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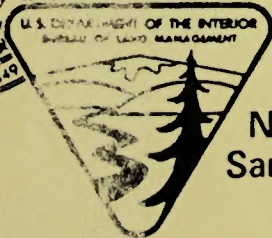
San Juan Basin Action Plan

CULTURAL RESOURCES TECHNICAL REPORT

for the
**Environmental Impact Statement
on Public Service Company of New Mexico's
Proposed New Mexico Generating Station
and Possible New Town**



United States
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of the Interior



Bureau of Land Management
New Mexico State Office
Santa Fe, New Mexico

October 1982

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Dear Interested Citizen:

Attached is one of twenty-two technical reports developed as a basis for writing the Environmental Impact Statement on Public Service Company of New Mexico's Proposed New Mexico Generating Station and Possible New Town (NMGS EIS). (A list of the technical reports is attached.)

These technical reports provide detailed information on the existing environment, methods used for the impact analysis, and related data supportive of the analysis and conclusions presented in the EIS. These reports should be retained for use with the Draft and Final EIS and other documents related to BLM's San Juan Basin Action Plan (SJBAP).

The Draft NMGS EIS will be filed with the Environmental Protection Agency and released for public review on November 30, 1982. Comments on the Draft EIS will be due by close of business February 7, 1983, at the BLM New Mexico State Office. Because of the large volume of material presented in the technical reports, the BLM is distributing these reports in advance of the Draft EIS to provide sufficient time for public review. The technical reports will be available for public review at the places indicated on the attached list. Copies will also be available from the BLM New Mexico State Office, U.S. Post Office and Federal Building, Santa Fe, for a copy fee.

Informational public meetings are scheduled for December 1982 to provide a public forum to clarify questions and concerns about the SJBAP proposals and the related environmental documents, which will all have been issued by that time. The meetings are scheduled as follows:

- December 14, Civic Center, Farmington, 3 to 9 PM
- December 14, Convention Center, Albuquerque, 3 to 9 PM
- December 15, Chapter House, Crownpoint, 3 to 9 PM
- December 16, Holiday Inn, Gallup, 3 to 9 PM
- December 16, Kachina Lodge, Taos, 3 to 9 PM

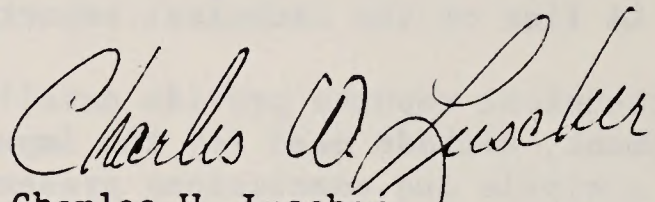
In addition, formal public hearings will be held in January 1983 to solicit public comments on the SJBAP Proposals. These meetings are scheduled as follows:

- January 10, Chapter House, Crownpoint, beginning at 1:00 PM
- January 12, Civic Center, Farmington, beginning at 9:00 AM
- January 14 (and 15th if necessary because of the number of registrants), Four Seasons Motor Lodge, Albuquerque, I-40 and Carlisle Blvd., beginning at 9:00 AM (each day)

Questions on the public meetings, hearings, and the technical reports themselves should be directed to:

Leslie M. Cone
NMGS Project Manager
BLM, New Mexico State Office
P.O. Box 1449
Santa Fe, NM 87501
(505) 988-6184 FTS 476-6184

Sincerely yours,



Charles W. Luscher
State Director, New Mexico

List of Technical Reports

1. Purpose and Need
2. Project Description
3. Alternatives to the Project
4. Site Alternatives
5. Permit Reconnaissance
6. Air Quality
7. Geologic Setting
8. Mineral Resources
9. Paleontology
10. Soils, Prime and Unique Farmlands
11. Hydrology
12. Water Quality
13. Vegetation
14. Wildlife and Aquatic Biology
15. Threatened and Endangered Species
16. Cultural Resources
17. Visual Resources
18. Recreation Resources
19. Wilderness Values
20. Transportation
21. Social and Economic Conditions
22. Land Use Controls and Constraints

Availability of Technical Reports for Public Review

Individual copies of the technical reports can be obtained for a copy fee.
Inquiries should be directed to:

Bureau of Land Management, New Mexico State Office
Title Records and Public Assistance Section (943B)
U.S. Post Office and Federal Building
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Santa Fe, NM 87501
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Copies of the reports are available for public review at the locations listed below. [Formal and informal cooperating agencies are denoted by an asterisk (*).]

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Room 122, Federal Building
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Santa Fe, NM 87501
(505) 988-6184 FTS 476-6184

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Santa Fe, NM 87501
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Santa Fe, NM 87501
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Farmington, NM 87401
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Albuquerque, NM 87158
(505) 848-2700

Woodward-Clyde Consultants, Inc.
3 Embarcadero Center, Suite 700
San Francisco, California 94111
(415) 956-7070

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Reading copies of the NMGS EIS and associated technical reports will be available at the following public and university libraries:

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Albuquerque, NM 87102

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Crownpoint Community Library
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Salt Lake City, UT 84147
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Resource Evaluation Office
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Farmington, NM 87401
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Albuquerque, NM 87107
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Albuquerque, NM 87101
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Dallas, TX 75270
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c/o Division of Resources
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Window Rock, AZ 86515
(602) 871-6592

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CULTURAL RESOURCES TECHNICAL REPORT

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**Environmental Impact Statement
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Prepared by

Woodward-Clyde Consultants

for the

**U.S. Department of the Interior
Bureau of Land Management**

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1.0

INTRODUCTION

BACKGROUND

Included in the recent Council on Environmental Quality Regulations (1979) are several important objectives to reduce excessive paperwork in the preparation of environmental impact statements (EISs):

- Discuss only briefly issues other than significant ones.
- Emphasize the portions of the EIS that are useful to decision makers and the public and reduce emphasis on background material.
- Prepare analytic rather than encyclopedic EISs.

In order to accomplish these objectives and still provide the depth and background required for an analytic impact statement, this technical report has been prepared for the New Mexico Generating Station (NMGS) project. In this report, impacts that were not identified as significant but which are still considered important by the public or technical specialists are analyzed. Background material is provided for those issues and impacts that were considered necessary for the comparison of alternatives. Impacts that were not identified as significant or important by the public and by technical

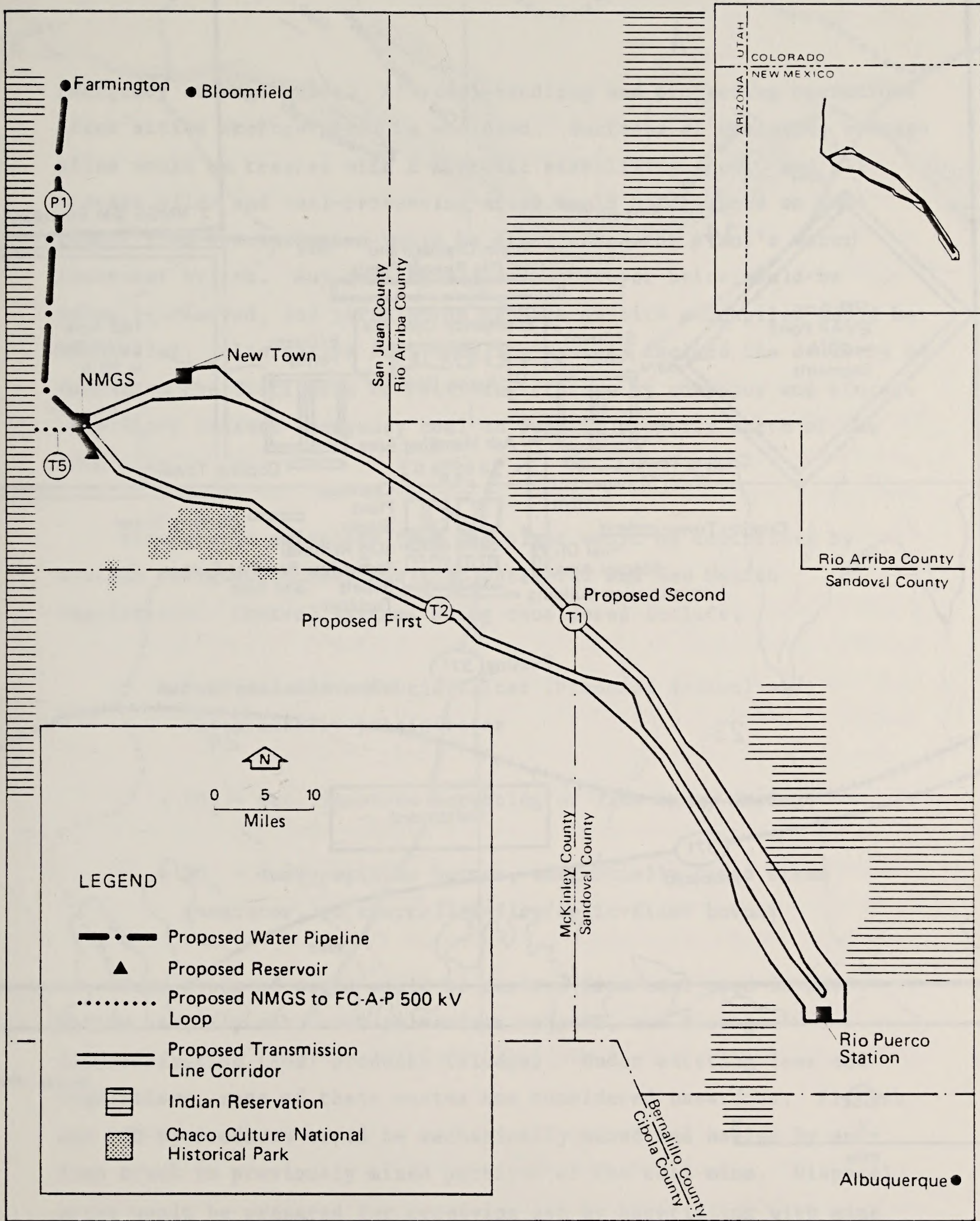
preparers are summarized, and reasons for their elimination from detailed analysis are discussed.

SUMMARY DESCRIPTION OF PROJECT COMPONENTS

Public Service Company of New Mexico (PNM) proposes to construct a 2000-megawatt (MW) coal-fired electric generation plant approximately 35 miles south of Farmington, New Mexico, in San Juan County (Map 1-1). The proposed NMGS, at ultimate development, would have four 500-MW generating units. Each generating unit would include a turbine generator area, coal pulverizer area, boiler area, particulate removal system, SO₂ removal system, and chimney stack. The proposed arrangement of these and other power plant components is shown in Figure 1-1. For the environmental analysis, it was assumed that commercial operation of the first 500-MW unit would begin in 1990 and that other units would start operating during the 1990s.

Coal for NMGS would be acquired through long-term contracts with Sunbelt Mining and Arch Minerals (Proposed Action) or other producers in the San Juan Basin (alternative coal supply). Coal acquired from a joint venture of Sunbelt and Arch Minerals would be supplied from surface mines (referred to as the Bisti mine in this analysis) in the immediate vicinity of the proposed plant site. Coal acquired from other producers in the San Juan Basin would be hauled from mines located as much as 30 miles from the proposed plant site. Coal required for NMGS would average 7.5 million tons per year, or a total of 300 million tons over the 40-year project life.

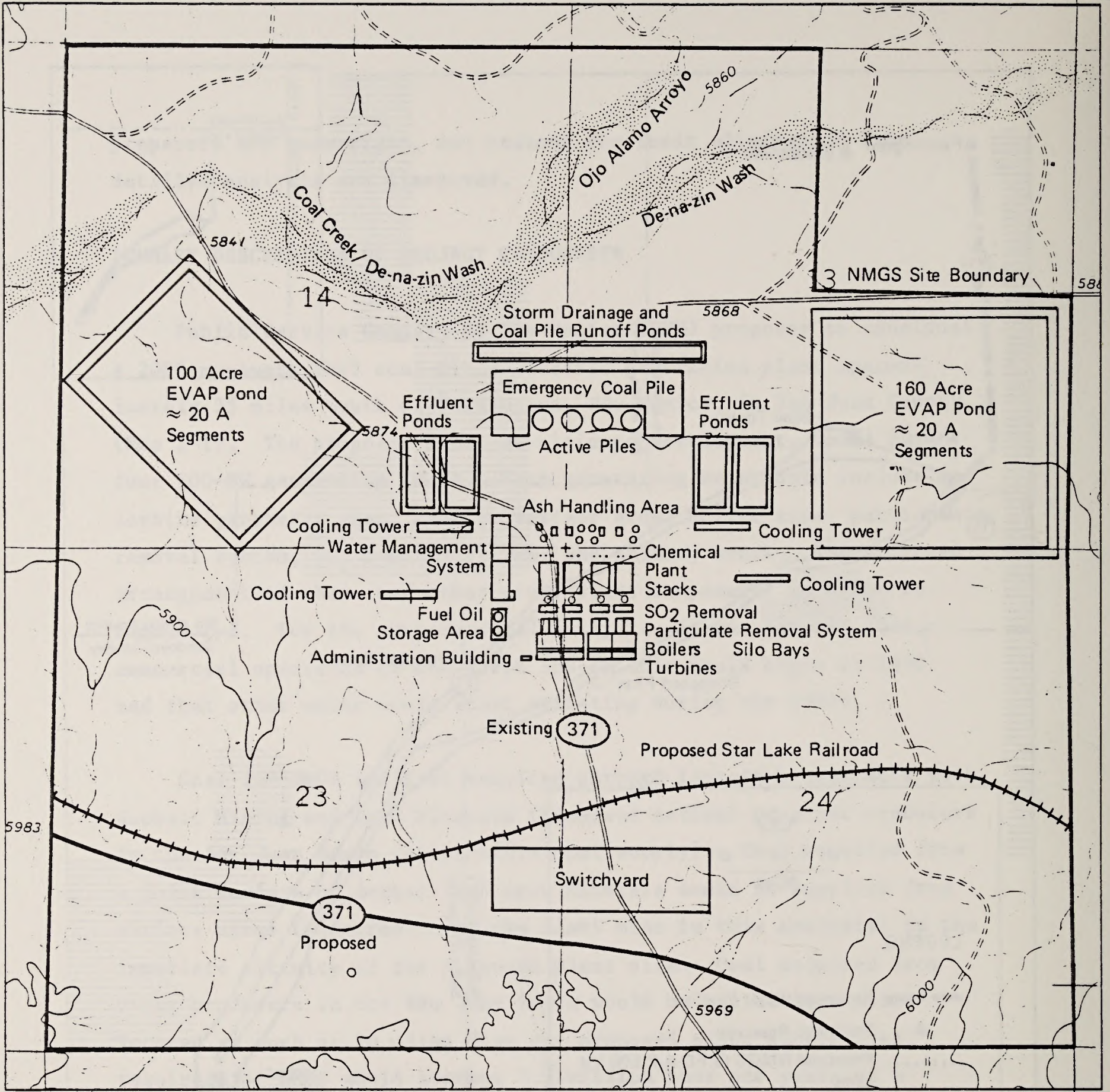
The proposed fuel-handling system would involve hauling coal from the Bisti mine (or other mine locations) by truck to a receiving facility located adjacent to the NMGS site. Coal would then be transferred via conveyor belt from the receiving station to active or



Note: For more information, see the location maps in Appendix G of the EIS.

Source: BLM 1982.

Map 1-1. GENERAL LOCATION OF PROPOSED ACTION



Source: PNM 1982.

Figure 1-1. STATION LAYOUT

emergency storage piles. All coal-handling and processing operations after active storage would be enclosed. Surfaces of emergency storage piles would be treated with a nontoxic stabilizing agent, and all storage piles and coal-processing areas would be designed so that runoff from precipitation would be diverted to the plant's water treatment system. Any coal spills from conveyor belts would be promptly removed, and percolation beneath on-site stockpiles would be controlled. Alternative fuel-handling systems include the delivery of coal from the Bisti mine to receiving station by conveyor and storage of primary crushed emergency coal on Sunbelt property north of the NMGS site.

Atmospheric emissions from the plant would be controlled by systems designed to meet applicable federal and New Mexico regulations. Control systems being considered include:

- Particulates - fabric filter (Proposed Action) and electrostatic precipitator
- SO₂ - wet limestone scrubbing or lime spray drying
- NO_x - dual-register burner, tangentially fired steam generator, or controlled-flow/split-flame burner

Four types of waste would be derived from coal used in NMGS: bottom ash, fly ash, coal pulverizer rejects, and flue gas desulfurization (FGD) products (sludge). Under existing laws and regulations, none of these wastes are considered hazardous. Fly ash and FGD by-products would be mechanically mixed and hauled by end-dump truck to previously mined portions of the coal mine. Disposal areas would be prepared for receiving ash by backfilling with mine overburden. Ash would then be dumped and spread in layers over the

mine overburden. After the ash was placed and spread, it would be covered with layers of overburden and surface soil or topsoil and then a vegetative cover would be established. Bottom ash and pulverizer rejects would be collected for disposal in dewatering bins and then hauled by end-dump trucks for disposal into previously mined portions of the coal mine. Procedures for disposal would be the same as for fly ash.

The water management system would contain all equipment necessary to treat and supply all the plant makeup water and potable water. The power plant would be designed and operated as a zero-discharge plant; wastewater would be reused by cascading it to uses requiring successively lower water quality. Used water, degraded to the extent that it could not be economically treated for further in-plant use, would be used for transport and disposal of plant-generated wastes or would be discharged to evaporation ponds (Figure 1-1). Evaporation ponds would be lined with impervious material to limit seepage losses.

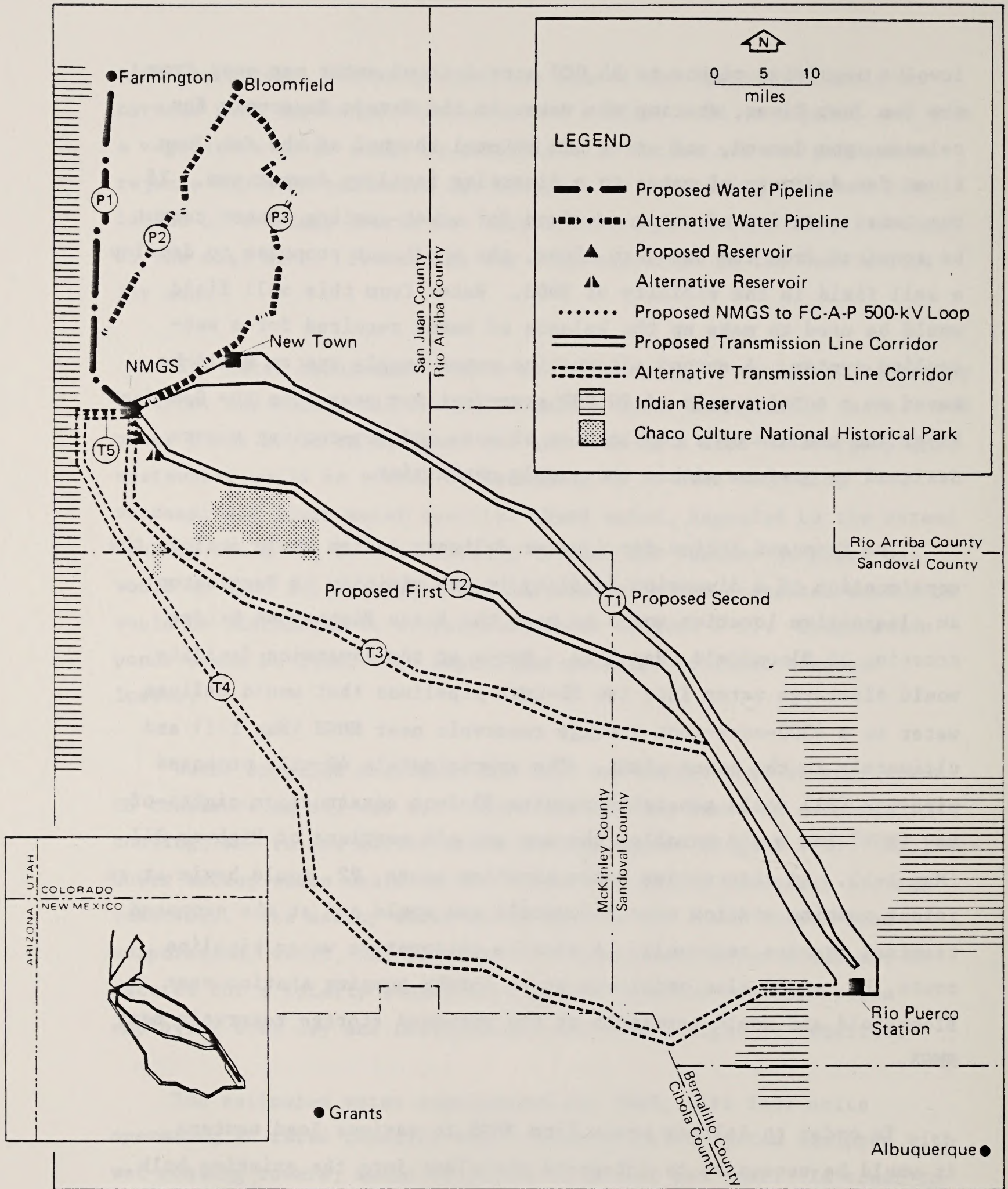
Water supplies available for NMGS are believed to be sufficient to construct an all-wet heat-rejection system, based on evaporative cooling, and to use forced-draft cooling towers (Figure 1-1). Cooling-tower makeup water would be drawn from the nearby raw-water storage reservoir. The makeup water would replace the tower losses from evaporation, drift, and blowdown. If sufficient water could not be secured for a totally evaporative system, a water-cooling system employing both dry and conventional wet towers might be required.

The estimated water requirement for NMGS, with four units operating at rated capacity and a heat-rejection system equipped with wet-cooling towers, would be 35,000 acre-feet per year. In order to supply this quantity of water to NMGS, the Proposed Action would

involve acquiring rights to 35,000 acre-feet of water per year from the San Juan River, storing the water in the Navajo Reservoir for release upon demand, and using the natural channel of the San Juan River for delivery of water to a diversion facility downstream. If the total quantity of water required for a wet-cooling system cannot be acquired from the San Juan River, the applicant proposes to develop a well field in the vicinity of NMGS. Water from this well field would be used to make up the balance of water required for a wet-cooling system. A second alternative water supply system would be based on a total supply of 20,000 acre-feet per year from the San Juan River and the use of a combination of wet- and dry-cooling towers designed to perform within the supply constraint.

The Proposed Action for a water delivery system would include the construction of a diversion facility in the vicinity of Farmington; an alternative location would be near the State Highway 44 bridge crossing at Bloomfield (Map 1-2). Pumps at the diversion facility would discharge water into two 36-inch pipelines that would deliver water to a 4000-acre-foot storage reservoir near NMGS (Map 1-1) and ultimately to the power plant. The approximately 40-mile proposed pipeline (P1) would generally require 90-foot construction rights-of-way (ROW) and would parallel the new and old portions of Highway 371 (Map 1-1). An alternative water pipeline route, P2, would begin at an intake pumping station near Bloomfield and would end at the proposed terminal storage reservoir. A 49-mile alternative water pipeline route, P3, would also originate at an intake pumping station near Bloomfield and would terminate at the proposed storage reservoir near NMGS.

In order to deliver power from NMGS to various load centers, it would be necessary to integrate the plant into the existing bulk



Note: For more information, see the location maps in Appendix G of the EIS.

Source: BLM 1982.

Map 1-2. GENERAL LOCATION OF ALTERNATIVES INCLUDING THE PROPOSED ACTION

transmission systems of PNM and neighboring utilities. Thus the proposed transmission system would consist of a 500-kilovolt (kV) loop linking NMGS with PNM's approved 500-kV Four Corners-Ambrosia-Pajarito (FC-A-P) line, located approximately 5 miles west of NMGS, and two 500-kV lines linking NMGS with the Albuquerque distribution and load center at the proposed Rio Puerco Station (Map 1-1). The NMGS-Albuquerque system would be installed in phases: the 500-kV loop in 1990 with commencement of commercial operation of Unit 1, the first 500-kV line with Unit 2 in 1993, and the second 500-kV line with Unit 4 in 1998.

Four routes are considered technically and economically feasible for construction of the 500-kV transmission system. Route T2 is proposed for the first 500-kV line and route T1 is proposed for the second 500-kV line; routes T3 and T4 are alternatives to the Proposed Action. The total distance traversed would be similar for the two proposed and two alternative corridors: 101 miles (T2), 107 miles (T1), 105 miles (T3), and 126 miles (T4). With the exception of tower sites, the proposed 200-foot ROW could support other compatible land uses, such as grazing. PNM would keep the transmission line ROW closed and would patrol the line by helicopter each month. Lands disturbed by heavy equipment and temporary access roads would be restored to their original condition.

Table 1-1 displays construction work force estimates over time. Construction employment for station facilities would reach peaks of 1515 employees in 1987 and 1530 employees in 1992. Operations employment at station facilities would increase steadily, from 30 employees in 1989 to 900 employees in 1999 when all four units are expected to be on-line.

Table 1-1. NMCS CONSTRUCTION AND OPERATION EMPLOYMENT

Year	Intake Pipeline Reservoir and mission Line	NMCS										Total Employment	Annual Change
		Construction					Operation						
		Unit 1	Unit 2	Unit 3	Unit 4	Total	Unit 1	Unit 2	Unit 3	Unit 4	Total		
1985	—	85	—	—	—	85	—	—	—	—	—	85	+85
1986	—	800	—	—	—	800	—	—	—	—	—	800	+715
1987	115	1515	—	—	—	1630	—	—	—	—	—	1630	+830
1988	295	1180	30	—	—	1505	—	—	—	—	—	1505	-125
1989	—	360	450	—	—	914	30	—	—	—	30	944	-560
1990	—	100	940	40	—	1080	200	—	—	—	200	1280	+336
1991	—	—	750	570	—	1320	250	—	—	—	250	1570	+290
1992	—	—	270	1260	—	1530	250	24	—	—	274	1804	+234
1993	—	—	105	955	30	1090	250	160	—	—	410	1500	-304
1994	78	—	—	325	435	838	250	200	30	—	480	1318	-182
1995	—	—	—	90	940	1030	250	200	200	—	650	1680	+362
1996	—	—	—	—	775	775	250	200	250	—	700	1475	-205
1997	—	—	—	—	255	255	250	200	250	24	724	979	-496
1998	—	—	—	—	95	95	250	200	250	160	860	955	-24
1999	—	—	—	—	0	0	250	200	250	200	900	900	-55

Source: PNM 1980, unpublished data.

According to PNM (unpublished data, 1980), estimated construction employment skill requirements would be as follows:

<u>Skill</u>	<u>Percent of Total Construction Work Force</u>
Boilermakers	9.4
Pipefitters	14.2
Electricians	14.4
Carpenters	5.6
Ironworkers	10.0
Operators	10.0
Laborers	9.0
Teamsters	4.1
Cement masons	0.8
Millwrights	3.3
Insulators	4.0
Sheetmetal workers	1.1
Painters	1.2
Others	0.5
Supervision	12.4

The above estimates are averaged for construction of all four units.

SAN JUAN BASIN ACTION PLAN OVERVIEW AND RELATIONSHIP OF THE NMGS EIS TO ACTIONS INCLUDED IN THE PLAN

The proposed site for the NMGS is located in the San Juan Basin of northwestern New Mexico. The Bureau of Land Management (BLM) is responsible for the management of much of the land and mineral resources in this area, and currently has six separate but

interrelated proposals under consideration within the basin. In order to respond to these, the BLM has developed a San Juan Basin Action Plan (SJBAP). This plan provides for the organizational arrangements whereby the environmental analyses and decision making can be implemented in a timely and efficient manner. The plan describes the process for preparation of three site-specific EISs (including the NMGS EIS) and three Environmental Assessments (EAs):

- Coal Preference Right Lease Applications (EA)
- San Juan River Regional Coal Leasing (EIS)
- Wilderness Study Areas (WSAs) (EIS)
- New Mexico Generating Station (EIS)
- Ute Mountain Land Exchange (EA)
- Bisti Coal Lease Exchange (EA)

In addition to these documents, the action plan provides for the preparation of a Cumulative Overview (CO). The CO is intended to focus on the cumulative impacts that would result from the proposed actions analyzed in the EISs and EAs listed above and therefore to facilitate public review and decision making. As a result of this organization, the impact analysis in the NMGS EIS and technical background reports concentrates on the impacts expected to result from the specific NMGS components proposed. The cumulative impacts expected to result from the proposed NMGS, in addition to the cumulative impacts of other proposals to be developed in the same time period, are described in the CO.

BASELINE CONDITIONS ASSUMED FOR THE NMGS TECHNICAL REPORT IMPACT ANALYSES

The site-specific impact analysis for this technical report was based on the affected environment and available resources that would

be existing at the time of construction and operation of the NMGS facility. Since construction at the NMGS facility would not begin until 1985, certain assumptions regarding project development in the San Juan Basin were necessary. Two levels of project development were considered, along with criteria for each, in developing a status for the various non-SJBAP actions proposed for the San Juan Basin area.

- Baseline 1 - The projects considered in this level of development are those that have approval and are to be built or under construction in 1985. This level represents the projected existing environment without the proposals included in the SJBAP.
- Baseline 2 - The projects considered in this level are in some phase of the application stage. In this level, Baseline 1 projects are added to any projects in Baseline 2 along with any revision in resource production or uses (e.g., coal).

Where differences in Baselines 1 and 2 affect the results of impact analyses, discussion is provided. If no differences are identified, it should be assumed that consideration of the two different baselines did not alter the impact analyses.

A complete list of projects and comprehensive location maps for Baselines 1 and 2 are provided in Appendix C of the NMGS EIS.

ORGANIZATION OF THE REPORT

Section 2.0 of this technical report describes the assumptions and methodological approach used in the assessment of potential impacts of the Proposed Action on the affected environment. In

addition, Section 2.0 contains a definition of the study area and identification of data sources.

Section 3.0, Affected Environment, contains baseline data on existing conditions in the study area, as well as projections of future conditions without the Proposed Action. Information on historical trends is presented where it is useful in providing a basis for predicting most likely future trends. The description of projected future trends takes into consideration the changes in the environment that are expected to occur as a result of the projects identified in Baseline 1. This provides a reasonable estimate of the future existing environment against which the potential impacts of the Proposed Action and alternatives can be assessed.

Section 4.0 describes the potential effects of implementing the Proposed Action and alternatives. Impacts identified are measured against indicators of significance in order to estimate the importance of the impact to the affected human environment. (Potential impacts associated with alternatives to the Proposed Action are compared in Section 9.0.)

In Section 5.0, mitigation measures are suggested. These measures would help to alleviate the potentially significant adverse impacts or enhance the beneficial impacts identified in the Section 4.0 analysis. Those potentially adverse impacts for which no appropriate mitigation measures have been suggested are discussed in Section 6.0 as "unavoidable adverse impacts."

CULTURAL RESOURCES MANAGEMENT LEGISLATIVE REQUIREMENTS

Cultural resources can be defined as follows (U.S.D.I. 1976: A.6-3, A.6-5):

- Cultural resources--Sites, structures, objects, and districts significant in history, architecture, archeology, or culture.

The term "cultural resources" includes the following:

- Archeological resources--Occupation sites, work areas, evidence of farming or hunting and gathering, burials and other funerary remains, artifacts, and structures of all types, usually dating from prehistoric or aboriginal periods, or from historic periods and non-aboriginal activities for which only vestiges remain;
- Historic resources--Sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of nation, state, or locality; places where significant historical or unusual events occurred even though no evidence of the event remains; or places associated with a personality important in history;
- Architectural resources--Structures, landscaping, or other human constructions that possess artistic merit, are particularly representative of their class or period, or represent achievements in architecture, engineering, technology, design, or scientific research and development; such resources often are important for their archeological or historical value as well;

- Sites--Distinguishable pieces of ground, or areas of historic or prehistoric events, or which are importantly associated with historic or prehistoric events or persons or cultures, or which were subject to sustained historic or prehistoric activity of man, sometimes featuring changes in topography produced by human activity; examples of battlefields, historic campgrounds, ancient trails or gathering places, middens, historic farms;
- Structures--works of man, either prehistoric or historic, created to serve human activity, usually by nature or design immovable; examples are buildings of various kinds, dams, canals, bridges, fences, military earthworks, Indian mounds, gardens, historic roads, mill races, and ponds;
- Objects or artifacts--Material things of functional, aesthetic, cultural symbolic, or scientific value, usually by nature or design movable.
- Districts--Geographically definable areas, urban or rural, possessing a significant concentration or linkage of sites, structures, or objects unified by past events or aesthetically by plan or physical developments or by similarity of occupation.

This definition should be supplemented to specifically include sites of importance to traditional Native American religious values and practices, in compliance with the American Indian Religious Freedom Act discussed below.

Legislation that mandates consideration of cultural resources is as follows:

The Antiquities Act of 1906 (35 Stat. 225)

This Act provides protection for prehistoric and historic archeological sites that exist on lands owned or controlled by the federal government, and establishes criminal sanctions for unauthorized destruction or appropriation of antiquities. It authorizes the establishment of national monuments and authorizes the scientific investigation of sites by those institutionally affiliated individuals qualified to hold a Federal Antiquities Permit.

The Historic Sites Act of 1935 (49 Stat. 666)

The Historic Sites Act establishes the Historic American Buildings Survey and authorizes the preservation and protection of sites of historic architectural and/or archeological significance.

The Reservoir Salvage Act of 1960 as Amended by the Archaeological and Historic Preservation Act of 1974 (74 Stat. 220)

The Reservoir Salvage Act authorizes funding and administrative direction for the recovery of significant historical and archeological resources endangered by the construction of dams, reservoirs, and attendant facilities or any other terrain alteration resulting from a federal project or licensed activity. Interim regulations establishing standards for federal archeological recovery programs have been set forth as 36 CFR 66 (42 FR 5374).

The National Historic Preservation Act of 1966, as amended (80 Stat. 915)

This establishes a National Register of Historic Places, by expanding the provisions of the 1935 Historic Sites Act to include

prehistoric and historic sites and districts of local and regional, as well as national, significance. It authorizes a state matching grants program for the identification, evaluation, management planning, and acquisition and rehabilitation of properties on or determined eligible for the National Register. It also establishes an Advisory Council on Historic Preservation, and authorizes the appointment of a State Historic Preservation Officer for each state. Section 106 requires that the Advisory Council be given the opportunity to comment on federal or federally permitted undertakings that will affect National Register listed or eligible properties. Section 110 requires that federal agencies identify, evaluate, and, where possible, protect the cultural properties under their jurisdiction. It further directs agencies to exercise caution in all their undertakings that might affect unknown significant resources until such inventory and assessments are complete for the affected lands. Regulations implementing the Act include 36 CFR 60, 36 CFR 63, 36 CFR 65, and 36 CFR 800. For the purposes of this Act a 50-year minimum age is generally used to define a "historic resource."

The National Environmental Policy Act (NEPA) of 1969 (91 Stat. 852)

This policy includes, as a responsibility of the federal government, the preservation of "important historic, cultural, and natural aspects of our national heritage." Its implementing regulations are published as 43 CFR 1500.

Executive Order 11593 "Protection and Enhancement of the Cultural Environment," May 13, 1971 (36 F.R. 8921)

Partially codified in Section 110 of the National Historic Preservation Act, this order puts the burden of leadership in preserving the cultural resources of the nation on various federal land managing agencies, directs these agencies to insure that cultural resources are not damaged, and directs them to identify properties worthy of nomination to the National Register.

Federal Land Policy and Management Act of 1976 (90 Stat. 2743)

This Act makes it a policy of the United States that management of federally owned lands be based on a concept of multiple use and sustained yield unless otherwise specified by law. It also states that public lands will be managed in a manner that will protect scientific, historical, and archeological values. It also requires the development of uniform procedures for any disposal of public land and mandates that the public have the opportunity to be involved in rulemaking and planning decisions that may affect public land. Its planning, programming and budgeting regulations have been published as 43 CFR 1600.

The American Indian Religious Freedom Act of 1978 (P.L. 95-341, 92 Stat. 469)

This joint resolution of Congress provides that "it shall be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and

exercise [their] traditional religions. . .including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites". No regulations have been developed to implement this legislation.

The Archeological Resources Protection Act of 1979 (P.L. 96-95, 93 Stat. 721)

Primarily aimed at commercial "pot hunters," middlemen, and others in the business of marketing artifacts taken illegally from federal land, this Act can also be extended to the destruction of sites resulting from industrial activity on federal lands. For the purposes of this Act a 100-year age minimum is used to define an "archeological" resource.

The Act allows issuance of an antiquities permit for excavation on federal land to any qualified individual or institution.

It provides for maintaining the confidentiality of site locational information (to protect against vandalism), as does the amended National Historic Preservation Act. Further, it provides that "In the case of any permits for the excavation or removal of any archeological resource located on Indian lands, the permit may be granted only after obtaining the consent of the Indian or Indian tribe owning or having jurisdiction over such lands. The permit shall include such terms and conditions as may be requested by such Indian or Indian Tribe" [P.L. 96-95, Sec. 4.(g)(2)].

Violations under the Archeological Resources Protection Act can be prosecuted under either criminal or civil law. Criminal prosecution is aimed primarily at commercial pothunting and consequently has little interest to utilities. Civil suits, however, are a possibility when a site is inadvertently disturbed during construction of a utility project. Penalties that could be levied under the Act include: fines in the amount of the market value of the artifacts destroyed, fines in the amount of the restoration cost of a site and forfeiture of equipment that caused the damage until the court has considered the case. On Native American tribal lands, all penalties assessed and equipment confiscated go to the tribe owning the land.

Draft regulations for this Act have been proposed as 36 CFR 1215 (46 FR 5566), but have not yet been made final.

The Chacoan Culture Preservation Act of 1980 (P.L. 96-550)

Providing for preservation and protection of archeological areas nearby and adjacent to Chaco Canyon National Monument, this Act renames and makes the monument a park (Chaco Culture National Historical Park), expands the earlier boundaries, establishes a system of archeological protection sites within the San Juan Basin (which are not themselves considered units of the National Park System, however), and establishes and continues a program of archeological research within the San Juan Basin coordinated with resource development in the area.

CURRENT BLM CULTURAL RESOURCES MANAGEMENT POLICY

In order to assess the impacts of the proposed NMGS project on cultural resources it is necessary that BLM's current cultural resource management policies be made explicit here--particularly since BLM does not restrict itself to National Register criteria in determining appropriate management measures. If a no-action alternative is ultimately selected (i.e., if the NMGS project is not constructed), it is vital that the present status quo be known in order for the effect of no-action to be evaluated.

Current BLM cultural resources management policy in New Mexico, as reflected in Draft Instruction Memorandum No. NMSO-80-179 (dated March 21, 1980; expiration date: 9/30/81), is itself based on BLM Washington Office guidelines contained in Instruction Memorandum No. 80-282, and includes guidelines for fulfilling BLM's responsibilities in achieving compliance with federal cultural resource management legislation (NEPA, NHPA, etc.). Though the formal expiration dates for these documents have passed, they are still referred to as current policy directives. In addition to outlining procedures for compliance under 36 CFR 800, the document reviews internal BLM cultural resources management policies, including the following evaluation procedures (Cultural Resource Evaluation Guidelines, pp. 1-2, appended to Instruction Memorandum No. NMSO-80-179). Also in effect is Instruction Memorandum No. NMSO-81-341 (dated July 2, 1981; expires 9/30/82) which addresses the application of a "rule of

reason" in assessing and managing impacts to cultural resources on private land as part of a BLM approved action. A new Programmatic Memorandum of Agreement (PMOA; see Appendix G) has recently been negotiated between the BLM New Mexico State Office and the New Mexico State Historic Preservation Bureau in Santa Fe (Inter-Agency Agreement NMSO-168, March 4, 1982). This document should form the basis for formal cultural resource management procedures for the BLM in New Mexico.

NMSO-80-179 states in part that:

Major Cultural Resource Use Categories. The evaluation of cultural resources requires the consideration of actual or potential specific use of individual cultural resource sites or properties within each of the following categories:

1. Socio-Cultural Use. This category refers to the use of an object (including flora and fauna), structure, or place based on a social or cultural group's perception that the object, etc., has utility in maintaining the group's heritage or its existence.

2. Current Scientific Use. This category refers to a study or project in progress at the time of evaluation for which scientists or historians are using a cultural resource as a source of information which will contribute to the understanding of human behavior.

3. Management Use. This category refers to the use of a cultural resource by the Bureau, or other entities interested in the management of cultural resources, to obtain specific information (other than basic inventory data) needed for the reasonable allocation of cultural resources or for the development of effective preservation measures. This category includes study plots allocated to examine specific impacts, deterioration, etc.

4. Conservation for Future Use. This category refers to the management of cultural resources by segregating them from other forms of appropriation until specific conditions are met in the future. Such conditions may include, but are not limited

to, development of research techniques which are presently not available, or the exhaustion of all other resources similar to those intended to provide long-term, in-site preservation and protection of select cultural resources.

5. Potential Scientific Use. This category refers to the potential use of a cultural resource as a source of information which will contribute to the understanding of human behavior, utilizing research techniques currently available.

Implementation of BLM management policy is perhaps best illustrated by quoting from a volume (now in press) concerned with cultural resources management nationwide. Fowler (n.d.: 26-27) observes:

An example [of "integrative" management planning on the state level] is an evolving management process for the San Juan Basin region in the Four Corners area of the Southwest. The region has a long culture history, from Paleo-Indian times (ca. 10,000 B.C.) to the historic period. Historic tribes in the area include Pueblos, Navajos, Apaches, and Utes. The region has been the scene of extensive energy development and much further development. . . is projected. Several CRM [cultural resource management] agencies have jurisdiction within the Basin, including the National Park Service, the Bureau of Land Management, the Forest Service, the New Mexico and Colorado State Historic Preservation Offices, the Office of [Surface] Mining, Department of the Interior, and the Navajo Tribe. Starting from an assessment study by the National Park Service . . . the several agencies are jointly developing a dynamic management system utilizing a computerized data base. . . and extensive application of remote sensing. . . to monitor land-altering activities and as an aid in predicting probable site locations.

FRAMEWORK FOR ANALYSIS AND INDICATORS OF IMPACT SIGNIFICANCE

2.1 STUDY AREA

Study Area Definition

Direct Impact Assessment

For this evaluation, the geographic area of influence (generally referred to as "the study area" hereafter) is the area of direct ground-disturbing impacts. This includes construction zones for the plant facilities and the water supply and transmission systems (including access roads and borrow pits), and operation and maintenance areas for the constructed project. Areas within sight of the plant, transmission system, or above-ground elements of the water supply system could also be areas of significant visual impact to the cultural resources. Areas within hearing range of construction zones, or of the plant site or other operating facilities, could also be areas of significant noise impacts to users of the cultural resources. These visual and noise impact areas would vary in geographic extent depending on local topography, and must be defined on a case-by-case, resource-specific basis.

Indirect Impact Assessment

The geographic area of possible indirect impacts to cultural resources is considered to be the same study unit as is used for the NMGS recreational resource evaluation. This includes those activity areas considered to be a reasonable (up to 100 mi. one way) day's drive from the proposed major residence communities (especially Farmington), and is generally coincident with the San Juan Basin physiographic area.

2.2 INDICATORS OF RESOURCE AND IMPACT SIGNIFICANCE

Indicators of Resource Significance

The indicators for significance used here in the first level of analysis of cultural resource management needs are variable depending upon whether those resources are historic properties subject to the National Historic Preservation Act, or are traditional Native American locales subject to consideration under the American Indian Religious Freedom Act. Both are considered under NEPA and the Federal Land Policy and Management Act.

Evaluations of the Significance of Historic Properties

Determinations of exactly which archeological sites should be avoided, or excavated if they are to be disturbed (i.e. impacted) by a federally approved action, is a complex process. In many ways this

is as much an administrative problem as it is a scientific problem (see Stuart and Gauthier 1981:1-7), as BLM has recognized (I.M. No. NMSO-80-179) in formulating its own cultural resource use categories-- socio-cultural use, current scientific use, management use, conservation for future use, and potential scientific use (see Section 1.6, "Current BLM Cultural Resources Management Policy," above, for more complete discussion of these categories). In addition, BLM employs National Register criteria in evaluating site significance. The National Register criteria are set forth in 36 CFR 60.6 (41 FR 1595):

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

(a) That are associated with events that have made a significant contribution to the broad patterns of our history, or

(b) That are associated with the lives of persons significant in our past; or

(c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) That have yielded, or may be likely to yield, information important in prehistory or history.

Unless a property is of exceptional importance, sites younger than 50 years are not considered eligible for the National Register. The State Plan of New Mexico endorses these criteria (Stuart and Gauthier 1981:348).

It is criterion (d) referenced above that makes virtually any archeological site eligible for inclusion in the National Register, and thus eligible for consideration in terms of impacts and mitigation procedures if it is to be disturbed during a federally approved action, i.e. "destruction or alteration of all or part of a property" (U.S.D.I. 1976:A.6-5). Tainter and Gillio (1980:150) take the most conservative approach possible when considering the issue of significance. It is important to note that the following statement was endorsed by both Marvin LeNoue (Chief, Division of Resources, U.S.D.I. Bureau of Land Management, New Mexico) and Paul D. Weingart (Director of Recreation, U.S.D.A. Forest Service, Southwestern Region):

The burden of proof thus rests upon those who deny significance to a site. This being the case, when a site cannot be positively demonstrated to lack research potential, negative significance evaluation cannot, and should not be made. State plans, regional research designs, and other contemporary evaluative criteria can never be used as a basis for excluding a site from conservation. This does not mean that every archeological resource must be preserved in the ground. It only means that we must be careful that future archeologists will have the data they will need. If those data can be removed from their place of deposition without major information loss, then fine. [Italics in original.]

Clearly this means that any sites worth recording "have yielded or may be likely to yield, information important in prehistory or history" (36 CFR 60.6(d)) and should be considered in an Environmental Impact Statement--i.e., all 698 archeological/historical sites listed in this report.

Stuart and Gauthier (1981:351) take a more practical approach to this problem, considering the vast numbers of sites in New Mexico, limited time and funds available, and increasing pressure from both public and private sectors to define important sites in simple terms.

For the purposes of argument, let us consider the possibility that every archeological and historical site is important or significant. That is simply to say that any site may contribute, given the right circumstances, to an inquiry into the lives or means of subsistence of historic or prehistoric people. This may be true but is evidently not very useful in an administrative point of view. We have to limit, we have to define significance for administrative reasons.

They go on to ask difficult questions (Stuart and Gauthier 1981:374).

Those who advocate recording everthing, in detail have two considerations to address. Is it economically and logistically practical to do so? Is it even necessary to do so for research purposes? [Italics in original.]

They propose two models for determining site significance, one based on evaluating the resource value of a site, the other on evaluating the research value of a site. Their resource model is based on the relative abundance (or rarity) of particular types of sites. They contrast the resource model with the research model as follows (Stuart and Gauthier 1981:352-353):

This resource model has the virtue of relative simplicity, although, as has already been said, it begs the real questions. It has another advantage too. In a model in which the significance of sites changes with changes in the land itself, the man running the bulldozer determines significance. The destruction of a part of our universe by stripmining causes a corresponding increase in the

value of the sites that are left. So when the miner asks which sites are important and which are not, we can tell him to show us his mining plan. To the extent that the plan shows what is going to happen to the land, we can determine significance now and in the future covered by that plan. This may be useful in dealing with the people who think that determining significance should be simple-- much simpler, for example, than running a strip mine.

A resource model of significance is physical; a research model is theoretical. In a research model the unit of reference is a research question. Here, values rise and fall as questions are answered and asked, rather than according to the number of sites of any given type.

A research model is just as arbitrary in its way as a resource model. Who asks the research questions, for example? How many investigators does it take to ask a valid question? Suppose investigators disagree over what questions ought to be asked? There is only one way to deal with these problems. The valid research questions are the ones decided on by the investigator doing the work. Of course he will never ask all the questions nor get all the answers, and some information will be lost. A research model is bounded not only by arbitrary decisions about who gets to do the job and what line of inquiry he will pursue, but by the nature of knowledge and perception.

With the recognition that the resource and research approaches are not mutually exclusive, Wimberly and Eidenbach (1980:231) developed an experimental method of weighing the relative value and potential contribution of each site within any population of archeological sites. Their system is based on the following criteria (items in parentheses added):

- (research and resource) 1. Density of cultural materials
- (research and resource) 2. Preservation of the resource
- (research) 3. Potential stratigraphic preservation

- (research and resource) 4. Rarity of the resource, by period or site type
- (resource) 5. Aesthetic value of the resource
- (resource) 6. Potential for restoration
- (research and resource) 7. Continuing scientific and educational potential

Score values range from zero to four points for each criterion as follows:

- 0 -- None
- 1 -- below average
- 2 -- average
- 3 -- above average
- 4 -- exceptional

Thus, any particular criterion, if scored at the highest value, can weight the overall score for a site, even if other values score at an average level. (Wimberly and Eidenbach 1980:231)

Finally, Wimberly and Eidenbach (1981:85-164) recorded explicit justification for each score in their individual site reports. This type of system, if used in the future, would certainly make evaluations of significance easier to justify, as well as more consistent. However, it must be stressed that such a detailed evaluation of individual resources is not appropriate in a BLM Class I overview and inventory such as this report.

Evaluations of the Significance of Traditional Native American Resources

The ethnographic sites constitute a diverse set of localities of significance to some Navajos. These localities may be contrasted

to archeological and historic sites by virtue of methods of identification. Archeological and historic sites are usually identifiable as physical evidence on the ground. In contrast, the ethnographic sites reported here were identified through a preliminary reconnaissance designed to acquire information from Navajo residents. Primary informant data were supplemented by a literature review.

The localities of cultural or religious significance identified through these methods include some that have no material manifestation. Others are materially manifest and could be recorded through an archeological survey. Obviously, some of the historic Navajo sites and some prehistoric archeological sites referred to elsewhere in this document may be of cultural or religious significance to Navajos. However, without either primary informant data or other data sources it might be difficult, although not always impossible, to ascertain such significance. For example, public ceremonial sites, probable grave sites, and Anasazi ruins with artifacts typically associated with Navajo curing ceremonies might be recognized and recorded during an archeological survey. The probability that these sites would be of significance to some Navajos is quite high.

The ethnographic sites are cultural resources because of the cultural values or religious beliefs they symbolize for Navajo individuals. The significance of these unique cultural resources and the impacts upon them presented by the proposed project will be addressed in this section. Recommendations concerning avoidance or mitigation measures will follow.

Within the context of contemporary historic preservation and cultural resource management a legal basis for recognizing the importance of and protecting prehistoric and historic sites is found in the laws, as discussed in Chapter 1. The National Register list of criteria for significance evaluation "is the pivot upon which historic preservation in the United States turns" (King, Hickman, and Berg 1977:95).

Although the National Register criteria provide guidelines for evaluating archeological sites and historic properties, it has been recognized (e.g., Buckley 1978; Winter 1980) that these guidelines may not be appropriate for evaluating the significance of the full range of cultural resources that are protected under the NHPA itself, ARPA, the National Environmental Protection Act (NEPA) of 1969, or the American Indian Religious Freedom Act (AIRFA) of 1978. This problem results from the inherent limitations of the National Register criteria themselves and from the lack of new enabling legislation.

The cultural significance of the ethnographic sites described in this report cannot readily be evaluated with the National Register criteria. Some sites are specifically sacred and others are culturally significant, although not sacred. Typically, all such localities have been referred to as cultural resources in recent cultural resource management reports, if they have been referred to at all. However, the term cultural resource has commonly been used in a restricted fashion. In 1978, Buckley analyzed the U.S. Forest

Service's evaluation of sacred sites, pointing out that the Forest Service's definition of cultural resources was limited to material objects or properties that were historic remnants of the past. In contrast, Buckley believes (1978:2) Native Americans would define sacred sites as "loci of nonmaterial energies, or forces." He sees the contrasting definitions as a conflict of two different systems of cultural symbols and meanings. For the Forest Service, either cultural resources or sacred sites are properties that are akin to commodities. Additionally, these properties might be of significance if they had a heritage value based on being representative of the historic past. In contrast, the Yurok and Karuk Indians maintain that the southern Siskiyou Mountains have been historically and continue to be a sacred district for them.

Regardless of the lack of fit between existing legislative criteria and the sites, the necessity of identifying and evaluating the sites remains. Just as the cultural significance of a Mt. Olympus or a Mt. Sinai could be assessed only by those to whom Zeus and Moses are cultural realities, so can sites of significance to Native Americans be assessed only by Native Americans. Not only must they be consulted but it must also be understood (both by federal agencies and by Native Americans) that they are the final decision-makers on cultural significance.

Indicators of Impact Significance

Typical impacts to cultural resources that may occur during construction and operation of fossil-fueled steam electric generation stations have been outlined by the U.S. Department of the Interior (1976:A.6-5,6). They are listed below:

- a. destruction or alteration of all or part of a property;
- b. isolation from or alteration of its surrounding environment;
- c. introduction of physical, visual, audible, or atmospheric elements that are out of character with the resource and its setting.
- d. Transfer or sale of a federally owned property without adequate conditions or restrictions regarding preservation, maintenance, or use.
- e. Neglect of a property resulting in its deterioration or destruction.
- f. Modification or termination of "lifeways" caused by influences of the project.

These are to be guarded against. In addition, cultural traditions should be recorded before they change.

Historic places which have been formally recognized are listed in a National Register of Historic Places which is published in the Federal Register annually in February and updated on the first Tuesday of every month.

When considering generating station sites, the Applicant should not only consult the National Register to learn of historic places in the area but should also consult the State Historic Preservation Officer. This official is appointed by the State Governor and operates at the state level, but provides liaison with the Department of the Interior in historical and cultural preservation. He can identify those additional historic places which are significant and are eligible for inclusion in the National Reg-

ister, even though not yet included therein. He or a State Archaeologist can advise on archaeological matters. If after a field survey of the site by a historian, archaeologist, architect, or other professional person trained in locating and evaluating cultural values and consultation of the National Register of Historic Places and with the State Historic Preservation Officer it is determined that no properties listed or eligible for listing in the National Register will be affected by the project, the environmental report should so state.

If listed or eligible sites are found, the applicant should state which mitigating measures will be employed to lessen the cultural impact (36 CFR 800). These may include preservation by rearranging construction lay-down areas and building lay-outs. If destruction is unavoidable, the environmental report should provide reasons and describe the mitigating measures intended to recover archaeological, historical, architectural, or other data before demolition. These may include excavation, photographs, and measured drawings; publication of the findings and deposition of salvaged artifacts in appropriate museums.

These mitigation measures should be planned in the design stage. Later consideration may well prove too late to prevent cultural impact.

The above-mentioned guidelines are not hard-and-fast rules. They are meant to be flexible enough to be applicable in situations across the entire United States, as the following excerpt from U.S. Department of the Interior (1976:viii) Guidelines makes clear:

The guidelines developed herein are intended to facilitate preparation of a technical Environmental Report by permit applicants for fossil fueled steam-electric generating facilities. . . .The Guidelines have been generally written for coal-fired generating plants, but are readily adaptable to other fossil fuels, including gas turbine units, which could also utilize the main portions of the document. If in certain instances, portions of the Guidelines are not applicable to a specific project of an applicant, he should recognize the fact and assemble his Environmental Report accordingly.

2.3 METHODS OF DATA COLLECTION

Prehistoric Archeological Sites

During early planning stages of the NMGS project, it was assumed that adequate retrieval of information on prehistoric sites would require contacting all agencies, universities, and organizations within New Mexico and neighboring states. Accordingly, a data retrieval questionnaire was designed. However, by the time actual work on the project began, the Laboratory of Anthropology's (LA) Archeological Records Management (ARM) project had progressed so rapidly that nearly all the information that could be obtained by hand sorting paper files was already entered in the electronic ARM files. Thus, information on prehistoric sites was collected primarily from two data banks, the ARM file at the LA, and the San Juan Basin Regional Uranium Study (SJBRUS) file at the National Park Service (NPS), Santa Fe. Information on sites located by NPS Division of Cultural Research (formerly the Chaco Center) surveys was acquired by QRC project personnel from the Division office in Albuquerque.

The technique used in collecting site data from the ARM file was to request that a search be performed for various kinds of site information, including National and State Register status, on each site in every quad (represented by U.S.G.S. topographic quads) to be affected by the proposed NMGS project. Information on a few

sites on the LA maps but not yet entered in the ARM system was retrieved by hand. Because the LA updates its site location maps daily, determining which sites fell within the study areas and transferring them to NMGS project maps was both simple and accurate.

Site data are retrieved from the NPS's SJBRUS file by providing centerline UTM's. The SJBRUS computer then plots the centerline and superimposes a 2-km.² grid over the plotted centerline. The NPS does not maintain a set of quad maps from which site locations can be retrieved by hand. (See "Data Reliability/Adequacy Assessment," below, for a discussion of the problems inherent in this system.)

It should be mentioned that archeological inventories are typically classed in one of three ways by the Bureau of Land Management. These classifications are frequently referred to below (BLM Manual 8100:Glossary of terms p.2 [U.S.D.I., BLM 1978]):

Class I - existing data inventory:

an inventory study of a defined area designed (1) to provide a narrative overview (cultural resource overview) derived from existing cultural resource information, and (2) to provide a compilation of existing cultural resource site record data on which to base the development of BLM's site record system.

Class II - sampling field inventory:

a sample-oriented field inventory designed to locate and record, from surface and exposed profile indications, all cultural resource sites within a portion of a defined area in a manner which will allow an objective estimate of the nature and distribution of cultural resources in the entire defined area.

Class III - intensive field inventory:

an intensive field inventory designed to locate and record, from surface and exposed profile indications, all cultural resources within a specified area.

These class definitions are phrased as if they are to be applied to the universe of cultural resources, which includes prehistoric and historic archeological and architectural resources as well as those important to traditional Native Americans. However, their wording is more specifically directed to the management of archeological resources, especially inventoried prehistoric sites. Their application to other categories of cultural resources is discussed below.

Historic Archeological and Architectural Sites

The normal Class I procedures employed for studies of prehistory (library and archival research) are not entirely applicable to retrieval of historic information. Depending on the era under investigation, a rigorous and intensive (Class III) historic study may consist entirely of library and archival research--often taking the researcher to rarely inspected shelves of unindexed and uncataloged documents, family diaries and letters, and obscure local periodicals. When the time period is recent enough, the historian may also undertake personal interviewing. We see the appropriate Class I effort in historical research as an attempt to locate major references and easily accessible data bases.

Because site-specific data on historic sites have not consistently been committed to data banks and because much of San Juan Basin

history will ultimately have to be written from the archeological record, three approaches to these data as they relate to the proposed project were employed. In combination, these constitute a Class I level of resource assessment. A Class III inventory of historic resources would eventually include more intensive review of archival data with field verification of resource integrity.

The first effort was a search for historical information in archival and library sources specific to the San Juan Basin. Few useful data were found there. The second was inspection of two documents housed at the New Mexico State Historic Preservation Office--an inventory of all presently identified historic properties in New Mexico prepared by the SHPO staff and updated periodically, and a statewide on-the-ground survey of historic architectural and engineering structures recently prepared by Texas Tech. Both of these documents contain records duplicated in the National Register of Historic Places and the National Architectural and Engineering Record. In addition, the American Folklife Center of the Smithsonian Institution was consulted. The third approach to the NMGS historic resource impact assessment was an attempt to discover any existing files of historic sites beyond those consulted at the SHPO Office. To this end, information was sought from Kathleen Brooker of the SHPO's Office, Nancy Brown of the New Mexico Historical Review Office, and Donald Lavash of the State Commission of Public Records and Archives. No such files or lists are known to be extant.

Traditional Native American Sites

As with historic resources, the presently outlined Class I procedures need to be altered for an evaluation of impacts to traditional ethnographic resources. Site-specific ethnographic work is of such recency (a consequence of the recency of the relevant legislation) that very few library and archival sources exist. Thus, Class I ethnography necessarily includes fieldwork of the kind that will allow preliminary assessment of the range of types of sites and areas of concern that should be anticipated in the study areas. Work at this preliminary level can make no pretense to being exhaustive, and must rather be understood as constituting only hints of the concerns that might be expressed when intensive interviewing occurs.

It was possible to visit every Pueblo proximate to the San Juan Basin and to interview tribal officials. Letters were written to pueblos north of Santo Domingo (those so distant from the Basin that religious or cultural concerns therein seemed unlikely). Letters were also written to the Ramah and Alamo Navajo chapters, to the Jicarilla and Mescalero Apaches, to the Southern Utes and Ute Mountain Utes, and to the Hopis. Additionally, a telephone conversation was held with a Jicarilla Apache officer.

The QRC ethnographic team responsible for Navajo data adopted a sampling approach. People who were most likely to possess significant information--such as religious specialists and residents in or

near the study areas--were consulted in the attempt to identify generic kinds of sites and concerns. Further, as opposed to the convention followed for prehistoric sites (only those inside the study areas are included), several sites outside the study areas per se are reported in the ethnographic section because they seemed to us to represent types of sites that will be of importance when more intensive studies are performed.

It must be stressed that an important distinction exists between QRC's work on the proposed water pipelines, plant site, and transmission corridors 1, 2, and 3 and the work performed by Charles H. Carroll for PNM on the F-CAP line (which is immediately adjacent to proposed transmission corridor 4). Carroll's work, included as Appendix C to this report, was a much more comprehensive effort. In carrying out PNM's intent to adhere to a policy of compliance with the American Indian Religious Freedom Act, he interviewed all landowners and leaseholders on the F-CAP right-of-way.

QRC ethnographic field time totalled 18 field days for the Pueblo and Canyoncito Navajo Work (LeRoy Condie) and 54 field days for the major Navajo work (Frederick F. York--36, Charles R. Griffith--18). Mileage for the Pueblo-Canyoncito Navajo work totalled 1243 miles; York traveled 6585 miles; Griffith traveled 2215 miles.

The ethnographic survey of the NMGS study area was designed to acquire both primary informant data and secondary information concerning localities of significance to the Navajo people that may be affected by the construction of the NMGS and related developments.

For the purpose of this research, significance was primarily defined in relation to the expression and practice of Navajo religion. However, Navajo religious beliefs and practices so thoroughly permeate contemporary Navajo culture and culture history that the religious or sacred significance of localities could not be addressed without also gathering data about both the heritage value of localities and their significance to the contemporary social environment.

The reader will notice that Navajo concerns receive a great deal of attention in this document. The reason is that Navajos occupy much of the region in which the project area is located. Many Navajo residents engage in livestock-related activities on allotment land they own, as well as on adjacent parcels of state and federal land.

Griffith and York conducted the fieldwork in the Navajo-occupied portions of the NMGS impact area with the assistance of native speakers of Navajo who served as interpreters and research assistants. Martin Begay assisted Griffith throughout the duration of the fieldwork. Unfortunately, Griffith was unable to complete the project. Raymond Barber and Raymond Benally worked with York. Raymond Barber's assistance was limited to the first week of the fieldwork. Raymond Benally assisted the author for the rest of the fieldwork phase of the project. In the field Mr. Benally shared a great deal of information concerning plant life of the San Juan Basin and he provided an herbarium that greatly facilitated our research concerning ethnobotanical resources and localized plant gathering areas.

In the course of conducting interviews with Navajo residents of the study area, traditional religious practitioners, and elected Navajo community and tribal officials were consulted for data pertinent to the concerns of the National Environmental Policy Act and the American Indian Religious Freedom Act.

The research goal of the project's ethnographic survey within the Navajo-occupied portion of the NMGS impact area demanded that fieldwork had to be conducted in a large geographic area within a short period of time. Therefore, York and Griffith divided the territory, with the Chaco Culture National Historical Park the approximate center of the geographic area to be covered. Griffith worked in the area from Chaco Canyon to the south and east. (As noted above, Griffith was not able to complete the fieldwork in this area.) York primarily covered the area west of Chaco Canyon to the border of the Navajo Reservation and the region north of the Park to the San Juan River Valley (see Fig. 3). Additional interviews concerning Navajo sacred localities on PNM's F-CAP line were conducted by PNM anthropologist Charles Carroll and a separate report discussing them appears as Appendix C of this report.

The research strategy selected for the project was to conduct a geographically extensive reconnaissance that focused upon soliciting information from Navajo residents about localities of significance throughout the project area. In addition, some archival and library research was done. However, it must be stressed that we consider the

nature of the ethnographic effort to be preliminary (see discussion above).

Near the beginning of the fieldwork phase of the project a one-day flight over the NMGS proposed project area was made. The flight facilitated putting the study area in geographic perspective in a relatively short time. Time limitations for the flight only allowed for the effective use of a regional map of the impact area at a scale of 1:250,000. However, in our on-the-ground reconnaissance and fieldwork conducted throughout the duration of the fieldwork phase, U.S.G.S. quad maps at a scale of 1:24,000 proved to be invaluable for locating ourselves, the residences of our informants, and the various localities that were recorded.

Library and archival research conducted during the project allowed us to locate and identify several potentially significant localities. Furthermore, localities identified by our informants as significant were subject to independent verification because of references to them in either published or unpublished documents. Materials, including unpublished reports and research notes, on file at the Division of Cultural Research of the National Park Service were of special assistance in that regard. Likewise, maps and archival materials from Bureau of Indian Affairs and Navajo Tribal offices in Crownpoint, and the bureaus of Land Management and Reclamation in Farmington were useful.

Numerous meetings with individuals who are either officials of the local chapter house communities located throughout the project area, local delegates to the Navajo Tribal Council, or land board members were held to explain the research project and solicit assistance. At times, these meetings led to invitations to attend chapter meetings where an ethnographer and his interpreter were expected to explain the goals of the research and answer questions from local officials and community members. Chapter meetings were attended in the Navajo Chapter communities of Ojo Encino, Pueblo Pintado, Torreon, and Whitehorse Lake. In three of these chapter communities, the attendance of an ethnographer at a chapter meeting led to interviews with both project area residents and traditional religious practitioners. In the context of this research project, discussions with local officials by both ethnographers and the presentation made by one ethnographer to community members at a chapter meeting generally led to further interviews. However, in one community further work was precluded by a vote of approximately 40 community members in attendance at a chapter meeting. This incident is discussed further below.

The criteria for selecting informants included the ethnographers' previous contacts with project area residents and traditional religious practitioners, informants who resided within the project area, and traditional religious practitioners recommended by project area residents, other researchers, and agency personnel. Within

the time available for conducting the research, it was not possible to contact all project area residents who might have been of assistance. However, through the use of this selection strategy a sample of project area residents and knowledgeable religious practitioners was achieved.

Once informants had been selected and contacted, efforts were made to have informants work with us in the field. Visits to localities to be recorded or their vicinity were necessary to assure that we properly located the places described to us by informants. Arranging appointments for fieldwork with informants was at times a frustrating experience. Informants had very busy schedules which included local jobs and trips to Farmington, Crownpoint, Gallup, Window Rock, Albuquerque, and elsewhere. Additionally, our field season coincided with both wood gathering and pinyon picking, activities that had high priority for our informants. Religious practitioners as a group were very busy. Traditional ceremonial activities were evident throughout the project area during the period of our fieldwork. A highly respected traditional religious practitioner in the Pueblo Pintado Community, who provided us with important information, had to miss an initial appointment because of a trip to Tohatchi, New Mexico to officiate at a ceremony, for example. By way of contrast, a ceremonial practitioner who resides outside of the project area in Nenahnezad was interviewed within the project area where she was visiting a family for whom she was going to conduct

a Blessingway ceremony. These two examples indicate that religious practitioners who reside within the project area travel outside of it to officiate at ceremonies and that other practitioners who reside outside of the project area officiate at ceremonies held within it.

In addition to legitimate obligations that prevented potential informants from keeping appointments, it also appeared that some people with whom we wished to work were simply avoiding us by being absent from their homes at the times of scheduled appointments. However, it was extremely difficult to distinguish between legitimately missed appointments and avoidance. Without extreme persistence, very little of the primary informant data concerning specific localities could have been gathered.

The format employed in conducting interviews was for the ethnographer and interpreter to introduce themselves to potential informants, describe the research project, identify our employer, state why the research was being undertaken, and solicit the assistance of the potential informant. Initial contacts and subsequent interviews were conducted in either Navajo or English, depending on the person being interviewed.

Through the utilization of this format, the content of initial interviews focused upon explaining the research project, the American Indian Religious Freedom Act, and the proposed construction of the NMGS and related developments. Regional maps showing the NMGS impact area were shown to the potential informants and copies of the maps

were left with them for their reference. Questions from the people we interviewed concerning the research project, the ultimate use of any information that might be gathered, and the proposed development were answered to the fullest extent possible.

Examples of the kinds of sites and localities that we wished to learn about were presented to the potential informants during the initial interviews, and their assistance was solicited to identify such sites and provide their opinions regarding significance. When potential informants agreed to assist us, we were often able to gather preliminary data during the initial interviews. Appointments were then made for further interviews and visits to the various localities and sites. In some cases, informants stated that they had limited knowledge about what we were studying, but they recommended older family members and/or traditional religious practitioners for us to contact. In other cases, individuals stated that we should go to chapter officials and acquire the information from them. Although absolute refusal to assist us by permitting us to conduct an interview was rare, it did occur. The wide range of responses suggest that there is among the Navajos as high a degree of variability in individual attitudes as there is among other populations on such subjects as providing information to outsiders and development projects. However, the range of responses may be indicative of increasing awareness about contemporary development processes and the potential impact of land-extensive development projects, as

well as a growing sophistication in responding to proposed developments.

On the basis of our interview experience, it is difficult to discern any clear-cut patterns to refusals to assist the investigators on the basis of geographic area, age, sex, occupational status, or social status. However, we did encounter instances in which individuals identified as traditional religious practitioners by several other sources refused to acknowledge their status as practitioners.

Both ethnographers and interpreters kept notebooks in the field. Tape recorders and tapes were carried into the field, but not used. Tape recordings of Navajo place names, local oral tradition, and informants' versions of parts of origin legends would have been extremely valuable. However, we felt that sufficient rapport had not been established with even the best of our informants to utilize tape recorders within the time available for fieldwork. Field notes were kept and site forms filled out for each locality.

2.4 DATA RELIABILITY/ADEQUACY ASSESSMENT METHODS

Evaluation of the Data Base

Culture Historical Sites

The strict control maintained over its maps and the constant checking of the Laboratory of Anthropology's Archeological Records

Management system that results from heavy usage make those data highly reliable--in terms of completeness of data entries. The old problem of whether the site locations reflect ground truth remains--a problem aggravated by errors inherent in maps themselves and by errors in recording. These problems are discussed below.

The San Juan Basin Regional Uranium Study (SJBRUS) retrieval system contains a built-in problem that has almost undoubtedly affected our data. The SJBRUS system superimposes a 2-km.² grid over a centerline, rather than generating a 2-km.² grid out from a centerline. The result is that those grid squares barely missed by the centerline are not picked up by the computer; thus, sites in those squares do not appear on the site printout. A simple program modification could remedy this problem. For the present project, this problem is not serious, since comparison of the LA with the SJBRUS printouts convinced us that most of the sites in the SJBRUS file were duplicated in the LA ARM file. The major concern remains with Eastern New Mexico University (ENM) sites located during the Anasazi Origins Project. We were able to plot by hand a group of ENM sites from the UTM's in the SJBRUS printout. Our additional attempt at a remedy--to secure information from maps and site files housed at Eastern New Mexico University--failed. Some of the data from the Anasazi Origins and subsequent projects are on maps and site records; some are not. Which data are present and which are not is uncertain.

Other existing site data that were not caught by the computer net are those sites recorded by the Navajo Nation Cultural Resources Management Program. Master maps are not maintained. Because it would be necessary to go through hundreds of survey sheets to extract the comparatively small number of recently entered sites not present on the computer, we concluded that the few additional data gained would not justify the time expenditure. [Note: Since completion of this report, Russell T. Fehr, NNCRMP, has corrected the information we were given during the data collection stage of the project. Fehr notes (in a letter dated 22 June 1982):

It is true that we have not completed our master site location maps, yet master maps are on file for all of our large survey projects. . . . In addition, our site number system is based on 7.5 minute USGS quads. Each quad is designated by a letter and number, H-44, for example. Sites located on that quad are then numbered sequentially. It is a simple matter to look up the designation for a particular quad and then see how many sites we have recorded for that quad.

We would like to have. . . any qualified researcher used our site and report files. Our report files include all archaeological investigation performed on Tribal Lands in recent years, not simply those projects performed by NNCRMP. We would be most happy to furnish any reports or site forms at our costs in reproducing them.]

Site data collected by the National Park Service's Chaco Center have been entered in the LA map file but have not yet been entered in the ARM system. For this reason, these sites are shown on the project maps when they are known to fall inside proposed Transmission Corridor 2 (hereafter, T2, T4, etc.). Major Chacoan sites affli-

ated in clusters and recorded by the Chaco Center within T2 are included in the site list and discussed under "Assessment of Known and Predicted Impacts, Special Considerations."

In over-all perspective, the likelihood is high that most of the known prehistoric sites in the study areas are represented in the "Resource Base" section of this report.

Stuart and Gauthier (1981:388) and Judge (Hayes, Brugge, and Judge 1981:133-137) have recently dealt with the problem of reliability of site data generated by various survey techniques. Judge reviewed two large block surveys (within the study area) that covered the same unit of about 43 sq. mi. Since careful records were kept, he could determine that survey intensities of 11.67, and of 30.56 person days per sq. mi. were used to survey the same area. He found a clear direct statistical relationship between "the intensity factor" and the number of sites that were discovered and recorded. Stuart and Gauthier (1981:388) found that, on the average, 90% or better data recovery can be achieved at the "intensity factor" of 16 person days per sq. mi. Interestingly, this is in the mid-range of Judge's evaluation. They point out, however, that many large-scale surveys reviewed in the State Plan fell below the intensity level of 16 person days per sq. mi. They termed such projects as "fast cruise" surveys.

It was found in reviewing some 20 reports for this study that an accurate intensity factor could be computed for only one project.

This was because in most reports the exact number of days spent in the field was not specified, nor were the exact number of hours spent per day specified. Sometimes the number in the survey crew fluctuated substantially during the project, but the number of days when this occurred was not specified. In some instances, not even the exact acreage covered by the project was specified! This made comparing the intensity of ground coverage of these surveys a shaky possibility at best.

In fairness, it should be noted that Judge (Hayes, Brugge, and Judge 1981:134) found that for the surveys he examined, the relative site frequencies by time period were not affected by survey intensity. This offers some hope that the relative site frequencies offered in this report are truly representative. Such an assumption is also supported by the fact that the specific archeological and historic site information listed herein represents 7.26% (i.e., 698 of 9,614) of the total known sites recorded in the San Juan Basin of Northwestern New Mexico (see Stuart and Gauthier 1981:388-389). Since the entire culture history of the State of New Mexico is based on high-intensity survey of only 2% of the state, thus roughly 6-8% of the recordable site inventory (Stuart and Gauthier 1981:388-389), a 7.26% sample of known resources should provide a solid basis for Class I management purposes.

Archeological Survey Coverage. Evaluation of the intensity of coverage of any archeological field inventory, if that coverage is anything less than a guaranteed visual inspection of every square meter of the "surveyed" ground surface, is always complex. Vegetation cover varies, the spacing of individual survey team members and their mode of transportation vary, and the surveyors may preferentially focus on either prehistoric or historic archeological sites. However, some assessment of the adequacy of the known NMGS study area data is required for evaluating potential effects to the identified as well as presently unidentified resource base.

Thus, in order to gain some idea of the intensity of on-the-ground archeological surveys in the NMGS study areas, we examined reports on as many large surveys as we could locate. Because standardized survey methods and reporting are essentially a function of contract archeology related to development, we confined our investigation to recent (1976-1981) work. Large surveys other than those specified here are known to have been completed in the proposed project area, but we were either unable to locate the reports or no formal report was written (making it impossible to assess survey intensity). We believe we have examined most of the major survey reports for the area.

Based on our review of these reports, we have assigned each of these surveys within a tripartate classification of increasing

coverage intensity: reconnaissance surveys, corridor and partial section surveys, or block surveys of 75%-100% intensity. The latter category is especially important in implying "completeness" of the identified data, and therefore we have erred on the side of caution in assigning surveys to this category. These assignments have been based primarily on the stated intent of the surveyors and their documentation of survey methods that substantiate the assertions of coverage; when either or both of these are not reported we have made a judgement to assign them within a less intensive category of effort.

Because surveys have overlapped in some areas, we have listed under each reference the specific sections surveyed in possible overlap areas. Further, only those sections that fall within the NMGS study areas are included. A map (Fig. 2) has been prepared to provide a simple graphic reference for survey intensity.

[Note on NIIP Block I: According to Lawrence Vogler (pers. comm., 1982) of the Navajo Nation Cultural Resource Management Program (NNCRMP), there is documentation to indicate that a partial survey was performed on Block I, which is crossed by P2. However, because no formal report was prepared, the data are not available. NNCRMP plans some inventory in Block I during the summer of 1982.]

A. Reconnaissance surveys. These are vehicular and foot surveys that are preliminary assessments of the resources in the surveyed area. In two cases (Kozcan and Doleman [1976] and Reynolds [1980]), the surveys have been included under the A category because the

survey reports do not contain information adequate to permit future researchers to determine such vital information as survey intensity or survey location.

1. Beal, John D.

1977 A Structured Reconnaissance Survey in San Lucas Canyon near San Mateo, New Mexico. School of American Research, Contract Archaeology Division #69.

NMGS sections surveyed: T 4--T13N R8W, portions of Sec. 1 (San Lucas Dam quad).

2. Kozcan, Steven A., and William H. Doleman

1976 An Archeological Inventory of a Five-Section Tract Northwest of San Mateo, New Mexico, for Kerr-McGee Corporation. Museum of New Mexico Lab Notes 233.

This survey was apparently more intensive than we have indicated by its A category assignment. Site density (62 sites/5 sections) is 12.4 sites/mi.². However, the report does not indicate transect width, crew spacing, acres/person/day, or person days expended--information that is critical in assigning an intensity level to a survey.

NMGS sections surveyed: T 4--T13N R8W, Secs. 3, 4, 5 (San Lucas Dam quad).

3. Reynolds, William

1980 Final Report of the Cultural Resources Survey of Blocks VI and VII of the N.I.I.P., 1. Albuquerque, New Mexico: ESCA-Tech Corporation.

Like Kozcan and Doleman (1976), this survey was probably more intensive than we are indicating. The only report map we could find that shows both area outline and a scale is a geologic

map (Fig. 3.2, pp. 3-4), from which we attempted to determine the survey coverage area. Although we could not find a statement of area surveyed, our calculations (based on the geologic map) indicate approximately 33 sections in Blocks VI and VII. Site density, thus, is approximately 4.43 sites/mi.² (146 sites/33 sections). Our uncertainty over which intensity level this survey should be assigned to arises from the fact that even though crew spacing is listed as 30 m., each six-person crew reportedly averaged one section per day. Thus, each person covered 106 2/3 acres/day--a speed rarely possible at 30 m. spacing. Schaafsma (1978) reports comparable speed for the one section he inventoried, but notes that he considers six person days/section an absolute minimum time--possible only when site density is extremely low. We felt a conservative intensity assignment would not mislead the reader greatly in this case.

NMGS sections surveyed: WP1--T28N R13W.

4. Schaafsma, Curtis R.

1978 Initial Reconnaissance and Inventory of the South Hospah Mine Site. School of American Research, Contract Archaeology Division #84.

NMGS sections surveyed: T4--T17N R10W, Secs. 19, 20, 21, 27, 28 (Laguna Castillo quad).

5. Wilson, John P.

1977 Archeological Reconnaissance of the Alamito Coal Lease Area, San Juan County, New Mexico. MS, on file at Laboratory of Anthropology, Santa Fe.

NMGS sections surveyed: T2--T21N R8W, Secs. 29, 30, 31, 32, 33 (Fire Rock Well quad); T21N R9W, Secs. 8, 16, 22, 23, 24, 25 (Fire Rock Well and Sargent Ranch quads).

B. Corridor and partial section surveys. B category surveys are field inventories of narrow study corridors ranging from 75 to 400 ft., or surveys that covered (usually) undesignated portions of sections. For most of these we know only that foot survey has been accomplished somewhere within a section.

1. Carroll, Charles H., Michael P. Marshall, and David E. Stuart

1976 An Archeological Survey of Public Service Company of New Mexico's 345 kV Transmission Line Right-of-Way Four Corners to Ambrosia Lake, New Mexico. Albuquerque: Office of Contract Archeology, University of New Mexico.

NMGS sections surveyed: T4--T21N R13W, Sec. 34 (La Vida Mission quad); T19N R12W, Secs. 9, 15 (Nose Rock quad); T18N R12W, Sec. 1 (Becenti Lake quad); T17N R11W, Secs. 2, 12, 13 (Laguna Castillo quad); T15N R10W, Sec. 26 NW 1/4 (Mesa de los Toros quad)..

2. Chapman, Richard C.

1980 Additional Archaeological Survey for the Star Lake Mine, McKinley County, New Mexico. MS, on file at School of American Research, Santa Fe.

NMGS sections surveyed: T2--T20N R7W, Secs. 16, 23 (Pueblo Alto Trading Post quad); T20N R6W, Sec. 32 (Star Lake quad).

3. Hewett, Nancy S.

1980 Cultural Resources Inventory and Assessment for the Proposed 500 kV Transmission Line, San Juan Basin, New Mexico. Division of Conservation Archaeology, Contributions to Anthropology Series 271A.

NMGS sections surveyed: T4--T18N R11W, Secs. 28, 34 (Becenti Lake and Seven Lakes quads); T17N R11W, Secs. 2, 13 (Laguna Castillo quad); T17N R10W, Sec. 29 (Laguna Castillo quad); T16N R10W, Secs. 4, 10, 15, 22 (Laguna Castillo and Borrego Pass quads); T15N R10W, Secs. 23, 26 (Mesa de los Toros quad).

4. Hewett, Nancy S.

1981 A Cultural Resources Inventory Assessment for the Proposed 500 kV Transmission Line, Ambrosia Lake to Pajarito Station, New Mexico. Division of Conservation Archaeology, Contributions to Anthropology Series 271B.

NMGS sections surveyed: T4--T14N R9W, Sec. 36 S 1/2 (San Lucas Dam quad); T13N R7W, Secs. 8 NE 1/4, 9 N 1/2, 10 N 1/2, 11, 12 SW 1/4 (Cerro Alesna quad).

C. Block surveys of 75%-100% intensity. The surveys designated C are block surveys that covered several sections. Scaling intensity at 75% to 100% seems justified from internal survey report evidence.

1. Doleman, William

1976 Cultural Resources Survey and Inventory for Phillips Petroleum Company, Noserock Project, McKinley County, New Mexico. Museum of New Mexico, Contract Archeology Section, Project No. 64.17.

NMGS sections surveyed: T4--T19N R11W, Secs. 30, 31 (Becenti Lake quad).

2. Elyea, Janette M., Emily K. Abbink, and Peter Eschman

1979 Cultural Resources of the N.I.I.P. Blocks IV and V Survey. Window Rock: NNCRMP.

NMGS sections surveyed: P2--T25-26N R12W, T26-27N R11-12W.

3. Huse, Hannah, Bradley A. Noisat, and Judith A. Halasi

1978 Bisti-Star Lake Project: A Sample Survey of Cultural Resources in Northwestern New Mexico, No. 1. Albuquerque: BLM.

NMGS sections surveyed: P3--T24N R11W, Secs. 1, 2, 30, 33 (Huerfano Trading Post, Alamo East, and Tanner Lake quads); T23N R11W, Sec. 6 (Pretty Rock and Alamo East quads); Plant Site--T23N R13W, Sec 26 (Tanner Lake quad); T1--T23N R8W, Sec. 34 (Lybrook NW quad); T22N R7W, Secs. 7, 20 (Lybrook and Lybrook SE quads); T21N R6W, Sec. 5 (Mule Dam and Lybrook SE quads); T20N R5W, Secs. 6, 36 (Star Lake and Ojo

Encino quads); T2--T22N R12W, Sec 4 (Pretty Tock and Tanner Lake quads); T22N R11W, Sec. 22 (Pueblo Bonito Pueblo Bonito NW, Pretty Rock, and Kin Klizhin quads).

4. Powers, Margaret A.

1979 An Inventory and Analysis of Archaeological Resources on 3.8 Sections of Land near the Bisti Badlands, Northwestern New Mexico. Division of Conservation Archaeology, Contributions to Anthropology Series 119.

NMGS sections surveyed: Plant Site--T23N R13W, Secs. 13 (all except majority of NE 1/4), 14, 23, 24 (Tanner Lake quad).

5. Scheick, Cherie

1979 An Archeological Inventory Survey of Four Sections of Land near Tsaya, New Mexico. School of American Research, Contract Archaeology Division #923a.

NMGS sections surveyed: T2--T23N R13W, Secs. 30, 31, 32 (Tanner Lake quad).

6. Scheick, Cherie

1981 Investigations into Land Patterning in the South Hospah Mine Area, New Mexico. School of American Research, Contract Archaeology Report #028.

NMGS sections surveyed: T4--T17N R10W, Secs. 21 S 1/2, 27 S 3/4, 28, 33 N 1/4, 34 (Laguna Castillo quad); T16N R9W, Sec. 2 W 1/3 (Orphan Annie Rock quad); T16N R10W, Sec. 3 N 3/4 (Laguna Castillo and Orphan Annie Rock quads).

7. Vogler, Lawrence E., Dennis A. Gilpin, and Joseph K. Anderson

n.d. Gallegos Mesa Settlement and Subsistence: A Set of Explanatory Models for Cultural Resources on Blocks VIII, IX, X, and XI, Navajo Indian Irrigation Project CRMP-81-211. Window Rock: NNCRMP (in press; MS 1981).

NMGS sections surveyed: P1 and P2 traverse Blocks VIII-XI. (Note: This survey is so recent that the sites could not be included in our Table 4. We feel it is important

that readers be alerted to the survey and the forthcoming report, however.)

8. Wait, Walter K.

1976 The Archaeology of the Star Lake Region, New Mexico: A Preliminary Archaeological Statement for the Mining Plan. MS, on file at Laboratory of Anthropology, Santa Fe.

NMGS sections surveyed: T2--T20N R6W, Secs. 30, 31, 32; T19N R6W, Secs. 4, 5, 6, 8, 9, 10, 11, 12 (Star Lake quad).

Historic Archeological and Architectural Sites

As has already been noted, much of the history of the San Juan Basin will need to be extracted archeologically (and ethnographically). The lack of historic non-Indian sites recorded in the study areas is partly real and partly a result of the lack of intensive historical study. It is true that very few non-Indian sites exist in the Basin. However, those that do exist were often occupied by traders or ranchers who were either too busy to keep notes or were not so inclined.

Traditional Native American Sites

For Native American concerns, the reliability and adequacy of the data vary. It is quite certain that the Pueblos, as cultural entities, feel there are few or no locales of religious or cultural concern in the study areas. But Pueblo people are accustomed to permitting tribal officers to speak for the entire pueblo. We do not know whether individuals may have favorite gathering and collecting spots in the study areas.

As we have explained in 2.3 above, the QRC effort was intended to discover the range of concerns, rather than to attempt to pinpoint every known site (see Fig. 3 for areas in which Navajo residents were interviewed). As such, we feel our data are wholly adequate for that purpose. The data collected by Carroll (see Appendix C, below), constitute 100% coverage of landowners and lease-holders on the F-CAP line and can be assumed to be representative of data on T4 proximate to it. (Note that we are not implying that Carroll's study constitutes 100% retrieval of sacred and cultural information.)

It should be noted here that a project of this kind spotlights a vast cultural difference between Pueblos and Navajo. Unless a subject reaches the level that opposing factions feel compelled to make a stand, Pueblo people are usually content to go along with an official tribal stance, even if it occasionally means embracing a position to which an individual is personally opposed. Therein lies survival for a Pueblo society. Individual Navajos, on the other hand, are accustomed to speaking for themselves and can be almost fiercely insistent on granting that right to others. Except for medicine men and women, few Navajos would be willing to claim that sites that may be significant to them are therefore significant to all Navajos. Conversely, the mere fact that other Navajos do not see a given site as important does not help to convince an individual that its significance is diminished. That Navajos are not given to acting in concert complicates decision making for cultural resource

managers, but it is a cultural characteristic that needs to be understood.

2.5 INTERRELATIONSHIPS OF NMGS ASSESSMENT AND BASELINES 1 AND 2

The effects of the proposed NMGS are generally considered in and of themselves in this analysis. In addition, the effect of NMGS against two projected future existing environments (Baselines 1 and 2) was addressed.

This analysis was based on the assumption that the San Juan Basin cultural resources (whether archeological or traditional Native American) are finite and nonrenewable. Thus, any consumption of these resources--direct impacts that occur either as mitigative data recovery or as unmitigated destruction--would alter the nature of the available resource set. Similarly, the indirect impacts of increased vandalism, commercial looting, or even increased basic archeological research may also result in increased resource consumption. In complement, the recovery of data as an impact mitigation activity may provide significant new characterization of our cultural heritage. These are the key concerns that are addressed in the discussion of environmental consequences (Chapter 4) in this technical document.

THE AFFECTED ENVIRONMENT

3.1 AN OVERVIEW OF THE CULTURAL HISTORY OF THE STUDY AREA

Physical Environment

A rectangle that would enclose the proposed water pipeline and transmission line corridors for the New Mexico Generating Station measures about 120 mi. north-south by 80 mi. east-west. This area of 9600 sq. mi., over four times the size of the state of Delaware, encompasses most of the central and southern San Juan Basin as defined by Fassett and Hinds (1971).

The information in the following section is taken primarily from the Western Area Survey (PNM 1978) and from the Bisti-Star Lake Class II, Phase II (Kemrer 1981). For more detail on all environmental parameters, the reader is especially referred to PNM (1978:15-210), which includes sections on physiography, geology, paleontology, seismicity, soils, climate, air quality, surface water, groundwater resources, biotic habitat types, and threatened, rare, or endangered species. Public Service Company collected these data and published

them in a single volume to serve as a companion document for their many environmental assessments in northwestern New Mexico.

Physiographic Setting

The NMGS study area lies within the San Juan Basin, which is an asymmetric structural depression with a northeast-trending axis. The study area is within the Navajo physiographic section of the Colorado Plateaus province, as defined by Fenneman (1931), and is mainly situated on the Chaco Plateau near the northern edge of the Chaco Slope of the central San Juan Basin (Gregory 1916; Warren 1967). As defined by Warren (1967), the Chaco Plateau includes that portion of the central San Juan Basin that is north and east of Canyon Largo. This area is a dissected plateau drained by tributaries of the San Juan and Chaco rivers and by headward-eroding tributaries of the Rio Puerco. Elevation in the study area ranges from 5200 ft. above sea level at Farmington to 8700 ft. above sea level at Mesa Chivato.

Present Climate

The local climate is characterized by a semi-arid continental regime, with cold winters and warm summers. About half the annual precipitation falls in intermittent summer thunderstorms. Moderate amounts of snow fall in the winter (usually less than 15 in.). Winds are light to moderate, but can become quite strong in the spring (Maker et al. 1978). Daily temperatures vary by as much as 40°F and temperatures over 100°F are common in the summer months. Recorded maximum temperatures include 103°F at Farmington, and 106°F at Chaco

Culture National Historic Park. The lowest temperatures recorded for these locations are 16° and 24°F below zero respectively (Maker et al. 1978).

Rainfall averages 7-10 in. per year in the Bisti area and increases with elevation to 20-25 in. a year in the vicinity of Mesa Chivato. Frost-free days range from 120 to 140 days a year in most of the study area (Ferrill 1978), but localized air drainage conditions may shorten the growing season to the 100 to 110 day range. The average annual moisture deficit ranges between 14 and 18 in. a year for most of the study area--about twice the annual rainfall amount. Because of this and the lack of nearby major bodies of water, the relative humidity of the study area is normally quite low (Ferrill 1978).

Past Climate

A detailed discussion of the paleo-environment is beyond the scope of this report. However, an interpretation of past climates is often important to archeologists when they attempt to relate human behavior patterns to environmental variables. A brief outline is presented here for a general familiarization only.

This reconstruction was taken largely from a report prepared for the Albuquerque District of the Corps of Engineers (Kemrer, Abbink, and Loose 1981:12-14) and from Allan (1977:127-137).

More than 32,000 years ago, a period of increased effective moisture occurred. This period is known as the Terry Pluvial and is

characterized by pollen assemblages rich in pine, spruce, oak, considerable grass, composites, and chenopods. The faunal assemblage is not known.

Between 32,000 and 22,500 years ago, the Rich Lake Interpluvial took place, reflecting a drier climatic situation. Also, this period may have been cooler and more moist than recent times.

The Tahoka Pluvial lasted from 22,500 to 15,000 years ago and was characterized by vertebrates such as mammoth, mastodon, horses, sloths, camels, bison, tapirs, peccary, deer, jackrabbits, and turtles. Many late Pleistocene lakes may have developed during this time. This was followed by another dry period, which lasted until 13,000 years ago and is known as the Monahans Interpluvial. No floral or faunal remains are correlated to this period, possibly because of intensive wind scouring and general dessication.

From 13,000 to 6,000 years ago, the San Jon Pluvial was a period of increased moisture; many large Pleistocene species again appeared in New Mexico. Only a few pine and spruce had managed to survive the preceding dry period. Major vegetation included grasses, sage, composites, and chenopods.

The climatic record from 6,000 years ago until the present is not yet fully understood. It may have been drier and warmer than the averages indicated by our existing records.

Within the study area itself, correlations with the previously mentioned climatic cycles and the "Altithermal" of Antevs (1955) (a

postulated warm dry period) are not yet complete (see Love 1977 and Nials 1980). At any rate, it is assumed that during this period climatic conditions were not much cooler or wetter than today for periods of time long enough to effect the drastic changes in flora and fauna previously described. For an excellent discussion of past climate from A.D. 700 to the present, the reader is referred to Allan (1977:135-137).

Subsurface Geology

The San Juan Basin is a structural feature that began to form during Cretaceous times over 100 million years ago. The Basin is bounded on the north by the Hogback Monocline and the San Juan Uplift. The Basin rim on the east is formed by the Nacimiento Uplift and the Jemez Mountains Caldera. The Zuni Uplift and the Lucero Uplift form the southern margin of the Basin. The Defiance Uplift and the Four Corners Platform complete the Basin rim on the west and northwest, respectively.

Within the study area, geology, topography, soil types, and biological zones are closely related to one another. Tectonic processes, combined with long-term sedimentary deposition and active erosion, made the basin a complex mixture of volcanic intrusions and uplands, with a central sedimentary floor composed of shales, siltstones, and sandstones.

The study area is characterized by mesas, cuernas, hogback ridges, deep arroyo cuts, badlands, and dune fields, as well as wide

sandy-bottomed washes, rock-bottomed valleys, alluvial slopes, flood plains, and Pleistocene river terraces and erosional surfaces.

Up to 15,000 ft. of sedimentary rocks have been deposited in the Basin. These rocks are part of an upper Cretaceous deposit formed during the regressive sequence of a shallow inland sea. This deposition created the Dakota Group (sandstone and shale), the Mancos Shale, the Mesa Verde Group (sandstone and shale), and the dark, marine Lewis Shale. The Pictured Cliffs Sandstone, above the Lewis Shale, represents deposits of the final regressive beach line; the overlying Fruitland Formation and Kirtland Shale represent landward swamp and floodplain environments. Sediments above the Kirtland Shale, such as the Ojo Alamo (sandstone) and the San Jose formations, represent terrestrial erosion and deposition cycles in the Paleocene and Eocene epochs.

Geomorphology

The geomorphology of the study area is related to the general tectonic history of the San Juan Basin and to several series of sediment erosion and deposition. By the late stages of the Laramide Orogeny, most of the uplifts that formed the rim of the San Juan Basin had been initiated. This is reflected in the lake bed deposits of the Nacimiento Formation, which indicate a closed basin prior to deposition of the San Jose Formation (Loose 1978).

Cenozoic erosional surfaces in the San Juan Basin are related to the entrenchment of the ancestral Colorado River system, which

may have appeared as early as the Miocene. The earliest recognizable surfaces are those of mid-Tertiary peneplanation, first described by Dutton in 1882 and referred to as the "great denudation" (Dutton 1885). In 1901, Davis named this ancient surface the "plateau cycle" and labeled all subsequent events the "canyon cycle." Cooley et al. (1969) largely substantiated the general interpretations of the earlier workers.

Tertiary erosional cycles can be divided as follows: the Valencia cycle of Miocene age, the Hopi Buttes-Zuni cycle of late Pliocene age, and the Wupatki cycle of probable middle and late Pleistocene age.

Unfortunately, little work has been done in the San Juan Basin to correlate upland erosional events with the downcutting cycles previously mentioned. Love (1977) provides an excellent discussion of this problem. It is likely that most of the upper undissected surfaces in the study area are of Miocene or Pliocene age, with a well developed Pleistocene soil horizon older than 10,000 years. It is important to note that this is typically a well developed but truncated "B" horizon, indicating that erosion has removed the "A" horizon and probably most in-situ Paleo-Indian materials as well. This is covered by sheet sand and linear dunes less than 10,000 years old. The bulk of this sand appears to have been deposited in latest Pleistocene times (Love 1977; Reher and Witter 1977). This means that Archaic materials can often be in situ in stabilized dunes. Under-

standing the age and mode of formation of these dunes and sheet sands is critical to the interpretation of whether Paleo-Indian and Archaic materials can possibly be in-situ in the study area.

Love (1978) stresses that the exact nature of these dunes has not yet been determined and refers to them as linear dunes, rather than as longitudinal or transverse dunes (indicating mode of formation). Nials (pers. comm., 1981) assumes that they are longitudinal dunes, as do Hack (1941) and Cooley et al. (1969). These interpretations, that the dunes are longitudinal, were based on external rather than internal dune morphology, along with patterns of arrested dunes. An equally strong argument for transverse dune formation can be made on the basis of the very consistent crest-to-crest spacing of 800 ft., and evidence that the most persistent annual wind direction in the south-central San Juan Basin is from the southeast rather than the southwest (PNM 1980). It is also possible that these dunes are controlled by tectonically induced surface hydrology anomalies that stimulate linear coppice dune formation (John Gibbons, pers. comm. 1980).

Irrespective of how they are formed, linear dunes are the most prominent surface feature of many of the upland surfaces of the study area. These dunes vary in height from 1.5 m. to more than 6.0 m., and vary in length from less than 0.2 km. to more than 20.0 km. (Love and Schultz 1980). The dunes often exhibit blowouts and playa-like structures that can hold water for short periods of time after intense rainfall. In areas where the old Plio/Pleistocene surfaces have been dissected, spectacular badlands are often formed in the

underlying shales. In such badlands areas, the surface is relatively young and the odds of finding in situ prehistoric materials are low.

Biotic Environments

Detailed discussion of the biotic zones and fauna of the NMGS study area is beyond the scope of this report. Lists of fauna and maps of biotic habitat zones are included in the Western Area Survey (PNM 1978). A short discussion of major vegetative associations is included here for the reader's easy reference.

A study based on LandSat (i.e. satellite) imagery that covers the entire study area was conducted by the Remote Sensing Laboratory of the Chaco Center, National Park Service (U.S. Department of the Interior) between 1974 and 1976 (see Schalk and Lyons 1977:173-186). This study found that vegetational zones were related to underlying geological strata that reflected the final marine regression across the basin from southwest to northeast in late Cretaceous times. Environmental diversity was found to be highest in the southwestern portion of the basin and lower toward the north and east.

Gross vegetative zones include Grama-Galleta Steppe, Grama-Galleta with Juniper, Juniper-Pinyon Woodland, Ponderosa Pine-Douglas Fir Woodland, Saltbush-Greasewood, and Southwestern Spruce-Fir Forest.

These areas compare favorably with the somewhat more complicated habitat types mapped by Whitford (PNM 1978), also using LandSat imagery. Whitford's classifications include Malpais, areas of severe

surface disturbance, Grama-Galleta Steppe and derived disclimax, Pinon Woodland, Ponderosa Woodland, Montane meadow and forest disclimax, Douglas Fir-White Fir montane forest, and true riparian. For lists of vegetative and animal species common to the study area, the reader should refer to Whitford in PNM (1978:175-209).

Prehistory of the San Juan Basin

Many historical and archeological overviews relevant to the NMGS study area have been prepared recently under government direction. These documents have been written so that federal managers can make informed decisions when federally approved projects may affect cultural resources. Two such studies were done by cooperative efforts of the Bureau of Land Management and the U.S.D.A. Forest Service (Cordell 1978; Tainter and Gillio 1980). This work was complemented by a BLM study under contract to the New Mexico State University (Magers 1979). Recent survey reports commissioned by BLM in the San Juan Basin include overviews of the culture history (Dulaney and Dosh 1981; Huse, Noisat, and Halasi 1978; and Kemrer 1981). Other relevant overviews prepared under government direction or sponsorship include Kirkpatrick (1980) and chapters by Cordell, Irwin-Williams, Schroeder, Woodbury, and Woodbury and Zubrow, in the Handbook of North American Indians, Volume 9 (Southwest), edited by Alfonso Ortiz (1979). Relevant overviews prepared at private expense include those by Hewett (1977), Lister and Lister (1981), and PNM (1978).

These overviews will be summarized here for the reader's convenience.

Paleo-Indian

Human occupation of the study area began at least 12,000 years ago. There is growing evidence that people from Asia may have crossed the Bering Strait into the New World as long ago as 30,000 years (Lister and Lister 1981:184). These ancient people were probably following herds of now-extinct animals.

Two major types of Paleo-Indian sites are known in the Southwest. One is the campsite, where small groups of people lived briefly or perhaps periodically. The other is the kill site, where ancient people slaughtered and butchered large animals, singly or sometimes in large numbers. Paleo-Indian remains described, to date, in the San Juan Basin are isolated artifacts of chipped stone or campsites ascribed to Paleo-Indian age.

Paleo-Indian sites are characterized by flaked stone tools, lanceolate stone points and stone knives, as well as stone implements for cutting, scraping, engraving, and drilling.

The earliest sites have points with a fluted channel on both sides and are known as Clovis and Folsom. It appears that Clovis points were used to hunt elephants; Folsom points were later used to hunt bison. These large points with parallel flaking scars were either used as tips for lances or as dart tips in a spear launcher

known as an atl-atl. These points may also have been used as knives on occasion.

Later styles of Paleo-Indian projectile points lacked the characteristic fluted groove of Clovis and Folsom points. These later points are known variously as Plano, Cody Complex, Eden, Agate Basin, Hell Gap, etc. Points attributed to these types have been found within the study area, but always in an isolated context.

Kirkpatrick (1980:1530) makes an interesting comment:

"The Paleo-Indian materials, usually projectile points, were generally found on Archaic sites and multiple component sites. Consequently, it is not possible to determine whether these points are in-situ or whether they were carried onto the site. It is quite possible that these points were collected or even traded by Archaic and Anasazi peoples, finally coming to rest as part of the Archaic and Anasazi assemblages. With Archaic, Anasazi, and Navajo peoples collecting projectile points for thousands of years, many Paleo-Indian sites simply may not be recognizable, appearing as non-diagnostic lithic scatters."

Kirkpatrick's comments on collection of PaleoIndian materials by later people also apply to all other cultural stages, including the present.

Archaic

Following the disappearance of the Cody Complex, there is no further evidence of Plains-based big game hunters occupying the Southwest (Irwin-Williams 1979:33). Based on a research project in the southeastern portion of the study area, Irwin-Williams (1973) proposed the concept of the Oshara Tradition of the Archaic culture. Six phases of development were postulated:

1. The Jay Phase (ca. 5500-4800 B.C.)
2. The Bajada Phase (ca. 4800-3200 B.C.)
3. The San Jose Phase (ca. 3200-1800 B.C.)
4. The Armijo Phase (ca. 1800-800 B.C.)
5. The En Medio Phase (ca. 800 B.C.-A.D. 400)
6. The Trujillo Phase (ca. A.D. 400-A.D. 600)

The Jay Phase includes base camps and small specialized activity sites. Materials include large, slightly shouldered projectile points, well-made bifacial knives, and a range of well-made side-struck side scrapers. There is no ground stone associated with these sites.

The Bajada Phase has been radiocarbon-dated at between 4800 and about 3300 B.C. (Irwin-Williams 1979:36). Site types and site distribution are similar to those of the previous Jay Phase. Points are still large but have better defined shoulders and an occasional basal indentation. Scrapers and knives are still well-made with an associated increase of large stone chopping tools and poorly made flake side scrapers. Climatic conditions may have been slightly drier than during the preceding Jay Phase or subsequent San Jose Phase.

The postulated increase in effective moisture during the San Jose Phase probably increased plant cover, and the numbers of small game animals. Points are smaller, stemmed, and sometimes have basal indentations and serrated edges. Side scrapers and knives become

much rarer. Shallow basin grinding stones with one-handed stone grinders become common by the end of the phase. These sites are often characterized by large piles of fire-cracked rock. Large, heavy chopping tools are more common also.

The Armijo Phase was described by Irwin-Williams (1979) as the first to show the use of cultivated maize. Sites are similar to those of the Jay Phase but rock shelters are also used. Even more fire-cracked rock heaps (ovens?) are found at these sites. More ground stone is found with these sites and points change to forms with corner notches, or narrow stems with straight or slightly concave bases. The Armijo Phase description attributes the fire-cracked rock piles to ovens without distinguishing them from the fire-cracked rock piles of the preceding phase except to mention that there are more of them in the Armijo Phase. This could be an artifact of the investigation defining the phases rather than any reality in the sequence itself.

The En Medio Phase and Trujillo Phases correspond to Basketmaker II and Basketmaker III, respectively, in terms of the Pecos Classification as defined after the 1927 archeological conference at Pecos, New Mexico (Kidder 1927). Sites from these time periods (see Table 1) show a gradual shift to a more sedentary way of life. By late Basketmaker III times, people were living in semi-subterranean pit houses, using small stone projectile points with bows and arrows, stone knives, stone drills, earthen-ware ceramics, elaborate baskets, woven fiber clothes and blankets, and large

grinding stones. These people were fully committed to agriculture, but still hunted small game and gathered wild food plants whenever possible.

Anasazi

Richard Wetherill used the term "Anasazi" (Navajo for ancient ones or ancient enemy) to denote the ancestors of the modern Pueblo Indians, the former inhabitants of much of the Colorado Plateau. The 1927 Pecos Classification of archeological periods divided the Anasazi culture history into eight subclasses. When the original Pecos classification was established, it was impossible to assign absolute dates to the cultural sequence (Kidder 1927). Soon thereafter, however, dendrochronology began to provide a means of determining exact dates for sites that contained pine beams (Douglass 1929), and by the early 1930's, Southwestern archeology was on its way to controlled temporal sequences (Roberts 1929, 1931, 1932). The classification is still undergoing refinement (e.g., Cordell 1978), and the periods used here must be regarded as rough and subject to regional variation. The dates shown below are taken from Woodbury (1979:29). (See Woodbury [1979:27-30] for a discussion of different classificatory and temporal schemes.)

1. Basketmaker I (dropped in recent useage)
2. Basketmaker II (ca. 225 B.C.-A.D. 400)
3. Basketmaker III (ca. A.D. 400-700)
4. Pueblo I (ca. A.D. 700-900)

5. Pueblo II (ca. A.D. 900-1100)
6. Pueblo III (ca. A.D. 1100-1300)
7. Pueblo IV (ca. A.D. 1300-1600)
8. Pueblo V (ca. A.D. 1600-present)

The history of the Anasazi in the San Juan Basin represents a long continuum of cultural change climaxing in what has been termed the "Chacoan Phenomenon" (see Tainter and Gillio 1980:101, 102-114). Following the apex of Chacoan culture, there was a gradual decline in the social complexity and population density of Anasazi peoples in the San Juan Basin. By A.D. 1300 the area was virtually abandoned. Although no substantive remains of Pueblo IV or Pueblo V culture can be found within the study area, isolated manifestations do occur, particularly on the periphery of the Basin.

Pueblo I. The Pueblo I period is marked by architectural changes in the earlier Basketmaker III pit house style. Pit rooms became deeper, more rounded in plan view, and the antechamber (a small secondary room) became reduced to an underground ventilator shaft. Above ground, rectangular masonry storage rooms eventually became domiciles; the pit rooms were retained for ceremonial functions, becoming formal kivas by late Pueblo I times. Kivas are square or circular underground rooms used for ceremonies by the Anasazi as well as modern day Pueblo peoples.

Material items found in Pueblo I sites include painted and plain ceramic wares, corner- or side-notched arrow points made of

chipped stone, turquoise jewelry, ceramic pipes, large grinding stones, and various ground stone implements. Pueblo I sites are usually clustered in villages of several pit house units.

Pueblo II. Pueblo II represents the beginnings of the "Chacoan Phenomenon." Larger villages with elaborate stone masonry, and kivas that were incorporated into room blocks, became common throughout the San Juan Basin. Some of these structures were two or three stories tall, had large rooms with high ceilings, and were associated with very large kivas called "great kivas." Some of these circular kiva buildings are over 20 m. (65.6 ft.) in dia., reflecting considerable engineering skills on the part of the prehistoric builders.

Pottery was similar to that of the Pueblo I period but was technically better. Other material culture items were quite similar to those of the preceding period, but more elaborate goods were found in some of the larger sites. These goods include copper bells from Mexico, various stone charms, inlaid stone animal effigies, painted wooden objects, ceremonial canes, polished stone hoe blades, unusual cylindrical vases, and side-notched stone arrow points made of unusual cherts and imported volcanic glass.

These sites are almost always found in a community cluster of small masonry domiciles around a large masonry building (Figs. 4, 5) and an associated great kiva. Isolated Pueblo II sites are known from the study area, but are usually either small potsherd scatters or one-room field houses near remote agricultural fields.

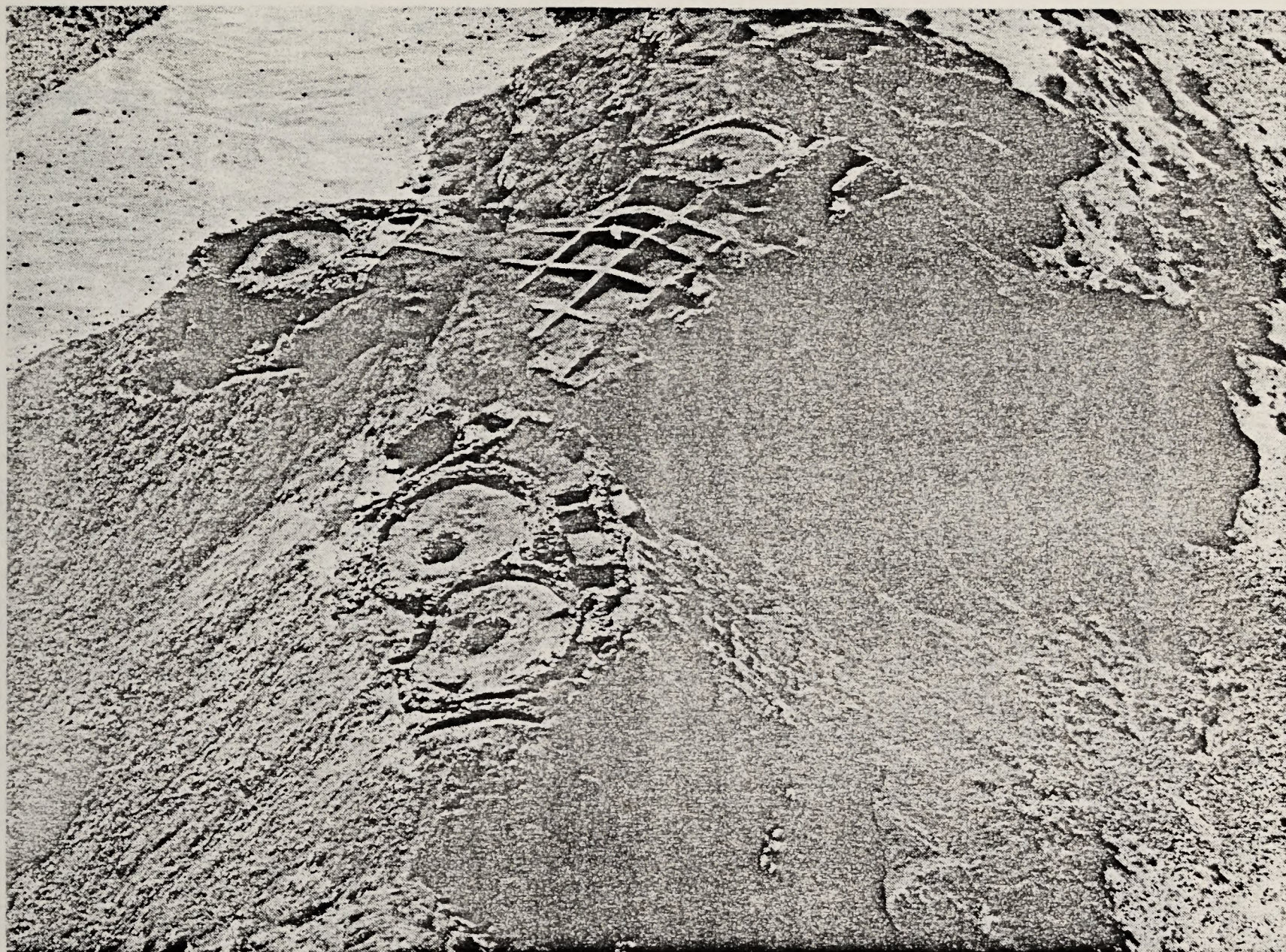


Figure 4. Aerial View of Bisa'ani, Chacoan Protection Site near T2

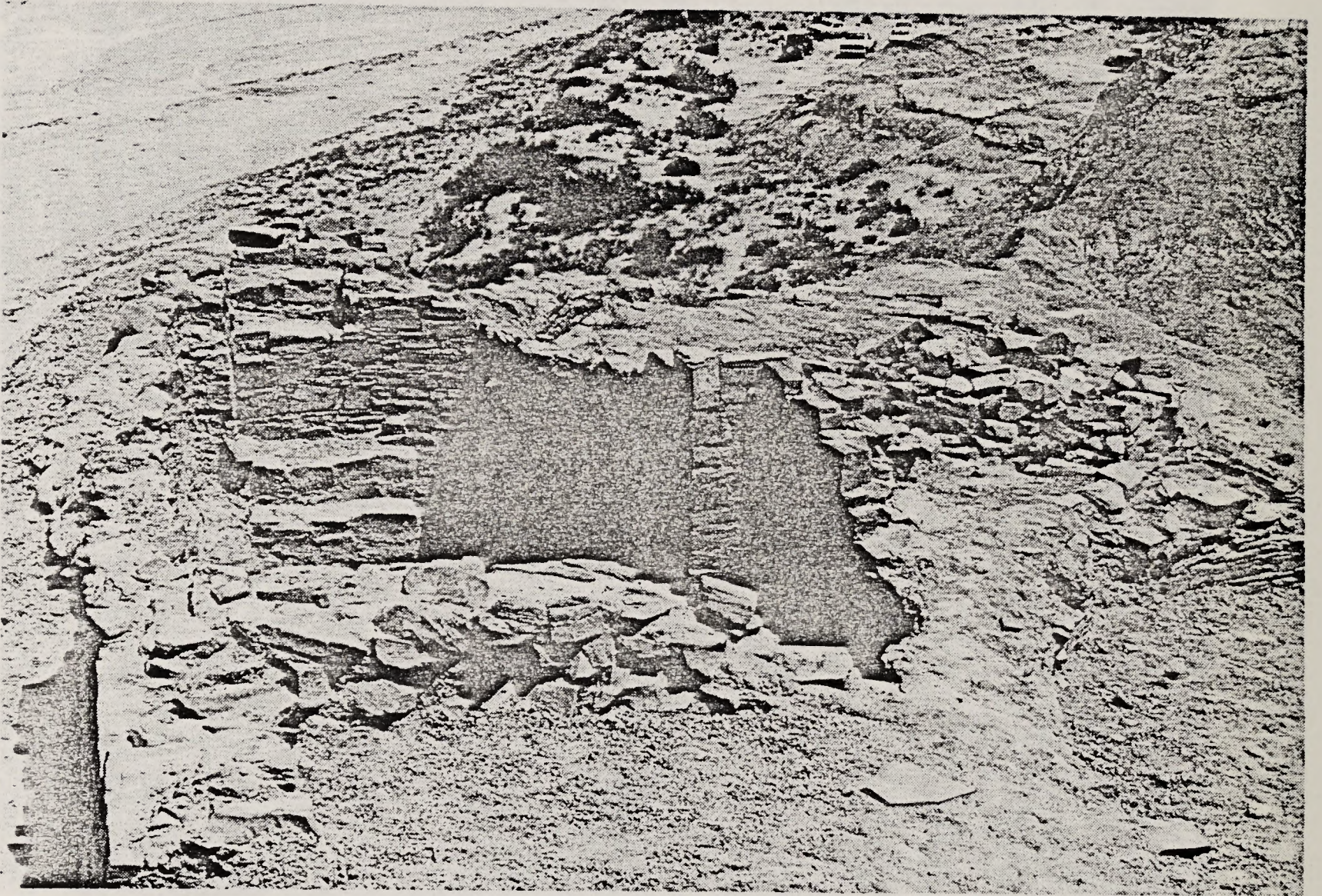


Figure 5. Closeup of Bisa'ani Masonry

The elaborate prehistoric road system described below (see "Anasazi Roads") was constructed during Pueblo II times.

Pueblo III. By early Pueblo III times, the Chacoan phenomenon was in decline. By A.D. 1140 all construction of large masonry buildings in the central San Juan Basin had stopped (see Hayes, Brugge, and Judge 1981:27-32, 51-68; Kemrer 1981; Lister and Lister 1981:194-202; and Marshall et al. 1979). Large masonry structures known as "McElmo Phase" buildings may have been occupied during this time period. McElmo structures were not quite as elaborate in terms of size and masonry styles as the earlier Chacoan buildings (known as "Bonito Phase") but were impressive none-the-less. Throughout this time period, smaller buildings known as "Hosta Butte Phase" structures were associated with the Bonito Phase and possibly with the McElmo Phase buildings. The Hosta Butte Phase structures were not planned in advance as the Bonito Phase and McElmo Phase buildings seem to have been. Additionally, they almost never were built more than one story high (see Hayes, Brugge, and Judge 1981:51-68 for an excellent discussion of this archeological problem).

For reasons not yet clearly understood, the San Juan Basin was slowly abandoned in late Pueblo III times (Hayes, Brugge and Judge 1981:32-34; Kemrer 1981).

Following the decline of the major Anasazi communities, only small, scattered villages of Mesa Verdean affiliation (cliff dwelling people from north of the NMGS study area) remained in the San Juan Basin. These sites were characterized by carbon-painted ceramics

(as opposed to earlier mineral paints), poorly executed masonry, and a lack of public works such as roads or great kivas. Rooms were small and the complex community structure of earlier days was gone. Many of these late sites were located in isolated and defensible positions, such as cliff sides or mesa tops. The items of common everyday use remained similar to those of Pueblo I and Pueblo II times.

According to Alden C. Hayes (Hayes, Brugge, and Judge 1981:34):

The evidence is that by late Pueblo III, Chaco Canyon had passed through its days of glory. The population was much reduced, and was continually dwindling, but rare sherds of imported polychrome redwares from the Zuni area [outside the NMGS study area] indicate that a small group of hangers-on was still breaking an occasional pot in the 1300's. Midcentury probably saw the last of the Anasazi.

Anasazi Roads

History of Research

Although prehistoric roads in the San Juan Basin have been described since the turn of the century (Lister and Lister 1981:145), they were not recognized by archeologists as a regional network until quite recently. The following section is taken from the Bisti-Star Lake Class II, Phase II archeological survey completed in June of 1981 (Kemrer 1981). An in-depth analysis of the Chacoan Anasazi road system by the Bureau of Land Management will soon be complete. The BLM will study selected segments of the Chacoan road system and discuss mitigation options.

Obenauf (1980) provides an excellent background on the history of investigation of the prehistoric roads in the San Juan Basin. These features were considered to be Anasazi roads by elderly Navajos at the turn of the century; early traders also noticed the road system. When Gordon Vivian interviewed Mrs. Richard Wetherill in 1948, she mentioned that:

North of Alto in certain lights you can still see what appears to be a wide roadway running down to the Escavada. In the old days this was very clearly defined in the spring or early summer because the vegetation on it was different from any other and it could be traced clear to the San Juan.

Judd (1954) mentioned some of the difficulties in differentiating canals from wagon roads. He also promised a discussion on "processional paths" and "ceremonial highways" in a future publication. Unfortunately, he did not keep his promise.

By 1972, R. Gwinn Vivian, Thomas R. Lyons, and George J. Gumerman had used air photo-interpretation and ground checking to establish a series of "recognition criteria" that are unique to the linear features found in association with the Chacoan ruins. Vivian (1972: 10) described the recognition criteria he used between 1970 and 1971 as follows:

. . .wide, cleared, primary roads averaging nine meters in width with edges of banked earth or low masonry walls and bases of earth or bedrock; spur roads averaging four and one-half meters in width with edges and bases similar to primary roads; stairways cut into native sandstone with squared sides and widths up to nine meters; wide masonry stairs at minor cliff edges, and masonry and earth ramps at major cliff edges. In some instances roads were cut through low hills. Roadways also were marked by relatively straight courses showing occasional slight alterations in degree of orientation.

Lyons and Hitchcock (1977) mentioned Vivian's criteria and also pointed out that fence lines, telephone lines and modern two-track vehicular roads can be confused with prehistoric roads. They also found that environmental factors such as moisture retention, vegetation density, and erosion affect visibility of the roads.

Ware and Gumerman (1977) used the same criteria and added the use of low-sun-angle light as an additional variable to help locate the low linear swales that are identified as Chacoan roads on aerial photographs but are difficult to see on the ground. Test trenches revealed that the roads varied in formality of construction. Ultimately, Ware and Gumerman compiled a list of 18 road attributes grouped as follows:

1. those that pertain to gross morphological configurations of the courses
2. those that are a direct or indirect consequence of alterations in natural drainage patterns
3. those that directly relate to cultural features, such as masonry walls, stone curbing, etc.

Obenauf (1980) refined the recognition patterns used by earlier workers as outlined below:

1. All roads mapped initiate and/or terminate at a known Chacoan town.
2. The roadway segments are exceptionally linear. All segments mapped are straight; when a road changes direction,

even slightly, it does so with a "dogleg" turn rather than with a curve.

3. The roads do not avoid low topographic obstacles as do historic roads in the area.

4. The roads appear as dark lines on the photographs.

5. In the photographs, the roads often exhibit a slight depression when viewed under a stereoscope.

Hayes, Brugge, and Judge (1981) mentioned that many segments of roadways that are visible in air photographs cannot always be found on the ground. Hayes identified 104 segments of roads or trails, of which 57 were Navajo and 48 were Anasazi. Navajo roads were found to:

. . .curl up the slopes, seeking easy grades suitable for horseback and wagon traffic. The worn tracks of iron tires are often apparent on expanses of slick rock, but there is seldom any designed improvement other than an occasional crude stone wall at switchbacks or on the downhill side of a slope (Hayes, Brugge, and Judge 1981:45).

Recognition criteria for Anasazi roads used by Hayes were the same as those used by the other researchers mentioned in this report. He also found 26 sites that had stairs or steps associated with the identified road system. Six of these were Navajo trails. At 11 sites, earth-filled masonry retaining walls were found, probably used as a ramp or landing stage. All of these are associated with roadways.

Since no researcher has thus far published an exhaustive list of natural and artificial phenomena that can cause linear or curvilinear features observable in air photos or on the ground, including such a list here is appropriate. Such features include:

1. Structural geologic lineaments

- | | |
|------------------------|---|
| a. faults | e. facies contacts |
| b. joints | f. ancient strand lines |
| c. breached anticlines | g. structurally controlled drainages or dune patterns |
| d. monoclines | |

2. Volcanic geologic features

- a. dikes
- b. erosionally exposed sills
- c. lava flows following old drainage channels

3. Erosion features

- a. various types of drainages
- b. differentially eroded hogbacks
- c. axial gravel terraces
- d. natural overflow levees

4. Aeolian features

- a. longitudinal dunes
- b. transverse dunes
- c. drainages controlled by longitudinal or transverse dunes

5. Game and livestock trails

6. Manmade features

- a. prehistoric roads
- b. prehistoric canals
- c. prehistoric walls
- d. historic roads, canals or walls
- e. fences
- f. telephone lines, transmission lines, and pipelines
- g. plow scars
- h. railroads

7. Linear artifacts from the particular imaging process, scratches on the negative or print, etc.

Criticism has been leveled at ground checking linear features mapped from aerial photography (Flynn 1981). Some researchers feel that ground checking roads merely proves that "cameras don't lie" unless field and laboratory methods independent of aerial identification and primary ground checking are used (Judge 1981). However, a preliminary ground check when combined with geomorphic analysis and air photo-interpretation can eliminate all of the natural linear feature categories (1-5). It cannot, however, differentiate between historic and prehistoric roads. Canals can be confused with roads in bottomland areas, but are quickly eliminated when they are found on gradients too steep for irrigation purposes or when they are found to go up and down hills.

Ground-checking Linearities

In the summer of 1973, a survey team under the supervision of C.R. Morrison ground checked portions of the south road system from Chaco Canyon to Kin Ya-a. They found this road to fall within the recognition parameters of Ware and Gumerman (1977). Segments of the southern road have also been documented on video tape taken from a helicopter by Public Service Company of New Mexico and re-checked on the ground by Morrison, Obenauf, and Nials. This field check revealed prehistoric construction features and prehistoric trash in the suspected road alignments.

Marshall et al. (1979) documented linear features falling within the recognition pattern of Obenauf (1980) at 11 Chacoan outliers

in the south-central and southern San Juan Basin. Obenauf (1980) ground checked similar linear features near the confluence of the Chaco and Chinde washes and along the San Juan River. Obenauf (1980) believes that possible prehistoric roadways are associated with at least 25 known Chacoan outliers.

As mentioned previously, the Bureau of Land Management is currently sponsoring a research team to study prehistoric road systems in the San Juan Basin in order to develop a comprehensive set of management guidelines. Principal participants in this project are Chris Kincaid, John Stein, Fred Nials, Gwinn Vivian, Gretchen Obenauf, and Daisy Levine. The BLM has adopted Obenauf's basic recognition criteria and generated a summary outline for a more complete consideration of this class of cultural resource. The team has found that several types of evidence are important in evaluating the cultural affiliation of linear features. This will be discussed in their forthcoming report.

Conclusions

The association of linear features with Bonito Phase Chaco Anasazi sites has been documented in fieldwork by Brethauer (1978); Holsinger (1901); Judd (1954, 1964); Lyons and Hitchcock (1977); Marshall, et al. (1979); Morenon (1975); Obenauf (1980); Gordon Vivian (1948); Gwinn Vivian (1970, 1972); and Ware and Gumerman (1977).

Clearly, the linear features called roads (using the various aforementioned recognition patterns) are physically associated with Chacoan sites (Fig. 1). Either the Chacoans, the Navajos, or the historic Anglo traders built them. Mexicans or Spaniards are not likely to have built these roads, since the San Juan Basin was under the firm control of the Navajos until the middle 1860's and Hispanic expeditions into the area were short and usually of a military nature (see Carroll 1979).

It is inconceivable that the handful of early traders or Anglo military explorers could have developed such a road system connecting Chacoan sites only (Mesa Verdean, McElmo phase, and earlier phases are not road associated). It is also inconceivable that the sparse and locally independent Navajo populations could have accomplished such a feat and not incorporated such a monumental effort into their folklore and mythology. This same statement also basically applies to the Pueblo peoples who presently live on the periphery of the San Juan Basin. Future research in the San Juan Basin should address the reality of an eastern Anasazi world of some 30,000 square miles connected by linear surface modifications, regardless of what they are called.

The exact function of this prehistoric road system has stimulated much discussion and clearly merits additional investigation. Frisbie (1972), for example, noted that many researchers argue that the road system represents military, religious, and trade linkage

among and between communities, with the central Chaco Canyon communities serving as the hub of this network, much like the pochteca system in prehistoric Mexico. Unfortunately, direct supportive evidence for this model is lacking. In this regard, Obenauf (1980:79) makes the most reasonable statement possible, given the lack of pertinent data:

The prehistoric roadway network has important implications for the past economic and social systems in the San Juan Basin. The engineered nature of the roadways, the extent of the network (over 400 miles of possible prehistoric roadway have now been mapped), the width of the roadways, the number of links in the system, the associated features--all of these aspects of the roadway network suggest that a great labor investment was necessary for its construction. Both current anthropological theory and common sense tell us that the Chacoans were unlikely to invest such a considerable amount of labor in roadway construction unless there were an economic return on it, that the outliers and towns in Chaco Canyon were linked by the roadway network into some kind of economic and social system.

A hypothesis posed by Vivian and Buettner (1973:9-10) suggests that perhaps the most important commodity moving along Chacoan roads was information:

Despite the fact that Chacoan towns are separated by as much as 150 kilometers, they all display a remarkable degree of homogeneity. Chacoan towns, in fact, appear to have reached a level of communitywide integration unknown in the Puebloan Southwest prior to or since that time. We would hypothesize that the Chacoan roads served as both a symbolic and practical mechanism for strengthening community identification on the town level within the greater Chacoan area. In sum, we urge a closer examination and more refined evaluation of the Chaco data and the development of multiple working hypotheses for explaining the function of Chacoan towns and Chacoan roads.

Ethnography of the San Juan Basin

(Note: For the following brief overviews, primary reliance has been placed on Dozier [1970] and Eggan [1979] for the Pueblos; on Gordon [1974], D. A. Gunnerson [1974], Haley [1981], Opler [1936, 1971], Taylor [1970], and Thomas [1974] for the Jicarilla Apaches; and on Dutton [1976], Forbes [1960], Kluckhohn and Leighton [1962], and Underhill [1956] for the Navajos.)

For additional information on Pueblos, Jicarillas, and Navajos, see "History of the San Juan Basin," below.)

Pueblos

From their ancient base in the Mexican and western U.S. Desert Archaic hunting-gathering lifeway, the groups that became Pueblos began to differentiate from other Desert Archaic people when they adopted corn/beans/squash agriculture and village life.

When viewed against neighboring North American groups, Pueblo culture seems almost monolithic. A closer look, however, reveals differences among the groups, the sharpest division being apparent between the Eastern Pueblos--those that lie along the Rio Grande and its tributaries--and the Western (Laguna, Acoma, Zuni, and Hopi). The Western Pueblos are matrilineal and matrilocal, the Eastern are patrilineal (except for the Keresans--Zia, Santa Ana, San Felipe, Santo Domingo, and Cochiti--who are matrilineal). Kachina ceremonialism, apparently introduced in rather late prehistoric times from Mexico, is most important at Hopi and Zuni, becoming weaker along

the Rio Grande. Medicine societies are strong among the Keresans, including Laguna and Acoma, and perform many functions similar to those of the western kachina societies in both religious and political life. Four different language families are represented among the Pueblos--from the Uto-Aztecan speakers at Hopi, to Zuni (possibly related to northern California Penutian), to the Keresans (no known linguistic relatives), and the Tewa, Tiwa, and Towa, Rio Grande representatives of Kiowa-Tanoan affiliation.

In addition to these apparently inherent differences, history has played a role in the east-west divergence. The heavy Spanish presence among the Rio Grande Pueblos drove these Pueblos to find ways of maintaining the rituals and knowledge that lie at the heart of Pueblo culture. The solution seemed to be development of public ceremonials that could be viewed by Spanish and Anglo eyes, and adherence to strict exclusion of outsiders from the "real" rituals and deliberating bodies. Secrecy and conservatism became a vital necessity if the Eastern Pueblos were to preserve their integrity as societies.

In spite of the fact that many Pueblo people today take full part in the town, city, university, and professional life of Hispanic and Anglo New Mexico, most modern Pueblos have been successful thus far at maintaining their ceremonial and cultural identity. Whether this success will continue remains to be seen, for, as Eggan (1979: 234) observes,

. . . American technology, individualism, and the cash economy have a strong appeal, and the Pueblos face the crucial problem of absorbing these without destroying the communal fabric that has served them so well.

Jicarilla Apaches

Like Navajo culture, Jicarilla Apache culture reveals Pueblo influence in adobe houses, maize agriculture, and ceremonialism, overlaid on an Athapaskan base. Historically, the Jicarillas also exhibited Plains Indian traits such as buffalo hunting, warfare paraphernalia and regulations, and use of the travois, parfleche, and tipi.

Jicarilla residence is matrilineal. Land is inherited, rather than held communally by the tribe, but there are no set rules in inheritance. Jicarilla economy is typified by its flexibility-- although they adopted Pueblo, and later, Spanish, cultivars, the Jicarillas never placed sole reliance on their gardens, but continued to hunt, fish, and gather wild plants. More recently, wage labor, cattle, and oil and mineral royalties have been added to the Jicarilla economy.

From early Spanish times, the Jicarillas chose to befriend the Spaniards and the Pueblos, although they made occasional forays against the settled villages. After U.S. occupation in 1846, the Jicarillas were subjected to the distrust of U.S. officials and the greed of Colorado ranchers, which disrupted both the economy and the traditional band locations. Excluded from receiving government

supplies, they finally became desperate for food and, forming an alliance with their long-time friends, the Moache Utes, turned to stealing and killing stock in order to survive. Then began, in 1848, a U.S. war against the Jicarillas and Moache Utes, which ended in 1855 with U.S. victory.

The Jicarillas' troubles were not over, however. It was not until 1887, after the Jicarillas had been moved across the New Mexico landscape numerous times (much of that time without provisions), that they were finally allowed to settle on their present reservation.

Navajos

When the Southern Athapaskans reached the Southwest (probably about A.D. 1500, though perhaps earlier), they followed a hunting/gathering lifeway learned in the far north and during their slow migration southward. They did not take on the characteristics now thought of as "Navajo" and "Apache" until after exposure to Southwestern groups, especially Pueblos. Variations in the intensity of that exposure account, in part, for the differences between Navajo and Apache culture.

Of all the Southern Athapaskans, the Navajos were most greatly affected by Pueblo culture, for the Pueblo Rebellion years of 1680-1692 brought many Pueblos--fearful of Spanish retribution--to the Navajos for safety. Many stayed forever, and the resulting blend produced a culture famous for weaving, ceremonials, and raiding. Although descent in many Pueblos is matrilineal, the Navajos were

probably already matrilineal when they arrived in the Southwest. Some corn, beans, and squash agriculture was practiced, but sheep were better suited to life in the often-parched desert than plants were, and herding became the Navajos' most important economic base.

Navajos had always indulged in some raiding, but relentless pressure from tribes to their north caused the Navajos to increase their raiding and to spread southward from the San Juan headwaters through the San Juan Basin and into eastern Arizona. A final showdown between U.S. troops and the Navajos came in 1863, and the main body of Navajos, collected at Old Ft. Wingate (Fig. 6), were removed to Ft. Sumner in eastern New Mexico. They stayed until 1868, when the experiment was deemed a failure even by the U.S. government, and they returned home.

Reservation boundaries established in 1868 expanded ever outward until about 1934; increments since then have been small (Fig. 7). Changes in lifeway, however, have been dramatic. Navajo economy has gone, in 110 years, from a herding base supplemented by weaving and jewelry making, to a growing reliance on salaried jobs and wage labor in government offices and minerals extraction operations. Pick-up trucks and sporty cars have replaced horses, as houses are replacing hogans. The settlement pattern is still a scattered one, but some community clusters are forming, especially near U.S. or tribal government installations. Formal education for their children

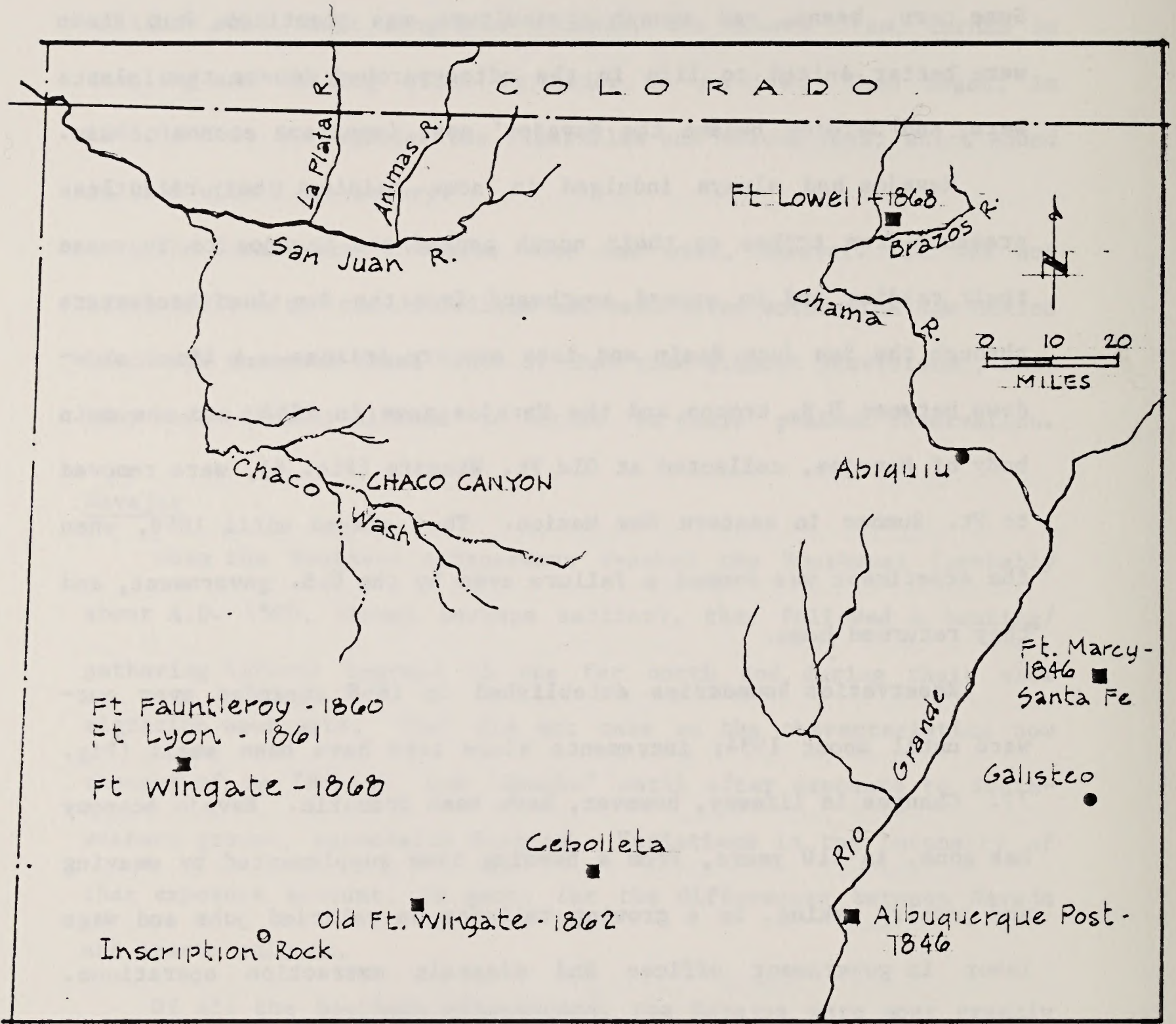


Figure 6. U.S. Military Forts on the Perimeter of the San Juan Basin

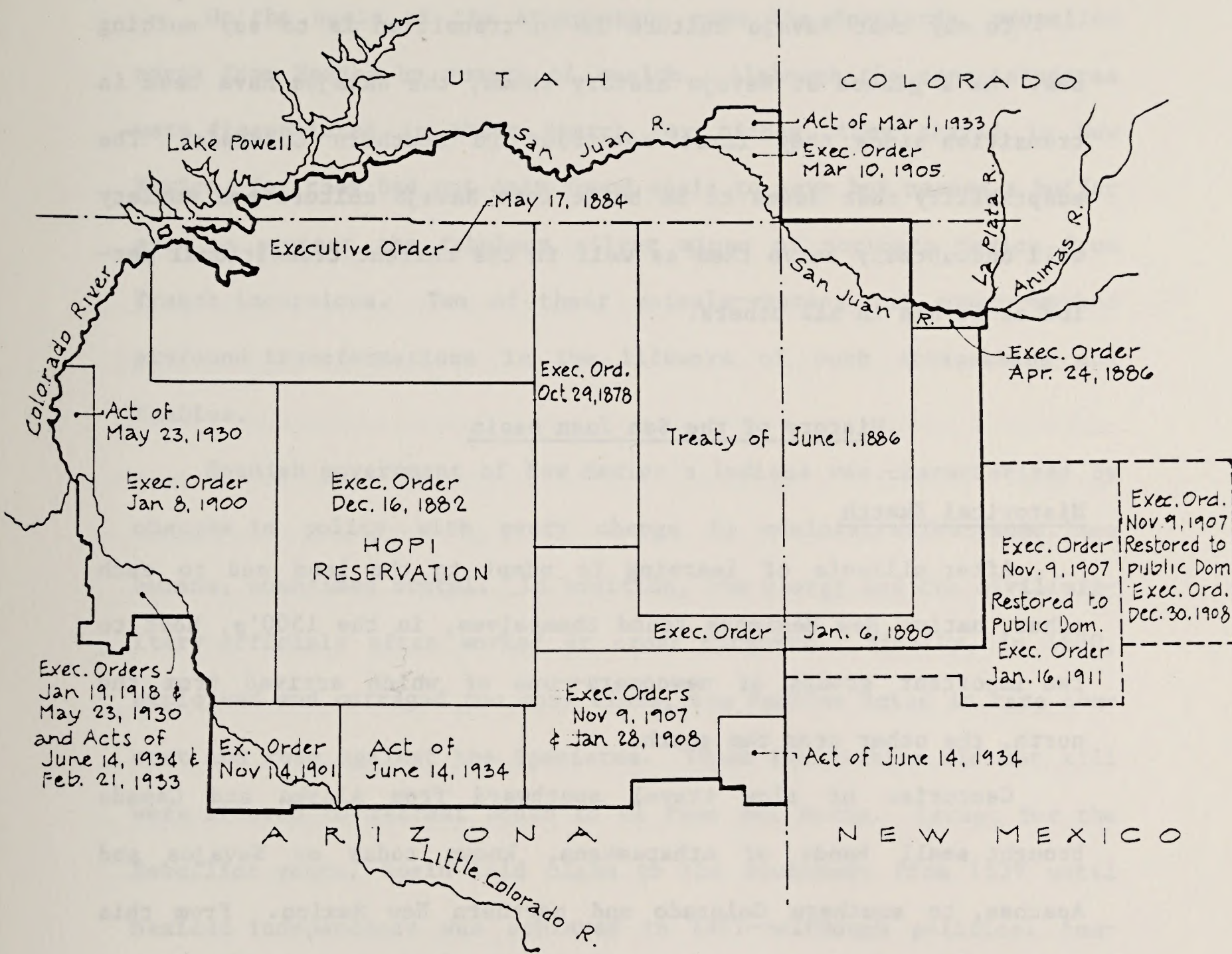


Figure 7. Navajo Reservation Showing Changes in Boundaries from 1868 to Present.

is important to Navajo parents, and many young men and women attend college.

To say that Navajo culture is in transition is to say nothing new. As a glance at Navajo history shows, the Navajos have been in transition since they first set foot in southern Colorado. The adaptability that seems to be built into Navajo culture and society will undoubtedly serve them as well in the current transitional period as it has in all others.

History of the San Juan Basin

Historical Sketch

After millenia of learning to adapt to the land and to each other, native New Mexicans found themselves, in the 1500's, host to two important groups of newcomers--one of which arrived from the north, the other from the south.

Centuries of slow travel southward from Alaska and Canada brought small bands of Athapaskans, known today as Navajos and Apaches, to southern Colorado and northern New Mexico. From this spiritual homeland, they scattered throughout the greater Southwest, ranging south into New and Old Mexico, west into Arizona, and east onto the Plains. Then began a love-hate relationship between the Pueblos and the Athapaskans that was to last hundreds of years. Athapaskan bands alternately befriended and offended, succored and terrified villagers, a band nestling in the shadow of a pueblo one

season, perhaps aiding it in fights against other pueblos, and raiding it the next season.

On the heels of the Athapaskans came the Spaniards, propelled north from Mexico by rumors of wealth. Although the conquistadores were disappointed in their search for riches, they stayed in New Mexico, for they had not only found souls to save but needed a buffer area to protect the fabulous silver mines of northern Mexico from French incursions. Two of their animals--horses and sheep--worked profound transformations in the lifeways of both Athapaskans and Pueblos.

Spanish government of New Mexico's Indians was characterized by changes in policy with every change in administration--sometimes humane, sometimes brutal. In addition, the clergy and the civil/military officials often worked at cross purposes. Finally, in 1680, exploited and outraged too many times, the Pueblos acted in rare concert and rose against the Spaniards. Those the Pueblos did not kill were allowed to retreat south to El Paso del Norte. Except for the Rebellion years, Spain laid claim to the Southwest from 1539 until Mexican independence was achieved in 1821--although political control was limited to the Pueblo area.

When DeVargas reconquered New Mexico in 1692, many Pueblo people, fearing royal retribution for their rout of the Spaniards in 1680, fled north and west to Athapaskan country for safety. For perhaps 50 years, these groups apparently lived side by side in relative

peace, both Pueblos and Athapaskans farming, weaving, producing painted and utility pottery, and probably rearing a few sheep. Some Pueblo people ultimately returned home or resettled elsewhere, but most stayed to found Navajo clans.

Meanwhile, Spanish resettlement had brought many more horses and sheep. Out of the heterogeneous Athapaskan bands, the lifeways that we now call Navajo and Apache began to emerge in the 1700's. Most of those now known as Apache chose the life of sudden village raids and a swift return to the Plains or mountains. They ate their captured sheep and moved their horse herds constantly. Others, like the Jicarilla Apaches, remained friendly (usually) with the Spaniards and with Pueblo groups, finding their living in farming and in hunting and gathering in the foothills and mountains, occasionally going out onto the Plains for buffalo. The groups now named Navajo, though no less fond of horses than other Athapaskans, had, by virtue of the large influx of Pueblos, become weavers, herders, and farmers, living mostly on land that is now northeastern Arizona and northwestern New Mexico. The lives of both horses and people accommodated the needs of the sheep and the fields.

Although Apaches, Navajos, Pueblos, and Spaniards alike became victims of Ute and Comanche horsemen after about 1740, most of the 1700's were characterized by internal peace in New Mexico. After the Ute-Comanche marauders pushed the Navajos south and west from the old northern New Mexico-southern Colorado homelands, however,

land use problems with the Spaniards arose, aggravated by an apparently burgeoning Navajo population. As grazing problems and population increased, the Navajos came to view war with the whites as a necessity.

After about 1815, Spanish and Pueblo villages and herds were under almost constant attack from Navajos and Apaches. The villagers retaliated when they could, but New Mexico had never received adequate military support from Mexico City under Spain. After Mexican independence in 1821, the government at Santa Fe was ignored even more. Although legalized trade with the U.S. had resulted in greater availability of firearms, the Utes were equally well armed and had formed an alliance with the Navajos just prior to the arrival of General Kearny and the U.S. Army. Thus, the ease with which Kearny took New Mexico for the United States in 1846 may have been related not only to a general feeling that Mexico City regarded New Mexico as a backwater to be neglected but exploited, but also to Governor Armijo's despair over providing military protection for the villagers.

Navajo and Apache raiders hardly stopped to draw a breath when U.S. troops moved in, their pulses perhaps even quickened by the enticing new resources that accompanied the army and arrived by heavily loaded wagon train from the eastern U.S.

In 1863 General Carleton decided to end Apache and Navajo raiding forever. Carleton assigned Colonel Kit Carson the job. After

killing two headmen and numerous other Apaches, Carson convinced 400 Mescalero Apaches to move to Fort Sumner in eastern New Mexico in March 1863. The Navajos resisted, however. They had learned to live on the run, subsisting by hunting and gathering, farming only in hidden nooks or places like Canyon de Chelly that seemed impregnable. Since Carson found few Navajos in his sweeps of the San Juan Basin--and was reluctant to follow Carleton's orders to take women and children prisoner, but to slaughter every man--he instead destroyed fields, cut down fruit trees, and paid a bounty for captured Navajo livestock. Many Navajos fled or hid out, but eventually, 8600 Navajos and their livestock made the 300-mile journey to Fort Sumner in eastern New Mexico from Fort Defiance near present Grants--the "Long Walk," still bitter in Navajo memory.

Fort Sumner proved a disaster. The Mescaleros escaped in 1865. Finally, in 1868, the Navajos were allowed to return home and reservation boundaries were established (Fig. 7). Although Apache bands continued to harass villagers until Geronimo's final surrender in 1886, Navajo raiding days were ended with the Fort Sumner incarceration.

Then came years of readjustment for the Navajos. Because all other Indians inside the U.S were now also confined to reservations, the Navajos' textile markets--except for local Pueblos--were cut off. Those assigned to aid the Navajos in adjusting to life under U.S. administration--Indian agents--sometimes fulfilled their responsibil-

ities with concern and wisdom, but often they did not. The traders who spread over the reservation after 1868 were perhaps the most substantial interpreters of the ways of the Anglo. Until very recently, in addition to their storekeeping functions, dedicated traders and traders' wives were bankers, bookkeepers, doctors, legal advisors, emergency transportation services, letter writers and readers, fillers-out-of-government forms, and general ombudsmen for the Navajos in their communities.

Other non-Indian presence in the Basin proper began about 1880 when cattle operations were initiated. Oil, gas, uranium, and coal industries have brought more non-Indians to the central Basin, as have Chaco National Monument (now Chaco Culture National Historical Park) and Bureau of Indian Affairs administrative centers and schools. Thus, as it always has, the character of life in the San Juan Basin continues to change, each culture in and around the Basin--Pueblo, Navajo, Apache, Hispanic, Anglo--bearing the strong imprint of its own history, each being tempered and modified by the others.

New Mexico-San Juan Basin Chronology

The following chronology is intended to make events in the San Juan Basin intelligible through inclusion of dates and occurrences significant in New Mexico history as well as those specific to the San Juan Basin and the study areas. In compiling the chronology we have relied on Brugge (1980a), Carroll (1979), Jenkins (1974), Miller

(1962), Minge and Jenkins (1974), and Simmons (1977). Other sources are cited in individual entries.

- 1539 De Niza and Esteban discover Zuni (Cibola).
- 1540 Coronado's entrada.
- 1542 Coronado and army return to Mexico, leaving some missionaries and Mexican Indians in New Mexico.
- 1581 Rodríguez-Chamuscado missionary expedition up the Rio Grande to a pueblo near Bernalillo.
- 1582-1583 Beltrán-Espejo expedition up Rio Grande to determine fate of Franciscans left by Rodríguez-Chamuscado.
- 1590-1591 De Sosa makes first attempt (unauthorized) to colonize New Mexico.
- 1593-1594 Humana-Bonilla expedition (unauthorized).
- 1598 Onate establishes first Spanish colony and capital at San Juan Pueblo.
- 1599 Battle of Acoma between Acomas and Spaniards (S of NMGS T4*)
- 1610 Santa Fe founded by Peralta (3rd governor). Regular mission supply service between Mexico City and Santa Fe established.
- 1625 Benavides arrives in Santa Fe as agent of the Inquisition.
- 1632 Fray Letrado killed at Hawikuh (Zuni). Fray Miranda, Taos priest, killed by Indians.

*NMGS T4 = New Mexico Generating Station Proposed Transmission Corridor 4. Other study areas are abbreviated in similar fashion.

- 1644-
1647 Spanish religious persecution of Indians leads to conspiracies and revolts. Jemez-Apache conspiracy crushed.
- 1647-
1649 Domínguez' first expedition against the Navajos near the San Juan River, Navajo, and Casa Fuerte. (In the Spanish documents the names "Navajo" and "Casa Fuerte" seem to apply at times to two separate, but unidentifiable, cordilleras and/or jurisdictions, and at other times to a single area somewhere in the San Juan Basin [see Brugge 1980a:7-9].)
- 1649-
1653 Alameda, Isleta, Sandia, San Felipe, Cochiti, Jemez, and Apaches join in conspiracy against Spaniards, which is put down. Domínguez attacks Casa Fuerte and Navajo.
- 1654-
1656 Domínguez leads attack on Navajos in retaliation for a raid on Jemez.
- 1661-
1664 Governor Penalosa forbids friars to exploit Indians.
- 1673 Domínguez attacks Apaches de Nabaxó (Navajos) in several jurisdictions, including Casa Fuerte.
- 1675 Domínguez leads 340 troops against the Casa Fuerte Navajo.
- 1678 Domínguez leads three campaigns into Navajo territory.
- 1679 Domínguez (from Zia) and Xavier (from Taos) field two divisions against the Navajos simultaneously.
- 1680 Pueblo Revolt. "The major effect. . .on the Navajos was the acquisition of captives and refugees, most of them . . .Pueblo[s] who brought many cultural practices of

- Pueblo and European derivation. It is of interest that one traditional account of the beginnings of Navajo weaving attributes it to a Pueblo woman living as a slave among the Navajos at Wijiji [in Chaco Canyon]" (Brugge 1980a:9).
- 1692 De Vargas reconquers New Mexico.
- 1693 De Vargas recolonizes New Mexico (70 families, 100 soldiers, 17 Franciscans).
- 1696 Final Pueblo rebellion and defeat. Several Pueblo governors executed.
- 1706 Albuquerque founded
- 1716 Campaign against the Navajos to Los Penolitos, which Brugge (1980a:10) thinks may be Chacra Mesa [also called Chaco Mesa] (crossed by NMGS T3). Are other campaigns against the Navajos in early 1700's but documentation of routes and destinations is poor.
- 1725 Spanish government forbids trade with French. Beginning of annual Taos Fair. Trade with Plains Indians limited to those who come to Taos and Pecos.
- 1748 Sandia Pueblo (E of NMGS Rio Puerco Station) refounded. Navajo missions established at Cebolleta (N end of present Cebolleta Grant is crossed by NMGS T4) and Encinal (approx. 6 mi. N of Acoma, 15 mi. S of NMGS T4). Possibly as many as 500 Navajos moved to these missions from the northern San Juan because of Ute-Comanche pressure.

- 1750 Cebolleta and Encinal missions abandoned.
- 1750's- Raids by Comanches and Utes against all New Mexicans--
1779 Apache, Navajo, Pueblo, and Spanish. Reached apogee in 1770's. Finally halted in 1779 when Governor De Anza ambushed Chief Cuerno Verde (Green Horn) and large Comanche encampment near Pike's Peak.
- 1766 Nacimiento founded (present site of Cuba, about 20 mi. NE of NMGS T1).
- 1767 First founding of Cabezón on Bosque Grande Grant (NMGS T3) (Rittenhouse 1965:16).
- 1768 Ignacio Chavez Grant made, northern boundary of which was Chacra Mesa (crossed by NMGS T3).
- 1774- Presence of settlers provokes resumption of Navajo-Spanish
1775 warfare. Miera y Pacheco maps show Navajo settlement in Chaco region (NMGS T1, T2, T3), but uncertain whether campaigns against Navajo actually reached Chaco area.
- 1775 Although were undoubtedly many other early traders, first trader McNitt (1962:8) able to document is Juan Pedro Cisneros, whose facility in Navajo indicates that before 1775 he must have spent considerable time with the Navajos between Zuni and the San Juan River.
- 1776 Escalante-Domínguez expedition to establish new trail to Monterey, California. Their route from Santa Fe to central

- Utah becomes first stage of Old Spanish Trail (runs N of study area).
- 1779 De Anza defeats Comanches (see "1750's-1779" above).
- 1780 Smallpox epidemic among Pueblos and Spaniards after three-year drought.
- 1780's Navajo raiding causes abandonment of settlements in drainage of Rio Puerco (crossed by NMGS T1 and T2) (Lopez 1980:71; Luna 1975:37; Rittenhouse 1965:18).
- 1786 After seven years of negotiations, De Anza signs peace treaty with Comanches and Utes. This treaty holds for many years.
- 1800 Cebolleta founded in March by 30 Spanish families (NMGS T4 crosses north end of grant). In May, Governor Chacón leads 500 troops to the Chuska Valley (W of the study areas) in retaliation for Navajo raids on Cebolleta.
- 1804 All New Mexicans except Acoma, Laguna, Zuni, and some mountain villages vaccinated against smallpox (Simmons 1978:13-15).
- 1804-1805 Navajo-Spanish war breaks out again. Spanish official at Jemez trails Navajo raiders to Raton Springs near Pueblo Pintado (adjacent to NMGS T2). Lt. López leads party of settlers to the "Chaco Mesas," where they defeat the Navajos. A force of 900-1000 Navajos attacks Cebolleta.

- 1807 Zebulon Pike is captured in southern Colorado (inside border claimed by Spain) and taken to Santa Fe and Chihuahua; returns to U.S. and writes glowing report of trade potential in New Mexico.
- 1805-1819 Peace until 1818-1819, when is evidence in the documents of Spanish forces near Chaco. In 1819 treaty, New Mexican stockmen warned not to take their herds into Navajo country.
- 1821 Mexican independence from Spain. New Mexico becomes province of Mexico.
- 1822 Becknell brings first wagon train from Missouri, thereby establishing Santa Fe Trail.
- 1821-1846 Navajo raiding continues, with increasing intensity. Mexican period less well documented than Spanish, but some known events are:
- 1822 Navajo raids throughout northern and central New Mexico. Retaliatory campaigns by Mexican troops.
 - 1823 February--a peace meeting at Paguete (Laguna village 5 mi. S of Cebolleta).
June--Governor Vizcarra leads 1500 men W from Jemez across Rio Puerco to Torreon (NMGS T2) and Chacra Mesa, thence on to

Chaco and Canyon de Chelly. Vizcarra's is the first known report of the Chaco ruins.

1829 Jemez resident reports that Navajo sheep raiders had been pursued to San Lucas (NMGS T4) and what is probably Chacra Mesa (NMGS T3), where are said to be Navajo rancherias. A peace meeting is held at Jemez between Governor Vizcarra and seven Navajo headmen. Navajos allowed to settle on the frontiers of Cebolleta and Jemez as buffers against "barbarous tribes."

Navajo raids reported at Santa Ana and Jemez.

1830 Peace meeting held between New Mexico officials and 700 Navajos on the Rio Puerco.

1836 Documents (Carroll 1979:Sec. 3.2.5, unpaginated) hint at what may be beginning of schism between the (present) Canyoncito Navajos and the (present) "Big Navajo" Reservation.

1839 A party of [Lagunas?] sets out to rob some Navajos on the outskirts of Cebolleta.

1840 Major campaigns against the Navajos as far west as Canyon de Chelly area.

- 1841 Navajo-Mexican peace treaty negotiated at Santo Domingo Pueblo (on the Rio Grande; not in study areas).
- 1844 Another Navajo-Mexican peace treaty negotiated at Santo Domingo.
- 1845 Navajo raiders pursued from Abiquiu to Chacra Mesa.
- 1846 April--60 Cebolleta men petition governor to join Navajo chieftain Sandoval [leader of the "enemy Navajo"--see entry above for 1836] against the main body of Navajos.
- 1846 August--General Kearny conquers New Mexico. New Mexico becomes U.S. Territory.
- November--Colonel Doniphan makes first U.S. Treaty with Navajos. (Carroll [1979:Sec 3.2.6, unpaginated] believes that at this time Sandoval's band resides in the Cebolleta Plateau/Rio Puerco Valley area--thus, in the area of NMGS T4.)
- 1848-1855 U. S. war against Jicarillas and Moache Utes. Finally ended with defeat of Jicarillas and Utes and signing of peace treaties in September 1855 (Taylor 1970:131).
- 1848 Military post established at Cebolleta (Fig. 6).
- 1849 Colonel Washington leads expedition to the Navajos at Canyon de Chelly via Chaco Canyon. Kills prominent Nav-

- ajo headman, Narbona, near Two Grey Hills. Signs peace treaty with Navajos.
- 1850 U.S. Marshal's office reports that between Oct. 1, 1846 and Oct. 1, 1850 Navajos and Apaches had relieved New Mexico settlements of 12,887 mules, 7,000 horses, 31,581 cattle, and 453,293 sheep (Bailey 1964:3) [numbers doubtless exaggerated].
- 1851 Colonel Sumner marches to Canyon de Chelly. Establishes Ft. Defiance 6 mi. N of present Window Rock, Arizona.
- 1853 Lts. Beall and Whipple survey for railroad along 35th parallel, approximate later route of Atlantic & Pacific Railroad (see entry for 1881, below) (S of NMGS T4). Henry L. Dodge, Navajo agent, maintains peace until killed by Apaches in 1856.
- 1856 U.S. Surveyor-general recommends confirmation of Spanish and Mexican grants to 18 pueblos.
- 1858 Navajos begin reprisal raids against New Mexican slave raiders and encroaching sheepmen.
- October-November--Lt. Colonel Miles and Major Backus, guided by Ute and New Mexican auxiliaries, lead several attacks on Navajos. Inscriptions near Chetro Ketl at Chaco Canyon left by men on this campaign.
- December--peace treaty signed with Navajos; lasts four months.

- 1859 Major Shepherd makes extensive reconnaissance (Bailey 1964: 97-106) from Ft. Defiance to Mt. Taylor, Cebolleta, Laguna, and Acoma (NMGS T4), during which he comes upon ". . .the most numerous and heavily beaten trails I have ever seen in the Navajo country. . .[the whole route is] evidently the great thoroughfare for all thefts and robberies" (Bailey 1964:15).
- 1860 By January, state of full-scale war exists between U.S. and Navajos.
- 1861 July--Civil War reaches New Mexico.
- 1862 Ft. Wingate (Fig. 6) established S of present Grants, New Mexico (S of NMGS T4).
- 1864-1868 Kit Carson defeats Navajos at Canyon de Chelly. Navajos incarcerated at Bosque Redondo (Ft. Sumner) in eastern New Mexico. These are the refugee years for Navajos who escaped Carson's sweep; some hide out in the Chaco Canyon area and around Canyon de Chelly, others flee to the Paiutes north of the San Juan River.
- 1868 Navajos return home--to newly established reservation (Fig. 7). First U.S.-licensed trading posts initiated at Ft. Wingate and Ft. Defiance (McNitt 1962:71).
- 1872-1880's Cabezón refounded (NMGS T2). Becomes important way station on route from Santa Fe to Ft. Wingate used by U.S. troops and a stage line (Fig. 8). San Luis founded N of Cabezón (NMGS T1). Other villages (outside the study

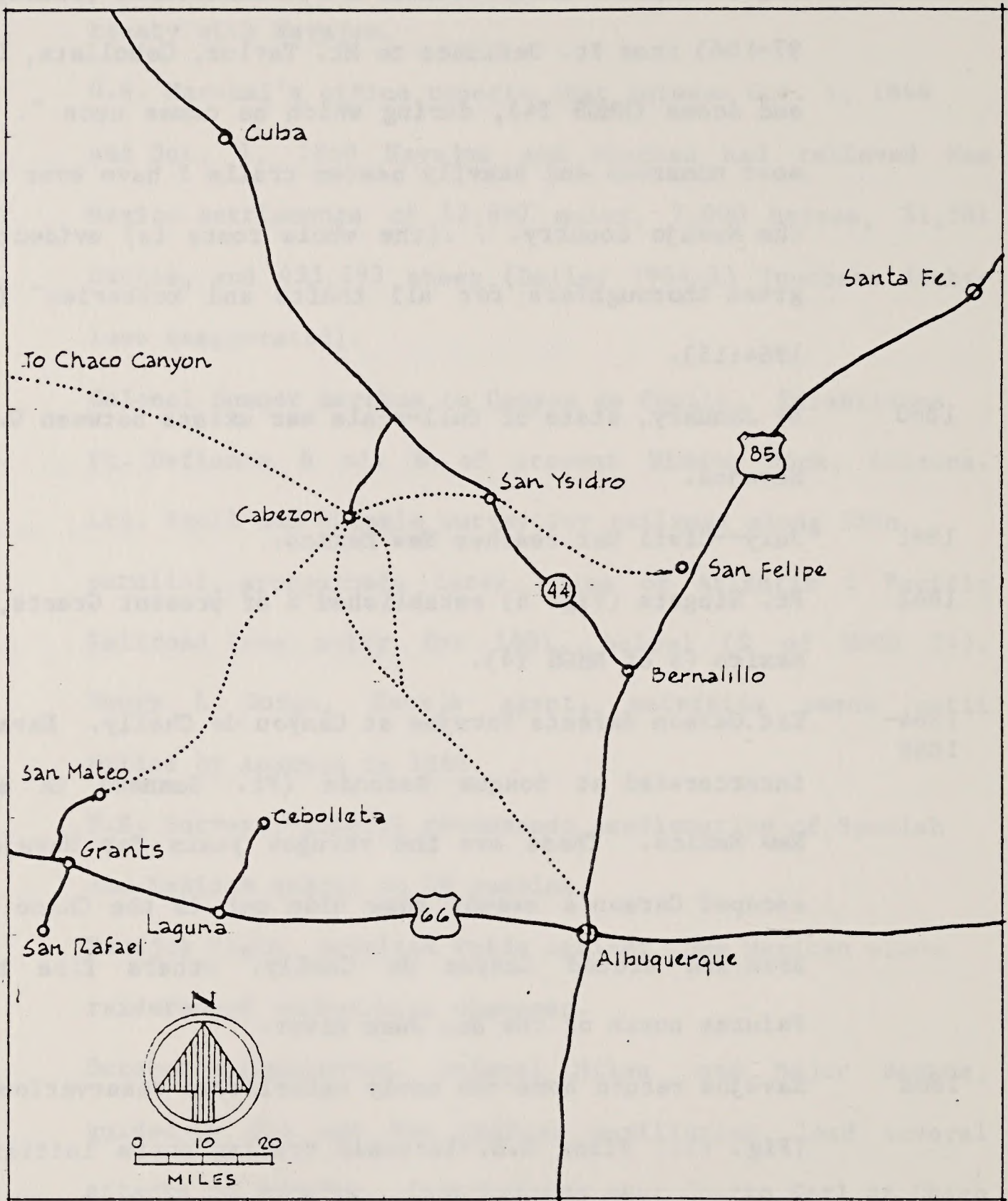


Figure 8. Map of Cabezon area showing Wagon Routes Connecting Santa Fe and San Mateo, Albuquerque and the San Juan Basin.

areas) also founded at this time (Widdison 1959). Abandonment of most of these communities begins in 1880's and 1890's, because of severe overgrazing, which coincides with the downcutting cycle of the 1880's. Irrigation systems installed (Fig. 9), but most dams are brush and pole structures, which wash out with every flood (Widdison 1959:275-277).

1875-
1876

In T23N R12W, Sec. 18, an area within the Tanner Lake Quad (in which NMGS water pipelines and transmission corridors converge) is a masonry structure recurringly reputed to be the ruins of a black cavalry post (Fassett 1977:8). Of the two black cavalry units in New Mexico between 1846 and 1899, only one, the Ninth, is a possibility. The Ninth was stationed at Ft. Wingate from Dec. 1875 to August 1876 (Agnew 1971:77) and could well have been detailed to the Tanner Lake area at some point. Although black units kept incomplete records because of the illiteracy usual among blacks then (Don Alberts, Kirtland Air Force Base Historian, pers. comm., Dec. 1981) and such construction could have gone unrecorded, it is unlikely that the origin of the structure was military. S. D. Agnew (Col., Ret'd, U.S.A.F., pers. comm., Dec. 1981) notes that even had troops been in the area for several months, they would have been under canvas. Finally, York (1979:279) reports that the structure was built by Trader Chunky Tanner be-

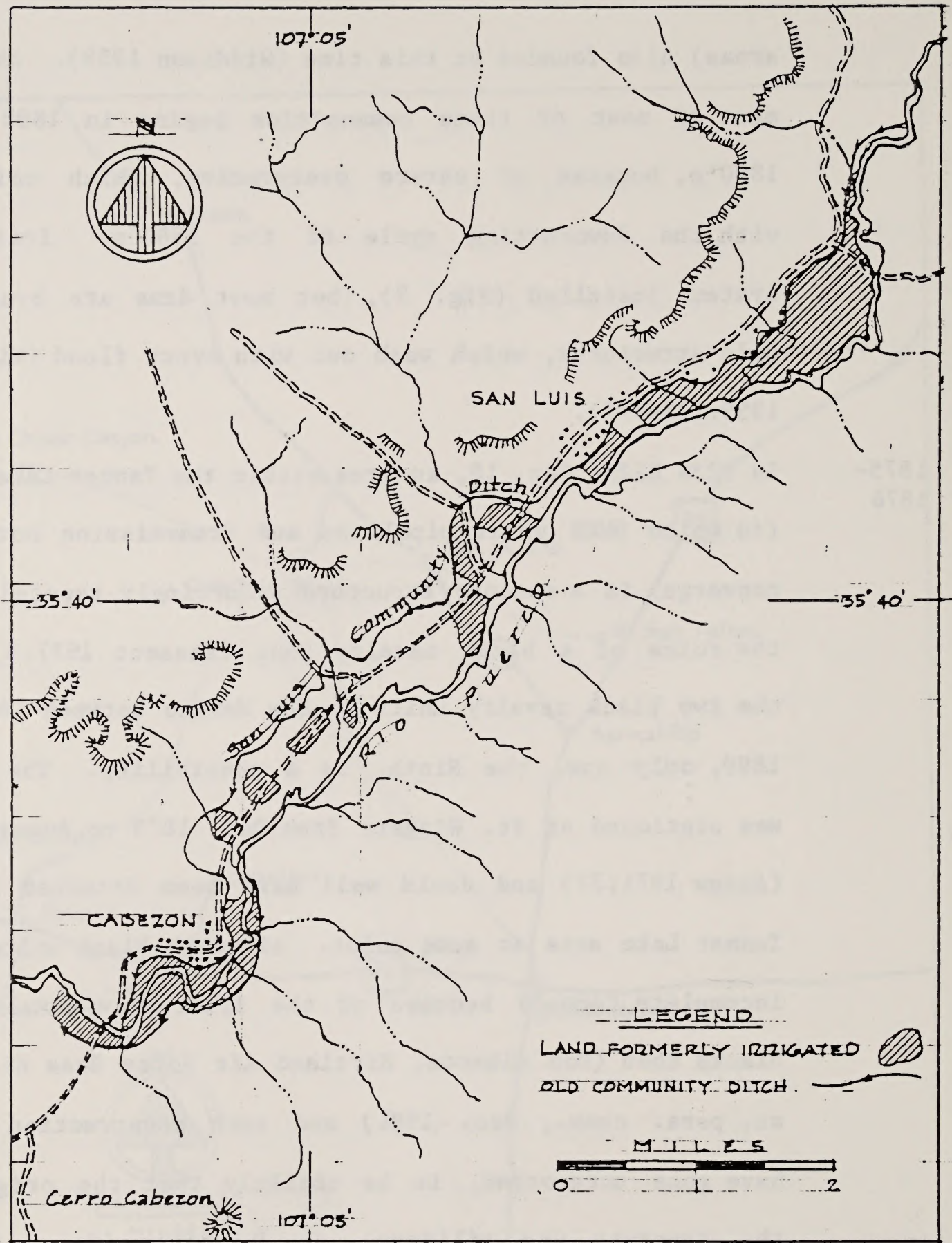


Figure 9. Irrigated Land near Cabezon and San Luis on the Rio Puerco.

- tween 1934 and 1936 for hay and fodder storage and animal pens.
- 1876 Bloomfield settled (NMGS WP2 and WP3).
- 1878 Jicarillas removed to Mescalero Reservation in southern New Mexico. But only 32 actually arrive at Mescalero and they leave a few months later because of anarchy on the Mescalero Reservation (Thomas 1974:111).
- 1879 Farmington settled (NMGS WP1).
- 1878-1880 First incursion of white settlers into Chaco area by LC or Carlisle cattle companies or both; names and exact dates uncertain.
- 1881 Completion of Atlantic and Pacific Railroad between Albuquerque and Arizona, through Laguna Pueblo land (NMGS T4). Many new coal-mining communities established (all S or SW of study areas). For Navajos, the railroad meant access (via traders) to eastern markets for their wool and woven goods and increase of goods from the eastern U.S. Executive Order establishes Jicarilla Reservation at approximate present location (Thomas 1974:112).
- 1882 Township surveying begins in Chaco area (no ranch structures in study areas--see Brugge [1980a:95-98]).
- 1883 Jicarillas again removed to Mescalero because of pressures from Colorado Anglos who want the Jicarilla land (Thomas 1974:112-116).

- 1886 Small groups of Jicarillas begin to escape from Mescalero and return to northern New Mexico (Thomas 1974:116).
- 1887 Another Executive Order establishes present Jicarilla Reservation. Remainder of Jicarillas are returned from Mescalero to Jicarilla Reservation, reservation boundaries are surveyed, and illegal settlers ejected (Thomas 1974:116-119).
- 1900 Mission schools and hospitals established on reservation (none in study areas).
- 1922 Discovery of oil on Navajo lands in San Juan County near Shiprock (outside of study area).
- 1936 Dam at San Luis (see entry for 1872-1880's above), completed in 1936, only engineered dam in the Puerco Valley. It washed out in 1951--last dam in existence in the Middle Puerco Valley. (Widdison 1959:277)
- 1951 Uranium exploration begins in San Juan and McKinley counties.

3.2 STUDY AREA CULTURAL RESOURCE RESEARCH VALUES

History of Research Questions

Prehistory

The above dates were chosen because 1849 represents the date of the first detailed accounts of ruins within the study area

(McNitt 1964), although earlier mention had been made of archeological remains in the San Juan Basin (Brugge 1964, Lister and Lister 1981, McNitt 1964). One hundred and twenty years later concern over the relationship of man to his environment resulted in passage of the National Environmental Policy Act, which included concerns for the national heritage. When combined with the National Historic Preservation Act, new funding sources and legal requirements caused changes in the focus and direction of archeological work. According to Longacre (1973:213), "a great deal of archaeological energy will be expended over the next several decades in problem-oriented salvage archeology as required by the Environmental Policy Act of 1969." (For a discussion of research questions since 1969 see "Current Research Questions" below.)

Several overviews of the prehistoric cultural history of the study area have been written in recent years. Those of a general nature include Hewett (1977) and Loose (1978). There are several excellent chapters in Handbook of North American Indians: Southwest 9 (Ortiz 1979) that provide a complete archeological overview of the Southwest (see articles by Cordell, DiPeso [a, b], Gumerman and Haury, J. H. Gunnerson, Irwin-Williams, Martin, Plog, Schroeder [a, b], Woodbury, and Woodbury and Zubrow. More specifically research-oriented overviews include Cordell (1978, 1979); Magers et al. (1979); Tainter and Gillio (1980); and Stuart and Gauthier (1981).

As outlined by Schroeder (1979a), the reports of early American travelers and explorers give us the first written information concerning the ruins of the Southwest. These early writers, working in or very near Chaco Canyon, were concerned only with the large sites and monumental architecture. Paleo-Indian and Archaic sites went largely unreported until well after the turn of the century.

Documentation Prior to 1900. In June of 1823, Governor Vizcarra passed through Chaco Canyon on a military campaign against the Navajo. His is the first documented mention of the ruins of the canyon, but he provided no useful descriptions (Brugge 1964:223-244). The first detailed documentation of ruins in the study area is in the journals of Lieutenant James H. Simpson (McNitt 1964). In August of 1849, Lt. Simpson visited the major ruins of the central Chaco Canyon, which he named Pueblo Pintado, Wijiji, Una Vida, Hungo Pavi, Chetro Ketl, Pueblo Bonito, Pueblo del Arroyo, and Penasco Blanco. Lt. Simpson and members of his party mapped some of the ruins they saw, interviewed local informants as to the origin of the ruins, recorded some environmental information, produced perspective view reconstructions of some of the ruins, compared them with ruins elsewhere, and speculated as to who had built them and why they left. Simpson, also, considered the effect that the ancient inhabitants may have had on their environment. He quoted Prescott and then added some ideas of his own:

Prescott, in his "History of the Conquest of Mexico," speaking of the absence of forest trees in southern Mexico at the present period, remarks: "In the time of the Aztecs, the table land was thickly covered with larch, oak, cyprus, and other forest trees--the extraordinary dimensions of some of which, remaining to the present day, show that the curse of barrenness in later times is chargeable more on man than nature."

If by this remark this favorite author means to say that the curse of barrenness may be chargeable to the wickedness of the people who inhabit it, I can assent to it; but if, on the contrary, his idea is that its inhabitants had caused it by their own spontaneous agency (positive or negative), either by acts of devastation or neglect of culture, I do not perceive that a sufficient motive could be assigned to the former; and the history of rich, uncultivated lands in other portions of the world does not, in my judgement, justify the belief in the latter. (McNitt 1964:34-35)

William Henry Jackson visited the Chaco Canyon area in 1877 and described the local ruins and rock-cut stairways (Jackson 1878). Unfortunately, Jackson was experimenting with a new photographic process that resulted in a total loss of the photos taken at Chaco (Judd 1954:x).

Adolf F. Bandelier reported large ruins in the southern San Juan Basin, including sketches and ceramic descriptions in his 1890-1892 final report. His writings have been republished in four volumes by Charles Lange and Carroll Riley (1966-1976).

The first major expedition for scientific excavations within the study area was that of Richard Wetherill and George Pepper under the auspices of the Hyde Exploring Expedition. Between 1896 and 1899, 198 rooms and seven kivas were excavated in Pueblo Bonito at

Chaco Canyon. In 1900 further excavations were forbidden by the federal government (McNitt 1964:48) and a special agent of the General Land Office, S. L. Holsinger, was sent to investigate the propriety of the excavations conducted under Pepper. Holsinger filed a report (1901) that contained useful information on the ruins of Chaco Canyon and two of the major outliers, as well as prehistoric roads, irrigation features, fossil remains, and scenic badland areas.

All major archeological work in the study area that was done before the turn of the century took place in or near Chaco Canyon, or at large outliers clearly related to Chaco Canyon. Work done during this period was primarily descriptive in nature. Research goals were mainly to record architectural plans and locations of major sites, and to obtain museum specimens of material culture for classification and display. Collections were made from large scale excavations. Small architectural sites and lithic sites were ignored.

According to Lister and Lister (1981:18),

Despite its new-found fame, at the end of the nineteenth century Chaco Canyon still was only superficially known. True, most of the principal ruins had been described, photographed, and mapped as well as their unexcavated condition would allow. Nevertheless, information as to their age, architectural details, contents, builders, and general place in the scheme of prehistoric Southwestern development remained shrouded in mystery.

Work Between 1900 and 1970. Pepper's 1896-1899 work on Pueblo Bonito was not published until 1920. One year later Neil M. Judd

began excavations there, which were continued through 1927 and were sponsored by the National Geographic Society. Judd cleaned out an additional 151 rooms and 26 kivas in Pueblo Bonito (McNitt 1964:48).

Jesse Walter Fewkes visited the ruin of Kin Ya'a near Crownpoint, New Mexico (approx. 8 mi. SW of proposed 4 corridor), and left some notes on the tower kiva and "ancient trails," which Holsinger had earlier mistaken for irrigation features (Fewkes 1917). This may have also been the ruin described as "Pueblo Alto" by Charles Lummis in the San Francisco Chronicle in 1889. However, these reports were quite limited, casual, and speculative compared with the work done in central Chaco Canyon during the 1920's which attempted some synthesis with climatic and geophysical data.

Stratigraphic principles were being applied in and near the study area by workers such as Nelson (1916) in the Galisteo Basin, Spier (1917) at Zuni, Kidder and Guernsey (1919) in extreme northeastern Arizona, and Judd (1954, 1959, 1964) at Chaco, aided by geological comparisons of Bryan (1925, 1926, 1954). Continued refinement of sequences of architecture and material culture resulted in the 1927 Pecos Classification of Basketmaker I-III and Pueblo I-IV (Kidder 1927).

The late 1920's and 1930's brought continued work in the study area, primarily at Chaco Canyon. The Laboratory of Anthropology was established in Santa Fe in 1930 with Jesse Nusbaum serving as director (Schroeder 1979a). The University of New Mexico conducted a field

school at Chaco Canyon during this period; several reports resulted from this work (Brand et al. 1936; Brand, Hawley, and Hibben 1937; Bryan 1954; Dutton 1938; Fisher 1934a, b; Hawley 1934, 1938; E. L. Hewett 1935; Kluckhohn and Reiter 1939; Senter 1937). In 1939 Earl H. Morris published a report on the La Plata District of Southwestern Colorado and Northwestern New Mexico (extending as far south as Aztec, New Mexico). In 1945 Harold S. Gladwin privately printed a detailed description of "The Chaco Branch" at White Mound Village and in the Red Mesa Valley of New Mexico. Many researchers attempted to use Gladwin's classification or some variation of the Pecos classification but found some revisions necessary (Colton 1939; Morris 1939; Roberts 1935, 1937). According to Schroeder (1979a:11), "It had become apparent that no one classificatory system could be applied in the same manner to several different cultures and subcultures." This problem is still a major issue for researchers working in and near the study area.

Research during this period was characterized by a descriptive and classificatory approach. Work concentrated mainly on Puebloan culture history with little attention being paid to lithic, Navajo, or historic Anglo-European sites. Prehistoric masonry and prehistoric pottery types were described. Explanations for change were largely based on diffusionist ideas. Cultural centers in Mexico were frequently posed as the cause for new architecture and new social organization in the northwestern part of New Mexico. The Pecos Classifi-

cation (see "Prehistory of the San Juan Basin," above) was developed during this period and is still in use today. This scheme was not explanatory, but merely posed a sequence of architectural and material culture "traits."

Chronology was refined through the application of dendrochronology or tree-ring dating. Along with geology and geoclimatic applications, dendrochronology was one of the first interdisciplinary applications that greatly benefited Southwestern archeology. Tree-rings in wood from ruins were used to date sites by comparisons with known tree-ring sequences. This resulted in accurate year-to-year dating not possible earlier. See Lister and Lister (1981:21-134) for a more detailed discussion of archeological work in the central San Juan Basin.

Archeological work proceeded at a slow pace during the 1940's, primarily because of funding and manpower reductions caused by World War II. In the post-war Southwest, population increases and development created a new direction in archeological research. Existing and new legislation was being enforced and "salvage" or "contract" archeology in New Mexico was born, the most notable early example being the publication of Pipeline Archeology by Wendorf, Fox, and Lewis (1956). With impetus from the Reservoir Salvage Act of 1960, a large portion of the Chuska Valley was surveyed and described by Harris, Schoenwetter, and Warren (1967). This study included a reconnaissance of 110,000 acres for the original Navajo Indian Irrigation

Project in portions of the eastern flanks of the Chuska Mountains and along the lower Chaco River (NW of the NMGS study area). Later this project was moved farther east (to a location between NMGS Water Pipelines 1, 2, & 3 and from 10 to 40 mi. north of the NMGS plant site) and is currently the focus of on-going studies under the direction of the Navajo Nation's Cultural Resource Management Program.

Ethnology

In meeting the stipulation that religious and cultural concerns of American Indians shall be considered when surface-disturbing activities are proposed on public lands, it is necessary to place in context the ethnographic data collected as a function of the Environmental Impact Statement procedure. In this section, a brief sketch of research in the Southwest as a whole is first provided as a framework, after which studies specific to the project area are discussed.

Viewed in a worldwide anthropological context, the history of ethnological theory in the Southwest has been unusual. Hoebel lamented in 1954 (p. 720),

Were it not for recent developments in the Southwest, the subject [of contributions of Southwestern studies to anthropological theory]. . . would be simple indeed, . . . Prior to 1928, Southwestern ethnology was almost wholly sterile so far as generating any contributions to ethnological theory is concerned. . . . Contrary to what actually occurred, it might have been expected that the richest culture area of North American north of Mexico would through its ethnology have stimulated the richest contributions to anthropological theory.

A quarter of a century later, Basso was constrained to note (1973: 247) that even though

. . .Southwestern ethnologists have critically examined a wide range of existing theories, and in some cases, have refined them in important ways[,] . . .they have formulated few original theories of their own.

The beginnings of ethnographic inquiry in the Southwest essentially coincided with the beginnings of anthropology itself. The first investigators, in the late 1800's, were cultural evolutionists who collected myths and migration legends in an attempt to peel away the recent coats of European influence and reveal primary forms of social organization and the evolution thereof.

By 1900, Boas' vehement reaction against cultural evolution, which had become mere unfounded speculation, inspired American anthropologists to scatter to the field to gather large bodies of empirical data on entire cultures--except in the Southwest, where there occurred a ". . .hiatus [1900-1915] in which ethnographic work all but dried up" (Hoebel 1954:720). After this 15-year gap, two major trends began, one a response to Boas' relativism, the other an incipient approach to theory. Boas had seen data gathering and subsequent understanding of whole cultures as preliminary to building hypotheses. Few hypothetical constructs resulted, but several new approaches to data handling were followed out. Culture boundary and diffusion studies were attempted via the trait-list concept (a culture is the sum total of the traits that characterize it). Out of culture boundary studies grew culture area studies and,

because the new ethnographic investigations had revealed the immense variations among cultures, ecological studies aimed at understanding the relationship between environment and social organization were undertaken. From diffusion studies came research into the results of diffusion--acculturation studies.

Two areas of inquiry that were to receive a great deal of attention in the 1930's in the American Southwest were foreshadowed 15 years earlier. One of these, Haeberlin's 1916 demonstration that a culture cannot be explained merely as the sum of the traits diffused from outside, was the harbinger of the intense interest in cultural configurations, culture and personality, and psychological bases of culture led by Benedict and Sapir. At about the same time (1917), Kroeber published Zuni Kin and Clan. Not until the 1930's, however, when Radcliffe-Brown began teaching in the U.S., did interest in social organization and functionalist theory take hold in the Southwest.

In the 1940's and 1950's the culture and personality field expanded to include psychoanalytic, psychobiological, and psycholinguistic themes, as well as studies of dreams and myths, child-rearing practices, deviant behavior, and values. Investigations into culture change included research in acculturation, assimilation, and revitalization.

The early 1960's to the present can perhaps best be labelled the "multi-theoretical period" for, as Basso (1979:20) observes,

In contrast to earlier periods, there is simply no one underlying theme, or two, or three, that can be adduced to integrate the full array of methods and theories with which Southwestern ethnologists in the late twentieth century conduct research.

The only integrating theoretical approaches Basso is able to dredge up for this period lie along the intersecting continua of behaviorism/mentalism and a concern vs a lack of concern with change. For the first, he sees a range from behaviorists who derive structure from patterns of overt social action and construct statistical models in attempts at explanation to, on the other end, mentalists who believe structure is to be sought in the "symbolic codes that underlie behavior and seek explanation through the analysis of conceptual oppositions and the construction of decision-making models" (Basso 1979:20). Intersection occurs in that culture change studies are most often carried out with behaviorist methodologies (studies of urban migration, social pathologies, systems of resource exchange and distribution, and processes of Indian "modernization"). Conversely, studies not concerned with change (e.g., folk classification, ritual, and world view) frequently employ mentalist strategies.

Older research interests that remain viable are listed by Basso (1979:21) as historical reconstruction of Southwestern Indian societies, the relationship of Indian societies to the physical environment and to other human populations, responses to conquest and subjugation by Spain, Mexico, and the U.S., models of cultural evolution,

kinship and social organization studies, religion, and ethnographic semantics directed at disclosing world views.

Enormous amounts of ethnographic work have been performed among the Navajos. A bibliography listing only Navajo studies itself runs more than 300 pages (Correll, Watson and Brugge 1969). Almost all of the studies, however, concern the Navajos of the main reservation in Arizona. The eastern Navajos have been all but ignored until recently (see "Current Research Questions--Ethnology/History," below). Studies written before the mid-1970's on eastern Navajo are works on ethnohistory and Navajo pottery (Brugge 1963), historical relations between Navajos and western pueblos (Brugge 1972), clans and marriage at Pueblo Alto (Carr, Spencer, and Woolley 1939), culture change at Canyoncito (Kurtz 1963), changes in socioeconomics (Uchendu 1966), and political development (Pearson 1969). Studies concerned specifically with sacred places include two articles by Sleight (1949, 1951) and an article by Van Valkenburgh and Begay (1938) on Navajo sacred mountains, an article by Van Valkenburgh (1940) on Navajo rock and twig piles, and a more extensive work on Navajo sacred places by Van Valkenburgh (1974).

Publications on the Jicarilla Apaches most germane to this project include Opler (1936), who provides a brief overview of Jicarilla Apache culture, two short economic studies (Opler 1971; Wilson 1964), and D.A. Gunnerson (1974), who presents a comprehensive, detailed history of the Jicarillas from early Spanish times forward.

Volumes of work exist for New Mexico Pueblos--many of the studies dating from the early days of anthropology in the Southwest. Those that relate to Pueblo concerns specific to this project and to the study area, however, constitute only a relative handful. Sketches and full-scale ethnographies of the pueblos in closest proximity to the project area include the following: Zuni (Bandelier 1892; Cushing 1920; Leighton and Adair 1966; Stevenson 1904), Laguna (Ellis 1959, 1974), Acoma (White 1930), Isleta (Parsons 1930), Zia (Stevenson 1894; White 1962), Santa Ana (White 1942), Jemez (Parsons 1925), Cochiti (Dumarest 1919; Lange 1959), San Felipe (White 1932), and Santo Domingo (White 1935). Works on sacred sites include Parsons (1918) on war god shrines of Laguna and Zuni, Hough (1906) on sacred springs in the Southwest, and Starr (1900) on shrines near Cochiti.

Several ethnobotanical studies on Navajo and Pueblo groups exist. The more important--and, for some groups, the only--works include Cook (1930) on Jemez; Dennis (1939) on plant and animal dyes, paints, and skin dressings; Elmore (1943) on Navajo; Hocking (1956) on Chaco Canyon Navajo medicinal botanicals; Jones (1930) on Isleta; Robbins, Harrington, and Freire-Marreco (1916) on Tewa pueblos; Stevenson (1915) on Zuni; White (1945) on Keres pueblos; and Wyman and Harris (1941) on Navajo medical ethnobotany.

History

Historical research in the New Mexico portion of the San Juan Basin is extremely sparse. Until very recently (see "Current Research Questions--Ethnology/History" below), almost no research had been undertaken. The only work that purports to being a history (MacDonald and Arrington 1970) is more correctly labeled a personal memoir. A scholarly, though unpublished, study is Duke's (1947) political history of San Juan County. Telling (1952), a social history of the Gallup area, also an unpublished dissertation, concentrates on Gallup and environs, but is useful for understanding events that impinged on the Navajos living in the Basin. A four-volume work prepared by the Durango Sarah Platt Decker Chapter of the DAR (1942-1962) is a combination of southwestern Colorado town and family histories, but contains occasional fleeting references to towns, people, and events in northwestern New Mexico.

Current Research Questions

Prehistory

Recently, a statewide plan for archeological survey work was published by the Historic Preservation Bureau of the State Planning Division for the State of New Mexico (Stuart and Gauthier 1981). A few passages from their introduction (pp. 1-7) are relevant to the following discussion of research questions.

We suppose that this report was not written earlier because the relationship between administrative requirements and research problems was not fully recognized. We were led to write this report by severely practical concerns. How, for example, does one apportion limited funds for the required survey of resources? The question is more complicated than it at first appears. You cannot describe an archeological site without establishing categories of data to be recorded, and you cannot establish data categories without setting forth some sort of theory about the processes that created the site. The significance of an archeological site, as we will point out later on, is a relationship between the physical attributes of the site and the state of our knowledge of the nature of the site. We found that we could not answer the administrative questions without attempting the theoretical problems. So we applied ourselves to both. . . . Remember that the problem of significance in cultural resources is an administrative problem in more ways than one. Some agencies and interests involved in land modification figured in the Congressional discussion of the [National] Historic Preservation Act of 1966. The law was to a great extent an answer to those agencies, and an attempt at a solution of the problems they typified. These agencies and interests have watched us work since then. They want to know when we will be finished identifying significant resources. They say and imply often that we may have already passed that limit. And more and more they want to know what significance in cultural resources is. They insist on a definition.

Stuart and Gauthier looked for a statewide research design and survey plan from another state to get some perspective for the task they were attempting. Few such documents could be found. They also sought a consensus on an appropriate way to divide New Mexico into archeological subareas for research purposes, as well as a consensus on research priorities. No agreements were reached. Ultimately, they chose study areas that were compatible with federal management areas. One of these subareas was the San Juan Basin.

In terms of a classificatory scheme they chose the Pecos Classification with a slightly different perspective.

. . . We also found that problems of classification grew with the geographic expansion of the classificatory framework. In the Anasazi area the Pecos Classification presents problems that may never be entirely overcome, but the scheme has benefits that may keep it alive indefinitely. . . . We use the classification as a series of temporal horizons. We have removed much of the detail from the Pecos Classification (architecture, ceramics, etc.), but have left those details in the local phase sequences. . . . Archeologists should resist the temptation to carelessly create local phase designations and to confuse the terminology, but judicious use of local phase sequences will give us a picture of unexampled clarity and detail. (Stuart and Gauthier 1981:7).

Their outline will be followed in this report, with some minor modifications and additions. Other references used in compiling these research questions include: Allen (1981); Breternitz et al. (1980); Carroll, Marshall, and Stuart (1976); Cordell (1978, 1979); Eschmann and Elyea (1980); Flynn (1981); Grigg, Enloe, and Elyea (1981); Hall (1977); Hayes, Brugge, and Judge (1981); Lagasse (1979); Love (1979); Magers (1979); Marshall et al. (1979); Moore and Winter (1980); Obenauf (1980); Ortiz (1979); Robertson (1981); San Juan Basin Regional Uranium Study (1980); Scheick (1981); Tainter and Gillio (1980); U.S.D.I. BLM (1980); and U.S.D.I. NPS (1980).

Paleo-Indian Adaptations and the Shift to the Archaic. Few Paleo-Indian sites have been recorded in the San Juan Basin. Stuart and Gauthier speculate that this may be because the sites are deeply buried. Grigg, Enloe, and Elyea (1981:89-90) suggest that part of the problem may be one of site recognition. They suggest that more intensive training of archeological survey crews might allow the

identification of Paleo-Indian sites from lithic debitage as well as from diagnostic points.

Within the study area, only a few of the lanceolate points typical of the Paleo-Indian period have been found (six Eden-like points, five Folsom-Midland-like points, two Agate Basin points, one Plainview point, and eight unidentified Paleo-Indian points). Many of these points were found in association with later components and were considered to be curated (i.e., collected) items.

At present most concerns with Paleo-Indian research in the San Juan Basin are related to the scarcity of sites, the uncertain recognition criteria if diagnostic artifacts are not present, and a lack of reliable chronology for the very few Paleo-Indian manifestations that are known. This also leaves questions as to whether the Jay/Bajada horizon is representative of a restricted Paleo-Indian adaptation or a true Archaic subsistence pattern.

Although the empirical data are lacking to test questions of social organization, researchers are concerned with developing studies of prehistoric band organization, interaction, and cyclical seasonal patternings of subsistence technologies. Usually ethnographic analogies are applied here.

Finally, questions of climatic history and subsequent faunal and floral fluctuations are still being considered (see section on paleoclimate). Again, firm interpretations await more absolutely dated geological, palynological, and paleontological data. For more spe-

cific information see Cordell (1978:10-22), Irwin-Williams (1979:31-42), and Tainter and Gillio (1980:24-41).

Within the San Juan Basin the shift to the Archaic period is represented by a change in point styles, i.e., the appearance of Jay and Bajada points. Surveys in and near the study area have documented one Jay and 18 Bajada sites where diagnostics were found in context (not as isolates or multi-component/curated situations). These figures might be significantly higher if Irwin-Williams' data from the Arroyo Cuervo area were available in tabulated form-- 500 sites were tested, excavated, or collected (Irwin-Williams 1979:36). Of course, the surveys outlined in this report have also documented over 870 sites as Archaic, lithic scatters, or as "non-ceramic" sites. Many of these could be Paleo-Indian, Anasazi, or even Navajo, but no consistent method of differentiation has yet been devised by researchers.

Eschman and Elyea (1980) and Grigg, Enloe, and Elyea (1981) suggest that looking at lithic assemblages in terms of diversity of materials, ratios of exotic to non-exotic materials, reduction techniques, ratios of stages of reduction flakes (i.e., primary, secondary, tertiary), proportions of types of tools, and amounts and types of ground stone, presence or absence of fire-cracked rock, and the site situation itself can all be used to differentiate lithic sites temporally and functionally when diagnostic artifacts are not present. This approach would need to be substantiated by excavation of

early stratified sites--such work woefully lacking in the study area as of this writing.

Finally, most researchers realize the need for more detailed climatic and ecological reconstructions before any cause and effect arguments concerning subsistence and human adaptation can be made. References most pertinent to this time period include: Cordell (1978:17-34), Grigg, Enloe, and Elyea (1981:5-17, 69-90), Irwin-Williams (1979:31-42), Reher and Witter (1977:113-126), and Tainter and Gillio (1980:41-43).

Archaic Adaptation and the Shift to Agriculture. Most of the previously mentioned research questions apply here as well. Within the study area 24 components were separated out as San Jose, 26 as Armijo, and 47 as En Medio. As with previously mentioned Archaic sites, a more detailed assessment of individual site forms might make further distinctions possible. Unfortunately, not many survey reports give a clear, concise breakdown of recorded components by phase. Whether this is due to a reluctance to make a mistake in identification or merely an oversight is not clear.

In the time frame between 2000 B.C. and A.D. 500 there are enough data to begin to answer questions about the origin of agriculture in the Southwest. Woodbury and Zubrow (1979) reference three sites in or near the study area that have contained early domesticated plants: Boca Negra Cave and Site BR-45, both just a few miles west of Albuquerque, and Armijo Rock Shelter in north-central New Mexico.

They pose the problems of tracing the origin and evolution of plants such as corn, beans, and squash, and address the issues of storage technology and the eventual rise of ceramic technologies. Questions of social organization, demographic shifts, climatic and ecological variables are again relevant and largely unquantified. For more detail refer to Stuart and Gauthier (1981:33-36, 407-409, 380-385), and Woodbury and Zubrow (1979:43-60). Many other references for this time period are available and these are summed up nicely by Cordell (1978:23-33) and Tainter and Gillio (1980:41-48).

The Anasazi Period. This period has been studied the longest and most intensively of any subdivision of San Juan Basin archeology. From Lt. Simpson's first writings until now gives us 132 years of study of eastern Pueblo or Anasazi archeology. Most of the questions asked between 1849 and 1981 have not yet been answered. Local and regional chronologies are still incomplete as are major questions of subsistence and storage technologies, social organization, and demographic fluctuations.

Archeological work in and near the study area has documented over 3500 components or sites, some multi-component, of Anasazi age. As an example, the breakdown for the survey in and around Chaco Canyon (about 43 sq. mi.) by Hayes, Brugge, and Judge (1981) is as follows, and is contrasted with the Coal Gasification Project (CGP) Survey of nearly 70 sq. mi. in the northwest portion of the study area (Reher 1977):

Chaco (43 sq.mi.)

Archaic 70 comp. (lithic)

Pueblo 2213 comp.,

dated as:

Basketmaker III 188 comp.

Pueblo I 457 comp.

Early Pueblo II 498 comp.

Late Pueblo II 449 comp.

Early Pueblo III 400 comp.

Late Pueblo III 221 comp.

CGP (68.5 sq.mi.)

Archaic 99 comp.

Pueblo 191 comp.,

dated as:

Basketmaker III 3 comp.

Early Pueblo I 4 comp.

Late Pueblo I 1 comp.

Early Pueblo II 25 comp.

Pueblo II 22 comp.

Pueblo II/III 47 comp.

Early Pueblo III 24 comp.

Pueblo III 11 comp.

Late Pueblo III 6 comp.

The research questions that could be generated by trying to explain the differences in the two tables above are endless. Again, questions would hinge mainly on paleoclimatic and ecological reconstructions, population dynamics, social organization and social interaction, subsistence strategies, storage and redistribution strategies, and comparability of the survey methodology and recording techniques (note that the cultural/time period divisions are not quite the same.)

Other interesting questions relate to regional interactions where minerals, obsidian, silicate chipped stone, ground stone im-

plements, igneous and sedimentary temper in ceramics, and possibly even food, timber, and specialized labor may have been traded over distances of 100 mi. or more. Modern techniques of petrographic analysis and trace element identification make tracing some of these items to their sources possible. When enough regional information of this nature is obtained with good time control, regional economics and social hierarchies (or lack of them) can be considered and tested more rigorously.

Stuart and Gauthier (1981:40) propose that the prehistoric people living in the monumental structures at Chaco Canyon were the highest tier in a regional development from a (1) hunter-gatherer strategy, to a (2) mixed strategy Basketmaker, to a (3) series of local agricultural networks, to a (4) low-level state system.

Since 1970 many workers have examined the issue of social organization and regional integration of the Anasazi in the San Juan Basin. Vivian (1970) discussed the prehistoric social organization of the Chaco Anasazi and described prehistoric water conservation systems within the Canyon (Vivian 1972).

During the last decade, the National Park Service has undertaken a multidisciplinary project for archeological research at Chaco Canyon and at certain outliers around the periphery of the San Juan Basin. This work included an inventory survey of 43 sq. mi. under the direction of Alden C. Hayes (Hayes, Brugge, and Judge 1981), as well as excavations in the central canyon under the direction of

Hayes and W. James Judge (see Lister and Lister [1981] for a summary of this work). Research sponsored by the National Park Service has viewed Chaco as the center of a regional Anasazi system in a complex cultural and ecological context. A research team of geologists, geomorphologists, biologists, archeologists, and remote sensing specialists are at present attempting a synthesis of the development and decline of the Chaco Anasazi within the larger perspective of the San Juan Basin.

Part of this work included a cooperative study of large Anasazi sites located away from the central Chaco area. The work of Powers, Gillespie, and Lekson (1980) was coordinated with a similar research project sponsored by Public Service Company of New Mexico and the State Bureau of Historic Preservation (Marshall et al. 1979). This work improved the regional perspective on Chaco society and also was used in establishing 33 sites as protection areas in addition to the newly established Chaco Culture National Historical Park (formerly Chaco Canyon National Monument).

Three other large-scale research projects should be mentioned here. The Bisti-Star Lake Class II, Phase I (Huse, Noisat, and Halasai 1978) and the Bisti-Star Lake Class II, Phase II (Kemrer 1981) covered 58 and 17 3/4 sq. mi. respectively. Both studies were commissioned by the BLM to identify cultural resource management issues on or near coal lease areas in the central San Juan Basin. These two studies considered site location and distribution density

on the basis of environmental factors, especially soil types. A statistical model for prediction of site density was included in the report by Kemrer.

Another similar survey of 35 sq. mi. in the southern San Juan Basin has just been completed by the Museum of Northern Arizona (Dulaney and Dosh 1981). The main focus of research questions in this report was also of an environmental nature.

Finally there are many unresolved questions related to refinement of chronology and typology and the details of culture history itself. Where did the people go (if they didn't expire on the spot) when the San Juan Basin was abandoned? Why did they leave? What combinations of environment, social organization, random events, external influences and pressures, internal decision making, food and information storage etc. play in the failure of the Chacoan (and eastern Anasazi) social system?

For further information the reader is referred to the following works in addition to the much-cited Stuart and Gauthier (1981): Allen (1981:22-28, 45-50, 58-64, 113-114); Bussey (1979:67-113); Cordell (1978:64-106; 1979:131-151); Loose (1979:355-363); Marshall et al. (1979); Moore and Winter (1980:437-532); Tainter and Gillio (1980:99-116).

Ethnology/History

Ethnographic research published in the last five or six years exhibits a continuation of many of the interests noted in the section

on history of ethnographic research (above), but new directions are also apparent. Only those works that may prove useful in interpreting physical remains in the study areas or that touch on religious, medical, land-use, or folk-life concerns are included here. Because of the nature of both the research and the researchers working today, ethnologic studies of San Juan Basin people are often also historical studies. Thus, they are presented together here.

Brugge's (1980a) exhaustive history of the Chaco Navajos, which details Navajo-white relations, particularly those changes wrought by the presence of Richard Wetherill and a series of Indian Agents, will be of immense value to the cultural resources manager, as will his "Tsegai" (n.d.), now in press. Other recent historical studies applicable to the study areas include Stewart's "Historic Non-Indian Penetration of the San Juan Basin" (1979), Tainter and Gillio's "Historic Period" (1980:117-144), and two articles by Simmons, "History of Pueblo-Spanish Relations to 1821" and "History of the Pueblos Since 1821" (both in Handbook of North American Indians 9 [1979]).

Studies in Navajo social, political, and kinship organization (helpful in understanding residence patterns and land use) continue unabated, although the focus, appropriately, is less on reconstructing old systems than on analysis of current structures (Aberle 1981; Lamphere 1976, 1977, 1979; Morgan and Lathrop 1979; Witherspoon 1975). Young (1978) offers a new history of Navajo political organization. Two studies of John Collier's tenure as Commissioner of

Indian Affairs, which had immense impact on the Navajo economy and lifeway, have appeared (Parman 1976; Taylor 1980).

Works on mythology include Wyman's (1975) traditional presentation of the Mountainway Chant and Carolyn Olin's study of the Newcomb collection of Navajo sandpaintings (in progress; pers. comm., 1981) currently housed at Maxwell Museum of Anthropology.

Interest in culture change remains strong, subjects ranging from Wagner's (1975) study of syncretism in Navajo peyotism to Carlson's (1975) analysis of the changes in both Pueblo and Hispanic cultures as a result of Hispanic acquisition of Pueblo grant lands. Vlasich (1980) finds that even though Pueblo agriculturalists retain some traditional practices, they have also adopted farming methods introduced during the Depression and World War II. Furman (1975) has looked at technological change in the southern pueblos (Acoma, Cochiti, Isleta, Jemez, Laguna, Sandia, San Felipe, Santa Ana, Santo Domingo, and Zia).

Two recent economic studies are concerned with the Rio Grande pueblos (Michael 1976) and with Navajo-Hopi-Zuni networks (Kelley 1977). Karen Cantrell (pers. comm., 1981) is completing a 10-year study on the economics of mineral royalties as they affect the relationships between Jicarilla Apache mothers and children. Chisholm (1981) has analyzed the social and economic effects of pickup trucks on Navajo culture.

The first sound publication on witchcraft since Kluckhohn's Navajo Witchcraft (1944) is Simmon's (1974) study of Spanish, Pueblo (separate chapters on Nambe and Zuni), Navajo, and Apache witchcraft. One of three recent publications on Hispanic folklife is Brown, Briggs, and Weigle (1978)--worked up from manuscripts Brown produced during the 1930's Writers' Project in New Mexico. Another is Robe (1977), also compiled from an old collection, this one gathered from students by R. D. Jameson during his years at New Mexico Highlands University. Marc Simmons has collected stories of daily life among Hispanic villages from Taos to Tome (1978).

In 1978 a special symposium issue of the American Indian Quarterly was devoted to Navajo mortuary practices and beliefs, and contains articles by Brugge, Frisbie, Griffen, Levy, Shepardson, and Ward.

Aspects of Navajo folklife (home life, traditional training, school environments, and adult experiences) are revealed in 22 first person stories by elderly Navajo men and women, recorded in Navajo and translated into English (Johnson 1977). An autobiography of Frank Mitchell, lifelong participant in Navajo political and community affairs, who was also a renowned singer--and a Catholic, has been prepared by Frisbie and McAllester (1978).

The recent burgeoning in bibliographies and bibliographic essays should be noted. In addition to the general but excellent Newberry Library series (Dobyns [1976]; Dobyns and Euler [1980]; Iverson [1976]; Melody [1977]; and Prucha [1977]), Laird (1977) has compiled

an exhaustive (2935 entries) bibliography on Hopi. (Whether sites of concern to Hopis exist in the study areas is uncertain. In response to our inquiry, the Hopi Tribe indicated that religious and clan leaders would be contacted by the Tribe [R. Jeanne letter, November 3, 1981].)

Because of the need of federal and state land-managing agencies for extreme specificity to permit compliance with federal legislation on historic preservation, cultural resources, and Native American religions (Carroll 1981; Holt 1981), at least two trends are emerging--especially in "contract" ethnography/history.

One such trend is the multi-disciplinary attack on cultural resources problems evidenced in the use of historical and anthropological documents, archeological survey and excavation, and ethnographic interviewing. Completed and on-going studies include ethnographic investigation of archeologically identified ephemeral use sites, patterning in the use of geographic space, archeologically visible distinctions between Navajo homesites and campsites, the evolution of Navajo use areas, archeologically evident distinctions between Navajo and Anglo campsites and use areas, and changing U.S. and regional economic conditions vis a vis Navajo economy. Such studies are exemplified in Bailey and Bailey (1978a, b; 1980), J. Boyer (1980), Brugge (1979; 1980a, b), Elyea, Abbink, and Eschmann (1979), Fransted (1979), Fransted and Werner (1974), Kelley (1981; n.d.) Miller (1980), Ward, Abbink, and Stein (1977), and York (1979;

1980a, b; 1981a, b, c). A review of Bailey and Bailey (1980) illustrates the character of work currently being performed as part of contract responsibilities. After an overview of Navajo history and economy from 1582 to the present, the Baileys present interview data garnered during the Ojo Amarillo project on Gallegos Mesa on families, economy, and dwellings and camps. They conclude that Navajo economy changed not only in response to availability of resources, but to political events (Pueblo Rebellion, World War II, etc.), culture contact (from diffusion to conquest), and change in mode and pattern of transportation, as well. A noncontract publication that combines the resources of several disciplines is Brugge's forthcoming "Tsegai" (n.d.), which examines Navajo life in the San Juan Basin from the 1720's to 1950.

A second trend stems from the same need of federal agencies for specific and detailed information. Intensive fieldwork is being performed to gather data on such questions as previous and current land-use (e.g., plant and mineral gathering areas, grazing and farming, sacred and ceremonial sites), residence patterns, attitudes toward energy development, and social and economic impacts of the various phenomena that accompany development--new roads, availability of wage labor, in-migration of large numbers of new people, etc. A far cry from the armchair, almost mentalistic, model making of the 1960's and 1970's on the basis of little or fragmentary evidence, current ethnographic/historic studies perforce collect data first and interpret second.

The volume on the Utah International, Inc. (UII) project edited by Moore and Winter (1980) provides a particularly good example of the fecundity of these new (or revived) approaches. Just west of the NMGS study area, the Utah International project is close enough that results gained there may have direct application to the NMGS project. To cite but one chapter of those that treat both data and theory, J. Boyer (1980), firmly moored to careful multi-disciplinary library and archival research and to fieldwork, replaces Reher's (1977) ecosystemic/mini-max model ("the highest site density will be in the areas of greatest ecological diversity") on the same project area with an economic model that Boyer finds superior in explaining changes in settlement patterns. Boyer's economic model takes into account both environmental and social factors--the quality of grazing area, expansion by ricos (large herders), stock reduction, and the availability of wage labor.

Two additional trends should be noted, though both are almost so incipient they might better be termed "twitches" than "trends." Again, both might more appropriately be labelled "revivals" than "new directions," since they hark back to studies of 25 to 100 years ago. The least tentative of the two is the regional study of items of contemporary material culture. Navajo architecture is surveyed on a reservation-wide scale by Jett and Spencer (1981) and, in finer detail, on the smaller scales of the Black Hat and North Pueblo Pintado, New Mexico communities by Kelley (1981, n.d.). The

second trend is the concern for universal rules. There seems to be a growing inclination among ethnographers to be less preoccupied with the elegance of a model than with testing its ability to reflect what they find to be true in specific field situations. For example, York (1980b:414-418) compares his field data gathered during the Utah International project with models of Navajo residence patterns and social structure offered by various scholars over the last 40 years (from Kimball and Provinse [1942] to Lamphere [1979]) and concludes that his data are best explained by Lamphere's (1977; 1979) notion that Navajo kin affiliates do not behave as corporate lineage groups but are matrilineally oriented groups, so flexible that with some changes in form they have been able to take on new functions, thus adapting themselves to each new economic era as it has impinged on Navajo society. The value of constant field research that permits continual refining and redefinition of theoretical constructs will doubtless prove immense. The current era of lean years for academic anthropologists and historians, when many excellent researchers have already moved out of the classroom and into contract and applied work, may yet prove the reanimating boon to scholarship (thus, ultimately to energy companies, federal land managers, and project area residents) that Goldschmidt (1977) sees the Depression as having been.

It is difficult to determine whether the apparent beginnings of a return to common sense in anthropology and the drift away from

". . . work[ing] so hard on what is trivial that it comes to appear important" (Berreman 1966:351) is occasioned by the general U.S. pendulum swing back toward the center after the exhausting excesses and fragmentation of the 1960's and early 1970's or by the need of federal agencies for hard data and solid predictive models. In either case, both academic and contract anthropologists seem to be coming home, at least "home" as Marvin Harris sees it. His apologia to The Rise of Anthropological Theory (1968:3), is especially appropriate here:

My main reason for writing this book is to reassert the methodological priority of the search for the laws of history in the science of man. There is an urgency associated with this rededication, which grows in direct proportion to the increase in the funding and planning of anthropological research and especially to the role anthropologists have been asked to assume in the planning and carrying out of international development programs. A general theory of history is required if the expansion of disposable research funds is to result in something other than the rapid growth in the amount of trivia being published in the learned journals.

Projected Future Research Questions

Prehistory

Predicting the future of archeological research directions is probably as difficult as developing a predictive locational model that works for all types of archeological sites. Predictions about the future usually miss their mark for two reasons: (1) Long-term predictions are usually wrong because of unforeseen technological,

social, and economic breakthroughs on problems. (2) Short-term predictions are usually wrong because of unforeseen problems, usually of a technical, social, or economic nature.

The present regulatory and economic uncertainties make this point clear, and short-term research priorities will be hard to predict. In the long term, however, the bulk of federal legislation and much of the current cultural resource management framework should remain intact. If deep economic or social problems don't interfere we will probably see the successful pursuit of understanding regional chronologies and relationships more clearly. The newly computerized data bases available through the National Park Service (SJBRUS) and the Museum of New Mexico Laboratory of Anthropology will make synthesis of simple questions on thousands of recorded sites an approachable task.

Cultural historical reconstructions and areal syntheses will probably continue but more emphasis on general systems theory and cultural ecology will occur (Longacre 1973:213).

As more rigorously collected computerized data are made available, theories of human behavior may be tested within a framework of anthropology as an explanatory science. One very complex issue yet to be resolved is the feelings and wishes of various Native American peoples in terms of excavation of their ancestral sites and use of such material in research or museum exhibits. Future archeologists will have to be tactful and well informed in order to successfully

negotiate research agreements when Native American concerns are involved.

Specific research questions that seem especially harassing to present fieldworkers are discussed below (drawn from interviews and from Cordell [1978]; Magers, Bussey, and Kirkpatrick [1979]; Miller [1980]; San Juan Basin Regional Uranium Study [1980]; Stuart and Gauthier [1981]; and Tainter and Gillio [1980]).

Methodological and General. Constant pleas are seen in the San Juan Basin contract literature of the last two or three years for a more adequate data base, for the development of regional research strategies, and for the establishment of one central clearing house for archeological research data. Better chronological control and better classificatory/comparative control are vital if questions of site significance are ever to be dealt with adequately.

Geographic Areas. The questions related to geographic areas fall into two basic categories--intra-cultural and inter-cultural concerns. Many workers have asked for more precise definitions of the archeological cultures represented in and near the Basin, including temporal relationships of the phases within a single culture and the range and variation within an archeological culture area. Better information on intercultural relationships is another major need--particularly on the articulation of Anasazi and Mogollon (in the Laguna-Acoma area), Chaco and Mesa Verde (in the northern Basin),

and Chaco and Largo-Gallina (along the northeastern edge of the Basin). Questions about movement of people and inter-cultural social and economic relationships are raised frequently.

Archeological Culture Periods.

Paleo-Indian. The paucity of Paleo-Indian sites in the Basin is a concern. Do survey crews fail to recognize them? Was the Basin ignored by Paleo-Indians? Have the deposits containing sites been eroded away or buried?

Archaic. In addition to questions regarding recognition of Archaic sites that lack diagnostics and of the legitimacy of the apparent Archaic site/dune relationship, there is a pressing need for excavation and dating of perhaps 50 of the 200 known Basketmaker II sites in the Basin. It is otherwise unlikely that the transition from hunting and gathering to agriculture can ever be illumined.

Basketmaker III-Pueblo I. Many sites defined as Basketmaker III by survey crews (on the basis of surface artifacts) may actually represent Pueblo I and even early Pueblo II periods. Excavation would help to clarify the time question, as well as the relationship between co-existing agriculturalists and foragers.

Pueblo II-III. The major questions for this time period relate to the environmental problems of Basin agriculture and game resources, to economic strategies, to the relationship of Chaco to its outliers, and to the nature of the Greater Chacoan sociopolitical structure.

Pueblo IV-V. There is a serious need for survey work along the San Juan River to clarify the Mesa Verdean occupation(s) of the Basin. Other concerns are Pueblo/Plains relationships and early Southern Athapaskan presence in the Basin.

Ethnology/History

Future research questions and concerns for ethnology and history are presented together here because, as is true of many of the published studies, separating them topically proved impossible. For concerns of workers in the field today we relied on personal interviewing (special thanks to Dave Brugge) and on Abbink and Stein 1977; Basso 1979; Carroll 1979, 1981; Cattle, Carroll, and Stuart 1977; Cordell 1978; Hale 1981; Holschlag 1975; Holt 1981; Kelley n.d.; Kirkpatrick 1980; Magers, Bussey, and Kirkpatrick 1979; Riley 1974; Simmons 1969; Stoffle et al. 1981; Swadesh 1974; Weber 1976; York 1980a, b; and Zubrow 1974.

Methodological and General. Because no history of the San Juan Basin exists, there is a first-order need for a professionally produced history of the Basin--which views the area in a regional and national/multi-national context.

Navajo, Pueblo, Hispanic, and Anglo community and family histories are almost entirely lacking. Autobiographies and biographies are nearly as rare. Diaries, correspondence, and other personal records must exist, especially in Mormon towns, but an excessive effort might be required to locate them.

Cultural Interrelationships/Culture Change/Acculturation. Studies in intercultural relationships among and between Indians, Hispanos, Anglos, and others are needed--from 1540 to the present. How did and do they affect each other? Which of the effects are visible as physical manifestations? Better dating of events and objects is crucial.

Economics/Subsistence/Resource Use. Of vital importance are specific, detailed data on the full range of economic activities--from Navajo/Apache/Pueblo animal husbandry, agriculture, and crafts through prehistoric and historic mining to trade networks, mercantilism, and Hispanic and Anglo ranching. All periods need extensive work. Much more secure dating of physical remains is essential (including seasonality in land-use activities).

Demography. A great deal of work should be performed on demography, including analyses of such varied factors as raiding, socio-political organization, the introduction of new plants, animals, and material items (e.g., wheat, sheep, well-digging equipment, pickup trucks, railroads), population increase and decrease, and rainfall patterns. Again, temporal control is critical.

Folklife/Folklore. Enormous amounts of material on Indian and Hispanic groups are extant, but to judge from the published folklife/folklore record, not a single Anglo has ever existed in the San Juan Basin. Information from diaries and from personal interviews could doubtless be recovered by a Class III attack.

Historic Transportation and Communication. Studies (both archival and ethnographic) are needed on trails, roads, and major routes through the Basin, modes of haulage, and impact on Basin residents.

Navajo Sociopolitical and Kinship Data. Data specific to families and sites are needed, as are studies of social stratification (e.g., relationship between ricos and average stockraisers).

Historic Site Typology. An analysis of the characteristics of specific site types, including architecture, site plan, artifact patterning, and clues that signal re-use of sites is needed.

Recording of Navajo Sites. Much greater attention to accuracy and detail in recording, as specified by Kelley (n.d.:34-35), is critical. For sites of known history, interviewing and excavation, including pollen and flotation analyses, are needed to determine whether known activities are reflected in the sites.

Social and Religious Impact. In addition to conducting inventories to locate sites of concern, several hard questions need consideration (by Native Americans, cultural resource managers, private companies, and anthropologists): What constitutes a sacred or ceremonial site for each cultural group? To how many people must a site be important to be recognized as requiring special consideration? If disparate opinions regarding a site's importance are registered in a community, who decides which opinion is to be accorded legitimacy?

3.3 THE STUDY AREA CULTURAL RESOURCES BASE

Known Culture-Historical Resources

Methods used in collecting the data presented here are discussed fully in Chapter 2.3, above. The total number of known sites in the proposed project study area is 698 (794 components). Component and site totals for project element study areas are:

Proposed Pipeline 1 -- 92 components (71 sites)

Proposed Pipeline 2 -- 80 components (64 sites)

Proposed Plant Site -- 43 components (40 sites)

Proposed Transmission Corridor 1 -- 78 components (73 sites)

Proposed Transmission Corridor 2 -- 167 components (164 sites)

Proposed Transmission Corridor 3 -- 56 components (51 sites) and

Proposed Transmission Corridor 4 -- 178 components, 156 sites.

Table 2, the summary, contains breakdowns by cultural affiliations for each sub-study area. Table 3 is a description of the identified Chacoan culture resources within or in proximity to the project study area. Table 4 is a site-by-site listing of all identified cultural historical resources in the NMGS study area, organized by proposed project element and, within each study sub-area, by USGS quads in a north-to-south, west-to-east progression.

	WP1	WP2	WP3	PltSt	TC1	TC2	TC3	TC4
Prehistoric (undefined)	4	0	0	0	0	0	0	0
Pre-Ceramic	0	0	1	0	4	0	0	0
Paleo-Indian	0	0	0	0	0	0	0	0
Archaic	15	20	18	18	6	21	10	18
Anasazi	9	10	9	5	6	44	11	95
Navajo	25	28	34	8	41	53	11	38
Historic (undefined)	7	10	2	2	3	3	1	0
Hispanic	0	0	0	0	0	0	0	0
Spanish	0	0	0	0	1	0	0	0
Anglo	7	3	0	0	0	1	0	0
Unknown	25	29	16	10	17	45	21	22
TOTAL COMPONENTS	92	100	80	43	78	167	56	178
TOTAL SITES	71	79	64	40	73	164	51	156

Table 2. SUMMARY OF KNOWN CULTURAL HISTORICAL RESOURCES
 [TOTAL SITES: 698 TOTAL COMPONENTS: 794]

Table 3. Significant Chacoan Resources Within or Adjacent to the Proposed Project Area

Name, Number	CULTURAL ELEMENT		LOCATION***		PROPOSED PROJECT ELEMENT		Relationship of proposed feature to proposed project element
	Feature Type*	Size (acres)	Protection Status **	T N	R W	NMGS Element Name	
Twin Angels [syn: Kutz Canyon]	Structures	40	APS	27	10	P3	Approx. 1 mile from study area
Great North Road	Road	--	UR	28 25	10, 11	P3	Crosses twice
				24	11	T1	Crosses once
				22	11	T2	Crosses once
Pierre's Site	Structures	1020	APS	23	11	T1	Immediately adjacent
Northern Addition	Structures	2480	CCHNP	21	10	T2	Immediately adjacent or coincident up to 150 ft.
Raton Well	Structures	23	APS	19	7	T2	Approx. 0.75 mi. from study area
Pueblo Pintado	Structures	320	CCHNP	20	8	T2	Approx. 100 ft. from study area
Pueblo Pintado Road	Road	--	UR	20	8	T2	May cross road
Pueblo Alto Road	Road	--	UR	21	10	T2	May cross some spurs
Spurs				22	11		
Bisa'ani Road	Road	--	UR	21	9, 10	T2	May cross road

Table 3. continued

Name, Number	CULTURAL ELEMENT		Size (acres)	Protection Status **	LOCATION***		NMGS Element Name	PROPOSED PROJECT ELEMENT	
	Feature Type*	at least			T N	R W		Relationship of proposed feature to proposed project element	
Greasy Hill (LA42282)	Structures	at least 40	NRHP	22	10	T2		Partially within study area	
Escavada Complex (LA42324)	Structures	at least 40	NRHP	22	10	T2		Within study area	
Kin Indian Ruins (29SJ402)	Structures	2.5	NRHP	22	11	T2		Approx. 600 ft. outside study area	
Lake Valley	Structures	30	APS	22	13	T3		Approx. 1000 ft. from study area	
Kin Bineola	Structures	1140	CCNHP	21	12	T3 T4		Approx. 3000 ft. from study area Approx. 2500 ft. from study area	
Upper Kin Klizhin	Structures	60	CCNHP	20	11	T3		Approx. 500 ft. from study area	
Casa Patricio	Structures	25	NRHP	20	11	T3		Within study area	
Casa Patricio- Upper Kin Klizhin Road	Road	--	UR	20	11	T3		Within study area	
Unnamed Road	Road	--	UR	20	11	T3		Crosses study area	
Unnamed Road	Road	--	UR	20	11	T3		Crosses study area	
Unnamed Road	Road	--	UR	19	10	T3		Crosses study area	
				20	10				

Table 3. continued

Name, Number	CULTURAL ELEMENT		Size (acres)	Protection Status **	LOCATION***		NMGs Element Name	Relationship of proposed feature to proposed project element
	Feature Type*				T	R		
Unnamed Road	Road		--	UR	20	13	T4	Crosses study area
Unnamed Road	Road		--	UR	20	12	T4	Crosses study area
Unnamed Road	Road		--	UR	18	11	T4	Crosses study area
Unnamed Road	Road		--	UR	18	11	T4	Crosses study area
Unnamed Road	Road		--	UR	13	8	T4	Crosses study area

* Several of the Chacoan roads listed here have been identified only from remote sensing data and are not yet verified by a field review.

** Protection status codes include CCHNP, a resource presently included within Chaco Culture National Historical Park; APS, an archeological protection site the status of which is defined under P.L. 96-550 (Chaco Culture Preservation Act); NRHP, a resource that has been professionally evaluated as being eligible for the National Register of Historic Places and/or is under formal Register review by the State Historic Preservation Office and/or Register Keeper; UR, a potential resource under professional review to evaluate its field integrity and significance.

*** Township (T) North, Range (R) West, New Mexico Principal Meridian.

Table 4. Known Culture Historical Resources

Abbreviations

RECORDERS

BLM.....	Bureau of Land Management
BLM-ADO.....	BLM, Albuquerque District Office
BLM-RPRA.....	BLM, Rio Puerco Resource Area
CASA.....	Complete Archeological Services Associates, Cortez, CO
CC,NPS.....	Chaco Center, National Park Service, UNM, Albuquerque, NM
DCA.....	Division of Conservation Archeology, Farmington, NM
ENMU.....	Eastern New Mexico University, Portales, NM
ENMU-ACA.....	ENMU, Agency of Conservation Archeology, Farmington, NM
ESCA-Tech.....	ESCA-Tech Corporation, Albuquerque, NM
Independent.....	Independent
Lab Anthro, MNM.....	Laboratory of Anthropology, MNM, Santa Fe, NM
MNA.....	Museum of Northern Arizona, Flagstaff, AZ
MNM.....	Museum of New Mexico, Santa Fe, NM
NMSHPO.....	NM State Historic Preservation Office, Santa Fe, NM
NMSU.....	New Mexico State University, Las Cruces, NM
NMSU-SJC.....	NMSU, San Juan Campus, Farmington, NM
NNCRMP.....	Navajo Nation Cultural Resource Management Program, Window Rock, AZ
NPS,SJBRUS.....	National Park Service, San Juan Basin Regional Uranium Study, Santa Fe, NM
QRC.....	Quivira Research Center, Albuquerque, NM
SAR.....	School of American Research, Santa Fe, NM
SIU.....	Southern Illinois University, Carbondale, IL
SJ Arch Soc.....	San Juan Archeological Society, San Juan County, NM
UNM-OCA.....	University of New Mexico, Office of Contract Archeology, Albuquerque, NM

Table 4 - continued

ECOZN (ecological-zone)	COND (condition of site)	COMPONENTS
unk.....unknown	unk.....unknown	unk pd....unknown period
scrld....scrubland	com.....combination of effects	REGSTAT (register status)
grslnd....grassland	dst*.....disturbed	insuf.....insufficient information
dtscr....desert scrub	erd.....eroded	or not evaluated
wdlnd....woodland	grz.....grazing impacts	rec,NR,SR....formally recommended for National Register by State Review Board and on State Register
TOPOGR (topography)	int.....intact	prof rec, NR,SR....professional evaluation has recommended National and State register status, but has not been reviewed by State Review Board
unk.....unknown	mch.....mechanical disturbance	NR, SR.....on National and State registers
allvfn....alluvial fan	van.....vandalized	rec,NR,SR/SHPO....recommended for National ineligible/SHPO...SHPO evaluation indicates site ineligible for NR/SR status
arroyo....arroyo	ARCHST (archeological status)	
bench.....bench	unk.....unknown	
bdlnds....badlands	col.....collected	
blwout....dune blow out	exc.....excavated	
canrim....canyon rim	und*.....undisturbed	
canflr....canyon floor		
clffbs....cliff base		
cliff.....cliff		
dune.....dune		
hllslp....hill slope		
knoll.....knoll		
lwrise....low rise		
mesa.....mesa		
ovrhng....overhang		
plain.....plain		
playa....playa		
ridge....ridge		
saddle....saddle		
slope....slope		
talus....talus		
terrace....terrace		
valley....valley		

*In the following list of known cultural resources, some sites are shown as both "disturbed" and "undisturbed." In the COND (condition of site) slot, "dst" (disturbed) refers to disturbance caused by an unidentifiable agent. In the ARCHST (archeological status) slot, "und" (undisturbed) means that no archeological testing or surface collection has occurred.

WATER PIPELINE 1

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
Farmington South Quad, San Juan County				
LA12951	T29N R13W Sec 19	scr1nd/ridge/unk unk/und/insuf	Archaic, 5000BC-AD1/fire cracked rock, ground stone, lithic scatter/.01	Recorder: UNM,OCA,1975 Records:Lab Anthro, MNM
LA12952	T29N R13W Sec 19	scr1nd/ridge/5360 unk/und/insuf	Navajo, unk pd/oven, burnt sandstone/ 1	Recorder:UNM,OCA,1975 Records: Lab Anthro,MNM
LA8608	T29N R13W Sec 20	unk/ridge/unk erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock, ground stone/ 3	Recorder: MNM,1963 Records: Lab Anthro,MNM
LA8609	T29N R13W Sec 20	unk/bench/unk unk/und/insuf	Anasazi, PIII, AD1100-1300/masonry features, kiva, ceramic scatter/ 6.3	Recorder: MNM,1963 Records: Lab Anthro, MNM
LA8618	T29N R13W Sec 20	unk/blwout/unk unk/und/insuf	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock/ 4	Recorder: MNM,1963 Records: Lab Anthro,MNM
ENM5028	T29N R13W Sec 21	unk/unk/unk unk/unk/insuf	unk/unk/unk (location only)	Records: Lab Anthro, MNM
LA20374	T29N R13W Sec 20	scr1nd/ mesa/6000 int/und/insuf	Anasazi, PII, AD900-1100/ground stone, lithic/ceramic scatter/ 10-50	Recorder: NMSU-SJC,1981 Records: Lab Anthro, MNM

WATER PIPELINE 1

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA16655	T28N R13W Sec 28	grslnd/ mesa/5800 int/und/insuf	Navajo, AD1945-Present/hogan, historic trash/.01-.25	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA16657	T28N R13W Sec 28	grslnd/ mesa/5910 int/und/insuf	unk/ground stone, lithic scatter/ 100+	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA16656	T29N R13W Sec 33	grslnd/ mesa/5840 int/und/insuf	unk/roasting pit/.25-1	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA21384	T28N R13W Sec 9	scrslnd/ mesa/6000 int/und/insuf	Anasazi, PIII, AD900-1100/ground stone, lithic scatter/ 10-50	Recorder: NMSU-SJC, 1981 Records: Lab Anthro, MNM
LA18131	T28N R13W Sec 16	dstscr/unk/6080 erd/und/insuf	Navajo, unk pd/lithic scatter, corral, historic trash/unk	Recorder: NNCRMP, 1977 Records: Lab Ant
LA18132	T28N R13W Sec 16	dstscr/hllslp/6090 dst/und/insuf	Navajo, AD1945-Present/corral, tent base, historic trash; unk/lithic scatter/ 100+	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM
LA18133	T28N R13W Sec 16	dstscr/plain/6050 dst/und/insuf	Navajo, unk pd/ramada, historic trash/ 1-5	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM

WATER PIPELINE 1

3-106

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
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LA11870	T28N R13W Sec 16	grsln/mesa/6084 erd/und/insuf	Navajo, unk pd/corral, hogan, trash/ 15	Recorder: MNM, 1974 Records: Lab Anthro, MNM
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LA6281	T28N R13W Sec 16	unk/blwout/5700 erd/und/insuf	unk/lithic scatter/ .09	Recorder: Unknown Records: Lab Anthro, MNM
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LA18126	T28N R13W Sec 21	dstscr/ridge/6000 erd/und/insuf	Navajo, unk pd/ramada, wood, cuttings/ unk	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM
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LA18127	T28N R13W Sec 28	dstscr/blwout/6020 erd/und/insuf	unk/lithic scatter, ground stone/ .25-1	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM
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LA18128	T28N R13W Sec 21	dstscr/ridge/6020 erd/und/insuf	Navajo, unk pd/wood cuttings, historic trash/ 1-5	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM
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LA18129	T28N R13W Sec 21	dstscr/ridge/6050 erd/und/insuf	Navajo, unk pd/corral, wood cuttings, historic trash/ 1-5	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM
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LA18130	T28N R13W Sec 21	dstscr/plains/6030 int/und/insuf	Navajo, unk pd/hogan, historic trash/ 1-5	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM
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WATER PIPELINE 1

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COMPONENT(S)/</u>	<u>REFERENCES</u>
<u>TSHP RNGE SECTN</u>	<u>COND/ARCHST/REGSTAT</u>	<u>DESCRIPTION/AREA(in 100m²)</u>	

Hugh Lake Quad, San Juan County

LA8617	T28N R13W Sec 33	unk/dune/unk unk/col/insuf	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock/ unk	Recorder: MNM, 1963 Collections: MNM Records: Lab Anthro, MNM
LA30829	T28N R13W Sec 33	grslnd/blwout/5938 com/unk/prof rec, NR, SR	unk/lithic scatter/ 5-10	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
LA30830	T27N R13W Sec 4	grslnd/hllslp/5930 int/unk/prof rec, NR, SR	unk/lithic scatter/ 1-5	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
LA30833	T27N R13W Sec 4	grslnd/blwout/5950 int/unk/prof rec, NR, SR	unk/lithic scatter; Anasazi, unk pd/ lithic-ceramic scatter; Navajo, unk pd/ hogan, lithics/ 50-100	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
LA30834	T27N R13W Sec 4	grslnd/ mesa/5950 int/unk/prof rec, NR, SR	unk/lithic scatter/ 5-10	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
LA30945	T27N R13W Sec 5	grslnd/ mesa/5892 int/unk/prof rec, NR, SR	Anglo, AD1912-1945/trading post, corral, well, road/ unk	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM

WATER PIPELINE 1

3-108

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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LA30832	T27N R13W Sec 9	grsInd/dune/5960 erd/unk/prof rec,NR,SR	unk/lithic scatter/50-100	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
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LA30836	T27N R13W Sec 9	grsInd/dune/5979 erd/unk/prof rec,NR,SR	Anglo, AD1912-1945/historic trash, wood cuttings; unk/ground stone/ 1-5	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
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LA30838	T27N R13W Sec 9	grsInd/dune/5980 int/unk/prof rec,NR,SR	unk/lithic scatter/10-50	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
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LA30859	T27N R13W Sec 9	grsInd/dune/5984 com/unk/prof rec,NR,SR	unk/lithic scatter; Historic, unk pd/ road/ 10-50	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
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LA30860	T27N R13W Sec 9	grsInd/dune/5990 int/unk/prof rec,NR,SR	Archaic, 5000BC-AD1/lithic scatter; Anglo, AD1945-Present/historic trash/ 50-100	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
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LA30863	T27N R13W Sec 9	grsInd/plain/5976 int/unk/prof rec,NR,SR	Anglo, AD1945-Present/historic trash, cuttings/ .25-1	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
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LA30864	T27N R13W Sec 16	grsInd/dune/6000 int/unk/prof rec,NR,SR	Anglo, AD1945-Present/historic trash, depression; unk/ground stone/ 5-10	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
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WATER PIPELINE 1

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT (S)/</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
LA30879	T27N R13W Sec 21	grslnd/plain/6065 int/unk/prof rec, NR, SR	Archaic, 5000BC-AD1/lithic scatter/ 10-50	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
LA30880	T27N R13W Sec 21	grslnd/dune/6052 erd/unk/prof rec, NR, SR	Archaic, 5000BC-AD1/lithic scatter, hearth, ground stone/ .01-.25	Recorder: ESCA-Tech, 1980 Records: Lab Anthro, MNM
LA15838	T27N R13W Sec 29	grslnd/ridge/6110 int/und/insuf	Navajo, unk pd/rock alignment, historic trash/ 1-5	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA30968	T26N R13W Sec 5	grslnd/dune/6232 int/und/insuf	Navajo, Historic/sheep camp, historic trash, charcoal/ 1	Recorder: NNCRMP, 1981 Records: Lab Anthro, MNM

The Pillar Quad, San Juan County				
LA17177	T26N R13W Sec 18	grslnd/dune/6430 erd/exc/insuf	unk/hearth, ground stone, historic trash/ 1-5	Recorder: UNM-OCA, 1977 Excavated: DCA Records: Lab Anthro, MNM
LA20238	T25N R13W Sec 5	grslnd/plain/6460 erd/unk/insuf	unk, AD1940-1950/shack, foundation, troughs, water tank/112	Recorder: MNM, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 1

3-110

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COMPONENT(S)/</u>	<u>REFERENCES</u>
<u>TSHP RNGE SECTN</u>	<u>COND/ARCHST/REGSTAT</u>	<u>DESCRIPTION/AREA(in 100m²)</u>	

LA20237			
T24N R13W, Sec 18	grs1nd/slope/6340 erd/col/insuf	unk, Early 1900s/stone structures, trash scatters/ 364	Recorder: MNM, 1979 Collections: MNM Records: Lab Anthro, MNM

Moncisco Wash Quad, San Juan County

LA5720			
T26N R13W Sec 17	unk/dune/6400 erd/und/insuf	Archaic, 5000BC-AD1/hearths, milling stones, lithic scatter/ 196	Recorder: Independent, 1960 Records: Lab Anthro, MNM
LA17178			
T26N R13W Sec 17	grs1nd/bench/6340 erd/exc/insuf	unk/cairn, rock alignment/ 1-5	Recorder: UNM-OCA, 1977 Excavated: DCA Records: Lab Anthro, MNM
LA17179			
T26N R13W Sec 17	grs1nd/dune/6360 int/und/insuf	unk/cairn/.1-.25	Recorder: UNM-OCA, 1977 Records: Lab Anthro, MNM
LA20239			
T26N R13W Sec 17	grs1nd/ mesa/6330 int/und/insuf	Navajo, 1920s/hogan, hornos, corral, trash/ 108	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA21086			
T26N R13W Sec 17	grs1nd/dune/6407 int/und/insuf	Prehistoric, unk pd/ground stone, lithic scatter, hearth, masonry rubble, fire cracked rock; Historic, unk pd/trash/ 300	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM

WATER PIPELINE 1

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
LA21087 T26N R13W Sec 17	grs1nd/dune/6383 int/und/insuf	Prehistoric, unk pd/lithic-ceramic scatter, hearths, fire cracked rock, masonry rubble/ 1	Recorder: NNCRMP, 1977 Records: Lab Anthro, MNM
LA21088 T26N R13W Sec 17	grs1nd/dune/6349 int/und/insuf	Prehistoric, unk pd/fire cracked rock, masonry rubble, lithic scatter, hearths/ 43.2	Recorder: NNCRMP, 1980 Records: Lab Anthro, MNM
LA6276 T26N R13W Sec 20	unk/ridge/unk erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, manos/unk	Recorder: Independent, 1961 Records: Lab Anthro, MNM
LA30967 T26N R13W Sec 17	grs1nd/dune/6365 erd/und/insuf	Prehistoric, unk pd/lithic scatter/ 3.74	Recorder: NNCRMP, 1980 Records: Lab Anthro, MNM
----- Bisti Trading Post Quad, San Juan County -----			
LA20236 T24N R13W Sec 5	grs1nd/ridge/6120 int/und/insuf	Navajo, AD1945-Present/tent base, trash, hornos/ 5-10	Recorder: MNM, 1979 Records: Lab
LA30963 T24N R13W Sec 18	grs1nd/playa/5980 unk/col/insuf	Historic, unk pd/wood cuttings, hearth, historic trash/ 10-50	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM

WATER PIPELINE 1

3-112

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COMPONENT(S)/</u>	<u>REFERENCES</u>
<u>TSHR RNGE SECTN</u>	<u>COND/ARCHST/REGSTAT</u>	<u>DESCRIPTION/AREA(in 100m²)</u>	

LA30964	grslnd/dune/5963 unk/col/insuf	Anasazi, unk pd/lithic scatter, hearth/ 50-100	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30965	grslnd/playa/5960 unk/col/insuf	Historic, unk pd/historic trash; Anasazi, unk pd/lithic scatter/ >100	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30962	grslnd/dune/5897 unk/col/insuf	unk/historic trash, hearth/ 10-50	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30966	grslnd/playa/5912 unk/col/insuf	Anasazi, unk pd/lithic scatter, ground stone; Historic, unk pd/historic trash/ >100	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA8299	unk/dune/unk unk/unk/insuf	Archaic, unk pd/lithic scatter/ 4.0	Recorder: MNM, 1963 Records: Lab Anthro, MNM
LA8601	grslnd/blwout/5860 erd/col/insuf	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock/ 1-5	Recorder: MNM, 1963 Collections: MNM Records: Lab Anthro, MNM
LA30959	grslnd/playa/5865 unk/col/insuf	Historic, unk pd/historic trash, corral; Anasazi, unk pd/lithic scatter, ground stone, fire cracked rock/ 50-100	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro,

WATER PIPELINE 1

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
LA30960	T24N R13W Sec 30	grslnd/dune/5875 unk/col/insuf	unk/lithic scatter; Historic, unk pd/ cache, wood cuttings, trash/unk	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30961	T24N R13W Sec 30	grslnd/dune/5869 unk/col/insuf	Anasazi, unk pd/lithic scatter, fire cracked rock; Archaic, 5000BC-AD1/lithic scatter, hearth/unk	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA20231	T24N R13W Sec 31	scrld/dune/5800 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter/ 10-50	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA8600	unplatted	grslnd/blwout/5860 erd/col/insuf	Archaic, 5000BC-AD1/lithic scatter/ 1-5	Recorder: MNM, 1963 Collections: MNM Records: Lab Anthro, MNM
LA20229	unplatted	scrld/dune/5800 erd/und/insuf	unk/lithic scatter, ground stone, historic trash/ >100	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20230	unplatted	scrld/dune/5775 erd/und/insuf	Navajo, AD1880-1920/hogan, stone circles, historic trash/ 10-50	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20232	unplatted	scrld/playa/5850 erd/und/insuf	unk/lithic scatter/ >100	Recorder: MNM, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 1

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA20228	unplatted	scrlnD/arroyo/5740 erd/und/insuf	Navajo, AD1945-Present/well, mound/ >100	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20227	unplatted	scrlnD/arroyo/5740 erd/und/insuf	Navajo, unk pd/horno, structure, lithics/ 10-50	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20226	T23N R13W Sec 6	scrlnD/arroyo/5470 int/und/insuf	Navajo, AD1945-Present/corral, horno, trash/ >100	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA26398	T23N R13W Sec 6	dstscr/terrace/5760 int/und/insuf	Navajo, unk pd/hogan, horno, isolated room/unk	Recorder: NMSU, 1977 Records: Lab Anthro, MNM

The Pillar 3 NE Quad, San Juan County				
LA26403	T23N R13W Sec 18	dstscr/terrace/5923 int/und/insuf	Navajo, unk pd/isolated room/.25-1	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA20225	T23N R13W Sec 18	scrlnD/dune/5920 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, ash lense/ 100	Recorder: MNM, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 1

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA14838	T23N R13W Sec 19	grslnd/plain/5780 unk/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, cist; Navajo, AD1945-Present/hogan, midden, mound/ 1-5	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM
LA14839	T23N R14W Sec 24	grslnd/canrim/5820 unk/und/insuf	unk/isolated room, corral/.25-1	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM
----- Tanner Lake Quad, San Juan County -----				
LA20222	T23N R13W Sec 22	grslnd/ridge/5960 erd/und/insuf	Navajo, unk pd/historic trash, hogan, corral/ >100	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA20223	T23N R13W Sec 22	scrld/plain/5870 erd/und/insuf	Navajo, unk pd/hearth, historic trash/ 5-10	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20224	T23N R13W Sec 22	scrld/plain/5840 int/und/insuf	Navajo, AD1945-Present/corral/ 5-10	Recorder: MNM, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHIP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
Bloomfield Quad, San Juan County				
LA3005	T29N R11W Sec 27	scr1nd/bench/unk erd/und/insuf	Anasazi, Mesa Verde-Montezuma Phase/ cobble pueblo, mounds, trash, lithic- ceramic scatter/ 75	Recorder: MNM, 1959 Records: Lab Anthro, MNM
LA15921	T29N R11W Sec 33	wd1nd/dune/5570 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, hearth/unk	Recorder: ENMU-ACA, 1977 Records: Lab Anthro, MNM
Horn Canyon Quad, San Juan County				
LA3381	T28N R11W Sec 30	scr1nd/kno11/unk erd/und/insuf	Navajo, AD1693-1753/Fire cracked rock, hearth, lithic scatter/ 43.05	Recorder: MNM, 1956 Records: Lab Anthro, MNM
LA3382	T28N R11W Sec 30	scr1nd/kno11/unk erd/und/insuf	Archaic, 5000BC-AD1/hearth; Anasazi, AD900-1100/ceramic-lithic scatter/unk	Recorder: MNM, 1956 Records: Lab Anthro, MNM
LA17376	T28N R11W Sec 30	grs1nd/canrim/5960 int/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, hearth; Historic, unk pd/ road/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(1n 100m²)</u>	<u>REFERENCES</u>
LA17377	T28N R11W Sec 30	grslnd/canrim/5988 int/und/insuf	unk/lithic-ceramic scatter, ground stone, fire cracked rock; Navajo, unk pd/wood cuttings, hearth/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17378	T28N R11W Sec 30	grslnd/canrim/6010 int/und/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, fire cracked rock; Navajo, AD1945-Present/hearth, trash/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17379	T28N R11W Sec 30	grslnd/canrim/6018 int/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone; Anasazi, unk pd/lithic-ceramic scatter/ 5-10	Recorder: NNCRMP, 1979 Records: Lab An
LA17380	T28N R11W Sec 30	grslnd/canrim/6046 int/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone; unk/ceramic scatter, fire cracked rock/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17383	T28N R11W Sec 30	grslnd/canrim/5995 unk/unk/insuf	unk/hearth, fire cracked rock; unk/ lithic scatter; Historic, unk pd/road/ 5-10	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17782	T28N R11W Sec 31	grslnd/dune/6054 mch/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, hearth, ground stone/ 1-5	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Gallegos Trading Post Quad, San Juan County					

LA3380	T28N R11W Sec 31	scr1nd/dune/unk erd/unk/insuf		Archaic, 5000BC-AD1/ash lense, fire cracked rock; Anasazi, BMIII, AD500-700/ ground stone; Anasazi, PIII, AD1100-1300/ lithic-ceramic scatter/ 1076	Recorder: MNM, 1956 Records: Lab Anthro, MNM
LA17461	T28N R11W Sec 31	grs1nd/talus/6035 unk/unk/insuf		unk/lithic-ceramic scatter/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17478	T27N R11W Sec 6	grs1nd/dune/6053 mch/unk/insuf		unk/lithic scatter/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17447	T27N R11W Sec 7	grs1nd/dune/6089 unk/unk/insuf		unk/lithic scatter/ 1-5	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17442	T27N R12W Sec 13	grs1nd/blwout/6040 unk/unk/insuf		unk/lithic scatter/ 5-10	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17443	T27N R12W Sec 13	grs1nd/dune/6040 unk/unk/insuf		Navajo, AD1945-Present/historic trash, soil control, corral/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT (S) /</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
<u>TSHP RNGE SECTN</u>			
LA17444 T27N R12W Sec 13	grs1nd/dune/6028 unk/unk/insuf	unk/lithic scatter/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17384 T27N R12W Sec 23	grs1nd/blwout/5970 erd/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, fire cracked rock/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17463 T27N R12W Sec 23	grs1nd/blwout/5936 unk/unk/insuf	unk/hearth, lithic scatter/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA6263 T26N R12W Sec 2	grs1nd/ridge/5920 unk/unk/insuf	unk/lithic scatter/.25-10	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA5641 T27N R12W Sec 34	unk/dune/5900 unk/unk/insuf	unk/lithic scatter, chipped & ground stone/ 100	Recorder: SJ Arch Soc, 1959 Records: Lab Anthro, MNM
LA17386 T27N R12W Sec 35	grs1nd/blwout/5948 int/unk/insuf	Navajo, AD1880-1920/house, corral, trash; unk, AD1945-present/historic trash/ 50-100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17387 T27N R12W Sec 35	grs1nd/dune/5953 int/unk/insuf	Navajo, AD1945-present/house, hogan, corral; Archaic, 5000BC-AD1/lithic scatter, ground stone, hearth/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

SITE # TSHP RNGE SECTN ECOZN/TOPOGR/ELEV(ft) COND/ARCHST/REGSTAT COMPONENT(S)/ DESCRIPTION/AREA(In 100m²) REFERENCES

LA14226	T27N R12W Sec 35	unk/dune/5940 unk/unk/insuf	Archaic, 5000BC-AD1/chipped & ground stone/ 27	Recorder: NMSU-SJC Records: Lab Anthro, MNM
LA17391	T27N R12W Sec 35	grsInd/dune/5950 int/unk/insuf	Navajo, AD1880-1920/house foundation, corral, historic trash/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17393	T27N R12W Sec 35	grsInd/bench/5968 int/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA5646	T27N R12W Sec 35	unk/ridge/5950 unk/unk/insuf	Archaic?/chipped & ground stone, hearth/ unk	Recorder: SJ Arch Soc, 1959 Records: Lab Anthro, MNM
LA17436	T27N R12W Sec 2	grsInd/terrace/5896 unk/unk/insuf	Navajo, AD1912-1945/hogan, corral, hearth/unk	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17475	T26N R12W Sec 35	unk/dune/5926 unk/unk/insuf	unk/lithic scatter/>100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17474	T26N R12W Sec 2	grsInd/terrace/5896 unk/unk/insuf	Navajo, AD1945-1965 (poss. also AD1918-1945)/hogan ring, poss. corral, historic trash/ 87.5	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA17402	T26N R12W Sec 3	grslnd/dune/6064 int/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone; Navajo, AD1945-Present/ ramada, corral, historic trash; Historic, unk pd/road, agricultural field/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17414	T26N R12W Sec 4	grslnd/dune/6016 int/unk/insuf	Navajo, AD1920-1945/masonry structure, corral, historic trash; Historic, unk pd/ road/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17416	T26N R12W Sec 9	grslnd/dune/5992 int/unk/insuf	Navajo, AD1945-Present/tent base, corral, historic trash; Historic, unk pd/road/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17418	T26N R12W Sec 9	grslnd/dune/6062 int/unk/insuf	Navajo, AD1945-Present/wood cuttings, historic trash, burial; Historic, unk pd/ road/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17455	T26N R12W Sec 9	grslnd/dune/5981 unk/unk/insuf	Archaic, 5000BC-AD1/lithic scatter/ 5-10	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17456	T26N R12W Sec 9	grslnd/dune/5972 unk/unk/insuf	unk/lithic scatter/ 5-10	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
LA17457	T26N R12W Sec 9	grs1nd/dune/6010 mch/unk/insuf	Archaic, 5000BC-AD1/lithic scatter/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

Hugh Lake Quad, San Juan County				
LA17495	T26N R12W Sec 8	grs1nd/dune/6000 int/unk/insuf	Navajo, AD1945-Present/horno, historic trash, scarecrow/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

Carson Trading Post Quad, San Juan County				
LA17540	T26N R12W Sec 9	grs1nd/dune/5988 int/unk/insuf	Anglo, AD1945-Present/corral, shed, historic trash/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17543	T26N R12W Sec 16	grs1nd/dune/6011 int/unk/insuf	Navajo, AD1945-Present/tent base, corral, historic trash/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

Moncisco Wash Quad, San Juan County				
LA17512	T26N R12W Sec 8	grs1nd/h11slp/6019 int/unk/insuf	Navajo, AD1945-Present/house, corral, outhouse/ 50-100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA17524	T26N R12W Sec 8	grs1nd/dune/6006 erd/unk/insuf	unk/lithic scatter, fire cracked rock/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17500	T26N R12W Sec 17	unk/dune/6008 int/unk/insuf	Navajo, AD1945-Present/hogan, corral/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17502	T26N R12W Sec 17	grs1nd/dune/6000 mch/unk/insuf	Navajo, AD1945-Present/trailer, corral; unk/lithic scatter/unk	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17503	T26N R12W Sec 17	grs1nd/dune/5997 int/unk/insuf	Anglo, AD1945-Present/house, out- buildings/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17506	T26N R12W Sec 17	grs1nd/dune/5995 int/unk/insuf	Navajo, AD1945-Present/corral, historic trash/ 5-10	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17508	T26N R12W Sec 17	grs1nd/ridge/6000 erd/unk/insuf	unk/lithic scatter/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17510	T26N R12W Sec 17	grs1nd/ridge/6002 erd/unk/insuf	unk/fire cracked rock, lithic scatter/ .01-.25	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COMPONENT(S)/</u>	<u>REFERENCES</u>
<u>TSHR RNGE SECTN</u>	<u>COND/ARCHST/REGSTAT</u>	<u>DESCRIPTION/AREA(in 100m²)</u>	
LA17517 T26N R12W Sec 17	grslnd/dune/6015 mch/unk/insuf	unk/lithic-ceramic scatter/ 1-5	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17519 T26N R12W Sec 17	grslnd/playa/5997 mch/unk/insuf	unk/lithic scatter/unk	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17520 T26N R12W Sec 17	grslnd/ridge/5988 mch/unk/insuf	unk/fire cracked rock, lithic scatter; Navajo, AD1945-Present/historic trash/ 5-10	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17526 T26N R12W Sec 17	grslnd/ridge/5938 erd/unk/insuf	unk/fire cracked rock, lithic scatter/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA19980 T26N R12W Sec 17	grslnd/dune/5990 dst/exc/insuf	unk/lithic scatter/ 1.5	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA5714 T26N R12W Sec 17	grslnd/ridge/5996 mch/und/insuf	unk/hearth, fire cracked rock, lithic scatter/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA14205 T26N R12W Sec 20	grslnd/dune/6025 mch/und/insuf	unk/lithic scatter, fire cracked rock/ 5-10	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA15946	T26N R12W Sec 20	grs1nd/dune/6030 int/und/insuf	Navajo, AD1945-Present/ranch complex, car bodies/ >100	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA17518	T26N R12W Sec 20	grs1nd/dune/6028 mch/unk/insuf	unk/lithic scatter, fire cracked rock/ unk	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM

Bisti Trading Post Quad, San Juan County				
LA30963	T24N R13W Sec 18	grs1nd/playa/5980 unk/col/insuf	Historic, unk pd/wood cuttings, hearth, historic trash/ 10-50	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30964	T24N R13W Sec 18	grs1nd/dune/5963 unk/col/insuf	Anasazi, unk pd/lithic scatter, hearth/ 50-100	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30965	T24N R13W Sec 18	grs1nd/playa/5960 unk/col/insuf	Historic, unk pd/historic trash; Anasazi, unk pd/lithic scatter/ >100	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30962	T24N R13W Sec 19	grs1nd/dune/5897 unk/col/insuf	unk/historic trash, hearth/ 10-50	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30966	T24N R13W Sec 19	grs1nd/playa/5912 unk/col/insuf	Anasazi, unk pd/lithic scatter, ground stone; Historic, unk pd/historic trash/ >100	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u>	<u>COMPONENT(S) /</u>	<u>REFERENCES</u>
<u>TSHR RNCE SECTN</u>	<u>COND/ARCHST/REGSTAT</u>	<u>DESCRIPTION/AREA (in 100m²)</u>	
LA8299 T24N R13W Sec 30	unk/dune/unk unk/unk/insuf	Archaic, unk pd/lithic scatter/ 4.0	Recorder: MNM, 1963 Records: Lab Anthro, MNM
LA8601 T24N R13W Sec 30	grs1nd/blwout/5860 erd/col/insuf	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock/ 1-5	Recorder: MNM, 1963 Collections: MNM Records: Lab Anthro, MNM
LA30959 T24N R13W Sec 30	grs1nd/playa/5865 unk/col/insuf	Historic, unk pd/historic trash, corral; Anasazi, unk pd/lithic scatter, ground stone, fire cracked rock/ 50-100	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30960 T24N R13W Sec 30	grs1nd/dune/5875 unk/col/insuf	unk/lithic scatter; Historic, unk pd/ cache, wood cuttings, trash/unk	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA30961 T24N R13W Sec 30	grs1nd/dune/5869 unk/col/insuf	Anasazi, unk pd/lithic scatter, fire cracked rock; Archaic, 5000BC-AD1/lithic scatter, hearth/unk	Recorder: NNCRMP, 1981 Collections: NNCRMP Records: Lab Anthro, MNM
LA20231 T24N R13W Sec 31	scr1nd/dune/5800 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter/ 10-50	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA8600 unplatted	grs1nd/blwout/5860 erd/col/insuf	Archaic, 5000BC-AD1/lithic scatter/ 1-5	Recorder: MNM, 1963 Collections: MNM Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA20229	unplatted	scrld/dune/5800 erd/und/insuf	unk/lithic scatter, ground stone, historic trash/ >100	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20230	unplatted	scrld/dune/5775 erd/und/insuf	Navajo, AD1880-1920/hogan, stone circles, historic trash/ 10-50	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20232	unplatted	scrld/playa/5850 erd/und/insuf	unk/lithic scatter/ >100	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20228	unplatted	scrld/arroyo/5740 erd/und/insuf	Navajo, AD1945-Present/well, mound/ >100	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20227	unplatted	scrld/arroyo/5740 erd/und/insuf	Navajo, unk pd/horno, structure, lithics/ 10-50	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA20226	T23N R13W Sec 6	scrld/arroyo/5470 int/und/insuf	Navajo, AD1945-Present/corral, horno, trash/ >100	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA26398	T23N R13W Sec 6	dstscr/terrace/5760 int/und/insuf	Navajo, unk pd/hogan, horno, isolated room/unk	Recorder: NMSU, 1977 Records: Lab Anthro, MNM

WATER PIPELINE 2

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(1n 100m²)</u>	<u>REFERENCES</u>

The Pillar 3 NE Quad, San Juan County				
LA26403	T23N R13W Sec 18	dstscr/terrace/5923 int/und/insuf	Navajo, unk pd/isolated room/.25-1	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA20245	T23N R13W Sec 18	dstscr/valley/6010 und/und/insuf	Anglo, AD1940-1960/sheep camp, holding pen/ 9	Recorder: SAR, 1979 Records: Lab Anthro, MNM
LA14838	T23N R13W Sec 19	grs1nd/plain/5780 unk/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, cist; Navajo, AD1945-Present/hogan, midden, mound/ 1-5	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM
LA14839	T23N R14W Sec 24	grs1nd/canrim/5820 unk/und/insuf	unk/isolated room, corral/.25-1	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM

Tanner Lake Quad, San Juan County				
LA20222	T23N R13W Sec 22	grs1nd/ridge/5960 erd/und/insuf	Navajo, unk pd/historic trash, hogan, corral/ >100	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA20223	T23N R13W Sec 22	scr1nd/plain/5870 erd/und/insuf	Navajo, unk pd/hearth, historic trash/ 5-10	Recorder: MNM, 1979 Records: Lab Anthro, MNM

WATER PIPELINE 2 - Page 14

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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LA20224	T23N R13W Sec 22	scr1nd/plain/5840 int/und/insuf	Navajo, AD1945-Present/corral / 5-10	Recorder: MNM, 1979 Records: Lab Anthro, MNM
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WATER PIPELINE 3

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Bloomfield Quad, San Juan County				

LA25279	T28N R11W Sec 24	wd1nd/h11slp/5800 unk/und/insuf	Navajo, unk pd/sweat lodge, fire cracked rock/ 5-10	Recorder: NMSU-SJC, 1980 Records: Lab Anthro, MNM
LA25870	T28N R11W Sec 35	grs1nd/blwout/5900 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone/ 1-5	Recorder: Independent, 1972 Records: Lab Anthro, MNM
LA5628	T27N R11W Sec 1	unk/ridge/unk int/und/insuf	Pre-Ceramic, unk pd/camp site, hearths, lithic scatter, milling stones/unk	Recorder: Independent, 1956 Records: Lab Anthro, MNM
LA25871	T27N R11W Sec 2	grs1nd/ridge/5900 unk/und/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, hearth/unk	Recorder: Independent, 1972 Records: Lab Anthro, MNM
LA3116	T27N R11W Sec 23	unk/bdlnds/unk int/und/insuf	unk/chipping station/ 6.96	Recorder: MNM, 1962 Records: Lab Anthro, MNM
LA6280	T27N R11W Sec 23	unk/mesa/unk int/und/insuf	Archaic, 5000BC-AD1/hearths, lithic scatter, ground stone/ 6.5	Recorder: Independent, 1962 Records: Lab Anthro, MNM

WATER PIPELINE 3

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA30544	T27N R11W Sec 24	grslnd/hllslp/6300 erd/und/insuf		Anasazi, unk pd/lithic scatter, hearth, ground stone/ >100	Recorder: NMSU-SJC, 1977 Records: Lab Anthro, MNM
LA27096	T27N R11W Sec 26	grslnd/blwout/6360 erd/und/insuf		unk/lithic scatter, ground stone, fire cracked rock/ 14	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
LA17786	T27N R11W Sec 27	wldnd/dune/6409 int/unk/insuf		Navajo, AD1945-Present/wood cuttings, historic trash; unk/road/ 10-50	Recorder: NNCRMP, 1979 Records: Lab Anthro, MNM
LA3114	T26N R11W Sec 6	unk/arroyo/unk int/und/insuf		unk/camp site, lithic scatter/ 11.15	Recorder: MNM, 1962 Records: Lab Anthro, MNM
LA3115	T26N R11W Sec 7	unk/arroyo/unk int/und/insuf		unk/lithic scatter/ 11.15	Recorder: MNM, 1962 Records: Lab Anthro, MNM

Huerfano Trading Post NW Quad, San Juan County

LA5726	T26N R10W Sec 20	grslnd/dune/6500 erd/und/insuf		Archaic, 5000BC-AD1/lithic scatter, milling stones, Folsom point/ 232.25	Recorder: Independent, 1960 Re-recorded: Same, 1961 Records: Lab Anthro, MNM
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WATER PIPELINE 3

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA9082	T26N R10W Sec 32	scr1nd/dune/6200 int/und/insuf	Archaic, 5000BC-AD1/hearths, lithic scatter, milling stones/ 1011.71	Recorder: Independent, 1962 Records: Lab Anthro, MNM

Huerfano Trading Post SW Quad, San Juan County				
LA9176	T25N R11W Sec 36	grs1nd/h11slp/6880 int/col/insuf	Navajo, AD1920-1945/dugout, isolated masonry room, historic trash/ 10-50	Recorder: MNM, 1966 Collections: MNM Records: Lab Anthro, MNM
LA28824	T24N R11W Sec 1	scr1nd/h11slp/6680 mch/col/insuf	Navajo, AD1920-1945/mound, corral, fire cracked rock/ 50-100	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28825	T24N R11W Sec 1	scr1nd/ridge/6760 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter; Anasazi, PII-III, AD900-1300/ceramics; Navajo, AD1880-1920/field house/ 50-100	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28826	T24N R11W Sec 1	wd1nd/ridge/6800 int/und/insuf	Navajo, unk pd/fire cracked rock, ramada/ 1-5	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28827	T24N R11W Sec 1	wd1nd/ridge/6800 int/und/insuf	Archaic, 5000BC-AD1/lithic scatter; Anasazi, PII-III, AD900-1300/lithics; Navajo, AD1945-Present/ramada, hogan, corral/ >100	Recorder: BLM, 1977 Records: Lab Anthro, MNM

WATER PIPELINE 3

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA28831	T24N R11W Sec 1	scrln/nd/plain/6700 erd/und/insuf	Navajo, AD1880-1920/fire cracked rock, corral, historic trash/ >100	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28832	T24N R11W Sec 1	scrln/nd/canflr/6740 erd/und/insuf	Navajo, AD1880-1920/historic trash, bone/ 50-100	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28835	T24N R11W Sec 1	scrln/nd/canflr/6780 van/und/insuf	Navajo, AD1880-1920/historic trash, sweat lodge, fire cracked rock/ 1-5	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28836	T24N R11W Sec 1	scrln/nd/canflr/6800 erd/und/insuf	Navajo, unk pd/sweat lodge, fire cracked rock, historic trash/ 1-5	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28838	T24N R11W Sec 1	scrln/nd/ridge/6740 erd/und/insuf	Navajo, AD1920-1945/historic trash, corral/ 10-50	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28839	T24N R11W Sec 1	scrln/nd/ridge/6800 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone/ >100	Recorder: BLM, 1977 Collections: BLM, 1977 Records: Lab Anthro, MNM
LA28840	T24N R11W Sec 1	scrln/nd/ridge/6780 erd/und/insuf	Navajo, AD1880-1920/hogan, lithic scatter, historic trash; Navajo, AD1920-1945/ corral, historic trash/ 50-100	Recorder: BLM, 1977 Records: Lab Anthro, MNM

WATER PIPELINE 3

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA28816	T24N R11W Sec 2	scr1nd/ mesa/6800 int/und/insuf	unk/undefined rock alignment/ 10-50	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28817	T24N R11W Sec 2	wd1nd/ridge/6660 int/col/insuf	Archaic, 5000BC-AD1/lithic; Anasazi, PIII, AD1100-1300/lithic-ceramic scatter; Navajo, AD1920-1945/corral, historic trash/ >100	Recorder: BLM, 1977 Collections: BLM Records: Lab Anthro, MNM
LA28818	T24N R11W Sec 2	scr1nd/ mesa/6680 int/col/insuf	Anasazi, BMII, AD1-500/lithic; Navajo, unk pd/shrine, cairn, masonry shrine/ >100	Recorder: BLM, 1977 Collections: BLM Records: Lab Anthro, MNM
LA28819	T24N R11W Sec 2	scr1nd/blwout/6700 int/col/insuf	Anasazi, unk pd/lithic scatter, ceramic scatter, ground stone/ 10-50	Recorder: BLM, 1977 Collections: BLM Records: Lab Anthro, MNM
LA28820	T24N R11W Sec 2	scr1nd/arroyo/6700 erd/und/insuf	Anasazi, PII-III, AD900-1300/masonry structure, lithic scatter, ceramics/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28821	T24N R11W Sec 2	scr1nd/ridge/6700 int/col/insuf	unk/lithic scatter, ground stone, hearth; Navajo, unk pd/shrine, sweat lodge/ 10-50	Recorder: BLM, 1977 Collections: BLM Records: Lab Anthro, MNM

WATER PIPELINE 3

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
LA28822	T24N R11W Sec 2	scr1nd/lwrise/6700 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone; Anasazi, PII-III, AD900- 1300/ceramic scatter/ >100	Recorder: BLM, 1977 Collections: BLM Records: Lab Anthro, MNM
LA28823	T24N R11W Sec 2	scr1nd/ridge/6640 int/und/insuf	Navajo, AD1880-1920/fire cracked rock, historic trash; Navajo, AD1920-1945/ stone circles, sweat lodge/ 50-100	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28828	T24N R11W Sec 2	scr1nd/ridge/6620 erd/und/insuf	Anasazi, PII-III, AD900-1300/ceramic scatter, ground stone; Navajo, AD1880- 1920/historic trash/ >100	Recorder: BLM, 1977 Records: Lab Anthro, MNM

Alamo Mesa East Quad, San Juan County				
LA28790	T24N R11W Sec 20	scr1nd/blwout/6320 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, fire cracked rock/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28794	T24N R11W Sec 30	scr1nd/blwout/6180 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, hearths/ 10-50	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28798	T24N R11W Sec 30	scr1nd/hllslp/6180 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, fire cracked rock/ 10-50	Recorder: BLM, 1977 Records: Lab Anthro, MNM

WATER PIPELINE 3

SITE #
TSHP RNGE SECTN
ECOZN/TOPOGR/ELEV(ft)
COND/ARCHST/REGSTAT
COMPONENT(S)/
DESCRIPTION/AREA(in 100m²)
REFERENCES

LA28800
 T24N R11W Sec 30
 scr1nd/blwout/6200
 erd/col/insuf
 Archaic, 5000BC-AD1/lithic scatter,
 ground stone/ >100
 Recorder: BLM, 1977
 Collections: BLM
 Records: Lab Anthro, MNM

LA28802
 T24N R11W Sec 30
 scr1nd/ridge/6220
 int/und/insuf
 Archaic, 5000BC-AD1/lithic scatter,
 ground stone/ 50-100
 Recorder: BLM, 1977
 Records: Lab Anthro, MNM

LA28803
 T24N R11W Sec 30
 scr1nd/blwout/6220
 erd/und/insuf
 Archaic, 5000BC-AD1/lithic scatter,
 ground stone/ 10-50
 Recorder: BLM, 1977
 Records: Lab Anthro, MNM

LA28804
 T24N R11W Sec 30
 scr1nd/blwout/6200
 erd/und/insuf
 Archaic, 5000BC-AD1/lithic scatter,
 ground stone; Historic, unk pd/historic
 trash/ 10-50
 Recorder: BLM, 1977
 Records: Lab Anthro, MN

LA28805
 T24N R11W Sec 30
 scr1nd/plain/6220
 int/und/insuf
 Archaic, 5000BC-AD1/ground stone,
 lithic scatter; Navajo, AD1880-1920/
 hogan, hearth, historic trash/ >100
 Recorder: BLM, 1977
 Records: Lab Anthro, MNM

LA5043
 T24N R11W Sec 31
 grs1nd/plain/6180
 unk/und/insuf
 unk/lithic scatter; Navajo, unk pd/
 masonry structure, ground stone, historic
 trash/unk
 Recorder: SJ Arch Soc, 1961
 Records: Lab Anthro, MNM

WATER PIPELINE 3

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Alamo Mesa West Quad, San Juan County				

LA25651	T23N R13W Sec 1	scr1nd/dune/5900 unk/und/insuf	Navajo, unk pd/hogan, corral; unk/lithic scatter/unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25652	T23N R13W Sec 1	scr1nd/blwout/5905 erd/und/insuf	unk/lithic scatter/unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25654	T23N R13W Sec 1	scr1nd/unk/5950 unk/und/insuf	Historic, unk pd/burial/.01-.25	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25655	T23N R13W Sec 1	scr1nd/unk/5930 unk/und/insuf	Navajo, AD1880-1920/hogan, ground stone, wall/unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25656	T23N R13W Sec 1	scr1nd/dune/5900 unk/und/insuf	unk/lithic scatter, hearth/ 10-50	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25657	T23N R13W Sec 1	scr1nd/dune/5900 unk/und/insuf	Navajo, AD1945-Present/historic trash/ unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM

WATER PIPELINE 3

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<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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LA26397	T23N R13W Sec 1	dstscr/valley/5900 int/und/insuf		Navajo, unk pd/horno, corral/ 10-50	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
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Tanner Lake Quad, San Juan County

LA25638	T23N R13W Sec 11	scr1nd/unk/5880 unk/und/insuf		Navajo, unk pd/corral, lambing pen, historic trash/ .25-1	Recorder: DCA, 1980 Records: Lab Anthro, MNM
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LA25639	T23N R13W Sec 11	scr1nd/plain/5870 unk/und/insuf		Navajo, AD1945-Present/horno, historic trash, tent base/unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM
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LA25640	T23N R13W Sec 11	scr1nd/dune/5905 unk/und/insuf		Navajo, unk pd/hogan, historic trash/ .01-.25	Recorder: DCA, 1980 Records: Lab Anthro, MNM
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LA25641	T23N R13W Sec 11	scr1nd/dune/5875 unk/und/insuf		unk/lithic scatter, ceramics; Navajo, unk pd/hogan, corral/ unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM
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LA26393	T23N R13W Sec 11	dstscr/h11slp/5880 int/und/insuf		Navajo, unk pd/hogan, historic trash/ .25-1	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
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WATER PIPELINE 3

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA26394	T23N R13W Sec 11	dstscr/bench/5870 int/und/insuf	Navajo, AD1880-1920/horno, historic trash, metal/ 1-5	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA25642	T23N R13W Sec 12	scr1nd/plain/5870 unk/und/insuf	unk/lithic scatter; Navajo, unk pd/ hogan, horn, dump/unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25644	T23N R13W Sec 12	scr1nd/dune/5860 unk/und/insuf	Navajo, unk pd/fire cracked rock, mine, historic trash/unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25645	T23N R13W Sec 12	scr1nd/dune/5850 unk/und/insuf	unk/lithic-ceramic scatter/ 10-50	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25646	T23N R13W Sec 12	scr1nd/dune/5890 erd/und/insuf	Navajo, unk pd/horno, cairn/ 10-50	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25647	T23N R13W Sec 12	scr1nd/unk/5875 unk/und/insuf	Navajo, AD1945-Present/corral, hogan, historic trash/unk	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA25648	T23N R13W Sec 12	scr1nd/dune/5870 unk/und/insuf	unk/lithic scatter, fire cracked rock/ 1-5	Recorder: DCA, 1980 Records: Lab Anthro, MNM

WATER PIPELINE 3

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA25649	T23N R13W Sec 12	scr1nd/dune/5980 unk/und/insuf	unk/lithic scatter, fire cracked rock, ground stone/ 5-10	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA26396	T23N R13W Sec 12	dstscr/terrace/5860 int/und/insuf	Navajo, AD1945-Present/isolated masonry room, historic trash/.1-.25	Recorder: NMSU, 1977 Records: Lab Anthro, MNM

Plant Site

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Tanner Lake Quad, San Juan County			

LA21102 T23N R13W Sec 13	grs1nd/blwout/5870 erd/und/rec,NR,SR,SHPO	Anasazi, BMIII, AD500-700/lithic scatter, ground stone, ceramic scatter/ 10-50	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21106 T23N R13W Sec 13	grs1nd/dune/5900 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter/ 5-10	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21107 T23N R13W Sec 13	grs1nd/blwout/5900 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter/ 5-10	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21108 T23N R13W Sec 13	grs1nd/h11slp/5890 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter, ground stone/ 10-50	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21109 T23N R13W Sec 13	grs1nd/dune/5900 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter/ 1-5	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21110 T23N R13W Sec 13	grs1nd/dune/5910 grz/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter, ground stone/ 5-10	Recorder: DCA, 1979 Records: Lab Anthro, MNM

Plant Site	ECOZN/TOPOGR/ELEV(ft) COND/ARCHST/REGSTAT	COMPONENT(S)/ DESCRIPTION/AREA(in 100m ²)	REFERENCES
SITE # TSHP RNGE SECTN			
LA21111 T23N R13W Sec 13	grs1nd/dune/5870 grz/und/inelligible/SHPO	Archaic, 5000BC-AD1/lithic scatter/ 5-10	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21112 T23N R13W Sec 13	grs1nd/dune/5880 grz/und/rec,NR,SR/SHPO	Historic, unk pd/cairn/.25-1	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21125 T23N R13W Sec 13	grs1nd/dune/5890 erd/und/insuf	Anasazi, PII-III, AD900-1300/masonry structure, lithic-ceramic scatters/unk	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21126 T23N R13W Sec 13	grs1nd/blwout/5865 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter, hearth/ 10-50	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21127 T23N R13W Sec 13	grs1nd/dune/5910 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter/ 1-5	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA26280 T23N R13W Sec 13	scr1nd/unk/5910 int/unk/insuf	Navajo, unk pd/stone circles, horno, corral, historic trash; unk/ground stone, lithic scatter/ 50-100	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA26282 T23N R13W Sec 13	scr1nd/blwout/5900 int/unk/insuf	Anasazi, PII-III, AD900-1300/pueblo, ground stone, lithic-ceramic scatter/>100	Recorder: NMSU, 1977 Records: Lab Anthro, MNM

Plant Site	ECOZN/TOPOGR/ELEV (ft)	COMPONENT(S)/	REFERENCES
SITE #	COND/ARCHST/REGSTAT	DESCRIPTION/AREA (in 100m ²)	
TSHR RNGE SECTN			
LA26283 T23N R13W Sec 13	scr1nd/blwout/5900 int/und/insuf	unk/lithic-ceramic scatter; Navajo, unk pd/horno, historic trash/ 1-5	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA26286 T23N R13W Sec 13	scr1nd/blwout/5900 int/und/insuf	unk/ground stone, lithic scatter/ 1-5	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA26287 T23N R13W Sec 13	scr1nd/blwout/5860 int/und/insuf	Anasazi, unk pd/lithic-ceramic scatter, hearth/ 5-10	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA26288 T23N R13W Sec 13	scr1nd/dune/6500 int/und/insuf	Archaic, 5000BC-AD1/lithic scatter, hearth/ 10-50	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA21096 T23N R13W Sec 14	grs1nd/dune/5830 erd/und/rec,NR,SR,SHPO	Archaic, 5000BC-AD1/ground stone, hearth, lithic scatter/ 1-5	Recorder: DCA, 1977 Records: Lab Anthro, MNM
LA21098 T23N R13W Sec 14	grs1nd/dune/5960 erd/und/rec,NR,SR,SHPO	unk/lithic scatter/ 1-5	Recorder: DCA, 1977 Records: Lab Anthro, MNM
LA21099 T23N R13W Sec 14	grs1nd/dune/5960 com/und/rec,NR,SR,SHPO	Archaic, 5000BC-AD1/lithic scatter, ground stone, hearth; Anasazi, PII, AD900-1100/lithic-ceramic scatter, ground stone, hearth/ 50-100	Recorder: DCA, 1977 Records: Lab Anthro, MNM

Plant Site

SITE #	TSHP RNGE SECTN	ECOZN/TOPOGR/ELEV(ft) COND/ARCHST/REGSTAT	COMPONENT(S)/ DESCRIPTION/AREA(in 100m ²)	REFERENCES
LA21100	T23N R13W Sec 14	grs1nd/blwout/5970 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock/ 1-5	Recorder: DCA, 1977 Records: Lab Anthro, MNM
LA21101	T23N R13W Sec 14	grs1nd/blwout/5970 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter/ 5-10	Recorder: DCA, 1977 Records: Lab Anthro, MNM
LA21103	T23N R13W Sec 14	grs1nd/blwout/5920 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter, ground stone, fire cracked rock/10-50	Recorder: DCA, 1977 Records: Lab Anthro, MNM
LA26279	T23N R13W Sec 14	scr1nd/unk/5860 int/und/insuf	Navajo, unk pd/horno/.01-.25	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA26285	T23N R13W Sec 14	scr1nd/bench/5841 int/und/insuf	Navajo, unk pd/lithic-ceramic scatter/ 1-5	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA21104	T23N R13W Sec 23	grs1nd/dune/5850 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/ground stone, lithic scatter/ 1-5	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21105	T23N R13W Sec 23	grs1nd/h11s1p/5870 erd/und/rec,NR,SR/SHPO	unk/lithic scatter/1-5	Recorder: DCA, 1979 Records: Lab Anthro, MNM

Plant Site		ECOZN/TOPOGR/ELEV(ft) COND/ARCHST/REGSTAT		COMPONENT(S)/ DESCRIPTION/AREA(in 100m ²)	REFERENCES
SITE #	TSHP RNGE SECTN				
LA26284	T23N R13W Sec 23	scr1nd/bench/5841	int/und/insuf	Navajo, unk pd/horno/.01-.25	Recorder: NMSU, 1977 Records: Lab Anthro, MNM
LA21113	T23N R13W Sec 24	grs1nd/dune/5940	grz/und/ineligible/SHPO	Archaic, 5000BC-AD1/lithic scatter, ground stone/ 1-5	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21114	T23N R13W Sec 24	grs1nd/arroyo/5940	grz/und/rec,NR,SR/SHPO	unk/isolated lithic/unk	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21115	T23N R13W Sec 24	grs1nd/bench/5940	unk/und/rec,NR,SR/SHPO	Navajo, unk pd/scarecrow/ .01-.25	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21116	T23N R13W Sec 24	grs1nd/bench/5980	erd/und/rec,NR,SR/SHPO	Historic, unk pd/historic trash/ 1-5	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21117	T23N R13W Sec 24	grs1nd/dune/5980	erd/und/rec,NR,SR/SHPO	unk/isolated lithic; Historic, unk pd/ petroglyph/.25-1	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21118	T23N R13W Sec 24	dstscr/blwout/5950	erd/unk/rec,NR,SR/SHPO	Navajo, unk pd/historic trash, hornos, hearths/ 12	Recorder: DCA, 1979 Records: Lab Anthro, MNM

Plant Site	ECOZN/TOPOGR/ELEV(ft) COND/ARCHST/REGSTAT	COMPONENT(S)/ DESCRIPTION/AREA(in 100m ²)	REFERENCES
<u>SITE #</u> <u>TSHP RNCE SECTN</u>			
LA21119 T23N R13W Sec 24	grs1nd/bench/5940 erd/und/inelligible/SHPO	unk/lithic scatter/.25-1	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21120 T23N R13W Sec 24	grs1nd/dune/5980 erd/und/rec,NR,SR/SHPO	unk/lithic scatter, ground stone/10-50	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21121 T23N R13W Sec 24	grs1nd/arroyo/5980 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter/ 5-10	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21122 T23N R13W Sec 24	grs1nd/valley/5990 erd/und/rec,NR,SR/SHPO	Archaic, 5000BC-AD1/lithic scatter/ .25-1	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21123 T23N R13W Sec 24	grs1nd/dune/6000 erd/und/rec,NR,SR/SHPO	unk/lithic scatter, ground stone/ 5-10	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA21124 T23N R13W Sec 24	grs1nd/terrace/5980 erd/und/rec,NR,SR/SHPO	Navajo, unk pd/historic trash, hogan, hearth/unk	Recorder: DCA, 1979 Records: Lab Anthro, MNM

Transmission Corridor #1

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>

Tanner Lake Quad, San Juan County				

BLM NM-01-3141	T23N R12W Sec 16	unk/bench/5930 erd/unk/insuf	Pre-ceramic, unk pd/lithic scatter, ground stone/ 2	Recorder: MNA, 1975 Records: BLM-ADO
BLM NM-01-3151	T23N R12W Sec 17	unk/dune/5935 erd/und/insuf	Pre-ceramic, unk pd/lithic scatter, ground stone/.36	Recorder: MNA, 1975 Records: BLM-ADO
BLM NM-01-3152	T23N R12W Sec 17	unk/dune/5942 erd/und/insuf	Pre-ceramic, unk pd/lithic scatter/ 1	Recorder: MNA, 1975 Records: BLM-ADO
BLM NM-01-3160	T23N R12W Sec 18	unk/kno11/5905 und/und/insuf	Navajo, unk pd/corral, 3-room masonry structure/ 15	Recorder: MNA, 1975 Records: BLM-ADO
BLM NM-01-3161	T23N R12W Sec 18	unk/kno11/5900 erd/und/insuf	Navajo, unk pd/1-room masonry structure, hogan/ 2	Recorder: MNA, 1975 Records: BLM-ADO

Pretty Rock Quad, San Juan County				

BLM NM-01-3140	T23N R12W Sec 16	unk/plain/5960 erd/und/insuf	Pre-ceramic, unk pd/lithic scatter, ground stone/.25	Recorder: MNA, 1975 Records: BLM-ADO

Transmission Corridor #1

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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Alamo Mesa East Quad, San Juan County

LA28841	T24N R11W Sec 33	scr1nd/dune/6220 int/und/insuf		unk/lithic scatter/.25-1	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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LA28843	T24N R11W Sec 33	scr1nd/canflr/6240 int/col/insuf		Anasazi, BMIII-PI, AD500-900/ lithic-ceramic scatter/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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LA28844	T24N R11W Sec 33	scr1nd/dune/6280 int/und/insuf		unk/lithic scatter/ 1-5	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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LA28842	T23N R11W Sec 4	scr1nd/canflr/6220 int/und/insuf		unk/lithic scatter/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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Huerfano Trading Post SW Quad, San Juan County

LA28845	T24N R11W Sec 23	wd1nd/blwout/6620 erd/col/insuf		Navajo, AD1945-Present/sweat lodge, fired-brick structure/.01-.25	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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LA28846	T24N R11W Sec 23	scr1nd/arroyo/6400 int/und/insuf		Navajo, unk pd/petroglyph/.01-.25	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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Transmission Corridor #1

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
LA28847	T24N R11W Sec 23	scr1nd/canflr/6400 int/und/insuf	unk/cairn, lithics/unk	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28848	T24N R11W Sec 23	scr1nd/valley/6380 mch/und/insuf	Archaic, 5000BC-AD1/lithic scatter/ 10-50	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA29584	T24N R11W Sec 23	grs1nd/lwrise/6420 com/und/insuf	Navajo, AD1945-Present/historic trash, wood cuttings, lambing pen/ 50-100	Recorder: DCA, 1981 Records: Lab Anthro, MNM
LA29583	T24N R11W Sec 26	grs1nd/hllslp/6375 com/und/insuf	Historic, unk pd/masonry roomblock, structure/.25-1	Recorder: DCA, 1981 Records: Lab Anthro, MNM
LA16485	T24N R11W Sec 34	wd1nd/plain/6480 erd/und/insuf	Navajo, unk pd/sweat lodge/.01-.25	Recorder: DCA, 1978 Records: Lab Anthro, MNM
LA30533	T24N R11W Sec 34	scr1nd/ridge/6450 erd/und/rec,NR,SR	Navajo, unk pd/hogan, corral, cairn/ .01-.25	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
LA14718	T24N R11W Sec 35	scr1nd/hllslp/6540 erd/unk/insuf	Navajo, AD1920-1945/corral, hogans, horno/ 10-50	Recorder: MNM, 1976 Records: Lab Anthro, MNM

Transmission Corridor #1

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA30518	T24N R11W Sec 35	scr1nd/h11slp/6520 int/und/prof rec,NR,SR	unk/cairn, isolated masonry room, undefined rock alignment/.25-1	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
LA30519	T24N R11W Sec 35	scr1nd/cl1ff/6540 erd/und/prof rec,NR,SR	Anasazi, PI-II, AD 700-1100/lithic- ceramic scatter/ 5-10	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
LA30531	T24N R11W Sec 35	scr1nd/h11slp/6500 int/und/prof rec,NR,SR	Navajo, AD1945-Present/hogans, corrals, historic trash/ 10-50	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
LA14788	T24N R11W Sec 36	scr1nd/ridge/6584 erd/und/insuf	unk/lithic scatter/>100	Recorder: MNM, 1976 Records: Lab Anthro, MNM
QRC-NM-SJ-81-31	T24N R11W Sec 36	scr1nd/ridge/6560 erd/unk/unk	Anasazi, Great North Road	Records: Lab Anthro, MNM
LA28815	T24N R10W Sec 20	scr1nd/ridge/6560 mch/und/insuf	unk/lithic scatter, hearth/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA14711	T24N R10W Sec 31	scr1nd/h11top/6570 unk/unk/insuf	Navajo, AD1945-Present/ramada, house foundation, historic trash/ 10-50	Recorder: MNM, 1976 Records: Lab Anthro, MNM

Transmission Corridor #1

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
LA14712	scr1nd/h11slp/6560 erd/und/insuf	Navajo, AD1945-Present/ramadas, historic trash/ 10-50	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA30529	scr1nd/h11slp/6560 erd/und/prof rec,NR,SR	Navajo, unk pd/wood cuttings, historic trash, metal/ 5-10	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
LA30530	scr1nd/blwout/6560 erd/und/prof rec,NR,SR	Navajo, unk pd/hogan, historic trash, hearth; Navajo, AD1945-Present/lambing pen/ 10-50	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
QRC-NM-SJ-81-31	scr1nd/ridge/6560 erd/unk/unk	Anasazi, Great North Road	Records: Lab Anthro, MNM
LA14719	scr1nd/h11slp/6410 erd/und/insuf	unk/lithic scatter, ground stone/ 5-10	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA30502	scr1nd/clffbs/6560 erd/und/prof rec,NR,SR	Navajo, unk pd/cairn, corral/ 1-5	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
LA30532	scr1nd/ridge/6560 int/und/prof rec,NR,SR	Navajo, AD1920-1945/isolated masonry rooms, horno, historic trash/ 50-100	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM

Transmission Corridor #1

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Kimbeto Quad, San Juan County				
LA30509	T23N R10W Sec 12	scrlnD/ridge/6680 erd/und/rec,NR,SR	Navajo, unk pd/sweat lodge/.01-.25	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM
LA30525	T23N R10W Sec 12	scrlnD/mesa/6770 erd/und/rec,NR,SR	Navajo, unk pd/horno, corrals, historic trash/ 50-100	Recorder: UNM-OCA, 1981 Records: Lab Anthro, MNM

Lybrook NW Quad, San Juan County				
LA29097	T23N R8W Sec 33	scrlnD/valley/6720 int/und/insuf	Navajo, AD1920-1945/depressions, historic trash/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA29098	T23N R8W Sec 33	scrlnD/valley/6700 int/und/insuf	Navajo, AD1920-1945/hogans, corral, wood cuttings/>100	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA29099	T23N R8W Sec 33	scrlnD/valley/6700 int/und/insuf	Navajo, AD1920-1945/hogan, historic trash/ 1-5	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA29100	T23N R8W Sec 33	scrlnD/valley/6710 int/und/insuf	Navajo, AD1920-1945/hogans, ramada, undefined rock alignment/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM

Transmission Corridor #1

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
LA29101	T23N R8W Sec 33	scr1nd/h11slp/6760 erd/und/insuf	Navajo, unk pd/sweat lodge, fire cracked rock/.01-.25	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA29102	T23N R8W Sec 33	scr1nd/h11slp/6740 mch/und/insuf	Navajo, unk pd/sweat lodge/.01-.25	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA29115	T23N R8W Sec 34	scr1nd/h11slp/6920 erd/col/insuf	Navajo, AD1693-1753/kiln, fire cracked rock, ceramic scatter/.01-.25	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA29116	T23N R8W Sec 34	scr1nd/valley/6920 int/col/insuf	Navajo, AD1945-Present/hogans, historic trash/ 50-100	Recorder: BLM, 1977 Records: Lab Anthro, MNM

Lybrook Quad, Sandoval County				
LA 29029	T22N R7W Sec 7	scr1nd/ridge/6720 int/und/insuf	Archaic, 5000BC-AD1/11ithic scatter, ground stone; Navajo, AD1880-1920/bone, historic trash/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA16907	T22N R7W Sec 20	grs1nd/bench/6740 erd/und/insuf	Navajo, unk pd/sweat lodge/unk	Recorder DCA, 1978 Records: Lab Anthro, MNM

Transmission Corridor #1

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<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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LA29034	T22N R7W Sec 20	scr1nd/valley/6800 int/col/insuf	Navajo, AD1880-1920/bone, historic trash/.25-1	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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LA29035	T22N R7W Sec 20	scr1nd/ridge/6820 int/und/insuf	Navajo, AD1920-1945/hogan, horno, undefined rock alignment/ 10-50	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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LA29037	T22N R7W Sec 20	scr1nd/ridge/6800 com/und/insuf	Navajo, unk pd/hearth/.25-1	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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Lybrook SE Quad, Sandoval County

LA29036	T22N R7W Sec 20	scr1nd/ridge/6820 com/col/insuf	Anasazi, BMII-III, AD1-700/lithic scatter; Navajo, AD1920-1945/wood cuttings, historic trash/ >100	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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LA26334	T22N R7W Sec 27	scr1nd/ridge/6810 int/und/insuf	Navajo, AD1912-1945/hogan, ramada/ 1-5	Recorder: NMSU-SJC, 1980 Records: Lab Anthro, MNM
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Mule Dam Quad, Sandoval County

LA28976	T21N R6W Sec 5	scr1nd/hllslp/6840 int/und/insuf	Navajo, AD1945-Present/corral, historic trash/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
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Transmission Corridor #1

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA28978	T21N R6W Sec 10	scr1nd/plain/6860 int/und/insuf	Navajo, AD1920-1945/hogan, horno, wood cuttings/ 10-50	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28979	T21N R6W Sec 10	scr1nd/plain/6860 int/und/insuf	Navajo, AD1945-Present/corral, wood cuttings, historic trash/ 10-50	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28980	T21N R6W Sec 10	scr1nd/ridge/6920 van/und/insuf	Navajo, AD1945-Present/corral, historic trash, c1st/ >100	Recorder: BLM, 1977 Records: Lab Anthro, MNM

Ojo Encino Mesa Quad, Sandoval County				
LA27106	T20N R5W Sec 23	scr1nd/arroyo/6700 int/und/insuf	Navajo, AD1945-Present/corral, out- buildings, wood cuttings/ >100	Recorder: UNM-OCA, 1980 Records: Lab Anthro, MNM
LA25673	T20N R5W Sec 25	scr1nd/valley/6700 erd/unk/insuf	unk/lithic scatter/ 50-100	Recorder: Independent, 1980 Records: Lab Anthro, MNM
LA29090	T20N R5W Sec 36	scr1nd/plain/6620 int/und/insuf	Navajo, AD1945-Present/hogan, corral, historic trash/ 50-100	Recorder: BLM, 1977 Records: Lab Anthro, MNM

Transmission Corridor #1

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA29091	T20N R5W Sec 36	scr1nd/blwout/6640 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone/ 5-10	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA29092	T20N R5W Sec 36	scr1nd/valley/6660 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone, fire cracked rock; Navajo, AD1920-1945/isolated masonry room, historic trash, cairn/ >100	Recorder: BLM, 1977 Records: Lab Anthro, MNM

Wolf Stand Quad, McKinley County				

LA22383	T19N R4W Sec 22	scr1nd/bench/6520 van/und/insuf	unk/undefined rock alignment/unk	Recorder: MNA, 1979 Records: Lab Anthro, MNM
LA16879	T18N R3W Sec 21	scr1nd/ mesa/6710 unk/und/insuf	Navajo, unk pd/hearth, isolated masonry room, historic trash/unk	Recorder: MNA, 1979 Records: Lab Anthro, MNM

San Luis Quad, Sandoval County				

BLM NM-01-3253	T17N R2W Sec 27	scr1nd/plain/6210 com/und/insuf	Archaic, 5000BC-AD1/lithic scatter; Pueblo, unk pd/lithic-ceramic scatter, hearths/ 400	Recorder: ENMU, 1976 Records: BLM-RPRA

Transmission Corridor #1

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
BLM NM-01-3255 T17N R2W Sec 27	scr1nd/hl1top/6220 erd/und/insuf	unk/lithic scatter/ 3	Recorder: ENMU, 1976 Records: BLM-RPRA
BLM NM-01-3514 T17N R2W Sec 27	grs1nd/plain/6185 erd/col/insuf	Pueblo, unk pd/lithic scatter/.7	Recorder: ENMU, 1976 Collections: ENMU Records: BLM-RPRA
LA9049 T17N R2W Sec 27	scr1nd/kno11/unk mch/und/insuf	Historic, unk pd/L-shaped adobe hacienda, trash/ 80.94	Recorder: MNM, 1966 Records: Lab Anthro, MNM
LA1894 T17N R2W Sec 27	unk/unk/unk unk/unk/insuf	unk/ceramic scatter/unk	Recorder: MNM, 1935 Records: Lab Anthro, MNM
LA2102 T17N R2W Sec 27	unk/unk/unk destroyed, 1951	San Luis Dam on Rio Puerco, 3 houses	Recorder: NM Hist Rev, 10/59 Records: Lab Anthro, MNM
No # T17N R2W Sec 27 & Sec 21	unk/plain/6250 van/unk/insuf	Town of San Luis, Spanish, AD1890-1930/ community, adobe houses, irrigation ditches, furniture, trash/ 25,900	Recorder: BLM, 1978 Records: BLM-RPRA

Transmission Corridor #1

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Sky Village NE Quad, Sandoval County				
LA27643	T14N R1E Sec 30	wd1nd/h11slp/6320 int/und/insuf	unk/hearth, lithic scatter/ 50-100	Recorder: CASA, 1980 Records: Lab Anthro, MNM

Sky Village SE, Sandoval County				
LA18415	T13N R1E Sec 27	dstscr/h11slp/6180 int/und/insuf	unk/lithic scatter, fire cracked rock/.25-1	Recorder: Independent, 1979 Records: Lab Anthro, MNM
LA18413	T13N R1E Sec 28	dstscr/unk/6310 int/und/insuf	unk/lithic-ceramic scatter, lithic quarry/ 50-100	Recorder: Independent, 1979 Records: Lab Anthro, MNM
LA18414	T13N R1E Sec 28	dstscr/unk/6260 int/und/insuf	unk/lithic scatter, hearth, lithic quarry/ 1-5	Recorder: Independent, 1979 Records: Lab Anthro, MNM
LA18412	T13N R1E Sec 29	dstscr/h11slp/6325 int/und/insuf	unk/lithic scatter/.01-.25	Recorder: Independent, 1979 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>

Tanner Lake Quad, San Juan County			
LA20220	T23N R13W Sec 25 scr1nd/cliff/6000 erd/und/insuf	Navajo, unk pd/stone circles, historic trash/ 50-100	Recorder: MNM, 1979 Records: Lab Anthro, MNM
LA28937	T23N R13W Sec 26 scr1nd/ridge/6000 int/und/insuf	unk/lithic; Navajo, unk pd/mine, historic trash/ 1-5	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA28938	T23N R13W Sec 26 scr1nd/talus/6020 int/und/insuf	Navajo, unk pd/hogan/.01-.25	Recorder: BLM, 1977 Records: Lab Anthro, MNM
LA20102	T23N R12W Sec 30 grs1nd/blwout/6020 int/col/insuf	unk/lithic scatter/ 50-100	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20103	T23N R12W Sec 30 grs1nd/blwout/6020 int/col/insuf	unk/lithic scatter/ 1-5	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20104	T23N R12W Sec 30 grs1nd/blwout/6010 int/col/insuf	unk/lithic scatter/ 1-5	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
LA20063	T23N R12W Sec 31	grs1nd/dune/6110 int/col/insuf	unk/lithic scatter/.01-.25	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20064	T23N R12W Sec 31	grs1nd/blwout/6140 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter/ 5-10	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20065	T23N R12W Sec 31	grs1nd/blwout/6080 int/col/insuf	unk/lithic scatter/ 10-50	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20066	T23N R12W Sec 31	grs1nd/blwout/6090 int/col/insuf	unk/lithic scatter/ 1-5	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20067	T23N R12W Sec 31	grs1nd/dune/6105 int/col/insuf	unk/lithic scatter/ 5-10	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20069	T23N R12W Sec 31	dstscr/dune/6080 int/col/insuf	Anasazi, BMII-III, AD1-700/lithic/ isolated artifact	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20070	T23N R12W Sec 31	grs1nd/dune/6090 int/col/insuf	Archaic, 5000BC-AD1/lithic/isolated artifact	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA20071	T23N R12W Sec 31	grs1nd/dune/6110 int/col/insuf	Navajo, unk pd/unk/.01-.25	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM
LA20061	T22N R12W Sec 5	grs1nd/dune/6135 int/col/insuf	Archaic, 5000BC-AD1/lithic/isolated artifact	Recorder: SAR, 1979 Collections: SAR Records: Lab Anthro, MNM

Pretty Rock Quad, San Juan County				

LA30472	T22N R12W Sec 14	scr1nd/canflr/6320 int/und/insuf	Navajo, unk pd/hogan, horno, undefined rock alignment/ 5-10	Recorder: DCA, 1981 Records: Lab Anthro, MNM
LA30473	T22N R12W Sec 14	scr1nd/ mesa/6295 int/und/insuf	Navajo, unk pd/hogan, historic trash/ .01-.25	Recorder: DCA, 1981 Records: Lab Anthro, MNM

Kin Klizhin Ruins Quad, San Juan County				

LA28919	T22N R11W Sec 22	scr1nd/arroyo/6320 int/und/insuf	Anasazi, PII-III, AD900-1300/water control device, water catchment device, ceramics/ 1-5	Recorder: BLM, 1977 Records: Lab Anthro, MNM

Transmission Corridor #2

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<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Pueblo Bonito Quad, San Juan County					
29SJ402	T22N R11W Sec 25	grsLnd/bench/6273 int/col/rec, NR,SR		Anasazi, Kin Indian Ruins, Late PII, AD1050-1120/road associated Bonito Phase structure, 7+ rooms, ceramics/ 37.5	Collections: CC, NPS Records: NMSHPO
LA30471	T22N R11W Sec 27	scrLnd/dune/6270 int/und/insuf		Navajo, unk pd/wood cuttings, horno, corral/ 1-5	Recorder: DCA, 1981 Records: Lab Anthro, MNM
LA42282	T22N R11W Sec 32	grsLnd/bench/6240 int/col/prof rec,NR,SR		Anasazi, Greasy Hill Community, PII-III/ road associated, cluster of 6 Anasazi house mounds (3 marked as "Indian ruins" on USGS map), 40+ rooms, ceramics/ 1200	Collections: CC, NPS Records: CC, NPS
LA42324	T22N R11W Sec 33	grsLnd/bench/6240 int/col/prof rec,NR,SR		Anasazi, Escavada Complex Community Late PI, PII/ road associated cluster of 8 Anasazi house mounds, 5 marked as "Indian ruins" on USGS map, 30+ rooms, ceramics/ 1200	Collections: CC, NPS Records: CC, NPS

Sargent Ranch Quad, San Juan County					
LA17336	T21N R9W Sec 8	scrLnd/ridge/6412 erd/und/insuf		unk/fire cracked rock, lithic scatter/ 1-5	Recorder: Independent, 1977 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA17337	T21N R9W Sec 8	scr1nd/dune/6429 erd/und/insuf	Archaic, 5000BC-AD1/ground stone, lithic scatter, fire cracked rock/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17339	T21N R9W Sec 8	scr1nd/dune/6423 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock, ground stone/ 1-5	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17342	T21N R9W Sec 8	scr1nd/dune/6396 erd/und/insuf	Anasazi, PII, AD900-1100/ lithic-ceramic scatter, fire cracked rock, ground stone/.25-1	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17343	T21N R9W Sec 8	scr1nd/ridge/6438 com/col/insuf	Anasazi, PIII, AD1100-1300/lithic-ceramic scatter, mound, ground stone/ 5-10	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18033	T21N R9W Sec 15	dstscr/ridge/6406 int/und/insuf	Anasazi, PII-III, AD900-1300/lithic-ceramic scatter, isolated jacal room/ 5-10	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA16229	T21N R9W Sec 16	scr1nd/dune/6394 int/und/insuf	Navajo, unk pd/wood cuttings, horno, corral/ 1-5	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA16231	T21N R9W Sec 16	scr1nd/ridge/6380 erd/und/insuf	unk/lithic scatter, hearth/ 5-10	Recorder: Independent, 1977 Records: Lab Anthro, MNM

Transmission Corridor #2

SITE # TSHP RNGE SECTN ECOZN/TOPOGR/ELEV(ft) COND/ARCHST/REGSTAT COMPONENT(S)/ DESCRIPTION/AREA(1n 100m²) REFERENCES
 3-164

LA16232
 T21N R9W Sec 16 scr1nd/ridge/6416 erd/und/insuf unk/lithic scatter, fire cracked rock/
 1-5 Recorder: Independent, 1977
 Records: Lab Anthro, MNM

LA16234
 T21N R9W Sec 16 scr1nd/h11slp/6418 erd/und/insuf Anasazi, PII, AD900-1100/lithic scatter,
 ground stone, ceramic/ 5-10 Recorder: Independent, 1977
 Records: Lab Anthro, MNM

LA18034
 T21N R9W Sec 22 dstscr/ridge/6406 int/und/insuf unk, AD1945-Present/tent base, historic
 trash/ 50-100 Recorder: Independent, 1977
 Records: Lab Anthro, MNM

LA18035
 T21N R9W Sec 22 dstscr/ridge/6521 int/und/insuf unk/lithic scatter, undefined rock
 alignment/ 10-50 Recorder: Independent, 1977
 Records: Lab Anthro, MNM

LA18036
 T21N R9W Sec 22 dstscr/ridge/6520 erd/und/insuf Archaic, 5000BC-AD1/lithic scatter/
 5-10 Recorder: Independent, 1977
 Records: Lab Anthro, MNM

 Fire Rock Well Quad, San Juan County

LA18062
 T21N R8W Sec 30 dstscr/h11slp/6550 int/und/insuf Anasazi, PIII, AD1100-1300/lithic scatter,
 ceramic scatter/ 10-50 Recorder: Independent, 1977
 Records: Lab Anthro, MNM

Transmission Corridor #2

SITE #	TSHR RNGE SECTN	ECOZN/TOPOGR/ELEV(ft) COND/ARCHST/REGSTAT	COMPONENT(S)/ DESCRIPTION/AREA(in 100m ²)	REFERENCES
LA18063	T21N R8W Sec 30	dstscr/ mesa/6531 int/und/insuf	unk, AD1945-Present/corral, wood cuttings, historic trash/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17351	T21N R8W Sec 31	scr1nd/ridge/6551 int/und/insuf	Navajo, AD1920-1945/hogan, historic trash/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17363	T21N R8W Sec 31	scr1nd/ridge/6520 erd/und/insuf	Anasazi, PII, AD900-1100/lithic scatter, ceramic scatter; Navajo, AD1880-1920/ cairn, fire cracked rock/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17366	T21N R8W Sec 31	scr1nd/ridge/6554 int/und/insuf	Navajo, AD1920-1945/ramada, horno/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18057	T21N R8W Sec 31	dstscr/ridge/6490 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter/ 1-5	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18058	T21N R8W Sec 31	dstscr/ridge/6521 int/und/insuf	unk,AD1945-Present/wood cuttings, historic trash, tent base/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18059	T21N R8W Sec 31	dstscr/ mesa/6520 int/und/insuf	Navajo, AD1880-1920/historic trash, wood cuttings, hogan/.01-.25	Recorder: Independent, 1977 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA18094	T21N R8W Sec 31	dstscr/ridge/6548 int/und/insuf	unk, AD1920-Present/wood cuttings, historic trash/ 1-5	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17353	T21N R8W Sec 32	scr1nd/valley/6406 erd/und/insuf	Anasazi, PII, AD900-1100/hearth, lithic- ceramic scatter/ 5-10	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17361	T21N R8W Sec 32	scr1nd/ridge/6508 int/und/insuf	Navajo, AD1880-1920/cairn/.01-.25	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17362	T21N R8W Sec 32	scr1nd/ridge/6519 int/und/insuf	Navajo, AD1880-1920/hogan, fire cracked rock, historic trash/.25-1	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17364	T21N R8W Sec 32	scr1nd/ridge/6418 int/und/insuf	Anasazi, PII, AD900-1100/lithic-ceramic scatter, masonry structure/ 1-5	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17365	T21N R8W Sec 32	scr1nd/ridge/6495 erd/und/insuf	Navajo, AD1880-1920/hogan, wall, cairn/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA17367	T21N R8W Sec 32	scr1nd/ridge/6532 int/und/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone; Anasazi, PIII, AD1100-1300/ ceramic scatter/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u>	<u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
LA18048	T21N R8W Sec 32	dstscr/ridge/6503 int/und/insuf		Navajo, AD1945-Present/masonry structure, ramada, historic trash/ 5-10	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18060	T21N R8W Sec 32	dstscr/ridge/6495 int/und/insuf		Anasazi, PII, AD900-1100/pueblo, lithic- ceramic scatter/ 5-10	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18064	T21N R8W Sec 32	dstscr/ridge/6517 int/und/insuf		unk, AD1945-Present/wood cuttings, tent base, historic trash/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18065	T21N R8W Sec 32	dstscr/ridge/6530 int/und/insuf		unk, AD1945-Present/tent base, historic trash, wood cuttings/10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18093	T21N R8W Sec 32	dstscr/ridge/6495 int/und/insuf		unk, AD1945-Present/tent base, historic trash, wood cuttings/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18095	T21N R8W Sec 32	dstscr/ridge/6516 int/und/insuf		Navajo, AD1880-1920/ramada, corral, masonry structure/ 50-100	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18096	T21N R8W Sec 32	dstscr/ridge/6536 int/und/insuf		Anasazi, PII-III, AD900-1300/lithic- ceramic scatter, pueblo/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
LA18097	T21N R8W Sec 32	dstscr/ridge/6509 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18100	T21N R8W Sec 32	dstscr/ridge/6476 int/und/insuf	Navajo, unk pd/historic trash, wood cuttings; Anasazi, PII-III, AD900-1300/ lithic-ceramic scatter/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18101	T21N R8W Sec 32	dstscr/ridge/6494 erd/und/insuf	Anasazi, PIII-IV, AD1100-1600/lithic- ceramic scatter; Historic, unk pd/ historic trash/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18102	T21N R8W Sec 32	dstscr/valley/6409 erd/und/insuf	Anasazi, PII, AD900-1100/pueblo, lithic- ceramic scatter/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18103	T21N R8W Sec 32	dstscr/valley/6415 int/und/insuf	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock; Anasazi, PII-III, AD900- 1300/ceramic/>100	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18104	T21N R8W Sec 32	dstscr/valley/6408 erd/und/insuf	Anasazi, PII, AD900-1100/lithic-ceramic scatter, hearth/ 50-100	Recorder: Independent, 1977 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA18105	T21N R8W Sec 32	dstscr/valley/6407 erd/und/insuf	Anasazi, PI-II, AD700-1100/lithic-ceramic scatter, hearth, pueblo/ 10-50	Recorder: Independent, 1977 Records: Lab Anthro, MNM
LA18106	T21N R8W Sec 32	dstscr/valley/6407 erd/und/insuf	Anasazi, PI-II, AD700-1100/lithic-ceramic scatter, hearth; unk/historic trash/ 5-10	Recorder: Independent, 1977 Records: Lab Anthro, MNM

Pueblo Pintado Quad, San Juan County				

T20N R8W Sec 10	grsld/ridge/6430 erd/unk/insuf	Anasazi, Pueblo Pintado Road	Records: Lab Anthro, MNM	

Pueblo Alto Trading Post Quad, McKinley County				

LA13944	T20N R6W Sec 31	scrld/lwrise/6610 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter/unk	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13945	T20N R6W Sec 31	scrld/ridge/6660 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, hearth, fire cracked rock/ 5-10	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13946	T20N R6W Sec 31	scrld/hllslp/6660 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, hearth, ground stone/ 10-50	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u> <u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA13947 T20N R6W Sec 31	scr1nd/h11slp/6640 int/col/insuf	unk/lithic scatter/ 10-50	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA14005 T20N R6W Sec 31	scr1nd/valley/6630 int/und/insuf	Historic, unk pd/historic trash/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14006 T20N R6W Sec 31	scr1nd/valley/6620 int/und/insuf	Navajo, unk pd/historic trash, wood cuttings/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA32606 T20N R6W Sec 31	dstscr/dune/6670 unk/unk/insuf	Archaic, unk pd/fire cracked rock, lithics; Anasazi, PII, AD900-1100/ ceramics/ 22.44	Recorder: SAR, unk date Records: Lab Anthro, MNM
LA14328 T20N R6W Sec 32	scr1nd/blwout/6660 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone/ 10-50	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA32605 T20N R6W Sec 32	dstscr/dune/6700 unk/unk/insuf	Anasazi, PII-III, AD975-1200/ceramics, hearth/ 3.06	Recorder: SAR, unk date Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
Star Lake Quad, McKinley County			
LA14054 T19N R6W Sec 3	scr1nd/lwrise/6780 int/und/insuf	Navajo, unk pd/house, subterranean structures/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA13974 T19N R6W Sec 4	scr1nd/hllslp/6700 int/col/insuf	unk/lithic scatter/unk	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13976 T19N R6W Sec 4	scr1nd/plain/6700 int/col/insuf	unk/lithic scatter/.25-1	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13977 T19N R6W Sec 4	scr1nd/plain/6720 int/col/insuf	unk/lithic scatter/ 10-50	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13979 T19N R6W Sec 4	scr1nd/dune/6720 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone; unk/subterranean structure; Navajo, unk pd/trash/unk	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13980 T19N R6W Sec 4	scr1nd/blwout/6740 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone/unk	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM

Transmission Corridor #2

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<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
<u>TSHP RNGE SECTN</u>				
LA13982 T19N R6W Sec 4	scr1nd/plain/6720 int/col/insuf		unk/lithic scatter, ground stone, hearth/ 1-5	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13983 T19N R6W Sec 4	scr1nd/ridge/6720 int/col/insuf		Archaic, 5000BC-AD1/lithic scatter/ 10-50	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA14038 T19N R6W Sec 4	scr1nd/canyon/6720 int/und/insuf		Navajo, unk pd/corral/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14057 T19N R6W Sec 4	scr1nd/hllslp/6720 int/und/insuf		Navajo, unk pd/hogan, historic trash/ unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14059 T19N R6W Sec 4	scr1nd/hllslp/6720 int/und/insuf		Navajo, unk pd/dump/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14070 T19N R6W Sec 4	scr1nd/ridge/6720 int/und/insuf		Navajo, unk pd/hogan, historic trash/ unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14382 T19N R6W Sec 4	scr1nd/hllslp/6800 int/und/insuf		Navajo, unk pd/house foundation, corral, depression/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
<u>TSHR RNCE SECTN</u>			
LA14020 T19N R6W Sec 5	scr1nd/ridge/6720 int/und/insuf	Anasazi, unk pd/masonry structure/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14021 T19N R6W Sec 5	scr1nd/ridge/6700 int/und/insuf	Navajo, unk pd/hogan, corral, masonry structure/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14022 T19N R6W Sec 5	scr1nd/h11slp/6740 int/und/insuf	Navajo, unk pd/hogan, corral, horno/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14023 T19N R6W Sec 5	scr1nd/ridge/6720 int/und/insuf	Navajo, unk pd/hogan, hearth, historic trash/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14024 T19N R6W Sec 5	scr1nd/ridge/6760 int/und/insuf	Navajo, unk pd/hogan, corral, horno/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14025 T19N R6W Sec 5	scr1nd/h11slp/6740 int/und/insuf	Navajo, unk pd/hogan, hearth, corral/ >100	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14026 T19N R6W Sec 5	scr1nd/h11slp/6760 int/und/insuf	Navajo, AD1945-Present/house, corral, outhouse/ 50-100	Recorder: SIU, 1975 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA14028	T19N R6W Sec 5	scrld/plain/6680 int/und/insuf	Anglo, unk pd/water catchment device, mound/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14029	T19N R6W Sec 5	scrld/ridge/6720 int/col/insuf	Anasazi, unk pd/ceramics, lithic scatter, ground stone; Navajo, unk pd/sweat lodge, historic trash/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14381	T19N R6W Sec 5	scrld/ridge/6760 int/und/insuf	Navajo, unk pd/corral, hogan, undefined rock alignment/ >100	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA16586	T19N R6W Sec 5	scrld/ridge/6760 unk/col/insuf	unk/lithic scatter, ground stone/ 10-50	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14369	T19N R6W Sec 8	scrld/talus/6780 int/und/insuf	Navajo, unk pd/hearth, sweat lodge/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14383	T19N R6W Sec 8	scrld/saddle/6760 int/und/insuf	Navajo, unk pd/hogan, hearth/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14384	T19N R6W Sec 8	scrld/hllslp/6760 int/und/insuf	Navajo, unk pd/cairn, hearth/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA13969	T19N R6W Sec 9	scr1nd/lwrise/6760 int/col/insuf	unk/lithic scatter, ground stone/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA13975	T19N R6W Sec 9	scr1nd/hllslp/6720 int/col/insuf	unk/lithic scatter, hearth/ 10-50	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13978	T19N R6W Sec 9	scr1nd/ridge/6760 int/col/insuf	unk/lithic scatter/unk	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13981	T19N R6W Sec 9	scr1nd/ridge/6760 int/col/insuf	Anasazi, BMII, AD1-500/lithic scatter, ground stone/unk	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13984	T19N R6W Sec 9	scr1nd/plain/6800 int/col/insuf	unk/lithic scatter/unk	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA14037	T19N R6W Sec 9	scr1nd/cliff/6760 int/und/insuf	unk/masonry roomblock/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14038	T19N R6W Sec 9	scr1nd/canyon/6720 int/und/insuf	Navajo, unk pd/corral/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA14039	T19N R6W Sec 9	scr1nd/terrace/6780 int/und/insuf	Navajo, unk pd/corral/ 10-50	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14056	T19N R6W Sec 9	scr1nd/h11slp/6700 int/und/insuf	Navajo, unk pd/hogan, historic trash/ unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14061	T19N R6W Sec 9	scr1nd/h11slp/6740 int/und/insuf	Navajo, unk pd/dump/.01-.25	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14066	T19N R6W Sec 9	scr1nd/arroyo/6780 int/und/insuf	Navajo, unk pd/horno, historic trash/ unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14069	T19N R6W Sec 9	scr1nd/ridge/6800 int/und/insuf	Navajo, unk pd/hogan, horno, dump/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14356	T19N R6W Sec 9	scr1nd/arroyo/6760 int/und/insuf	Navajo, unk pd/dump/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA16587	T19N R6W Sec 9	scr1nd/blwout/6780 unk/col/insuf	unk/lithic scatter, ground stone, ceramics/ 50-100	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
LA12756 T19N R6W Sec 10	scr1nd/plain/6740 int/col/insuf	Navajo, AD1945-Present/Star Lake Trading Post, house, cemetery/ 10-50	Recorder: MNM, 1975 Collections: MNM Records: Lab Anthro, MNM
LA13970 T19N R6W Sec 10	scr1nd/hllslp/6680 int/col/insuf	unk/lithic scatter/.01-.25	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13971 T19N R6W Sec 10	scr1nd/dune/6780 int/col/insuf	unk/lithic scatter, subterranean structure/unk	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA13996 T19N R6W Sec 10	scr1nd/lwrise/6780 int/col/insuf	Anasazi, unk pd/masonry structure, lithic-ceramic scatter, hearth/ 50-100	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
LA14041 T19N R6W Sec 10	scr1nd/playa/6710 int/und/insuf	Navajo, unk pd/hogan, dump/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14050 T19N R6W Sec 10	scr1nd/ridge/6780 int/und/insuf	Navajo, unk pd/hogan, historic trash, wood cuttings/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14051 T19N R6W Sec 10	scr1nd/ridge/6780 int/und/insuf	Navajo, unk pd/hogan, horno, wood cuttings/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM

Transmission Corridor #2

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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LA14053	T19N R6W Sec 10	scrlnD/plain/6780 int/und/insuf	Navajo, unk pd/dump/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
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LA14065	T19N R6W Sec 10	scrlnD/lwrise/6780 int/und/insuf	Navajo, unk pd/dump/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM
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LA14073	T19N R6W Sec 10	scrlnD/plain/6740 int/col/insuf	unk pd/lithic-ceramic scatter/>100	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
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LA14355	T19N R6W Sec 10	scrlnD/plain/6800 erd/und/insuf	Navajo, unk pd/depression, dump/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
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LA12753	T19N R6W Sec 11	scrlnD/arroyo/6680 erd/col/insuf	unk/ceramic scatter/.25-1	Recorder: MNM, 1975 Collections: MNM Records: Lab Anthro, MNM
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LA13986	T19N R6W Sec 11	scrlnD/hllslp/6700 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter, ground stone; unk/masonry structure/ 50-100	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
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LA13987	T19N R6W Sec 11	scrlnD/lwrise/6720 int/col/insuf	unk/lithic scatter, undefined rock alignment/.25-1	Recorder: SIU, 1975 Collections: SIU Records: Lab Anthro, MNM
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Transmission Corridor #2

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA14076	T19N R6W Sec 11	scr1nd/arroyo/6680 int/und/insuf	Navajo, unk pd/dump/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA14357	T19N R6W Sec 11	scr1nd/hllslp/6740 int/und/insuf	Navajo, unk pd/masonry structure/unk	Recorder: SIU, 1975 Records: Lab Anthro, MNM
LA16589	T19N R6W Sec 11	scr1nd/lwrise/6670 unk/col/insuf	unk/undefined rock alignment, lithic scatter/ 1-5	Recorder: SIU, 1975 Records: Lab Anthro, MNM
----- Tinian Quad, McKinley County -----				
LA8728	T19N R5W Sec 22	scr1nd/ mesa/unk erd/und/insuf	Archaic, 5000BC-AD1/occupational area, lithic area, hearths/ 13.38	Recorder: MNM, 1966 Records: Lab Anthro, MNM
LA8729	T19N R4W Sec 32	scr1nd/ mesa/unk erd/unk/insuf	Navajo, unk pd/masonry hogan, historic trash/.25	Recorder: MNM, 1966 Records: Lab Anthro, MNM
----- San Luis Quad, Sandoval County -----				
No #				
T16N R3W Sec 12	unk/plain/6100		Historic, Town of Cabezon	QRC professional
T16N R2W Sec 7	unk/unk/prof rec,NR,SR			information, 1981

Transmission Corridor #3

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Tanner Lake Quad, San Juan County				
LA29580	T23N R13W Sec 25	grs1nd/ mesa/6120 erd/und/insuf	Archaic, 5000BC-AD1/lithic scatter/ 1-5	Recorder: DCA, 1981 Records: Lab Anthro, MNM
LA29581	T23N R13W Sec 36	grs1nd/ mesa/6120 com/und/insuf	Navajo, AD1945-Present/lithic scatter, historic trash/ 5-10	Recorder: DCA, 1981 Records: Lab Anthro, MNM
LA29582	T23N R13W Sec 36	grs1nd/ mesa/6120 com/und/insuf	Archaic, 5000BC-AD1/lithic scatter, fire cracked rock, ground stone/ 1-5	Recorder: DCA, 1981 Records: Lab Anthro, MNM
LA15847	T22N R13W Sec 13	scr1nd/ dune/6100 erd/und/insuf	unk/isolated masonry room/.01-.25	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA20964	T22N R13W Sec 24	scr1nd/ talus/5890 int/und/insuf	Navajo, unk pd/corral/ 1-5	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA20965	T22N R13W Sec 24	scr1nd/ unk/5880 erd/und/insuf	unk/water catchment device/ 1-5	Recorder: DCA, 1979 Records: Lab Anthro, MNM

Transmission Corridor #3

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(1n 100m²)</u>	<u>REFERENCES</u>

La Vida Mission Quad, San Juan County				
LA20962	T22N R13W Sec 23	scr1nd/hllslp/5880 int/und/insuf	Navajo, unk pd/hogan, historic trash; Anasazi, PI-III, AD700-1300/lithic- ceramic scatter/ 10-50	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA20963	T22N R13W Sec 24	scr1nd/talus/5880 mch/und/insuf	Navajo, unk pd/hogan, corral, historic trash; Navajo, AD1945-Present/house/>100	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA20961	T22N R13W Sec 25	scr1nd/lwrise/5880 mch/und/insuf	Anasazi, unk pd/ceramic scatter/ 5-10	Recorder: DCA, 1979 Records: Lab Anthro, MNM
LA15845	T22N R13W Sec 26	scr1nd/valley/5853 erd/und/insuf	Anasazi, PI-II, AD700-1100/isolated mason- ry room, lithic-ceramic scatter/ 10-50	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA20960	T22N R13W Sec 36	scr1nd/plain/5890 mch/und/insuf	Anasazi, unk pd/lithic-ceramic scatter/ .25-1.0	Recorder: DCA, 1979 Records: Lab Anthro, MNM

Seven Lakes Quad, McKinley County				
T20N R11W Sec 22	grs1nd/bench/6404 int/und/insuf	Anasazi, PI, PII, Casa Patricia/ isolated Great Kiva w/ appended rooms, ceramics/ 25	Records: NMSHPO & BLM-SO	

Transmission Corridor #3

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Kin Nahzin Ruins Quad, Mc Kinley County			

LA30452	T19N R9W Sec 15 scr1nd/allvfn/6515 int/und/insuf	Navajo, unk pd/house/ 1-5	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA30451	T19N R9W Sec 23 scr1nd/h11slp/6590 int/und/insuf	Navajo, unk pd/hogan, horno, lambing pen/ 10-50	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA30453	T19N R9W Sec 23 scr1nd/ mesa/6730 int/und/insuf	Anasazi, PI, AD700-900/pueblo, midden, isolated masonry room/ 1-5	Recorder: DCA, 1980 Records: Lab Anthro, MNM

Whitehorse Quad, McKinley County			

LA30450	T19N R9W Sec 25 scr1nd/allvfn/6600 int/und/insuf	Navajo, unk pd/hogan, horno, historic trash/ 10-50	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA30427	T19N R8W Sec 3 grs1nd/ mesa/6730 erd/unk/insuf	Navajo, unk pd/corral/20.53	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA30440	T18N R8W Sec 2 scr1nd/allvfn/6820 int/und/insuf	unk/fire cracked rock/.01-.25	Recorder: DCA, 1980 Records: Lab Anthro, MNM

Transmission Corridor #3

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Whitehorse Rincon Quad, McKinley County				

LA22452	T18N R6W Sec 20	scr1nd/terrace/6720 unk/und/insuf	Navajo, AD1912-1945/hogan, horno, historic trash/ 5-10	Recorder: MNA, 1979 Records: Lab Anthro, MNM

Rincon Marquez Quad, McKinley County				

LA22453	T18N R6W Sec 20	scr1nd/bench/6760 unk/und/insuf	Navajo, AD1920-1945/hogan, corral, field house/ 50-100	Recorder: MNA, 1979 Records: Lab Anthro, MNM

San Luis Quad, Sandoval County				

No#	T16N R3W Sec 12	unk/plain/6100	Historic, Town of Cabezon	QRC professional information, 1981
	T16N R2W Sec 7	unk/unk/prof rec,NR,SR		

Sky Village NW Quad, Sandoval County				

ENM9906	T14N R1W Sec 16	unk/unk/unk unk/und/insuf	unk, >5 comp/undefined artifact scatter, hearths/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS

ENM9404	T14N R1W Sec 17	unk/unk/unk unk/und/insuf	Anasazi, unk pd & BMII/undefined artifact scatter, lithics, resource extraction/500	Recorder: ENMU, 1966 Records: NPS, SJBRUS

Transmission Corridor #3

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
ENM9496	T14N R1W Sec 17	unk/unk/unk unk/und/insuf	Paleo-Indian/processing campsite/ 4	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9497	T14N R1W Sec 17	unk/unk/unk unk/und/insuf	Archaic/hunting & gathering campsite/ 1	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9905	T14N R1W Sec 17	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9907	T14N R1W Sec 17	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9908	T14N R1W Sec 17	unk/unk/unk unk/und/insuf	unk, >5 comp/undefined artifact scatter, hearths/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9911	T14N R1W Sec 20	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9913	T14N R1W Sec 20	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS

Transmission Corridor #3

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<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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ENM9492	T14N R1W Sec 21	unk/unk/unk unk/und/insuf	Anasazi, BMIII, PIII/hunting & gathering campsite, undefined artifact scatter, ceramics/ 3	Recorder: ENMU, 1966 Records: NPS, SJBRUS
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ENM9498	T14N R1W Sec 21	unk/unk/unk unk/und/insuf	Archaic/processing campsite/ 1	Recorder: ENMU, 1966 Records: NPS, SJBRUS
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ENM9912	T14N R1W Sec 21	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
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ENM9914	T14N R1W Sec 21	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
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ENM9915	T14N R1W Sec 21	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
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ENM9916	T14N R1W Sec 21	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
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LA8731	T14N R1W Sec 22	scr1nd/mesa/unk erd/und/insuf	Archaic, 5000BC-AD1/hearths, lithic scatter/>100	Recorder: MNM, 1966 Records: Lab Anthro, MNM
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Transmission Corridor #3

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
ENM9400	T14N R1W Sec 22	unk/unk/unk unk/und/insuf	Archaic/undefined campsite/ .25	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9421	T14N R1W Sec 22	unk/unk/unk unk/und/insuf	Anasazi, PV/undefined artifact scatter, ceramic/ 30	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9422	T14N R1W Sec 27	unk/unk/unk unk/und/insuf	Archaic/hunting & gathering campsite/ 20	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9427	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	Paleo-Indian; Archaic/hunting & gathering campsite, undefined artifact scatter, ceramic/ 50	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9432	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	Archaic/hunting & gathering campsite/.6	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9493	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	PIII & unk/hunting & gathering campsite/ 2.4	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9904	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	unk/undefined artifact scatter, lithic/ unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS

Transmission Corridor #3

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
ENM9917	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9918	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9919	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9920	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	unk/lithic/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM9921	T14N R1W Sec 28	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS
ENM 9490	T14N R1W Sec 34	unk/unk/unk unk/und/insuf	unk/unk/unk	Recorder: ENMU, 1966 Records: NPS, SJBRUS

Sky Village Quad, Sandoval County				
ENM9479	T13N R1W Sec 1	unk/unk/unk unk/und/insuf	Archaic, unk pd/processing campsite/ 225	Recorder: ENMU, 1966 Records: NPS, SJBRUS

Transmission Corridor #4

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

The Pillar 3 NE Quad, San Juan County				

LA14838	T23N R13W Sec 19	grslnd/plain/5780 unk/unk/insuf	Archaic, 5000BC-AD1/lithic scatter; Navajo, AD1045-Present/hogan, midden/ 1-5	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM
LA14839	T23N R13W Sec 19	grslnd/canrim/5820 unk/und/insuf	unk/isolated masonry room, corral/.25-1	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM
LA14840	T23N R13W Sec 30	grslnd/canflr/5900 unk/unk/insuf	Navajo, AD1920-1945/isolated masonry room, corral, historic trash/ 10-50	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM
LA26797	T23N R13W Sec 30	grslnd/hlltop/5940 erd/und/insuf	Navajo, AD1945-Present/isolated masonry room, historic trash/ 10-50	Recorder: DCA, 1980 Records: Lab Anthro, MNM
LA14841	T23N R13W Sec 31	grslnd/mesa/5900 unk/und/insuf	Navajo, AD1880-1920/hogan, depression, midden/ 1-5	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM
LA14842	T23N R13W Sec 31	grslnd/canflr/5880 unk/unk/insuf	Navajo, AD1880-1920/isolated masonry room, cist, corral/ 10-50	Recorder: UNM-OCA, 1976 Records: Lab Anthro, MNM

Transmission Corridor #4

SITE # TSHP RNCE SECTN ECOZN/TOPOGR/ELEV(ft) COND/ARCHST/REGSTAT COMPONENT(S)/ DESCRIPTION/AREA(in 100m²) REFERENCES

3-190

LA1275
T22N R14W Sec 12 grsld/plain/5800
unk/col/insuf
Anasazi, BMII, AD500-700/isolated masonry
room, ceramic scatter/unk
Recorder: unk, 1933
Collections: unk
Records: Lab Anthro, MNM

La Vida Mission Quad, San Juan County

LA15840
T21N R13W Sec 22 scrld/dune/6060
int/und/insuf
unk/hearth/.01-.25
Recorder: MNM, 1977
Records: Lab Anthro, MNM

Becenti Lake Quad, McKinley County

LA13162
T19N R12W Sec 25 scrld/plain/6340
int/col/insuf
Anasazi, PII, AD900-1100/macro floral
remains, ceramic scatter; Navajo, unk pd/
hogan, isolated masonry room, trash/>100
Recorder: MNM, 1975
Collections: MNM
Records: Lab Anthro, MNM

LA13809
T19N R12W Sec 36 scrld/cliff/6380
int/col/insuf
Anasazi, PII-III, AD900-1300/ceramics/
.25-1
Recorder: MNM, 1976
Collections: MNM
Records: Lab Anthro, MNM

LA13811
T19N R12W Sec 36 scrld/ mesa/6480
int/und/insuf
unk/undefined rock alignment/.01-.25
Recorder: MNM, 1976
Records: Lab Anthro, MNM

Transmission Corridor #4

SITE # TSHR RNGE SECTN	ECOZN/TOPOGR/ELEV (ft) COND/ARCHST/REGSTAT	COMPONENT(S) / DESCRIPTION/AREA (in 100m ²)	REFERENCES
LA13775 T19N R11W Sec 30	scr1nd/plain/6400 int/col/insuf	Navajo, AD1880-1920/wall, historic trash/ .01-.25	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM
LA18124 T19N R11W Sec 30	grs1nd/plain/6330 erd/unk/insuf	Anasazi, BMIII, AD500-700/lithic-ceramic scatter, ground stone/ 1-5	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13780 T19N R11W Sec 31	scr1nd/talus/6420 int/und/insuf	Navajo, AD1880-1920/hogan, corral, ramada/ >100	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13785 T19N R11W Sec 31	scr1nd/ mesa/6460 int/und/insuf	Navajo, AD1880-1920/masonry structure, hearth/.01-.25	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13786 T19N R11W Sec 31	grs1nd/slope/6380 und/int/insuf	Navajo, AD1865/masonry room, hearth, hogan/ 1.8	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13787 T19N R11W Sec 31	scr1nd/1wrise/6420 erd/col/insuf	Anasazi, PII-III, AD900-1300/ceramic scatter/ 5-10	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM
LA13788 T19N R11W Sec 31	scr1nd/talus/6400 int/col/insuf	Archaic, 5000BC-AD1/lithic scatter; Anasazi, PII-III, AD900-1300/ceramic scatter; Navajo, AD1880-1920/corral, trash/ 50-100	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM

Transmission Corridor #4

3-192

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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LA13789	T19N R11W Sec 31	scrlnD/talus/6400 erd/col/insuf	Anasazi, PII, AD900-1100/ceramics; Navajo, AD1920-1945/corral, historic trash/ 10-50	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM
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LA13790	T19N R11W Sec 31	scrlnD/clffbs/6440 int/und/insuf	Archaic, 5000BC-AD1/lithics; Anasazi, PII, AD900-1100/wall, hearth, undefined rock alignment/ 10-50	Recorder: MNM, 1976 Records: Lab Anthro, MNM
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LA13791	T19N R11W Sec 31	scrlnD/terrace/6400 int/und/insuf	Anasazi, PII-III, AD900-1300/ceramics; Navajo, AD1880-1920/ramada, hearth/ 5-10	Recorder: MNM, 1976 Records: Lab Anthro, MNM
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LA13792	T19N R11W Sec 31	scrlnD/cliff/6400 int/col/insuf	Anasazi, PI, AD700-900/hearth, ceramics; Navajo, AD1880-1920/ground stone/ 10-50	Recorder: MNM, 1976 Records: Lab Anthro, MNM
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LA13793	T19N R11W Sec 31	scrlnD/hillslp/6400 int/col/insuf	Anasazi, PII, AD900-1100/mound, undefined rock alignment, lithic-ceramic scatter/ 10-50	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM
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LA13794	T19N R11W Sec 31	scrlnD/ mesa/6400 erd/und/insuf	Anasazi, PII-III, AD900-1300/ceramics; Navajo, AD1880-1920/ramada/ 1-5	Recorder: MNM, 1976 Records: Lab Anthro, MNM
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LA13796	T19N R11W Sec 31	scrlnD/clffbs/6400 int/und/insuf	Anasazi, PII, AD900-1100/hearth, ceramics, petroglyph; Navajo, AD1920-1945/corral, hearth/ 50-100	Recorder: MNM, 1976 Records: Lab Anthro, MNM
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Transmission Corridor #4

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA13797	T19N R11W Sec 31	scr1nd/hllslp/6400 int/und/insuf	Navajo, AD1880-1920/ramada, hearth/.01-.25	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13799	T19N R11W Sec 31	scr1nd/hllslp/6400 int/und/insuf	Navajo, AD1880-1920/hogan, hearth, corral/ 5-10	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13801	T19N R11W Sec 31	scr1nd/clffbs/6400 int/und/insuf	Anasazi, PII, AD900-1100/ceramic scatter; Navajo, unk pd/ramada, hearth/.01-.25	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13803	T19N R11W Sec 31	scr1nd/terrace/6380 erd/col/insuf	Anasazi, PII-III, AD900-1300/petroglyphs, masonry roomblock, lithic-ceramic scatter; Navajo, AD1880-1920/petroglyph, corral, hogan/ 50-100	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM
LA13804	T19N R11W Sec 31	scr1nd/terrace/6380 int/col/insuf	Anasazi, PII-III, AD900-1300/isolated masonry room, lithic-ceramic scatter; Navajo, AD1880-1920/sweat lodge/ 10-50	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM
LA13805	T19N R11W Sec 31	scr1nd/hllslp/6380 int/col/insuf	Anasazi, PII, AD900-1100/masonry struc- ture, ceramics; Navajo, AD1880-1920/ ramada, historic trash/ 1-5	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM

Transmission Corridor #4

3-194

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
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LA13806	T19N R11W Sec 31	scr1nd/clffbs/6380 erd/und/insuf	Navajo, AD1880-1920/corral/.25-1	Recorder: MNM, 1976 Records: Lab Anthro, MNM
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LA13807	T19N R11W Sec 31	scr1nd/terrace/6380 int/und/insuf	Navajo, AD1880-1920/corral, historic trash/10-50	Recorder: MNM, 1976 Records: Lab Anthro, MNM
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LA13808	T19N R11W Sec 31	scr1nd/terrace/6380 int/col/insuf	Navajo, AD1920-1945/corral, historic trash/1-5	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM
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LA13809	T19N R11W Sec 31	scr1nd/cliff/6380 int/col/insuf	Anasazi, PII-III, AD900-1300/ceramics; Navajo, AD1880-1920/corral/.25-1	Recorder: MNM, 1976 Collections: MNM Records: Lab Anthro, MNM
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LA13810	T19N R11W Sec 31	scr1nd/terrace/6380 int/und/insuf	Navajo, unk pd/wall/.01-.25	Recorder: MNM, 1976 Records: Lab Anthro, MNM
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Laguna Castillo Quad, McKinley County

LA27794	T17N R10W Sec 28	scr1nd/dune/6890 und/unk/insuf	unk/hearths, chipping area; unk/historic trash/ 44.0	Recorder: SAR, 1980 Records: Lab Anthro, MNM
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Transmission Corridor #4

<u>SITE #</u>	<u>TSHP RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA27795	T17N R10W Sec 28	scr1nd/ridge/6880 und/unk/insuf	unk/unk/.06	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27796	T17N R10W Sec 28	scr1nd/blwout/6860 und/unk/insuf	Anasazi, BMII/non-ceramic, hearths, chipping area/ 26.4	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27797	T17N R10W Sec 28	scr1nd/ridge/6840 unk/unk/insuf	Anasazi, BMII, AD1-500/slab-lined features/.25	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27798	T17N R10W Sec 28	scr1nd/ridge/6880 erd/unk/insuf	Anasazi, BMII/non-ceramic, chipping area/ 2.04	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27799	T17N R10W Sec 28	scr1nd/ridge/6880 und/unk/insuf	unk/chipping area, fire cracked rock/ 5.72	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27800	T17N R10W Sec 28	scr1nd/clffbs/6840 unk/unk/insuf	Historic, unk pd/slab feature set into juniper tree/.04	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27801	T17N R10W Sec 28	grs1nd/ridge/6880 und/unk/insuf	Anasazi, BMII/chipping area, slab feature/ 2.40	Recorder: SAR, 1980 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA27802	T17N R10W Sec 28	grsInd/unk/6820 und/unk/insuf	Historic, mid-AD1900s/shade, artifacts/ 2.38	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27804	T17N R10W Sec 33	scrInd/dune/6850 erd/unk/insuf	Archaic, unk pd/chipping area, lithics/ 2	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27805	T17N R10W Sec 33	scrInd/slope/6860 und/unk/insuf	unk/hearth, firepit/.01	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27806	T17N R10W Sec 33	scrInd/slope/6840 und/unk/insuf	unk/chipping area, lithic scatter/10	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27817	T17N R10W Sec 34	scrInd/unk/6930 und/unk/insuf	Anasazi, BMII/cist of vertical slabs/ .60	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27818	T17N R10W Sec 34	scrInd/swale/6970 erd/unk/insuf	Historic, unk pd/hearths/.46	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27822	T16N R10W Sec 3	scrInd/slope/7005 unk/unk/insuf	unk/corral, historic trash/ 1.5	Recorder: SAR, 1980 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA27823	T16N R10W Sec 3	scr1nd/cliff/7020 und/unk/insuf	Navajo, unk pd/sweatlodge, fire cracked rock/.16	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27824	T16N R10W Sec 3	scr1nd/terrace/7100 und/unk/insuf	Navajo, AD1930-1940/corrals, hogan, wall, horno/unk	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27825	T16N R10W Sec 3	scr1nd/slope/7005 und/unk/insuf	Navajo, unk pd/shade/.12	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27826	T16N R10W Sec 3	scr1nd/ridge/6995 und/unk/insuf	unk/corral/9.24	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27827	T16N R10W Sec 3	scr1nd/slope/7010 und/unk/insuf	unk/ceramic scatter, hearth, lithics/ .12	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27828	T16N R10W Sec 3	unk/cliff/7020 und/unk/insuf	unk/petroglyph/.01	Recorder: SAR, 1980 Records: Lab Anthro, MNM
LA27829	T16N R10W Sec 3	scr1nd/unk/7030 unk/unk/insuf	unk/hearths/.01	Recorder: SAR, 1980 Records: Lab Anthro, MNM

Transmission Corridor #4

3-198

<u>SITE #</u>	<u>TSHR RNCE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA27830	T16N R10W Sec 3	scr1nd/arroyo/6995 und/unk/insuf	unk/hearth/.01	Recorder: SAR, 1980 Records: Lab Anthro, MNM

Orphan Annie Rock Quad, McKinley County				
LA27893	T16N R10W Sec 3	scr1nd/cliff/7105 mch/und/insuf	Navajo, unk pd/corral, cairn, horno/ 24.64	Recorder: SAR, 1980 Records: Lab Anthro, MNM

Mesa de los Toros Quad, McKinley County				
LA22358	T16N R10W Sec 26	scr1nd/plain/7180 unk/unk/insuf	Navajo, unk pd/sweatlodge, historic trash, corrals/ 16.90	Recorder: UNM-OCA, unk Records: Lab Anthro, MNM
LA22359	T16N R10W Sec 26	scr1nd/clffbs/7190 mch/unk/insuf	Hispanic, unk pd/petroglyphs, wall, trash/ 100	Recorder: UNM-OCA, unk Records: Lab Anthro, MNM
LA22360	T16N R10W Sec 26	scr1nd/slope/7105 unk/unk/insuf	Hispanic, AD1900-1920/masonry room, trash, wall,corral/ 220	Recorder: UNM-OCA, unk Records: Lab Anthro, MNM
LA22361	T16N R10W Sec 26	scr1nd/clffbs/7130 unk/unk/insuf	Hispanic, unk pd/corral, 3 structural remnants, wall, trash; Pueblo, unk pd/ ceramics/ 150	Recorder: UNM-OCA, unk Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
San Lucas Dam Quad, McKinley County			
LA32678 T14N R8W Sec 31	wd1nd/dune/7240 erd/unk/insuf	Anasazi, BMIII/ceramics, trash area; PI/ceramic scatter, trash area, stone ring; Navajo, AD1800/hogans, trash, ceramics/ 11.25	Recorder: SAR, 1977 Records: Lab Anthro, MNM
LA15306 T14N R8W Sec 32	wd1nd/h11s1p/7520 erd/col/insuf	Anasazi, PI, AD700-900/ceramics; PII-III, AD900-1300/lithic-ceramic scatter, mound/ 1-5	Recorder: MNM, 1977 Collections: MNM Records: Lab Anthro, MNM
LA15361 T14N R8W Sec 32	wd1nd/h11s1p/7475 erd/col/insuf	Anasazi, PII-III, AD900-1300/lithic- ceramic scatter/>100	Recorder: MNM, 1977 Collections: MNM Records: Lab Anthro, MNM
LA13000 T14N R8W Sec 33	wd1nd/kno11/7440 erd/und/insuf	Anasazi, AD1000-1125/masonry structure, refuse, hearths/ 2.5	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13257 T14N R8W Sec 33	wd1nd/bench/7420 erd/unk/insuf	Anasazi, AD1000-1125/ceramic scatter, hearth, lithic/6.25	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA15362 T14N R8W Sec 33	wd1nd/1wrise/7415 com/col/insuf	Anasazi, PI, AD700-900/lithic, subterra- nean structure, ceramic scatter, lithics; Navajo, unk pd/ceramic/>100	Recorder: MNM, 1977 Collections: MNM Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA29522	T13N R8W Sec 1	wd1nd/valley/7210 erd/unk/insuf	Historic, unk pd/hearth, stock pen, lambing pen/unk	Recorder: SAR, 1977 Records: Lab Anthro, MNM
LA29523	T13N R8W Sec 1	wd1nd/valley/7160 erd/unk/insuf	Anasazi, AD1000-1050/masonry debris, ceramics, field house/unk	Recorder: SAR, 1977 Records: Lab Anthro, MNM
LA13468	T13N R8W Sec 2	wd1nd/valley/7260 int/und/insuf	unk/masonry room, historic trash/ 1	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA16869	T13N R8W Sec 2	wd1nd/ridge/7250 com/und/insuf	Anasazi, PII, AD900-1100/lithic-ceramic scatter, isolated masonry room/ 1-5	Recorder: NMSU-SJC, 1978 Records: Lab Anthro, MNM
LA13174	T13N R8W Sec 3	grs1nd/cliff/7280 und/unk/insuf	unk, AD1950/rock art/.30	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13179	T13N R8W Sec 3	wd1nd/hill/7380 erd/unk/insuf	Anasazi, AD1000-1200/masonry room block/ 2.50	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13181	T13N R8W Sec 3	wd1nd/ovrhng/7290 erd/unk/insuf	unk/walled cave entrance/1.50	Recorder: MNM, 1976 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
<u>TSHR RNCE SECTN</u>			
LA13182 T13N R8W Sec 3	wdlnd/terrace/7340 com/unk/insuf	Anasazi, AD1100-1125/masonry room block, refuse/unk	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13183 T13N R8W Sec 3	scrld/terrace/7310 com/unk/insuf	Anasazi, AD1000-1125/ masonry room block, refuse/ 10.5	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13184 T13N R8W Sec 3	scrld/terrace/7310 com/unk/insuf	Anasazi, AD1000-1150/hearths, ceramic scatter/4	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13188 T13N R8W Sec 3	scrld/hill/7330 erd/unk/insuf	Anasazi, AD850; Anasazi, AD1000-1125/ masonry room block, hearths, refuse/4.5	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13189 T13N R8W Sec 3	scrld/hill/7325 erd/und/insuf	Anasazi, PII-III, AD900-1300/masonry room block/6	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA15368 T13N R8W Sec 3	wdlnd/hllslp/7340 erd/und/insuf	Anasazi, PII-III, AD900-1300/mound, ceramic scatter/1-5	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA32640 T13N R8W Sec 3	wdlnd/unk/6360 unk/unk/insuf	Anasazi, PII/masonry structure, lithic- ceramic area/7.50	Recorder: SAR, 1977 Records: Lab Anthro, MNM

Transmission Corridor #4

3-202

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA32641	T13N R8W Sec 3	wdlnd/ovrhng/7380 unk/unk/insuf	Anasazi, unk pd/rockshelter, rock art, masonry rubble/8	Recorder: SAR, 1977 Records: Lab Anthro, MNM
LA13001	T13N R8W Sec 4	wdlnd/slope/7470 erd/unk/insuf	Anasazi, AD850; Anasazi, AD1000-1125/ masonry structure, refuse area, ceramic scatter, hearth/18	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13185	T13N R8W Sec 4	wdlnd/unk/unk erd/unk/insuf	Anasazi, AD1000-1125/pit house, ceramics, refuse/6	Recorder: MNM, 1976 Records: Lab Anthro, MNM
LA13186	T13N R8W Sec 4	scrld/ridge/7400 erd/unk/insuf	Anasazi, AD1000-1125/lithic-ceramic scatter/12	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13240	T13N R8W Sec 4	wdlnd/c11ff/7430 erd/col/insuf	Anasazi, PII, AD1000-1100/lithic-ceramic scatter, sandstone rubble/4	Recorder: MNM, 1975 Collections: MNM Records: Lab Anthro, MNM
LA13250	T13N R8W Sec 4	wdlnd/slope/7470 unk/unk/insuf	Anasazi, AD1000-1125/ceramic scatter/ 2.25	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13252	T13N R8W Sec 4	wdlnd/c11ff/7500 erd/unk/insuf	Anasazi, AD900-1125/ceramic scatter, rubble mound/3	Recorder: MNM, 1975 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA13253	T13N R8W Sec 4	wd1nd/ridge/7460 erd/unk/insuf	Anasazi, AD1000-1100/pit house, lithic- ceramic scatter/1.5	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13254	T13N R8W Sec 4	wd1nd/ridge/7410 erd/unk/insuf	Anasazi, AD1000-1125/pit houses, ceramic scatter/20	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13255	T13N R8W Sec 4	wd1nd/unk/7440 erd/unk/insuf	Anasazi, AD1000-1125/masonry structures, ceramic scatter, pit house/16	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13256	T13N R8W Sec 4	wd1nd/bench/7445 int/und/insuf	Anasazi, AD1000-1125/pit house, refuse, hearths, ceramic scatter/5	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13258	T13N R8W Sec 4	wd1nd/valley/7420 erd/unk/insuf	Anasazi, AD1000-1100/masonry structure, refuse, hearths, ground stone/2.25	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13259	T13N R8W Sec 4	scr1nd/ridge/7420 unk/unk/insuf	Anasazi, AD900; Anasazi, AD1000-1125/ hearths, lithic scatter, ceramics/1.2	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA15365	R13N R8W Sec 4	wd1nd/valley/7440 erd/und/insuf	unk/water control device/10-50	Recorder: MNM, 1977 Records: Lab Anthro, MNM

Transmission Corridor #4

3-204

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(In 100m²)</u>	<u>REFERENCES</u>
LA13260	T13N R8W Sec 5	grslnd/hllslp/7370 erd/unk/insuf	Anasazi, AD1000-1125/ceramic scatter, rubble mound, ground stone/1.5	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13261	T13N R8W Sec 5	wdlnd/cliff/7520 erd/unk/insuf	Anasazi, AD1000-1125/rubble mound, lithic-ceramic scatter, undefined rock alignments/2.25	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13262	T13N R8W Sec 5	wdlnd/cliff/7500 erd/unk/insuf	Anasazi, AD1000-1125/masonry structure, undefined rock alignment, ceramic scatter, ground stone/15	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13263	T13N R8W Sec 5	scrld/valley/7320 erd/unk/insuf	Anasazi, AD900-1125/ceramic scatter; unk, AD1900/ceramics/2.25	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13264	T13N R8W Sec 5	wdlnd/slope/7360 erd/unk/insuf	Anasazi, AD1000-1125/ceramic scatter, ground stone, lithic scatter/3	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13265	T13N R8W Sec 5	scrld/bench/7360 erd/unk/insuf	Anasazi, AD1000-1125/rubble mound, refuse/ 2.34	Recorder: MNM, 1975 Records: Lab Anthro, MNM
LA13268	T13N R8W Sec 5	grslnd/ridge/7340 erd/unk/insuf	Anasazi, AD1000-1125/masonry room block, refuse, ground stone/9	Recorder: MNM, 1975 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>

Marquez Quad, Valencia County				

LA16553	unplatted	wdlnd/ridge/6720 erd/und/insuf	Navajo, unk pd/lithic-ceramic scatter, hearth/ 1-5	Recorder: MNM, 1978 Records: Lab Anthro, MNM
LA16554	unplatted	wdlnd/ridge/6690 erd/und/insuf	Navajo, AD1753-1868/ceramic scatter, hearth/.25-1	Recorder: MNM, 1978 Records: Lab Anthro, MNM

La Gotera Quad, Sandoval County				

LA32653	T12N R3W Sec 16	wdlnd/ mesa/6510 int/unk/insuf	Anasazi, PII, AD900-1100/ceramic scatter; Archaic, 5000BC-AD1/lithics/9	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA32654	T12N R3W Sec 16	scrld/ mesa/6510 und/unk/insuf	Archaic, unk pd/lithic scatter/1	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA32655	T12N R3W Sec 16	scrld/slope/6400 unk/unk/insuf	Spanish, unk pd/petroglyph/unk	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA32656	T12N R3W Sec 16	scrld/talus/6430 unk/unk/insuf	unk/rock shelter, hearth, ceramics, lithics/1	Recorder: MNM, 1977 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA32657	T12N R3W Sec 16	scr1nd/mesa/6470 unk/unk/insuf	Archaic, unk pd/lithic scatter/.5	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA32658	T12N R3W Sec 16	unk/mesa/6470 unk/unk/insuf	Archaic, unk pd/lithic scatter/.25	Recorder: MNM, 1977 Records: Lab Anthro, MNM
LA32659	T12N R3W Sec 16	scr1nd/unk/6450 unk/unk/insuf	Spanish, 20th century/masonry walls, trash/1	Recorder: MNM, 1977 Records: Lab Anthro, MNM

Puerco Dam Quad, Sandoval County				
LA10371	T13N R2W Sec 22	grs1nd/bench/5600 und/unk/insuf	Anasazi, BMIII; PIII-IV/pit houses, kiva masonry room blocks, refuse/15.25	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10364	T13N R2W Sec 23	scr1nd/ridge/5600 erd/unk/insuf	Archaic, unk pd/fire cracked rock, lithics; Anasazi, BMIII/ceramic scatter, ground stone/36	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10365	T13N R2W Sec 23	grs1nd/bench/5600 und/unk/insuf	Anasazi, BMIII; PII-III/pit house, kiva, masonry room block/22.5	Recorder: MNM, 1970 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u> <u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV (ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA (in 100m²)</u>	<u>REFERENCES</u>
LA10604 T13N R2W Sec 23	unk/slope/5630 erd/unk/insuf	Anasazi, unk pd/ceramic scatter/3	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10605 T13N R2W Sec 23	grsld/ridge/5690 und/unk/insuf	Anasazi, unk pd/structure, refuse; Navajo, unk pd/hogan/8	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10530 T13N R2W Sec 24	grsld/ridge/5740 unk/unk/insuf	Anasazi, BMIII/slab structure, hearths, lithic-ceramic scatter/4	Recorder: MNM, 1971 Records: Lab Anthro, MNM
LA10531 T13N R2W Sec 24	grsld/ridge/5800 erd/unk/insuf	Anasazi, PI/slab structure, pit house, hearths, ceramic scatter/10.5	Recorder: MNM, 1971 Records: Lab Anthro, MNM
LA10597 T13N R2W Sec 25	grsld/bench/5605 und/unk/insuf	Anasazi, PI-II/pit houses, slab room blocks, refuse/12	Recorder: MNM, 1971 Records: Lab Anthro, MNM
LA10598 T13N R2W Sec 25	grsld/bench/5615 und/unk/insuf	Anasazi, PI/pit houses, kiva, masonry room blocks/6	Recorder: MNM, 1971 Records: Lab Anthro, MNM
LA10599 T13N R2W Sec 25	grsld/bench/5625 und/unk/insuf	Anasazi, PI/pit houses, refuse/4	Recorder: MNM, 1971 Records: Lab Anthro, MNM

Transmission Corridor #4

3-208

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA10358	T13N R2W Sec 26	grs1nd/bench/5675 und/unk/insuf	Anasazi, BMIII/pit house, ceramics, rubble mound/4	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10359	T13N R2W Sec 26	grs1nd/bench/5670 und/unk/insuf	Anasazi, BMIII/pit houses, refuse, ceramics/30	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10360	T13N R2W Sec 26	grs1nd/bench/5650 und/unk/insuf	Anasazi, BMIII; PII-III/pit houses, kivas, masonry rooms, refuse/100	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10600	T13N R2W Sec 26	grs1nd/bench/5585 und/unk/insuf	Anasazi, PI/pit houses, slab structures/ 3	Recorder: MNM, 1971 Records: Lab Anthro, MNM
LA10601	T13N R2W Sec 26	wd1nd/slope/5630 erd/unk/insuf	Archaic, unk pd/lithic scatter/7	Recorder: MNM, 1971 Records: Lab Anthro, MNM
LA10602	T13N R2W Sec 26	grs1nd/ovrhng/5620 und/unk/insuf	Anasazi, unk pd/masonry room, refuse/ 1.5	Recorder: MNM, 1971 Records: Lab Anthro, MNM
LA10603	T13N R2W Sec 26	unk/cliff/5645 erd/unk/insuf	Archaic, unk pd/lithic scatter, hearth/ 3	Recorder: MNM, 1971 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA10368	T13N R2W Sec 27	grs1nd/bench/5650 und/unk/insuf	Anasazi, PIII/kiva, masonry room blocks, refuse/16	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10369	T13N R2W Sec 27	grs1nd/slope/5685 und/unk/insuf	Anasazi, BMIII/pit houses, hearth/30	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10370	T13N R2W Sec 27	grs1nd/bench/5665 und/unk/insuf	Anasazi, BMIII/pit house, ceramic scatter/ 16	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10561	T13N R2W Sec 32	wd1nd/slope/5730 mch/unk/insuf	Anasazi, PIII/masonry room, refuse/unk	Recorder: MNM, 1969 Records: Lab Anthro, MNM
----- Sky Village Quad, Sandoval County -----				
LA10507	T13N R2W Sec 24	grs1nd/ridge/5765 und/unk/insuf	Archaic, unk pd/lithic scatter/1	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA892	T13N R2W Sec 25	unk/ mesa/unk unk/unk/insuf	unk/stone structure, ceramics/unk	Recorder: unk Records: Lab Anthro, MNM

Transmission Corridor #4

3-210

<u>SITE #</u>	<u>TSHR RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u>	<u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA2240	T13N R2W Sec 25	unk/hill/unk	unk/unk/insuf	unk/ceramics/unk	Recorder: unk Records: Lab Anthro, MNM
LA10502	T13N R2W Sec 25	grsld/slope/5585	erd/unk/insuf	Anasazi, BMIII-PI; PIII/field houses, refuse/unk	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10503	T13N R2W Sec 25	grsld/slope/5620	erd/unk/insuf	Anasazi, unk pd/kiva, masonry room blocks, refuse, ground stone/12	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10504	T13N R2W Sec 25	grsld/ridge/5645	und/unk/insuf	Anasazi, PIII/kiva, masonry room blocks, refuse/5	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10505	T13N R2W Sec 25	grsld/ mesa/5725	van/unk/insuf	Anasazi, PI-II; PIII/great kiva, kivas, multi-level masonry room blocks, refuse/40	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10506	T13N R2W Sec 25	grsld/ mesa/5625	erd/unk/insuf	Archaic, unk pd/lithic scatter, hearths; Historic, unk pd/ceramics/3.75	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10509	T13N R2W Sec 25	scrld/ mesa/5720	erd/unk/insuf	Anasazi, unk pd/kiva, masonry room blocks/4	Recorder: MNM, 1970 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S) /</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA10514	T13N R2W Sec 25	grs1nd/ridge/5730 und/unk/insuf	Anasazi, PIII/kivas, masonry room blocks, refuse/unk	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10525	T13N R2W Sec 25	grs1nd/ridge/5560 erd/unk/insuf	Anasazi, PIII/kivas, masonry room blocks, refuse/5	Recorder: MNM, 1971 Records: Lab Anthro, MNM
LA10457	T13N R1W Sec 29	scr1nd/ridge/5700 erd/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, hearths/6	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10458	T13N R1W Sec 29	scr1nd/ridge/5785 erd/unk/insuf	Archaic, 5000BC-AD1/lithic scatter, hearths; Anasazi, BMIII/ceramics; Navajo, 19th century/ceramics/12	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10459	T13N R1W Sec 29	grs1nd/ mesa/5795 erd/unk/insuf	Archaic, unk pd/lithic scatter, hearths; Anasazi, unk pd/lithics, ground stone/ 6.25	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10492	T13N R1W Sec 29	grs1nd/ mesa/5830 unk/unk/insuf	Anasazi, BMIII/pit houses, refuse/18	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10493	T13N R1W Sec 29	grs1nd/ mesa/5830 erd/unk/insuf	Anasazi, BMIII, PIII/pit houses, hearths, lithic-ceramic scatters, fire cracked rock/214.50	Recorder: MNM, 1970 Records: Lab Anthro, MNM

Transmission Corridor #4

<u>SITE #</u>	<u>TSHP RNGE SECTN</u>	<u>ECOZN/TOPOGR/ELEV(ft)</u> <u>COND/ARCHST/REGSTAT</u>	<u>COMPONENT(S)/</u> <u>DESCRIPTION/AREA(in 100m²)</u>	<u>REFERENCES</u>
LA10494	T13N R1W Sec 29	grs1nd/ mesa/5830 unk/unk/insuf	Anasazi, BMIII/hearth, lithic-ceramic scatter/2.25	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10495	T13N R1W Sec 29	grs1nd/blwout/5850 erd/unk/insuf	Archaic, unk pd/lithic scatter, hearths/ 6	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10496	T13N R1W Sec 29	scr1nd/dune/5820 erd/unk/insuf	Archaic, unk pd/lithic scatter, hearth/unk	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10516	T13N R1W Sec 29	grs1nd/ovrhng/5675 und/unk/insuf	unk, 19-20th century/shelter, trash/3	Recorder: MNM, 1970 Records: Lab Anthro, MNM
LA10517	T13N R1W Sec 29	grs1nd/ridge/5660 und/unk/insuf	Anasazi, PIII/masonry room blocks, hearths, refuse/2.25	Recorder: MNM, 1970 Records: Lab Anthro, MNM

Summary and General Considerations

Paleo-Indian. Of the total 698 archeological and historic sites (794 components of different age) documented in this report, only two are confidently identified as Paleo-Indian. Clearly, Paleo-Indian sites are so rare in the study area that any materials from this time period should be considered likely to yield important scientific data.

Archaic. One hundred twenty-six Archaic components were identified in the NMGS study areas. This is about 16 percent of the total number of identified components. Since these sites are often thin surface scatters that are difficult to diagnose, these sites may present the most diverse potential for providing data relevant to various research questions addressed during any necessary mitigative data retrieval program. Major Archaic research concerns include identifying specific time periods because most sites lack temporally diagnostic projectile points, documenting the seasonal round in different areas within the Basin and at different time periods, and documenting subsistence strategies and major shifts in those strategies.

Anasazi. A total of 189 Anasazi components (about 23 percent of the total identified components) have been identified within the proposed alternative study areas. Interest in Anasazi sites in the study area has always been intense because of the monumental structures located in Chaco Canyon. Recently the former Chaco Canyon

National Monument was expanded by authorization of Congress (P.L. 96-550) and redesignated as Chaco Culture National Historical Park (CCNHP). The purpose of this new legislation was to preserve and protect significant archeological areas near and adjacent to Chaco Canyon National Monument by establishing new boundaries, a system of archeological protection sites in the San Juan Basin, and a continuing program of archeological research in the San Juan Basin coordinated with resource development in that area (Senate Report No. 96-1019, p. 4). Presently, 33 Archeological Protection Sites (APS) have been created.

This is a new site classification to provide protection for archeological resources of certain discrete areas of the San Juan Basin, but without adversely affecting lawful energy extraction and development. (See Figs. 4 and 5, of Bisa'ani, a representative Chacoan protection site.) The list of protection sites and their boundaries may be changed in the future by congressional action. Information from NPS (Robert Powers, pers. comm., 1982) indicates that protection site boundaries are currently undergoing some adjustment. Table 3 is a description of those Chacoan culture resources identified in or in proximity to the proposed NMGS project area.

The proposed plant site is not near any known protection sites. Formally designated protection sites that are in or within 1 mi. of proposed water pipelines and transmission corridors are listed in Table 3. The known or projected prehistoric Chacoan roads (from

Obenauf 1980) crossed by these proposed facilities is included in this table since the roads have been recognized as a fragile and important aspect of Chacoan archeology and are often associated with designated protection sites (see "Anasazi Roads," above).

Finally, it should also be mentioned that there are several significant Chacoan outlier sites that are not identified as APS's but that are of special concern in the NMGS assessment. The Greasy Hill Chacoan ruin complex (LA42282) is partially within T2 and the Escavada Chacoan ruin complex (LA42324) is wholly within that same study unit. Both of these complexes appear to be associated with the prehistoric road system radiating from Pueblo Alto in Chaco Culture National Historical Park (Gretchen Obenauf, pers. comm., 1981). These complexes each include at least 40 acres, and include ruins larger than some that are presently listed as protection sites (e.g., Halfway House and Section Eight). The State Historic Preservation Officer has determined that the Greasy Hill and Escavada complexes are eligible for the National Register of Historic Places, and their formal Register nomination is in process.

Another Chacoan site (Kin Indian Ruins, 29SJ402) associated with the "Great North Road" (Obenauf 1980) and adjacent to the proposed NMGS project area has been nominated to the National Register.

Finally, another site within the proposed NMGS project area has been identified by the State Historic Preservation Bureau as having National Register potential; this is an isolated great kiva and

associated structures known as Casa Patricio. This site is located near the centerline of the proposed T3 study area and is about 4,500 ft. south-southwest of the ruins of Upper Kin Klizhin. It is also associated with Upper Kin Klizhin by way of a prehistoric road segment that falls within the T3 study area.

Few Anasazi sites that post-date the Pueblo III period have been found in the NMGS study area (U.S.D.I., N.P.S. 1980:x-22, x-23). The very lack of these sites presents a research question of great importance--explaining the abandonment of the central San Juan Basin by the Anasazi people.

Historic Sites. Few early historic sites of Ute, Apache, Navajo, Puebloan, or Euroamerican affiliation are known in the San Juan Basin. Archeological answers to questions about the origin of the Navajo people may lie buried in or near the NMGS study area. The Navajo origin myths certainly indicate that this is a possibility. Also, the historic period in the San Juan Basin offers the chance of studying the amalgamation of Navajo, Pueblo, Spanish, and Anglo cultures. The paucity of written records covering this period in northwestern New Mexico, combined with the rarity of sites, makes individual historic sites, especially those suspected of dating prior to the twentieth century, relatively valuable.

Known Traditional Native American Resources

Introduction

In this section the reader will note differences in the ethnographer's interviewing approaches to individuals vs tribal and chapter officials. A word of explanation is appropriate.

As we observe in the discussion of "Data Reliability/Adequacy Assessment," above, there are differences between Navajo and Pueblo perceptions of who is empowered to speak for an individual tribal member. In addition, what constitutes appropriateness in the ethnographer's behavior differs according to whether the ethnographer is dealing with representatives of an organized group, such as a Navajo chapter or a Pueblo council, or with individuals. The following considerations are pertinent:

(a) One of the major functions of a Pueblo council--and, therefore, of individual council members--is to articulate with, and protect the Pueblo from, the outside world. By virtue of remaining residents of a Pueblo, Pueblo people place the responsibility and the right of speaking for the members of the Pueblo on the shoulders of the council. Thus, when a Pueblo official states that the Pueblo does or does not hold sacred or other cultural concerns in a specific geographic area, he/she is understood to be speaking for the Pueblo as a corporate body. Such an official expects his or her name to be used as a reference, as acting in an official capacity, just as would the mayor or city attorney of an

Anglo community. Nevertheless, as standard ethnographic procedure, we have referred to no one informant or official by name.

(b) It is extremely unlikely that a non-official Pueblo resident would presume to offer an opinion on behalf of the Pueblo, but would probably instead refer the ethnographer to an official.

(c) We have noted in our discussion of data collection and evaluation methods, above, that even though we know what the official stance of a Pueblo might be, we do not know whether individuals might have their own concerns in the San Juan Basin. Unfortunately, there is no honorable way of determining what the concerns of individual Pueblo members might be. The height of discourtesy would be served if, once the council or a tribal official had stated that the Pueblo had no concerns, an ethnographer were to go about the village interviewing individuals.

(d) Behavior that seems to be related to that of Pueblo councils is observable in the workings of Navajo chapters, but is probably better viewed as behavior characteristic of any cohesive group anywhere in the world. Once an apparently community-wide opinion has been declared--as happened at one Navajo chapter--the ethnographer is cut off from further interviewing. Even those persons who do not concur with the group and who feel there are things the ethnographer should be told cannot do so unless they are willing to risk sacrificing all future intercourse with friends, relatives, and community members.

Concerns of the Canyoncito Navajo and Pueblo Communities

Adjacent to the Proposed NMGS Project Area

As part of the attempt to provide Pueblo and Navajo communities with the greatest possible opportunity to specify sacred or other cultural concerns that might be affected by the proposed NMGS project, personal interviews were conducted with groups in the closest proximity to the project areas.

This section deals with 11 Pueblos (Santo Domingo, San Felipe, Cochiti, Jemez, Zia, Santa Ana, Sandia, Isleta, Laguna, Acoma, and Zuni) and one Navajo community (Canyoncito). (Complete interviews with representatives of these groups are presented in Appendix B.)

In each case, the ethnographer met with one or more tribal officials. The Canyoncito official expressed serious concern over the possibility that another power line might be constructed near the reservation boundaries. At two pueblos (Zia and Santa Ana) officials felt that areas of concern to traditional religious practitioners might be present, and attempts were made to establish future dates for QRC personnel, accompanied by PNM representatives, to meet with the Tribal Council or to visit the study area in the company of tribal elders. In neither case, however, was this possible. Presumably, the councils determined that the possibility of potential adverse impact to areas of concern was not of great urgency. Laguna filed a position statement (see p. B-24) noting

that Laguna is itself conducting a survey to locate sites significant to Laguna and reserving the right to register objections if site disturbance appears likely. The remaining nine pueblos felt that any areas of special concern to them in the San Juan Basin had long since lost their significance, whether because of the impact of previous development or for other, unspecified, reasons. San Felipe was interested in the possibility that power from the NMGS project would be available for their future needs. None of these individuals or groups identified specific resources of concern within the proposed NMGS project area.

Recent Navajo Occupation of the Proposed Project Area

The proposed NMGS study area is primarily occupied by Navajos who reside in the off-reservation portion of northwestern New Mexico, called the "checkerboard area." This rubric refers to a checkerboard pattern of land ownership created when the U.S. government granted alternating sections of federal land to the Atlantic and Pacific Railroad Company in 1866 (Mosk 1944:11). Although portions of the checkerboard area occupied by the Navajos were temporarily added to the Navajo Reservation between 1907 and 1911 (see Fig. 7), the off-reservation status of the project area has persisted despite attempts to add portions of it to the reservation in the 1930's (Kelly 1968; Parman 1976).. The complicated land ownership status of the area in dispute during the mid-1930's was as follows: Navajo (primarily allotment land held by Navajo individuals), 49%; Federal (public domain land), 20%; railroad (owned by the successor to the Atlantic and Pacific Railroad Company, the Santa Fe Railroad), 16%; State (consisting primarily of Federal Land Grants to the territory and, later, State of New Mexico), 7%; New Mexico-Arizona Land Company (a land operation subsidiary of the Saint Louis and San Francisco Railroad), 3%; and private land ownership (primarily established through homestead and purchase of federal and state land), 4% (Young 1961:261). In the period since the 1930's, the percentage of land belonging to various parties within the area previously considered as a possible addition to the reservation has changed, with, for

example, the purchase of extensive former tracts of ranch land by the Navajo Tribe in the 1950's and other corporate purchases in the 1970's. In other parts of the project area the Navajo Tribe acquired land for the off-reservation portion of the Navajo Indian Irrigation Project in 1971.

Navajo chapter communities. Although the project area is not on the Navajo Reservation, much of it is within the boundaries of the administrative area of the Eastern Navajo Agency, which administers Bureau of Indian Affairs responsibilities for Navajo chapter communities and the Canyoncito Navajo Reservation. Population statistics from the 1980 federal census acquired from the Navajo Tribe's Office of Computerized Information Resources for the communities in which the ethnographic survey was conducted are presented in Table 5. It should be noted, however, that these statistics have not been approved by the Navajo Tribal Council. The Tribe believes the census figures to be lower than the actual resident population of the Eastern Navajo Agency Chapter communities.

Each of the chapter communities have locally elected officials, and delegates from either individual communities or contiguous communities are elected to serve on the Navajo Tribal Council, which meets at the Navajo Nation's administrative headquarters in Window Rock, Arizona. During the course of the project's survey, interviews were conducted with two Tribal delegates and several chapter officials. The chapter officials invited us to attend several chapter meetings

Table 5. 1980 Navajo Chapter Community Population Figures*

<u>Community</u>	<u>Population</u>
Counselor	582
Becenti	246
Huerfano	1511
Lake Valley	301
Nageezi	835
Ojo Encino	148
Pueblo Pintado	580
White Rock	172
Whitehorse Lake	281
Torreon-Star Lake	<u>1199</u>
TOTAL	5855

* Source: Office of Computerized Information Resources, Department of Resource Administration, the Navajo Nation, Window Rock, Arizona.

held in Ojo Encino, Torreon, Pueblo Pintado, and Whitehorse Lake to explain the purpose of the research to community residents.

Patterns of land use. Within the last 100 years the dominant type of land use in the project area has been land-extensive Navajo pastoralism and commercial ranching. After 1868, when the Navajo were released from Ft. Sumner, they returned both to areas occupied prior to their incarceration and to new ones to re-establish a subsistence oriented pastoral mode of production. Simultaneously,

Ute raiding and settlement of Spanish-Americans in the region were occurring (Brugge 1980a:50-51). As early as the late 1870's a commercial ranching operation, owned by a medical doctor named Lacy and called the LC outfit, established ranch headquarters in the vicinity of the Penasco Blanco ruins and the confluence of the Chaco and Escavada washes (Brugge 1980a:90) and worked lands included within the proposed project area.

The number of Anglo ranchers continued to grow in the region. With the completion of the trans-continental railroad in 1881, both the tempo of colonization in the Farmington area and the development of trading posts in the San Juan Basin increased. An interesting connection between the growing importance of ranches and trading posts, on the one hand, and archeology, on the other, occurred when Richard Wetherill moved to Chaco Canyon in 1895. Wetherill established a trading post and ranch at Pueblo Bonito, and promoted the archeological investigations, which began in 1896, undertaken by Prof. F. W. Putnam of the American Museum of Natural History and Harvard University (Lister and Lister 1981:23; McNitt 1966).

Although the commercial livestock industry and Navajo pastoralism continued to be the major land-extensive production activities in the region until the mid-1950's, energy-related economic developments had already begun to occur. Several of these are located on Fig. 1 of the EIS. Oil and gas explorations, which proved to be so successful in the vicinity of Shiprock and Farmington in the 1920's,

were also initiated in the proposed project area (Kelly 1968:48-75). The Hospah oil field was brought into production by 1926, and the Gallegos and Bisti oil fields followed in 1952 and 1955, respectively. Natural gas from the Four Corners region began to move through a pipeline constructed in the project area in 1952. By 1958, oil began to flow through a 16-in. pipeline that crosses the project area and connects the Aneth oil fields to refineries in southeastern New Mexico (Young 1961:266).

Until recently, uranium mining, which began in the Ambrosia Lake-San Mateo mining district in the 1950's, was confined to the southernmost portions of the NMGS study region (Williams and McAllister 1979:130), but by the time the uranium market collapsed in 1981 it had expanded to an area south of Chaco Canyon at Phillips' Nose Rock Mine. Large-scale open pit coal mining, which began in the early 1960's at Utah International's Navajo Mine, and the production of electricity at the adjacent Four Corners Generating Station resulted in the building of high voltage transmission lines through the project area. Subsequently, additional high voltage transmission lines from the San Juan Generating Station were built along corridors that pass through the project area.

None of these energy-related developments changed the continued predominance of livestock-related land-use activities. As recently as 1978, livestock grazing continued to account for use activities on 96% of the total surface area of the region in which the study area is located (U.S.D.I., BLM 1978:II-73). However, in

the northern portion of the study area, the development and expansion of the Navajo Indian Irrigation Project has reduced the availability of land previously utilized by both Navajo pastoralists and Anglo ranchers. There has been a reduction in the number of Anglo-operated ranches in the project area since the mid-1950's.

The proposed NMGS and the alternative water lines and high voltage transmission line corridors represent a development for the project area that has not been paralleled by the previous developments briefly reviewed above. The potential impacts of these new energy-production related developments are considered in subsequent sections of this report.

Specific and general reactions to energy development. During interviews with informants throughout the project area and chapter meetings in Ojo Encino, Pueblo Pintado, Torreon, and Whitehorse Lake the Navajo people presented us with their opinions about the proposed NMGS and related developments. The people who cooperated with us by providing information about localities they thought to be of significance thanked us for our work. They believed that we were sincere in our efforts to collect information that might be utilized in protecting localities they believed to be of significance. Some of the people interviewed felt that the proposed developments would not be bad in and of themselves. However, they expressed a desire to get information directly from official representatives of the companies involved in the development project. Some of the people

with whom we worked expressed their desire to minimize further developments in the region. They viewed the proposed development as a "bad thing" for themselves, their families, and their communities. Many of our informants stated that the environment as a whole was sacred. They said that trying to find specific places with sacred significance didn't make any sense. Nevertheless, some of these informants assisted us by pointing out various localities in the vicinity of their homes.

In addition to the people who worked with us by pointing out specific localities, there was a far larger number of people who either directly refused to let us interview them or who agreed to further interviews for which they were then absent from their homes. The various responses from different individuals we attempted to interview appear to manifest different opinions concerning the protection of their own interests. Some of the people we spoke with took the opportunity to describe the numerous ways in which Navajos have been cheated by the Bilagaana (white man). A series of interviews, both with people who eventually spent significant time with us and those who refused to do so, began with a common statement: "If you two (ethnographer and research assistant/interpreter) want me to sign anything, I'm not talking with you unless I have a lawyer present!"

One family, previously interviewed in the context of another project in the Nageezi area, initially agreed to work with us and

invited both the ethnographer and interpreter to Thanksgiving dinner. Despite detailed explanations of our research goals and straightforward answers to questions about our employers, the family thought that the ethnographer was a lawyer working for the Navajo Tribal Legal Services organization (DNA). When that identity was denied in a subsequent visit, the family repeatedly avoided further interviews by stating that they were too busy when we arrived for previously established appointments.

At the beginning of our fieldwork in October, a chapter meeting in one of the communities was attended at the invitation of a chapter official. After we provided a detailed explanation of the nature of our work, an individual, sitting at the table where chapter officials usually sit, verbally attacked us in both Navajo and English. The Navajo language comments were more devastating than those in English, but the message, regardless of language, was clear. The gentleman made a motion that the community members present at the meeting formally object to our proposed work in their community. The vote, which passed unanimously, was preceded by the following comments: 1. that the researchers were working for the developers, 2. that they wished to deceive the people in the community, and, 3. by voting to prevent the research from being done, the community would communicate its feeling to the people for whom the researchers were working. Fortunately, that one incident was the only such event to occur in a chapter meeting. However, similar sentiments were expressed in some

cases when interviews were attempted with people at their residences. (Although it would be useful for a federal manager to know which community voted against cooperating with the ethnographers and names of people who might be able to act as moderators, the policy of informant confidentiality precludes our publishing this information. Further, for an individual to advertise his or her willingness to act as a moderator on the developer's behalf would be to defeat any such attempt before it had begun. People who can and would moderate may exist, but, if so, we are not aware of them.)

In the context of other chapter meetings and of interviews with individuals and family groups, concerns were expressed about what will happen in the future if the NMGS project and the coal mines are developed. The people we interviewed consistently assumed that the NMGS project would be developed only if the coal mining being planned for the PRLA's is also developed. One individual showed me a copy of a BLM-produced Environmental Assessment for the PRLA's. Several mentioned attending BLM scoping meetings. Their questions included the following: Will people who work for the companies come to see us to ask for our opinions about the projects? Will we have to move? Will we lose our grazing land? Will we be compensated for our houses and other improvements? Will we get some other land for grazing? Will people from this area (our children) get jobs at the generating station, at the mine? Will we get electricity from those powerlines? Will we get water from those water pipes? Will

the mining companies give us coal? Will we get new houses that are better than the low rent ones? Will the roads be improved in the area? Specific questions like these were answered only to a limited extent in each instance. However, we did indicate that all their questions and concerns would be passed on in this report.

Comments and opinions about development expressed by the people we interviewed ranged from extremely negative to conditionally approving. Those who conditionally approved of the proposed NMGS and related developments did so with the expectation that it would be all right as long as benefits were derived by themselves and their families. Some of the older people interviewed said that by the time the NMGS project is finally built (1999), it wouldn't make any difference because they wouldn't be around.

In a number of cases when individuals were shown the regional map with the three proposed water pipelines and the four alternative high voltage transmission lines, they expressed dismay. A prominent land board member in the Huerfano area suggested that "after that company has made up its mind bring me a copy of the real map." Other individuals said that it didn't seem to make much sense to try to get lots of information about all the different options. They suggested that a better strategy would be to try to get information about the real water line route or transmission corridor after a decision has been made by the company. Then, if any problems were to come up, the route could simply be moved over. Needless to say, we

explained that there might be engineering problems that would be difficult to avoid. However, the informants in those cases didn't seem to be convinced of the wisdom of our strategy.

Knowledge about previous land-modifying development projects that have removed land from use for livestock grazing or that have disturbed sacred localities appears to be widespread among the Navajo population of the San Juan Basin. The extensive BLM-administered coal leasing program has been discussed at numerous chapter meetings. Several meetings of a committee concerned with the impact of the leasing policy and future coal mining in the region were held in Nageezi while interviews were being conducted for this project. Overall, a pattern of increasing sophistication about proposed development in the region appears to be emerging. In addition to individuals' demands that their opinions about development be taken into account, organizations concerned with the impact, costs, and benefits of development are taking shape.

The Results of the Ethnographic Survey: A Sample of
Significant Localities within the NMGS Study Area and Vicinity

The range of traditional Native American localities and sites that have been identified in the project area is highly diverse. Locational descriptions of these resources are provided in Table 6 and Appendix H. To facilitate the presentation of descriptive data, the sites have been grouped into nine categories: (1) public ceremonial sites, (2) shrines, (3) ceremonial hunting sites, (4) Anasazi ruins and road system, (5) natural formations with ceremonial significance, (6) gathering areas, (7) gravesites and other localities to be avoided, (8) crane petroglyph, and (9) abandoned hogans. Although there is some information from either Navajo informants or secondary sources concerning the sacred or cultural significance of each of the localities, the information presented here is regarded as preliminary. Relevant background information concerning selected aspects of Navajo legends, ceremonialism, and ritual will be introduced as the various types of localities are described. Some of the localities fit into more than one category and they will be discussed accordingly.

Because we were concerned with identifying types of sites that might occur in the area in addition to specific resources of management concern under the NMGS proposal, we have included sites both within and outside the study areas. The relative position of each resource is specified throughout the discussion.

Table 6. Known Traditional Native American Resources

PROPOSED P1

The Pillar Quad

QRC-NM-SJ-81-2	T27N R10W Sec 23	Pine Tree Grove
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PROPOSED P1 & P2

Bisti Trading Post Quad

QRC-NM-SJ-81-4	T23N R13W Sec 5	Dleesh gathering area
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PROPOSED P2 & P3

Bloomfield Quad

QRC-NM-SJ-81-1	T17N R10W Sec 23	Angel Peak
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Alamo Mesa West Quad

QRC-NM-SJ-81-3	T25N R13W Sec 26	Shrine
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QRC-NM-SJ-81-5	T23N R13W Sec 5	Gathering area
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PROPOSED PLANT SITE

Tanner Lake Quad

*QRC-NM-SJ-81-8 (LA 21129)	T23N R13W Sec 14	Abandoned residence
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*QRC-NM-SJ-81-9	T23N R13W Sec 14	Crane Petroglyph
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*QRC-NM-SJ-81-10	T23N R13W Sec 25	Sacred butte
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*QRC-NM-SJ-81-11	T23N R12W Sec 8	Battlefield
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*QRC-NM-SJ-81-12	T23N R12W Sec 9	Oil seep--gathering area
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* Indicates that site is within NMGS study area. Sites not so designated are in the general area but at some distance from a pipeline or transmission corridor or the plant site.

Table 6 continued

[PLANT SITE, cont'd]

*QRC-NM-SJ-81-13	T22N R12W Sec 8,7, R13W & 18	Tséik'áán sandstone gathering area
*QRC-NM-SJ-81-14	T22N R13W Sec 12	Enemyway Site
*QRC-NM-SJ-81-15	T22N R13W Sec 1,10, 11,12	Canyon & spring
QRC-NM-SJ-81-16	T22N R13W Sec 14	Gathering area (plants)
QRC-NM-SJ-81-17	T22N R12W Sec 7	Hogan/holy people

PROPOSED T1

Blanco Trading Post Quad

QRC-NM-SJ-81-6	T23N R9W Sec 4	Enemyway Site
QRC-NM-SJ-81-7	T23N R9W Sec 4	Enemyway Site

Pueblo Bonito NW Quad

QRC-NM-SJ-81-20 (LA 28880)	T23N R10W Sec 1 R11W Sec 12	Pierre's Site
*QRC-NM-SJ-81-21	T23N R10W Sec 5	Antelope corral
QRC-NM-SJ-81-22	T22N R10W Sec 31,32	Gathering area

Huerfano Trading Post SW Quad

*QRC-NM-SJ-81-31	T22N R11W T24N R11W	Great North Road
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Kimбето Quad

*QRC-NM-SJ-81-24	T23N R10W Sec 13	Enemyway Site
*QRC-NM-SJ-81-25	T23N R10W Sec 12,13	Spring

Lybrook NW Quad

QRC-NM-SJ-81-26	T22N R8W Sec 8	Yeibichei Site
QRC-NM-SJ-81-27	T22N R8W Sec 23	Grave

Lybrook Quad

QRC-NM-SD-81-2	T23N R7W Sec 21,23 27,15	Mesa
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Table 6 continued

[TC2 cont'd]

QRC-NM-SD-81-3	T23N R7W Sec 35	Abandoned hogan & burial
<u>Lybrook SE Quad</u>		
*QRC-NM-SD-81-4	T22N R7W Sec 35	Ceremonial Site
PROPOSED T2		
<u>Pretty Rock Quad</u>		
QRC-NM-SJ-81-18	T22N R12W Sec 1	Black Lake offering point
*QRC-NM-SJ-81-19	T22N R12W Sec 15	Sacred butte
<u>Kin Klizhin Ruins Quad</u>		
QRC-NM-SJ-81-29	T22N R12W Sec 27	Tsé k'aa'
<u>Pueblo Bonito Quad</u>		
QRC-NM-SJ-81-23	T21N R10W Sec 28	Sacred butte
QRC-NM-SJ-81-30	T22N R10W Sec 20	Kimбето Point
<u>Sargent Ranch Quad</u>		
QRC-NM-SJ-81-32	T22N R10W Sec 25	Curing dolls
*QRC-NM-SJ-81-33	T22N R10W Sec 35	Gathering area (plants)
*QRC-NM-SJ-81-34	T21N R10W Sec 2,11	Canyon
<u>Fire Rock Well Quad</u>		
QRC-NM-SJ-81-35	T22N R8W Sec 26	Gathering area (plants)
QRC-NM-SJ-81-36	T21N R8W Sec 2 NW Sec 3 NE	Antelope corral
QRC-NM-SJ-81-37	T22N R8W Sec 30	Gathering area (flint)
QRC-NM-SJ-81-38	T22N R8W Sec 31	Mesa
<u>Pueblo Pintado Quad</u>		
QRC-NM-McK-81-3	T19N R8W Sec 16	Eagle trap

Table 6 continued

PROPOSED T3

Whitehorse Quad

QRC-NM-McK-81-2	T18N R8W Sec 11	Sacred mesa
QRC-NM-McK-81-4	T18N R8W Sec 11	Eagle trap & plant gathering
QRC-NM-McK-81-9	T18N R8W Sec 15	Sacred mesa

Whitehorse Rincon Quad

*QRC-NM-McK-81-5	T18N R7W Sec 17	Abandoned camp, possible grave
QRC-NM-McK-81-6	T18N R7W Sec 28	Mesa/collecting area
*QRC-NM-McK-81-7	T18N R7W Sec 11	Abandoned hogan/cairns
*QRC-NM-McK-81-8	T18N R7W Sec 9	Sacred mesa

Rincon Marquez Quad

QRC-NM-McK-81-10	T18N R6W Sec 17	Abandoned hogan
QRC-NM-McK-81-11	T18N R6W Sec 22	Spring, hogan, burial
QRC-NM-McK-81-12	T18N R6W Sec 26	Abandoned camp

Canada Calladita Quad

QRC-NM-SD-81-1	T17N R4W Sec 18	Ceremonial site
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PROPOSED T4

The Pillar 3 SE Quad

*QRC-NM-SJ-81-28 (see PNM 11)	T22N R13W Sec 19,30	White Rock
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PNM ETHNOGRAPHIC SITES ON F-CAP 500kV LINE (Appendix C)

Quad not designated

PNM 1	T28N R15W Sec 14	Navajo burial (not shown on QRC maps)
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Table 6. continued

[PNM F-CAP LINE cont'd]

PNM 2	T27N R14W Sec 9 or 10	Navajo burial (not shown on QRC maps)
<u>The Pillar Quad</u>		
PNM 3	T26N R14W Sec 25	Navajo burial
PNM 4	T26N R14W Sec 35	Navajo burial
PNM 5	T26N R14W Sec 35	Navajo burial
PNM 6	T25N R14W Sec 12	Enemyway structures
PNM 7	T25N R14W Sec 12	Navajo burial
PNM 8	T25N R13W Sec 18	Navajo burial
<u>The Pillar 3 NE Quad</u>		
PNM 9	T23N R13W Sec 18	Navajo burial
PNM 10	T23N R14W Sec 36	Navajo burial
<u>The Pillar 3 SE Quad</u>		
PNM 11 (see QRC-NM-SJ-81-28)	T22N R13W Sec 30	Sacred area (White Rock)
<u>Becenti Lake Quad</u>		
PNM 12	T19N R12W Sec 27	Sensitive area (Navajo ruin)
<u>Laguna Castillo Quad</u>		
PNM 13	T17N R11W Sec 13	Navajo burial

Public Ceremonial Sites.

Localities: ⁺QRC-NM-SJ-81-6 QRC-NM-SJ-81-26
 QRC-NM-SJ-81-7 QRC-NM-SD-81-1
 *QRC-NM-SJ-81-14 *QRC-NM-SD-81-4
 *QRC-NM-SJ-81-24

Public ceremonial sites are defined here as special purpose sites where various Navajo chantway or song ceremonials have been held. The large number of chantways have been described and analyzed in the literature (Franciscan Fathers 1968; Reichard 1974; Wyman and Kluckhohn 1938). Wyman and Kluckhohn (1938) have classified the song ceremonials into six major ceremonial groups: Group I, Blessingway ceremonies; Group II, Holyway ceremonies; Group III, Lifeway ceremonies; Group IV, Evilway ceremonies; Group V, War ceremonies; and Group VI, Gameway ceremonies. Only the Holyway ceremonies and the Evilway ceremonies are relevant to the discussion of special purpose public ceremonial sites. Blessingway ceremonies will be addressed in the section concerning shrines and elsewhere. Lifeway ceremonies will only be briefly mentioned as a type of curing ceremony, since they have little site-specific significance. Gameway ceremonies will be referred to when the information concerning hunting sites is presented. Finally, war ceremonies will not be

⁺ These are field numbers assigned by Quivira Research Center (QRC) and refer to NM = New Mexico, SJ = San Juan Co., SD = Sandoval Co., McK = McKinley County, 81 = 1981.

* Indicates sites within NMGS study area.

discussed because they do not appear to be relevant to any of the localities we have recorded.

Holyway, Lifeway, and Evilway ceremonies have all been described as curing ceremonies. However, Lifeway ceremonies are used for treating injuries resulting from accidents rather than for treating an illness or a disease (Wyman and Kluckhohn 1938:30). The localities recorded during the survey include two sites at which ceremonials of the Holyway group have been performed and six sites at which a ceremonial of the Evilway group has been performed. One of the localities (QRC-NM-SD-81-1) reportedly has had numerous ceremonies held at it, including both those of the Holyway and Evilway ceremonial groups.

Two curing ceremonies that belong to the Holyway ceremonial group are the Nightway, or Yei Bichei, and the Mountainway. Common features of the ceremonies in the Holyway group include the use of sandpaintings, "the painting of anthropomorphic figures on the body of patients" (Wyman and Kluckhohn 1938:19), and the presentation of turquoise and white shell beads to the patient. On the final night of nine-night performances of the Nightway and Mountainway, masked dancers impersonating the Holy People may put on an exhibition called the "Fire Dance" or "Corral Dance" (Wyman 1975:13). Nightway ceremonies have reportedly been held at both QRC-NM-SJ-81-26 and QRC-NM-SD-81-1, both close to but outside of the proposed project area. The latter site has also been used for Mountainway ceremonies.

Standing structures exist at both of these localities. At QRC-NM-SJ-81-26 (near T3) is one many-legged hogan (hooghan bijáád hólóni) and an oven. The hogan appears to be in very good condition. A hogan and an oven are also present near T3 at QRC-NM-SD-81-1, but in addition there are remains of brush structures reportedly used for Enemyway ceremonies.

The Enemyway ceremony is part of the Evilway ceremonial group and, like other Evilway ceremonies, it is directed against "molestation by evil spirits" (Wyman and Kluckhohn 1938:31). The Enemyway ceremony is a frequently occurring ceremony that has been described in detail (Haile 1938; Jacobson 1964; Reichard 1928). This ceremony is commonly held during the summer and fall months in contrast to the Nightway and Mountainway, which are not held until after the first "killing frost" (Dutton 1976:32). The Enemyway ceremony is commonly referred to as the squaw dance (ndáá') because of public dancing associated with the curing ceremony.

Enemyway ceremonies have been held at all but one (QRC-NM-SJ-81-26) of the public ceremonial sites listed above. In several cases it was reported that the various ceremonies have been held repeatedly at these public ceremonial sites. All of these sites are manifested archeologically and such sites elsewhere in the project area could be recorded during archeological survey. The relatively larger number of public ceremonial sites used for Enemyway Ceremonies may be a reflection of the greater occurrence of Enemyway ceremonies. However, the data are too limited to conclude that this is the case.

Furthermore, no studies concerning changes in frequency of occurrence over time have been completed to our knowledge.

The Enemyway ceremonial sites are generally easy to recognize in the field. Most often there are anywhere from one to several structures or structural remains made from pinyon or juniper branches. The structures generally include a ceremonial brush hogan (Fig. 10) and shades for both cooking and sleeping purposes. Other common features include at least one bread oven, most often two (Fig. 11), and the evidence of hearths (see Fig. 12). Overall, the impression left by the sites is that a large number of people have been present (Fig. 13). The most recent sites are generally littered with an abundance of empty food and beverage containers (Fig. 14).

In contrast to public ceremonial sites that have been exclusively utilized for Enemyway ceremonies during the summer and fall, ceremonial sites utilized for Nightway and Mountainway ceremonies are not always distinctive, and may be confused with currently unoccupied Navajo homesteads. In such cases, information from local residents may be necessary to determine if a site with a hogan or hogan remains has been utilized for ceremonial purposes.

Three of the public ceremonial sites described above are within the various proposed NMGS alternative study areas. *QRC-NM-SJ-81-14 and *QRC-NM-SJ-81-24 are located less than one-half mile from the residences of the two families who sponsored Enemyway ceremonies as recently as the summer of 1981. *QRC-NM-SJ-81-24 has reportedly been



Figure 10. Ceremonial brush hogan at QRC-NM-SJ-81-6



Figure 11. Bread oven at Enemyway ceremonial site
QRC-NM-SJ-81-7



Figure 12. Hearths located at Enemyway ceremonial site
QRC-NM-SJ-81-7



Figure 13. Panoramic view of Enemyway ceremonial site
with structural remains and bread oven



Figure 14. Debris at Enemyway ceremonial site QRC-NM-SJ-81-24

used on a yearly basis for several years. Navajo opinion concerning the significance of public ceremonial sites is highly divergent. However, the probability that these two sites will be reused in the future is quite high.

Shrines.

Localities: QRC-NM-SJ-81-3

QRC-NM-SJ-81-32

Shrines are regarded as a category of sacred localities that are highly variable in form. Neither is located within the proposed project area, but are of a type that should be expected to occur there. A broad description of various types of shrines has been written by Richard F. Van Valkenburgh and Scotty Begay (1938:30-31).

Some are simple, while others are elaborate. Among the various types of shrines are stone cists or boxes, sealed stone enclosures, walled or unwalled springs, cienegas or pools, natural concavities and peculiarities in rock formations, caves and rock shelters, in rooms of prehistoric ruins, and simple monuments of rough stone.

Van Valkenburgh and Begay note further (1938:30) that shrines of major importance include "mountain peaks or ranges which are reputed to have been created from the four sacred mountains of the Yellow or Second World and brought to the upper First or White World" according to most versions of the Navajo origin myth.

Only two examples of shrines will be presented in this section, but a number of sacred localities to be described below in the section labeled "Natural Formations with Ceremonial Significance" might

also appropriately be considered shrines. However, because of the preliminary nature of some of our informant data or lack of specificity in published or archival sources, those localities will be referred to as sacred places, offering points, or prayer sites. Sacred places, offering points, prayer sites, and shrines are all localities of sacred significance, and ritual or ceremonial activities have reportedly taken place at many of them.

QRC-NM-SJ-81-3 is a site located on a small knoll that consists of a natural sandstone outcrop and two constructed features (Fig. 15). One of the features is a cairn or pile of rocks about 3 ft. in height. The other feature is a rock wall alignment of several courses located to the northwest of the cairn. The cairn is visible from N.M. State Highway 371, which is located 3 1/2 to 4 mi. west, and from the cairn site itself one has a good view to the south (Fig. 16).

The locality has been described as a place where rainmaking rituals or ceremonies have been conducted and ceremonial items such as prayer sticks (k'eet'áán) have been deposited. In the literature, the Rain ceremony has been described as a "one night sing" (Hill 1938:74) of the Blessingway ceremonial group. The Blessingway ceremonies of Wyman and Kluckhohn's Group I (1938) referred to above are conducted to invoke positive blessings and to avert misfortune. Portions of the Blessingway are used for "the obsolete rain ceremony, rites of restoration and installation, the house-blessing ceremony

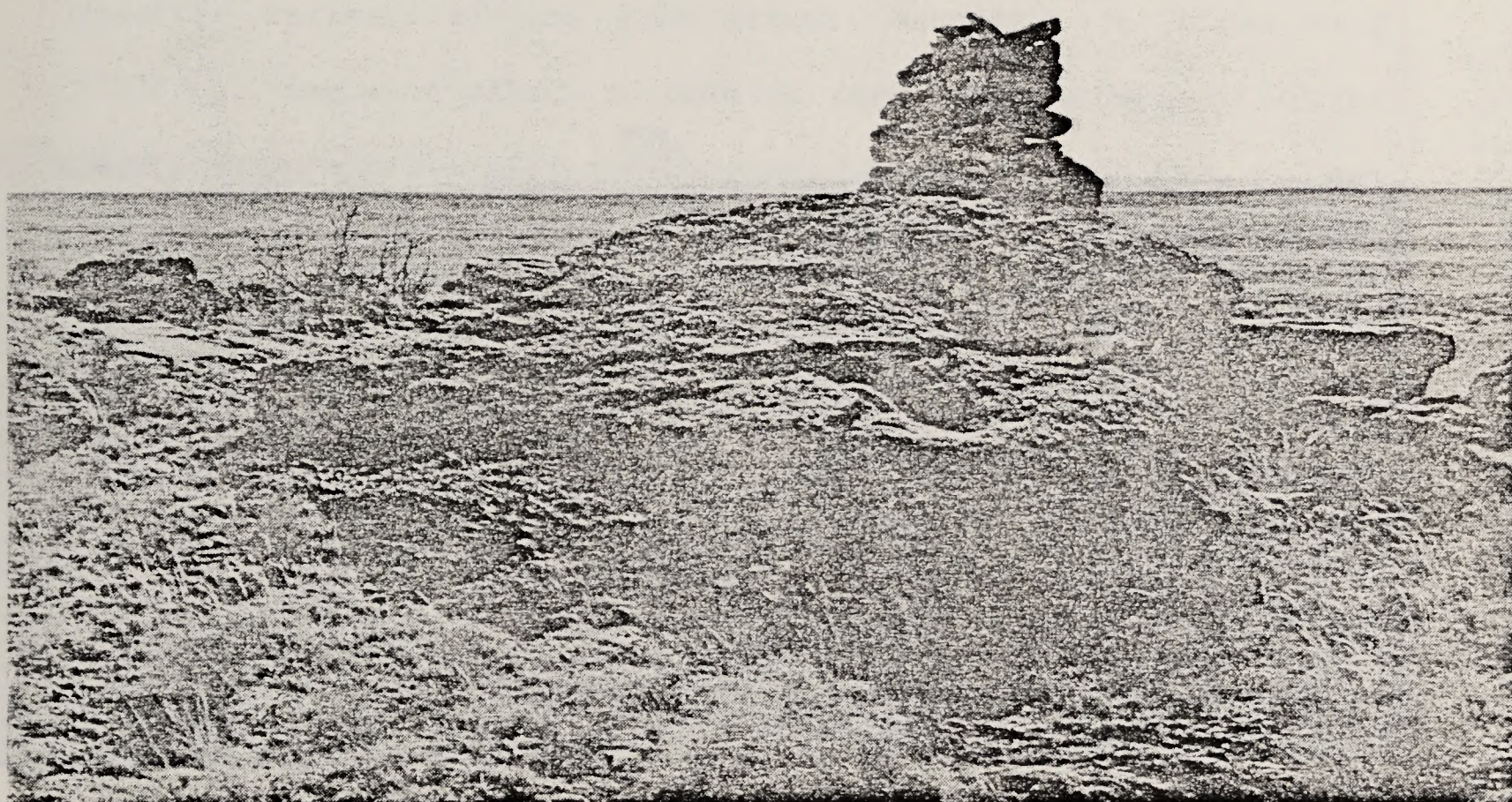


Figure 15. Cairn at QRC-NM-SJ-81-3.

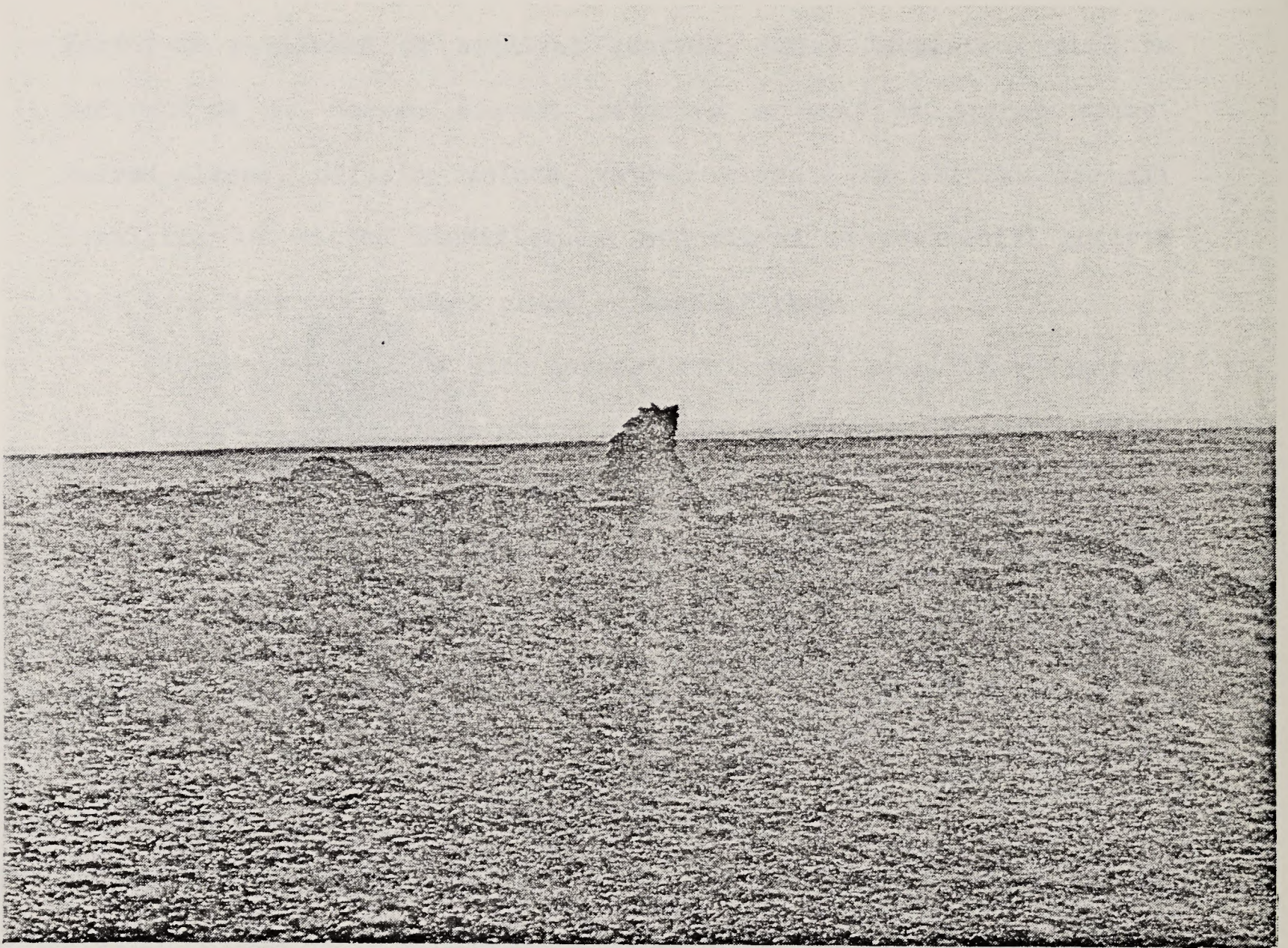


Figure 16. View to the south from cairn QRC-NM-SJ-81-3.

for a new home, the childbirth rite, and other brief but complete ceremonials" (Wyman 1970:8-9).

In contrast to the rain ceremonies, which were conducted by a knowledgeable traditional practitioner or medicine man who utilized a special use ceremonial site consisting of a brush hogan (Hill 1938:74), rain rituals were conducted by non-specialists for their own benefit. Variants of the rain ritual, according to W. W. Hill (1938:60), included offerings made at perennial springs, offerings at shrines such as one located at Zuni but utilized by Navajos, and prayers made to the wind.

The cairn at this locality appears to be similar to many throughout the San Juan Basin. In the literature, cairns consisting of rocks and twigs (Jett and Spencer 1981:202-203), and sometimes pieces of turquoise and shell (Kluckhohn and Leighton 1962:204), have been characterized as travel shrines. These shrines (tsé ninájhí) grow in size as passers-by make offerings of rocks, twigs, turquoise, or shell upon them and say a prayer for good luck. The composition, configuration, and location of the cairn at QRC-NM-SJ-81-3 do not suggest that it is a travel shrine. However, informant data indicate that the cairn has been used as a shrine in association with rain rituals. Cairns are a good example of widely found features in the San Juan Basin and elsewhere that have many different uses and meanings. In addition to being travel shrines and other sorts of shrines, cairns have also reportedly been built as boundary

markers, as guideposts or locational markers to assist people in finding their way, as "scarecrows" to keep coyotes away from grazing sheep, and as diversions built by shepherders or children. They are also constructed by both Native and non-Native people. Ultimately, it is necessary to acquire informant data about specific cairns in order to determine whether a particular cairn is a shrine.

QRC-NM-SJ-81-32 (ESCA-Tech #44-15-2) is a recorded archeological site, with both Anasazi and Navajo components. It is not located within the specific NMGS study area, but is close to proposed work areas and is an example of the complex nature of the San Juan Basin cultural resource base. The Anasazi component consists of a one- or two-room prehistoric structure located on a small knoll. There are numerous potsherds at the site. The Navajo component consists of a cairn, a sandstone slab box located next to the cairn, two prayer sticks (k'eet'áán), and three baby figurines or curing dolls ('awééshchíín).

The presence of the curing dolls at this site indicates that a curative rite called the "remaking" rite ('análnééh) has taken place at the home of some patient and that the dolls were then deposited on the Anasazi ruin. Remaking rites are among a series of short versions of the song ceremonials in the Holyway group (Lang and Walters 1972:47; Wyman and Kluckhohn 1938:21) referred to above. The remaking rites, like other Navajo curing rites and ceremonies, attempt to exorcise a supernatural source that is believed to have caused an infection.

After curing dolls are utilized in treating a patient, they are deposited in a location that meets "the requirements of ritual prescription" (Lang and Walters 1972:60). Very often, as in the case of the curing dolls discussed here, the dolls are deposited on pre-historic ruins (Kelly 1972). The disturbance of the dolls by a Navajo subsequently would be considered a breach of religious sanction and disturbance by anyone might cause harm to the patient.

Limited information from nearby residents of the curing doll site suggests that the religious practitioner who deposited the curing dolls and prayer sticks has used the Anasazi ruin as a place to deposit these ceremonial items for an extensive period of time. During the course of our fieldwork, it was learned that the Bureau of Land Management had arranged to return to this site curing dolls that had been removed in 1975. This Anasazi ruin appears to be a significant shrine that has been used in the period since 1975. In contrast, although the shrine referred to as QRC-NM-SJ-81-3 may also be significant, information about recent use of the shrine was not acquired.

Ceremonial Hunting Sites.

Localities:	*QRC-NM-SJ-81-21	QRC-NM-McK-81-3
	QRC-NM-SJ-81-36	QRC-NM-McK-81-4

These four localities represent Navajo hunting ceremonial sites that are apparently no longer used. According to W. W. Hill (1938:

97), deer, antelope, bear, and eagles were ritually hunted by Navajo religious practitioners and non-specialists who followed ritual behavior and observances similar to the song ceremonials or chantways utilized for curing and other purposes. Two of the localities discussed here were associated with antelope hunting (*QRC-NM-SJ-81-21 and QRC-NM-SJ-81-36) and two were utilized for eagle catching (QRC-NM-McK-81-3 and QRC-NM-McK-81-4).

Antelope hunting was conducted in association with a number of ceremonies belonging to the chantway group called the Gameway (Wyman and Kluckhohn 1938:7). However, the material remains and limited informant data indicate that the ceremony practiced at the two antelope hunting sites was probably the Corralway. This ceremony made use of a large corral (niidzíní) made of cedar or pinyon piled to a height of 10 or 12 ft. and up to 1 or 2 ac. in size. Wings or chutes through which the hunted antelope entered the corral were from several hundred yards to a mile in length (Fig. 17). It reportedly took a group of hunters three to five days to prepare the corral and chutes (Hill 1938:199). Both men and women participated in the communal hunt.

Among the various localities where Hill noted that antelope corrals were built was one near the Escavada Wash, which may be QRC-NM-SJ-81-36 (previously recorded as Chaco Site D-1 by David M. Brugge). The antelope corrals represent a ceremonial form of hunting that appears to have decreased in practice as the Navajo became dependent

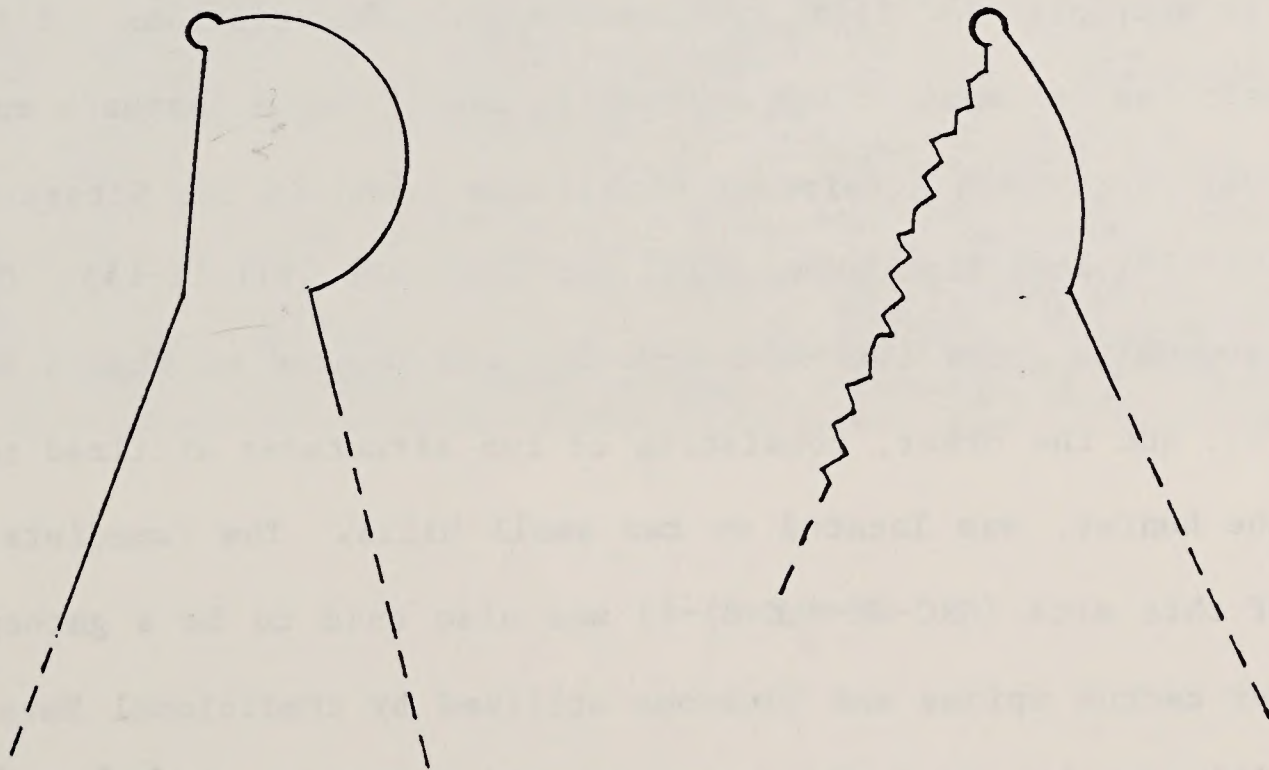
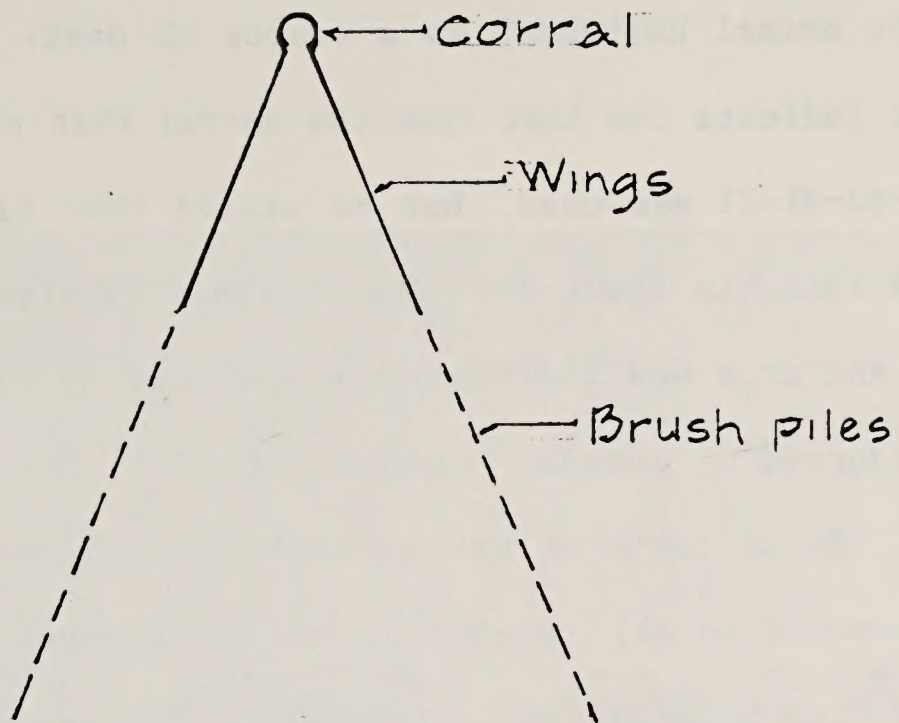


Figure 17. Antelope corrals.

upon animal husbandry as a source of meat. Our one informant could not indicate the last time the corral that previously existed at QRC-NM-SJ-81-21 was used, but he stated that his deceased father-in-law had told him about it. The previous existence of an antelope corral in the area was independently verified by reference to it in a study conducted by Dennis Fransted in 1974 (Fransted and Werner 1974).

Eagle catching was associated with the Eagleway ('Atsáji) and Beadway (Yoo'ee) ceremonies of the Holyway ceremonial group (Wyman and Kluckhohn 1938:6). Informants who are traditional practitioners in the Pueblo Pintado and Whitehorse Lake communities of the project area have indicated that the eagle catching ceremonies are no longer practiced, but that a number of practitioners still have knowledge of the appropriate sings or ceremonies. Descriptions of the eagle catching ceremonials and ceremonial use of eagle feathers and various body parts were consistent with those found in the literature (Hill 1938:161-166; Kluckhohn, Hill, and Kluckhohn 1971:12-14). One of the ceremonial sites (QRC-NM-McK-81-3), was located on Chacra Mesa (Fig. 18), and the other, consisting of two structures utilized to conceal the hunter, was located on two small hills. The immediate vicinity of this site (QRC-NM-McK-81-4) was also said to be a gathering area for cactus spines and blossoms utilized by traditional Navajo practitioners in the Chiricahua Apache Windway (Chísí' Biníłch'íjí).



Figure 18. Portion of Chacra Mesa with eagle traps on top.

Both the antelope hunting sites and the eagle catching sites represent culturally significant Navajo ceremonial hunting practices that are no longer followed, according to individuals we have interviewed. *QRC-NM-SJ-81-21, a reputed antelope corral, is the only ceremonial hunting site within a project corridor for which we have information. That information is very limited. Furthermore, the material remains of the antelope corral are reportedly scant.

Anasazi Ruins and Road System.

Localities:	QRC-NM-SJ-81-20	*QRC-NM-SJ-81-31
	QRC-NM-SJ-81-30	QRC-NM-SJ-81-32

The ceremonial or sacred significance for the Navajo of this set of localities, consisting of archeological manifestations created by the Anasazi ('anaasázi = ancestors of the aliens, enemy ancestors [Young and Morgan 1980:114]), has not been completely determined. One of the localities (QRC-NM-SJ-32) consisting of an Anasazi ruin and Navajo curing dolls has already been mentioned. According to Roger Kelly (1972:18), Navajo curing dolls have often been found associated with prehistoric ruins, but they are placed in other locations as well. The association of the cottonwood figurines with Anasazi ruins may have something to do with either the reverence the Navajos seem to have for the Anasazi or the pueblo origins of the remaking rites and other aspects of Navajo ceremonialism. Unfortunately, no primary informant data concerning this issue were acquired.

QRC-NM-SJ-81-20 (LA28880) (Table 3) is a Chacoan outlier known as Pierre's Site to archeologists, and as Kł'eesh shichíí' ("flint striking stones") to local Navajos. The site is immediately adjacent to the T1 study area, and has been designated as an Archeological Protection Site under P.L. 96-550. Dennis Fransted (1979:42-43) has previously acquired information concerning the use of the Pierre's Site vicinity as a hideout during the period when Navajos were captured and taken to Fort Sumner in the 1860's. Although one informant verified the Navajo place name for the ruin, no information concerning the use of the vicinity as a refuge area was acquired. If the area had been used as a refuge, it would seem to have historical significance to the Navajo. The sacred significance of this particular outlier was not verified during our research.

QRC-NM-SJ-81-30 is a small Anasazi ruin located north of Chaco Canyon, outside but close to the proposed NMGS project area. The site has recently been recorded by Mike Marshall in association with the Bureau of Land Management's Chaco Road Project but has not been given a Laboratory of Anthropology site number (see Figs. 19, 20). No informant data concerning this site has yet been acquired. However, the appearance and location of this ruin compare favorably with written references to a ruin called Gini bit'ohí (Sparrowhawk's nest [Fransted and Werner 1974:41, 167, 168; Van Valkenburgh 1941:84]). The currently used place name, Kimbeto, is derived from the Navajo name. If the ruin recorded by Marshall is the same one

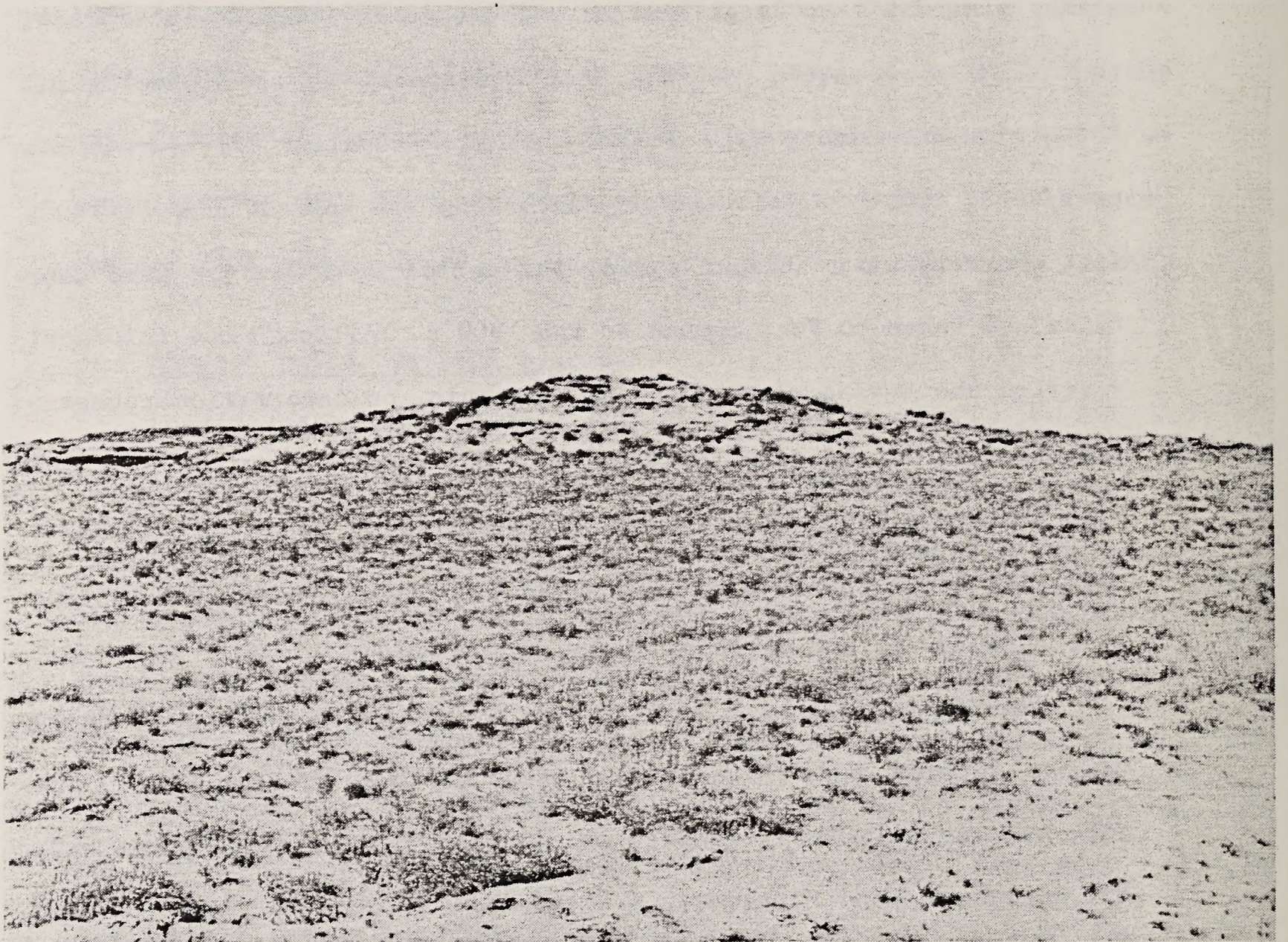


Figure 19. View of immediate area around Kimbeto Point,
QRC-NM-SJ-81-30.



Figure 20. Roomblock rubble at Kimbeto Point, QRC-NM-SJ-81-30.

referred to by Van Valkenburgh and Fransted and Werner, it probably has sacred or cultural significance to the Navajo. According to Van Valkenburgh (1941:84), the ruin is referred to in the legend of the Gambler from the Bead Chant. The legend tells about how the Navajo acquired their sheep.

*QRC-NM-SJ-81-31 is a segment of a prehistoric Chacoan road system and is identified in Tables 3 and 6 as the Great North Road sections crossed by proposed T1 and perhaps by P3. During our fieldwork, a segment of the Great North Road that goes north of Chaco Canyon to Pierre's Site was being surveyed by Bureau of Land Management archeologists. Chaco Road Project crew members showed us the alignment of the road, its appearance, and its characteristic artifacts.

Subsequently, an informant who lives in the vicinity of Pierre's Site accompanied York on a walk along a road segment. When asked about the road the informant, who is a peyote "road man" or ceremonial practitioner, said that he had been told that the road was one of a number of roads that were utilized by the Anasazi and the first Navajos. According to the informant, the road had the appearance of a trench at one time and the Navajos moved along it carefully watching for giants he referred to as Yé'iitsoh. Subsequently, the roads, referred to as 'atiin by the informant, were used by the Navajo for long distance travel. The comments made by the informant contrast with comments of informants recorded by Neil Judd (1954).

According to one of Judd's informants (Judd 1954:346), "they were not really roads, although they looked like them." However, the informant did say that "they were built by the Chaco People."

Natural Formations with Ceremonial Significance.

Canyons, springs, lakes

Mesas, buttes, mountain peaks

Localities: *QRC-NM-SJ-81-15

Localities: QRC-NM-SJ-81-1

QRC-NM-SJ-81-18

*QRC-NM-SJ-81-10

*QRC-NM-SJ-81-25

*QRC-NM-SJ-81-19

*QRC-NM-SJ-81-34

QRC-NM-SJ-81-23

*QRC-NM-SJ-81-28

QRC-NM-SJ-81-29

QRC-NM-SJ-81-38

QRC-NM-McK-81-2

QRC-NM-McK-81-6

*QRC-NM-McK-81-8

QRC-NM-McK-81-9

This series of localities has been divided into two sets to facilitate their presentation. The first set consists of two canyons, two springs, and a lake. The second set consists of 11 natural formations that can be referred to as either mesas, buttes, or mountain peaks. Informant data or published and archival reference materials indicate that each of these localities has ceremonial significance of some kind.

Canyons, springs, and lakes. *QRC-NM-SJ-81-15 and *QRC-NM-SJ-81-34 are both canyons that local residents have identified as having been used for depositing ceremonial items. *QRC-NM-SJ-81-15 was referred to in Navajo as Né'eshjaa' dah naa'eeṭ (approximate translation: An owl's floating around, flying, in it.) This canyon is within the proposed plant site and is reported to have a spring within it, but the site of the spring was not visited. *QRC-NM-SJ-81-34 is a canyon located near Chaco Canyon that a local resident referred to as Asdzáá naasht'ézhi (Zuni woman), and is within the T2 study area. It also is reputed to be a place where ceremonial items are deposited by traditional practitioners. These two sites are considered to be sacred because ceremonial items have been placed within them.

An important concept that helps to clarify why localities become sacred when they are utilized by traditional practitioners who are specialists of one or another of the song ceremonies or chantways is that of bááhádzid. Literally, the term refers to something that is dangerous. The concept is essentially a religious sanction or taboo. Sacred places that are bááhádzid are utilized for disposing of ceremonial items by religious specialists because of supernatural powers that reside in those places or that are in some way connected to them. Nonspecialists are forbidden from approaching the sacred areas, and specialists only do so with the protection of the correct ceremonies or rituals.

QRC-NM-SJ-81-18 is a dry lake bed identified as Bé'ek'id halzhin in Navajo and Black Lake in English. The lake is located within the old Black Lake Ranch, which was operated by a member of the Brimhall family for many years, and is close to but not within the NMGS study area. Navajo informants have said that the lake and other areas within the boundaries of the ranch have been used as offering places for rain rituals or ceremonies (see above discussion on rain rituals and ceremonies). Other areas reportedly located within the ranch have also been used as offering points, but they were neither visited with informants nor located on maps. An Anglo rancher interviewed in 1979 by York indicated at that time that Navajos used to ask permission to hold ceremonies at various places on the ranch. The rancher has been in the area since about 1950, so the ceremonies have taken place since then. However, he noted that ceremonies had not been performed on the ranch in recent years.

Prior to the time that the Brimhalls began operating the Black Lake Ranch, portions of the area were probably occupied by Navajos. A large corral area of masonry construction, numerous hogan rings, and rock wall alignments located northwest of Black Lake suggest Navajo occupation, but this hypothesis would need to be checked by archeological survey and ethnohistorical research (see Figs. 21, 22, 23).

Richard Van Valkenburgh (1941:162) refers to a Black Lake located near the old Tsaya Trading Post that had been identified by



Figure 21. Large masonry corral northwest of Black Lake.



Figure 22. Hogan remains and corral in same location as Fig. 19.



Figure 23. Large masonry corral shown in Fig. 19, view from east.

Navajo medicine men "as one of the stopping places in the wanderings of the early Navajo clans. Old Navajo campsites of the 18th century are found in the region." Although the Black Lake referred to by Van Valkenburgh is not indisputably the lake discussed here, the information concerning the wanderings of the "early Navajo clans" in the vicinity of Tsaya Canyon or the Tsaya Trading post requires further research.

*QRC-NM-SJ-81-25 is a perennial spring that local residents say is sacred, and is located within the T1 study area. In the course of several brief interviews with the members of a family that resides near the spring, it and a series of other springs, which are located on a northwest by southeast axis, were referred to as sacred. During discussions, the springs were identified by reference to the families who live near them in the area between Carsons or Huerfano and Star Lake. Further interviews with resident families and traditional practitioners would be necessary to specify the nature of ceremonial significance in each case.

The spring identified as *QRC-NM-SJ-81-25 is referred to by Fransted and Werner (1974:100) as *tó aghaa'í* (hairy or wooly water). According to Fransted and Werner, the area around the spring was once "a popular place for tanning deer hides." The spring may also have been referred to by Gladys Reichard in the legend of the Hail Chant (Reichard 1944:33, 121, 143). The Navajo place name was not verified with informants.

Information about the significance of the two previously mentioned canyons located along the project study area came from several informants in one case (*QRC-NM-SJ-81-15) and one informant in the other (*QRC-NM-SJ-81-34). The informants stated that ceremonial objects have been placed in the canyons by traditional religious practitioners, but information about whether or not the canyons continue to be used for the deposition of ceremonial objects was not acquired. The significance of a spring (*QRC-NM-SJ-81-25) designated as sacred by informants who reside nearby is supported by published references noted above (Fransted and Werner 1974:100; Reichard 1944: 33, 121, 143).

Mesas, buttes, mountain peaks. The major sacred mountains of the four cardinal points of the compass, which bound Navajo Country, and the many prominences located within it, are important to the Navajo view of how the universe was created and how it is ordered. Within the region immediately surrounding the project area, origin legend and myth identify, for example, the sacred mountain of the south as Mt. Taylor (Tsoodzil), and both Hosta Butte ('Ak'i dah nást'ání) and Huerfano Mesa (Dził ná'ooodiíi) as important places for supernatural beings. The natural geologic formations of the proposed project area to be briefly described here are prominent landmarks within their immediate environments and many of them are visible from great distances within the San Juan Basin. Their sacred nature is determined by the role they play in legends and chantways,

the residence of supernaturals, and the conduct of rituals and ceremonies upon them or within their immediate vicinity.

QRC-NM-SJ-81-1 is a prominence referred to as Angel Peak and is adjacent to but not within the P2 and P3 study areas. Informants who reside in the Moncisco Mesa area stated that Angel Peak has been the site of rainmaking rituals or ceremonies, the depositing of ceremonial items, and the gathering of herbs.

*QRC-NM-SJ-81-10 is a clay butte within the proposed plant site that has been the location of Blessingway rituals, including rain rituals and prayers for the safe return of Navajos who have served in the military. Informants who reside to both the north and south of this formation also say that offerings of ceremonial items have been made in its vicinity. The Navajos refer to the butte as Bisbich'ah (Fig. 24). No English name for Bisbich'ah is known, but the Navajo translates to "clay hat or hat of clay (butte)".

*QRC-NM-SJ-81-19, within the T2 study area, is a butte referred to as Tsé nizhóní (pretty rock) by Navajo informants. Traditional practitioners reportedly have deposited offerings in its vicinity in association with rituals and ceremonies. A structure of undetermined origin located on top of one part of the two-part formation may have been used by traditional practitioners (Figs. 25, 26).

QRC-NM-SJ-81-23 is located in Chaco Canyon to the west of the western end of Chacra Mesa (see Fig. 27), outside of but in proximity to the T2 study area. Commonly known as Mesa Fajada or Fajada Butte,

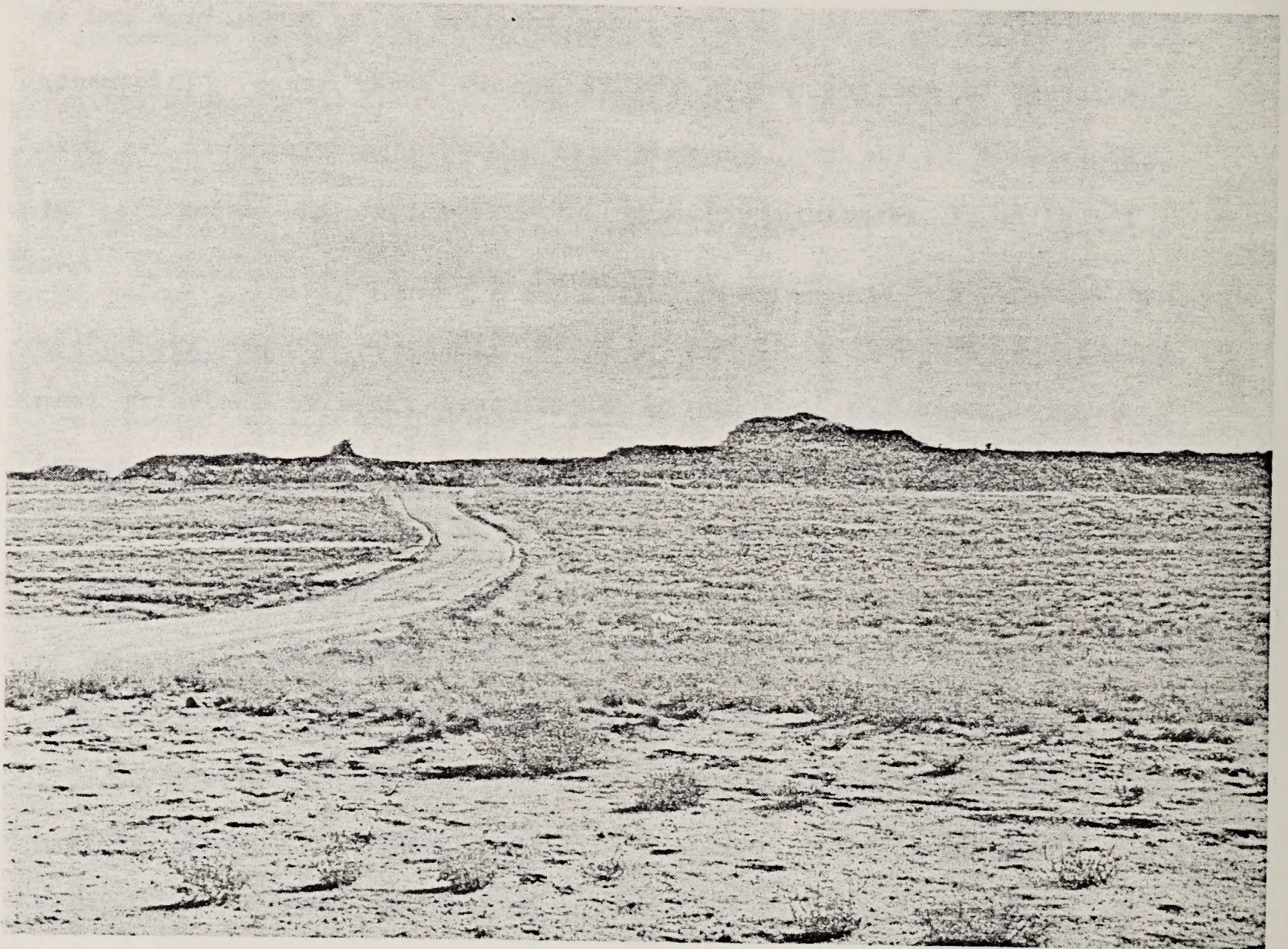


Figure 24. Bisbich'ah, view toward south.

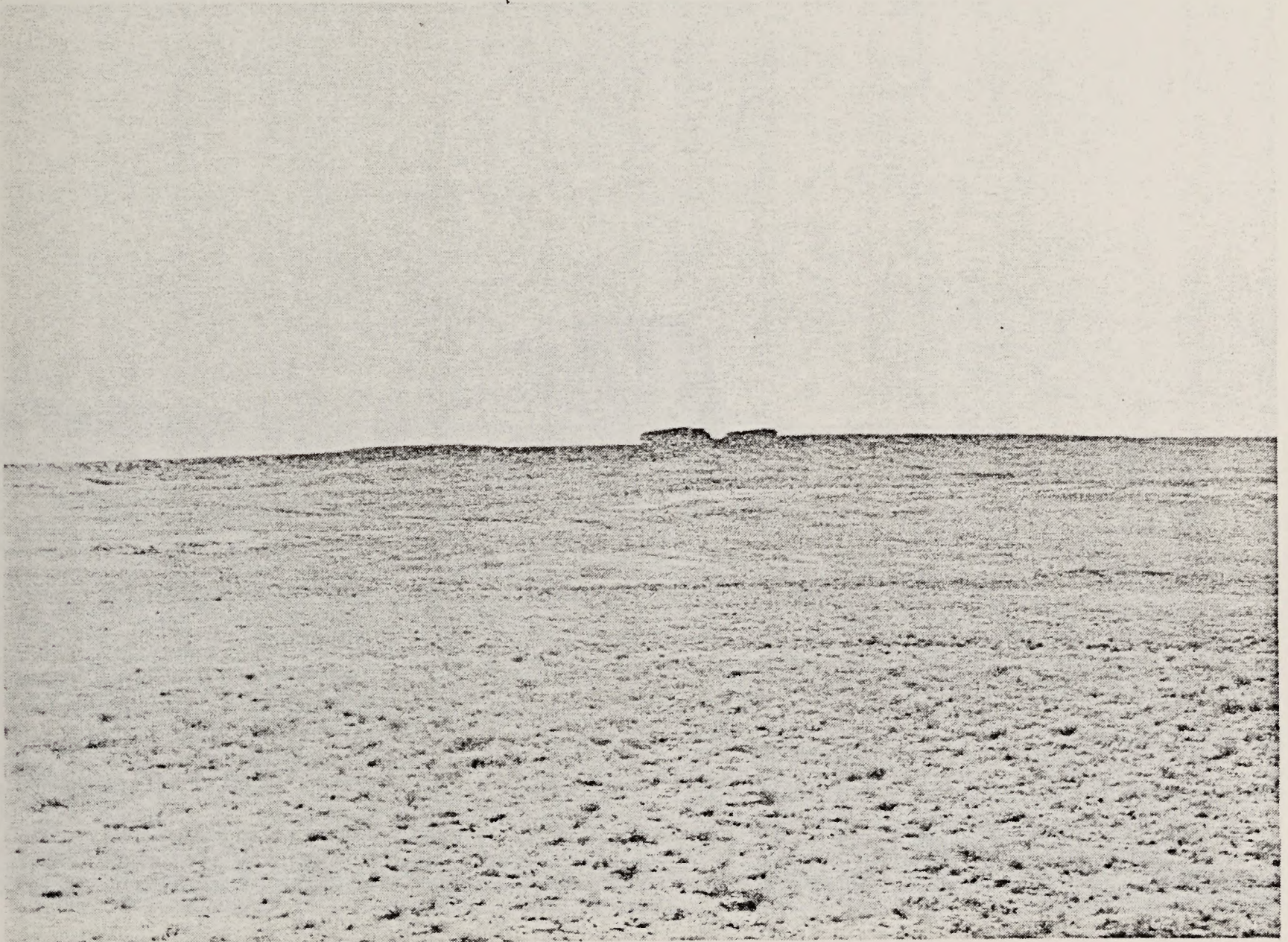


Figure 25. Tse nizhoni, view from north.



Figure 26. Tse nizhoni, view to southwest.

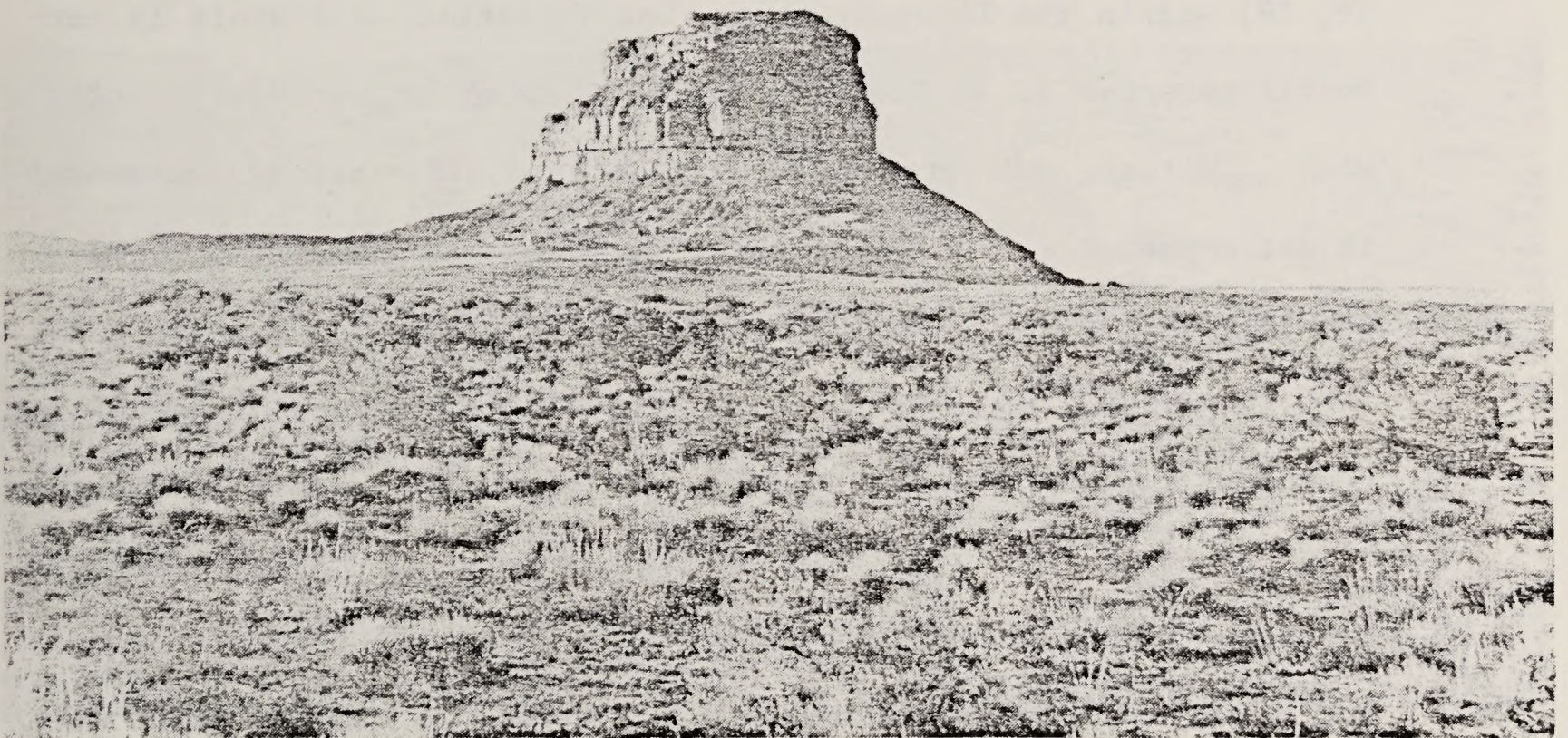


Figure 27. Tse dighin, view to south.

the formation is called Tsé dighin (holy rock) in Navajo (Fransted and Werner 1974:115). Tsé dighin is referred to in the male branch of the Shooting Chant (Van Valkenburgh 1941:34), in the origin legend of the Enemyway ceremony (Haile 1938: 167), and elsewhere according to Fransted and Werner (1974).

*QRC-NM-SJ-81-28 is a massive linear formation, of almost a mile in length, that has a prominence near its southeastern tip (Figs. 28, 29) within the T4 study area. The formation as a whole is currently referred to as Tsé tígaii (white rock) by the Navajo informants. Rituals and ceremonies, with related offerings of ceremonial items, reportedly have taken place in the vicinity of White Rock. One informant stated that White Rock is referred to in a legend, but that it has another name in that context. Further work would be necessary to confirm the informant's statement. Van Valkenburgh referred to White Rock in 1941, but made no mention of any ceremonial or sacred significance. However, he did note that the name "Stoney Butte" for the prominence on the southeastern portion of White Rock originated when oil companies were working in the area (1941:152).

QRC-NM-SJ-81-29 is a prominence of 6343 ft. in elevation adjacent to but outside of the T2 study area. The Navajo place name provided by one informant is Tsé k'aa' (arrow rock). The informant told a brief story about the formation that emphasized that people are forbidden from going on top of it, and that rattlesnakes keep



Figure 28. White Rock formation with Stony Butte on the left.
View to south from north of Chaco Wash.

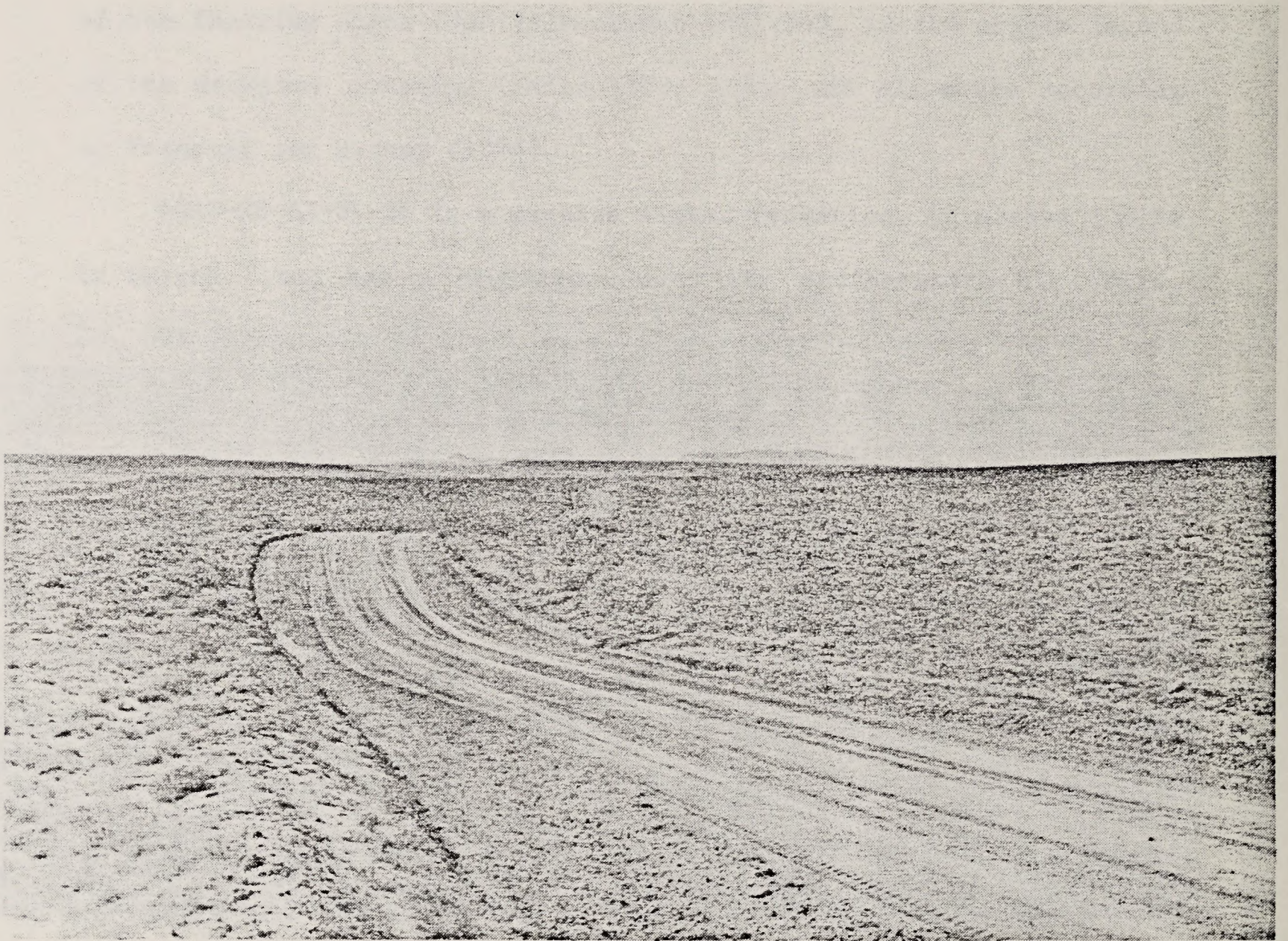


Figure 29. View of White Rock and Stony Butte from the north.

people away. Traditional practitioners may, however, make offerings in the vicinity of the formation.

QRC-NM-SJ-81-38 is a mesa outside of the T2 study area that reportedly has been used as a prayer site. No place name or other detailed information was acquired.

QRC-NM-McK-81-2 is a mesa outside of the T3 study area that, according to a traditional practitioner, has been utilized by medicine men as an offering point. Other people are forbidden from climbing on top of it.

QRC-NM-McK-81-6 is a mesa outside of the T3 study area that is said to have been a sacred collecting area for Blessingway ceremonies.

*QRC-NM-McK-81-8 is a mesa within the T3 study area that is referred to in Navajo as Dziłsezi dził (mesa standing by itself) and is commonly referred to as Mesa Cortada. It is said to be a sacred site for the Mole Shootingway ceremony (Na'at'oyee bika'í hóchxó'íjí) of the Evilway ceremonial group (Wyman and Kluckhohn 1938:7).

QRC-NM-McK-81-9 is a mesa referred to as Dził łibai (gray mesa or mountain), and lies outside of the T3 study area. It is said to be a sacred site for the Male Shootingway ceremony. Like a number of other sacred areas, this mesa was described as being bááhádzid, or dangerous, to anyone other than a knowledgeable religious practitioner. Rattlesnakes are reported to be numerous in the vicinity until the winter season. Traditional practitioners offer prayers at this locality.

The significance of four natural formations that lie within the proposed NMGS project area (*QRC-NM-SJ-81-10, *QRC-NM-SJ-81-19, *QRC-NM-SJ-81-28, *QRC-NM-McK-81-8) has been described by residents who live in the vicinity of each of the formations. All of the formations have local Navajo names, and English translations of two of the names are used on U.S.G.S. maps (Pretty Rock and White Rock).

Gathering Areas.

Localities:	QRC-NM-SJ-81-4	QRC-NM-SJ-81-22
	QRC-NM-SJ-81-5	*QRC-NM-SJ-81-33
	*QRC-NM-SJ-81-12	QRC-NM-SJ-81-35
	*QRC-NM-SJ-81-13	QRC-NM-SJ-81-37
	QRC-NM-SJ-81-16	QRC-NM-SD-81-2

The gathering areas described here are localities in which a wide range of plants and minerals are collected. Some of these items are reportedly gathered specifically for ceremonial use; others are utilized non-ceremonially, and still others are used in both ways. When special gathering areas were associated with other types of localities, they were discussed with our informants to avoid duplication. The various uses of common plants in the San Juan Basin were discussed with informants, but have not been presented here unless informants indicated specific gathering areas for them.

QRC-NM-SJ-81-4 is a gathering area located on the side of a road that goes through the Bisti Badlands area near the T3 study area (Fig. 30). The material gathered here is called dleesh, a white



Figure 30. Panoramic view of Bisti Badlands.

clay-like substance. Our informant referred to it as a food source, stating that dleesh is mixed with water and wolfberry (pale wolfberry, Lycium pallidum) seeds. A number of references to dleesh in the literature indicate many uses for the substance. The Franciscan Fathers (1968:65) indicate that dleesh is a "white clay used as a spice with foods, or in painting masks. The fire dancers paint their bodies with it on the night of the performance." Dleesh is an important ceremonial item mentioned repeatedly by Charlotte Frisbie (1967) in her study of a Blessingway-derived girl's puberty ceremony called the Kinaaldá. In the context of this ceremony, dleesh is used to prepare a white paint that is applied to the girl for whom the ceremony is being held. A series of ceremonial songs called the Dleesh bighin (white clay songs) are sung at appropriate points during the ceremony. Kinaaldá continues to be practiced throughout the reservation, and one such ceremony was held in the area of the Escavada Wash during our fieldwork. The dleesh gathering area identified by our Lake Valley informant was said to be the only one with which she was familiar.

[I am indebted to R.W. Loose for the following paragraph on dleesh. FFY] Young and Morgan (1980:353) identify dleesh as rhyolite tuff [which is] "used to make white paint for ceremonials." It is curious that Young and Morgan chose this term in their 1980 edition. In their 1972 publication they use the definition of "white clay" (Young and Morgan 1972:53), which definition is apparently

the correct one. No rhyolite tuff occurs within the study area (see O'Sullivan and Bekman 1963) or within the central San Juan Basin (Burt Kudo, pers. comm., 1982). A sample of the material from this collection site was taken to the UNM Geology Department and Mr. John Husler performed an X-ray diffraction analysis. The results showed that the sample was entirely clay-sized particles of montmorillonite, gibbsite, and chlorite. The iron and magnesium contents of the chlorite and montmorillonite would indicate a parent material far more mafic than a rhyolite (Kudo, pers. comm., 1982), and the clay-sized particles are far too small to fit the definition of a rhyolite tuff. Also, a rhyolite tuff is usually too well indurated to be mixed with berries and eaten (see AGI Dictionary 1962:424 and 514). Clearly, the definition of "white clay" is the best for the term "dleesh."

QRC-NM-SJ-81-5 is a plant gathering area outside of but in the vicinity of the P2 and P3 study area, where a plant said to be used for contraceptive purposes is gathered. The plant has been tentatively identified as Frankenia palmeri on the basis of comparison with a mounted specimen. The Navajo term used to refer to the plant was 'azee ḡibáí béésh (literally, gray medicine knife), but no reference to a plant by that name has been found. However, the Franciscan Fathers (1968:116) and Young and Morgan (1980:827) both refer to specific plants utilized for contraceptive purposes.

*QRC-NM-SJ-81-12 is an area reportedly located along the south side of De-Na-Zin Wash, within the proposed plant site. The material gathered there is described as an oil-like black substance utilized by traditional practitioners in the preparation of a black color for sand paintings. The locality was not visited to verify the appearance of the substance. No references to such a substance appear in sources on sand paintings or dyes consulted thus far.

Also on the proposed plant site is *QRC-NM-SJ-81-13, a sandstone formation at the north end of Tsaya Canyon (Fig. 31). Traditional practitioners have reportedly collected various colors of sandstone in this locality for use in ceremonial sand paintings. Tséik'aán ("colored or powdered mineral used for sandpaintings" [Young and Morgan 1980:729]) was the term used to refer to material collected in the area.

QRC-NM-SJ-81-16 is a plant gathering area outside of but near the proposed plant site where several plants were identified as being collected for various uses. Included among the plants tentatively identified are the following:

1. Name used in the field: ch'íi diich'il (evil spirit weed).
Said to be utilized ceremonially. Appeared to be chamisa or rabbit brush. The Franciscan Fathers (1968:186) refer to the plant taxonomically as Bigelovia graveolens.
2. Name used in the field: 'azee' naatzid (rotten medicine).
Said to be used to promote healing after operations.



Figure 31. View of northern portion of Tsaya Canyon looking east.

Scientific name is given as Xymenopoppus filifolius (Franciscan Fathers 1968:186).

3. Name used in the field: ni' had láád (no translation given). Said to be used ceremonially in a remaking rite. The plant is referred to as ground lichen (Parmelia molluiscula) in Young and Morgan (1980:638). The small plant was growing beneath sage in the field, and it is said to be utilized as a yellow or orange dye (Bryan and Young 1940:92).
4. Name used in the field: Navajo not recorded. Appeared to be rabbit brush (Chrysothamnus Greenei?). The roots of the plant were said to be used for preparing material for blackening of patients in the Enemyway ceremony.

QRC-NM-SJ-81-22 is a locality near the T1 study area, referred to by the Navajo place name Tsin ch'ízhiiin (black trees spreading out) by an informant who said plants unavailable elsewhere are gathered there. The locality was not visited with the informant. Place name was verified by reference to Fransted and Werner (1974:137). The name appears as Tsun je zhin on maps. Although our informant stated that this plant gathering area is unique, the plant gathered here was not identified.

*QRC-NM-SJ-81-33 is a locality within the T2 study area, initially referred to by a nearby resident who said that people often came to the area to gather plants. Although no plants were named or

identified initially, another informant from a different place in the project area subsequently referred to the locality as a gathering area for *chiitchin* which is used for treating rashes and spider bites. The English term used by the informants to refer to the plant was "skunkbush." The shrub is *Rhus trilobata* (although Young and Morgan [1980:272] list the scientific name as *Rhus canadensis*). The literal translation of the Navajo word is "odorous wood." The plant has also been utilized in the past for fastening arrowpoints onto shafts (Franciscan Fathers 1968:181-182). This locality may also be used for the gathering of other plants, but further site visits with knowledgeable informants would need to be made to determine this.

QRC-NM-SJ-81-35, which is near the T2 study area, has been identified as a locality where Navajos gather plants, according to an Anglo rancher who operates a cattle ranch in which the locality is situated. No interviews with Navajo informants who could confirm this information were made.

QRC-NM-SJ-81-37, also near the T2 study area, is said to be a mesa where flint is acquired. The place name used by our informants to refer to the area was *Béésh aghání 'áhi*. That term is also cited by Fransted and Werner (1974:16) as the locality's place name. They translate it as "iron goes through (vertically)."

QRC-NM-SD-81-2 is a mesa near the T1 study area that was identified as a gathering area for medicinal plants. The informant re-



Figure 32. View of mesa, Asaa' dah 'azka, from south.

ferred to the mesa (Fig. 32) as Ásaa' dah 'azká (bowl mesa). No specific references to this mesa have been found in the literature.

Project study areas include places where plants (*QRC-NM-SJ-81-33), sandstone (*QRC-NM-SJ-81-13), and an oil-like black substance (*QRC-NM-SJ-81-12) have reportedly been collected. Plants from *QRC-NM-SJ-81-33 were reportedly used for both ceremonial and non-ceremonial purposes. Whether the same plants are available elsewhere was not determined. The sandstone from *QRC-NM-SJ-81-13 is reported by one informant to be used by medicine men in making ceremonial paintings. Finally, the area in which the oil-like black substance was reportedly gathered was not visited. The determination of this area's significance depends on precise location of the area and further interviews.

Grave Sites and Other Localities to be Avoided.

Localities:	QRC-NM-SJ-81-2	QRC-NM-SJ-81-27
	*QRC-NM-SJ-81-8 LA21129	QRC-NM-SD-81-3
	*QRC-NM-SJ-81-11	*QRC-NM-McK-81-5
	QRC-NM-SJ-81-17	QRC-NM-McK-81-11

The localities described here are examples of places Navajo people are generally thought to avoid, because they are regarded to be dangerous. The operative concept in Navajo has been previously referred to in this paper as bááhádzid. According to John Ladd, who authored an extensive study of Navajo morality and ethics, bááhádzid

literally means "for it there is fear or reverence" (Ladd 1957:226). Fear and reverence guide Navajo behavior through taboos concerning avoidance of anything that is considered to be a source of illness or disharmony. Various sacred places have already been referred to as bááhádzid, and here localities associated with lightning and human deaths are described.

QRC-NM-SJ-81-2 is a locality on the west side of Moncisco Mesa, near the P1 study area, where Garrick and Roberta Bailey (1980:6) have reported that there is a stand of about 200 trees called nidischii chili (thick pine trees). Despite this resource's value for construction and heating fuel, trees are not cut down because they have been repeatedly struck by lightning and are therefore bááhádzid. Conversely, another side of the fear associated with the lightning-struck trees is reverence for them. Hence, herbs and poker sticks utilized as ceremonial items in certain chantways are collected from the vicinity of lightning-struck trees (Reichard 1974:719).

*QRC-NM-SJ-81-8 is an abandoned Navajo homestead (Fig. 33) on the proposed plant site. The site was recorded archeologically in 1979 (LA21129) and it was determined through interviews that it had been abandoned in the 1940's after the death of one of the occupants (York 1979:268). Although the deceased was not buried in either the homestead site or in the immediate area, the informants interviewed



Figure 33. Remains of masonry house abandoned in the 1940's because of death of a resident, QRC-NM-SJ-81-8.

for this project said that the abandoned house is avoided because a death had occurred there.

*QRC-NM-SJ-81-11 is a locality near the confluence of two washes where a raid against local Navajos was waged by Indians variously described as Utes or Jicarilla Apaches. It is also located on the NMGS plant site. Our 75-year-old informant said that her grandmother was living at a homestead located in the vicinity at the time of the raid. Although no specific date was available from the informant, it is likely that the raid happened at some point prior to the incarceration, beginning in 1863, of the Navajos at Ft. Sumner. Because of the numerous deaths that occurred at this locality it is considered bááhádzid.

QRC-NM-SJ-81-17 is an abandoned hogan of masonry construction located in a sandy area west of Tsaya Canyon, just outside the proposed plant site. According to a 75-year-old local informant, the area was not supposed to be utilized as a homestead site because the sandy area had been created when the Holy People stopped to rest and shook sand out of their boots. Nevertheless, our informant's mother established a home in the area. At some point, two children who were living at the residence died. Subsequently, our informant's mother realized that she should leave the homestead and never return. Since that time no one has lived in the immediate vicinity of the abandoned hogan. Because of the events related in our informant's story, the locality is considered bááhádzid.

QRC-NM-SD-81-3 (near T1) and *QRC-NM-McK-81-5 (in the T3 study area) are two abandoned homestead sites at which informants report burials (see Fig. 34). Although specific locations of graves were not indicated to the ethnographer, informants said that the homesteads were avoided because of the presence of graves in the immediate vicinity. QRC-NM-SJ-81-27 (near T1) and QRC-NM-McK-81-11 (near T3) are localities with graves that were located by an ethnographer. No local informant data were recorded for these two localities.

Three localities (*QRC-NM-McK-81-5, *QRC-NM-SJ-81-8, *QRC-NM-SJ-81-11) are significant because of the deaths that occurred in them. Avoidance of these areas by Navajos is a traditional proscription to prevent harm that might be caused by the ghosts or spirits of the dead. Since the establishment of the Navajo Reservation in 1868, Navajos have commonly sought the assistance of Euroamerican traders, missionaries, and government officials in burying the dead. Subsequent disturbance of grave sites by anyone is frowned upon because of the possibility that the grave may be robbed of grave goods, such as jewelry, and because disturbance may offend the ghost of the dead. The possible effect of disturbing an area such as the battle site where numerous Navajo deaths are said to have occurred is not known.



Figure 34. Hogan remains at QRC-NM-McK-81-5.

Crane Petroglyph.

Locality: *QRC-NM-SJ-81-9

The one locality to be described here is a petroglyph located on a sandstone bluff on the south side of De-Na-Zin Wash within the proposed plant site. Contradictory information about the origin of the petroglyph and its significance has been acquired, which suggests that the locality may either be of historical significance alone or of both historical and sacred significance. The petroglyph appears to be of two large and one small cranes (Fig. 35). It is located near a sweeping curve in the wash.

The Navajo name for the petroglyph, Déíí názlíí (názlíí - it makes a turn flowing at the place [of the] déíí - sandhill crane), is also applied to the wash. As early as the 1870's, a trading post referred to as the "Tiz-na-zin Post" by John Arrington may have been located in the vicinity of the area named after the crane petroglyph by the Navajos: "On nearby bluffs are chiseled bird-shaped petroglyphs inspired by some ancient Indian civilization" (MacDonald and Arrington 1970:114). The date given as the 1870's by John Arrington has been questioned by Frank McNitt (1962:340), who felt that even the year 1878 was probably too early, by several years, for the post to have been built.

Interviews with local Navajos concerning the origin of the petroglyphs have produced two different accounts. One informant has said that he believes the petroglyph may have been done by the



Figure 35. Sandhill crane petroglyph, QRC-NM-SJ-81-9.

Ute Indians when they were traveling around the San Juan Basin and fighting Navajos. The water at the base of the bluff may have encouraged the Utes to camp in the area, and it was hypothesized that the petroglyphs were done on such an occasion. There is sufficient information concerning Ute raiding in the San Juan Basin as recently as the 1850's-1860's to make such a hypothesis plausible (Judd 1954: 350; Schroeder 1965).

More recent interviews have acquired information about another possible origin for the crane petroglyph. According to an informant, who also supplied information about a nearby site where a historic raid took place, it is possible that the petroglyph was made long ago by either the Anasazi or the Navajo Holy People (Diné Diyinii). It was also said that the locality has been utilized for rain rituals. A reference by Neil Judd (1954:354) to an unpublished version of the story of Noqoilpi (variant, Noqolipi), the Great Gambler of Chaco Canyon in the origin legend, provided to him by a personal communication, suggests the possible ceremonial significance of the crane petroglyph: "Noqoilpi was banished to Tiz-na-zinde, 'where the cranes stand up' (referring to birds pictured on the rocks 18 miles west of Pueblo Bonito), died and was buried there." However, the version referred to by Judd does not appear in the one full version of the origin legend that has been consulted (O'Bryan 1956).

Sandhill cranes had both medicinal uses and ceremonial uses according to W. W. Hill (1938:175):

The dung of the sandhill crane (de·t) was drunk with water to cure diarrhea. The dirt from its track was placed in the patient's moccasin during the Flintway chant to assist in the cure. Its bill and parts of its flesh and viscera were put in its neck and head to form part of the Flintway shaman's bundle.

Hunters often hid near water and when the cranes alighted, rushed them on foot or horseback and clubbed them before they could take to the air.

This information suggests that an avenue for further research concerning the origin and significance of the crane petroglyph, located within the proposed NMGS plant site, might focus upon the Flintway ceremony of the Lifeway song ceremonial group. Obviously, the data available are too preliminary to permit any conclusions. If the crane petroglyph is of importance to Navajo people who believe that it is connected with the Holy People or some particular traditional practitioner, they would be alarmed by any disturbance.

Abandoned Hogans.

Localities: *QRC-NM-McK-81-7

QRC-NM-McK-81-10

QRC-NM-McK-81-12

These three localities are examples of currently unoccupied hogans and homestead sites. No informant data concerning them have been acquired for this project. Nevertheless, they represent a class of sites that need to be considered because of their scientific cultural resource value and their possible cultural significance to Navajos. Some traditional Navajo ceremonial practitioners and other

Navajos strongly feel that any site that has been blessed through a traditional ceremony should not be disturbed. Typically, hogans and other residential structures are blessed by using a ceremony derived from the Blessingway ceremonial group discussed previously. Another obvious reason that might account for the significance of unoccupied hogans and residential sites is the possibility of graves being located in their immediate vicinity.

Sites like QRC-NM-McK-81-7 (in the T3 study area) and other blessed sites, such as ceremonial hunting sites, public ceremonial sites, and sweathouses that occur or are likely to occur within the project area can be completely evaluated only through consultation with local residents, traditional practitioners, and officials. In addition, the scientific and historic significance of these cultural resources needs to be addressed through survey and mitigative projects that combine ethnoarcheological and ethnohistorical research designs.

Summary.

As has been demonstrated above, diverse cultural resources have importance in traditional Native American values and merit consideration in evaluating proposed impacts to their physical, visual, or audible integrity. Many of these have been identified throughout the region, including some within the proposed NMGS project and study areas.

The cultural resources of the proposed plant site have been most thoroughly identified, and include eight sites of traditional Native American importance. These include an abandoned Navajo residence where a death has occurred (*QRC-NM-SJ-81-8), a reported battlefield that again involves deaths (*QRC-NM-SJ-81-11), and an Enemyway site (*QRC-NM-SJ-81-14). A crane petroglyph (*QRC-NM-SJ-81-9) has both traditional and archeological significance. An oil seep (*QRC-NM-SJ-81-12) and a sandstone outcrop (*QRC-NM-SJ-81-13) have been Navajo collecting areas in the past, and a butte (*QRC-NM-SJ-81-10) and a canyon with a spring (*QRC-NM-SJ-81-15) also are important to Navajo people.

No resources of traditional importance are presently identified in the P1, P2, or P3 study areas, though the Chacoan Great North Road (which is still important within Navajo values) may cross P3.

Five traditionally significant resources have been identified in the T1 study area. These include the archeological Great North Road (*QRC-NM-SJ-81-31), an antelope corral (*QRC-NM-SJ-81-21), an Enemyway site (*QRC-NM-SJ-81-24), and another ceremonial site (*QRC-NM-SD-81-4), and a spring (*QRC-NM-SJ-81-25). Two such cultural resources are known to occur within the T2 study area, including a plant gathering area (*QRC-NM-SJ-81-33), and a canyon (*QRC-NM-SJ-81-34). The T3 study area has within it a sacred mesa (*QRC-NM-McK-81-8), an abandoned hogan and cairns (*QRC-NM-McK-81-7), and an abandoned camp (*QRC-NM-McK-81-5) that may have an associated

grave. White Rock (*QRC-NM-SJ-81-28; PNM 11) within the T4 study area has been identified as an area of traditional significance, and two Navajo burials (PNM 9, PNM 13) identified by Carroll (Appendix C) may lie within the proposed T4 area of concern.

ENVIRONMENTAL CONSEQUENCES

4.1 GENERAL PROJECT CONSTRUCTION/OPERATION, MAINTENANCE,
AND ABANDONMENT

The proposed construction and operation activities would directly alter, damage, or destroy an unknown number of presently identified, as well as unidentified, archeological and/or historic sites of importance to traditional Native American values. Alteration, damage, or destruction of some of these resources, as discussed in Chapter 3, could result in:

- Loss of scientific and cultural information and artifacts
- Loss of the physical expression of the resource, and visual/auditory impairment of the associated traditional cultural and/or cultural historical values

In addition to direct impacts, significant indirect adverse impacts could occur as a result of the construction and maintenance of the proposed project, including the increase of local population in the study area. These indirect effects include:

- o Increased exposure of archaeological sites (as from construction and maintenance activities, in increase in recreational off-road vehicle use of the Basin), resulting from loss of vegetation cover and increased erosion.
- o Increased uncontrolled collection of the archeological resources and Native American materials (e.g., shrine offerings) by nonprofessional hobbyists, as recreational activity
- o Increased commercial looting of archeological resources, as increased numbers of people living and working in the San Juan Basin makes the looters less obvious visitors to the public lands
- o Decreased opportunities to maintain a traditional Native American lifeway and values, which require the complementary maintenance of sacred sites.

4.2 PROJECT ELEMENT CONSTRUCTION/OPERATION AND MAINTENANCE

Construction and maintenance of the proposed plant facilities would have significant direct adverse impacts to cultural resources on the plant site; increased labor forces to both construct and operate the facility would result in most of the indirect impacts described above.

Construction of the proposed water supply system would also have significant direct adverse impacts to cultural resources. However, once built, maintenance of the proposed intake facility, waterline, and reservoir would probably have few additional adverse impacts.

Construction and maintenance of the proposed transmission system, including access roads, would have moderate to minimal direct adverse effect on the cultural historical resources. However, the system could have significant direct adverse visual impacts on both cultural historical and traditional Native American sites, and its continued operation could support indirect adverse impacts to traditional lifeways. Direct adverse visual impact is of particular concern for those cultural resources now designated Chaco Culture archeological protection sites. The possibility must be considered that nearby towers and power lines might affect their eligibility for potential inclusion in Chaco Culture National Historical Park.

4.3 SPECIAL ENVIRONMENTAL IMPACT ISSUES

Acid Rain

During fieldwork for the joint PNM-New Mexico State Historic Preservation Office project on Anasazi communities, researchers noted a relationship between elevation, rainfall, and site condition. Sites in high rainfall zones were consistently more deteriorated. The following comments from a memorandum entitled "'Acid Rain' Related Impacts on Archeological Sites in the San Juan Basin" (R. W. Loose, June 27, 1979) relate to the effect of acid rain on Chaco Culture National Historical Park:

"Moisture in the central Chaco Canyon and surrounding areas has been the major cause of site deterioration. In 1941, a moisture-induced rockfall destroyed a substantial part of Pueblo Bonito. Ruin stabilization teams had problems with drainage

inside the major ruins in the wet spring of 1973. This year (maybe the wettest on record) I understand that 11 walls have fallen in Pueblo Bonito. I have also recently seen major stabilization problems at the Salmon Ruins near Bloomfield and at the Guadalupe Ruins on the Puerco River. The problem with all these sites is related to the characteristics of the sandstone they are built with and the way in which they are built.

The most often used building stone in the San Juan Basin is sandstone. The sandstones in the basin are variable in composition but most often are composed of medium sized quartz grains (.5 to .25 mm in diameter) cemented with CaCO_3 or FeCO_3 and some silt and clay-sized matrix (.0625 to .0050 or smaller). When walls constructed of these types of materials get soaked, they lose their shear strength and become friable. This problem is intensified when roofs are missing and water ponds on the ancient clay-packed floors, with the walls acting as dams.

These problems might be accelerated if pH of the groundwater were decreased. However, at [CCNHP], soils are very alkaline and would probably neutralize any decrease in pH. These same sorts of arguments would also apply to any rock art (petroglyphs, etc.) that [CCNHP] or NPS might be concerned about."

It should be noted here that only two Chacoan sites (Haystack and Casamero) in the San Juan Basin contain limestone masonry. However, the mortar in all structure walls throughout the San Juan Basin doubtless contains some carbonates and this would need to be considered if acid rain were to become a problem in the future. Presently, the main problem is a lack of quantitative data on rates of site deterioration caused by wind, rain, freeze-thaw effects, and grazing patterns that could be compared with long-term measurements of rainfall pH. Until these data are collected, no definitive statements on the acid rain issue (if it exists) can be made. Making these measurements in the canyon proper will be complicated by the fact that the National Park Service is now using coal burning stoves to heat residences and a portion of the visitors' center during the

cold months of the year. This local coal burning could mask any effects from the proposed NMGS facility.

Hydrology

Reduction in the flow of the Chuska Mountain springs would adversely affect the sacred character of those springs, hence the opportunity to maintain traditional Native American religious values and practices.

SUGGESTED AVOIDANCE OR MITIGATIVE MANAGEMENT

Many, if not most, of the identified significant cultural resources located within the proposed NMGS construction, operation, and maintenance areas may be avoided once engineer-designed project plans are available and comprehensive cultural resource reconnaissance data are also complete. Predicted adverse direct impacts to significant cultural resources within the proposed NMGS construction, operation, and maintenance areas may be avoided or mitigated (with varying degrees of adequacy). The National Historic Preservation Act of 1966 as amended, the Archeological and Historic Preservation Act of 1974, and the American Indian Religious Freedom Act require that adequate consideration be given to the protection of significant cultural resources on federal land or affected by federally permitted activities. Such consideration is based on the information such as is provided in this technical document. From this, a resource-specific management program is developed, which involves more comprehensive inventory of the cultural resources associated with individual project features. Identified resources are then evaluated as to their significance and management needs, with a

preference for protecting significance materials in place where prudent and feasible. Sites that cannot be avoided or protected may be preserved in part through scientific investigation, to salvage an adequate sample of the information value of the site to be adversely affected. Finally, all or portions of some resources may be destroyed after having been evaluated as having little important information or other historic values.

The investigation of a site to recover its descriptive information, including contextual data and artifact/ecofact materials, is a common mitigative measure implemented to protect scientific or cultural information while allowing alteration or destruction of the in-situ physical expression of the resource. It is more appropriate to preserving scientific data from cultural historical sites, and procedures for designing and implementing such data recovery programs are clearly set forth in 36 CFR 800 and the Bureau of Land Management Manual and various instruction memoranda.

Mitigation of adverse impacts to traditional Native American resources is more difficult to plan and implement, and clear procedures for this are not well established. Intensive inventory and evaluation of those resources, in cooperation with appropriate Native American individuals and tribal leaders, would be a necessary first step toward avoidance, protection or the ultimate design and implementation of adequate mitigative measures to preserve traditional values.

Mitigation of indirect adverse impacts of the proposed NMGS project on regional cultural resources is more difficult. Support of public education programs and more intensive law enforcement patrolling of the region may assist in controlling recreational artifact collection and/or commercial looting of cultural resources. Increased control of off-road-vehicle traffic may also offset the predicted increase in regional populations and hence recreationists.

UNAVOIDABLE ADVERSE IMPACTS

Adverse impacts to significant cultural resources will be unavoidable in those instances in which no pre-construction data recovery or avoidance program or any emergency salvage program is implemented. An unknown percentage of the known as well as presently unidentified resources may be lost in this manner.

RELATIONSHIP BETWEEN SHORT-TERM RESOURCE USE AND
LONG-TERM PRODUCTIVITY

Short-term use of the project cultural resources, either as mitigative data recovery or (in those areas where data recovery or avoidance is not implemented) resource destruction would result in a permanent loss of those resources for future investigation or public enjoyment.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Cultural historical as well as traditional Native American resources are generally nonrenewable. Therefore, any consumption of those sites (through destruction or scientific investigation) constitutes an irreversible and irretrievable commitment of those resources.

CONSEQUENCES OF PROPOSED ALTERNATIVE PROJECT ELEMENTS

Each of the proposed NMGS project elements, including all alternatives, has been evaluated in terms of its potential effects on the cultural resources of the San Juan Basin. For each alternative, a range of prehistoric and/or historic sites and sites of traditional Native American religious values has been identified. None of these alternative features have been intensively (75% or greater coverage) surveyed to identify all surface-evident cultural resources within the individual study areas. None of these alternatives have been engineer-designed as yet, to determine where within each individual study area the ground-disturbing activities would actually take place, and how these might be designed to avoid identified significant cultural sites within the rights-of-way. For each of the alternatives, an unknown number of cultural resources could be adversely affected by the proposed project. Therefore there is no basis at this time, from a cultural resource perspective, for preferring one project alternative over another.

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LOCATIONS OF NMGS STUDY AREA

Plant site

Location--T23N R13W, entire sections 14, 23, 24; NW, SW, SE 1/4's of Sec. 13 (See Fig. 1).

Possible new town

Location--T24N R11W, entire sections 27, 28; S 1/2 Sec. 21; SW 1/4 Sec. 22; N 1/2 Sec. 33; N 1/2 Sec. 34 (See Appendix D).

Transmission corridors

Location--Note: Although several alternatives have been designated, some overlaps occur along several of the proposed routes. The following locations, which list those sections both totally occupied and those merely impinged upon by the corridors, cover all possible impact areas.

[Note: Sections of The Pillar 3 NE and Tanner Lake quads have not been broken out into specific projects because of the vast areas covered by, and the amount of overlap among, the proposed corri-

dors, both water pipeline and transmission line. All sections within any of the proposed corridors are listed here.] (See Fig.1).

The Pillar 3 NE Quad

T24N R14W, Sec. (interpolated: 35, 36)

T23N R14W, Sec. (interpolated: 2, 11), 24, 25, 36

T23N R13W, Sec. 7, 17, 18, 19, 20, 30, 31

T22N R14W, Sec. 1, 12, 13, 24

T22N R13W, Sec. 6, 7, 18, 19

Tanner Lake Quad

T23N R13W, Sec. 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24,
25, 26, 35, 36

T23N R12W, Sec. 7, 8, 9, 16, 17, 18, 19, 20, 30, 31, 32

T22N R13W, Sec. 1, 2, 11, 12, 13, 14, 23, 24

T22N R12W, Sec. 4, 5, 6, 7, 8, 9, 16, 17

Pretty Rock Quad

T23N R12W, Sec. 9, 10, 11, 15, 16

T22N R12W, Sec. 9, 10, 11, 13, 14, 15, 16, 23, 24

T22N R11W, Sec. 17, 18, 19, 20, 21, 22

Pueblo Bonito NW Quad

T23N R10W, Sec. 3, 4, 5, 8, 9, 10

Kimbeto Quad

T23N R10W, Sec. 2, 11, 12, 13, 14

T23N R9W, Sec 7, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28

Lybrook NW Quad

T23N R9W, Sec. 24, 25, 36

T23N R8W, Sec. 29, 30, 31, 32, 33, 34

T22N R8W, Sec. 1, 2, 3, 4, 5, 10, 11, 12, 13

Lybrook Quad

T22N R7W, Sec. 7, 16, 17, 18, 19, 20, 21, 22

The Pillar 3 SE Quad

T22N R14W, Sec 24, 25

T22N R13W, Sec. 19, 29, 30, 31, 32

T21N R13W, Sec. 5, 6

La Vida Mission Quad

T22N R13W, Sec. 23, 24, 25, 26, 32, 35, 36

T21N R13W, Sec. 1, 2, 4, 5, 8, 9, 11, 12, 13, 15, 16, 21, 22,
26, 27, 34, 35, 36

T21N R12W, Sec. 7, 17, 18, 19, 20, 21, 28, 29

T20N R13W, Sec. 1, 2

Kin Klizhin Ruins Quad

T22N R11W, Sec. 19, 20, 21, 22, 27, 28, 29

T21N R12W, Sec. 21, 27, 28, 33, 34, 35

T20N R12W, Sec. 1, 2, 3

Pueblo Bonito Quad

T22N R11W, Sec. 22, 23, 24, 25, 26, 27, 35, 36

T22N R10W, Sec. 28, 29, 30, 31, 32, 33, 34

T21N R10W, Sec. 3, 4

Sargent Ranch Quad

T22N R10W, Sec. 35

T21N R10W, Sec. 1, 2, 11, 12, 13

T21N R9W, Sec. 7, 8, 15, 16, 17, 18, 20, 21, 22, 23, 26, 27

Fire Rock Well Quad

T21N R9W, Sec. 24, 25, 26

T21N R8W, Sec. 29, 30, 31, 32, 33

Lybrook SE Quad

T22N R7W, Sec. 20, 21, 22, 25, 26, 27, 28, 34, 35, 36

T22N R6W, Sec. 31, 32

T21N R7W, Sec. 1

T21N R6W, Sec. 5, 6, 7, 8

Mule Dam Quad

T22N R6W, Sec. 32

T21N R6W, Sec. 4, 5, 8, 9, 10, 11, 13, 14, 15, 16, 22, 23, 24,
25, 26, 36

T21N R5W, Sec. 19, 29, 30, 31, 32

Milk Lake Quad

T20N R13W, Sec. 1, 2, 11, 12, 13, 24

T20N R12W, Sec. 7, 18, 19, 20, 28, 29, 30, 32, 33

T19N R12W, Sec. 4, 5

Nose Rock Quad

T20N R12W, Sec. 1, 2, 3, 11, 12, 28, 33

T20N R11W, Sec. 6, 7, 8, 16, 17, 18, 20, 21, 22, 27

T19N R12W, Sec. 3, 4, 9, 10, 11, 14, 15

Seven Lakes NW Quad

T20N R11W, Sec. 22, 23, 25, 26, 27, 35, 36

T20N R10W, Sec. 30, 31, 32, 33, 34

T19N R10W, Sec. 2, 3, 4, 5

Seven Lakes NE Quad

T19N R10W, Sec. 1, 2, 11, 12

T19N R9W, Sec. 6, 7, 8, 9, 15, 16, 17, 18

Pueblo Pintado Quad

T20N R8W, Sec. 2, 3, 4, 5, 9, 10, 11, 12, 13, 14

T20N R7W, Sec. 18

Pueblo Alto Trading Post Quad

T20N R7W, Sec. 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27,
28, 35, 36

T20N R6W, Sec. 30, 31, 32

T19N R6W, Sec. 5, 6

Star Lake Quad

T20N R5W, Sec. 4, 5, 6, 8, 9

T20N R6W, Sec. 32

T19N R6W, Sec. 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16

T19N R5W, Sec. 7, 17, 18

Ojo Encino Mesa Quad

T20N R5W, Sec. 4, 9, 10, 14, 15, 16, 22, 23, 24, 25, 26, 36

T20N R4W, Sec. 30, 31, 32

T19N R4W, Sec. 4, 5, 6, 8, 9, 10, 15, 16

Johnson Trading Post Quad

T19N R4W, Sec 10, 14, 15

Becenti Lake Quad

T19N R12W, Sec. 14, 15, 22, 23, 24, 25, 26, 36

T19N R11W, Sec. 30, 31

T18N R12W, Sec. 1

T18N R11W, Sec. 5, 6, 7, 8, 9, 16, 17, 21, 22, 27, 28

Seven Lakes Quad

T18N R11W, Sec. 22, 26, 27, 34, 35

Kin Nahzin Ruins Quad

T19N R9W, Sec. 14, 15, 16, 22, 23, 24, 25, 26

Whitehorse Quad

T19N R9W, Sec. 24, 25

T19N R8W, Sec. 19, 28, 29, 30, 31, 32, 33, 34

T18N R8W, Sec. 1, 2, 3, 4, 10, 11, 12

T18N R7W, Sec. 6, 7

Whitehorse Rincon Quad

T18N R7W, Sec. 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17

T18N R6W, Sec. 17, 18, 19, 20

Rincon Marquez Quad

T19N R6W, Sec 13

T19N R5W, Sec. 16, 17, 18, 19, 20, 21

T18N R6W, Sec. 16, 17, 20, 21, 22, 23, 25, 26, 27, 28, 35, 36

T18N R5W, Sec. 20, 31, 32

Tinian Quad

T19N R5W, Sec. 16, 21, 22, 23, 25, 26, 27, 28, 35, 36

T19N R4W, Sec. 15, 16, 22, 30, 31, 32, 33, 34

T18N R4W, Sec. 3, 4, 5, 6, 9, 10

Wolf Stand Quad

T19N R4W, Sec. 14, 15, 22, 23, 24, 25, 26, 34, 35, 36

T19N R3W, Sec. 30, 31, 32

T18N R4W, Sec. 1, 2, 3, 10, 11, 12, 13, 14, 15, 23, 24, 25

T18N R3W, Sec. 4, 5, 6, 7, 8, 9, 15, 16, 17, 18, 19, 21, 22,
26, 27, 28, 29, 30, 31, 32, 33, 34, 35

Headcut Reservoir Quad

T18N R3W, Sec. 26, 35

Laguna Castillo Quad

T18N R11W, Sec. 34, 35, 36

T17N R11W, Sec. 1, 2, 12, 13

T17N R10W, Sec. 6, 7, 17, 18, 19, 20, 21, 27, 28, 29, 33, 34

T16N R10W, Sec. 3, 4, 10

Orphan Annie Rock Quad

T16N R10W, Sec. 2, 3, 10, 11

Mesita del Gavilan Quad

T18N R5W, Sec. 5, 6

T17N R6W, Sec. 36

T17N R5W, Sec. 31, 32, 33

Canada Calladita Quad

T18N R5W, Sec. 33, 34, 35

T17N R5W, Sec. 1, 2, 3, 4, 11, 12

T17N R4W, Sec. 4, 5, 6, 7, 8, 9, 10, 15, 16

Arroyo Empedrado Quad

T18N R3W, Sec. 31, 32, 33, 34, 35

T17N R4W, Sec. 10, 11, 12, 13, 14, 15

T17N R3W, Sec. 2, 3, 4, 5, 7, 9, 10, 11, 14, 15, 16, 17, 18,
20, 21, 22, 23, 26

San Luis Quad

T18N R3W, Sec. 35, 36

T17N R3W, Sec. 1, 2, 11, 12, 13, 14, 23, 24, 25, 26, 35, 36

T17N R2W, Sec. 6, 7, 8, 16, 17, 18, 19, 20, 21, 22, (interpo-
lated: 26, 27, 28, 29, 31, 32, 33, 34)

T16N R3W, Sec. 1, 12

T16N R2W, Sec. 1, 2, 3, 4, (interpolated: 6, 7, 8, 9, 10, 11,
12)

Holy Ghost Spring Quad

T16N R2W, Sec 12 (interpolated)

Mesa de los Toros Quad

T16N R10W, Sec. 14, 15, 22, 23, 26, 35, 36

T15N R10W, Sec. 1, 2, 11, 12, 13, 14, 23, 24, 25, 26

Cabazon Peak Quad

T16N R2W, Sec. (interpolated: 12, 13, 14, 15, 16, 17, 18, 19,
20, 23, 24, 25, 26, 27, 28, 29, 33, 34, 35, 36)

T15N R2W, Sec. (interpolated: 2, 3, 4), 10, 11, 12, 13, 14, 23,
24, 25, 26

Ojito Spring Quad

T16N R2W, Sec. (interpolated: 13, 24, 25, 36)

T16N R1W, Sec. 18, 19, 29, 30, 31, 32, 33

T15N R2W, Sec. 1, 13, 24, 25

T15N R1W, Sec. 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21,
22, 23, 26, 27, 28, 29, 30

Ambrosia Lake Quad

T15N R10W, Sec. 25, 26, 36

T15N R9W, Sec. 30, 31, 32

T14N R9W, Sec. 4, 5, 6, 8, 9, 10, 14, 15, 16, 22, 23, 26

San Lucas Dam Quad

T14N R9W, Sec. 24, 25, 36

T14N R8W, Sec. 30, 31, 32, 33

T13N R8W, Sec. 1, 2, 3, 4, 5, 6

T13N R7W, Sec. 6

Cerro Alesna Quad

T13N R7W, Sec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

T13N R6W, Sec. 6, 7

Casa Salazar Quad

T15N R2W, Sec. 25, 36

Sky Village NW Quad

T15N R2W, Sec 25, 36

T15N R1W, Sec. 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36

T14N R2W, Sec. 1

T14N R1W, Sec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28,
29, 33, 34, 35, 36

T14N R1E, Sec. 7, 18, 19, 30, 31

T13N R1W, Sec. 1, 2, 3, 4, 10, 11, 12

T13N R1E, Sec. 6, 7

Sky Village NE Quad

T14N R1E, Sec. 18, 19, 20, 28, 29, 30, 31, 32, 33

T13N R1E, Sec. 3, 4, 5, 6, 8, 9, 10, 29

Cerro Pelon Quad

T13N R7W, Sec. 8, 9, 10, 11, 12

T13N R6W, Sec. 7, 8, 17, 18

Laguna Canoneros Quad

T13N R6W, Sec. 8, 16, 17

Remainder unplatted

Marquez Quad

Unplatted

La Gotera Quad

T12N R4W, Sec. 13, 14, 15, 22, 23, 24

T12N R3W, Sec. 2, 9, 10, 11, 15, 16, 17, 18, 19, 20, 21

Puerco Dam Quad

T13N R2W, Sec. 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33

T12N R3W, Sec. 1, 2, 11, 12

T12N R2W, Sec. 5, 6

Sky Village Quad

T13N R2W, Sec. 24, 25

T13N R1W, Sec. 10, 11, 12, 13, 14, 19, 20, 21, 22, 23, 24, 25,
26, 27, 28, 29, 30

T13N R1E, Sec. 7, 18, 19, 30

Sky Village SE Quad

T13N R1E, Sec. 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27,
28, 29, 30

Arch Mesa Quad

T12N R4W, Sec. 24

T12N R3W, Sec. 19, 30

Water PipelinesLocations (See Fig 1).[Note: See Transmission Corridor Locations for The Pillar 3
NE and Tanner Lake quads.]

Farmington South Quad

T29N R13W, Sec. 16, 17, 18, 19, 20, 21, 28, 29, 30, 32, 33

T28N R13W, Sec. 9, 10, 15, 16, 21, 22, 28

Horn Canyon Quad

T29N R11W, Sec. 32, 33

T28N R11W, Sec. 9, 16, 17, 19, 20, 21, 29, 30, 31

Bloomfield Quad

T29N R11W, Sec. 27, 28, 33, 34, 35

T28N R11W, Sec. 10, 11, 12, 13, 14, 15, 23, 24, 25, 26, 35, 36

T27N R11W, Sec. 1, 2, 11, 12, 13, 14, 22, 23, 24, 25, 26, 27,
35, 36

T27N R10W, Sec. 31

T26N R11W, Sec. 1, 12

T26N R10W, Sec. 6, 7, 8

Hugh Lake Quad

T28N R13W, Sec. 32, 33

T27N R13W, Sec. 4, 5, 8, 9, 16, 17, 20, 21, 28, 29, 32, 33

T26N R13W, Sec. 4, 5, 8, 9

T26N R12W, Sec. 8

Gallegos Trading Post Quad

T28N R11W, Sec. 31, 32

T28N R12W, Sec. 36

T27N R11W, Sec. 6, 7

T27N R12W, Sec. 1, 11, 12, 13, 14, 22, 23, 24, 26, 33, 34, 35

T26N R12W, Sec. 2, 3, 4, 9, 10

The Pillar Quad

T26N R13W, Sec. 7, 18, 19, 30, 31

T25N R13W, Sec 5, 8, 17, 20, 29

Moncisco Wash Quad

T26N R13W, Sec. 8, 9, 16, 17, 20, 25, 29, 32, 36

T26N R12W, Sec. 8, 17, 18, 19, 20, 29, 30, 31

T25N R13W, Sec. 1, 2, 5, 8, 11, 12, 13, 14, 15, 17, 20, 22, 23,
26, 27, 28, 29

T25N R12W, Sec., 6

Carson Trading Post Quad

T26N R12W, Sec. 9, 16

Huerfano Trading Post NW Quad

T26N R10W, Sec. 7, 8, 17, 18, 19, 20, 29, 30, 31, 32

T25N R10W, Sec. 5, 6, 7, 8, 17, 18, 19, 20, 29, 30

Bisti Trading Post Quad

T24N R14W, Sec. 2, 11, 14, 23, 26, 35

T24N R13W, Sec. 7, 8, 17, 18, 19, 20, 29, 30, 31

T23N R13W, Sec. 6

Alamo Mesa West Quad

T25N R13W, Sec. 27, 28, 29, 32, 33, 34

T24N R13W, Sec. 3, 4, 5, 8, 9, 16, 17, 20

T23N R13W, Sec. 1

T23N R12W, Sec. 4, 5, 6

Alamo Mesa East Quad

T24N R12W, Sec. 35, 36

T24N R11W, Sec. 20, 21, 28, 29, 30, 31, 32, 33

T23N R12W, Sec. 1, 2, 3, 4

T23N R11W, Sec. 4, 5, 6

INTERVIEWS WITH OFFICIALS OF PUEBLO AND NAVAJO
COMMUNITIES ADJACENT TO THE NMGS PROJECT AREA

by LeRoy Condie

[In the following reports of interviews, direct quotes are used frequently. Since a tape recorder was not used, the reader should be aware that the quotes may not be exact. Nevertheless, a serious attempt has been made to avoid misconstruing any speaker's intent.]

Santo Domingo Pueblo

Date visited: Wednesday, October 7, 1981

Tribal officials present at interview: three

Procedure

Governor Victor Reano and Lieutenant Governor Seferino Tenorio were absent from their offices. It was my good fortune to be received by a long-time friend. It expedited the interview.

He and his fellow tribal officers studied the regional map and listened to my description of the scope of the NMGS project. I explained that my mission was to inform the Pueblo tribes that they are at full liberty to challenge aspects of the construction that might threaten sites or landmarks of significance to the tribes.

One of the officers then said that matters of this sort were for the full council to hear and decide upon. For that purpose he took time to write in some detail my name and address, my affiliation, a statement on the proposed generating station and the routes of the transmission lines, and the location of the terminal distributing station.

He asked, "If we want you to come back and explain all this to the council, would you be available?" (Yes.)

He said, "It doesn't look to me that we are directly affected. But if one of the tribes chose to oppose it, we would support them. That is our policy; we stand behind each other. It is like the Valle Grande geothermal project. Some of the northern pueblos are opposed to it, and we support them."

Assessment of the tribe's position toward the project

Apparently, little concern at this time.

Follow-up work done, or to be done

None.

San Felipe Pueblo

Date visited: Wednesday, October 7, 1981.

Tribal officials present at interview: Governor,

Lieutenant Governor, tribal officer

Procedure

This interview was by appointment. Here, as in other interviews so far, it became apparent that the tribal administrator is the spokesperson. The others defer to him or her to carry the conversation, to pose the questions, and to make minor decisions.

They had not heard of the NMGS project. With the aid of the regional map I outlined the geographic aspects of the proposed power plant, transmission lines, and distribution terminal. They commented that the Rio Salado pueblos, Zia and Jemez, and Laguna, would be most directly affected.

Continuing I said, "These river tribes, so far away from the project, seem to be taking the position that, while in the past the region to the west was important to them, they had (quoting a tribal officer of Sandia), 'Lost interest in that country out there. Our shrines are all shot. We look east toward the Sandias nowadays.'"

The spokesperson then said, "I won't adopt his exact words, but they express our attitude."

Concerns expressed about the NMGS project

The spokesperson's next question was less an expression of concern than it was a wish for information. "How does this new power plant fit into the PNM system? Will the power be for export, or to augment the capacity of the local system? We are a growing Pueblo, and we can expect not only an increase in domestic demand but we are

looking toward industrial ventures, and we need the assurance that when that happens the power will be available."

I had to plead, "Not qualified to answer that question with assurance." But I promised to get back with an answer.

Assessment of the tribe's position toward the project

Apparently, little concern at this time.

Follow-up work with San Felipe

In a letter following my visit, I observed that there was a good likelihood that I would come back, in the company of a PNM representative, who could inform San Felipe expertly on the question that had been raised, namely the prospect of adequate electrical power in the future.

This visit never came to pass, and in any case would probably have given the Pueblo more information than they really wanted to know about the topic. A final letter was written to San Felipe telling them that the power company tells me that the newly generated power is intended for local consumption and that, further, the company, as a monopoly, has a "mandate" to always keep ahead of the game in terms of production facilities.

Cochiti Pueblo

Date visited: Wednesday, October 7, 1981, and subsequent visit on October 30, 1981.

Tribal official present at interview: Governor

Procedure

This interview with the Governor was on Friday, October 30, and was by appointment. Three weeks earlier I had visited Cochiti, without appointment, to find all ranking tribal officials absent. At that time I had briefly explained my meeting to lesser officials-- Tribal Accountant, Public Works Director, and Receptionist--and left with the understanding that I would arrange an appointment on another day.

With the aid of the regional map I explained to the Governor the proposed power project. This was, apparently, news to him. I further explained that it is the wish of BLM and PNM to cause the least disturbance possible to sites or other cultural resources that have significance to the tribes of the region.

His comment was, in effect, "It's quite a distance from us, but if any of the other tribes take a position on it we would support them."

I told him, "That was the comment of your good friend down at Santo Domingo."

He asked to xerox that portion of the tracer map that shows where certain of the proposed transmission lines swing in close to Zia and Jemez tracts. "I'll tell the councilmen about it when next we meet."

Assessment of the tribe's position toward the project

Apparently, little concern at this time.

Follow-up work done, or to be done

None.

Jemez Pueblo

Date visited: Thursday, October 8, 1981.

Tribal official present at interview: Governor

Procedure

I had no appointment at Jemez, but hurried up there after leaving Zia, in the hope of catching the Governor or another official. Thanks to the Governor's decency--he was leaving but saw me drive up and surmised that I might be on business--I had a brief but satisfactory interview with him.

We rolled the regional map on the trunk lid of an automobile, and he listened to my (abridged) story. He caught on to the whole thing right away. He said, pointing to the map, "Here we are. Here's our western tract out there (Ojo del Espiritu Santo). And here's the nearest place (San Luis) where the line runs. That's a long way from our ground, all the way to San Luis. That won't bother us."

I said, "But, Governor, you know you can have something to say, even if it doesn't cross your ground. If there are places even off your ground that your people have feelings about--shrines, or places where your women get pottery clay, or where your medicine men go for plants, or anything like that, you can ask that those places be respected."

He understood. He said, "I don't hear the old peoples mention places like that any more. You can say the governor said we won't worry about it."

Assessment of the tribe's position toward the project

Apparently, little concern at this time.

Zia Pueblo

Date visited: Thursday, October 8, and subsequent visit on November 5, 1981.

Tribal official present at interview: tribal officer

Procedure

Governor Alfred Gachupin and Lieutenant Governor Joe Medina were both absent but they had arranged that I should be referred to a tribal officer.

I handed him the letter of introduction from the Quivira director, and unrolled the tracer map on his desk. I called his attention to the fact that one alternate corridor (TC 1), if chosen, would come very close to a Zia tract 10 mi. to the west.

He played things close to his chest and rather early in the interview commented that it sounded to him as if I were covering the same ground as ". . .two girls who were here not long ago." And, "How is your mission different from theirs?"

Since I didn't know who the two girls were (and neither did he, as it proved), I was hard put to answer that question. He said they

were from Public Service Company of New Mexico, but I have since learned that one of the women was from the Bureau of Land Management and the other from Woodward-Clyde.

Indicating the tracer map he said, "Yes, I know the country, and we're going to have something to say about it. We're on it."

He asked me to write down, on a pad that he furnished, my affiliation, the scope of the NMGS project, and my mission. This information, he said, he would relay on to the governor, and then they would schedule a council meeting to hear my story in detail.

This interview represents (1) the first time, so far, that I had encountered a Pueblo official who was already informed of the NMGS project and (2) my first encounter with a tribal official who could be described as feeling some concern over the possible NMGS project impacts.

(Visit of Thursday, November 5, 1981.)

This visit was with another tribal officer. This man was most cordial. As I began to identify myself he picked up from his desk a letter I had written to Zia, following my visit of a month ago.

He said, "Yes, this is you." I explained that I was en route to the terrain lying to the west, that was probably going to be traversed by one or more of the transmission line corridors. I told him I would particularly like to gain an idea of the boundaries of an isolated Zia tract out there, since one corridor is plotted to pass very close to a corner.

We unrolled a large, detailed, but somewhat undecipherable map provided by PNM, and he took great pains to brief me on forks, turn-offs, et cetera, that would take me on a circle around the perimeter of the Zia tract, and return me to the highway at White Mesa.

Assessment of the tribe's position toward the project

As is apparent from my report of the conversation with the first tribal officers (above), there is concern. That is, there is concern if his attitude is typical of that of the other tribal officers.

Follow-up work done with Zia Pueblo

I planned at one time to take a PNM man with me and hold a meeting with the Zia Tribal Council to brief them expertly on the NMGS project. PNM had proposed this, but the Tribal Council never contacted us about returning for a meeting, so the idea was never carried out. I did, however, place with the second tribal officer a xeroxed copy of a chapter from a PNM study, describing major construction activities and anticipated ground disturbance at the generating station site and along the transmission corridors. It then discusses possible topographical damage, and dislocation of wildlife. Steps to be taken to mitigate this damage are outlined.

This reprint, I should think, provides the Zia Council with all the information they would ordinarily need to determine whether areas of concern to Zia may be impacted by the NMGS project.

Santa Ana Pueblo

Date visited: Monday, October 5, 1981, and subsequent visits on November 30 and December 18, 1981.

Tribal officials present at interview: Governor,
Lieutenant Governor, Tribal Administrative
Officer

Procedure

This was a scheduled appointment. I introduced myself and presented, also, a letter of introduction signed by the Quivira project director, explaining the purpose of the visit.

I had prepared, beforehand, a simplified map traced from a detailed map of the affected region. The map shows at a glance the location of the generating station, the four alternate transmission line corridors, and the terminal distribution station. Prominent landmarks, isolated pueblo land holdings, and the home pueblos of most villages and towns in the Southern Pueblos Agency are shown. This map was spread out on the table.

I explained that construction of the project, scheduled to begin in 1985, would inevitably result in some surface disturbance. The purpose of the Quivira Research Center field project is to inform New Mexico tribes of the physical aspects of the intended construction, and invite them to identify sites they would like to see respected. I suggested to them that they might take one of several positions:

1. Disclaim any interest in the affected territory because (in the case of some tribes) they are at a considerable distance from the terrain or have, over the years, abandoned or forgotten sacred or resource sites.

2. Decline to identify sites because pinpointing them might result in greater hazard than if left unknown.

3. Go over the ground with a field man and point out sites they would like to have left undisturbed.

Of these three positions, they chose to adopt the latter. One of the officers said,

"We younger generation don't know much about that country out there. We haven't had the opportunity to go out there and see the old places. The BLM has got it all fenced off. I've never been out there, but my grandfather tells me of places out there."

It was agreed that at some future date, to be decided upon, he and I with his grandfather or another older resident would take such a trip.

Questions asked, or concerns expressed, about the NMGS project

The role of spokesman during this meeting seemed to fall upon one of the tribal officers. Perhaps because it is incumbent upon him, in this role, to challenge proposals of this sort, he posed a number of questions:

How close, in terms of miles, do these transmission lines come to Santa Ana land holdings?

What will be the effects of this project on the air, on the environment, on humans?

You say PNM has already made a study of the impact of the project. Could we get a copy of that?

All this we need to know before we can present the matter to the Tribal Council so they can act.

Assessment of the tribe's position toward the project

Apparently, little concern at this time.

Follow-up work with Santa Ana

Since the first (described) visit I have maintained intermittent contact. I called on a tribal officer in his office to deliver a xeroxed excerpt from the PNM study, and also to plot on the map the route we might follow on the proposed field trip.

On Friday afternoon, December 18, I called, without appointment, at the tribal offices. The Lieutenant Governor was the only officer present. We had an unhurried conversation, much of it having to do with Santa Ana history, pertaining to the old village and the present valley townsite. I mentioned to him that one of the tribal officers and I had talked of a field trip, but that the Quivira Research Center project was coming to a close and that we should probably abandon the idea of the trip.

He remarked that it would be about March before the calendar would permit such a trip. I could only guess that he was referring to the tribal ceremonial calendar. He mentioned the Christmas and New Year dances at the old village.

Sandia Pueblo

Date visited: October 1, 1981, and subsequent visit on November 9, 1981.

Tribal official present at interview: Lieutenant Governor

Procedure

This was a phone call. It was some weeks later that I called on the Lieutenant Governor in person.

Over the phone I asked for an appointment so that I could brief him on the proposed NMGS project, show him a map, and hear his comments.

He was skeptical at first whether any useful purpose would be served by an interview. I gathered that the Sandia Indians have little interest in the territory west of them. As he put it, "Our shrines out there are all shot. We look east, at the Sandia Mountains."

But, somewhat at my insistence, he agreed to an appointment on October 10, and instructed me how to get to the tribal offices on the reservation. My appointment was postponed repeatedly during the following weeks because of the press of tribal business.

On Monday, November 9, I called on him, without an appointment, just before quitting time. I said to him, "You and I have talked several times over the phone, and you have told me that Sandia has no interest in the corridor territory out west. But, I wanted to be able to say, 'I warmed a chair in the Lieutenant Governor's office.'"

I showed him the regional map and he exhibited polite interest in it, but said nothing to amend his earlier statement that "The Sandias look east toward the Sandia Mountains for landmarks of ceremonial significance--not west; there is nothing left for us out west."

Assessment of the tribe's position toward the project

Apparently, little concern at this time.

Isleta Pueblo

Date visited: Thursday, October 8, 1981.

Tribal officials present at interview: Second Lieutenant
Governor

Procedure

My presentation was in all respects similar to that outlined in detail in my report of the Santa Ana visit; therefore I will not duplicate it here. The Lieutenant Governor listened with some detachment, and then asked me to write down my affiliation and the purpose of my call. I did, but what I wrote was scarcely different from the information contained in the letter of introduction that I

had handed to him. This information, he said, he would turn over to the Governor upon the latter's return.

I showed him the regional map that gives at a glance the principal features of the NMGS project--the plant location, the routes of the proposed transmission lines, and the site of the distribution station. Since Isleta land holdings do not appear on that map, I showed him a Bureau of Indian Affairs Division of Roads map that shows Isleta holdings, and their geographic relationship to the project terrain.

As to any interest in the cultural resources affected by the project--no. He said in effect (indicating the map), "As far as we are concerned we are clear off the map."

Assessment of the tribe's position toward the project

Apparently, little concern at this time.

Laguna Pueblo

Date visited: Thursday, October 1, 1981, and subsequent visit.

Tribal official present at interview: Tribal Attorney

Procedure

(The Tribal Attorney is a neighbor, living on the same street in Albuquerque.) In a phone call I had learned that there was really no point in trying to set up an appointment with the Governor at the

Pueblo because he would only tell you, "Talk to [the Tribal Attorney]. He handles all that stuff."

(Monday, October 19, 1981) The Tribal Attorney and his family are now at home in the neighborhood, and I made a night call on them. He is conversant on the NMGS project, traceable to a conference he had with Leslie Cone of BLM and Janice Hutton of Woodward-Clyde. Apparently, Leslie and Janice called on at least two pueblos, at an earlier date, in regard to the project, the other pueblo being Zia.

At that time he either informed Leslie and Janice of a project the tribe already had going, namely, the "cataloging" of religiously significant waters (springs, confluences, and live streams), or agreed with them to initiate such a project. The identification of these sites was to be done--is being done--by a tribal elder, with the Tribal Attorney coordinating the effort and reporting the findings in English. The report is then to be shared with the Forest Service, the BIA, and the NMGS project (Woodward-Clyde?).

In his words, "We have an old timer that goes to the field. We're paying him \$75 per day. He knows where they all are." I got the impression that [the Tribal Attorney] goes with him, at least some of the time.

It was apparent to me that the site cataloging was not going to be completed right away. "Maybe by the first of the year," he said.

I said, "We (Quivira) are operating under a deadline. You're doing exactly what we think any concerned tribe should do. But I

need to know when we can expect some of this information to be passed on to us, so that we can incorporate it into the report."

The sense of his response was, "You are welcome to anything we develop as it is readied for release, but if we don't have all the warning signals (my words) in place by that time, we'll just have to monitor the project as it goes along." That is, if we don't have all the caution signs in place when construction begins, we'll speak up as we note what's happening.

Further, "If (indicating the map) they should elect this corridor (proposed 4 corridor) that is projected to cross Laguna land, we'll naturally be more concerned than if they elect the other corridors."

Questions asked, or concerns expressed, about the NMGS project

No particular questions; he was already informed about the NMGS project. Concerns--nothing that could be called concern. They are already old hands in dealing with outsiders "trespassing" on their reservation. To wit: a trans-continental highway, the Jack Pile mine, and several pipelines and transmission lines crossing their terrain.

Assessment of the tribe's position toward the project

They'll take it in stride (but see "Position Statement," p. B-24).

Acoma Pueblo

Date visited: Tuesday, October 20, 1981.

Tribal officials present at interview: First Lieutenant
Governor

Procedure

My interview with the Lieutenant Governor was in his office. Although I think a council meeting was awaiting him in the council chambers, he was relaxed and cordial. He is educated and articulate, a product of Western New Mexico University. He has a Masters, was student body president, and was the nominal director of the graduate school for a time.

We talked about tribal matters. The slump in uranium mining and milling has had its impact upon the employment of Acoma citizens, requiring them to fall back upon their not-entirely-forgotten survival skills. The tribe's most urgent problem is the lack of an economic base, and in that regard they are looking toward domestic industry of some kind or another. "But," he said, "you have to be cautious. The record of tribal enterprises is strewn with failures."

Our conversation turned to the proposed NMGS project. He studied the map, noting especially the proposed corridor (4) passing near Ambrosia Lake and veering eastward across Laguna Pueblo.

"I have no doubt," he said, "that there are places up there of significance to the Acomas, particularly if they should elect this most southerly corridor. But these sites are not known to the lay

members of the tribe at large. We trust our elders to know and remember these places and to watch over them. I had a beautiful chance in my youth to learn of this sacred side of Acoma life but, to my regret, I didn't take it. My grandfather was the perfect man to acquaint me intimately with these matters if I had shown the inclination. But you know, kids don't care."

Continuing. "So let's just say, we hope no harm will be done. But as the secular government, the Council will be alert for any possible revenues for taxation."

I get the impression that not only are the sacred sites the exclusive province of the esoteric Acoma government, but that it would be indiscreet for the secular government to propose, say, a sacred site survey of corridor terrain.

Questions asked, or concerns expressed, about the project

None.

Assessment of the tribe's position toward the project

The secular government, at least, would welcome a transmission line crossing as a possible source of revenue. However, no corridor is projected to cross Acoma lands.

Follow-up work done with Acoma Pueblo

I wrote a letter to the Lieutenant Governor, a few days after my visit, thanking him for the interview and expressing my enjoyment of the conversation.

Zuni Pueblo

Date visited: Tuesday, October 20, 1981.

Tribal officials present at interview: Lieutenant Governor,
five Tenientes

Procedure

It was a busier-than-usual day for the Lieutenant Governor. Governor Lewis was in Washington, D.C.

For an hour small delegations passed in and out of the council chamber door, and then it was my turn. All gathered around the tracer map and studied it closely, locating the site of the generating station and tracing the proposed corridors with their fingers, meanwhile commenting to each other (in Zuni) as they recognized known landmarks.

"Perhaps," I said, "you'd like to know what the other tribes are saying." (Yes, they would.) So I went from tribe to tribe, mentioning the names of the various officers I had talked to, all of whom they recognized as indicated by nods of the head. Examples:

The Second Lieutenant Governor of Isleta said, "As far as we are concerned we are clear off the map."

A councilman at Santo Domingo said, "Thanks, Le Roy. If the council wants to know more about it we'll call you and have you come up."

The consensus, as expressed by one of the tenientes: "We trust our brothers in the other pueblos to keep their eyes on it for us."

Questions asked, or concerns expressed, about the project

Evidently the Zunis' once-rigid opposition to utility corridors has been relaxed. As I prepared to leave I said to the council, "As I remember, there was a time when you were opposed to granting rights-of-way to utilities wanting to cross the reservation. You required the Arizona Public Service Company to route its lines west to the Arizona border, then south along the border, by-passing the reservation." All appeared not to remember this, but finally one of the tenientes said, "That's so, but that was years ago. We now have utility lines crossing the reservation."

Assessment of the tribe's position toward the project

Apparently, little concern at this time.

Canyoncito Navajo Reservation

Date visited: Tuesday, January 5, 1982.

Tribal officials present at interview: Chapter Officer

Procedure

This interview was held in the evening at the Chapter Officer's home. I had scheduled the interview with the husband of the Chapter Officer, and Chapter Chairman, at this hour. But he had not returned from Window Rock.

I then proposed that, rather than wait for the Chairman, I should brief her on the purpose of my mission. She could then

convey this information on to him, and I would make another appointment with him at a later date.

I handed her a letter that I had prepared, addressed to the Chairman, describing the role of Quivira Research Center in the field study-survey, and my affiliation with Quivira.

I had previously "enhanced" a map, provided by PNM, that shows the location of the principal features of the New Mexico Generating Station project. That is, the site of the plant, the routes of the proposed transmission lines, and the site of the terminal station. The enhancement consisted of shading the Canyoncito Reservation in red, showing its relationship, at a glance, to the southernmost alternate transmission corridor (4). I unrolled this map on the living room floor. (If the map is correct, the corridor mentioned comes very close to, but does not cross, the northern tip of the Canyoncito Reservation.)

As we talked it became apparent to me that she was confusing this proposed line with one already negotiated with the tribe, and staked out on the reservation. So I emphasized, "No, this is not the same one. This is new--new to you."

She said, "Oh no! Not another power line! The people don't like those power lines. They think maybe they do something to the animals [cattle and sheep?] or to the birds, like cook the birds. The people didn't really want this big line, this last one. But the power company people kept coming and coming, and holding meetings.

They said the power lines didn't do any harm [weren't dangerous]. And finally the people agreed. It took two years for the people to agree to it." (Or did she mean it was agreed upon two years ago?)

Continuing, with intensity, "There's places on the reservation that are our places." (Meaning, I think, sites, burials, ruins, that are not Anasazi, but historic or prehistoric Canyoncito Navajo.)

She then said (paraphrased) that reservation boundaries do not include all the lands that are rightfully theirs. "Our lands go way over there--to the Puerco that way, and to the Laguna this way."

Questions asked, or concerns expressed, about the NMGS project

The concerns articulated, as seen above, center on (1) apprehension about "fallout" from the transmission lines and (2) sensitivity about violation of ancient sites.

More deeply seated, however, may be a feeling of intrusion by the white man and a cumulative sense of injustices done the Indian in the past.

Assessment of the tribe's position toward the project

There may be a more moderate faction in the tribe, but on the basis of my interview with the Chapter Officer I would have to label the tribe opposed.

Follow-up work with the Canyoncito Chapter

A thank-you-for-the-interview letter was written, noting that the designation of the transmission line corridors is still some time in the future. If, at that time, the southern corridor (4),

passing near the Canyoncito Reservation, is the one of those chosen, the Canyoncito Chapter will have an opportunity to express concern to BLM and PNM.

[The following text is extremely faint and largely illegible. It appears to be a continuation of a report or document, possibly containing a list of items or a detailed description of a project. Some words like "Canyoncito", "BLM", and "PNM" are faintly visible, consistent with the header information.]

POSITION STATEMENT RE PNM ALTERNATIVE CORRIDORS (NMGS)

by Ron J. Solimon, Director of the Pueblo of Laguna, Land and Mineral Resources Office (February 1982)

The Pueblo of Laguna is aware of the intended construction of transmission lines by the Public Service Company of New Mexico (PNM) through or near Pueblo of Laguna lands and has made preliminary contacts with appropriate agencies coordinating the Environmental Impact Statement (EIS). A Memorandum of Understanding has been prepared for execution between the Pueblo and the Bureau of Land Management in accordance with the Council on Environmental Quality Regulations, which implement the National Environmental Policy Act (NEPA) and Part 2800 of the regulation which implement Title V of the Federal Land Policy and Management Act.

The Pueblo intends to identify, specifically, certain sites on or near Pueblo of Laguna lands which are regarded as sacred in a religious context or significant to the Pueblo in perhaps an anthropological or archaeological context. Such identifications will be accomplished under the mandate of 28 U.S.C. 2415, which is a Statute of Limitations for the prosecution of certain claims on behalf of federally recognized Indian Tribes by the United States, as Trustee. The sites which will be identified may be within the proposed corridors, although from this writer's knowledge of said areas, minimal or no disturbance to such areas will occur by construction in any of

the proposed corridors. However, this is not to say that the Pueblo in any way waives its right to make its identifications known via their inclusion in the EIS and to register its objections to any such disturbances.

APPENDIX C

AN ETHNOGRAPHIC INVESTIGATION OF SITES AND LOCATIONS
OF CULTURAL SIGNIFICANCE TO THE NAVAJO PEOPLE
TO BE AFFECTED BY PNM'S FOUR CORNERS TO AMBROSIA
TO PAJARITO 500 kV TRANSMISSION PROJECT

by Charles H. Carroll

Public Service Company of New Mexico

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I. PREFACE

This report is intended to serve primarily as a Public Service Company of New Mexico (PNM) internal management document, constituting the first step in PNM's commitment to construct a 173-mile 500 kV transmission line through portions of lands traditionally held by the Navajo people, with the minimum possible disturbance to active lifeways and particularly to cultural and religious values. PNM's commitment to these goals is in the spirit of the American Indian Religious Freedom Act of 1979 (Public Law 95-341), but extends beyond the intent of the Act to a concern for the interruption of daily life and subsistence pursuits of the local inhabitants. Identifying methods of reducing such disturbance was also an objective of this investigation.

An important secondary objective of this report is to provide an introduction to the historical and cultural background of the Navajo people for PNM employees who are professionals in other fields and who have expressed interest and concern for better understanding in these areas. As a result in some cases, rather than documenting a point with a string of references to obscure articles from out-of-print journals, I have inserted an annotated reference to more easily accessible works of greater general interest that can lead the reader to additional detail through their own bibliographic references. I hope this will not inconvenience professionals in my own field who may at some time use the report. Where more standard references are appropriate, I have used them, and where my own opinions differ from standard views, as they do in the areas of Navajo origins and some points of history, I have tried to make it clear they are not gospel.

This study represents the first phase in fulfilling PNM's primary objective of minimizing impacts, since it only identifies areas of significant cultural values and recommends procedures for protection. Careful management of these locations, especially during construction, but also through the life of the facility, are steps that will be developed and carried out by PNM from this initial data.

II. THE FOUR CORNERS TO AMBROSIA TO PAJARITO 500 kV TRANSMISSION LINE PROJECT (FC-A-P)

PNM's FC-A-P 500 kV transmission project will constitute the largest engineering and construction project of its type to date within New Mexico. Construction will entail the use of large, steel-lattice guyed and self-supporting structures, approximately one-quarter mile apart, over the 173-mile transmission route. On the north, the FC-A-P route begins at the Four Corners Generating Station near Farmington, New Mexico, and travels east to a point remaining just inside the Navajo Indian Reservation boundary. From this point, the route turns due south, paralleling the existing 230 kV AF transmission line within the reservation boundary to White Rock. A few miles north of White Rock, the route angles slightly to the southwest to avoid the White Rock formation and central Navajo community, and then angles more sharply to the southeast to exit the reservation a few miles south of the White Rock community and enter the "checkerboard area." This is an area of complex Indian, federal, state, and private land ownerships, primarily occupied by Navajos under various allotment, lease, and patented land arrangements. In the southern portion, this segment crosses a large private ranch before terminating at Ambrosia Switching Station.

The southern leg of the transmission line route traverses mostly private and U.S. Forest Service lands, from Ambrosia Switching Station, east over Mesa Chivato (the northern and eastern plateau of Mount Taylor) to the Canyoncito Navajo Reservation. The route then crosses the Canyoncito Reservation from west to east to the Rio Puerco, and then private land of various ownership to its termination at the proposed Pajarito Station on the Albuquerque West Mesa.

Throughout the route, the project entails construction and operation of the power line within a 200-foot wide right-of-way (ROW), which throughout much of the route parallels existing PNM 230 kV and 115 kV transmission lines.

The project is currently scheduled to begin construction during the summer of 1983, with construction occurring simultaneously on both the northern and southern segments for completion in the summer of 1984.

The construction schedule and the nature of the construction tasks will require very intensive activity by a substantial number of workers with heavy equipment over virtually the full one-year construction period. Therefore, the potential for impact upon unidentified and unmanaged cultural resources and locations of particular cultural concern is very great. The objective of this investigation is to identify such areas and to the extent possible design the internal means for PNM to protect areas of concern throughout the construction process. A secondary objective, which developed during the field work, and which has already been instituted during the engineering surveys of the center line, is to keep the local population informed of PNM's plans and activities and to identify and reduce to the extent possible, interference with the day-to-day life and subsistence and religious pursuits of the local residents. The first

stages of PNM's plan for the mitigation of impacts in these areas have, therefore, already been initiated and are discussed in Section XI.

III. AMERICAN INDIAN HISTORY AND PREHISTORY IN THE REGION

The history and prehistory of American Indian occupation in the San Juan Basin is fairly well known and has been the subject of intensive study in recent years. The brief discussion included here is intended as only a background framework for those who may not be familiar with the region. Much more detailed information and further references may be found in Tainter and Gilio (1980), Magers (nd), and Stuart and Gauthier (1981).

The San Juan Basin has been occupied by American Indian groups for at least 10,000 to 12,000 years. PaleoIndian archeological sites have been recorded as evidence of the earliest portion of this occupation, but their occurrence is relatively rare, even by standards of sites of this era, and it appears that the central San Juan Basin was not an optimum setting for late Pleistocene hunting and gathering. Archeological sites dating from the Archaic period (ca. 5,000 years ago to about 0 A.D.) are much more common, and even with an acknowledged sampling error in the recording of Archaic sites, it appears that virtually the entire basin was utilized by hunter-gatherer bands during this long and relatively little understood period. In the first centuries of the Christian era (0 A.D. through 300 A.D.) archeological evidence indicates that some groups became more sedentary, substituting horticulture and agriculture more and more for portions of the earlier, mobile hunting and gathering strategy. Evidence of increasing permanence in habitation sites and increasing storage of agricultural goods have suggested to many a universal

shift from the mobile, hunting and gathering strategy to an ancestral pueblo, sedentary strategy with agriculture as the primary subsistence base. This is the fairly standard view, which then follows the course of the puebloan archeological evidence through the development of the Chacoan system within the basin, eventual abandonment of the central basin, and the incursion of Athabascan speaking Navajos and Apaches into pueblo territory at about the same time the Spanish arrived in the early sixteenth century.

In my opinion this universal transition is questionable, and it is likely that hunter-gatherer bands continued to exist throughout the puebloan development period (Carroll and Marshall, in press). In the earliest stages of puebloan development, a mixed strategy of mobile hunting and gathering, combined with horticulture, with seasonal shifts, and even long duration shifts, almost certainly occurred, and is probably testable in the archeological record. The potential for hunter-gatherer bands continuing within the matrix of pueblo occupation is not excluded by archeological evidence, and later historical evidence frequently cited to confirm the absence of Navajo-Apaches at Spanish contact is far from conclusive (Carroll and Marshall, in press).

For a period of approximately 600 years, from roughly 1250 A.D. to 1870, the central San Juan Basin was largely abandoned by resident populations. Occupation during this long period appears to have been transient, until reoccupation by Navajos following their release from Bosque Redondo in 1868. Occupation on the fringes of the central basin, along the San Juan River and on the south surrounding Mount Taylor and the Rio San Jose, remained fairly constant and often intense.

The longest continuous occupation in the region actually traversed by the transmission route is the Mount Taylor, Seboyeta/Laguna/Acoma region. This region exhibits evidence of the full continuum of pueblo development (with an apparent decline in the Pueblo IV period), and very intensive occupation by Pueblo, Navajo, and Spanish people during the historic period.

The long ancestral history of all American Indian groups currently residing in and on the fringes of the San Juan Basin is, therefore, very well established, while the present boundaries of tribal land holdings are the result of more recent (nineteenth and twentieth century) political and legal actions.

The Navajo Indian Reservation was established in its initial form in 1868, at the conclusion of the Navajo's Bosque Redondo imprisonment. Navajo land holdings have continued to spread eastward through land transfers between federal agencies and land purchases by the Navajo tribe in the "checkerboard" area crossed by portions of the transmission route. The "checkerboard" area, Mount Taylor, the Canyoncito Region, and the Rio Puerco Valley are all part of the historic Navajo range during the long period of warfare leading up to the Bosque Redondo imprisonment.

The Laguna region has been occupied by pueblo groups from the earliest transitional stages from hunting and gathering, through the present. But, Laguna Pueblo, as it is now recognized as a distinct tribal entity, was formed around a Spanish Franciscan mission founded in 1699. When the Rio San Jose region was visited by Espejo, as documented by both Espejo and Luxan, in 1583, no pueblo nor other native group was mentioned near their campsite at the "Laguna," while Navajos (my identification; Carroll and Marshall, in press)

were encountered at Seboyeta. The cultural make up of Laguna is, therefore, probably a composite of local groups closely allied with the longer established pueblo of Acoma to the south, and migrants from other regions such as the Puname Province (Zia/Santa Ana region) who are known to have joined with the residents in times of turmoil in the historic period.

The Canyoncito Navajo Band Reservation to the east was founded after the Bosque Redondo imprisonment, beginning in about 1868 by a few Navajo families through the Indian Homestead Act. The reservation developed through increasing homestead claims by Navajos, the majority of whom were part of the old Mount Taylor/Seboyeta bands of the earlier periods of warfare (for a full discussion of the eastern Navajo bands see Carroll and Marshall, in press).

IV. LAGUNA PUEBLO

This study did not include interviews with inhabitants of Laguna Pueblo. Officials of the pueblo have been consulted, however, during the EIS process for this project, and during the feasibility study phase of the now postponed PNM Pumped Storage Project at Seboyeta, about 15 miles north of the pueblo and near the route of this proposed project. The transmission route does not cross any lands presently held by the Laguna Tribe, and traditional cultural and religious concerns have never been expressed by the tribe in the case of this project or the Pumped Storage Project. Because of its historical founding as a consolidation of groups around a Spanish mission, Laguna is ostensibly a Christian pueblo. Traditional religion is widely practiced, however, and includes a concept of sacred places as will be discussed later with the Navajo (although in a very different cosmological preception). Evidence of Laguna

shrines (related to traditional religious practices) in active use has been recorded archeologically (Carroll and Hooton 1977), but none are known to occur in close proximity to the proposed transmission route. Therefore, direct or indirect impact upon sites of traditional cultural concern to the Laguna people is considered to be very unlikely, but if concern is expressed by the Laguna Tribe, PNM will, of course, devote the same care and consideration which has been applied to the Navajo people who are more directly affected by the proposed project.

V. THE CANYONCITO NAVAJO BAND RESERVATION

As discussed earlier, the Canyoncito Navajo Band Reservation was formed after the Bosque Redondo imprisonment by individual Navajos under the Indian Homestead Act. The founders, and many of the current population, trace ancestry to the Mount Taylor bands of the earlier warfare period (copies of anthropological kinship data forms are on file at the Canyoncito Chapter House, from work I believe was conducted by anthropologists Lee Correll, David Brugge, and others during the land claim hearings of the 1950s). A detailed history of the Mount Taylor bands (and an argument for their existence, which was denied in the land claim hearings) may be found in Carroll and Marshall (in press).

The routing of the proposed transmission line across the Canyoncito Band Reservation was accomplished under the unique circumstances of on-site review by a Canyoncito representative. One responsibility of this representative was to ensure that the route did not affect areas of religious or cultural sensitivity.

Field work on the Canyoncito Band Reservation was, therefore, limited to touring the entire proposed route with the Canyoncito liaison, and discussing the nature of this study and PNM's objectives of reducing potential impacts to an absolute minimum. Every archeological site revealed by the archeological survey was visited and discussed in terms of any possible religious or traditional cultural significance. Only one site of significance was identified (Site FP-73, Hewett 1981a), and can be managed under the archeological mitigation plan. The nature of the site is interesting, however, and will be discussed here, since no sites of its type were found on the transmission route on the "Big Navajo" Reservation (although this is a very common site type in many areas). The site consists of the ruins of a very small structure suspected by the archeologists and confirmed by the liaison to be a "sweat lodge." This particular structure is partially excavated into a gravel slope on the edge of a small arroyo, and employs light juniper branches to form a lean-to, just large enough to enclose one person in a tightly flexed position. Other forms have been observed throughout the Navajo range, including a form resembling a miniature forked-stick hogan (an early house form of the Navajos), and perhaps the most common, a "teepee"-shaped assembly of light branches, waist-high or less. The structures function as a sweat bath enclosure, and frequently are associated with an assembly of fire-cracked or discolored rocks when observed archeologically. Since the structures and locations sometimes serve in a spiritual cleansing concept, forces cleansed are believed by some to be left behind by the practitioner. At this point, the attempt of categorization of "sacredness," from a Christian-Judeo perception, becomes very difficult. I have discussed this issue with numerous Navajos, in addition to the Canyoncito liaison, and cannot clearly characterize the contemporary view of this type of religious sensitivity. "Contemporary" is important, because I

strongly suspect that perceptions may be significantly different today from 20 or 30 years ago, and perhaps even from 10 years ago. Some of those interviewed on this subject believe that forces are left in the sweat bath location. The characterization of these forces is difficult, but does not seem to indicate anything so simple as "evil spirits," or other convenient label. What may be left behind are, "bad moods," "bad thoughts," or "bad intent," which presumably could vary according to the nature or state of the person who left them. One teenage Navajo's vernacular description of, "bad vibes," may be fairly accurate for many. The consensus of those interviewed is that sweat lodge remains are not places of great danger, but they are not places where you would let your children play, or collect wood from the structure to use in the stove at home. They are best just left alone.

These concepts and attitudes toward sweat lodge ruins expressed by those interviewed on the subject during this field period are in marked contrast to those described by Brugge (personal communication) who notes that, "The Navajo with whom I have worked . . . felt that sweat houses were especially holy and safe places . . ."

Because of the remarkable difference in attitudes toward these features, additional opinions have been sought during more recent field work on an unrelated project. It may be relevant to note that the majority of opinions characterized first above are from the region from Thoreau east to Canyoncito (and concur with Holt 1981, presumably from the Window Rock area); while Brugge's, I believe, are from the Chaco Canyon region; and the most recent follow-up interviews have been in the region from White Rock north to Farmington. These later interviews have spanned the divergent perceptions

described above, with a middle-of-the-road consensus that such ruins are not really "dangerous," nor really "sacred," but again, best just left alone. Obviously, there appear to be subtleties of perception that are not being expressed. This is an excellent example, however, of divergence of opinions among Navajos on traditional cultural matters, which will be discussed later in terms of broader religious issues.

A question of interest in the context of this study, which has not been resolved, is if such a location were disturbed by a non-Navajo (e.g. a D-8 Cat operator) would the potential spiritual or physical repercussions affect only the disturber, or present a danger to local residents or passersby? No informant could offer a definite opinion on this, but stated he or she did not know. I do not believe this is reticence on the subject, because in a documented case of disturbance of a much more important location (White Rock), an informant volunteered that if the disturber were non-Navajo, there would be no effect while a Navajo would be, "in big trouble."

The reason for interest in this type of perception is that disturbance of some sites is believed to present certain dangers to nearby residents or passersby (see section on Navajo Religion). One form of mitigation, if sites are accidentally damaged, and before archeological sites are excavated, is to simply inform local Navajos, who can then determine if protective measures are required for their personal physical or spiritual well-being (Holt 1981). (The inseparable association of these two aspects of well-being will be discussed in the broader discussion of the Navajo cultural setting to follow.) If, through consultation with the affected Navajos and appropriate practitioners it is determined that the required ceremony will result in secondary

economic impacts upon those affected, the minimization of secondary impacts should be considered part of the costs of mitigation.

The Canyoncito Navajo acknowledge the same significance as residents of "Big Navajo" of major sacred areas, such as Mount Taylor and the other cardinal direction mountains, Cabezon, etc. These will be discussed in the next section. It is almost certain, too, that sacred locations of unique significance to the Canyoncito Band exist on the reservation (both origin-related and acquired significance, see next section), but these were not investigated within the scope of this study.

Through discussions with Canyoncito Chapter officials, it was confirmed that the Canyoncito Band is confident that no areas of religious or traditional cultural significance will be affected by the proposed project. To ensure this, close contact will be maintained with designated Canyoncito representatives throughout the construction process.

VI. THE NAVAJO INDIAN RESERVATION AND ADJOINING "CHECKERBOARD AREA"

Cultural Setting

The Navajo Indian Reservation was founded in 1868 after approximately four years of misery and hardship for the Navajo in the concentration camp atmosphere of Bosque Redondo (Fort Sumner, New Mexico). This internment was preceded by and resulted from a devastating campaign against the Navajo led by Kit Carson. Carson's "Sherman-like" campaign (Sherman was in fact the primary U.S. signatory of the 1868 treaty) in the early years of the 1860s followed

the Navajos and Apaches into their hidden canyons and wash-bottom farmlands, killing many, but primarily destroying their resource base, until by 1864 the majority of the survivors, facing winters of starvation, had turned themselves in at the western army forts for "The Long Walk," to Bosque Redondo.

The history of the Navajo, from their still disputed origins, through the Spanish (1540-1821), Mexican (1821-1846), and American (1846-present) periods can be a fascinating study from widely divergent perspectives. The explanation and elucidation of anthropological cultural change, from a hunter/gatherer/horticulturalist/trading strategy to incorporation of herding, agriculture, and raiding into first a complex subsistence strategy, and later a desperate warfare/survival strategy (Carroll and Marshall, in press), requires a test of the limits of archeological, historical, and anthropological theory. From a military perspective, the study of the raiding and warfare tactics employed can provide insight into the development of strategies which form some of the bases of modern warfare. And from a sociological perspective the study of cultural group interaction under conditions of maximum stress, with fairly good historical and anthropological documentation, can provide insight into the development of current intercultural relations and perceptions. (For a well-researched and highly readable introduction, see McNitt's (1974) excellent history of the Navajo Wars.)

Probably the most remarkable and pervasive aspect of Navajo culture is its ability, and even propensity, to change and adapt to outside forces (e.g. competing cultures), while maintaining strong ethnic cohesiveness, and a much more slowly changing central cultural tradition, or "cultural core," (Steward 1955:37). Steward's definition of "cultural core," in its basic form (i.e.,

without some of Steward's ancillary theoretical perspective), is useful in models of Navajo cultural change, and is worth restating.

A cultural core is, "the constellation of features which are most closely related to subsistence activities and economic arrangements. The core includes such social, political, and religious patterns as are empirically determined to be closely connected with these arrangements," (ibid.).

This concept is extremely relevant to the objective of this study and to all efforts of non-Navajos to minimize impacts upon traditional Navajo culture, because it is the basis for current Navajo perceptions of their own culture, and although it has historically changed much more slowly than subsistence strategies, it is in a constant state of flux. Whether the current rate of change in the cultural core is any more or less than during any given period in the past is hard to say--three hundred years of almost uninterrupted raiding and warfare is a hard act to follow, even for a modern industrial society. But, I think it is more difficult to characterize contemporary change in the Navajo cultural core, than perhaps that of 30 to 40 years ago. What is more relevant are those components of the cultural core that have not yet changed, although many are responding to pressure. Some prime elements that compose the culture core of the Navajos are, the clan system, matrilineal descent, matrilocal residence patterns, the "outfit" social mechanism, and Navajo religion, which in theory pervades all aspects of Navajo life and thought. Other elements might be added, but I think these are several key elements that have constituted a major portion of the cultural core for at least 700 or 800 years.

All of these elements probably developed within a hunter-gatherer/horticulturalist subsistence strategy prior to Spanish contact. And all have been compatible with radical changes in subsistence strategy either adopted by or enforced upon the Navajo, which have been documented since introduction of written history by Europeans.

To illustrate this, it is likely that at the time of Spanish contact (1540), or at least by the time of the Espejo expedition (1582), Navajos, or proto-Navajos, were occupying the Seboyeta and the Acomita regions in multiple extended family bands on the southern and eastern fringes of Mount Taylor. The subsistence strategy employed probably consisted of a fairly complex mixture of seasonal activities including hunting and gathering, trade with more sedentary agriculturalists, and horticulture (or seasonally sedentary agriculture; the distinction is not terribly important). With this form of subsistence strategy, evolved over many years, it is not unexpected to find the coevolution of elements of the Navajo "cultural core" described earlier (see Coult and Habenstein 1965 for various correlations of subsistence activities, descent patterns, etc. from Murdock's World Sample).

If this pattern were in fact the case, one would expect elements of the cultural core to include:

1. Division of Labor Between Males and Females

Females primary managers of less mobile pursuits, e.g. horticulture/agriculture.

Males primary hunters with a probable high degree of seasonality (assisting seasonally in horticulture and organized gathering).

2. Matrilineal Descent

Females hold land managed primarily by them in horticulture/agriculture.

Females provide greater constancy of location and life-span (stay in one place longer with children during seasonally mobile annual cycle; live longer than men engaged in hunting and possibly raiding pursuits).

Land or planting plots passed from mother to daughter.

Family possessions and most substantial habitation structures located with women, rather than more mobile men.

3. Matrilocal Residence

Mother passes horticultural elements to daughter with in-migration of daughter's husband.

4. Large Scale Kin-Based Cooperative Units (in this case clans)

Provides a mechanism for organization of labor for major efforts such as warfare.

Provides basis for recognition and solicitation of cooperation between individuals of remote kin relationships.

Clan relationship also passed through female line.

5. Local Cooperative Units (Proto- "Outfits")

May be kin-based or prestige-based or combination of both.

Provide organizational mechanism for cooperative efforts such as raids (as opposed to warfare).

Organization for intensive seasonal efforts such as pinon gathering, or spring planting.

May function as the units of cooperation in certain levels of religious observance.

6. A religion that instructs, explains, and reinforces other elements of the cultural core and more loosely related elements of the culture.

The above should be recognized as an anthropological guess at what some of the key elements of Navajo culture were at the time just before and just after contact by the Spanish in the late sixteenth century. This characterization may cause some concern among archeologists, anthropologists, and historians since no archeological evidence has been recognized to support it. Note,

however, that the "hogan" is not suggested as part of the cultural core and archeologically datable "hogans" have been employed as the sole conclusive evidence of "Navajo incursion" into the southwest. In my opinion, the hogan house form is, like the name, "Navajo," a later development. Changes in house forms, from forked-stick hogans, to circular, stone-based cribbed, (and notched-log based hexagon hogans), to masonry and milled lumber hexagon, to square and rectangular cinder block, to three-bedroom, one and one-half bath ranch styles, have been thoroughly documented (Jett and Spencer 1981). And the possibility of a preceding house form, virtually invisible in the archeological record, is in my view far greater than the possibility of a mass in-migration at about 1600 A.D. from the northwest coast, or even the eastern flank of the Rockies in southern Colorado. This is reinforced by the fact that two distinct groups of nonpueblo Indians were identified in the Seboyeta/Acoma region by the Espejo expedition in 1582. With the possible exception of two sites at Seboyeta (Carroll and Marshall, in press), no evidence of this apparently extensive occupation has been identified in the archeological record. On the other hand, neither is there any archeological evidence of almost 200 years of Spanish activity in this region, from 1540 to the establishment of the Cebolleta Grant in 1800. The identification of two distinct groups also belies the common misconception that Navajos and Apaches were the same at this point, or that the Spanish just could not tell them apart. There may, in fact, even have been a third identifiable group, since a different description is applied to the people encountered at Seboyeta, than those at war with the Acomas at the time, and those encountered along the southern base of Mount Taylor on the return trip from Hopi (translations of accounts of early Spanish expeditions may be found in Bandelier 1904 (Cabeza de Vaca); Winship 1904 (Coronado); and Hammond and Rey 1966 (various expeditions)).

In the increasingly better documented periods of Navajo history, from 1748 through the present, it is relatively easy to track changes in the subsistence strategy and consider how the elements of the cultural core provided means for incorporation of radical changes in subsistence strategy with little need for corresponding changes in the central elements of culture.

By 1800, the Navajos on the eastern frontier (Rio Puerco Valley, Chacra Mesa, Mount Taylor), had made several notable shifts from the subsistence strategy postulated above. Fairly large numbers of sheep, and lesser numbers of cattle and horses had been obtained through trading and raiding with the Spanish and Spanish-supplied pueblos, and raiding had been integrated into the subsistence strategy. A great deal can be said about stress-relationships promoting raiding as a high-risk component of a subsistence strategy, based on the unwritten theoretical assumption of modern anthropology, that people are basically altruistic, and would not dream of infringing upon the rights of others unless driven to it by environmental stress or a Republican Administration. In the study of this historical period, this assumption is coupled with a view of the pueblos as populated by idyllic, hard-working farmers, trying to eke out a peaceful living when set upon the war-like Athabaskans from the north. Both notions are pure nonsense, and ignore both the potential variability of human behavior, and documented history. There is no evidence that the groups reported by Espejo in 1582, who I contend were Navajo, raided anyone. In fact, the group encountered at Seboyeta were termed "friendly mountain people." But a hunter-gatherer group to the west, probably the western Apache, was "at war" with the pueblo of Acoma. If the proto-Navajo groups were not raiding at the time, it was probably the off-season--and their friendliness may have been based upon the fact that Coronado's reputation had

proceeded Espejo by 40 years. But, throughout all of the travels of the early Spanish explorers, references to wars between pueblos are far more common than wars between pueblos and more mobile groups, and the Spanish rarely had problems enlisting one pueblo group against another in the conquests. Some pueblo warfare was particularly nasty, in fact, employing what was apparently an extremely virulent poison-tipped arrow. Coronado lost several men to this weapon and the description of the poison's effect after relatively minor wounds is very impressive. This should give pause to archeologists who deny the existence of prehistoric warfare because of the absence of forensic evidence.

At any rate, by 1800, proto-Navajo groups had been named, "Navajo," and raiding for livestock, goods, and slaves became a well documented occurrence. This raiding was probably both stress-related and opportunistic. Raids such as the warscale attacks on Cebolleta in 1804, probably can be attributed to stress factors, since archeological evidence indicates that the establishment of the Cebolleta Grant in 1800, almost literally, physically displaced resident Navajos (Carroll and Marshall, in press). Other minor raids such as those against Spanish and pueblo herders, for instance, may have some basis in stress, but generally appear more opportunistic. In the long list of documented raids, the majority include the capture of 100 to 1,000 sheep and the murder of an old man or adolescent herder. While some risk was involved, this was not exactly a desperate action, and the returns were great enough to more than off-set stress. Moreover, serious reprisals against the Navajo by the Spanish or pueblos (often together as allies) were relatively infrequent (every two or three years), and generally ineffective. By the time the American military arrived, Navajos in the Mount Taylor region were reported to

be wealthy in livestock and cultivated fields (Robinson journal, in Jenkins and Minge 1974:141).

Without a complete recapitulation, it should be apparent that the Navajo cultural core of division of labor, matrilineal descent, matrilocal residence, large- and small-group organizational mechanisms, and a fortifying religious cosmology would function very well, without major modification. The less-mobile herding function could be incorporated into the female role with partial displacement of horticulture or agriculture, while men's increased exposure through increased raiding would reinforce the matrilineal system. Raids could be organized through the "proto-outfit" kin-based or prestige-based system, while warfare, such as the major effort against Cebolleta in 1804 by 500 or more Navajos might call in more distant clan, or societal relationships.

It was during the first half of the nineteenth century that stress probably became the primary factor in the Navajo relationship of conflict with the pueblos and the succession of European governments. By this time, Spanish grants, settlements, and grazing permits had pushed into many of the prime locations which were probably used by the Navajos on an irregular basis over a great many years. Also by this time, the Mount Taylor, or Cebolla Navajos, had been set off as a distinct group as the "Din'e 'ana'i" ("Enemy Navajo"), for their strange posture of active raiding against the Spanish, and active collusion with the Spanish in slave-raiding and warfare against the western Navajo groups.

Within 10 to 15 years after the Americans arrived, (1855-1860), there is little doubt that if individual raids might be opportunistic, the underlying

cause, for the main body of Navajos, was stress. After initial attempts to pacify the turmoil they found between cultural groups in 1846, the Americans mounted a series of campaigns against the Navajos and Apaches, that were much more effective than ever before. During this period, however, the "Enemy Navajo," in the Mount Taylor region continued to raid opportunistically against the main body of Navajos to the west, and almost certainly Spanish and pueblo settlements, while described as "wealthy" by American soldiers, and while under alliance and subsidy from the Americans and the Spanish settlements of Cebolleta and Moquino.

As the situation of the main body of Navajos increased to maximum stress with the Kit Carson campaigns, the cultural core, once again can be seen to probably have been reinforced by the intensification of pressures which probably operated in its earlier development.

The most interesting fact of all, perhaps, is that when the subsistence system collapsed, through destruction of the resource base by the American campaigns, the cultural core remained basically intact. If sufficient data exist, it would be very interesting to analyze the effect of the Bosque Redondo experience on elements of the cultural core. If this internment had lasted longer, and if regimented subsistence tasks had been enforced upon the Navajo, a change in some major elements could be predicted. However, after the relatively short four-year period, it appears that all major elements (although perhaps modified in unknown ways) were either carried through, or reestablished almost intact.

The modern history of the Navajo, since the establishment of the formal reservation, is very well documented by historians, anthropologists, sociologists, government and church records, and a wide variety of other sources (for an exhaustive bibliography up to the time of publication, see Correll, Watson, and Brugge 1969, 1973).

Two of the best introductions to "modern" Navajo culture, with some historical background, are Ruth Underhills', Here Come the Navajo! (1953), and Kluckhohn and Leighton's, The Navajo (1946). These works can provide insights into the continuation of the cultural core through the early decades of this century, through herding's hey-day, and the enforced government stock reduction, and into the beginnings of acculturation into modern industrial society. They can also lead to more focused works up to their publication on history, subsistence, kin relationships, religion, etc. They should not, however, be taken to represent an accurate characterization of present day Navajo culture, attitudes, etc., which have experienced an additional 30 to 40 years of change.

This study has two general objectives, to assess and limit the potential effects of PNM's proposed action of building a 500 kV transmission line across Navajo lands upon traditional culture--the cultural core--and upon the day-to-day life of residents near the construction zone.

It should be apparent that it is not within PNM's power to affect directly by this project, elements of the cultural core such as matrilineal descent, matrilocality residence patterns, the clan system, or the "outfit" social organization.

It has already been recognized by PNM, and put into effect, that disturbance of day-to-day activities of the Navajo residents can be minimized through a mutual informational process and the same courtesies afforded to any rancher or livestock producer. This carries the added cost in time and expense of professional services (interpreters), but these are acceptable and will be discussed in the mitigation section.

It would appear that the only element of the Navajo cultural core vulnerable to direct or indirect effect from the proposed project are sub-elements of Navajo religion, which have not been discussed to this point.

VII. NAVAJO RELIGION

Preface

In the earlier discussions of general culture and Navajo history, reference has been made to a number of excellent works that uniquely combine interesting and sometimes exciting reading with well-based scholarly research. No similar, well-organized, authoritative, and readable source exists on the subject of Navajo religion. There may be several reasons for this hiatus in the literature, but one is certainly not lack of study by competent professionals. A very substantial body of literature has been created since the early work of Washington Matthews in the 1880's, with a tremendous surge of publishing in the 1940s as a result of several well funded, multi-disciplinary social research studies. Most published works, however, either center on the description and analysis of one or more chant "Ways," or are written from such a scholarly perspective that the average reader, and the majority of scholars,

would need very good incentive to wade through them. Much of the literature of this latter class was produced by psychological anthropologists, and in fact professional psychiatrists, involved in the multi-disciplinary studies. Psychological anthropology is a still extant subdiscipline, or "school," of anthropology, based on a concept of culture, and theories for the explanation of cultural variability which are in marked contrast to those underlying this report.

Perhaps the best introductions to the basic concepts of Navajo religion are found in the chapters on the subject in Kluckhohn and Leighton cited earlier (1946:178-253), and in the introductions, prefaces, and appendices of many of the various "Chant Way," analyses. Two excellent recent articles, published while this report was in draft, York 1981, and Holt 1981, provide backgrounds on Navajo religion and assessments of current management problems.

For an exhaustive list of sources up to the time of its publication, on all aspects of Navajo history and culture, including religion, see Correll, et al. (1969, 1974).

The overview of Navajo religion presented below is brief, but I hope accurate in its major elements, and is centered on the issues at hand: why PNM has taken action to consider effects upon Navajo religion and traditional culture, and why it should continue to do so in the future.

Some Aspects of the Navajo View

One of the prime difficulties in all attempts to outline and characterize Navajo religion is that there is no "theology," per se (Kluckhohn and Leighton 1966:194). There has never been a College of Cardinals, or synod of bishops to meet and set forth to their congregation, "this is what we believe." (There is now a "Medicine Man's Association," however, which will be interesting to follow the effects of in future years.)

Since there is, by definition, no clearly set forth theology, and since nearly all of the elements of Navajo religion are in sharp contrast to the elements of the religion of surrounding populations of European origin, a very strong ethnocentric bias has existed throughout the history of Navajo/European contact. These biases will probably never be overcome--on either side--but through diligent Christian missionary work, it is probably true today that the average Navajo knows considerably more about Christian-Judeo cosmology, than the reverse.

Even at the very beginning of a discussion of Navajo religion, a built-in bias of terminology exists. Christians have "theology" and "doctrines"; Navajos have "myths." The term "myth" has utility in anthropological research, but even there, and certainly in general usage, it is loaded with connotations which instantly denigrate the substance of Navajo beliefs in the view of those of us whose parent religion was, "set down by the hand of God."

Navajo beliefs, which compose the foundation of Navajo "religion," are based upon the origin story. This story explains what the world was like before it

became as we see it today; what forces and super-personalities operated within earlier worlds that resulted in changes in the world to bring it to its present state; where the Navajo people came from; and what things happened to teach the Navajo how to live, and rules to abide by. As Kluckhohn and Leighton indicate (1946:194), "this [story] is the people's nearest analogue to the Christian Bible. Just as the Bible is the book, so for the people this is the story."

Because there is, even today, no widely understood written Navajo language, there is variation in the origin story among individuals who have learned and carried on this tradition. Moreover, even specialists who learn in the traditional manner from other specialists, may become truly knowledgeable in only certain episodes of the story relevant to their particular purpose in learning (or limited by the range of knowledge of their teacher), while maintaining only a general overview of the other major elements of the story. Kluckhohn and Leighton indicate (1946:196) that in the 1940s, "practically all," adult Navajos knew most parts of the story, at least in outline form. While I have no statistical data, my impression from field work in the past few years is that today this would have to be reduced to, "many" adults (possess this knowledge). A number of factors can be postulated for this apparent reduction in widespread traditional knowledge, including outside social pressure, Christianization, adaptive pressure to conform to European standards for jobs, boarding school education, extensive fencing limiting mobility, etc. However, this reduction in traditional knowledge may be more apparent than actual. The factors suggested above may contribute to seriously impeding an individual's acquisition of traditional religious knowledge, but the exponential increase in Navajo population, coupled with an increase in ceremonial practice

(ibid.:224) since the 1930s which has probably continued through the present, may really indicate that more Navajos than ever before possess traditional knowledge, while at the same time, a greater number than ever before do not.

No recent data exist to compare with data from the 30s and 40s to determine if the trend toward increased ceremonialism identified by Kluckhohn and Leighton has persisted, but on the surface it would appear it has. Squaw Dances (Enemyway) in the summer time, and Yeibichai (Nightway) and Fire Dances (Mountainway) in the winter, plus many smaller-scale ceremonies are frequently carried out in the eastern Navajo area.

The increasing frequency of these ceremonies, and their practice by some who are not considered fully knowledgeable, was even a matter of expressed concern by a number of Navajos interviewed during this and earlier field work. Some Navajos feel that because seasonal ceremonies are not strictly confined to the appropriate times of the year, things get out of synchronization. In late October or early November, one Navajo told me, "This weekend there's a Squaw Dance up near Chaco, and a Fire Dance down near Borrego Pass--it's no wonder the weather's all mixed up." Brugge notes (personal communication) that, "This is a concern of long-standing and occurs because weather rather than astronomical observations are used to determine season." Of equal and perhaps even greater concern is the suspicion expressed by several informants that many younger Navajos (not teenage or college age, but early middle-aged males seem to be the main group implied) are getting back into traditional religion in a superficial way, being "too lazy" to learn things fully, and using their partial knowledge for evil purposes. This aspect of Navajo belief, "witchcraft," is an important concept, since it is the contradiction of the

primary focus of Navajo religion, and it is much more widely accepted as an operational force than in modern Christianity. While popular analyses of historical European and even many aboriginal cases of witchcraft would lead one to believe that it is solely a figment of paranoid hysteria, at the basis of most cases, perhaps even our famous Salem incident, was probably someone consciously and deliberately attempting to manipulate supernatural forces. And while the suspicion of witchcraft may vastly outweigh the practice, at its basis is almost certainly some presently unknown degree of actual practice.

If this aspect of invocation of supernatural forces for evil, or the following discussion of the primary focus of Navajo beliefs and ceremonialism toward "good," appear any more superstitious or any less valid than common Christian-Judeo beliefs, consider the fact that virtually every Christian-Judeo prayer invokes divine intervention for the benefit of the supplicant, and frequently to the detriment of his competitors. The Old Testament position of, "smite mine enemies, and raise me up," is a strong Christian-Judeo tradition, which I have heard in eloquent modern zeal from the mouths of Doctors of Divinity before battles in Viet Nam. From the point of trying to pump up divine support for oneself, while at the same time weakening the divine grace of one's opponent, to simply concentrating on hexing one's opponent, is not that big a leap. (The process may be observed in football locker rooms across the country each fall.) However, the process of a Christian shifting all his good or bad supplications from God to satanic forces for his own benefit, or detriment of opponents, would represent a major psychological upheaval, which probably has no real analog in Navajo cosmology, and may result in never quite matching the European, Christian-Judeo perception of witchcraft with the Navajo view of this type of activity.

The Navajo origin story will not be presented here for reasons of time, space, and probable reader interest. A number of different versions may be found throughout the literature cited, and these are in fact interesting, but as Van Valkenburgh (1974:17) pointed out, "so many minutia are included that the Anglo-American ordinarily finds these passages in myths boring in the extreme."

Let it suffice that the Navajo origin story, in all its versions, explains how Navajo country came to be as it is today; how certain especially powerful supernatural personalities or forces, such as the Hero Twins, Changing Woman, and others played parts in the development of the world as it is seen today; how the Navajo people originated; and to a large extent how and why Navajos should manage their personal lives according to traditions prescribed in the story.

The events of the story took place here, where the Navajos now live. Earlier worlds, where the sacred mountains were created and so forth, were not the same as we see now, but what we see is often the result, or remnant of a specific event in the Navajo stories. Geography and modern topographic features are of utmost importance in linking Navajo religious concepts to the reality of the physical world. For example, most non-Indian neighbors of the Navajos are aware that Cabezon Peak is the head of a monster slain by the Hero Twins and the surrounding lava flows are its blood. Virtually every other major, and a great many minor, topographic features between the four sacred mountains possess some link to elements and events in Navajo cosmology. The four sacred peaks are the Colorado Peaks on the north (the exact peak is open

to differences of opinion), probably Redondo Peak on the east, Mount Taylor on the south, and the San Francisco Peaks on the west.

Within the geography of this and earlier worlds set into perspective by the origin story, other stories explain in greater detail the formation of lesser features and more specific reasons for behavior and life-style. One such story will follow in the discussion of the White Rock sacred area.

A virtually universal theme of Navajo stories and religious perspective is the value of harmony: of the physical universe, of the Navajo's relation with it, of harmony between people, and within a person. The stories are also filled with examples of how things have gone haywire, harmony turned to chaos, and then regained--or lost entirely, resulting in some less pleasant state today. There are a wide variety of ways harmony can be disrupted, resulting in discord, illness, psychological disturbance, or just plain bad luck. Within the stories, and within special episodes, perhaps known to only a very few specialists, are the means to restore order and repair whatever problems have resulted. The practice of Navajo religion, both in day-to-day life and in ceremonial activities, is aimed at maintaining order or harmony, or restoring it when something has gone awry.

Traditional Navajos live their religion in daily practice in probably a far more active conscious and subconscious manner that is common with most non-Indians. And all Navajos of my experience, including those in urban centers, who do not keep daily traditional practices, place high value on the "old

ways" and feel they would be better off if they did. Even the most acculturated Navajos I have met, feel that someday they had better go back and have the proper ceremonies conducted to bring things back into order.

The factors that can make things go into disorder are extraordinarily complex. Some things, as set forth in the stories, are guaranteed to cause trouble: contact with human corpses, lightning-struck trees, lightning-killed animals, and so forth. Psychological and adaptive explanations for these concepts abound in the literature, but suffice it to say that there are a great many things a Navajo can do, or not do, or at least try to avoid, to maintain harmony. Some of these things are changing and are validated by stories of apparently recent origin. In Kluckhohn's and Leighton's time (1946), coyote killing was "taboo." Now, Navajo herders frequently carry .22 rifles to defend their sheep, and the story goes, "The old man went out and called to the coyote and said, 'Look, Coyote, in the old days I never bothered you--now you're bothering me! You're killing my sheep when I've got kids to feed, so you stop or I'll fight back.'" Whether or not this story justifies coyote-killing in the minds of herders to the point that no ceremonial remedies are required is uncertain, but it is likely that some would take remedial action at some time in their life.

Some other causes of potential disharmony are well known: contact with non-Navajos can cause problems to be remedied through the Enemyway, part of which is the well-known Squaw Dance. This is traced by most scholars from the old warfare days when contact with dead enemies posed the constant threat of ghost sickness to warriors after battles. Now, it may be back on an even greater scale because of the greatly increased contact with Whites.

In their era, Kluckhohn and Leighton (and their contemporaries) found that all Navajo ceremonialism was conducted for the purpose of curing, or in the broader sense, restoring or maintaining harmony. This is probably largely still the case, for all "positive" actions outside the caveat above concerning witchcraft. However, I am aware of one case where a ceremony was conducted to influence the outcome of a pending legal decision. I have no further information on this, and where it fits, I am uncertain, but I am virtually certain that this was in no way perceived as witchcraft by the practitioner, who would probably be mortally insulted at the suggestion. At any rate, this case appears to be a possible exception to Kluckhohn's and Leighton's experience 40 years ago (which was very extensive indeed), and is perhaps a new development in adaptation of an element of the cultural core discussed earlier. However, David Brugge notes (personal communication) that this "may be due to a gap in Kluckhohn's and Leighton's data. Such ceremonies are based on old war ceremonies, which are not divulged very readily to non-Navajos. Use of supernatural forces against fellow Navajos is witchcraft, although some activities attributed to witches would probably never be considered even in the most desperate situations in war."

The determination, or diagnosis, of causes of disharmony manifested in illness, mental disorders, or in any other ways, may be done by the patient himself or herself, or by a specialist who may or may not be kin-related. Often, the person performing the diagnosis is not skilled in the practice of the remedial ceremony, but will recommend the proper ceremony to correct the problem. Sometimes the problem may be clearly connected to an event such as contacting a lightning-killed animal (see Informant 1, Appendix A). In such a case, the patient himself probably knows at least the type of ceremony that is required.

In other cases, an illness or problem may have no apparent cause, and a specialist such as a "hand-trembler" may be called. "Hand-tremblers" are apparently common enough, so that in the few cases I have documented, they are available within one's fairly close kin, e.g., an aunt. The "hand-trembler," (who trembles a hand in a trance-like state) determines the cause of the disorder, and usually prescribes the remedy. More often than not, "hand-tremblers" do not possess the specialized knowledge to conduct the ceremony they prescribe, but advise the patient in finding the right "singer," or "medicine man." If the hand-trembler has difficulty isolating the problem, or if perhaps several possible causes are apparent, or if the proper remedy is not apparent, the singer may be consulted at this stage. Kluckhohn and Leighton (1946) cite cases where a singer may experiment with short versions of one or more ceremonies to help indicate the proper course of action, and then perform the full ceremony, or series of ceremonies, which appear most likely to correct the underlying cause of the symptoms.

Some of the major ceremonies are performed in prescribed patterns over several days, sometimes in alternating long and short forms, over several years. These ceremonies are the "Ways" of the anthropological literature; although the term "Way" has no apparent meaning to Navajos fluent in both languages, who are not familiar with the term in this usage. Nor is there recognition of the English names for ceremonies, such as, "Beautyway," "Enemyway," "Flintway," etc., by Navajos unfamiliar with the literature (or anthropologists).

Once prescribed, the ceremony may be carried out with immediacy, as for cases of illness, or put off until the proper season, or even for a later period in one's life. Most ceremonies are conducted at home with the support of one's

family, both in participation in the ceremony and in economic support in the form of payment to the singer and expenses in feeding visitors. Kluckhohn and Leighton (1946:226) state that, "a fee is always paid to the singer, even if he is the patient's own father; otherwise the rite might not be effective."

While the fee paid to singers may not be substantial, major ceremonies can be very expensive in time away from jobs and subsistence activities, and in food and other commodities consumed by visitors during a three- to five-day, or longer ceremony. This is a major reason why noncritical ceremonies are often put off for more favorable times.

Other ceremonies, particularly those aimed at restoring harmony in such things as climate, or rainfall, may be held in a sacred place either prescribed by well known stories or the interpretation of a practitioner or consensus of a group.

At this point, geography, and plants and natural substances from specific geographical areas, again play an important role. According to informants interviewed during this study, the majority of plants and natural substances generally employed in ceremonial use are not location-specific. And most which are, are collected by singers, "in the mountains," outside the central basin area. Other plants which are commonly used, are ubiquitous within most areas of the basin, and are not location-specific (see Informant 26). One large area of topographic diversity was pointed out, however, as a "good place to look for plants in the spring and summer," (Informant 15, in discussion of White Rock).

Categories of Navajo Sacred and Traditional Cultural Sites

A hierarchy of Navajo sacred places is probably a dangerous precedent to attempt to establish. But the first few steps are probably relatively uncontroversial.

There appear to be four basic religious, and one possible nonreligious category of locations that should be considered. (Refinements offered by David E. Brugge have been extensively incorporated and are greatly appreciated.) Discussion of the categories will follow.

I. Origin-Related

- A. Major Places--Sacred mountains, etc., related to the creation and emergence, and Blessingway (and possibly Monsterway).
- B. Ceremony-Related Places--Related specifically with the origin stories of the various ceremonies, especially the Holyway and Evilway group (or those originating after the departure of Changing Woman).
- C. Clan-Associated Places--Related to the origin of the various clans.

II. Locations of Acquired Significance

- A. Locations of Spiritual Danger
 - 1. Death hogans.
 - 2. Antelope corrals and eagle trapping sites.

3. Alien influenced places.

a. Anasazi ruins.

b. "Burials" of enemies killed in Navajo country.

4. Locations of major ceremonies (depending on nature of ceremony).

B. Holy Locations

1. Certain hogan ruins.

2. Certain sweat lodge ruins.

3. Locations of major ceremonies (depending on nature of ceremony).

III. Shrines

A. Shrines of individual singers used to meet the requirements of their particular ceremonies.

B. Improved shrines.

1. Trail Shrines

2. Rock Art Shrines

IV. Location-Specific Gathering Areas

V. Secular Gathering Areas

In support of the Navajo land claims in the 1950s, Richard Van Valkenburgh conducted a study of Navajo sacred places on behalf of the Navajo Tribe. The 83 sacred places compiled by Van Valkenburgh with the cooperation of the Tribe can be considered to be of the first order of importance. These locations are primarily distinctive natural features such as peaks, mesas, lakes, etc., which are considered by a fairly large percentage, or perhaps the majority of Navajos to be the location or result of some event described in the origin story, or well-known episode that is an off-shoot of the origin story. Because of the nature of the transmittal of religious information discussed earlier, it may be seen that opinions about locations can differ. To my knowledge, there has never been any question that Mount Taylor is the southern sacred mountain and, therefore, it can be viewed almost without question as "sacred" to all Navajos. Even at this level, though, there are differences of opinion among Navajos, as mentioned earlier, about the northern and eastern sacred peaks. If the four cardinal mountains are interpreted differently, then it is reasonable to expect that features related to lesser events and settings of the Navajo stories, would be open to even greater diversity of interpretation. However, it is safe to assume that because Van Valkenburgh was supported by the Tribe with the objective of verifying land claims, the 83 sacred places recorded are of primary importance to the greatest number of Navajo people.

The first order of Navajo sacred places, then could be defined as:

- I. Origin-Related Locations: Places perceived by a significant percentage of the Navajo population to be the location or result of events or settings described in widely accepted versions of the Navajo origin story.

In my opinion, there is no utility in attempting to carry this category of "sacredness" further in degrees of significance. From here it would follow a stair-step hierarchy by modifying the percentage of the population and acceptance of the story version. But, whether this category of site is recognized by the entire Navajo population, or one singer who employs the place in the practice of ceremonies for his clients, it is a category of primary concern for studies seeking to identify potential impacts upon sites of traditional religious importance.

The word "sacred" may be inappropriate beyond this category, but there is no handy substitute. The next category of site can be described as:

- II. Locations of Acquired Significance: Places which have taken on significance in a religious context because of actions of people in our time (in this world) as opposed to human or supernatural beings in mythological times. This type of significance may be known to only a limited number of local people, but would be recognized by "all" Navajos as a traditional cultural concept.

Common examples of this type of significance would be various perceptions of earlier house ruins. According to informants interviewed in this study, at least three types of hogan ruins are perceived. One is the well-known "death-hogan," where someone has died and the hogan ceremonially abandoned; another is significant in a religious context (and should not be disturbed) because it was "blessed" with a ceremony after construction, or a significant ceremony of another type was held there, or materials from ceremonies held elsewhere were deposited nearby for return back to the earth; the third is, "just a ruin," where nothing special happened, and no significance is attached.

A subcategory may be defined as:

Locations of Spiritual Danger: Places where inappropriate actions or even presence, can be of danger to physical or spiritual well-being.

The prime examples of this type of significant locations are gravesites. Contact with dead people, graves, grave-digging tools, places where people have died, or virtually anything else related to death is believed to carry considerable personal danger. The disturbance of graves by others (e.g. outside companies) is considered to open residents and passersby to this danger, in addition to the obvious perception of disrespect which would be experienced by people of nearly any cultural background. Although impact upon grave sites is probably of less long-term cultural significance (e.g. disturbance of one grave would probably result in no long-term trend toward cultural change, as might be the case if all four sacred mountains suddenly disappeared), it is probably the most immediate and volatile of all categories of sensitive areas revealed by this study. The disturbance of a child's burial

near Burnham Chapter, became the catalyst for an armed take-over of the Consolidated Coal Mine within the past several years. Also in this category, would seem to be certain "sweat lodge" ruins, as discussed earlier, in the section on Canyoncito. Other sweat lodge ruins, or perhaps the same perceived by different Navajos, would acquire positive, or "holy" significance in the earlier subcategory.

III. Shrines: A subcategory of acquired significance, where prayers are spoken or personal rituals observed, which may or may not be tied to origin-related locations.

The term "shrine," is awkward, but it is commonly used, and I do not have a better one. I would limit it, however, to shrines employed by individual singers, personal prayer locations, rock art shrines, and the "trail-side" shrines described in the literature (which I have never observed). The trail-side shrine is usually described as an assemblage of stones, often stacked as in a cairn, which can be recognized by Navajos, even those not familiar with the location, where certain, usually brief, rituals are performed, or prayers spoken, perhaps without stopping. (Jett and Spencer 1981 document such shrines.)

A fourth category is actually a subcategory of Types I and II, but may be useful to consider separately as an area of study:

IV. Location-Specific Gathering Areas: Places where plant, or other natural substances, which may be available elsewhere, are collected specifically because of their association with that place.

Where this type of collecting applies in origin-story locations, the general perception of significance should be self-evident; and where it applies in areas of acquired significance, the importance is almost tautological. It is fairly well known among non-Indians that for the performance of certain ceremonies, singers obtain materials from the tops of sacred mountains, and from the origin-related sites. When material is obtained from locations of acquired significance, e.g. as perceived by one singer to a rite that perhaps only he or she knows, then the significance of the gathering place is also acquired.

- V. Secular Gathering Areas: Among traditional Navajos, this may be a noncategory. Types of gathering usually described as secular includes plants for dye in weaving, but weaving is so interwoven with shared and personal religious observances, taboos, and rituals, that its categorization as secular is questionable. Traditional hunting would be excluded on the same grounds. Perhaps, the gathering of dead wood and coal for fuel would qualify, as might the casual gathering of plants for food during herding or other activities, although, with many opportunities to observe meal preparation during the field work, no wild plants were observed in use, and informants claimed they just do not use many any more.

Geography is an enormously important element in Navajo religion, and a sound theoretical position can be taken for the "adaptiveness" of this element for any culture with a mobile subsistence strategy in a patchy resource environment. But, rather than itemize each adaptive aspect of Navajo religion, which I think nearly anyone can postulate on their own, the important point within

the context of this report, is that within the San Juan Basin, we are dealing with an area directly comparable to the Christian "Holy Land," with probably even greater significance ascribed to specific geographic features. The Christian "Holy Land" in the middle east is the actual ancestral land of only a very small percentage of Christians, while the land between the four sacred mountains is perceived to be ancestral to all Navajos. It is not in the least overly dramatic to draw the analogy that an effect upon one of the Navajo's sacred mountains would be of similar psychological and political impact as an effect upon Mount Olive or Mount Sinai in the Christian Holy Land (although nuclear war would be far less likely).

In recent history (the last 30 to 40 years), the Navajos have shown a remarkable tolerance for effects of outsiders, and their own tribal decisions, upon very significant sacred places. There are approved radio towers, microwave repeaters, wind monitoring stations, etc., on many of the major topographic features in Navajo land, and this report documents an existing transmission line across the flank of a topographic formation of religious significance at White Rock, that is found perfectly acceptable by at least one knowledgeable informant.

The overall effect of any action affecting Navajo lands and outlying identified sacred locations can only be assessed from what is known from what is now aging literature, and from what Navajos are willing to tell us about their perceptions and concerns in the present.

Clearly, Navajo religion is replete with subtleties I have not begun to touch on, and many of which I am totally ignorant. Navajo religion has a unique

grace and beauty that is difficult to convey through definitions of "management categories." However, even from the perspective of resource management, there remain an enormous number of unanswered questions which must be answered before truly confident assessments of impacts can be accomplished. Only the Navajo people can help us begin to answer these questions, and hopefully avoid unnecessary effects upon traditional culture.

VII. FIELD METHODOLOGY

This study was conducted by the author, with the assistance of a Navajo interpreter over the months of May, June, July, October, November, and December 1981. During the summer months the interpreter position was held by Miss Lillia James, of Burnham Chapter; during the fall and winter, by Mr. Manuel Shirleson of Crown Point. Throughout much of the field period, the ethnographic study was combined with the verification of archeological site locations recorded by the earlier archeological survey, and at times, archeological site monitoring of engineering survey activities related to the proposed project. This proved valuable, since it provided both a first-hand awareness of recorded sites for discussion with informants and a reason for initiating interviews (i.e. to inform residents of activities of survey crews).

The exchange of information between PNM and the Navajo land holders was used as the theme for each initial interview. With only a few exceptions, all land holders had been approached up to three years earlier, had given approval, or were at least aware of the project, and thought we (PNM) had forgotten. Therefore, every interview provided the opportunity to provide information as

well as simply request it. This included PNM's current survey activity, planned construction schedule, the general nature of construction, and almost invariably, a lengthy discussion of procedures for compensation for the particular land status of the resident.

The sampling strategy employed was straight-forward, and I believe the only one feasible for this stage of preconstruction, site-specific survey: 100 percent coverage. The objective was to contact every Navajo land holder, whether grazing permittee on the Reservation, allottee, or leasee off the Reservation, who held lands to be affected by the proposed project, and as many nearby residents as possible. Hopes to seek out singers specifically to discuss religious concerns never materialized, although at least three residents interviewed are singers, and many other residents appeared to possess considerable traditional knowledge.

Of those Navajo residents directly affected by the line, approximately 95 percent were located and interviewed. Those few who were not located have not recently (or never) occupied their land holdings, and in all cases data of reasonable confidence were collected from nearby residents, covering the unoccupied areas. In addition to directly affected residents, approximately 35 residents within one to five miles of the line were interviewed. Of these, very few expressed interest in the project or knowledge of sensitive areas near the proposed line. The majority of these interviews were brief and resulted in no information, so no notes were taken. A few provided excellent information and are included in the transcribed informant interviews.

No formal questionnaire was used, although the set of questions which developed early in the study was asked of each informant in different succession, often repeated from different perspectives on successive visits.

Anyone familiar with the Navajos, and certainly the pueblos, and even Christian Anglos, for that matter, can appreciate that one does not simply knock on the door and announce, "Hello, I am a representative of Big Business, and I would like you to tell me about your religious practices."

But through the expertise of both interpreters, this was almost the nature of each initial interview, with remarkably good results.

Most initial interviews followed the pattern of presentation of PNM's information, with strong emphasis of our desire to construct the proposed transmission line with as little unnecessary impact upon areas of sensitivity and the day-to-day lives of the residents as possible. If this point appeared to be accepted, both interpreters' technique was to simply ask the questions, "Do you know of any grave sites that might be disturbed by the line? Any gathering areas? "etc."

Questions asked of each informant, in various forms and often from various perspectives in the same interview, or successive interviews included the subjects of:

1. Grave sites.
2. Plant and other types of gathering areas.
 - a. Repeat question: ceremonial plant areas.
 - b. Repeat question: food plant areas.
 - c. Repeat question: clay gathering areas.
3. "Sacred sites."
 - a. Repeat question: sites that Singers use.
4. Significance of known archeological sites.
 - a. Repeat question: unrecorded sites.
5. Old roads and trails.

No questions about the informants general "feelings" about the proposed project or development in general were systematically asked, nor required. The attitudes of the people interviewed can be characterized with a good degree of confidence. One man volunteered his opinion of approval of transmission lines because the generation plants and mines create jobs for the younger generation in Farmington; one man is strongly opposed to the project, because he will receive no direct benefit; several people were cheerful about it, especially on return visits, but mostly out of friendliness; but in general, no one--even those most favorable--wants the line across his or her personal grazing area.

All, however, are willing to put up with it, if they receive equitable monetary compensation for disturbance to their grazing and daily lives. All informants seemed to place the transmission line in perspective as a relatively minor annoyance in comparison to more drastic proposals for strip mining, the Navajo Indian Irrigation Project (NIIP), and other activities throughout the eastern Navajo area.

In every case, initial interviews provided what was to become the final information on grave sites. In a few cases, return visits were required to confirm an exact (or close) location. And in a few cases, apparently to satisfy me, on second visits grave sites away from the line were identified, as if to confirm that the question really was understood, and "Please do not ask again." In retrospect, it appears that the question, "Do you know of any grave sites that might be disturbed by the project?" was answered accurately, and forthrightly, with either a positive or negative response, by each informant in the initial interview.

During the first few weeks of the interviews, I became less confident about the information being provided on all other types of "sacred" or "sensitive" area, which was nil. A very real question became whether other types of "sensitive areas" might be so sensitive that the information would not be given to an Anglo. Also of concern is that a great deal of religious and cultural information possesses proper seasons, times, and contexts of disclosure, even to other Navajos. Information gathered later, and a review of the locations of informants claiming, for example, "no plant gathering areas nearby," raised the level of confidence in the sufficiency of the data. The initial uncertainty occurred during interviews on Moncisco Mesa, where

there is very little plant diversity, and no notable topographic features. Where good vegetative diversity and major features occurred, there is a traceable increase in data.

While I believe all informants understood the purpose of their disclosures, and in fact did disclose areas of genuine concern, the time and context of such discussions may still have had effect. All information provided on ceremonial plant use came after the first frost. Whether this is significant, or merely coincidence, I have no idea, but all the information was received from informants interviewed earlier in the summer, who offered no information at that time. In general, winter is considered the more appropriate season than summer for discussion of religious subjects, and the telling of certain stories. Some religious subjects are far more restricted in appropriate contexts, and might be told only by a singer during, or immediately preceding or following a ceremony.

This can be a little disconcerting, as can the question often asked by concerned Anglos, "What if a location is used by a medicine man, 200 miles away?" I have yet to hear this concern expressed by a Navajo, but after becoming thoroughly familiar with this proposed route over almost 6 years (see Carroll, Marshall, and Stuart 1976), I believe that the omission of any highly significant area, unknown or unexpressed by the local population, is extremely unlikely.

While I have shared in many of the staggering "what if?" propositions of concerned Anglos attempting to protect cultural traditions and religious perspectives we barely understand, I am convinced that the best we (Anglos and

Navajos in this study) can do is define reality and deal with it. In this case, I believe we have come close.

IX. ORIGIN-RELATED SITES

A. The Old Crater

Prior to the beginning of field work, the proposed ROW was plotted on the map of Navajo sacred places provided by Van Valkenburgh (1974:map pocket). Several locations were noted to be within a few miles of the proposed route, but well removed from any potential direct or indirect impact, but one, "The Old Crater," appeared very close, and was identified for investigation in the field. From discussion with a number of informants, and officials of the BIA in Crown Point, it appears that the map location and the legal description (Van Valkenburgh 1974:57) is incorrect. From the description of the feature and the significance of this location, all informants agreed that this must, in fact, be the volcanic cinder cone, El Tintero, southeast of Haystack Mountain and just north of Interstate 40, many miles from the proposed ROW. Careful examination of topographic maps of the Van Valkenburgh location indicates no likely topographic feature. If such a location does exist, its significance is not perceived by any of those interviewed on the subject.

B. Heart Rock

This is a relatively small topographic feature of grey and reddish eroded shales, located a few miles east of the proposed ROW near Crown Point. Information on this feature's probable significance in connection with concepts of evil religious connotation was provided by Dr. Charles Griffith (personal communication) toward the end of the field period. Informants some distance from the feature were questioned on the subject and had no knowledge of its significance, but unfortunately, no opportunity was available to return to the area and interview residents who live close by the formation. This feature is located approximately one-half mile north of a major existing dirt road which may be used without improvement for construction access, and no effect upon the location is anticipated. Current perceptions of the location will be investigated during later phases of this project.

C. White Rock

White Rock is a major mesa and badlands formation just south of Chaco Wash, and just north of the Navajo community and chapter house of the same name. The role of this feature in the Navajo origin story was implied in the interviews, but remains uncertain. One informant promised information, "another time," and this information will be requested in later phases of the project. Basic information about the formation's function as a sacred place was obtained,

however, and are transcribed as told by the primary informant on this location.

On top of White Rock (Stony) Butte there are sacred rock piles. In the old days there was a "Hadahoniye'" inserted vertically in one of the rock piles. (The Hadahoniye' was a 5- to 6-inch long, cylindrical stone, approximately 1.5 inches in diameter, of a rock, "like marble.") This was a place to hold ceremonies to pray for rain and good weather. White Rock Butte is a good place for this because it has ridges that run out in the four cardinal directions, and ceremonies held on top can therefore benefit the areas and people in all directions. The cylindrical rock is gone now--someone took it or moved it. If this was a Navajo who took it, he will have trouble from it (the informant did not believe that it would bother an Anglo). Now that it is gone, they still have ceremonies there, but they do not work very well. Ceremonies still take place on top, but in June (1981), there was a ceremony on the saddle, just east of the AF power line (also a weather-related ceremony).

[The primary informant was questioned from several perspectives on the effect of the existing AF line and the proposed 500 kV line on these features and activities. He maintained that there was no effect from the existing line and he anticipated none from the proposed line--presumably so long as the actual sacred features are not disturbed.]

Origin of the White Rock Topography: According to the informant, his grandfather told him that the White Rock formation was not always rough like it is now. Once it was all a smooth rise. Then the Ram (desert bighorn, by the description) and the Lightning began to argue about who was the "toughest." They argued back and forth, until finally they decided to fight. They butted heads and fought back and forth across the rise until it got so hot the rise caught on fire. It burned out the rough formations, hills, and valleys that are there now. Somewhere on the southwest slope of the formation (west of the AF power line) there is a, "place where steam comes out." This is probably the last remnants of the fire. [Note that the White Rock formation includes layers and eroded piles of bright red and orange burned shale, the result of underground coal fires.]

Also mentioned was the fact that some formations east of Stony Butte (still part of what I am calling the White Rock "formation"), resemble houses (hogans). There seemed to be an implied significance to this, but information was not available in this one, long interview. Information will be requested in later phases of the project. It may be notable, however, that similar features--two small knobs on top of Huerfano Mesa--which resemble cribbed-roof hogans are believed by many to be symbols used by supernatural personalities to show the people how to make houses.

White Rock Affinity to Horses: Throughout the stories and answers to specific questions by the primary informant, there was a theme of the presence of horses.

In answer to questions about old roads and trails, he answered, "only horse trails, over by the butte."

He said that in hard times, horses from all over (pointing up and down the Chuska Valley) can come to White Rock for grass and water, and no one will bother them.

Years ago, his grandfather was involved in a ceremony in the valley north of Stony Butte, and during the ceremony they saw the silhouette of two horses standing facing each other with their necks crossed, on top of the butte. Three times during the ceremony they went up on the butte looking for the horses, but could not find them. On the fourth time, they saw them, standing the same way. One was a _____ (color) and one was a _____ (color). That is why he still rides a _____ horse (of one of the colors).

The significance of horses to this location will also be investigated in later phases of the project.

D. De-na-zin Petroglyph Site

This site is located at the base of a low sandstone bluff, on the immediate southern bank of De-na-zin Wash. The visible aspects of the site consist of the scratched and pecked petroglyphs of several crane-like birds on the verticle sandstone face. Part of the glyph has spalled away, and during the field period, the glyph was outlined in chalk, probably for photographing. According to an unidentified

Navajo informant, who stopped while traveling NM 371, the petroglyphs are very old, and were fading, but were recarved recently by someone, "probably a medicine man." This site was recognized as a "sacred" location by several informants, but during unstructured interviews.

Because of this site's considerable distance from the proposed project, detailed investigation was not attempted. The site has been investigated by the Bureau of Land Management (BLM), however, and Navajo informants in that study apparently did not ascribe "sacredness" to the area, but rather attributed its origin to Utes on the grounds that Navajos would not depict water birds. Navajo opinions on this location then are mixed, but no effect upon the site will result from this project.

E. Mount Taylor

As mentioned throughout the background sections of this report, Mount Taylor, as Van Valkenburgh (1974:57) stated is,

Accepted by all Navajo authorities as the southern main mountain of the Navajo Blessingway tradition. Also many other Navajo traditional associations (Matthews 1897:200, 205, 207). Van Valkenburgh has observed AyoonaIneezi and other Navajo medicine men collecting plant and herb medicine from this peak at various times.

Mount Taylor is, therefore, one of the origin-related locations recognized almost universally as sacred by Navajos.

Because of the nature of the proposed project, and considerable distance from the peak, no effect upon the Navajo perception of this very important feature is anticipated.

F. Cabazon and the McCarty's Lava Flow

Van Valkenburgh (1974:47, 48) provides a good, brief description of the significance of Cabazon:

Cabazon Peak. Navajo: Tse'nadzin, black rock coming down. Dome-shaped volcanic plug located some two miles south of Cabazon, Sandoval County, NM in T16N, R3W, NMPM. Landmark visible for many miles. According to Matthews (1897, p. 234), and confirmed by Van Valkenburgh's 30 informants, associated with the Big God and Enemyway rites of the Navajo. Reputed to be the head of Ye'itso, the Big God (Chief of the Enemy Gods), who was killed by the Navajo Hero Twins (Matthews, 1897, pp. 116, 128, 234). Other volcanic plugs in the area are reputed to be the heads of other Enemy Gods of the Navajo.

Cabazon Peak is located many miles to the northeast of the proposed transmission line, and is in absolutely no danger of direct, or conceivable indirect impact. However, it is associated with the McCarty's (or Grants/San Mateo) lava flows which are located intermittently, beginning 10 to 15 miles south of the route in various locations. These lava flows too, are in no danger of effect from the proposed project, but are included as a nearby origin-related location.

Van Valkenburgh's description (1974:58) complements the description of Cabezon above.

San Mateo Lava Flow. Navajo: Ye'ii tso bidiI ninigheezh, where Big God's blood congealed. Located some 8 to 10 miles southeast of Grants, NM in T10N, R9W, NMPM, where the Rio San Jose cuts through the south lava flow of Mount Taylor. According to AyoonaIneezi's version of the story of the Big God Way, the Navajo Hero Twins started to fight Big God near San Rafael. He was killed on the south side of the Rio San Jose. The white outcroppings are said to have been caused by the heat of the conflict; the lava flow represents the hardened blood of Big God; and paleontological material found here represents his bones. The Navajo say that if the lava flow separated by the Rio San Jose ever joins, Big God will live again and become the destroyer of mankind. To prevent this, Slayer of Enemies, the elder of the Hero Twins, drew a line with a magic flint along the face of the northern edge of the lava flow (Van Valkenburgh, 1939). Matthews (1897, p. 116) records a like version of this tradition. Van Valkenburgh observed AyoonaIneezi collecting fossil bones from the area in 1937.

X. LOCATIONS OF LOCAL CULTURAL CONCERN (ACQUIRED SIGNIFICANCE)

Thirteen sites of local cultural concern were identified within range of potential direct or indirect effect from the proposed project.

Of these, four are associated with known archeological sites. Eight are located in areas of either no archeological manifestations, or associated with sites outside the archeological survey transect. One is the result of observation, with no ethnographic or archeological documentation, and one site (a burial) is known from definite archeological evidence, while no ethnographic informants were apparently aware of the location.

Eleven sites, therefore, are confirmed through ethnographic data, and eight of those would not have been recognized without this source of information.

The site which results from observation, is the standing remains of a Squaw Dance location in an area west of the archeological survey transect, within a quarter-mile of the homes of two ethnographic informants. Neither informant expressed concern about this site, but sites of this type are considered to be under the "Acquired Significance" category of sensitive locations. The informants were not directly questioned about the site, because (1) the site will be easily avoided during construction, and (2) questioning might have resulted in embarrassment to the informants. It is likely that the structures result from an Enemy Way ceremony conducted within the past two to three years by one of the informants. Since Squaw Dance structures are supposed to be dismantled and the poles and conifer boughs returned to their place of origin (in this case, many miles away in the mountains), questioning may have been awkward.

The following table provides abbreviated information on each of the locations in close proximity to the proposed line. Additional information may be found through the cross-references to informant interviews in column two. Only one of the origin-related locations discussed earlier is included, since the remainder are well removed from any potential effect.

SITES AND LOCATIONS WITHIN RANGE OF POTENTIAL
DIRECT OR INDIRECT EFFECT FROM THE PROPOSED PROJECT

Site Number	Informant Reference	Site Type	Location	UIM Coord.	Information Source
1	1	Burial	T28N, R15W Sec. 14 SW 1/4 of NE 1/4		Ethnographic
2	2	Burial	T27N, R14W Sec. 10 or 9		Ethnographic
3	4	Burial	T26N, R14W Sec. 25 NE 1/4 of SW 1/4		Ethnographic
4	4	Burial	T26N, R14W Sec. 36 E 1/2		Ethnographic
5	4	Burial	T26N, R14W Sec. 36 E 1/2		Ethnographic
6	None	Squaw Dance Structures	T25N, R14W Sec. 12 NE 1/4 of SW 1/4		Observation
7	6	Burial	T25N, R14W Sec. 12 SE 1/4 of SE 1/4		Ethnographic
8	6	Burial	T25N, R13W Sec. 18 SW 1/4 of NW 1/4		Ethnographic
9	16	Burial	T23N, R13W Sec. 18 E 1/2 of NW 1/4 of SW 1/4		Ethnographic (FP-31?)
10	17	Burial	N1R, T23N, R14W Sec. 36 SE 1/4 of SE 1/4		FP-23 Archeological
11	15	Sacred Area (White Rock)	T22N, R13W Sec. 30 NW 1/4 of NW 1/4 (center)		Ethnographic
12	26	Sensitive Area	T19N, R12W Sec. 27 SW 1/4 of NE 1/4		FP-24/Ethnographic
13	31, 33	Burial	T17N, R11W Sec. 13 NW 1/4 of NW 1/4		Ethnographic

XI. PNM'S PLAN FOR MITIGATION OF IMPACTS

As may be gathered from the discussions of Navajo traditional culture and religion that have preceded, the mitigation of effects upon certain elements of Navajo culture could be exceedingly complex. In the cases of the sites revealed by this survey, however, mitigative measures can be quite straight forward.

Twelve of the reported areas can be easily avoided through procedures normally employed in archeological avoidance plans, and the remaining site should experience no effect if construction activity is contained within the ROW.

The consensus of all ethnographic informants is that prevention of direct disturbance to the physical site location is sufficient consideration to ensure that no effect is incurred.

All site locations have been transferred to PNM's engineering photos and maps, and are now incorporated into the archeological avoidance plan.

All areas of archeological, ethnographic, or other sensitivities, will be indicated on construction maps, etc. as "Avoidance Areas," with no indication to construction workers of what might be present. Sanctions to control such areas during construction will be designed through negotiation with the construction contractors.

Each location can be preserved through the following site-specific procedures:

Site 1: This burial site is located east of the proposed ROW, directly under the existing FW 345 kV transmission line, and is protected by surrounding sandstone topography. No special procedures for avoidance are required.

Site 2: This burial site is located between three-quarters and one mile from the proposed ROW and no effect is anticipated.

Site 3: This burial site is located west of the proposed ROW, in an area of rough topographic relief, and can be avoided by limiting activity to the ROW in this area.

Site 4: This burial site is located on a low sandhill, west of the proposed ROW, and can be avoided by limiting activity to the ROW in this area.

Site 5: This burial site is located on a low sandhill, west of the proposed ROW, and can be avoided by limiting activity to the ROW in this area.

Site 6: This site consists of the standing structures of a Squaw Dance Ceremony, west of the proposed ROW. Avoid by limiting activity to the ROW in this area.

Site 7: This burial is located within an archeological site (FP 11) already scheduled for avoidance. The site is located within the ROW and will be fenced and monitored during construction.

Site 8: This burial site is located in a previously unrecorded archeological site about 200 m east of the proposed ROW. It is in no danger of effect from

the line, but will be avoided in the design of any additional access roads, if required in this topographically rough area.

Site 9: This burial is located in a recorded archeological site, already scheduled for avoidance under the archeological avoidance plan.

Site 10: This burial is located in a recorded archeological site, already scheduled for avoidance under the archeological avoidance plan.

Site 11: This site is the White Rock Sacred Area. According to the primary ethnographic informant, no effect upon the significance of the site will be incurred if construction is limited to the proposed ROW. If access roads, or other facilities are required outside the ROW in this area, the local residents should be consulted prior to construction.

Site 12: This is a recorded archeological site believed to be in the category of "Acquired Significance," as a result of ceremonial activity. No burial was identified by the primary informants. The site has been previously scheduled for avoidance under the archeological avoidance plan.

Site 13: This burial is located in a previously unrecorded archeological site, west of the proposed ROW. Avoidance can be accomplished by limiting activity to the ROW in this area.

APPENDIX A

INFORMANT INTERVIEWS

Preface to Informant Interviews

The Navajo people interviewed during this study gave no indication of a desire for anonymity, and no information contained in this report is believed to be of a secret or embarrassing nature to those who provided it. On the other hand, the production of a written report based on the information provided may not have been clear to every informant. Therefore, to prevent any possible unforeseen embarrassment or social pressure to the people who cooperated with us, and with whom we look forward to an ongoing dialogue, the names of the informants have been deleted from the following transcriptions of field notes. Since no truly sensitive information is believed to have been collected, a tough, uncrackable code has not been employed. Additionally, in editing the field notes, it was found that deletion of all identifying information, such as age, sex, or land tenure, did serious damage to the value of the information. For example, it is quite relevant to an assertion by the informant of, "no sensitive areas nearby," whether the person is an elderly female head of household, living on her own grazing permit area, or a young male "in-law," who recently moved in. Deletion of this type of general identifying information would severely limit the value of the data. As a result, anyone with a good knowledge of the region will probably immediately recognize some of the

people interviewed. I do hope, however, that the level of anonymity will not breach any unspoken trust and will protect certain informants, for example, from annoyance from persons who may have a casual interest in the fact that the informant is identified as a "singer," or knowledgeable in traditional religion.

For additional information on the nature of informant interviews, see the earlier section on Field Methodology.

Informant: 1

Interview Date: 4/14/81

Interpreter: Utah International Representative

The informant is an elderly woman, interviewed at her home before the field session began, to confirm the ROW agreement across her grazing permit area. Present were: Ed Herrera, PNM ROW Department; Crandal Bates, PNM System Engineering; Scott Berger, PNM Environmental Affairs; Charles Carroll, PNM Environmental Affairs; and a Navajo-speaking representative of Utah International. Primary discussion concerned ROW and compensation for grazing disturbance. The informant was asked if any sensitive areas exist near the ROW, and responded that none are present. She did express concern about the apparent attraction of lightning to the power lines and stated that there seem to be more lightning strikes in the area of high transmission line density around Four Corners Generating Station than in the surrounding region. (Note that lightning is an important force in Navajo religion.) The informant complained that a horse had been struck by lightning earlier that spring, and swelling in her leg had resulted from coming near the carcass. Crandal Bates

explained through the interpreter the relationship of lightning and the power lines, and procedures for grounding for lightning protection. The explanation appeared to be to the informant's satisfaction, although comprehension appeared only partial. The informant was asked about knowledge of recorded archeological sites in the area and any special significance they might hold. The informant claimed no knowledge of the Anasazi site, and no special concerns regarding the Navajo sites. She was aware of no gathering areas near the ROW.

Special Cultural Concerns: Apparent attraction of lightning by power lines.

Recommended Mitigation: Maintain contact with informant and reinforce explanation of lightening if this remains a concern.

Informant: 2

Interview Date: 7/2/81

Interpreter: None (Lillia James present during interview in English)

The informant is a man in his 60s, who holds grazing permits on the ROW, but lives on a small irrigated farm near Farmington. The informant speaks English and was interviewed directly by the anthropologist. The informant expressed concern for one burial, which he described as in or near a hogan ruin near the community water tank. This ruin was later identified by the anthropologist and added as an avoidance area. The informant stated that no gathering areas, or other areas of special concern were present to his knowledge.

Special Cultural Concerns: One burial.

Recommended Mitigation: Avoidance.

Informant: 3

Interview Dates: 6/17/81; 7/2/81

Interpreter: Lillia James

The informant is an elderly man who owns several houses near the ROW, with his primary residence approximately three miles to the west. He was interviewed at his home, on the first occasion through an English-speaking daughter, and on the second by Lillia James. He said he did not mind the new power line as long as he received compensation. Said he knows of no areas of special concern near the line; knows of no singers who use anything near the line. On the second visit, he took us to the grave of his son, located approximately three-quarters of a mile west of the proposed ROW. The grave is located on an open, rolling hillside, with no distinct topographic features nearby. The site is marked by a rough 2.5 m arc of five or six stones (each ca. 35 x 20 x 20 cm). Several survey stakes associated with the Navajo Indian Irrigation Project (NIIP) were located a few meters away.

This grave site is in no danger of impact from the proposed transmission line construction, but may be from NIIP field construction. (Note that the informant's answer about burials during the first interview was accurate.)

Special Cultural Concerns: One burial.

Recommended Mitigation: No action required for avoidance for this project; inform NIIP of site location.

Informant: 4

Interview Date: 7/2/81

Interpreter: Lillia James

Informants are a couple in their 50s or early 60s residing at their summer sheep camp. They stated that there are no particular areas for gathering plants or other material near the proposed ROW. They know of no areas of sacred or traditional cultural significance in their grazing area, but were aware of three burials near the proposed power line. The husband took us to each location, located approximately one-half mile apart, north-south, on the west side of the ROW. Two burials are located in unmarked locations in low sand hills, the third is associated with the ruins of a cribbed log hogan, approximately 150 m west of the existing AF line. The exact locations of the burials in the sand hills is unknown, and avoidance perimeters of the entire features have been incorporated into PNM's avoidance plans and maps. The third burial and hogan ruins, although fairly close to the ROW, are protected by rough topography and no special action other than standard avoidance procedures are required.

Special Cultural Concerns: Three burials.

Recommended Mitigation: Avoidance.

Informant: 5

Interview Dates: 6/30/81; 12/2/81

Interpreter: Lillia James; Manuel Shirleson

The informant is a man, probably in his mid-fifties, who is a religious practitioner. The individual is particularly concerned about compensation for the construction of the line across his grazing area, and compensation procedures were explained. There was no opportunity to discuss general religious matters, but the man is known as a "singer," and to be knowledgeable in religious matters. He stated that there are no locations of specific religious or cultural concern in his area, and no particular areas for gathering.

Special Cultural Concerns: None

Informant: 6

Interview Dates: 6/30/81; 11/19/81; 12/2/81

Interpreter: Lillia James; Manuel Shirleson

The informants are a couple probably in their 60s. On the first visit, the wife informed us of the grave site of her aunt, located within a nearby archeological site recorded during the archeological survey, and another burial somewhere west of their house. They expressed gratitude for our concern for such matters, and stated that earlier activities in their area had affected the first grave site. On the third visit the husband provided good locational information on the second burial and it was located by the anthropologist. They stated that no other locations of particular cultural concern are present in their area.

Special Cultural Concerns: Two burials.

Recommended Mitigation: Avoidance.

Informant: 7

Interview Dates: 7/2/81; 12/4/81

Interpreter: Lillia James; Manuel Shirleson

The informants are an elderly man, his wife, and married daughter, with close kin-ties to one of the interpreters. On both occasions they expressed gratitude for PNM's concern about cultural matters, but stated that no locations of particular concern are located in their area. Compensation procedures were discussed and explained.

Special Cultural Concerns: None

Informant: 8

Interview Date: 7/2/81

Interpreter: Lillia James

The informants are an elderly couple, interviewed at their summer sheep camp. The construction schedule, nature of the project, and compensation procedures were explained. They stated that there are no areas of special concern within their grazing permit boundaries.

Special Cultural Concerns: None

Informant: 9

Interview Dates: 6/30/81; 7/2/81

Interpreter: Lillia James

The informant is a middle-aged woman, living in close proximity to a sister of similar age, and related to several other families in the surrounding area. On the first visit, she stated that there were no areas of special concern, except a grave site, somewhere east of the existing AF line. She said the grave is marked by a broken shovel, but we were not able to establish a clear location. On the second visit she explained that the grave is at least one mile east of the AF line, and in no danger of effect from the proposed construction project.

Special Cultural Concerns: One burial.

Recommended Mitigation: None necessary; well out of impact area.

Informant: 10

Interview Dates: 7/3/81; 11/20/81

Interpreter: Lillia James; Manuel Shirleson

The informant is a middle-aged woman, who lives with several teenage children (who speak English), and her elderly father (who was not present for interview). She was interviewed twice to provide an up-date on the revised survey and construction schedule. Compensation procedures were explained during both interviews. She stated there are no areas of special concern that she knows of and, as long as she is compensated, we should, "hurry up and build it."

Special Cultural Concerns: None

Informant: 11

Interview Date: 11/20/81

Interpreter: Manuel Shirleson

The informant is a sister to Informants 9 and 10 above, and was interviewed with Informant 10 on the second visit recorded above. She concurred with all statements of Informant 10.

Special Cultural Concerns: None

Informant: 12

Interview Dates: 7/7/81; 11/19/81

Interpreter: Lillia James; Manuel Shirleson; Direct English

The informants are a couple, probably in their 60s. The wife was interviewed at their summer sheep camp near the proposed ROW, and apparently does not speak English. The husband was interviewed later in the fall, in English by the anthropologist. Their winter home is about 7 miles west of the ROW, but was not visited. The wife, in the first interview stated that no areas of special concern were present, but expressed dissatisfaction with the prospect of new development in the area. The informant appeared to feel strongly about this, and the interview was brief. The husband was interviewed on the later date, when he was found at the home of Informant 13 below. He speaks excellent English, and was interviewed directly by the anthropologist. His attitude toward the construction line was the opposite of his wife's, earlier in the summer, and was quite friendly during an extended interview. He showed us an existing track into an area of difficult access and offered approval of

improvement of the road if it would be left intact for his use after construction. He confirmed his wife's statements about no sensitive areas in his grazing area. When asked specifically about several known archeological sites in his area, he stated that one (a complex of several hogan ruins) should be discussed with Informants 14 and 16. He said he did not know if this is an important site or not.

Special Cultural Concerns: None

Informant: 13

Interview Dates: 7/7/81; 11/19/81

Interpreter: Lillia James; Manuel Shirleson

The informants are a man in his 60s and his married daughter. They apparently live on a permit area held by someone else. The length of their occupancy is unknown, but may be relatively recent. The interviews were brief, but they stated that they knew of no sacred areas or other areas of special concern near their house. Information on this area was obtained from Informants 12, 15, and 16.

Special Cultural Concerns: None

Informant: 14

Interview Date: None

Interpreter: None; Speaks English

This informant was not located during the field period. He was interviewed at his home off the reservation by Mr. Crandal Bates, of PNM System Engineering, concerning access problems in his area. He stated that he knows of no areas of special concern near his grazing area. He is related to Informants 9, 10, and 11, who confirmed this in their surrounding areas.

Special Cultural Concerns: None

Informant: 15

Interview Dates: 7/9/81; 11/12/81

Interpreter: Lillia James; Manuel Shirleson

The informants are a 72-year old man and his wife. They were interviewed together on 7/9/81, and stated that no grave sites or other locations of special cultural concern were present in the area to be affected by the ROW. They own separate summer and winter homes, about 5 miles apart, near the proposed ROW. The husband speaks English, and was interviewed on a separate occasion by Mr. Crandal Bates concerning access to the ROW in his area. The second interview with the anthropologist was extended and in Navajo, through Manuel Shirleson. This interview provided the information presented separately in the earlier section on White Rock. This included the sacred area on top of White Rock, a gathering area west of White Rock, and place where, "steam comes out," apparently southwest of the White Rock formation. When asked specifically about the effect of the existing and proposed power lines on these areas, he said that the lines just being there, carrying power, did not affect these significant areas. He said that he has spoken out at various chapter meetings in favor of permitting power line construction, because they

are part of providing jobs and a better life for younger generation Navajos by working on construction and in the plants and mines in Farmington. He told Manuel Shirleson that he was glad that he (Manuel) was working with companies like this because too many times companies either do not tell people anything, or they just use interpreters off the street who do not know what they are doing, or do not tell the truth. He said he felt we were telling him the truth, and thanked us for it.

Special Cultural Concerns: White Rock Sacred Area, White Rock Formation, gathering area west of White Rock, "Place Where Steam Comes Out."

Recommended Mitigation: Apparently no direct action required; maintain contact with the informant and advise him of pending actions in the White Rock area and solicit his advice in minimizing any potential impacts.

Informant: 16

Interview Date: 11/18/81

Interpreter: Manuel Shirleson

The informant is a man of approximately 70 years of age. He asked for information about the exact location of the proposed line, and was given a complete description, and the procedures for compensation. He said he did not know of any sacred sites or gathering areas. When asked specifically about four archeological sites near the line, he said he did not know any details about three of them, but one was the former home of his great grandfather. He said there is a burial somewhere in the site, but he did not know exactly where. This site will be avoided through the archeological avoidance plan. He was

shown copies of checks paid by PNM to the BIA and the Navajo Tribe to be held in trust for compensation upon completion of the ROW agreement, and thanked PNM for making the payments and expressing interest in minimizing impacts on culturally sensitive areas.

Special Cultural Concerns: Archeological site with one burial.

Recommended Mitigation: Avoidance.

Informant: 17

Interview Dates: 7/9/81; 11/12/81

Interpreter: Lillia James; Manuel Shirleson

Informants are a man in his 30s, his wife, and wife's (?) mother. During the first visit the man and wife were not present, and the elderly woman was briefly interviewed. She stated that she knew of no gathering areas, sacred areas, or other areas of concern, except for one burial, located in an archeological site recorded in the archeological survey of the proposed line. The younger couple were interviewed on the second visit. Both speak some English, and the interview was carried out in both languages. Neither knew of any areas of special concern. The wife stated that she was, "just an in-law here," so she would not know. Compensation procedures were discussed at length.

Special Cultural Concerns: One burial.

Recommended Mitigation: Avoidance.

Informant: 18

Interview Dates: 7/10/81; 11/5/81

Interpreter: Lillia James; Manuel Shirleson

The informants are a middle-aged woman, and her approximately 20-year old daughter. Each was interviewed on separate occasions and stated that they know of no areas of special concern near the proposed line. The mother was one of the very few informants interviewed who claimed no prior knowledge of the proposed power line. When asked specifically about two fairly large Anasazi sites near the ROW, she stated that she knew about them but did not consider them to be sensitive. She asked about compensation, and told us about a particularly bold coyote she was watching for that had killed some of her sheep in broad daylight.

Special Cultural Concerns: None

Informant: 19

Interview Date: 11/5/81

Interpreter: Manuel Shirleson

The informant is a woman, probably in her 60s, who owns two homes about four miles apart near the ROW. She said she knows of no Navajo grave sites or other sensitive areas near either of her two permit areas. When asked about the same large Anasazi sites discussed with Informant 18, she said she assumed that there may be burials in them, but that they held no other significance. She told about other Anasazi ruins further west along the same drainage, but

could not say what their size was in comparison to those along the ROW. Compensation procedures were discussed at length.

Special Cultural Concerns: Assumed burials in Anasazi sites.

Recommended Mitigation: Avoidance. If either site ever requires mitigation through excavation, all surrounding residents should be informed, in the event that protective ceremonial measures may be required.

Informant: 20

Interview Date: 11/5/81

Interpreter: None, Interviewed in English

The informant is the teenage nephew of the land holder, who is a middle-aged woman living in Farmington. He said that his aunt just came here occasionally, and he was just visiting. He had no information on sensitive issues, but other informants nearby provided information on this area.

Special Cultural Concerns: None

Informant: 21

Interview Date: 11/5/81

Interpreter: Manuel Shirleson

The informant is a middle-aged woman. She said she did not know of any sensitive areas nearby--maybe her husband had, but he is deceased. Compensation

procedures were discussed at length in Navajo and in English with the woman's young son-in-law.

Special Cultural Concerns: None

Informant: 22

Interview Date: 11/18/81

Interpreter: Manuel Shirleson

The informants are an elderly mother and her adult daughter and son. The son was not present at the time of the interview; he holds a job with a mining company. The mother was ill and indoors at the time, and all interviewing was done with the daughter, in Navajo. She said she was aware of the proposed new transmission line, and had no problems with it, provided that her mother and family received compensation. Sensitive areas were discussed and she said she knew of none.

Special Cultural Concerns: None

Informant: 23

Interview Date: 10/21/81

Interpreter: Manuel Shirleson

The informants are a middle-aged man and wife. The husband was interviewed on a separate occasion in English by Mr. Crandal Bates, PNM System Engineering, concerning access to the ROW in their area. His wife was interviewed in

Navajo concerning the project and any nearby sensitive areas. She stated that none were present. Compensation was discussed at length with a teenage son.

Special Cultural Concerns: None

Informant: 24

Interview Date: 10/29/81

Interpreter: Manuel Shirleson

The informants are a middle-aged husband and wife. The interview was carried out mostly in English with the husband, who stated there are no sensitive areas within their grazing area. He was asked if he knew of any ruins in the area, and said only, "Dixon's Well," which was occupied by an Anglo rancher, "a long time ago."

Special Cultural Concerns: None

Informant: 25

Interview Date: None

Interpreter: None

This land holder was never located during the field period. This is believed to be a middle-aged woman, who holds grazing rights near the proposed ROW. She is reportedly living in Crown Point, but some investigation with agency officials in Crown Point was not successful in locating her. Information on her area was obtained from neighboring informants.

Informant: 26

Interview Date: 10/28/81

Interpreter: Manuel Shirleson

The informants are a couple, probably in their 60s. They stated that they know of no religious sites in their region, but they do consider one of the archeological sites (a Navajo Ruin) recorded by the archeological survey to be sensitive in a religious context. This site will be managed for mitigation through the archeological avoidance program.

They told about a number of burials on the far side of the Kin-be-ne-oli Wash that resulted from a sickness in 1918 (this may have been the year of the national flu epidemic which resulted in many deaths). They said no one had ever asked them about the burials, and now a (named) energy company was drilling all around them. They said this was the first time anyone had ever come to tell them what they were doing.

They had several complaints about the existing AF line on their grazing area, and these were discussed, along with the details of compensation procedures.

When asked about plant and other gathering areas, their response was interesting, and the only indication from all informants of what is probably common practice among most traditional families. The wife stated that all the plants around the area where they lived were used. Most are used economically in sheep production, but many are also used in religious and curing contexts. A variety of many common plants of the shrub-grassland are collected and formed into a small bundle that is burned during ceremonies and the ashes

applied to the patient's body. No specific area for plant collection is used, and the plants discussed are ubiquitous in the region. Therefore, construction activity is not considered to be detrimental to this type of economic and ritual plant use.

The informants did express concern for erosion in their area, primarily in the context of loss of economic plants (for grazing), and PNM's probable restoration procedures were discussed, although it was made clear that the restoration program would be designed and carried out by specialists.

As with all interviews, compensation procedures were discussed at length.

Special Cultural Concerns: Archeological site of Navajo origin (no burials cited).

Recommended Mitigation: Avoidance under the archeological mitigation plan.

Informant: 27

Interview Date: 8/29/81

Interpreter: Manuel Shirleson

This informant is an elderly woman who lives several miles east of the proposed ROW, but holds grazing rights in the construction area. She stated that she knew of no sensitive areas in her region. Her main concern at the time was in obtaining better access to her home, and asked if we could build a new road for her, across other allotments when construction was underway. She said she had been unable to obtain permission for the new road and asked us if we could

intervene with the BIA and Tribe to obtain a ROW. It was explained that PNM is under severe constraints in this type of activity and there was really no help we could offer.

Special Cultural Concerns: None

Informant: 28

Interview Date: 8/29/81

Interpreter: None (Manuel Shirleson present during interview in English)

The informant is a middle-aged man, who was interviewed in English at his office in Crown Point. The individual holds substantial grazing rights in the region, and appears to be primarily engaged in cattle ranching, rather than sheep herding. He said he knew of no sensitive areas near the ROW as it crosses his land holdings. When asked specifically about archeological sites recorded in his area he said he was unaware of them, but did know about some "rock piles," apparently some distance from the proposed line, but did not know what they were.

Special Cultural Concerns: None

Informant: 29

Interview Date: 10/21/81

Interpreter: None (Manuel Shirleson present during interview in English)

The informant is a middle-aged man, interviewed in English at his office. The informant was familiar with the proposed project and was brought up to date on

schedules and compensation procedures. He stated that he knew of no locations of particular cultural or religious concern near the proposed ROW in his grazing areas. His primary concern, in addition to compensation, was a request for PNM to construct dirt stock tanks on his area during line construction. The constraints upon PNM for this type of activity were explained and, that in all likelihood, this would be impossible.

Special Cultural Concerns: None

Informant: 30

Interview Date: 10/21/81

Interpreter: Manuel Shirleson

The informant is a man probably in his 50s, who apparently does not control land crossed by the ROW, but lives close by. He said he appreciates being informed about construction plans and consulted on sensitive areas. He was familiar with the areas indicated by Informants 31, 32, and 33, but did not know of any additional locations. He asked to be informed in the future as plans progress.

Special Cultural Concerns: Same as 31 below.

Recommended Mitigation: Same as 31 below.

Informant: 31

Interview Dates: 10/20/81; 10/21/81

Interpreter: Manuel Shirleson

The informants are a couple, probably in their 50s and 60s, who were interviewed separately on succeeding days. During the first interview, with the wife, she stated that one burial was present in the area and that her husband would either stake it for us or show us the next day. She said that she did not know of any plant, clay, or other type of gathering areas in their region. In the second interview, the following day, her husband took us to the grave of his father, located within an archeological site (Navajo ruins) scheduled for avoidance through the archeological mitigation plan. He said that he was away (apparently in the military service) at the time of the death, and was very upset that his father had been buried here, rather than taken to a cemetery, but there was nothing that could be done about it now.

Compensation was discussed at length, and the informant indicated he had been in Window Rock the day before looking for papers he had signed on the ROW that indicated payment for lands that he held under lease from the Navajo Tribe. It was explained that this was an unusual situation, since lease holders would not ordinarily be compensated. This situation has not been resolved.

Special Cultural Concerns: One burial.

Recommended Mitigation: Avoidance through archeological mitigation plan.

Informant: 32

Interview Date: 10/21/81

Interpreter: Manuel Shirleson

The primary land holder of this family group was not interviewed during the field period. This man, who is probably in his 60s, was interviewed before

the study began by Mr. Crandal Bates of PNM, System Engineering, and Mr. Manuel Shirleson, acting as interpreter. During the field session a son-in-law of the land holder was interviewed, but he is not a regular resident of the area. Mr. Bates' objective in his interview was to discuss access through the lease area, and the lease holder was asked about any special avoidance areas. He indicated that there are none, but he was the most strongly opposed, of all land holders interviewed, to construction of the project. This results from the fact that he resides on a grazing area leased from the Navajo Tribe and he does not qualify for compensation, as do several of his neighbors and relatives who reside on allotments and land of other types of legal status. This situation was discussed at length with his son-in-law, who was asked to convey the information to the lease holder.

Special Cultural Concerns: None

Recommended Mitigation: A special effort should be made to maintain contact with this lease holder and develop a working relationship for a cooperative approach to construction on his lease.

Informant: 33

Interview Date: 10/21/81

Interpreter: Manuel Shirleson

This informant is a man believed to be in his early 70s, and believed to be knowledgeable in religious matters. He stated that no significant areas of concern are present in the region crossed by the proposed ROW, except for the grave site indicated earlier by Informant 31. To ensure that two different

burials were not in question, he took us to the location, which was in fact the same site. This was a very cooperative and apparently knowledgeable informant who will be consulted in the later phases of the study.

Special Cultural Concerns: Same as 31 above.

Recommended Mitigation: Same as 31 above.

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APPENDIX D

POSSIBLE NEW TOWN IMPACT ASSESSMENT

In general, the kind and density of significant cultural resources on the possible new town site are likely to be relatively similar to those through the rest of the NMGS study area (see Chapter 3). The environmental consequences to those resources, given the possible development of a new town, would generally be as described in Chapters 5-9. However, the indirect adverse effects would probably be intensified, given an enlarged, concentrated, and relatively isolated population center in the middle of the San Juan Basin.

Acculturated [Native Americans]--"Acculturated" is a term that indicates people in various stages of transition between traditional Native American lifeways and a Euroamerican lifeway. Degree of acculturation is usually defined in terms of linguistic, educational, economic, religious, and philosophical characteristics.

Anasazi--A term limited to the northern Southwest, "Anasazi" denotes an archeological sequence that includes Basket Maker and prehistoric Pueblos--farmers who lived in the San Juan Basin during the last 1500 years. The Anasazi were the ancestors of the modern Pueblos.

Anglo--Though technically inaccurate, Anglo is an ethnic term essentially restricted to the Southwest, that denotes non-Hispanic Euroamericans.

Archaic--The lifeway represented by people whose economy was based on gathering wild plants and hunting small game (deer, elk, rabbit, etc.) is referred to in the archeology of the Americas as "Archaic," and generally dates from 8000 to 1500 years ago.

Archeology--Archeology is a sub-discipline of anthropology, the study of humans as both biological and social creatures. The data base for archeology may include information derived from interviews and historical documents, but consists primarily of physical evidence in or on the ground. In addition to working within the theoretical framework of cultural anthropology, archeologists rely on such related disciplines as geology, biology, economics, and history in attempting to explain past lifeways.

Basket Maker--Transitional between the Archaic hunters and gatherers and the fully agricultural, town-dwelling prehistoric Pueblos, the Basket Makers of the Southwestern U.S. lived in small scattered pit house villages, hunted and gathered but also cultivated some domestic plants, made some pottery, and wove baskets and sandals of exceptional quality.

Chacoan--Characterized by specific architectural and ceramic styles, "Chacoan" refers to a regional branch of prehistoric Anasazi Pueblo culture centered in the San Juan Basin of New Mexico. The Chacoan culture flourished from A.D. 800 to 1200.

Cultural Resources -- Prehistoric and historic archeological and architectural/engineering sites and objects, and those important to traditional Native Americans and other ethnically identified groups and individuals.

Ethnography--Like archeology, ethnography is a subdiscipline of anthropology. Ethnographers, however, are primarily concerned with the behavior of living human groups, whether literate or nonliterate.

Euroamerican--An ethnic designation referring to Americans of European ancestry.

Hispano--An ethnic designation denoting Americans of Spanish or Mexican descent.

National Register--Authorized by the National Historic Preservation Act of 1966, the National Register is an inventory of historic and prehistoric sites, that, through a formal determination process that uses criteria defined under 36 CFR 60, have been declared of local, state, or national significance. The site inventory is maintained by the Secretary of the Interior through the Keeper of the Register, Department of the Interior.

Native American--Although Native American properly refers to all American Indians, in this report the term usually denotes Navajos, Pueblos, Apaches, and Utes.

Paleo-Indian--A term applied to a New World archeological culture that existed before 6000 B.C., Paleo-Indian refers to the culture, and the remains thereof, of hunters and gatherers who appear to have relied heavily on big game (mammoth, mastodon, etc.)

Prehistoric/historic--Prehistoric refers to the period before recorded history. The break between prehistory and history varies geographically, depending on the date at which recording began in a specific area.

Pueblo--The prehistoric Pueblos, using skills and knowledge handed down from their Basket Maker ancestors, lived in large towns and small villages of distinctive apartment-house style; followed an economy based on corn, beans, squash, and cotton; practiced religious rites in ceremonial chambers now called kivas; and manufactured black-on-white, polychrome and painted pottery.

Modern Pueblo people, descendants of the prehistoric Pueblos, now live primarily in villages on the Hopi mesas in Arizona and, in New Mexico, on the eastern and southern edges of the San Juan Basin and along the Rio Grande.

Spaniard/Spanish--Native of Spain who colonized New Mexico in 1598, their New World descendants, and people born in Mexico but of Spanish descent who lived during Spain's political domination of Mexico and New Mexico (A.D. 1520-1821)

APPENDIX F

CONSULTATION AND COORDINATION: IDENTIFIED CONTACT PEOPLE

William Allan, Bureau of Indian Affairs, Albuquerque.

Fred Babb, Team Captain/Project Manager, National Park Service,
Santa Fe.

Mark Barnes, National Park Service, Albuquerque.

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Daniel Deschinney, Director, Navajo Land Administration, Window Rock.

David Doyel, Director, Navajo Nation Cultural Resources Management
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Dan Hamson, Environmental Specialist, National Park Service,
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Bruce Harrill, Area Archeologist, Bureau of Indian Affairs,
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Walter Herriman, Superintendent, Chaco Culture National Historical
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Richard Heyser, Assistant Director, Recreational Resources, Navajo
Tribe.

Barry Holt, Area Archeologist, Bureau of Indian Affairs, Window Rock.

Robert Kerr, Chairman of Management Group, Southwest Regional Direc-
tor, National Park Service, Santa Fe.

Chris Kincaid, Archeologist, State Office, Bureau of Land Management,
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William Luscher, State Director, Bureau of Land Management, Santa Fe.

Thomas Merlan, State Historic Preservation Officer, State of New
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Task Leader: Ruthann Knudson

Subcontractor: Quivira Research Center

APPENDIX G

PROGRAMMATIC MEMORANDUM OF AGREEMENT

INTERAGENCY AGREEMENT NO. NMSO-168

BETWEEN THE BUREAU OF LAND MANAGEMENT AND

THE STATE HISTORIC PRESERVATION OFFICER

WHEREAS, the Bureau of Land Management, Department of the Interior, and the State Historic Preservation Officer, State of New Mexico, have entered into an agreement to cooperate in the preservation and management of historic and prehistoric resources on public lands within the State of New Mexico, and

1. The Bureau of Land Management, Department of the Interior, and the State Historic Preservation Officer, State of New Mexico, have entered into an agreement to cooperate in the preservation and management of historic and prehistoric resources on public lands within the State of New Mexico, and

The principal responsibilities of Federal agencies with respect to historic properties are contained in these two sections.

Section 104 states that:

The head of any Federal agency having direct or indirect jurisdiction over a Federal or Federal-aid project or undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall prior to the issuance of the approval or any Federal action on the project or undertaking, in the interests of historic preservation, take such steps as may be necessary to insure the effect of the undertaking

WHEREAS, the Bureau of Land Management, hereinafter referred to as the Bureau, conducts continuing programs and carries out specific undertakings which involve land disturbance and modification of the built and natural environments, and

WHEREAS, the Bureau bears the legal responsibility for carrying out such undertakings consistent with the Historic Preservation Act of 1966 (PL 89-665) as amended and 36 CFR 800 ("Protection of Historic and Cultural Properties"), and

WHEREAS, the complementary responsibilities of the Bureau, the State Historic Preservation Officer (hereinafter called SHPO) and the Advisory Council on Historic Preservation (hereinafter called the Council) are set forth in 36 CFR 800, and

WHEREAS, the undertakings of the Bureau, including actions assisted, licensed, permitted, approved, funded or authorized by the Bureau, being "undertakings" as the term is defined in 36 CFR 800.2, are numerous, complex and far-reaching in their effects on Bureau-administered and other lands and properties in New Mexico,

NOW, THEREFORE, the State and District Offices of the Bureau in New Mexico and the SHPO, for the purpose of clearly delineating the responsibilities of the Bureau, under the referenced laws and regulations, with respect to those undertakings of the Bureau which are a subject of consultation and review under these laws and regulations, and explaining the attendant responsibilities of the SHPO and the Council, hereby agree as follows:

1. Section 106 of the Historic Preservation Act of 1966 and Section 110 of the Historic Preservation Act as amended.

The principal responsibilities of Federal agencies with respect to cultural properties are contained in these two sections.

Section 106 states that:

"The head of any Federal Agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking

or any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking."

36 CFR 800 is the Government-wide regulation which implements Section 106.

Section 110(a)(1) of the Historic Preservation Act states in relevant part that "The heads of all Federal agencies shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency", that "with the advice of the Secretary (of the Interior) and in cooperation with the State Historic Preservation Officer for the State involved, each Federal agency shall establish a program to locate, inventory and nominate to the Secretary all properties under the agency's ownership or control by the agency, that appear to qualify for inclusion on the National Register (of Historic Places)" and that "each Federal agency shall exercise caution to assure that any such property that might qualify for inclusion is not inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly."

2. Existing and future memoranda of agreement.

Region or program-specific memoranda of agreement shall take precedence of this agreement in any case in which the two memoranda deal with the same area of effect and differ in their provisions.

3. Agency responsibilities on private lands.

It is the policy of the Bureau (see Enclosure I) that significant cultural properties on private lands shall be identified by Class I inventories and that decisions as to the type of on-the-ground survey, if any, to be performed shall be made in consultation with the SHPO. Generally, Class II and III surveys shall be undertaken on non-Federal land only when the results of Class I inventory indicate a likelihood that a significant cultural property exists in the area of effect. A rule of reasonableness shall obtain in determining how much survey to perform. In general, the rule of reasonableness gives the Bureau and the SHPO discretion to take into account, in establishing level of inventory, the amount of previous disturbance to the area, the type of undertaking, the nature of the cultural resource base in the area, the amount of existing information and previous survey work, the likelihood of cultural property occurrence based on the environment in the impact area, and the extent to which BLM ownership or authorization dictates project design or location on non-BLM lands. Final decision on level of inventory rests with the Bureau. The Bureau shall document appropriate and reasonable consideration of the above criteria in each case. In the case of sites being identified, a consultation regarding effect on such sites will be undertaken with the SHPO.

4. Bureau undertakings in New Mexico which are a subject of consultation.

By "consultation" is meant a request by the Bureau to the SHPO for information on known cultural resources in the area of the undertaking's environmental effect, and/or a request by the Bureau for the SHPO's recommendation as to the

need for survey of cultural properties in an area of effect, or a summary or report sent by the Bureau to the SHPO to describe a survey already performed, and a response from the SHPO including, but not necessarily limited to, recommendations for survey, comment on or acknowledgment of survey report, and any further communications, consistent with 36 CFR 800, which circumstances may dictate.

The following list is not exhaustive. It is intended to cover those Bureau actions which have a potential for disturbance of the built or natural environment. It is the responsibility of the Bureau to determine which actions have such potential and to consult the SHPO in any such case. The Bureau may advise the SHPO that a proposed action has no potential for disturbance of the built or natural environment. The SHPO may, by accepting this view, end the consultation.

Coal leasing

Coal mining plan approval

Bureau motion land disposals

Leases and permits which authorize surface disturbance

Withdrawals by other agencies

Withdrawals by BLM

Airport leases and grants

Fire planning

Preplanned fire break construction

BLM construction or authorization of construction of facilities including recreation sites, buildings, corrals, bridges, fences, etc.

ORV designations of intensive use areas

Mineral leasing

Oil and gas applications to drill

Geothermal applications to drill

Mineral sales

Cultural resource stabilization and data recovery plans

Resource management plans

Water distribution facilities

Cultural, grazing and wildlife activity plans

Road construction

Timber sales

Right-of-way grants

Chaining projects

Seismic exploration or operations involving use of heavy equipment and/or explosives or vehicle movement off established roads and trails

Drilling of seed

Permittee maintenance of existing right-of-way and other facilities

Trespass rehabilitation measures

Land selections relating to Navajo-Hopi settlement

Relocations of unauthorized occupancies

5. Bureau activities in New Mexico which are not a subject of consultation.

This list, like the previous one, is not exhaustive. It is intended to include all Bureau activities which have no potential for disturbance of the built or natural environments. In cases in which such disturbance is possible, consultation shall occur.

Leases and permits which do not authorize surface disturbance

Emergency fire activities

ORV.closures or designations limited to existing roads and trails

Oil and gas leasing

Geothermal leasing

Easement acquisitions

Land acquisitions

Road and trail maintenance

Seismic operations which do not involve use of heavy equipment or explosives and which do not involve vehicle movement except over established roads and trails

Fence, pipeline and reservoir maintenance

Law enforcement

Spray projects

Paleontological management

Special legislation which specifically excludes consideration of cultural resources

Environmental education activities

ACEC designations

Withdrawal revocations

Wilderness Study Areas

6. Bureau activities which are a subject of limited consultation.

Valid mining claims and valid color-of-title claims are subjects of consultation in conformity with the requirements of Section 110 of PL 96-515 (Historic Preservation Act). This provision requires identification and analysis of such cultural properties. However, these cases by their nature may limit or eliminate the Bureau's discretion to carry out certain measures to mitigate adverse effect, e.g., retention of the lands applied for or execution of covenants. It is understood and agreed by the parties that identification and evaluation of cultural properties may be the only feasible measures in these cases. The Bureau and SHPO will consult on withholding of approval for mine plans, as provided by 43 CFR 3800, pending compliance with the Historic Preservation Act, in cases in which significant cultural property values in mining claims appear to justify such action.

7. Consultation with respect to undertakings.

The Area Manager will notify the District or Resource Area archaeologist of intent to undertake or authorize each or any of the activities listed under No. 4 (see page 3).

The District Manager or Area Manager will notify and consult with the SHPO to determine the level of inventory necessary in the project's area of effect, as provided for by 36 CFR 800.4. Levels of inventory will be one or more of Classes I, II or III as described in BLM Cultural Resource Manual 8111 (Enclosure II).

Consultation between the Bureau and the SHPO in the process of land use planning (as established in 43 CFR 1601) shall occur during issue identification, at the inventory/data collection stage, during management analysis, when effects are established during preparation of the draft environmental impact statement, and during monitoring and evaluation. Consultation between the Bureau and the SHPO in any case in which an environmental assessment document is prepared shall be documented on the "Record of Review" (Enclosure III).

When the Bureau proposes to perform inventory (Class III) level survey of an area of direct and indirect effect, no consultation between the Bureau and SHPO regarding level of inventory or extent of survey shall be required.

When inventory (Class III) level survey by Bureau personnel or contractors reveals that no cultural properties (including isolated manifestations, of whatever date) exist in the area of direct or indirect effect of an undertaking, no consultation between the Bureau and SHPO regarding survey results is required. Written negative reports will be transmitted to the SHPO by the Bureau within 30 days of completion of field work.

When inventory (Class III) level survey by Bureau personnel or contractors reveals cultural properties (including isolated manifestations, of whatever date) in the area of direct or indirect effect of an undertaking, and the

Bureau, by requiring and assuring avoidance of such properties in place, avoids any effect on such properties, it shall be understood that such properties have been removed from the area of the undertaking's potential effect, and no consultation between the Bureau and the SHPO regarding survey results will be required. Written reports will be transmitted to the SHPO within 30 days of completion of field work.

The Bureau and the SHPO may agree to a definition of "isolated manifestation" to apply to an area no greater than a given District, and may further agree to periodic updating of such definition, and may agree that manifestations meeting that definition are adequately dealt with when recorded in survey reports meeting established standards, and are not a subject of consultation between the Bureau and SHPO.

Bureau cultural resource managers performing surveys will ensure that site data and surveyed area data are made available to the Laboratory of Anthropology in Santa Fe for entry into the ARM System. The Bureau will also require consulting agencies and organizations to make such data available to the Laboratory for entry into the ARM System.

When a survey at the agreed level is performed and cultural properties are located the Bureau and the SHPO will consult in writing to determine the nature of the proposed undertaking on the resource, except in those cases described in Section 7, Para. 6. If avoidance has not already been assured by the Bureau in accordance with that paragraph and section, but is found to be feasible by the Bureau and SHPO and is agreed on by them, they will document agreement of the method of avoidance. If avoidance is not possible, an effect will be determined to exist. Further consultation will then take place as described in Section 8.

Transmittal of all reports, whether positive or negative, to the SHPO shall be the responsibility of the Bureau, not that of any contractor. However, courtesy copies from contractors to the SHPO are not inappropriate.

Each District shall monitor the performance of all cultural resource management contractors performing clearance surveys in the District, on the basis of written Statewide criteria adopted in agreement with the SHPO not less often than annually.

The Bureau and SHPO may jointly determine that, within any given specific land area, there is no possibility of direct or indirect effects on any significant cultural property, and that, therefore, no consultation with respect to undertakings in that area will be required.

The Bureau and SHPO will document all consultations, and will also document any agreement that a proposed activity has no potential for disturbance of the built or natural environment, and will consider and respond to comments or objections by third parties in a timely manner.

8. Council Comment.

This agreement shall constitute the comments of the Council on those undertakings listed, except as provided for below.

The Bureau will afford the Council an opportunity to comment in any case in which the SHPO and the Bureau do not agree as to the nature of the effect on a property found to meet any criterion of significance, in accordance with 36 CFR 800.

If it is determined that the affected properties are eligible for inclusion in the National Register principally because they may be likely to yield information important in history or prehistory under criterion of 36 CFR 60.5(d), the Bureau may institute a data recovery program in consultation

with the SHPO. Such data recovery program will take into account the Council's handbook "Treatment of Archeological Properties." The Bureau may elect to afford the Council further opportunity to comment on the data recovery program. If, for any reason, the Bureau decides that data recovery is not a feasible alternative, an unmitigated effect will exist. The Bureau must then afford the Council a further opportunity to comment.

If it is determined that the affected properties are eligible for inclusion in the National Register of Historic Places principally for some other reason, the Bureau will consult with the SHPO to determine the nature of the undertaking's effect and pursuant to 36 CFR 800.4 will forward a request for Council comments with appropriate documentation as provided for in Council regulations to the Executive Director of the Council.

9. Reporting standards.

Standards for reporting of archaeological surveys will be as described in BLM Cultural Resources Manual 8111 and applicable Bureau survey standards. Standards of reporting of architectural surveys will be as required by the New Mexico Historic Building Inventory Form (Enclosure IV) and in general conformity with the New Mexico Building Inventory Manual (revised May 1980).

If staff is limited, or if the project is of considerable size, the Bureau may contract, or request that the lessee contract, for professional inventory of the area of effect. The contractor must hold a current antiquities permit for the lands to be affected.

The District Manager or Area Manager shall document a decision concerning field inventory. The SHPO may object to such a statement within 30 days of receipt.


10. Limitations.

Nothing in this memorandum of agreement shall be construed as limiting or affecting the authority or legal responsibility of the Bureau or the SHPO, as binding to perform beyond the respective authority of each.

Each provision of this memorandum is subject to the laws and regulations of the State of New Mexico and of the United States and regulations of the Secretary of the Interior.

This memorandum may be amended by consent of the Bureau and the SHPO .

This memorandum shall become effective as soon as signed by the parties hereto and shall continue in force unless formally terminated by either the Bureau or the SHPO after thirty (30) days written notice to the other party.


State Historic Preservation Officer

Date: 3-4-82


State Director, Bureau of Land Management

Date: 3-4-82

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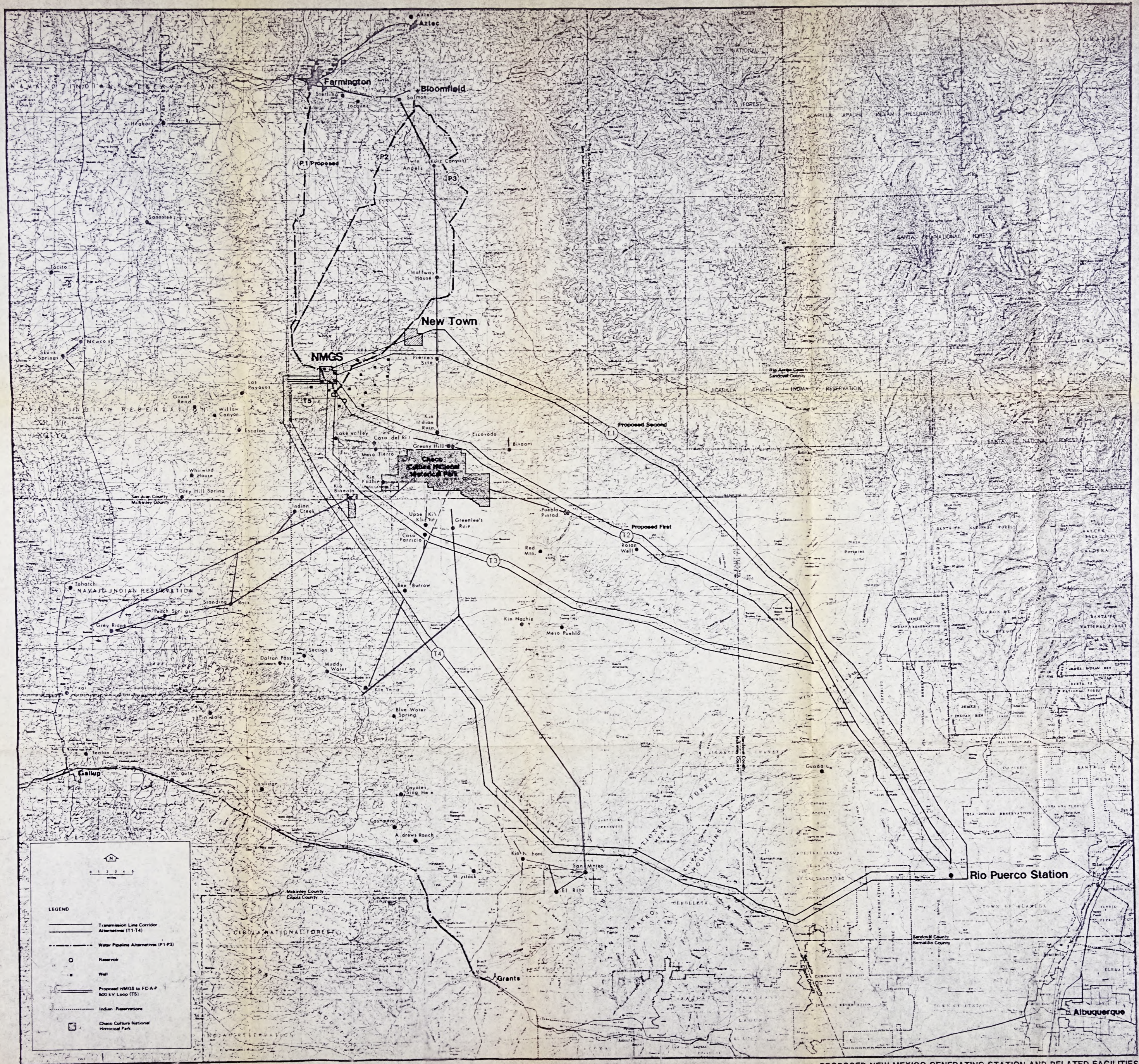
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LEGEND

- Transmission Line Corridor Alternatives (T1-T4)
- Water Pipeline Alternatives (P1-P3)
- Reservoir
- Well
- Proposed NMGS to F.C.A.P. 500 kV Loop (T5)
- Indian Reservations
- Chaco Culture National Historical Park

Fig. 1. Regional Map of the San Juan Basin showing Chaco Roads & Outliers in relation to NMGS.

PROPOSED NEW MEXICO GENERATING STATION AND RELATED FACILITIES

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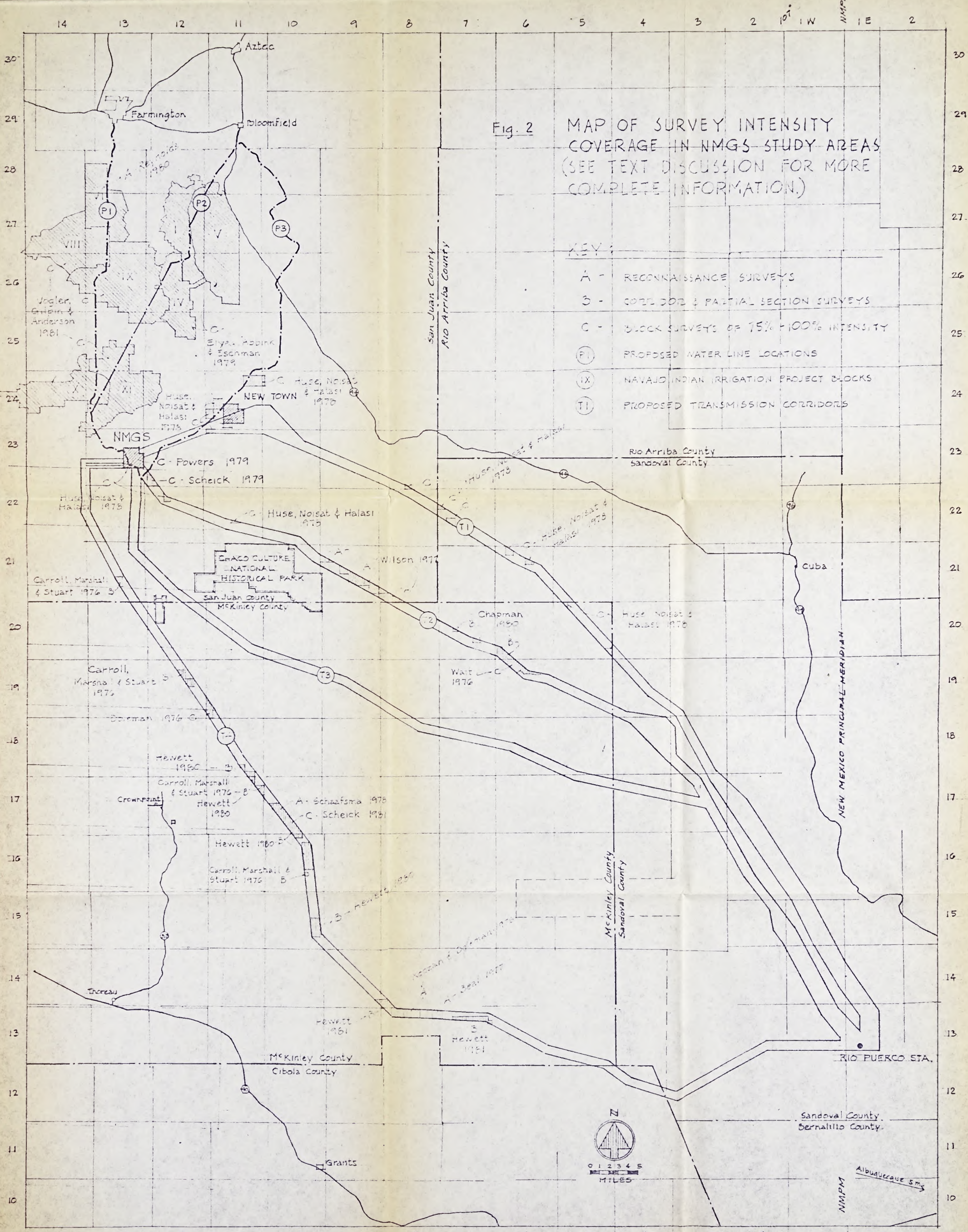


Fig. 2 MAP OF SURVEY INTENSITY COVERAGE IN NMGS STUDY AREAS (SEE TEXT DISCUSSION FOR MORE COMPLETE INFORMATION.)

- KEY:
- A - RECONNAISSANCE SURVEYS
 - B - CORRIDOR & PARTIAL SECTION SURVEYS
 - C - BLOCK SURVEYS OF 75% - 100% INTENSITY
 - (P1) - PROPOSED WATER LINE LOCATIONS
 - (IX) - NAVAJO INDIAN IRRIGATION PROJECT BLOCKS
 - (T1) - PROPOSED TRANSMISSION CORRIDORS

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Fig 3 PRELIMINARY ETHNOGRAPHIC RECONNAISSANCE MAP SHOWING AREAS IN WHICH NAVAJO RESIDENTS WERE INTERVIEWED.

