APPENDIX A. 1978 Census of Agriculture Report Form

Form Approved: O.M.B. No. 41-S78025

FORM 78-A1(N)
(4-10-78)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

AGRICENSUS '78 USA

1978 CENSUS OF AGRICULTURE

COMPLETE AND RETURN TO: Bureau of the Census, 1201 East Tenth Street, Jeffersonville, Indiana 47132

(Only sections relating to irrigation data are shown)

SECTION 2 Were any of the FOLLOWING CROPS harvested from this place in 1978?

	None	Acres harvested	Quantity harvested	Acres irrigated
1. Field corn for grain or seed *(Report quantity on a shelled-weight basis)*	☐	067	068 Bu. / 1 OR / Cwt.	069
2. Field corn for silage or green chop	☐	070	071 Tons, green	072
3. Wheat for grain	☐	073	074 Bu.	075
4. Oats for grain	☐	076	077 Bu.	078
5. Barley for grain	☐	079	080 Bu.	081
6. Sorghums for grain or seed (include milo)	☐	082	083 Bu. / 1 OR / Lbs.	084
7. Sorghums for silage or green chop (exclude sorghum-sudan crosses)	☐	085	086 Tons, green	087
8. Soybeans for beans	☐	088	089 Bu.	090
9. Cotton	☐	091	092 Bales	093
10. Tobacco – all types	☐	094 /10	095 Lbs.	096 /10
11. Irish potatoes	☐	097 /10	098 Cwt.	099 /10
12. Sweetpotatoes and yams	☐	100 /10	101 Bu.	102 /10

SECTION 3 **Was any DRY HAY, GRASS SILAGE, HAYLAGE, or GREEN CHOP cut or harvested from this place in 1978?** ***(Include sorghum-sudan crosses and hay cut from pastures.)***

003
1 ☐ YES – ***Complete this section***
2 ☐ NO – *Go to section 4*

If cuttings were made for both dry hay and grass silage, haylage, or green chop from the same fields, report the acreage in the appropriate items under DRY HAY and also under GRASS SILAGE, HAYLAGE, and GREEN CHOP.

■ **DRY HAY**
(If two or more cuttings of dry hay were made from the same acres, report acres only once, but report total tons from all cuttings.)

	Acres harvested	Quantity harvested *(Report either dry or green weight as indicated)*	Acres irrigated
1. Alfalfa and alfalfa mixtures for hay or dehydrating	103	104 Tons, dry	105
2. Small grain hay – oats, wheat, barley, etc.	106	107 Tons, dry	108
3. Other tame dry hay, clover, lespedeza, timothy, Bermuda grass, Sudan grass, etc.	109	110 Tons, dry	111
4. Wild hay	112	113 Tons, dry	114

■ **GRASS SILAGE, HAYLAGE, AND GREEN CHOP**
(If two or more cuttings of grass silage, haylage, or green chop were made from the same acres, report acres only once, but report total tons from all cuttings.)

5. Grass silage and haylage	115	116 Tons, green	117
6. Hay crops cut and fed green (green chop)	118	119 Tons, green	120

Page 1

SECTION 4 **Was there a combined total of 20 or more FRUIT TREES, including GRAPEVINES, CITRUS and NUT TREES ON THIS PLACE in 1978?** (Do not include abandoned trees)

004 1 ☐ YES – *Complete this section*
2 ☐ NO – *Go to section 5*

	Total acres		Acres irrigated	
	Whole acres	Tenths	Whole acres	Tenths
1. TOTAL ACRES in bearing and nonbearing fruit orchards, citrus or other groves, vineyards, and nut trees on this place	121	/10	122	/10

2. From the list at the right, enter name and code for the fruit trees, grapevines, and nut trees on this place in 1978. Report the requested information for each crop even if not harvested because of low prices, damage from hail, frost, etc. For interplanted trees, estimate the area covered by each kind of fruit. If other crops were interplanted with trees, see Information Sheet.

Crop name	Code	NUMBER OF TREES OR VINES OF – Nonbearing age	NUMBER OF TREES OR VINES OF – Bearing age	Acres in trees and vines of all ages – Whole acres	Acres in trees and vines of all ages – Tenths	Quantity harvested	Unit of measure (Mark one) Lbs.	Tons	Boxes	Lbs. per box
			1	2	/10	3	4 1☐	2☐	3☐	5
			1	2	/10	3	4 1☐	2☐	3☐	5
			1	2	/10	3	4 1☐	2☐	3☐	5
			1	2	/10	3	4 1☐	2☐	3☐	5
			1	2	/10	3	4 1☐	2☐	3☐	5

If more space is needed, use separate sheet of paper.

NONCITRUS CROPS	Code	CITRUS CROPS	Code
Apples	123	*(Report quantity harvested in 1977–78 from bloom of 1977)*	
Apricots	129	Grapefruit	267
Avocados – *See Information Sheet*	135	Lemons	279
Cherries	147	Oranges	297
Grapes – dry weight	171	Tangelos	303
Grapes – fresh weight	177	Tangerines and mandarins	309
Olives – *See Information Sheet*	207	Other citrus – *Specify*	315
Peaches	225	**NUT CROP**	**Code**
Pears	231	*(Report quantity in the shell)*	
Plums and prunes – fresh weight	243	Almonds	321
Prunes – dry weight	249	Filberts and hazelnuts	327
Other noncitrus – *Specify*	261	Pecans, improved	339
		Pecans, wild and seedling	345
		Walnuts (English or Persian)	357
		Other nut trees – *Specify*	363

SECTION 5 **Were any VEGETABLES, SWEET CORN, MELONS, etc., harvested FOR SALE from this place in 1978?**

005 1 ☐ YES – *Complete this section*
2 ☐ NO – *Go to section 6*

For Florida, report for September 1, 1977 through August 31, 1978 harvest season; for all other States report for calendar year 1978.

	Acres		Acres irrigated	
	Whole acres	Tenths	Whole acres	Tenths
1. Land from which vegetables were harvested in 1978	375	/10	376	/10

2. From the list below, enter the crop name and code for each crop harvested in 1978. *If more than one vegetable crop was harvested from the same acres, report acres for each crop. Report crops grown under protection in section 6.*

Crop name	Code	Acres harvested		Acres irrigated	
			/10	1	/10
			/10	1	/10
			/10	1	/10
			/10	1	/10
			/10	1	/10
			/10	1	/10

If more space is needed, use separate sheet of paper.

Crop name	Code	Crop name	Code	Crop name	Code
Asparagus	379	Cucumbers and pickles	411	Peppers, sweet	443
Beans, snap (bush and pole)	381	Eggplant	415	Peppers, hot	445
Beets	383	Garlic	421	Pumpkins	449
Broccoli	385	Honeydew melons	423	Radishes	451
Cabbage	391	Lettuce and romaine	427	Spinach	457
Cantaloups and Persian melons	395	Lima beans, green	429	Squash	459
Carrots	397	Mustard greens	431	Sweet corn	461
Cauliflower	399	Okra	433	Tomatoes	463
Celery	401	Onions, dry	435	Turnips	465
Collards	407	Onions, green	437	Turnip greens	467
Cowpeas (blackeyed and other green cowpeas)	409	Peas, green, including English (exclude green cowpeas)	441	Watermelons	473
				Other vegetables – *Specify*	475

SECTION 6 **Were any NURSERY and GREENHOUSE PRODUCTS, sod, bulbs, flowers, flower seeds, vegetable seeds and plants, vegetables under glass or other protection, or MUSHROOMS grown FOR SALE on this place in 1978?**

006 1 ☐ YES – *Complete this section*
2 ☐ NO – *Go to section 7*

	None	Area irrigated		
		Square feet	Acres	Tenths
1. Nursery and greenhouse products irrigated in 1978	☐	477	478	/10

2. From the list below, enter the product name and code for each product grown.

Product name	Code	Square feet under glass or other protection in 1978	Acres in the open in 1978 – Whole acres	Tenths	Sales in 1978 – Dollars	Cents
			1	/10	2 $	
			1	/10	2 $	
			1	/10	2 $	

If more space is needed, use separate sheet of paper.

Product name	Code	Product name	Code
Bedding plants (include vegetable plants)	479	Foliage and flowering plants	491
Bulbs	482	Mushrooms	494
Cut flowers and cut florist greens	485	Sod harvested	497
Nursery products – environmentals, lining-out stock, fruit and nut trees, and vines	488	Vegetable and flower seeds	500
		Greenhouse vegetables	503
		Other – *Specify*	506

SECTION 7 **Were any STRAWBERRIES, CRANBERRIES, or OTHER BERRIES harvested FOR SALE from this place in 1978?**

007 1 ☐ YES – *Complete this section*
2 ☐ NO – *Go to section 8*

From the list below, enter crop name and code. *Report quantity harvested in unit specified with crop name.*

Crop name	Code	Acres harvested – Whole acres	Tenths	Quantity harvested	Acres irrigated – Whole acres	Tenths
			/10	1	2	/10
			/10	1	2	/10
			/10	1	2	/10

If more space is needed, use separate sheet of paper.

Crop name	Code	Crop name	Code
Blackberries and dewberries (pounds)	509	Raspberries (pounds)	533
Blueberries, tame (pounds)	512	Strawberries (pounds)	536
Blueberries, wild (pounds)	515	All other berries (pounds) – *Specify*	539
Cranberries (100-lb. barrels)	521		

SECTION 8 **Were any OTHER CROPS harvested from this place in 1978 – rice, peanuts, field seeds, sugar crops, or other crops not previously reported?**

008 1 ☐ YES – *Complete this section*
2 ☐ NO – *Go to section 9*

From the list below, enter crop name and code. *Report quantity harvested in unit specified with crop name.*

Crop name	Code	Acres harvested	Quantity harvested	Acres irrigated
			1	2
			1	2
			1	2
			1	2
			1	2
			1	2
			1	2

If more space is needed, use separate sheet of paper.

Crop name	Code	Crop name	Code
Alfalfa seed (pounds)	542	Proso millet (bushels)	665
Beans, dry field and seed (100-pound bags)	554	Red clover seed (pounds)	671
Beans, dry lima (100-pound bags)	557	Rice (100-pound bags) or (bushels) or (barrels)	677 680 683
Buckwheat (bushels)	575	Rye for grain (bushels)	686
Corn cut for dry fodder, hogged or grazed (report acres only)	581	Ryegrass seed (pounds)	689
Cowpeas for dry peas (bushels)	584	Safflower (pounds)	692
Emmer and spelt (bushels)	599	Sorghums cut for dry forage or hay (tons, dry weight)	698
Fescue seed (pounds)	602	Sorghums hogged or grazed	701
Flaxseed (bushels)	605	Sugar beets for sugar (tons)	719
Grains, mixed (bushels)	614	Sugarcane for sugar (tons) – *See Information Sheet*	722
Kentucky Bluegrass seed (pounds)	629	Sugarcane for seed (tons)	725
Lespedeza seed (pounds)	638	Sunflower seed (pounds)	734
Mint for oil (pounds of oil)	644	Timothy seed (pounds)	746
Peanuts for nuts (pounds)	656	Other crops (pounds) – *Specify*	773
Peas, dry field and seed (pounds)	659		
Popcorn (pounds, shelled)	662		

SECTION 10 LAND USE IN 1978

1. Copy ACRES IN THIS PLACE from section 1, item 4, page 1 . . . . . _____ Acres

NOTE: If the same land had more than one use in 1978, REPORT THAT LAND ONLY ONCE – in the use first listed below that applies. For example, cropland harvested and also pastured is to be reported only as "Cropland harvested."

2. CROPLAND	None	Number of acres
a. Cropland harvested – *Include all land from which crops were harvested or hay was cut, and all land in orchards, citrus groves, vineyards, and nursery and greenhouse products.*	☐	787
b. Cropland used only for pasture or grazing – *Include rotation pasture and grazing land that could have been used for crops without additional improvements.*	☐	788
c. Cropland used for cover crops, legumes, and soil-improvement grasses, but NOT harvested and NOT pastured	☐	789
d. Cropland on which all crops failed *(Exception: Do not report here land in orchards and vineyards on which the crop failed. Such acreage is to be reported in item 2a.)*	☐	790
e. Cropland in cultivated summer fallow	☐	791
f. Cropland idle	☐	793
3. Woodland – *Include all woodlots and timber tracts and cutover and deforested land with young timber growth.* — a. Woodland pastured	☐	794
— b. Woodland not pastured	☐	795
4. Other pastureland and rangeland – *Include any pastureland other than cropland and woodland pasture*	☐	796
5. All other land – Land in house lots, ponds, roads, wasteland, etc. *Include any land not reported in items 2 through 4 above*	☐	797
6. TOTAL ACRES – ***Add the acres reported in items 2 through 5 (Should be the same as item 1 above.)*** →		798

SECTION 11 Was any LAND in this place IRRIGATED at any time in 1978?

Irrigated land is all land watered by any artificial or controlled means – sprinklers, furrows or ditches, spreader dikes, etc. Include supplemental, partial, and preplant irrigation.

011
1 ☐ YES – ***Complete this section***
2 ☐ NO – *Go to section 12*

1. How many acres of each of the following classifications of land were irrigated in 1978?	None	Number of acres irrigated
a. HARVESTED LAND reported in section 10, item 2a – *Include land from which hay was cut and land in bearing and nonbearing fruit and nut crops.*	☐	799
b. PASTURELAND or RANGELAND reported in section 10, items 2b and 4 – *Include spring flooding if water diverted or spread by dams, spreader dikes, canals, ditches, pipes, or other works.*	☐	800
c. ANY OTHER LANDS – Such as land not harvested due to complete failure, idle land, land in cultivated summer fallow, or land in cover crops and soil-improvement grasses	☐	801
d. TOTAL LAND IRRIGATED *(Total of a, b, and c above.)* →		802

FORM 78-A1(N) (4-10-78)

APPENDIX B. 1978 Census of Irrigation Organizations Report Forms

DUE BY FEBRUARY 15, 1979

Form Approved: O.M.B. No. 41-S78052

FORM 78-A60 (8-31-78)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

AGRICENSUS USA '78

CENSUS OF IRRIGATION

SINGLE-BASIN ORGANIZATIONS

COMPLETE AND RETURN TO

BUREAU OF THE CENSUS
ATTN: Agriculture Division
Washington, D.C. 20233

AN IRRIGATION ORGANIZATION IS . . .
A group of individuals, a company, a governmental district or agency, or an individual that operates facilities to supply irrigation water to two or more farms or ranches, or store irrigation water. It may be either a formal, legal organization, or an informal or cooperative arrangement.

NOTICE – Response to this inquiry is required by law (title 13, U.S. Code). By the same law your report to the Census Bureau is confidential. It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

Please mention this Census File Number (the eleven digit number in the upper left hand corner of the address label) if you write to us about this report.

PLEASE RETURN THIS COPY AND ANY DUPLICATES WITH THE ENCLOSED MAP
(Please correct any error in name and address including ZIP code.)

CENSUS USE ONLY	S	C	R	SR	AU	USBR	USBIA	RD
	033	034	035	036	037	038	039	040

Section I – TYPE OF ORGANIZATION

1. During 1978 did this organization: (a) supply irrigation water to two or more users, (b) supply water to another irrigation organization, or (c) operate irrigation water storage facilities? (See "Who Should Fill Out This Form" in reference guide.)

☐ YES – *Complete this report*

☐ NO – *Go to "Remarks" on last page, explain what connection, if any, the organization has with irrigation water, sign section XIII, and return this report to the Bureau of the Census.*

2. Type of organization – *Mark (X) the one box which best describes this organization*

042
1 ☐ Two or more neighbors or associates, a partnership, or unincorporated mutual or cooperative operating irrigation facilities
2 ☐ Incorporated mutual or cooperative – a legally constituted corporation owned by the users, supplying water at cost
3 ☐ District – irrigation, drainage, or other which provides irrigation service
4 ☐ Commercial company which provides irrigation services
5 ☐ Project operated by the U.S. Bureau of Reclamation
6 ☐ Project operated by the U.S. Bureau of Indian Affairs
7 ☐ City or town municipal system
8 ☐ Other – *Specify* _____

Section II – SOURCE OF WATER IN 1978

3. Direct source(s) of water received by this irrigation system in 1978 – *Mark (X) all boxes which apply. (See section II in reference guide.)*

a. Directly from a supplier

043
1 ☐ Another irrigation organization
2 ☐ Municipal water system
3 ☐ Other supplier

b. Directly from surface source

044
1 ☐ Natural stream – *Give name(s)* _____
2 ☐ Natural lake or pond – *Give name(s)* _____
3 ☐ Reservoir – *Give name(s)* _____
4 ☐ Drainage water (not drainage resulting from this organization's operation)

c. Directly from ground sources

045
1 ☐ Pumped wells
2 ☐ Springs
3 ☐ Flowing wells

GO TO SECTION III

Section III – EXCHANGE OF WATER WITH OTHER ORGANIZATIONS IN 1978

4. Was any water **received from another organization**? – *Report water received directly from a canal, pipeline, or reservoir operated by another organization. Include water received via a natural channel from a storage reservoir with which this organization has a contract or agreement.*

☐ YES – *Give the following information* ☐ NO – *Go to item 5*

Name and address of organization supplying water	Acre-feet obtained
a.	046
b.	047
CENSUS USE ONLY 048	049

If more space is needed, continue in "Remarks" on page 4.

5. Was any water **delivered by this organization** into the system of another separately operated organization which assesses or collects water charges? – *Include water delivered via a natural channel to another organization with which this organization has a contract or agreement.*

☐ YES – *Give the following information* ☐ NO – *Go to section IV*

Name and address of organization receiving water	Acre-feet delivered
a.	050
b.	051
CENSUS USE ONLY 052	053

If more space is needed, continue in "Remarks" on page 4.

Section IV – WATER USERS AND ACRES SERVED BY THIS ORGANIZATION IN 1978
(Excluding those served by organizations reported in item 5)

	None	Number of users
6. Water users served directly by this organization – *Do not duplicate. Report users only once in the FIRST appropriate category.*		
a. Farms and ranches receiving water for irrigation	☐	054
b. Residential and domestic users – *Report users, including farms and ranches using water ONLY for household use, lawns and gardens, or for livestock water*	☐	055
c. Other users – municipal water systems, recreational organizations, public installations, industrial plants, etc.	☐	056

	None	Acres
7. Land in farms and ranches served directly by this organization –		
a. Acres irrigated in 1978	☐	057
b. Acres developed for irrigation – *Include land that could be irrigated with this organization's existing facilities if water were available. (See item 7b reference guide.)*	☐	058

8. How did the acres irrigated in 1978 compare with the average acres irrigated during the 3-year period, 1975–1977? – *Mark (X) one*

059
1 ☐ Much above average (50% or more)
2 ☐ Above average (20% to 49%)
3 ☐ Near average (within 20%)
4 ☐ Below average (20% to 49%)
5 ☐ Much below average (50% or more)

9. Estimate what **percent** of the acres irrigated in 1978 (acres reported in item 7a) were irrigated by each of the following methods:

	None	Percent of acres
a. Furrow or ditches	☐	060 %
b. Flooding	☐	061 %
c. Sprinkler system	☐	062 %
d. All other methods – Specify _____	☐	063 %

CENSUS USE ONLY	064	065	066	067	068	069	070

Section IV – WATER USERS AND ACRES SERVED BY THIS ORGANIZATION IN 1978 – Continued

10. Acres of land taken out of production from this organization's service area **since January 1970** due to –

	None	Acres
a. Salinity or alkalinity	☐	071
b. Urbanization – residential, commercial, industrial, highways, rights-of-way, etc.	☐	072
c. Poor drainage	☐	073
d. Other – *Specify* _____	☐	074

11. Did any of the farms and ranches served by this organization obtain additional irrigation water –

a. From their own well(s) or private surface source(s)?

☐ YES – *Estimated number of farms and ranches* 075 _____ ☐ NO – *Go to b*

b. From any other organizations (district, company, community ditch, etc.)?

☐ YES – *Estimated number of farms and ranches* 076 _____ ☐ NO – *Go to item 12*

If "Yes" give name(s) and address(es), of other organization(s) below.

Name	Address – *Number and street*	City and State	ZIP code

12. Estimate the amount of irrigation water applied from all sources, on land served by this organization. Report either a OR b.

a. Average quantity applied per acre – report to nearest tenth acre-foot . . . . . 077 _____ /10 Acre-feet

b. Average depth applied in inches . . . . . 078 _____ Inches

Section V – SUPPLY AND DISPOSITION OF WATER IN 1978

NOTE: *Give your best* ***estimate*** *if measurements are not available.*

	QUANTITY OF WATER				
	Use this column if possible *ACRE-FEET* (a)	If you cannot provide acre-feet, report rate of flow in ONE of the units shown and the duration of flow in days			
		Gallons per minute (b)	Cubic feet per second (c)	Miner's inches (d)	Duration *(No. of days)* (e)
13. Supply of water received by this organization – *(Report water from the point it came under the control of this organization.)*					
a. From **another organization's** canal, pipe, or reservoir. *Include water received via a natural channel from a storage reservoir with which this organization has a contract or agreement. (Total reported in item 4)*	079				
b. From **surface sources** (streams, lakes, reservoir, drainage ways)	080				
c. From **ground sources** (pumped wells, flowing wells, and springs)	081				
d. **TOTAL WATER SUPPLY RECEIVED from all sources by this organization** *(ADD acre-feet for lines a, b, and c)* →	082				
14. Disposition or use of water by this organization through – *(Report water to the point it left the control of this organization)*					
a. Delivery directly to **farms and ranches** reported in item 6a for irrigating land – *If you do not measure deliveries, deduct an estimate for conveyance loss*	083				
b. Delivery directly to individual users solely for **residential or domestic** use *(Water users reported in item 6b)*	084				
c. Delivery to works of **other irrigation organizations.** *Include water delivered via a natural channel to other organizations with which this organization has a contract or agreement. (Total of amount reported in item 5)*	085				
d. Delivery directly to industrial plants, municipal water systems, recreational organizations, public installations, etc. *(Water users reported in item 6c)*	086				
e. All other releases from the irrigation conveyance system, including spillage of excess	087				
f. Conveyance loss (estimated) due to evaporation and seepage. *If none, please explain in "Remarks"*	088	If not known in acre-feet, give → Percent _____ % percent loss			
g. **TOTAL WATER DELIVERED to users, released, or lost by this organization** *(Add acre-feet for lines a through f. This total should be the same as item 13d.)* →	089				

15. Was the amount of water delivered to farms and ranches in 1978 – *Mark (X) one.* 090

1 ☐ Much above normal (50% or more)?
2 ☐ Above normal (20% to 49%)?
3 ☐ Near normal (within 20%)?
4 ☐ Below normal (20% to 49%)?
5 ☐ Much below normal (50% or more)?

Section VI – IRRIGATION FACILITIES OF THIS ORGANIZATION IN 1978

	None	Number
16. Diversion dams operated – not storage reservoirs	☐	091
17. Flowing wells which require no pumping	☐	092
18. Pumped wells	☐	093
		Feet
a. Average depth to water at beginning of irrigation season	☐	094

19. Were any pumps used in this irrigation system?

☐ YES – *Complete this item*
☐ NO – *Go to item 20*

	None	Total number (1)	Total pumping capacity (discharge) of all pumps *Use either column (2) or (3)*		Average vertical lift to discharge Feet (4)
			Gallons per minute (2)	Cubic feet per second (3)	
a. Pumps used on wells	☐	095	096	097	098
b. Pumps on streams, reservoirs, lakes, or ponds (pumps used to divert water from surface source)	☐	099	100	101	102
c. Other pumps (pumps used to relift water within system; pumps used for drainage)	☐	103	104	105	106

Section VI – IRRIGATION FACILITIES OF THIS ORGANIZATION IN 1978 – Continued

20. Length of conveyance facilities –	None	Length of all facilities – Miles	Length of all facilities – Tenths	Length of larger facilities – 50 or more cubic feet per second (22,500 gallons per minute or more) – Miles	Length of larger facilities – 50 or more cubic feet per second (22,500 gallons per minute or more) – Tenths
a. Unlined canals, laterals, or ditches	☐	107		108	
b. Lined canals, laterals, or ditches, including flumes and siphons *(Include concrete, asphalt, compacted earth, etc.)*	☐	109		110	
c. Pipelines	☐	111		112	
d. Drains maintained	☐	113			
e. Tunnels	☐	114	Feet		

Section VII – IRRIGATION WATER STORAGE RESERVOIRS OF THIS ORGANIZATION IN 1978

21. Did this organization have any water storage reservoirs in 1978? *(Include shared reservoirs and reservoirs which are dry due to drought conditions; exclude dams solely for diversion.)*

☐ YES – *Complete this section* ☐ NO – *Go to section VIII*

22. Did this organization have any **ON or OFF-STREAM reservoirs with a capacity UNDER 1,000 ACRE-FEET?**

☐ YES – *Complete items a and b* ☐ NO – *Go to item 23*

a. Number of reservoirs 116 _____ Number

b. Total filled capacity of these reservoirs 117 _____ Acre-feet

23. Did this organization have any **ON-STREAM reservoirs with a capacity of 1,000 ACRE-FEET OR MORE** (reservoirs filled chiefly by the stream across which the dam is built)? – *Do not include simple diversion dams.*

☐ YES – *List each reservoir and fill columns (2) through (4) for each* ☐ NO – *Go to item 24*

Name of reservoir (1)	Name of stream intersected (2)	Total filled capacity (exclude dead or unusable capacity) *Acre-feet* (3)	Stored water withdrawn or released from each reservoir in 1978 for irrigation use *Acre-feet* (4)
a.		118	119
b.		120	121
c.		122	123

If more space is needed, use the "Remarks" space or attach a separate sheet of paper.

24. Did this organization have any **OFF-STREAM reservoirs with a capacity of 1,000 ACRE-FEET OR MORE** (reservoirs filled chiefly by water conveyed through canals or pipes)?

☐ YES – *List each reservoir and fill columns (2) through (6) for each* ☐ NO – *Go to section VIII*

Name of reservoir (1)	Total filled capacity (exclude dead or unusable capacity) *Acre-feet* (2)	Water diverted into each reservoir in 1978 *Acre-feet* (3)	Stored water withdrawn or released from each reservoir in 1978 for irrigation use *Acre-feet* (4)	Amount of water in each reservoir as of – Oct. 1, 1977 *Acre-feet* (5)	Amount of water in each reservoir as of – Oct. 1, 1978 *Acre-feet* (6)
a.	138	139	140	141	142
b.	143	144	145	146	147
c.	148	149	150	151	152

If more space is needed, use the "Remarks" space or attach a separate sheet of paper.

Section VIII – MEASUREMENT OF WATER IN 1978

25. Did this organization measure any of the water it received or delivered in 1978? 188

1 ☐ YES – *Complete this section* 2 ☐ NO – *Go to section IX*

26. What types of flow measuring devices were used? – *Mark (X) all boxes which apply* 189

1 ☐ Weir or Parshall flume 2 ☐ Propeller, cup or disk meter 3 ☐ Orifice, venturi, or pitot tube 4 ☐ Other – *Specify* _____

27. How often was measurement taken? – *Mark (X) all boxes which apply* 190

1 ☐ Continuous recorder 2 ☐ Random measurement

Periodic measurement – **How often?**

3 ☐ Daily

4 ☐ Weekly

5 ☐ Monthly

6 ☐ Other – *Specify* _____

28. What portion of water flowing at the following points was measured (approximate)?

	None	Percent
a. At entry into this system	☐	191 %
b. At delivery	☐	192 %
c. At release into natural channels	☐	193 %

Section IX – COST OF OPERATION AND MAINTENANCE IN 1978

29. Amount spent by this organization in 1978 for the operation, maintenance, and repair of irrigation equipment and facilities (excluding water purchased) – *Include fuel, power, maintenance, ordinary repairs and replacements, and hired labor. Exclude improvements, additions, and the value of labor and materials furnished by owners or operators* None ☐ — CENTS NOT REQUIRED — Dollars 194 $ | Cents

a. **Fuel and Energy Expenditures** – Of the amount reported in item 29 how much was spent for each of the following types of fuel to pump (lift) and deliver water to farms and ranches in 1978? *Include fuel adjustment costs.*

		Dollars	Cents
1. Natural gas	☐	195 $	
2. Electricity	☐	196 $	
3. LP gas, butane, and propane	☐	197 $	
4. Diesel oil	☐	198 $	
5. Gasoline	☐	199 $	
6. **TOTAL FUEL AND ENERGY COSTS** *(Add dollars in items 1 through 5 and enter total here.)* →		200 $	

Section X – NEW CAPITAL INVESTMENT, 1970 THROUGH 1978 AND INDEBTEDNESS

Improvements to existing facilities, buildings, and equipment – Report only the amount you spent during calendar years 1970 through 1978 over and above what it would cost to replace the original with similar facilities or equipment.

New construction and added equipment – Report only additional facilities, buildings, or equipment.

Include only those facilities chargeable to irrigation and only the cost to this organization of works built jointly with another organization; include expenditures made by this organization with loans or funds obtained from the Bureau of Reclamation.

For construction in progress, include only that part performed during calendar years 1970 through 1978.

Exclude cost of ordinary repairs and replacements; expenditures for land, rights-of-way, and water rights; payments to the Bureau of Reclamation or other organizations for facilities already constructed.

Projects constructed by the Bureau of Reclamation and now operated by users should not report expenditures made directly by the Bureau. These expenditures will be obtained from that agency.

30. Were there any expenditures by this organization for construction of additional facilities, purchase of added equipment, or improvements to facilities or equipment for irrigation and drainage, between January 1, 1970 and December 31, 1978?

☐ YES – *Complete this item* ☐ NO – *Go to item 31*

	None	Expenditures 1970 through 1978 *CENTS NOT REQUIRED* Dollars	Cents
a. Improvements to existing facilities, buildings, and equipment	☐	201 $	
b. New construction and added equipment	☐	202 $	
c. **TOTAL COST of improvements and additions**	☐	203 $	

31. Total indebtedness of this organization

	None	*CENTS NOT REQUIRED* Dollars	Cents
a. Total indebtedness of this organization chargeable to **irrigation and drainage** as of December 31, 1978 – *Include outstanding bonds, notes, repayment contracts, drought emergency loans, and construction obligations. Exclude current liabilities*	☐	204 $	
b. Amount obligated to the U.S. Bureau of Reclamation (part of item (a) above)	☐	205 $	

Section XI – REVENUE OF THIS ORGANIZATION IN 1978 FROM WATER USERS AND OTHER ORGANIZATIONS

32. Money received by this organization in 1978 from water users or other irrigation organizations for operation and maintenance, or for repayment of construction cost on the irrigation system – *Include collections made directly from other organizations for water purchased or stored and from users on the basis of charges, or assessments per acre, per share, per acre-foot, or on the basis of assessed valuation.*

	None	*CENTS NOT REQUIRED* Dollars	Cents
a. From farms and ranches	☐	206 $	
b. From residential and domestic water users	☐	207 $	
c. From other irrigation organizations	☐	208 $	
d. From other users – *Specify* _____	☐	209 $	
e. TOTAL RECEIVED FROM ALL USERS OF WATER *(Add dollars in items a through d and enter total here.)* →		210 $	

Section XII – LOCATION OF DIVERSION POINTS AND DELIVERY POINTS IN 1978

33. On the enclosed map locate the following features of your organization's operation. Please use the symbols indicated – red pencil preferred. *BE SURE TO RETURN THE MAP WITH THIS QUESTIONNAIRE.*

	Symbols	CENSUS USE ONLY State	Drainage Basin No.
a. Diversion or pumping points from surface or ground sources or points where water from another organization enters works operated by this organization	△		
b. Points where water is delivered to works operated by other irrigation organizations	○		
c. Off-stream reservoirs (1,000 acre-feet or more capacity)	*Write name on map*		
d. On-stream reservoirs (1,000 acre-feet or more capacity)	*Write name on map*		
e. Land served directly by this organization	*Sketch in outline of area*		

Remarks – *Identify remarks by item number. (If more space is needed, attach a separate sheet of paper.)*

Section XIII – CERTIFICATION

34. Person supplying information

Name	Title	Telephone Area code	Number
Mailing address – *Number and street, city, and State*		ZIP code	

FORM 7A-A40 (8-31-78)

DUE BY FEBRUARY 15, 1979

FORM 78-A61 (8-31-78)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

CENSUS OF IRRIGATION

MULTI-BASIN ORGANIZATIONS

(Only sections that differ from single-basin organizations are shown)

Section III – EXCHANGE OF WATER WITH OTHER ORGANIZATIONS IN 1978

4. Was any water **received from another organization**? – *Report water received directly from a canal, pipeline, or reservoir operated by another organization. Include water received via a natural channel from a storage reservoir with which this organization has a contract or agreement.*

☐ YES – *Give the following information* ☐ NO – *Go to item 5*

Name and address of organization supplying water	Acre-feet obtained	Drainage Basin No. (*Enter drainage basin number from map*)
a.		
b.		

If more space is needed continue in "Remarks" on page 4.

5. Was any water **delivered by this organization** into the system of another separately operated organization which assesses or collects water charges? *Include water delivered via a natural channel to another organization with which this organization has a contract or agreement.*

☐ YES – *Give the following information* ☐ NO – *Go to section IV*

Name and address of organization receiving water	Acre-feet delivered	Drainage Basin No. (*Enter drainage basin number from map*)
a.		
b.		

If more space is needed continue in "Remarks" on page 4.

Section IV – WATER USERS AND ACRES SERVED BY THIS ORGANIZATION IN 1978 (Excluding those served by organizations reported in item 5) *Report by drainage basin number.*

	None	*Enter drainage basin number from map* → D.B. No.	D.B. No.	D.B. No.	Total all basins
6. Water users served directly by this organization – *Do not duplicate. Report users, only once, in the FIRST appropriate category.*		Number of users			
a. Farms and ranches receiving water for irrigation	☐				
b. Residential and domestic users – *Report users, including farms and ranches using water ONLY for household use, lawns and gardens, or for livestock water*	☐				
c. Other users – municipal water systems, recreational organizations, public installations, industrial plants, etc.	☐				
7. Land in farms and ranches served directly by this organization		Acres			
a. Acres irrigated in 1978	☐				
b. Acres **developed for irrigation** – *Include land that could be irrigated with this organization's existing facilities if water were available*	☐				
8. Estimate what **percent** of the acres irrigated in 1978 (acres reported in item 7a) were irrigated by each of the following methods:		Percent of acres irrigated			
a. Furrow or ditches	☐	%	%	%	%
b. Flooding	☐	%	%	%	%
c. Sprinkler system	☐	%	%	%	%
d. All other methods – *Specify* _____	☐	%	%	%	%
9. Acres of land taken out of production from this organization's service area **since January 1970** due to –		Acres taken out of production			
a. Salinity or alkalinity	☐				
b. Urbanization – residential, commercial, industrial, highways, rights-of-way, etc.	☐				
c. Poor drainage	☐				
d. Other – *Specify* _____					

Section V – SUPPLY AND DISPOSITION OF WATER 1978

NOTE: Give your best ***estimate*** *if measurements are not available.*

If your organization operates in more than one State, the spaces provided for entry of drainage basin numbers may also be used for entry of State names.

	Report quantity of water by drainage basin Acre-feet			Total all basins Acre-feet
Enter drainage basin numbers from map →	D.B. number	D.B. number	D.B. number	
13. Supply of water received by this organization – *(Report water from the point it came under the control of this organization.)*				
a. From **another organization's** canal, pipe, or reservoir (total reported in item 4) – *Include water received via a natural channel from a storage reservoir with which this organization has a contract or agreement*				
b. From **surface sources** (streams, lakes, on-stream reservoirs, drainage ways)				
c. From **ground sources** (pumped wells, flowing wells, and springs)				
d. **TOTAL WATER SUPPLY RECEIVED from all sources by this organization** *(Add acre-feet for lines a, b, and c)* →				
e. Quantity of water imported into basin identified in column heading	+	+	+	+
From drainage basin number	(No.)	(No.)	(No.)	
f. Quantity of water exported out of basin identified in column heading	–	–	–	–
To drainage basin number	(No.)	(No.)	(No.)	
g. **TOTAL WATER SUPPLY for storage or disposition in each drainage basin** *(Lines d plus e minus f.)* →				
14. Disposition or use of water by this organization *(Report water to the point it left the control of this organization)*				
a. Delivery directly to **farms and ranches** reported in item 6a for irrigating land – *If you do not measure deliveries, deduct an estimate for conveyance loss*				
b. Delivery directly to individual users solely for **residential or domestic** use *(Water users reported in item 6d)*				
c. Delivery to works of **other irrigation organizations** *(Total of amounts reported in item 5) – Include water delivered via a natural channel to other organizations with which this organization has a contract or agreement*				
d. Delivery directly to industrial plants, municipal water systems, recreational organizations, public installations, etc. *(Water users reported in item 6c)*				
e. All other releases from the irrigation conveyance system, including spillage of excess				
f. Conveyance loss (estimated) due to evaporation and seepage – *If none, please explain in "Remarks"*				
g. **TOTAL WATER DELIVERED to users, released, or lost by this organization** *(Add acre-feet for lines a through f. This total should be the same as item 13g.)* →				

23. Did this organization have any **ON-STREAM reservoirs with a capacity of 1,000 ACRE-FEET OR MORE** (reservoirs filled chiefly by the stream across which the dam is built)? – *Do not include simple diversion dams.*

☐ YES – *List each reservoir and fill columns (2) through (5) for each* ☐ NO – *Go to item 24*

Enter drainage basin number from map ↓

Name of reservoir (1)	Name of stream intersected (2)	Total filled capacity (exclude dead or unusable capacity) Acre-feet (3)	Stored water withdrawn or released from each reservoir in 1978 for irrigation use Acre-feet (4)	Drainage Basin No. (5)
a.				
b.				
c.				

If more space is needed, use the "Remarks" space or attach a separate sheet of paper.

24. Did this organization have any **OFF-STREAM reservoirs with a capacity of 1,000 ACRE-FEET OR MORE** (reservoirs filled chiefly by water conveyed through canals or pipes)?

☐ YES – *List each reservoir and fill columns (2) through (7) for each* ☐ NO – *Go to section VIII*

Enter drainage basin number from map ↓

Name of reservoir (1)	Total filled capacity (exclude dead or unusable capacity) Acre-feet (2)	Water diverted into each reservoir in 1978 Acre-feet (3)	Stored water withdrawn or released from each reservoir in 1978 for irrigation use Acre-feet (4)	Amount of water in each reservoir as of – Oct. 1, 1977 Acre-feet (5)	Amount of water in each reservoir as of – Oct. 1, 1978 Acre-feet (6)	Drainage Basin No. (7)
a.						
b.						
c.						

If more space is needed, use the "Remarks" space or attach a separate sheet of paper.

INSTRUCTIONS

▶Part A – GENERAL COMMENTS

WHY TAKE A CENSUS OF IRRIGATION?

As part of the Census of Agriculture, the Bureau of the Census is required by title 13, United States Code, to conduct a Census of Irrigation once every 10 years. The 1978 Census of Irrigation is more important than ever as the nation's increasing population creates a greater demand on our available water resources. People, businesses, and governments at various levels need information about the use of our national water resources and its management.

Irrigated agriculture is an important aspect of our Nation's economy and national water picture. While only about ten percent of all farms and ranches irrigate land, they account for over one-quarter of all agricultural sales in the United States. Nationally, more water is consumed for irrigation than any other use.

Very little current national irrigation information is available. This census will provide up-to-date facts and figures concerning the number of irrigation water users, inventory of irrigated land, quantities of water used for irrigation and method applied, source of water, facilities operated, investment in new facilities, and operation and maintenance costs.

WHO SHOULD FILL OUT THIS FORM?

A questionnaire should be completed for any organization conforming to the following definition: "An irrigation organization is a group of individuals, a company, a governmental district or agency, or an individual that operates facilities to supply irrigation water to two or more farms or ranches. It may be either a formal, legal organization, or an informal or cooperative arrangement."

Basically, any business entity, cooperative group, or district which delivers, conveys, or stores irrigation water is an irrigation organization and should be included in the census. Generally, the reporting organization should be the one which collects the fees for the water service. 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 should include such operations in its report.

If the person receiving this questionnaire is a farmer or rancher who supplies irrigation water only to his/her own operation, explain the situation in the "Remarks" section on the last page of the questionnaire and do not complete the questionnaire beyond item 1. If the addressee supplies irrigation water to two or more farms including his/her own operation, then the entire questionnaire should be completed and returned.

Organizations or associations which only supply technical information or are promotional groups or consultants and do not actually operate water supply facilities should explain the situation in the "Remarks" section and send back the questionnaire without completing it.

If an irrigation organization has facilities which are normally used to convey or store water for irrigation, but no irrigation water was conveyed in 1978 because of water shortage or other reasons, the organization should still complete and return the questionnaire. Organizations with facilities under construction but not yet operating should also complete and return the questionnaire. In such cases, omit the sections of the form which do not apply and explain in the "Remarks" section of the questionnaire the reasons for no water deliveries in 1978.

GUIDELINES FOR COMPLETING THE FORM

Only one form should be filled out for each organization. Mark any duplicate forms your organization may receive with "Duplicate of CFN " (Use the 11-digit Census File Number located in the upper left-hand corner of the address label on the questionnaire.)

Please keep the copy of the questionnaire (labeled, "This Form is For Your Records," in the address block) and the Reference Guide.

Return the questionnaire, including any duplicates, and the map. If your organization does not fit the census definition of an irrigation organization, please explain briefly in the "Remarks" section and return the form.

Either a Single-Basin Organization questionnaire or a Multi-Basin Organization questionnaire has been mailed to your organization. These forms are identical except that the multi-basin organization form requests information by drainage basins in section III, IV, V, and VII.

Explanations given for parts A and B in the reference guide apply to both questionnaires. However, if a Multi-Basin Organization questionnaire was received, please note the special comments beginning with part C of this guide.

Some questions and in some cases, whole sections may not be applicable to your organization. To pass over such items and sections mark (X) the "NO" boxes that have been provided.

In completing the questionnaire, exact figures may be unavailable. If so, please enter your best estimates. An estimate is more useful than an omitted answer. These entries may be noted with "EST" beside it if so desired.

For answers requiring dollar entries, only whole dollars are needed. However, please use the "Cents" column for cents if you wish to enter them.

Except where called for, please do NOT include fractions in the answers. Where fractions are called for, report the fractions in tenths, and enter the fractions in the "Tenths" portion of the answer.

The term "Acre-feet" is used frequently throughout the questionnaire. This term is used to measure water in most irrigated areas and is equal to 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 any answers given require explanations, 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

The following explanations provide additional instructions for the specific items or sections.

▶Section 1 – TYPE OF ORGANIZATION

Item 2 – Type of Organization

• Two or more neighbors or associates, a partnership, or unincorporated mutual or cooperative organization operating irrigation facilities.

These organizations operate for the benefit of two or more water users, who own the operation and receive irrigation service at cost. Include in this category informal partnerships 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. The secretary, 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.

The name of the district may indicate its major function is drainage, conservation, reclamation, or domestic water supply, among others. Any of these may provide irrigation water service as a primary or a secondary function. For this census, these organizations 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 remains under USBR control and has not been transferred to a user organization. If part of the works of an irrigation project are operated by the Bureau of Reclamation and part by your organization, each party should complete a separate questionnaire for the works under their direct control. User organizations should mark the type of organization which best describes the user organization.

• Project operated by the U.S. Bureau of Indian Affairs – Mark this item only for irrigation projects or facilities which are operated by the USBIA. If operation of the irrigation works has been transferred to local user control, mark the type of organization which describes the user organization.

•**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.

•**Other** — Describe here any organization which cannot be placed in any of the classifications above.

▶Section II — SOURCE OF WATER IN 1978

Only the immediate or direct sources of water for this organization should be shown. For instance, if water was obtained from another irrigation organization which, in turn, obtains water from a stream, 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 III — EXCHANGE OF WATER WITH OTHER ORGANIZATIONS IN 1978

(If a Multi-Basin Organization questionnaire was received, please see additional comments beginning with part C of this guide.)

Items 4 and 5 — Water Received From Other Organizations and Delivered to Other Organizations — Any water received from or delivered to other irrigation organizations would be reported in items 4 and 5. Include water conveyed between organizations using natural stream channels if there is a contract or agreement between the exchanging organizations.

If your organization delivers to laterals which, in turn, distribute the water to farms but each farmer pays charges directly to your organization, consider the laterals to be part of your organization and not separate organizations.

▶Section IV — WATER USERS AND ACRES SERVED BY THIS ORGANIZATION IN 1978

(If a Multi-Basin Organization questionnaire was received, please see additional comments beginning with part C of this guide.)

Item 6 — 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/her only once in the first appropriate category.

Item 7 — 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 7b — 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 8 — Acres Irrigated in 1978 Compared With Previous 3-Year Average — Compare the acres actually irrigated in 1978 by farms and ranches served by this organization with the average acres irrigated during the previous 3 year period, 1975—1977.

Item 12 — Amount of Irrigation Water Applied From All Sources — In estimating the average quantity of water applied to land served by this organization, be sure to consider water received from all sources including:

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

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 V — SUPPLY AND DISPOSITION OF WATER BY THIS ORGANIZATION IN 1978

(If a Multi-Basin Organization questionnaire was received, please see additional comments beginning with part C of this guide.)

General remarks (Calendar vs. Water Year; Units of Measure) — Respondents reporting on multi-basin forms, please also see special instructions in part C, of this guide.

All water conveyed or stored by this organization must be reported in the Supply and Disposition table. Give your best estimate if measurements are unavailable. Report all quantities of water on a 1978 calendar year basis, if possible. (January 1 through December 31, 1978.)

If records are kept on a water-year basis, these figures may be reported provided the 1977–1978 water year did not end before September 30, 1978. If the water year 1977–1978 did end prior to September 30, 1978, 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 measure – 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 measure: gallons per minute, cubic feet per second, and miner's inches. These are measurements of rate of flow. 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 13 – Supply of Water – Report, according to source, all water which entered the facilities of this organization. Consider the 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 other organizations, report only quantities allotted to this organization.

Item 13a – From Another Organization – Report all water received (or traded for) from another organization which flows into the conveyance system of your organization from the facilities of the other organization. Include water received via a natural channel from a storage reservoir operated by another organization with which this organization has a contract or agreement.

Item 13b – From Surface Sources – Report all water which was diverted or pumped directly from a stream, lake, an on-street reservoir, or any other surface source.

Item 14 – 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 14a – 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 6a and the acres actually irrigated in item 7a.

If your organization does not measure deliveries to farms, estimate the amount on the basis of: (1) total supply less conveyance losses and waste, or (2) your knowledge of the average acre-feet used per acre by farmers in your area.

Item 14b – 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 14a.

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 6b and multiply by total number of users.

Item 14c – Water to Another Irrigation Organization – Include water released from reservoirs and delivered via natural channel for diversion downstream by another organization which has a contract or agreement with the reservoir.

Item 14d – 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 14e – 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 14f — Estimating Conveyance Loss — Seepage and evaporation are the two major causes of loss during conveyance. Two examples of different situations may be of assistance in estimating these losses:

Situation 1 — If the conveyance system does have unmeasured water flowing into the system or reused irrigation return flow water it may be best to estimate conveyance loss on the basis of some percentage of your total supply.

Situation 2 — If the conveyance system of the organization does not have unmeasured water seeping in or flowing in from sources other than the principal supply source or have returned seepage from irrigated lands, the conveyance loss should equal total supply less total distribution.

Note: On the multi-basin form the "Total supply" line is 13g.

Item 14g — Total Water Delivered, Released, or Lost — For nearly all organizations this figure should equal the figure reported for total supply in item 13d. Exceptional cases arise when drainage water is collected and recirculated through the irrigation conveyance system or when storage reservoirs are part of the system. In these cases total disposition figures may exceed or be less than total supply figures.

▶Section VI — IRRIGATION FACILITIES OF THIS ORGANIZATION IN 1978

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 16 — 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 18 — Pumped Wells — In addition to the number of pumped 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 19 — 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 (actual discharge 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 is the distance in feet from water level to the point of discharge.

Item 20 — 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. In the last column report the length of your canals and pipelines which can carry 50 cubic feet per second or more. The exact point at which your waterways change to less than 50 cubic feet per second may not be known. In such case, your estimate will be better than any other source.

▶Section VII — IRRIGATION WATER STORAGE RESERVOIRS

(If a Multi-Basin Organization questionnaire was received, please see additional comments beginning with part C of this guide.)

Reservoirs are to be reported in three categories in this section.

1. All reservoirs having less than 1,000 acre-feet capacity (item 22)
2. Reservoirs with a capacity of over 1,000 acre-feet, but which are "on-stream" (item 23)
3. Reservoirs with a capacity of over 1,000 acre-feet, but which are "off-stream" (item 24)

Item 22 — 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 23 — 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 23.

Item 24 — 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), report the quantity of stored water withdrawn or released from each reservoir in 1978 for irrigation use.

▶ Section VIII — MEASUREMENT OF WATER IN 1978

Item 26 — Types of Flow-Measuring Devices — Report the type of measuring devices used to measure water received or delivered. The categories of measuring devices are:

1. **Weir or Parshall Flume** — A bulkhead set in a channel with a constricted opening of fixed dimensions, generally on the top edge, through which water flows. The opening may be rectangular, trapezoidal, or V-shaped. By knowing the dimensions of the opening and the head of water on the weir, the rate of flow can be read from a flow table.

2. **Propeller, cup, or disk meter** — These are current meters which consist of a conical propeller connected to a registering head by a gear train. They operate by the kinetic energy of the flowing water. Flow meters measure flow in gallons per minute and can record total quantity as well.

3. **Orifice, venturi, or pitot tube** — These devices are generally used to measure flow in pipelines. Orifice in pipes or on the end of a pipe are particularly useful for testing pumps and measuring discharge from wells. The venturi tube is a tubular shaped device with a constricted section placed in a pipeline. The flow is determined by measuring the drop in pressure head of the water flowing through the constricted section. The pitot tube is a small tube, partitioned into two compartments, inserted in a pipe and connected to a manometer (pressure gauge) which is graduated to indicate water velocity in the pipe.

▶ Section IX — COST OF OPERATION AND MAINTENANCE IN 1978

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 is purchased, or debt payments are made, do not include such costs in this item. They will be shown in the following section.

Item 29a — Fuel Costs to Convey Water — Report only expenditures by the organization for fuel and electricity used to pump and deliver irrigation water.

Include in the costs figures any additional charges by the power or fuel suppliers such as the "fuel adjustment charge." Do not include fuel and electricity costs for building maintenance and operation of vehicles and machinery and equipment which is not a part of the conveyance system.

▶ Section X — NEW CAPITAL INVESTMENT 1970—1978

Item 30 — New Capital Investment — 1970—1978 — The purpose of this item is to obtain data on improvements to existing facilities and construction of additional irrigation facilities during the past 9 years.

• **Improvements** — It is sometimes difficult to distinguish between an "improvement" to and a "repair" of an existing facility. Frequently, both are involved. Your judgment must be relied upon. If there were both repairs and improvements made, in item 30 report an 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 the cost of one which would only replace the old one.

• **New construction** — Report expenditures for new construction and added equipment during the period 1970 through 1978 chargeable to irrigation. For construction in progress, include only that part actually completed 1970 through 1978. Include expenditures made by this organization with loans or funds obtained from the Bureau of Reclamation but do not include expenditures made directly by the Bureau on Projects now operated by users.

Item 31 — Total Indebtedness — For Census purposes, consider repayment obligation to the Bureau of Reclamation to be indebtedness. Include such repayment obligations in the item 31a total, and show the repayment obligation separately in item 31b.

▶ Section XI — REVENUE COLLECTED BY THIS ORGANIZATION IN 1978

Item 32 — Money Received From Water Users and Other Irrigation Organizations in 1978 — Method of obtaining funds for operation and maintenance vary greatly among irrigation organizations. Use the following guidelines in completing this item:

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 new construction or improvements 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 32, methods may vary from payment for specific amounts of water sold to collection through county taxes based on assessed values of properties served.

▶ Section XII — LOCATION OF DIVERSION AND DELIVERY POINTS IN 1978

Item 33 — Marking the Map — Locate the area of operation and supply facilities requested in items 33a through 33e 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.

▶ Part C — SPECIAL INSTRUCTIONS FOR MULTI-BASIN AND MULTI-STATE ORGANIZATIONS

If this organization has irrigation operations in more than one drainage basin or State, or conveys water across drainage basin boundaries or State boundaries, a multi-basin questionnaire (78-A61) should have been received.

If a multi-basin questionnaire is needed but has not been received, write a short note requesting a multi-basin questionnaire, form 78-A61, and send it to:

Bureau of the Census
ATTN: Agriculture Division
Washington, D.C. 20233

Include the 11-digit Census File Number (CFN) from the mailing label in any correspondence.

In order to tabulate irrigation information in the proper drainage basin or State, it is necessary to record the drainage basin number (or State name if facilities extend into two or more States) for the data requested in sections III, IV, V, and VII.

Use drainage basin numbers from the enclosed map — Although four levels of drainage basins are shown on the map — region, subregion, accounting unit, and cataloging unit, for census reporting purposes use only the region and subregion levels which are the first 4 digits of the 8-digit drainage basin numbers on the map.

The spaces provided in sections III, IV, V, and VII for entry of drainage basin numbers may also be used for entry of State names. This would be done only if this organization is multi-State rather than multi-basin.

Census Bureau assistance — Assistance in handling questions can be given by a Bureau of the Census representative, if necessary. If help is needed, please fill out the enclosed form to the extent possible, then follow the instructions in the accompanying letter.

The following comments apply only to sections III, IV, V, and VII of the multi-basin questionnaire:

▶Section III — EXCHANGE OF WATER WITH OTHER ORGANIZATIONS IN 1978

Item 4 — Water Obtained by Your Organization from Other Organizations — Indicate in the last column the drainage basin number in which water was transferred to your system from the conveyance system of the other organization. Indicate your 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, enter the State name instead of the drainage basin number.

Item 5 — Water Supplied to Other Organizations The same principle applies as for item 4. Record in the last column the basin number in which water transfer takes place.

▶Section IV — WATER USERS AND ACRES SERVED IN 1978

In order to report section IV information by drainage basin detail, it may be necessary to make rough estimates. Estimates are acceptable and are the best information available.

▶Section V — SUPPLY AND DISPOSITION OF WATER IN 1978

Enter the drainage basin numbers from the enclosed map for basins from which water is obtained or used at the head of the columns provided for section V. Complete as much of section V as possible. If these interbasin transfer items cannot be completed (items 13e, 13f, and 13g), please complete the total column for all basins.

Items 13e, 13f, 13g — Interbasin Transfer — These lines provide for a record of water transferred by this organization's conveyance system across drainage basin boundaries. Basin boundaries are shown on the enclosed map. Report only transfers across region and subregion boundaries which are made within your own conveyance system.

If water is conveyed into a drainage basin, show the amount on line 13e in the column of the importing basin. Then, from the map, find the number of the basin from which the water comes and enter it under the acre-feet figure for water reported.

The same quantity of water which is entered on line 13e as water imported into a basin should also be accounted for on line 13f in the column of the basin from which the water is conveyed. Under the acre-feet figure for water exported, write the number of the basin to which the water is conveyed.

When complete, the figure for "total all basins" for lines 13e and 13f should be the same.

▶Section VII — STORAGE RESERVOIRS

Items 23 and 24 — Reservoirs With Capacity 1,000 Acre-feet or More — Locate each reservoir listed in items 23 and 24 on the enclosed map and report the drainage basin number in the entry space provided in the far right column.