GREEN RIVER BASIN ADVISORY GROUP MEETING
SEEDSKADEE WILDLIFE REFUGE AREA
JULY 8, 2003

SEEDSKADEE IRRIGATION PROJECT REPORT

DON BROSZ
RETIRED EXTENSION IRRIGATION ENGINEER
UNIVERSITY OF WYOMING

- SEEDSKADEE: Crow Indians called it the "seeds-ke-dee-agie, meaning "Sage Hen River".

- AUTHORIZATION: The Seedskadee Project was authorized by Congress in 1956 as part of the Colorado River Storage Project (Act of April 11, 1956 – P.L. 485) – U.S. Bureau of Reclamation

- Wyoming portion included:

  - Fontenelle dam – storage: 345,400 acre feet – water for power generation (10,000 kilowatts), municipal and industrial uses, fish and wildlife, and recreation.

  - Irrigation water storage in the dam – 85,000 Acre-feet

- Construction of Fontenelle Dam:

  began in 1960 and completed in 1965.

- Seedskadee Irrigation Project – approximately 60,000 acres.

Irrigation water distribution system was scheduled to begin in 1962 – 1963. Initial settlement of farm units was to begin in 1963 (approximately 160 acres each) – 300 farm family units – to be completed by 1968.

- March, 1962 construction on irrigation facilities discontinued – recommendation by a Congressional Committee, Bureau of Reclamation and a special Wyoming Projects Team – concern – basically, can a family make a living on a 160 irrigated acres on the Seedskadee Project.

- SEEDSKADEE IRRIGATION DEVELOPMENT FARM

  - established in 1964 to determine and demonstrate the most effective economic and best adapted water management practices (high irrigation water application efficiencies with minimum labor inputs), crop production potential and potential livestock programs and acreage required to sustain a family sized farming unit.

- Cooperative Arrangement

    - University of Wyoming – Agricultural Extension Service

    - U. S. Bureau of Reclamation

    - Wyoming Natural Resources Board – Department of Economic Planning and Development and now known as the Wyoming Development Commission

    - Agricultural Research Service (USDA)

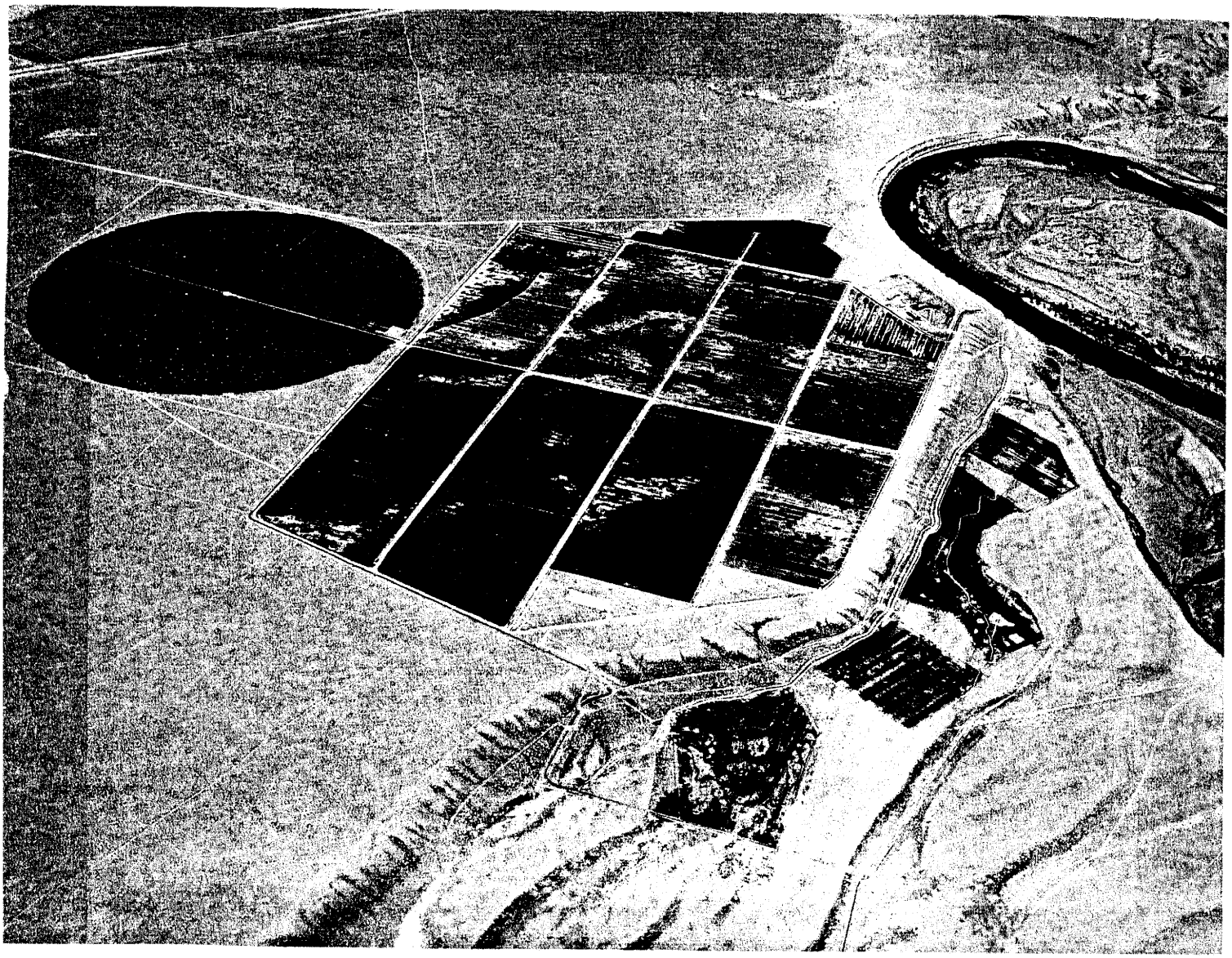
- Advisory in addition to the above:

    - Soil Conservation Service (NRCS)
    - State Engineer
    - State Department of Agriculture
    - Farmers Home Administration
    - Agricultural Stabilization and Conservation Service
    - Bureau of Land Management

- Irrigation Development Farm
    - class 2 and 3 lands on upper bench
    - some class 3 and mostly class 4 lands on lower bench
        - 380 acres flood irrigation methods and 130 acres center pivot sprinkler irrigation

- Livestock Program
    - started with 500 ewes and 40 cows
    - ended with 700 ewes and no cattle

- Site of the Seedskadee Irrigation Development Farm



- Goals

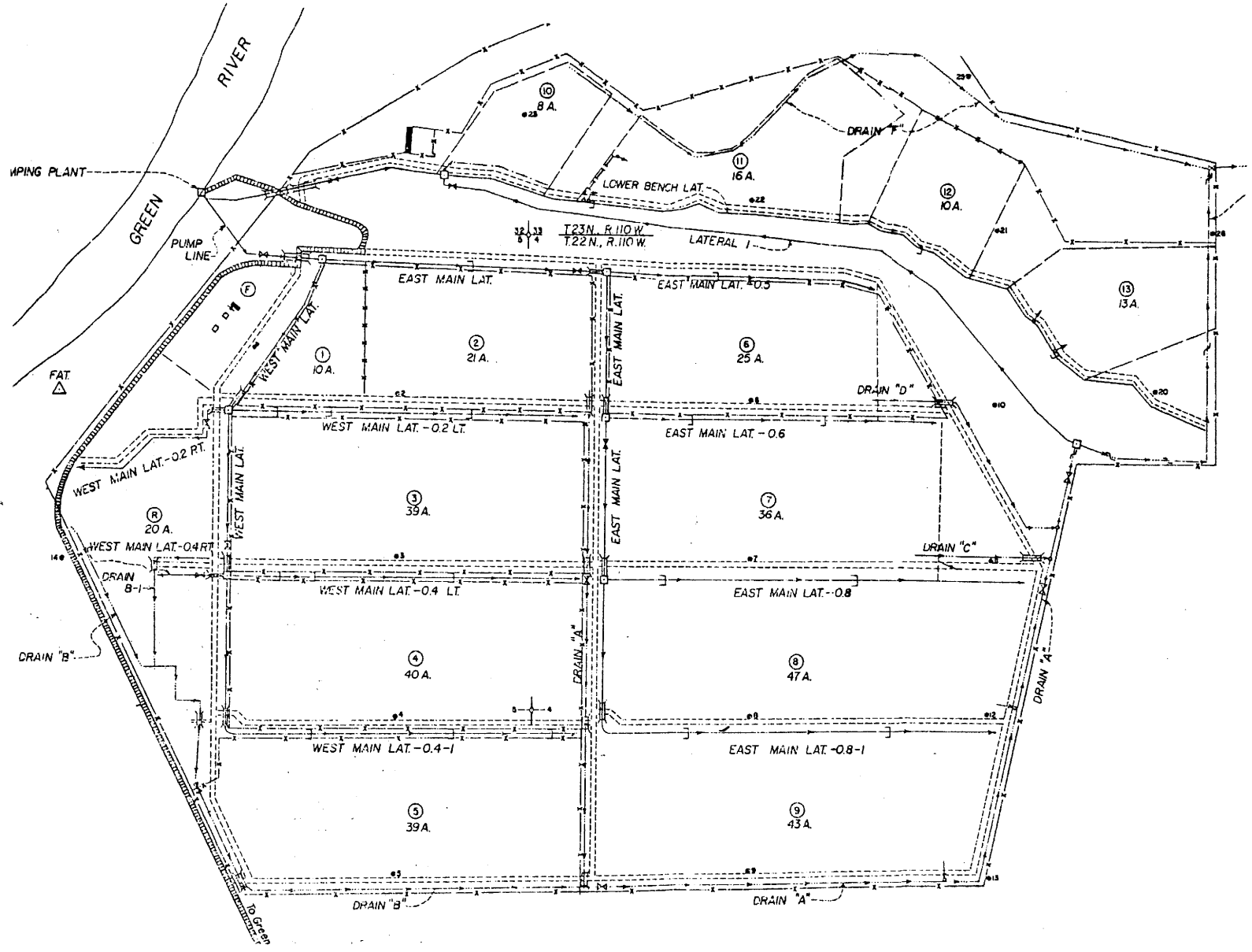
  - hired a family to operate the farm (man and wife) – determine if they could operate a 500 acre irrigated farm (irrigate, manage the livestock, harvest, etc.).

  - this especially meant designing an irrigation system(s) where one person could handle a large head of water efficiently with a minimum of labor.

- Irrigation System Layout

  - approximately 330 acres leveled and irrigated by border method and 130 acres center pivot irrigation (upper bench)

- approximately 50 acres contour irrigated on lower bench using contour irrigation with a minimum amount of leveling.



- Water Source – Green River

  - water pumped from river to upper bench – lift 104 feet – three 100 horsepower electric motors – turbine pumps – could deliver up to 18 cfs (8000 gpm) to open ditches.

  - water pumped from river to lower bench – lift 38 feet – one 75 horsepower electric motor – turbine pump – delivered 10 cfs (4500 gpm) to open ditches.

- Results

  - short growing season (106 frost-free days) – limited crop production to hay, pasture and small grain (used on farm only for establishment purposes).
  - irrigation systems used on farm – one person can handle large flows of irrigation water such as 18 cfs (border dikes and center pivot sprinkler)
  - concern when leveling for border dike irrigation getting fields large enough for machinery efficiency – deep leveling cuts result in reduced yield.

- Results

    - high pumping costs on center pivot irrigation system – 80 to 90 psi required for system used on farm – however, today center pivot sprinklers are designed to operate at 35 to 40 psi – pumping cost reduces substantially.
    - Yields
        - flood irrigation methods
            - deep cut areas – approximately 2 tons/acre (alfalfa)

- moderate leveling required – 3 to 4 tons/acre (alfalfa) - 4 AUM/acre
- sprinkler – no leveling – 3.5 to 4.5 tons/acre

- Irrigation Water Requirements

CU and CIR Estimates,

KEMMERER

		APR	MAY	JUN	JUL	AUG	SEP	OCT	SEASON
ALFALFA HAY									
Mean	CU	0.40	4.09	5.63	6.74	5.16	2.37	--	24.37
	CIR	0.04	2.85	4.53	5.96	4.29	1.43	--	19.08
Max	CU	0.68	5.29	7.62	7.73	6.38	3.07	--	28.32
	CIR	0.60	5.18	7.23	7.40	6.08	3.05	--	24.83
Min	CU	0.20	2.88	4.26	5.62	4.22	1.61	--	20.34
	CIR	0.00	0.29	0.60	3.51	0.73	0.00	--	10.20
PASTURE GRASS AND GRASS HAY									
Mean	CU	0.38	3.90	5.37	6.42	4.92	2.26	--	23.23
	CIR	0.04	2.66	4.27	5.64	4.06	1.34	--	17.97
Max	CU	0.65	5.04	7.27	7.36	6.08	2.93	--	26.99
	CIR	0.57	4.93	6.90	7.04	5.80	2.91	--	23.52
Min	CU	0.19	2.75	4.07	5.35	4.03	1.54	--	19.38
	CIR	0.00	0.14	0.38	3.21	0.51	0.00	--	9.36

- For a settler of a Seedskadee farm unit of 500 acres to make a living:

  - Government pay for all on-farm development (clearing of land, land leveling, irrigation structures, sprinkler system(s), etc.) – all these costs be non-reimbursable.

  - settler would need $15,000 or more in assets for machinery, building a home, purchase livestock, etc.

  - family could make a living and pay some water charges.

- U. S. Bureau of Reclamation Report to the Department of Interior in the early 1970's using the Irrigation Development Farm finding based on a family farm unit of 500 irrigated acres:

  - investment costs – (fully developed using semiautomated border dike and/or center pivot sprinkler system with unlined ditches) - $225,000
  - class 2 lands would produce sufficient feed for 200 animal units (1000 ewes or 200 cows with calves)

- U. S. Bureau of Reclamation through the Department of Interior nor the Wyoming Congressional Delegation have not requested Congress for funds to develop the Seedskadee Irrigation Project.
- nor has the Seedskadee Project been de-authorized by Congress.
- waters have been sold out of Fontenelle Dam for Industrial uses.
- 85,000 acre feet of water are still available in Fontenelle for irrigation purposes.