THE NAVAJO NATION

DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT BRANCH

FACSIMILE TRANSMITTAL SHEET

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FAX NUMBER:	TOTAL NO. OF PAGES INCLUDING COVER:
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NOTES/COMMENTS:

GALLEGOS RESERVOIR

505 827 6188

NAVAJO INDIAN IRRIGATION PROJECT
GALLEGOS RESERVOIR NEEDS AND COST ASSESSMENT

Prepared for

Bureau of Indian Affairs
Navajo Indian Irrigation Project Office
Farmington, New Mexico

and

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May 30, 1995

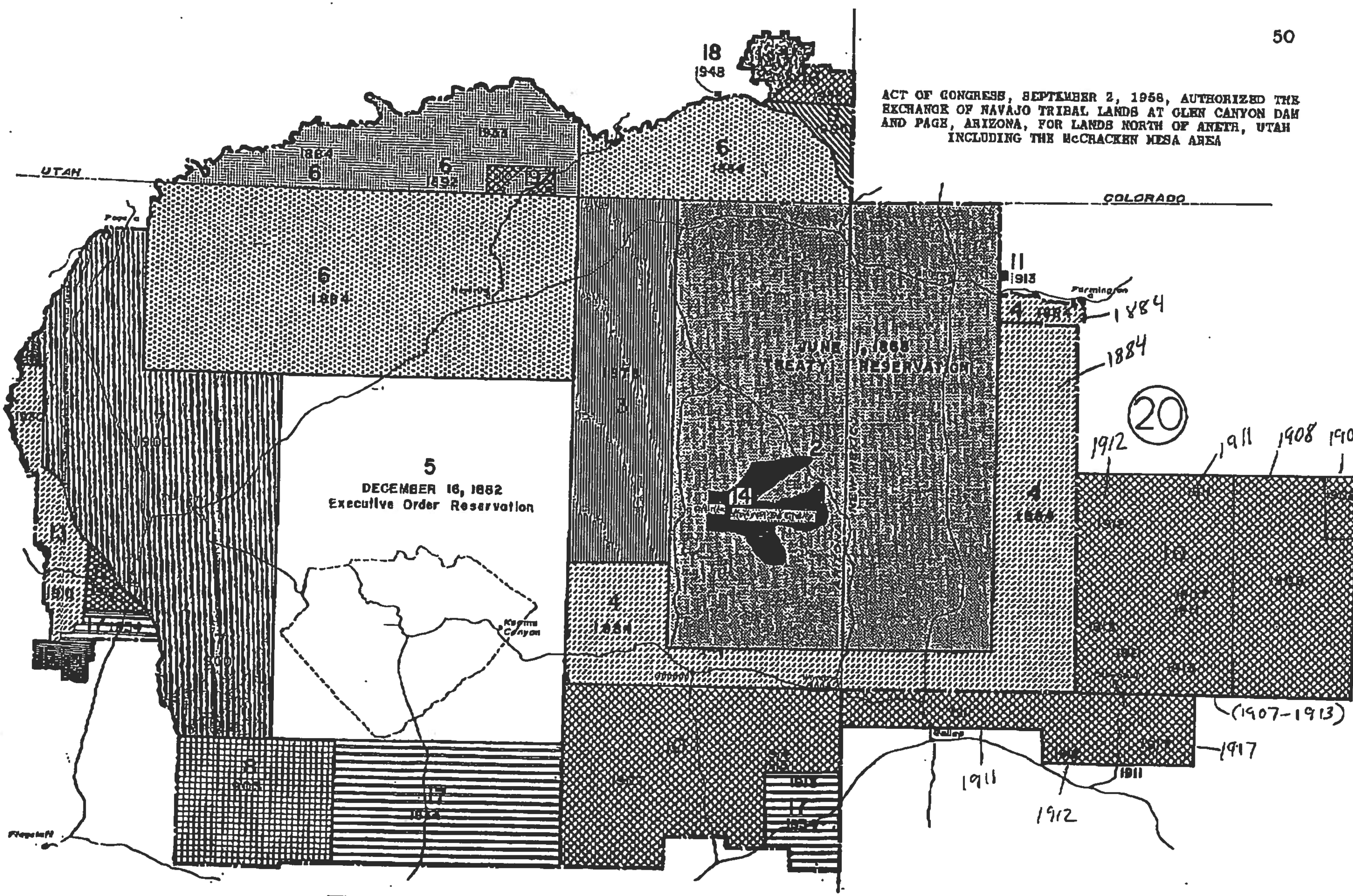
Table 1. Storage Capacity for two potential Gallegos Reservoir sites.

	Gallegos Wash Site (acre-ft)	Moncisco Wash Site (acre-ft)
Required Operational Storage	7,735	7,735
100 Year Sediment	3,850	1,800
Evaporation Loss	450	450
Seepage Loss	270	270
Total Active Storage	12,305	10,255

Table 2. Estimated costs for two potential Gallegos Reservoir sites.

	Gallegos Wash Site	Moncisco Wash Site
Construction Cost Estimate:		
Right-of-Way and Relocations	$11,000,000	$1,600,000
Archeological Mitigation	$1,800,000	$1,500,000
Construction Dam, Spillway & Outlet Canal	$42,000,000	$34,000,000
Construct Inlet Channel	$2,500,000	$1,800,000
Non-contract Costs	$14,300,000	$9,700,000
TOTAL	$71,600,000	$48,600,000
Estimated Annual OM&R Costs:		
Operation and Maintenance	$174,000	$174,000
Replacement Fund	$191,000	$155,000
Pumping Costs at Gallegos PP*	$1,000	$1,000
Pumping Costs at Gallegos PP**	$7,000	$7,000
TOTAL ANNUAL COST	$373,000	$337,000

* Based on replacing 720 AF evaporation and seepage only.
** Based on pumping 7735 AF to meet operational storage requirements.
Note: Related OM&R costs for other project features are not included.


ACT OF CONGRESS, SEPTEMBER 2, 1958, AUTHORIZED THE EXCHANGE OF NAVAJO TRIBAL LANDS AT GLEN CANYON DAM AND PAGE, ARIZONA, FOR LANDS NORTH OF ANETH, UTAH INCLUDING THE McCRACKEN MESA AREA
UTAH
COLORADO
18
1948
6
1884
6
1884
6
1892
6
1884
5
DECEMBER 16, 1882
Executive Order Reservation
Keams Canyon
4
1884
JUNE 1, 1868
TREATY RESERVATION
2
14
11
1913
Farmington
1884
1884
4
1884
20
1912
1911
1908
1908
(1907-1913)
1917
1911
1912
1911
17
Flagstaff
Page

Demonstration Range. South and east of the farmlands, some of the grazing land is devoted to a demonstration range, established both for the commercial production of livestock and for training Navajos in range management.

Soil Conservation Areas. Parts of the grazing land, along arroyos and where the soil has been severely weathered, is set aside as soil conservation, or erosion control areas. Reseeding and other techniques of vegetative restoration have been employed.

Project Operations. NIIP is operated as a tribal enterprise, Navajo Agricultural Products Industry (NAPI), and is patterned after other successful Navajo commercial enterprises as well as successful corporate farms. It is directed by a 7-member management board consisting of six Navajos and one businessmen or agriculturist from outside the Navajo Nation. NAPI operates under a long-range development and operating plan. The plan considers agronomic, marketing, environmental and economic interactions to develop the operating strategy for the farm.

Irrigation. The legislation authorized an average annual diversion at peak of 508,000 AF of water for the irrigation of 110,630 acres. The use of sprinkle irrigation has reduced the per acre demand. The historic average for 1976 through 1997 is about 3.36 AF/A for the cropped acreage. Historic depletions, including evaporative loss from the sprinklers, crop consumptive irrigation requirement, and consumption by non-crop vegetation has averaged about 2.44 AF/A. The diversion requirement for the full 110,630 acres of cropped land assuming historic crop mix and efficiency with no fallow land or conservation acreage would average about 372,000 AF with an associated depletion of about 270,000 AF. With irrigation efficiency improvement from planned irrigation management changes, the diversion is expected to average about 337,500 AF per year with the same depletion level. It must be understood that these diversion and depletion volumes are average values and are based on projections from a limited amount of measured data. They should not be construed as legally binding figures. Actual amounts could exceed or fall short of these estimates. (A more detailed discussion of water requirements appears in later sections).

The entire project is sprinkle irrigated, predominantly by center-pivot laterals. The systems vary in length, irrigating circular fields ranging in size from about 60 acres to over 200 acres. Early blocks were originally irrigated by sideroll, handmove and solid set laterals, but have mostly been replaced by center pivots to increase efficiency and precision of irrigation and reduce management problems. New blocks will also be predominantly center pivot irrigated, with minor acreages of solid set or trickle irrigation on orchard crops.

Cropping Plan. A summary of the average cropping plan over the last ten years is shown in Table 2. Based on current long range plans, the crop mix is expected to change as shown in the third column of Table 2. This incorporates the potato acreage projected for support of the potato processing plant that is planned for construction in 2000. Although this mix represents the present plan of NAPI, market conditions and facilities availability may alter the mix. (Note the double crop acreage. For water use purposes the water use from this acreage is included in the water requirements for the physical acreage base).

It may be noted that a significant percentage of the acreage is in various conservation programs. These areas are only irrigated sufficiently to maintain vegetative cover and prevent erosion. The average depletion on these conservation acres is about 0.8 AF/A. The acreage varies somewhat year to year, and may be reduced significantly if the payment program for conservation set-aside is reduced. Future planning excludes conservation acreage and plans for full irrigation on 110,630 acres as anticipated in the authorizing legislation.