basin questionnaires. If your organization has irrigation operations in more than one State, you should have received a multi-basin form also. The spaces provided in Sections IV, V and IX for entry of drainage numbers may also be used for entry of State names. This would be done only if your organization is multi-State rather than multi-basin.

- **Use drainage basin numbers from enclosed map**—A map is included in the envelope with your questionnaire. On this map, the drainage basin boundaries, as established by the National Water Resources Council, have been drawn. This map should be used in connection with Sections IV, V, and IX, and to provide the information requested in Item 32.
- **Census Bureau assistance**—If necessary, assistance in handling questions can be given by Census representatives, as indicated in the accompanying letter. Please complete as much of the questionnaire as you can before telephoning or before a representative calls on you.

Section IV--EXCHANGE OF WATER WITH OTHER ORGANIZATIONS

Item 5--Water obtained by your organization from other organizations Show in the last column the drainage basin number in which water was transferred to your system from the conveyance system of the other organization. Show your own drainage basin number if the transfer takes place in your drainage basin, even though the other organization is located in a different drainage basin than your organization. If your organization is multi-state instead of multi-basin, substitute the words "State name" for "drainage basin number" in the previous two sentences.

Item 7--Water supplied to other organizations The same principle applies as for item 5. Record in the last column the basin number in which water transfer takes place.

Section V--WATER USERS AND ACRES SERVED

In some instances for drainage basin (or State) detail, it may be necessary to make rough estimates of the number of users, the acres of land served and acres of land lost to production.

Section IX--SUPPLY AND DISPOSITION OF WATER

If you cannot make the entries for items 24e, 24f, and 24g on your own or with telephone assistance (see accompanying letter), please complete the "Total all basins" column and wait for a Census representative.

- If you can complete the drainage basin columns without help, determine from the enclosed map the numbers of the drainage basins in which your organization obtains or disposes of water. These drainage basin numbers can be entered at the head of the columns. Use as many columns as necessary.

Items 24e, 24f, and 24g--Inter-basin transfer These lines provide for a record of water transfer by your organization in your conveyance system across drainage basin boundaries. Basin boundaries are shown on the enclosed map. Account only for transfers across basin boundaries which are made within your own conveyance system.

If water is conveyed into a drainage basin, show the amount on line 24e in the column of the importing basin. Then, (from map) enter on the next line below the number of the basin from which the water comes.

The same water which is shown as imported to a basin on line 24e should also be accounted for on line 24f. It must be reported in the column of the basin from which the water is conveyed (on line 24f). Under the acre-feet figure for water exported, write the number of the basin to which water is conveyed.

When complete, the line total for line e (last column) should equal the line total for line f.