DWR Form 241-1

APPLICATION NO. 15738 WATER DIVISION 1-A & 1-B

RECORD COPY

STATE OF NEBRASKA
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR A PERMIT TO IMPOUND WATER

Complete Items 1 through 9 by typing or printing in ink the appropriate information as required.

DO NOT WRITE IN THIS SPACE

FILED IN
DEPARTMENT OF WATER RESOURCES
STATE OF NEBRASKA
At 8:45 O'clock A. M, on the
19th Day of December, 19 80

1. Name and address of applicant: H&RW, Frenchman Valley and Frenchman-Cambridge Irrigation Districts.
See enclosure 1 for addresses, and telephone numbers.

Zip code _____ Telephone No. (____)_____

2. Name and address of owner if different than applicant:
Water and Power Resources Service, Lower Missouri Region, Kansas River Projects, P.O.Box 737, McCook, NE owns and operates Enders Dam and Reservoir.
Zip code 69001 Telephone No. (308) 345-4400

3. State the purposes for water storage (i.e., irrigation, livestock, erosion control):

Supplement water supply for irrigation

4. Identify the source of water (name of stream): South Platte River

Name of existing reservoir or pit: Enders Reservoir

5. State the approximate quantity of water to be impounded: 45,000 acre-feet.

6. Identify the location of the proposed reservoir or pit: County Chase, Nebraska.
SE¼, Section 4 and NE¼, Section 9 1/
____¼____¼ Section ____, Township 5 North, Range 37 ~~East~~ - West.

7. State the approximate date water will first be impounded: 1990.

NOTE: If a canal or pipeline is required to convey water to the proposed reservoir or pit, complete Item 8 below.

8. Identify the supply canal headgate or pipeline pump site location: County Keith, Nebraska.
Big Springs Diversion Dam and Pumping Plant, SW¼, Section 29, NW¼, Section 32
____¼____¼ Section ____, Township 13 North, Range 41 ~~East~~ - West.

9. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete and accurate.

See Enclosure 2

Date _____ _____
Signature of owner or owner's authorized agent

This form must be completed in full. An incomplete or defective application will be returned with 30 days being allowed for resubmission. Failure to resubmit a corrected application within this time period shall cause dismissal of the application and consequent loss of priority.

A non-refundable filing fee (payable to the Director of Water Resources) can be computed from the table below and must accompany this application. Forward this application and fee to:

1/ With dike extension

State of Nebraska
Department of Water Resources
301 Centennial Mall South
P.O. Box 94676
Lincoln, Nebraska 68509

10,000 Acre-feet - Fr. Cambri
35,000 " " - H&RW and Fr. Valley

FEES FOR APPLICATIONS TO IMPOUND WATER

Quantity of Water Stored	Cost
0 - 5,000 acre-feet	$25
Each additional 5,000 acre feet or fracton thereof	$10

Scaled plans depicting the project must be submitted for departmental approval prior to construction.

Enclosure 1

H & RW Irrigation District
Culbertson, Nebraska 69024 Telephone No. (308) 278-2125

Frenchman Valley Irrigation District
Culbertson, Nebraska 69024 Telephone No. (308) 278-2125

Frenchman-Cambridge Irrigation District
P.O. Box 116
Cambridge, Nebraska 69022 Telephone No. (308) 697-4535

Enclosure 2

H&RW Irrigation District

Willard C. Schlegel
President

Date: 12-16-80

Joyce B. Stupka, Notary public

Commission expires 2/20/82

GENERAL NOTARY - State of Nebraska
JOYCE B. STUPKA
My Comm. Exp. Feb. 20, 1982

Frenchman Valley Irrigation District

Everett Kerr
Vice Pres.

Date: 12-16-80

Joyce B. Stupka, Notary public

Commission expires 2/20/82

GENERAL NOTARY - State of Nebraska
JOYCE B. STUPKA
My Comm. Exp. Feb. 20, 1982

Frenchman-Cambridge Irrigation District

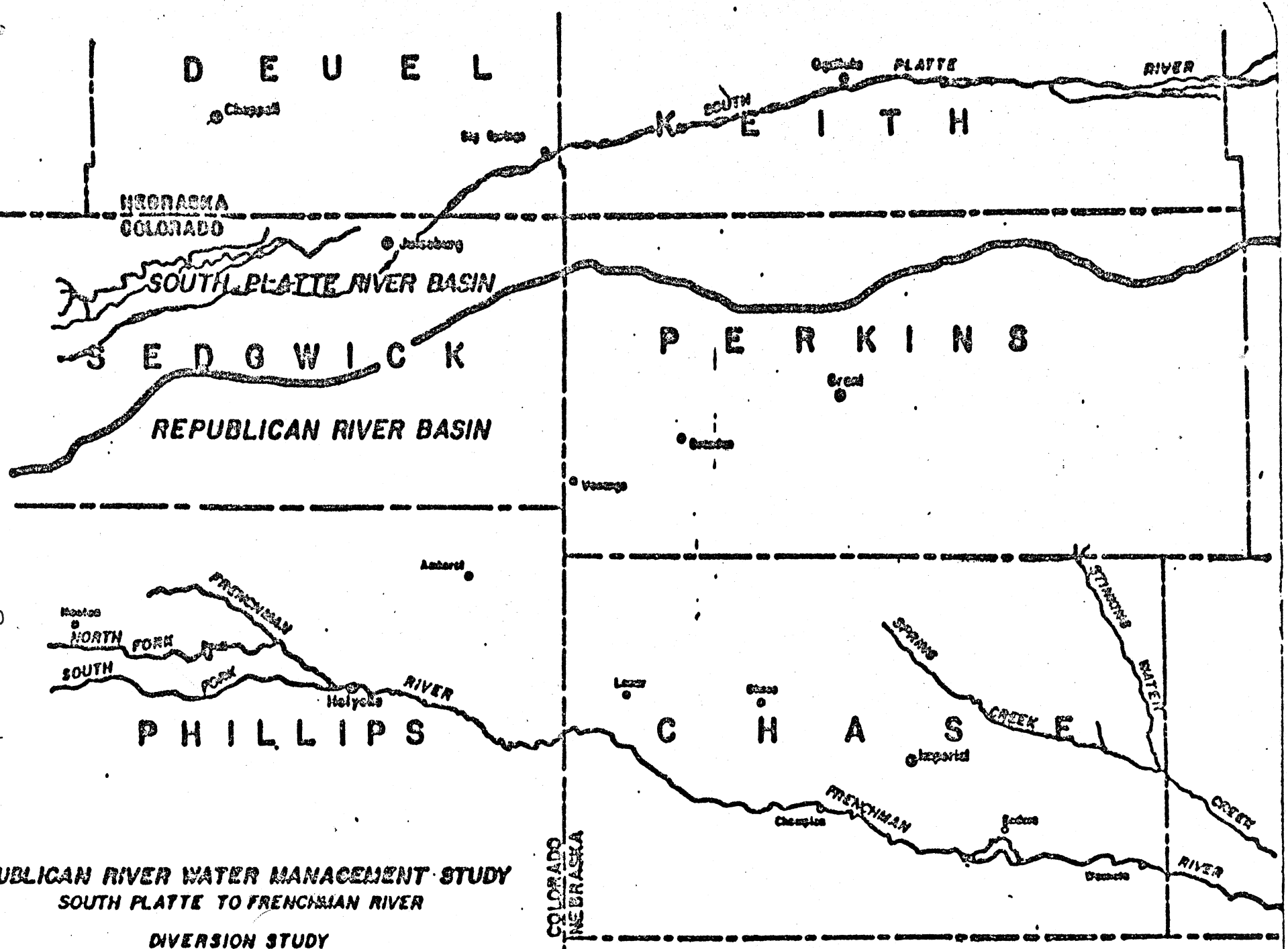
Lester Johnson
Vice Pres.

Date: 12-16-80

Joyce B. Stupka, Notary public

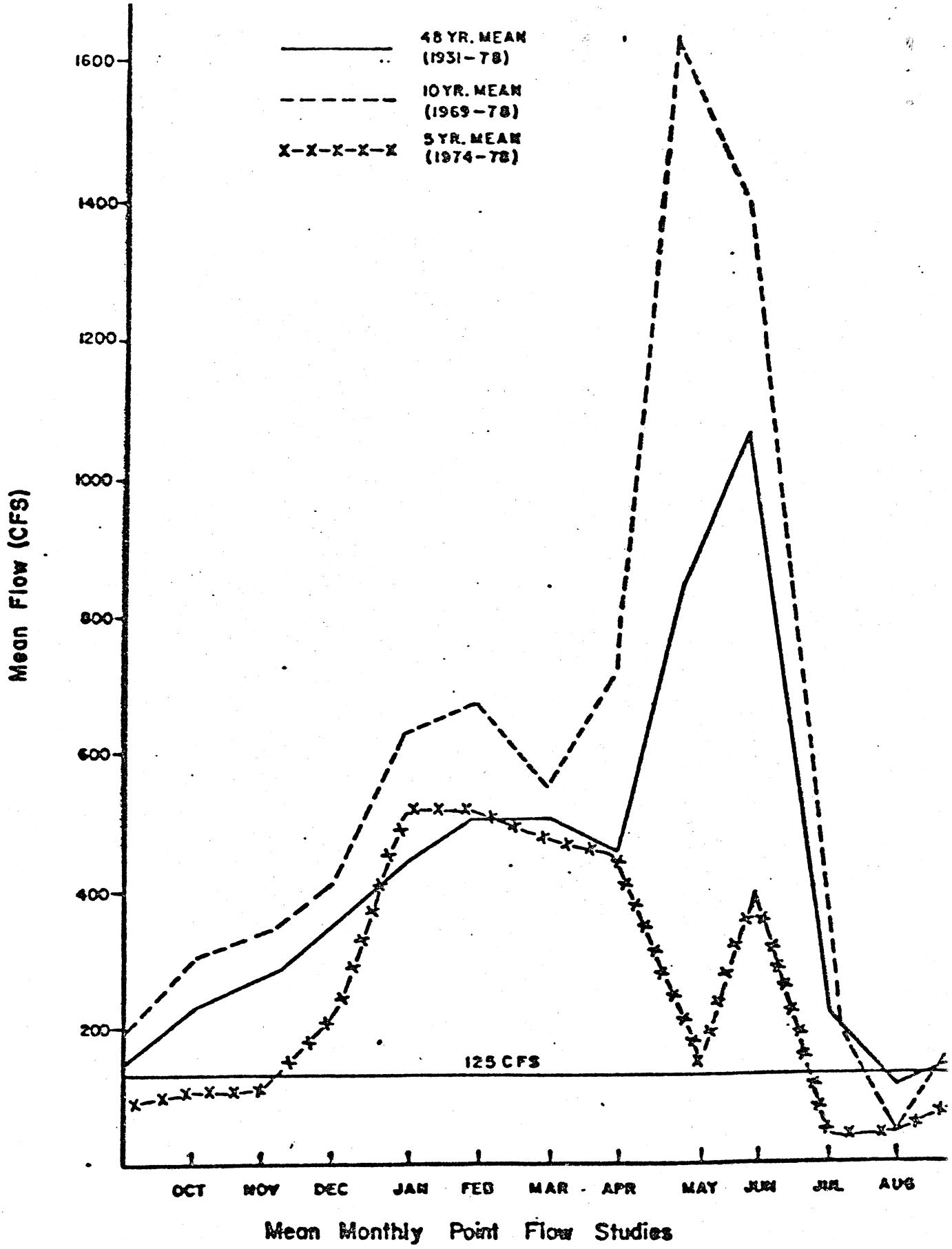
Commission expires 2/20/82

GENERAL NOTARY - State of Nebraska
JOYCE B. STUPKA
My Comm. Exp. Feb. 20, 1982



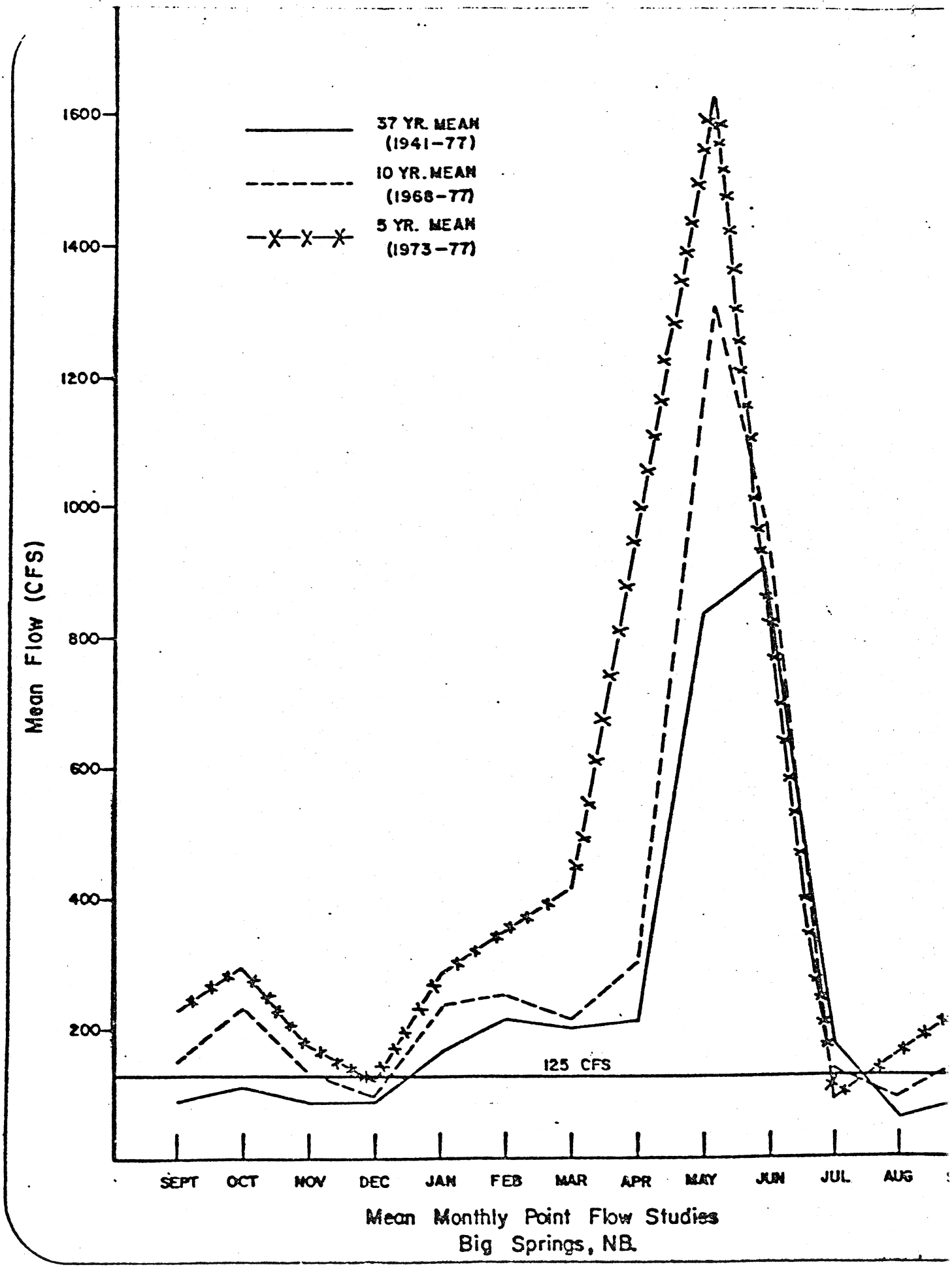
REPUBLICAN RIVER WATER MANAGEMENT STUDY
SOUTH PLATTE TO FRENCHMAN RIVER
DIVERSION STUDY

Received
12-19-80
Dept. Water Resources



Mean Monthly Point Flow Studies

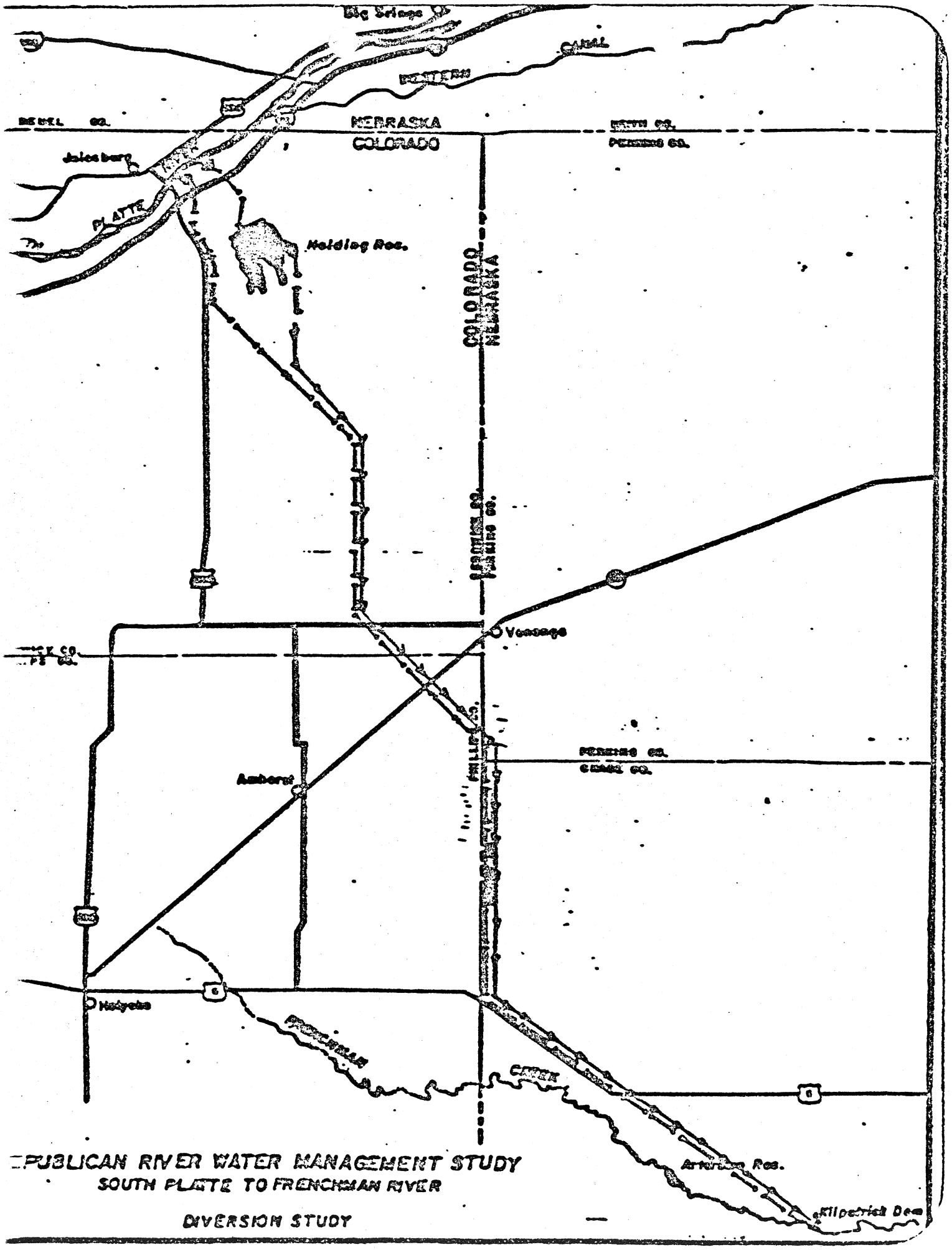
Julesburg Co.



Mean Monthly Point Flow Studies
Big Springs, NB.

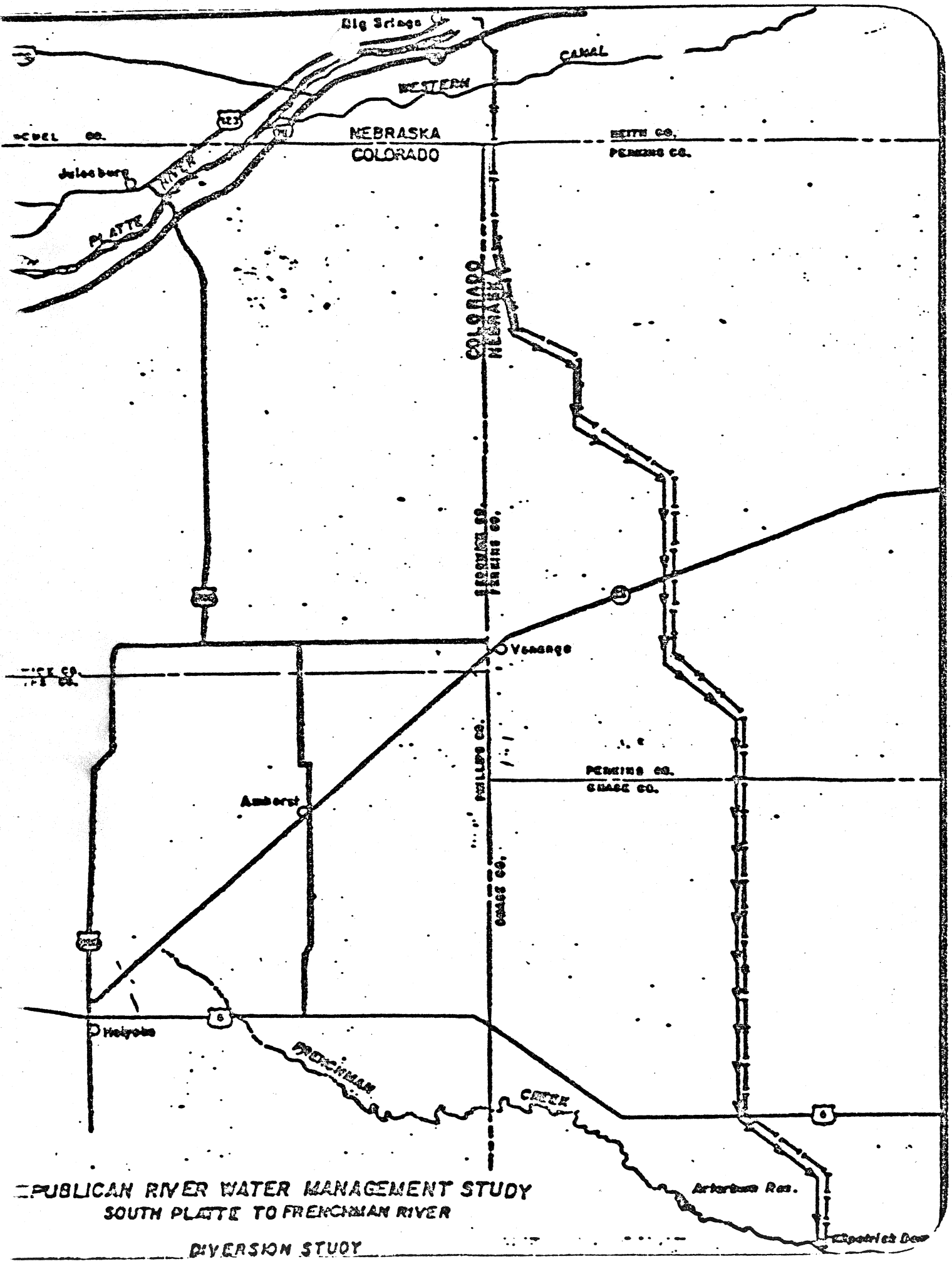
SUBJECT

3M CATALOG NO.



PUBLICAN RIVER WATER MANAGEMENT STUDY
SOUTH PLATTE TO FRENCHMAN RIVER

DIVERSION STUDY



REPUBLICAN RIVER WATER MANAGEMENT STUDY
SOUTH PLATTE TO FRENCHMAN RIVER

DIVERSION STUDY

TABLE OF ALTERNATIVES

LOCATION OF DIVERSION PT	DIVERSION CAPACITY (CFS)	PUMP TDH HEAD(FT.)	CONDUIT CAPACITY & LENGTH	OPERATING PLAN	DIVERSION (MONTHS)
A. JULESBURG CO. (1 MI. SE)	100	338	DESIGNED FOR 100 ft. 3/S (1) 3.0 MILES CONC. REINF. DISCHARGE PIPE. (2) 41.8 MILES GRAVITY CONC. PRESSURE PIPE.	DIVERT 94 ft. 3/S 94 ft. 3/S x 166 DAYS = 34,500 AC.-FT. DIVERTED. NO LOSSES.	OCT. 15, TO APR 1,
B. JULESBURG CO. (1.5 MI. SE)	100	287 (RIVER) 142 (RESERVOIR)	RIVER- DESIGNED FOR 100 ft. 3/S (1) 3.0 MILES CONC. REINF. DISCHARGE PIPE. RESERVOIR- DESIGNED FOR 100 ft. 3/S (1) 0.8 MILE CONC. REINF. DISCHARGE PIPE.	RIVER- DIVERT MAX CAP. (100 ft. 3/S x 185 DAYS = 36,700 AC.-FT. DIVERTED RESERVOIR- DIVERT MAX CAP. 100 ft. 3/S x 185 DAYS = 36,700 AC.-FT. MINUS 2,200 AC.-FT. (CANAL SEEPAGE LOSS) = 34,500 AC.-FT. NET.	OCT. 15, TO APR 1, APR 1, TO SEPT. 15,
C. BIG SPRINGS NEB. (1 MI. EAST)	125	346	DESIGNED FOR 125 CFS (1) 5.5 MILES CONC. DISCHARGE PIPE. (2) 40 MILE LINED CANAL.	DIVERT MAX CAP. 125 ft. 3/SEC x 90 DAYS = 22,300 AC.-FT. DIVERTED. 21,300 AC.-FT. DELIVERED	APRIL, MAY, AND, JUNE
D. BIG SPRINGS NEB. (1 MI. EAST)	68	366	DESIGNED FOR 68 CFS (1) 46.5 MILE CONC. PRESSURE PIPE.	DIVERT MAX CAP. 68 ft. 3/SEC x 165 DAYS = 22,300 AC.-FT. DIVERTED NO LOSSES.	OCT, TO APR,
E. BIG SPRINGS NEB. (1 MI. EAST)	115	352	DESIGNED FOR 115 CFS (1) 45.5 MILE CONC. PRESSURE PIPE.	DIVERT MAX CAP. 115 ft. 3/SEC x 165 DAYS = 37,600 AC.-FT. DIVERTED NO LOSSES	OCT, TO APR,

TOTAL COSTS (JULY 1980)

Alternative	Diversion Schedule	Features	Total Cost (July 1980 Costs) $
Big Springs - 125 CFS C	22,315 AC-ft diverted from the South Platte during April, May, and June, 90 days (21,333 AC-ft delivered to Kilpatrick Res. on Frenchman Cr[illegible]	1) South Platte diversion works 2) Pumping plant with 5.5 mile discharge 3) 40 miles of concrete (unreinforced) lined canal 4) 4 miles of transmission line	45,650,000 1/ + 3,100,000 48,750,000 $2,140/AC-ft $2,185/AC-ft
Big Springs - 68 CFS D	22,255 AC-ft diverted from the South Platte from Oct. to April 165 days	1) South Platte diversion works 2) Pumping plant with 5.5 miles discharge 3) 40 miles of concrete pressure pipe 4) 4 miles of transmission line	80,350,000 1/ + 1,800,000 82,150,000 $3,610/AC-ft $3,690/AC-ft
Big Springs - 115 CFS E	37,637 AC-ft diverted from the South Platte during Oct. to April 165 days	1) South Platte diversion works 2) Pumping plant with 5.5 mile discharge 3) 40 miles of concrete pressure pipe 4) 4 miles of transmission line	91,650,000 1/ + 2,900,000 94,550,000 $2,435/AC-ft $2,510/AC-ft
Frenchman - lined canal buried conduit--100 CFS 36,700 AC-ft (not into Frenchman 165 days A	36,700 AC-ft diverted from the South Platte from Oct. to May 185 days	1) South Platte diversion works 2) Pumping plant with 3 mile discharge 3) 42 miles of concrete pressure pipe	79,260,000 1/ + 2,660,000 81,920,000 $2,160/AC-ft $2,230/AC-ft

1/ Additional construction cost of $633/KW, based on max. load for P-SMP power for pumping plants

Alternative	Diversion Schedule	Features	Total Cost (July 1980 Costs)
Frenchman - lined canal 100 ft 3/s - 93 ft 3/s 185 days B	36,700 AC-ft diverted from the South Platte into Holding Res. from Oct. to May, 185 days; 34,500 AC-ft. gross diverted from the Holding to Frenchman from April to Oct. 185 days; 32,200 net AC-ft into Frenchman	1) South Platte diversion works 2) Pumping plant with 3 mile discharge line 3) Holding Reservoir and Dam 4) Pumping plant with 0.8 mile discharge line 5) 50-miles concrete lined canal.	1/ $70,650,000 + 2,260,000 + 1,140,000 74,050,000 $2,200/AC-ft $2,300/AC-ft

1/ Additional construction cost of $633/KW, based on max. load for P-SMP power for pumping plant

Alternative	Acre-feet Delivered	40 Yr Construction Repayment Per Acre-ft	Total Annual Payment Per Acre-foot with P-SMBP Power	Total Annual Payment Per Acre-foot with Commercial Power
C	21,333	$53.50	$61.13	$76.80
D	22,255	90.25	97.48	114.34
E	37,637	60.90	67.39	82.57
A	36,700	54.00	60.40	75.84
B	32,200	55.00	65.27	85.02

SOUTH PLATTE - FRENCHMAN CR.
DIVERSION PLANS