

**RESOLUTION OF THE
WHITE MOUNTAIN APACHE TRIBE OF THE
FORT APACHE INDIAN RESERVATION**

WHEREAS, the Chairman of the White Mountain Apache Tribe has requested assistance from the Indian Health Service for the installation of sanitation facilities for scattered housing located on the Fort Apache Indian Reservation; and

WHEREAS, the Tribal Council has reviewed and considered the provisions of the attached Memorandum of Agreement, including the Project Summary incorporated therein.

BE IT RESOLVED by the Tribal Council of the White Mountain Apache Tribe that the Tribal Council is hereby authorized to execute this agreement and any subsequent amendments and agreements necessary for the construction and transfer of domestic water supply and sewage disposal facilities for Indian homes in communities throughout the Fort Apache Indian Reservation for Project PH-92-369.

The foregoing resolution was on October 14, 1992, duly adopted by a vote of six for and zero against by the Tribal Council of the White Mountain Apache Tribe, pursuant to authority vested in it by Article V, Section 1 (i) of the Amended Constitution and Bylaws of the Tribe, ratified by the Tribe June 27, 1958, and approved by the Secretary of the Interior on May 29, 1958, pursuant to Section 16 of the Act of June 18, 1934 (48 Stat. 984).



Chairman of the Tribal Council



Secretary of the Tribal Council

RECEIVED

OCT 20 1992

FORT APACHE INDIAN AGENCY
WHITERIVER, ARIZONA

MEMORANDUM OF AGREEMENT
AMONG
THE INDIAN HEALTH SERVICE
AND
THE WHITE MOUNTAIN APACHE TRIBE
AND
THE WHITE MOUNTAIN APACHE TRIBAL UTILITY AUTHORITY
FORT APACHE INDIAN RESERVATION
NAVAJO, GILA AND APACHE COUNTIES, ARIZONA

PROJECT NO. PH 92-369
PUBLIC LAW 86-121

THIS AGREEMENT is made between the Indian Health Service, acting through the Director, Phoenix Area Indian Health Service, hereinafter referred to as IHS, Department of Health and Human Services (HHS), under and pursuant to the provisions of Public Law 86-121 (73 Stat. 267), and the White Mountain Apache Tribe, Fort Apache Indian Reservation, Navajo, Gila and Apache Counties, Arizona, hereinafter called the Tribe, acting through the Tribal Chairman.

WHEREAS, the Tribe desires to obtain satisfactory water supply and adequate waste disposal facilities for 30 new houses being constructed throughout the Fort Apache Indian Reservation, and

WHEREAS, the Tribe, acting through the Tribal Chairman, submitted a project proposal to the IHS, dated August 10, 1992, requesting assistance under Public Law 86-121 in the construction of water supply and waste disposal facilities for Indian families in communities throughout the Fort Apache Indian Reservation, Navajo, Gila and Apache Counties, Arizona, and

WHEREAS, the IHS desires to assist in the construction of water supply and waste disposal facilities for the new housing being constructed on the Fort Apache Indian Reservation, as a means of improving the health of the residents, and

WHEREAS, the Tribe has reviewed and concurs with the provisions of the attached Project Summary.

NOW THEREFORE, in order to carry out the project as set forth in the attached Project Summary entitled "Sanitation Facilities Construction, Fort Apache Indian Reservation," and dated September 1992, the parties mutually agree:

TRIBAL LANDS

1. The Tribe hereby grants permission for the IHS and its representatives to enter upon or across tribal lands for the purpose of carrying out the project outlined in the attached Project Summary and provided for in this Agreement and

further agrees to waive all claims which may arise by reason of such entry upon tribal lands, except those that may be recognized under the Federal Tort Claims Act.

2. The Tribe will obtain all rights-of-way on or over tribal lands as in the judgment of the IHS may be necessary for the provision and operation of any facilities provided for in this Agreement and further agrees to waive any claims which may arise by reason of such entry upon tribal lands.
3. The Tribe will provide, without charge to the IHS, all tribal land necessary for the construction of the facilities as provided for in the Project Summary.

HOMES SERVED

4. The Tribe shall provide a prioritized list of Indian homes to be served under this project. Changes or deletions of homes may be made by the Tribe at any time prior to actual construction providing that such changes are made in writing by the appropriate tribal official. All homes must be found to meet eligibility and feasibility criteria established by the IHS. The actual homes to be served under this project will be determined by the IHS from the applications submitted by the Tribe.
5. The Tribe shall assure and provide for, at no cost to the IHS, water and sewer lines to be extended to a point five feet outside homes approved for service and proper winterization of homes, including skirting for mobile homes, to protect facilities from freezing.
6. The IHS shall make final determinations and notify the Tribe on whether individual participants and sites qualify for sanitation facilities, taking into account the recommendations by the Tribe.
7. If additional participants are to be served, a letter amendment to this Agreement is required by IHS and the Tribe prior to any additional construction. This amendment will describe the numbers and types of additional services to be provided, and the maximum additional contribution, if any, to be made by IHS.
8. The IHS reserves the right to delete from the project any home for which eligibility requirements have not been met by December 31, 1993, and to withdraw from the project any or all funds intended to serve those homes.

IHS CONTRIBUTIONS

9. The IHS will provide without charge to the Tribe:

- a. All materials, supplies, equipment, and labor for the installation of the facilities as provided for in the attached Project Summary, and not otherwise provided for in this Agreement; and
 - b. The instructions as to the proper utilization, maintenance, operation, and protection of the facilities provided for herein.
10. The IHS shall contribute to the Tribe an amount not to exceed \$264,000 for administration and construction of the proposed facilities. The IHS Area Director may increase this amount subject to the availability of funds, and will notify the other parties in writing of any changes. The exact amount to be contributed shall be the sum of the following items:

- a. Actual cost of construction contracts;
- b. Contract administrative support fee to be paid to the Tribe in lieu of indirect costs. This fee is to cover a portion of the cost of administering construction contracts under the project. The contract administrative support fee shall be as follows:

<u>Contract Amount</u>	<u>Administrative Fee</u>
\$0 to \$25,000	Four percent of the contract amount.
\$25,000 to \$200,000	\$1,000 plus three percent of the contract amount in excess of \$25,000.
Above \$200,000	\$6,250 plus two percent of the contract amount in excess of \$200,000.

- c. Direct costs such as printing, copying, advertising, and accounting fees may be paid if approved in advance by the IHS Director, Division of Sanitation Facilities Construction.
11. The IHS contributions to the Tribe shall be made on a quarterly basis in amounts approved by the IHS District Engineer based on cost estimates for construction projected during the upcoming quarter. Supplemental requests for contributions may be made should costs exceed the quarterly estimate. Any funds contributed and not expended within a given quarter shall be applied toward the next quarterly estimate and the contribution adjusted accordingly.
12. The IHS will release contributions to the Tribe as provided

for in Paragraph 10 of this Agreement, upon:

- a. Execution of this Agreement by all parties;
- b. Receipt of written request from the Tribe for the required funds;
- c. Certification from the IHS Project Engineer that the amount of funds requested is required to make timely payments in accordance with the project budget for the supplies, materials, equipment, and services being obtained under the provisions of this Agreement; and
- d. Approval by the IHS Area office.

REPRESENTATIVES

13. The Tribe will provide one or more representatives to coordinate the conduct of tribal participation under this Agreement, including active promotion of attendance of Indian beneficiaries at meetings; obtaining consent of each participating Indian family on forms furnished by the IHS; obtaining cooperation of tribal members in the fulfillment of labor responsibilities assumed by the Tribe under this Agreement; and attendance at the final inspection.
14. The IHS Project Engineer shall coordinate IHS participation in the Project.

TRANSFER OF TRIBALLY OWNED FACILITIES

15. All parties understand that the facilities constructed (including equipment, land, and supplies purchased) under this Agreement with IHS contributed funds are at no time the property of the IHS, but rather belong to the Tribe, which shall operate and maintain such facilities properly, until or unless transferred to other parties.
16. Because the IHS will not at any time own the facilities constructed, no formal transfer agreement may be necessary. IHS may develop a transfer agreement or, in lieu of a transfer agreement, the IHS will notify the Tribe by registered mail when IHS participation in the project is complete.
17. The Tribe shall transfer on-site water and waste facilities to individual homeowners. Upon completion of the construction, the homeowners are responsible for operation and maintenance of the facilities. Facilities constructed under this Agreement at all times belong to the Tribe until transferred to individual homeowners or other parties.

OPERATION AND MAINTENANCE FEES AND ORDINANCES

18. The Tribe will establish connection fees and user rates and collect such charges from individuals served by the system as are necessary to sustain the operation, maintenance, and repair of the community water supply and sewerage systems.
19. The Tribe agrees to enact and enforce appropriate ordinances or regulations governing:
 - a. Connection to the community water supply and sewage systems by the residents of the Fort Apache Indian Reservation;
 - b. The methods and materials to be used in making connections to the community water supply and sewage systems in a safe and sanitary manner; and
 - c. The continued operation, maintenance, and repair of individual water supply and waste disposal facilities in a safe and sanitary condition by the persons served thereby.

PROJECT SCHEDULE

20. It is important that the installation of the water supply and waste disposal facilities provided for herein be completed as soon as is practicable in accordance with the schedule of the IHS project engineer.
21. In the event that actual construction of this project cannot be initiated for any reason by December 31, 1993, the IHS reserves the right to cancel the project and use the designated project funds for other projects which lack impediments to prompt construction. If the condition which impeded construction is resolved following such cancellation, the IHS will give high priority to funding the project from appropriated sanitation facilities funds available at the time or from future appropriations for sanitation facilities.

PROVISIONS FOR TRIBAL PROCUREMENT

22. The Tribe shall provide for construction through its procurement system of all water and sewage facilities described in the Project Summary and shall procure the facilities in accordance with this Agreement and in compliance with applicable Federal requirements.
23. The Tribe shall submit to the IHS, for review and approval before advertising, all proposed solicitations and shall make such adjustments in the solicitation as determined necessary by IHS.

24. The Tribe shall develop and submit to IHS for approval a schedule of proposed unit costs, based on bids received, for construction of sanitation facilities to be installed. The Tribe shall negotiate these unit costs if necessary to receive approval from IHS. These unit costs shall govern for the duration of the tribal contract under which they are proposed. The IHS must approve in writing the corresponding unit costs before any work can be performed.
25. If additional or special units of work are needed for specific sites during execution of the project, the Tribe shall submit a list of proposed costs for negotiation on those items. Costs for the additional or special items shall then govern either for the duration of the tribal contract, or for just those sites specified in the proposal, as agreed at the time.
26. The IHS shall review and approve (or reject with justification and explanation) proposed solicitations before advertising by the Tribe.
27. The IHS shall review and approve proposed unit costs for all items of work under the project. Once approved by IHS, these unit costs shall govern all work for the duration of the tribal contract under which they are proposed. Unit costs for additional or special units of work required at individual sites shall be negotiated before the IHS authorizes work for the site or group of sites affected. All unit costs are subject to approval by the IHS Director, Division of Sanitation Facilities Construction prior to the award of any contract or the start of any construction involving those items of work.
28. The Tribe shall procure construction of the facilities in conformance with Chapter 6, section 6.2 of the IHS "Guidelines for Utilization of the Memorandum of Agreement, May 1990" and Phoenix Area OEH Guideline 2-33. Some, but not all, of the requirements included in these provisions are listed below:
 - a. The Tribe shall use a system of contract administration that ensures performance by its contractors in accordance with the terms and conditions of the contract and compliance with OMB Circular A-102 as adopted by DHHS in 45CFR92;
 - b. No employee, officer, or agent of the Tribe shall participate in the selection, or in the award, or in the administration of a federally assisted contract if a conflict of interest, real or apparent, would be involved;
 - c. Tribal officers, employees, and agents will neither

solicit nor accept gratuities, favors, or anything of monetary value from contractors or potential contractors;

- d. All supply and construction contracts in excess of \$2,000 must be made by competitive solicitation;
- e. All construction contracts in excess of \$2,000 must include labor provisions which comply with the regulations of the U.S. Department of Labor for federally assisted construction contracts, including the requirement for Davis-Bacon wage rates;
- f. All construction contracts in excess of \$25,000 must include contractor bonding requirements, unless specifically waived by the IHS Director, Division of Sanitation Facilities Construction; and
- g. All construction contracts in excess of \$10,000 must include clauses requiring compliance with the "Equal Employment Opportunity" Executive Order 11246.

TRIBAL FINANCIAL MANAGEMENT STANDARDS AND PROCEDURES

- 29. The Tribe shall provide the following features in its financial management system:
 - a. The Tribe shall maintain original accounting records which accurately identify the source and application of all project funds it receives. The source documentation shall include canceled checks, paid bills, payrolls, time and attendance records, purchasing documents, and financial records. Accurate, current, and complete project records shall be reported in accordance with other provisions of this Agreement;
 - b. The Tribe shall maintain effective controls and accountability for all cash, real and personal property, and other assets acquired;
 - c. The Tribe shall compare actual tribal expenditures with budgeted amounts for the project; and
 - d. Applicable OMB cost principles (OMB Circular A-87) and the terms of this Agreement shall govern in determining the reasonableness, allowability, and allocability of all costs under the project.
- 30. The Tribe shall maintain a separate financial account for the project.
- 31. The Tribe shall submit a projected cash flow schedule. The Tribe and IHS shall minimize the time elapsed between fund

transfer and disbursement.

32. Interest in excess of \$100 per year earned on cash advances (Federal funds) must be returned to the IHS in the appropriate project account.
33. Funds for construction projects under an Agreement shall not be borrowed or intentionally invested. Funds from one IHS funded construction project shall not be used for cash flow or other unauthorized purposes or for another IHS funded construction project.
34. Any proposed changes by the Tribe in the project scope and/or budgeted costs must be reviewed and approved by IHS as provided for in the Agreement.

PROJECT CLOSEOUT

35. The IHS will close out the project when it determines that all applicable administrative actions and all required project work has been completed. The Tribe shall return unexpended funds within 90 days after the completion of the project construction phase. The Tribe shall submit a closeout financial report after completion of the project and return of all unused funds.
36. Except as otherwise provided, project records shall be retained for three years from the project completion date. These records include all financial records, supporting documents, procurement documents, titles, and equipment records including, but not limited to, time sheets, canceled checks, invoices, and purchase orders. These records shall be made available upon request by the IHS, Inspectors General, or other designated representatives. The Tribe shall be subject to audit in accordance with the requirements of the Single Audit Act.
37. If any litigation, claim, negotiation, audit, or other action involving the records has been started before the expiration of the 3-year period, the records shall be retained until completion of the action and resolution of all issues which arise from it, or until the end of the three-year period, whichever is later.

WARRANTIES

38. The Tribe, to the extent economically feasible, will obtain a 1-year warranty for the Tribe and head of household from the tribal contractors, suppliers, and manufacturers on equipment, work, and supplies provided by them. The IHS shall assist the Tribe or head of household in obtaining the benefits and protection of all warranties on equipment or work provided under this Agreement.

AGREEMENT DISPUTES


39. The parties to this Agreement agree to resolve all disputes regarding the provisions of this Agreement among the parties through administrative procedures first. If a dispute cannot be resolved locally, the parties to this Agreement agree that the next administrative procedure is an appeals board established at the IHS headquarters level, which will make a recommendation to the IHS Director, who will exercise final authority for the IHS in the administrative review of all disputes.

AGREEMENT TERMINATION


40. Any party to this Agreement may terminate its relationship with the other Agreement parties prior to project completion upon 30 days notice in writing to all other parties.

IN WITNESS WHEREOF, the parties have subscribed their names:

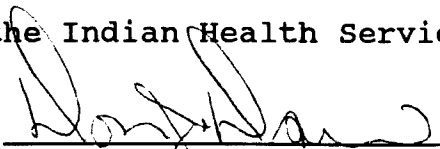
For the Tribe:

 10-19-92
Chairman, White Mountain Apache Tribal Council, having been duly authorized to enter into this Agreement on behalf of the White Mountain Apache Tribe, as evidenced by the attached copy of the resolution made by the Tribal Council. Date

For the White Mountain Apache Tribal Utility Authority:

 10/7/92
Director, White Mountain Apache Tribal Utility Authority, having been duly authorized to enter into this Agreement on behalf of the White Mountain Apache Tribal Utility Authority. Date

For the Indian Health Service:

 9.23.92
Area Director Date
Phoenix Area Indian Health Service
Department of Health and Human Services

PROJECT SUMMARY
DOMESTIC WATER SUPPLY AND SEWAGE DISPOSAL FACILITIES
TO SERVE
10 UNITS OF BIA HIP HOUSING
20 UNITS OF TRIBAL HOUSING
FORT APACHE INDIAN RESERVATION
NAVAJO, APACHE AND GILA COUNTIES, ARIZONA

PROJECT NO. PH 92-369
PUBLIC LAW 86-121

U. S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
PHOENIX AREA OFFICE

SEPTEMBER 1992

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 PUBLIC LAW 86-121

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PROJECT NO. PH 92-369
PUBLIC LAW 86-121

INTRODUCTION

The White Mountain Apache Tribe submitted a Project Proposal to the Indian Health Service (IHS) on August 10, 1992, requesting assistance in providing sanitation facilities for 30 new houses being constructed on the Fort Apache Indian Reservation through the Bureau of Indian Affairs (BIA) Housing Improvement Program (HIP), BIA Revolving Credit Housing Program, and private financing. In addition, the Tribe has requested IHS assistance in the planning, design and construction of solid waste collection and disposal facilities. In response to the Project Proposal and because unsafe water supplies and sewage and solid waste disposal facilities contribute to the high incidence of infectious diseases, the IHS, an Agency of the U.S. Public Health Service, has been authorized under Public Law 86-121 to construct sanitation facilities for American Indians and, therefore, will provide for the design and construction of the facilities described in this Project Summary.

This Project Summary contains a preliminary evaluation, recommendations, and cost estimates to construct water and sewer facilities for 30 new houses on scattered sites throughout the Reservation. Funds will also be provided through the project for the partial funding of construction of solid waste disposal facilities.

GENERAL INFORMATION

A. Reservation Description:

1. **Location:** The Fort Apache Indian Reservation is located in the mountainous east central part of the state and occupies large portions of Navajo, Gila, and Apache counties. It is approximately 75 miles wide from east to west, about 45 miles long from north to south, and covers an area of 1,664,872 acres or 2,601 square miles. Show Low (35 miles north) and Globe (90 miles south) are the nearest urban communities. Phoenix is located 180 miles to the southwest.
2. **Climate:** The reservation has a wide range of topography which affects the climate. The southwestern area is semi-desert in character with an elevation of 2,700 feet and high summer temperatures. To the northeast, however,

elevations in some places exceed 11,000 feet and the summers are cool and winters are moderately severe. Rainfall varies from a few inches in the southwest to heavier precipitation, including snow, at the elevations of 6,500 feet to 11,000 feet.

3. Geology: The entire reservation slopes generally in a southwesterly direction and drains into the Salt River, which is a major source of surface water for Phoenix and the surrounding area.
- B. Population: According to the 1990 census, the Fort Apache Indian Reservation has 9,825 residents. Most of the residents reside in one of the seven following communities on the Reservation: Whiteriver, East Fork/Seven Mile, Cibecue, Carrizo, Cedar Creek, Fort Apache, and McNary.
- C. Housing and Public Facilities: There are approximately 2,200 houses on the reservation, many of which have been constructed through HUD and BIA-HIP programs. Whiteriver is the largest population center on the Reservation with approximately 1,400 homes.

Three main highways (US 60, AZ 73 and 260) run through the Reservation. There is also a 6,270 foot paved, lighted runway at the Whiteriver Airport.

Community facilities include three motel/lodges with restaurants, three community centers/rodeo grounds, an Apache Culture Center, library, three gymnasiums, fairgrounds, indoor swimming pool, and five churches. Medical facilities include the IHS Whiteriver Service Unit which operates a 50 bed hospital with inpatient, outpatient and community health care. Contract air service is provided from Whiteriver to Phoenix and a heliport is available at the hospital for emergency air- evacuation. In addition, outpatient and emergency services are provided by a separate, permanently staffed clinic in Cibecue, 50 miles northwest of Whiteriver.

Education facilities on the Reservation include two public elementary schools, a public junior high, public high school, 37 headstart programs, five vocational skill centers, college extension program, three BIA schools and a Lutheran Mission school.

The Navopache Electric Cooperative provides electrical service on the Reservation and the Continental Telephone Co. of the West provides telephone service. Propane is distributed by Doxol in the communities. Also available throughout the Reservation are a variety of regional and local newspapers, cable television, and the White Mountain Apache Tribe radio station.

- D. Government: The Fort Apache Indian Reservation is governed by the White Mountain Apache Tribe with headquarters at

Whiteriver. The tribal government consists of a chairman, vice-chairman, and nine council members. Government services include the White Mountain Apache Tribal Police.

- E. Economy: The economy of the White Mountain Apache Tribe is closely tied to the natural resource base. The predominant sources of livelihood include timber operations, tourism, livestock management and government employment. Agriculture development is beginning, with a 900 acre irrigated farm currently producing livestock feeds.

The tribe owns and operates a sawmill that employs 450 people on a permanent basis. The scenic mountain resources also support a substantial level of tourism activity. The tribe has developed fishing lakes, campgrounds and retail stores to support increasing numbers of seasonal tourists. A ski resort, also owned and operated by the tribe, has developed into a profitable enterprise and is the tribe's second leading employer.

DISEASES OF ENVIRONMENTAL SIGNIFICANCE

Table 1 lists the number of hospital visits for environmentally related diseases for the fiscal year indicated. It does not separate specific cases.

TABLE 1

ENVIRONMENTALLY RELATED DISEASES	NUMBER OF HOSPITAL VISITS				
	FY 85 No.	FY 86 No.	FY 87 No.	FY 88 No.	FY 89 No.
Infectious Hepatitis	7	142	19	28	17
Bacillary Dysentery	106	94	75	104	100
Gastro- enteritis Diarrhea	1,500	1,004	1,285	2,002	1,844

EXISTING SANITATION FACILITIES

- A. Water Supply: Throughout the reservation, potable water is supplied by wells located in river valleys and near springs. Historically, there have been problems in supplying sufficient quantities of water to meet various community water needs. Supply problems consistently develop during peak demand periods in the summer months. Fluctuating power sources and summer electrical storms often cause damage to well pump motors. Additionally, maintaining numerous low yield wells is costly and operationally intensive.

Whiteriver - The Whiteriver community of approximately 1,400 homes receives water from a spring located above the Alchesay Fish Hatchery and 10 alluvial wells. The spring has a flow

rate of approximately 350 gpm which is delivered through an eight mile transmission line to the Whiteriver community. The 10 wells have production rates ranging from 25 to 250 gallons per minute. At the present time, only seven of the wells are operational. The IHS is proposing construction of a 1,400 gpm surface water treatment plant under Projects PH 87-480 and PH 89-693 to supplement the numerous low capacity wells. This project has been delayed because of concern over impacts to the loach minnow, a threatened species which is protected by the Endangered Species Act.

Pressure within the Whiteriver water system is controlled in 11 different pressure zones using pressure reducing valves. There is also a water booster station that pumps water to the 300,000 gallon Over the Rainbow water storage tank. The system has a total of eight water storage tanks with capacities ranging from 20,000 to 1,000,000 gallons of storage and about 30 miles of water transmission lines consisting of 2- to 18-inch diameter pipe. The transmission line is made up of asbestos cement pipe, cast iron pipe, ductile iron pipe, polyvinyl chloride pipe and steel pipe.

East Fork/Seven Mile - The East Fork/Seven Mile community has approximately 325 homes and the community's main water source is a spring with an approximate flow rate of 150 gpm. In addition to the spring, there are three wells that are connected to the water system. At the present time, only one of the three wells is operational. The East Fork/Seven Mile community water distribution lines range from 2- to 8-inches in diameter.

Cibecue - The Cibecue community of 285 homes is served by three wells. There have been two attempts to drill another well in Cibecue under IHS Project PH 89-676. Both of these attempts resulted in a dry hole. One more attempt at drilling a new well is being planned under IHS Project PH 89-676. The Cibecue community water distribution lines range from 2- to 6-inches in diameter.

Carrizo - The Carrizo community has two operational wells which serve approximately 34 homes. One of these wells has a yield of less than 10 gpm and is subject to iron encrustation, requiring frequent maintenance. The community's second well was constructed during an emergency water shortage and does not have a pumphouse. The IHS is constructing a pumphouse for this well under Project PH 85-424. Booster pumps and a hydropneumatic tank provide water to the homes in higher elevations of Carrizo. The hydropneumatic tank has a history of being water logged. Because of its location, a portable compressor has to be transported to the tank periodically in order to charge it with air. The Carrizo community water distribution lines are 2- to 4-inches in diameter.

Cedar Creek - A community well which produces 55 gpm provides water for the 72 homes in Cedar Creek. The well does not

always meet the demand during summer months and Cedar Creek has experienced water shortages. The Cedar Creek community water distribution lines range from 2- to 6-inches in diameter.

Fort Apache Junction - The approximately 32 homes in the community of Fort Apache Junction obtain water from a single community well. The community's water distribution lines are 2- to 4-inches in diameter.

McNary - A community well and a spring provide water for the McNary community of approximately 50 homes. The spring has an extremely low yield and requires a booster station which operates for a short period to empty the wet well.

There are two additional wells connected to the McNary water distribution system; however these wells are not used due to the poor condition of the 15,000 feet of steel transmission line between the wells and the McNary community. The White Mountain Apache Tribe plans to slipline the steel waterline using the remaining grant funds from a FmHA project which replaced all the watermains in the old section of McNary. Before the two wells are placed in service, new electrical controls will need to be installed in the pumphouses.

- B. Sewage Disposal: Whiteriver Regional Sewer - The existing sewer system, serving Diamond Creek, Whiteriver, Seven Mile, Fort Apache Junction and Canyon Day, consists of 6- to 18-inch diameter sewer main made up of vitrified clay pipe, asbestos cement pipe and PVC pipe. Most of the manholes are made out of concrete with cast iron rings and covers. The older manholes in Whiteriver were constructed with cinder blocks and topped with a cast iron ring and cover. There are three sewage lift stations in the system and about 30 miles of gravity and force main. There are about 95 acres of ponds used for treatment and storage. Facilities exist to irrigate 200 acres of alfalfa with treated effluent. Many homes in the communities remain on septic-tank drainfield systems because funds have not been available to connect them to the regional sewer system.

Individual Sewage Facilities - Individual septic tanks and drainfields are utilized at East Fork, Hondah homesites, Carrizo, and Cedar Creek.

Cibecue Sewer - Sewage is collected in 8- and 12-inch diameter sewer mains. The sewage is treated in a 4.5 acre lagoon, which at the present time is overflowing into Cibecue Creek. The White Mountain Apache Tribe is constructing a new lagoon under IHS Project PH 92-692 which was funded with an EPA Clean Water Act grant.

Hondah Sewer - The Hondah community has two separate sewage systems. Most homes in the community are connected to a system consisting of a lagoon and an 8-inch sewer main. The

community's service station, hotel and trailer park are on a small commercial sewer system. The small commercial sewer system sometimes overflows during a heavy rainfall and flows over land into a small lake.

McNary Sewer - The McNary sewer system consists of a three cell lagoon and a collection system of 6- and 8-inch diameter sewer main. Two major problems have contributed to the overflowing of the existing sewage lagoons: Excessive interior plumbing leaks from 15 homes and excessive infiltration through cracks in the clay sewer mains.

The White Mountain Apache Tribe recently corrected the leaky plumbing in the 15 homes. It was estimated that the homes were using approximately 75% of the water and their repair is expected to reduce the flow to the lagoons by over 100,000 gallons per month. The cracked clay sewer mains are being replaced under IHS Project PH 92-773.

- C. Solid Waste: Solid waste is disposed on an individual basis at several open dumps located throughout the Fort Apache Indian Reservation. None of the dumps meet current federal standards.

RECOMMENDED FACILITIES

- A. Water Supply: Locations of the proposed homes have not been determined. This project will provide water service lines and short water main extensions, where necessary, to connect to existing water mains.
- B. Sewage Disposal: Locations of the proposed homes have not been determined. This project will provide for the construction sewage disposal facilities for the existing houses including sewer service lines, with short sewer main extensions where necessary, or septic tank and drainfield systems.
- C. Solid Waste: The White Mountain Apache Tribe has made an application for a HUD CDBG grant to construct new solid waste disposal facilities. The 3.4 million dollar grant would provide funding to close the existing open dumps, open an RCRA approved landfill on the reservation and provide funding to purchase equipment for collection of solid waste. If the CDBG grant is funded, \$100,000 from this project will be contributed toward the CDBG project. If the solid waste project is not funded, this project will be amended to revise the recommended facilities.

ESTIMATED COST OF RECOMMENDED FACILITIES

<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT COST</u>	<u>TOTAL COST</u>
A. Water:			
1. 6" PVC water main	1,400 lf	\$11	\$ 15,400

2. 6" Gate valve	3 ea.	\$600	1,800
3. Curb stop	30 ea.	\$150	4,500
4. Coppersetter w/box	30 ea.	\$175	5,250
5. Saddles w/corp. stop	30 ea.	\$175	5,250
6. 1" PE water service	3,000 lf	\$6	18,000
7. 6" Pipe interconnection	3 ea.	\$1,000	3,000
8. Blow-off valves	2 ea.	\$650	1,300
9. Open cut road crossing & concrete patch	70 ft.	\$75	5,250
10. 2" PVC water main	1,000 lf	\$7	7,000
11. 2" gate valve	5 ea.	\$400	2,000
12. 2" saddle	5 ea.	\$250	1,250
SUBTOTAL, WATER			<u>\$ 70,000</u>

B. Sewer:

1. 8" PVC sewer main	1,400 lf	\$13.50	\$ 18,900
2. Manhole	3 ea.	\$1,200	3,600
3. Sewer main cleanout	2 ea.	\$500	1,000
4. Connect to manhole	3 ea.	\$750	2,250
5. 4" PVC sewer service	2,500 lf	\$7.50	18,750
6. Sewer main saddles	21 ea.	\$250	5,250
7. WYE branch	5 ea.	\$175	875
8. 4" Sewer cleanouts	30 ea.	\$125	3,750
9. Septic tanks	4 ea.	\$750	3,000
10. Drainfield (4" pipe)	2,450 lf	\$8	19,600
11. Open cut road crossing & Concrete Patch	70 ft.	\$75	5,250
SUBTOTAL, SEWER			<u>\$ 82,225</u>

C. Solid waste:

1. Contribution to HUD CDBG Grant	<u>\$100,000</u>
-----------------------------------	------------------

SUBTOTAL, ALL FACILITIES	\$252,225
TRIBAL FEES	3,050
BUILDING PERMITS	2,000
TRIBAL ADMINISTRATION FEE	4,600
ENGINEERING AND CONTINGENCIES	<u>37,800</u>
TOTAL PROJECT COST	\$299,675
ROUNDED	\$300,000

Total Cost per home = \$300,000 ÷ 30 = \$10,000

Individual service costs in excess of \$9,000 per home will be the responsibility of the homeowner.

PARTICIPANTS

A list of participants is not available at this time. Individuals receive sanitation facilities by submitting an application to the Tribe for service. After the application is submitted the site is evaluated to determine if it qualifies for service. It is anticipated that approximately 10 BIA-HIP and 20 BIA revolving credit or privately financed homes will be served under this project.

PLUMBING

This project does not provide for interior plumbing. All homes served under this project will have interior plumbing.

METHOD OF CONSTRUCTION

Sanitation facilities constructed under this project will be procured through competitively bid contracts administered by the White Mountain Apache Tribe.

FLOOD HAZARD

The houses served by this project will not be located in areas subject to flooding. None of the facilities serving these homes will be built in flood prone areas without provision of flood protection features.

HOMEOWNER TRAINING

Recipients of individual sanitation facilities installed under this project will be provided training to insure that the facilities are properly operated and maintained.

COMMUNITY FACILITY TRAINING

Training to help ensure the proper operation and maintenance of community facilities will be provided to the White Mountain Apache Tribal Utility Authority by IHS.

OPERATION AND MAINTENANCE

Upon completion of this project, the White Mountain Apache Tribal Utility Authority will assume ownership of community facilities and will become responsible for their operation and maintenance.

Table 2 shows the estimated costs of operation and maintenance of facilities constructed under this project. The White Mountain Apache Utility Authority currently charges \$18.75 per month per household for water and sewer services. The approximate breakdown is \$15 for water and \$3.75 for sewer.

Table 2
Operation and Maintenance
Cost of Facilities Proposed
for 30 New Homes

<u>Additional Labor Cost</u>	<u>Cost Per Year</u>
Labor @ 4 hrs/wk x \$10 per hr x 52 wks/yr =	\$2,080
Miscellaneous Expenses:	800
Valves, Meters, etc.:	800
Building Maintenance:	250
Chemical Costs:	<u>250</u>
	\$4,180

Electrical Power: Assume 750 gpd/home x 30 homes = 22,500 gpd. At a flow rate of 100 gpm, an additional 225 minutes (3.75 hours) of pumping is needed per day. Assume average pumping head of 280 feet.

$$\frac{100 \text{ gpm} \times 280 \text{ ft}}{4000 \times .75} = 9.3 \text{ HP required}$$

Therefore, 9.3 HP x 3.75 hrs per day = 34.9 HP-HRS per day required.

$$\frac{34.9 \text{ HP-HRS}}{1.341 \text{ HP-HRS/KWH}} = 26 \text{ KWH per day}$$

Therefore, 26 KWH/day x 365 day/yr x \$0.1/KWH = \$949/year

Total Annual Cost: \$4,180 operating cost + \$949 electrical cost = \$5,129/year.

Per Home Cost: $\frac{1 \text{ yr} \times \$5,129}{12 \text{ mo} \times 30 \text{ homes}} = \14.25 per month expected operating cost per home.

The revenue generated through user fees assessed to the new homes served by this project will adequately offset the estimated additional operation and maintenance costs associated with the proposed sanitation facilities.

NEPA

The individual sites under this project are categorically excluded under NEPA. However, community facilities are not excluded. An Environmental Review and Documentation checklist will be completed for the community extensions as soon as exact locations are known. In addition, a cultural resources survey will be conducted to comply with requirements of the National Historic Preservation Act. The solid waste facilities environmental and cultural review will be done as part of the HUD CDBG project.

PROJECT SUMMARY
DOMESTIC WATER SUPPLY AND SEWAGE DISPOSAL FACILITIES
TO SERVE
10 UNITS OF BIA HIP HOUSING
20 UNITS OF TRIBAL HOUSING
FORT APACHE INDIAN RESERVATION
NAVAJO, APACHE and GILA COUNTIES, ARIZONA

PUBLIC LAW 86-121
IHS PROJECT NUMBER PH 92-369

PREPARED BY:

8/27/92

Date


Project Engineer

CONCURRED BY:

8/27/92

Date

 ASUD / for
Service Unit Director

REVIEWED BY:

8/28/92

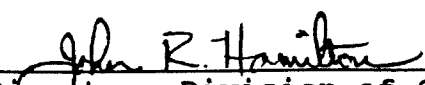
Date


District Engineer

RECOMMENDED FOR APPROVAL:

9-17-92

Date


Director, Division of Sanitation
Facilities Construction

APPROVED BY:

9/17/92

Date

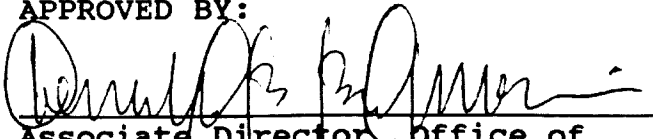

Associate Director, Office of
Environmental Health and Engineering

EXHIBIT 5 NEW PROJECT OR MODIFIED PROJECT APPROVAL FORM

PHOENIX AREA INDIAN HEALTH SERVICE SANITATION FACILITIES PROJECT

<u>Assigned Project Number</u>	<u>Project Title and Date</u>	<u>Total Project Estimated Cost</u>	
PH 92-369	Sanitation Facilities Construction Ft. Apache	IHS	\$300,000.00
		Tribal	\$
		L.H.A.	\$
		Other	\$
	September, 1992	TOTAL	\$300,000.00

Under and pursuant to Public Law 86-121 and the authority delegated to me, I hereby approve the sanitation facilities project or modified project outlined in the attached project summary or amended project summary described above.

- This Action: XX Approves a new Sanitation Facilities Construction project
- ___ Approves an Amendment to a previously approved project
- ___ Increases the Cost Estimated of a previously approved project.

Negotiation of necessary agreements or agreement amendments related to project execution, contributions, and responsibilities for operation and maintenance of the planned facilities may now be initiated. Negotiations shall be based upon the project summary or amended project summary as approved. Indian Health Service commitments shall not exceed the estimated set forth above.

The assigned project number shall be utilized on all correspondence and documents related to this project.

Keith Shortall is hereby designated as Project Officer and shall be responsible for the coordination of all activities related to the execution of the project.

Upon receipt of a "Request for Transfer of Funds Between Public Law 86-121 Project Accounts" from the Area Office of Environmental Health and Engineering, the Area Financial Management Officer is hereby instructed to establish a new project account if necessary and to transfer into such account or previously established account an amount equal to the estimated cost set forth above less amounts previously transferred. Obligations and expenditures related to the project are to be charged to this amount.

Fund Certifications:

Date: 9/17/92
Funds in the amount of the IHS estimated cost less amounts previously transferred to this project are available in the Area and reserved for this Project.

Approval Recommended:

John R. Hamilton 9-17-92
Director, Division of Sanitation Facilities Construction Date

Concurrence:
Dennis B. Fullmer 9/17/92
Associate Director, Office of Environmental Health Date

Donna 9.22.92
Director, Phoenix Area Indian Health Service Date

Dan L. Ryan
Area Financial Management Officer

cc: Service Unit Director
Dir., IHS, ATTN: Dir., OEH
Area Financial Mgmt Officer

INDIAN HEALTH SERVICE
SANITATION FACILITIES CONSTRUCTION
UNDER PL 86-121

PROJECT SCHEDULE

AREA Phoenix

PROJECT TITLE Domestic Water Supply PROJECT NUMBER PH 92-369
 AND and Sewage Disposal

LOCATION Fort Apache Reservation

ESTIMATED COST \$ 300,000.00 PROJECT DESCRIPTION Water
 IHS \$ 300,000.00 supply, sewage disposal, &
 TRIBAL _____ solid waste facilities

OTHER _____ NO. HOMES TO BE SERVED 30

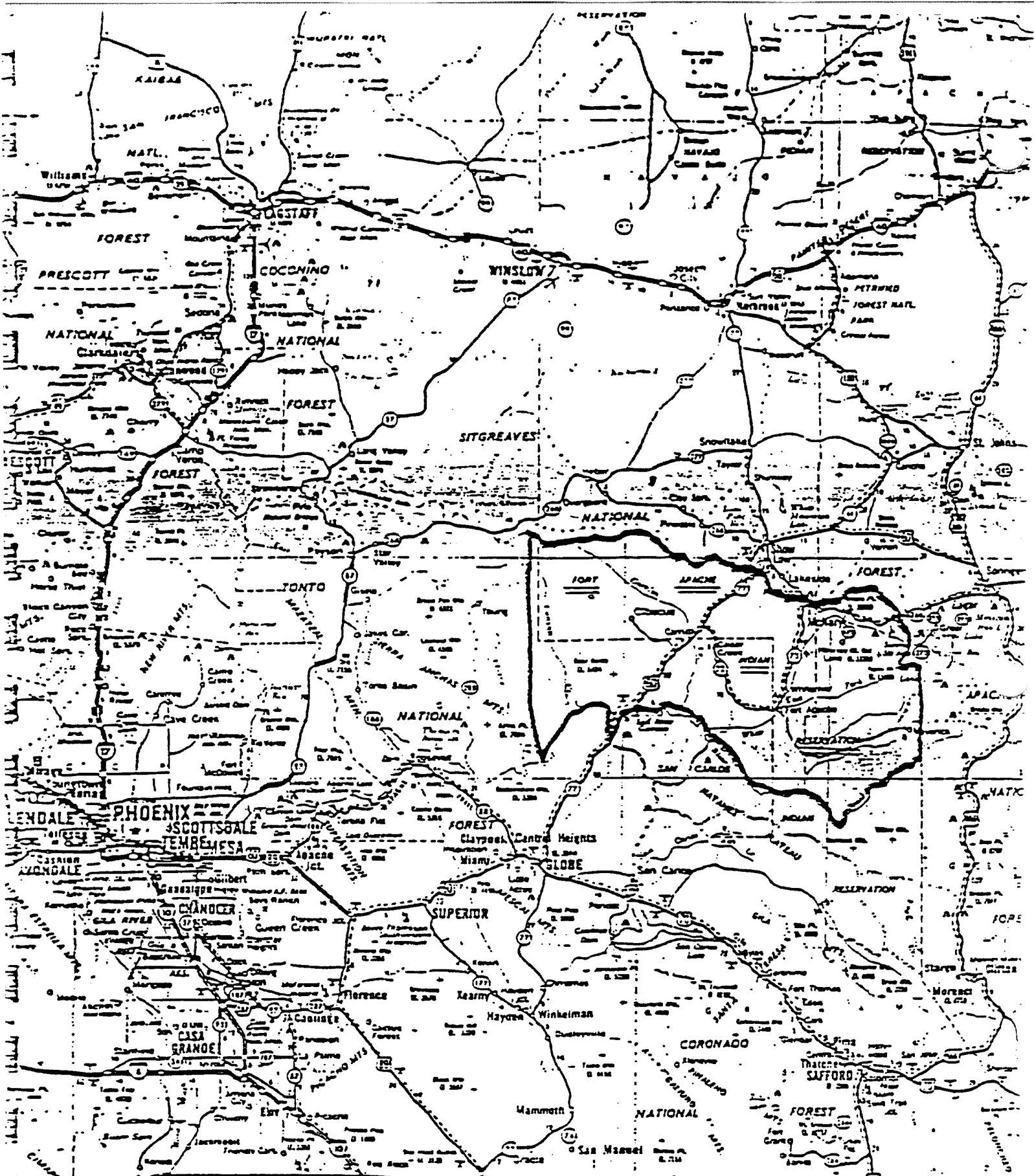
TOTAL \$ 300,000.00 DATE PROJECT APPROVED _____

<u>ACTION TAKEN</u>	<u>TARGET DATES</u>	<u>REMARKS</u>
MEMORANDUM OF AGREEMENT SIGNED	<u>9/92</u>	_____
ENGINEERING DESIGN INITIATED	<u>4/93</u>	_____
ENGINEERING DESIGN COMPLETED	<u>4/93</u>	_____
ADEQ REVIEW	<u>5/93</u>	_____
RIGHTS OF WAY REQUESTED	<u>N/A</u>	_____
PROCUREMENT INITIATED	<u>5/93</u>	_____
CONSTRUCTION PERSONNEL	<u>N/A</u>	_____
RECRUITMENT	<u>N/A</u>	_____
TRAINING	<u>N/A</u>	_____
CONSTRUCTION COMPLETED	<u>3/94</u>	_____
FACILITIES TRANSFERRED	<u>6/94</u>	_____

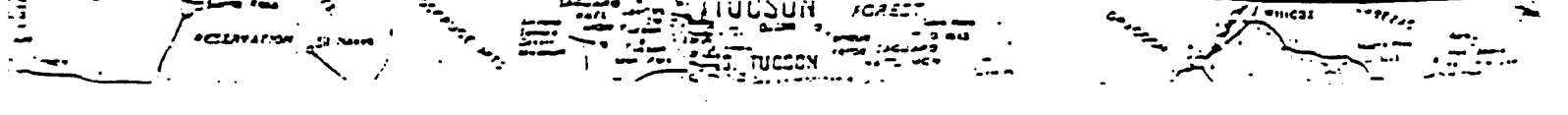
John R. Hamilton
 Director, DSFC

9-11-92
 Date

**APPENDIX A
LOCATION MAPS**



LOCATION: FORT APACHE INDIAN RESERVATION	TITLE: LOCATION MAP	DISTRICT EADO	SHEET NO. OF
		PROJECT NO. PH 92-369	



APPENDIX B
PRELIMINARY DESIGN ANALYSIS

**PRELIMINARY DESIGN ANALYSIS
WATER SUPPLY AND DISTRIBUTION SYSTEM**

COMMUNITY/SYSTEM Cedar Creek RESERVATION Fort Apache

INITIAL WATER CONSUMPTION & POPULATION SERVED:

Homes w/Full Facilities	<u>63</u>	X	<u>600</u>	GPD/Home =	<u>37,800</u>	GPD
Homes w/O Facilities	<u>8</u>	X	<u>50</u>	GPD/Home =	<u>400</u>	GPD
Homes w/Outside Hyd. Only	<u>1</u>	X	<u>200</u>	GPD/Home =	<u>200</u>	GPD
Non-Residential Use						GPD
	Total:		<u>72</u>	Homes Total:	<u>38,400</u>	GPD
Population =	<u>4</u>	People/Home X	<u>72</u>	Homes =	<u>288</u>	People
Consumption = Total	<u>38,400</u>	GPD/	<u>288</u>	People =	<u>133</u>	GPCD

DESIGN WATER CONSUMPTION & POPULATION SERVED:

Growth Factor	<u>20</u> %	Design Population	<u>346</u>	Consumption	<u>150</u>	GPCD
Average Daily Total =		<u>346</u>	People X	<u>150</u>	GPCD =	<u>51,900</u>

WATER SOURCE:

Name	Natural Fl Level	Currently Fluoridated	Currently Chlorinated	Current Pump Yield	Test Yield
Well #3	_____ ppm	<u>Yes</u>	<u>No</u>	<u>55</u> GPM	_____ GPM
_____	_____ ppm	_____	_____	_____ GPM	_____ GPM
_____	_____ ppm	_____	_____	_____ GPM	_____ GPM
_____	_____ ppm	_____	_____	_____ GPM	_____ GPM
_____	_____ ppm	_____	_____	_____ GPM	_____ GPM
			Total Yields:	<u>55</u> GPM	_____ GPM

Initial Pump Cycle = $\frac{38,400 \text{ GPD}}{55 \text{ GPM} \times 60} = 11.6 \text{ hr/day}$
 Design Pump Cycle = $\frac{51,900 \text{ GPD}}{55 \text{ GPM} \times 60} = 15.7 \text{ hr/day}$
 Additional Supply Required? Yes Type Well Yield 50 + gpm

WATER STORAGE:

_____ ft (D) _____ ft (H) = 15,000 gal; _____ ft (D) _____ ft (H) 20,000 gal
 _____ ft (D) _____ ft (H) = 15,000 gal; _____ ft (D) _____ ft (H) 20,000 gal
 _____ ft (D) _____ ft (H) = 15,000 gal; Total Storage Capacity 85,000 gal

Existing Storage Available = $\frac{85,000 \text{ gal}}{38,400 \text{ GPD}} = 2.2 \text{ days}$
 Design Storage Required = $\frac{51,900 \text{ GPD} \times 2 \text{ days}}{103,800 \text{ gal}}$
 Additional Storage Required = _____ gal - _____ gal = 20,000 gal

INITIAL SYSTEM PRESSURE:

Zone I

Elevation of High Water Level Tanks _____ ft Low Water Level _____ ft
 Elevation of Highest House Served _____ ft; Lowest House Served _____ ft
 Max Static Pressure _____ ft = _____ PSI Min Static Pressure _____ ft = _____ PSI

Zone II

Elevation of High Water Level Tanks _____ ft Low Water Level _____ ft
 Elevation of Highest House Served _____ ft; Lowest House Served _____ ft
 Max Static Pressure _____ ft = _____ PSI Min Static Pressure _____ ft = _____ PSI

PREPARED BY

EAC

DATE 2/14/92

APPROVED BY _____

DATE _____

**PRELIMINARY DESIGN ANALYSIS
WATER SUPPLY AND DISTRIBUTION SYSTEM**

COMMUNITY/SYSTEM Canyon Day RESERVATION Fort Apache

INITIAL WATER CONSUMPTION & POPULATION SERVED:

Homes w/Full Facilities	<u>218</u>	X	<u>600</u>	GPD/Home =	<u>130,800</u>	GPD
Homes w/o Facilities	<u>30</u>	X	<u>50</u>	GPD/Home =	<u>1,500</u>	GPD
Homes w/Outside Hyd. Only	<u>2</u>	X	<u>200</u>	GPD/Home =	<u>400</u>	GPD
Non-Residential Use						GPD
Total:			<u>250</u>	Homes Total:	<u>131,900</u>	GPD
Population =	<u>4</u>	People/Home X	<u>250</u>	Homes =	<u>1,000</u>	People
Consumption = Total	<u>131,900</u>	GPD/	<u>1000</u>	People =	<u>132</u>	GPCD

DESIGN WATER CONSUMPTION & POPULATION SERVED:

Growth Factor 20 % Design Population 1200 Consumption 150 GPCD
 Average Daily Total = 1200 People X 150 GPCD = 180,000 GPD

WATER SOURCE:

Name	Natural Fl Level	Currently Fluoridated	Currently Chlorinated	Current Pump Yield	Test Yield
<u>CD # 1</u>	<u>0.14 ppm</u>	<u>Yes</u>	<u>No</u>	<u>85 GPM</u>	<u>160 GPM</u>
<u>CD # 2</u>	<u>0.14 ppm</u>	<u>Yes</u>	<u>No</u>	<u>35 GPM</u>	<u>100 GPM</u>
<u>CD # 3</u>	<u>0.14 ppm</u>	<u>Yes</u>	<u>No</u>	<u>60 GPM</u>	<u>70 GPM</u>
<u> </u>	<u> ppm</u>	<u> </u>	<u> </u>	<u> GPM</u>	<u> GPM</u>
<u> </u>	<u> ppm</u>	<u> </u>	<u> </u>	<u> GPM</u>	<u> GPM</u>
				Total Yields:	180 GPM
					330 GPM

Initial Pump Cycle = $\frac{131,900 \text{ GPD}}{(180 \text{ GPM} \times 60)} = 12.2 \text{ hr/day}$
 Design Pump Cycle = $\frac{180,000 \text{ GPD}}{(180 \text{ GPM} \times 60)} = 16.7 \text{ hr/day}$
 Additional Supply Required? Yes Type * Yield
 *connection to Whiteriver water system.

WATER STORAGE:

33 ft (D) 32 ft (H) = 200,000 gal; ft (D) ft (H) gal
 ft (D) ft (H) = gal; ft (D) ft (H) gal
 ft (D) ft (H) = gal; Total Storage Capacity 200,000 gal

Existing Storage Available = 200,000 gal; $\frac{131,900 \text{ GPD}}{131,900 \text{ GPD}} = 1.5 \text{ days}$
 Design Storage Required = 180,000 gal; $\frac{180,000 \text{ GPD}}{180,000 \text{ GPD}} \times 2 \text{ days} = 360,000 \text{ gal}$
 Additional Storage Required = gal - gal = 200,000 gal

INITIAL SYSTEM PRESSURE:

Zone I

Elevation of High Water Level Tanks ft Low Water Level ft
 Elevation of Highest House Served ft; Lowest House Served ft
 Max Static Pressure ft = PSI Min Static Pressure ft = PSI

Zone II

Elevation of High Water Level Tanks ft Low Water Level ft
 Elevation of Highest House Served ft; Lowest House Served ft
 Max Static Pressure ft = PSI Min Static Pressure ft = PSI

DESIGNED BY EAC DATE 2/14/92 APPROVED BY DATE

PRELIMINARY DESIGN ANALYSIS
WATER SUPPLY AND DISTRIBUTION SYSTEM

COMMUNITY/SYSTEM Whiteriver RESERVATION Fort Apache

INITIAL WATER CONSUMPTION & POPULATION SERVED:

Homes w/Full Facilities	<u>818</u>	X	<u>600</u>	GPD/Home = <u>490,800</u>	GPD
Homes w/O Facilities	<u>32</u>	X	<u>50</u>	GPD/Home = <u>1,600</u>	GPD
Homes w/Outside Hyd. Only	<u>23</u>	X	<u>200</u>	GPD/Home = <u>4,600</u>	GPD
Non-Residential Use					GPD
Total:	<u>873</u>			Homes Total: <u>497,000</u>	GPD
Population =	<u>4</u>	People/Home X	<u>873</u>	Homes =	<u>3,492</u> People
Consumption = Total	<u>497,000</u>	GPD/	<u>3,492</u>	People =	<u>142</u> GPCD

DESIGN WATER CONSUMPTION & POPULATION SERVED:

Growth Factor	<u>20 %</u>	Design Population	<u>4190</u>	Consumption	<u>150</u> GPCD
Average Daily Total =	<u>4190</u>	People X	<u>150</u>	GPCD =	<u>628,500</u> GPD

WATER SOURCE:

Name	Natural Fl Level	Currently Fluoridated	Currently Chlorinated	Current Pump Yield	Test Yield
Spring	<u>--</u> ppm	<u>Yes</u>	<u>No</u>	<u>350</u> GPM	<u> </u> GPM
Well #1	<u>--</u> ppm	<u>Yes</u>	<u>No</u>	<u>100</u> GPM	<u> </u> GPM
Well #2	<u>--</u> ppm	<u>Yes</u>	<u>No</u>	<u>120</u> GPM	<u> </u> GPM
Well #3	<u>--</u> ppm	<u>Yes</u>	<u>No</u>	<u>150</u> GPM	<u> </u> GPM
	<u> </u> ppm	<u> </u>	<u> </u>	<u> </u> GPM	<u> </u> GPM
				Total Yields:	<u>720</u> GPM

Initial Pump Cycle = $\frac{497,000 \text{ GPD}}{350 \text{ GPM} \times 60} = 23.6$ hr/day
 Design Pump Cycle = $\frac{628,500 \text{ GPD}}{720 \text{ GPM} \times 60} = 14.5$ hr/day
 Additional Supply Required? WTP Type Yield 2100**

** To also serve Canyon Day, Ft. Apache Jct. and East Fork/Seven Mile in the future.

WATER STORAGE:

 ft (D) ft (H) = gal; ft (D) ft (H) gal
 ft (D) ft (H) = gal; ft (D) ft (H) gal
 ft (D) ft (H) = gal; Total Storage Capacity 3,200,000 gal

Existing Storage Available = $\frac{3,200,000 \text{ gal}}{497,000 \text{ GPD}} = 6.4$ days
 Design Storage Required = $\frac{628,500 \text{ GPD} \times 2 \text{ days}}{628,500 \text{ GPD}} = 1,257,000$ gal
 Additional Storage Required = gal - gal = gal

INITIAL SYSTEM PRESSURE:

Zone I

Elevation of High Water Level Tanks ft Low Water Level ft
 Elevation of Highest House Served ft; Lowest House Served ft
 Max Static Pressure ft = PSI Min Static Pressure ft = PSI

Zone II

Elevation of High Water Level Tanks ft Low Water Level ft
 Elevation of Highest House Served ft; Lowest House Served ft
 Max Static Pressure ft = PSI Min Static Pressure ft = PSI

**PRELIMINARY DESIGN ANALYSIS
WATER SUPPLY AND DISTRIBUTION SYSTEM**

COMMUNITY/SYSTEM East Fork RESERVATION Fort Apache

INITIAL WATER CONSUMPTION & POPULATION SERVED:

Homes w/Full Facilities	<u>268</u>	X	<u>600</u>	GPD/Home =	<u>160,800</u>	GPD
Homes w/O Facilities	<u>35</u>	X	<u>50</u>	GPD/Home =	<u>1,750</u>	GPD
Homes w/Outside Hyd. Only	<u>22</u>	X	<u>200</u>	GPD/Home =	<u>4,400</u>	GPD
Non-Residential Use						GPD
Total:	<u>325</u>	Homes	Total:	<u>166,950</u>	GPD	
Population =	<u>4</u>	People/Home X	<u>325</u>	Homes =	<u>1,300</u>	People
Consumption = Total	<u>166,950</u>	GPD/	<u>1300</u>	People =	<u>128</u>	GPCD

DESIGN WATER CONSUMPTION & POPULATION SERVED:

Growth Factor	<u>20 %</u>	Design Population	<u>1560</u>	Consumption	<u>150</u>	GPCD
Average Daily Total =	<u>1560</u>	People X	<u>150</u>	GPCD =	<u>234,000</u>	GPD

WATER SOURCE:

Name	Natural Fl Level	Currently Fluoridated	Currently Chlorinated	Current Pump Yield	Test Yield
# 1	<u>0.3 ppm</u>	<u>No</u>	<u>No</u>	<u>16 GPM</u>	<u>45 GPM</u>
# 2	<u>0.6 ppm</u>	<u>No</u>	<u>No</u>	<u>25 GPM</u>	<u>100 GPM</u>
Spring	<u>0.1 ppm</u>	<u>Yes</u>	<u>Yes</u>	<u>150 GPM</u>	<u>-- GPM</u>
	<u>ppm</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>
	<u>ppm</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>
Total Yields:				<u>191 GPM</u>	<u>---</u>

Initial Pump Cycle = $\frac{166,950 \text{ GPD}}{(150 \text{ Spring only GPM} \times 60)} = 18.6^* \text{ hr/day}$ *Spring can handle al
 Design Pump Cycle = $\frac{234,000 \text{ GPD}}{(191 \text{ GPM} \times 60)} = 20.4 \text{ hr/day}$
 Additional Supply Required? Yes Type Well or Yield ---
 connect to Whiteriver.

WATER STORAGE: Existing spring has had many positive Bac-Tee results - spring likely to be surface water needing filtration/disinfection.

<u>25</u> ft (D) <u>28</u> ft (H) = <u>100,000</u> gal;	<u>25</u> ft (D) <u>28</u> ft (H) = <u>100,000</u> gal
<u>8</u> ft (D) <u>28</u> ft (H) = <u>10,000</u> gal;	<u>---</u> ft (D) <u>---</u> ft (H) = <u>---</u> gal
<u>8</u> ft (D) <u>28</u> ft (H) = <u>10,000</u> gal;	Total Storage Capacity <u>220,000</u> gal

Existing Storage Available = $\frac{220,000 \text{ gal}}{166,950 \text{ GPD}} = 1.3 \text{ days}$
 Design Storage Required = $\frac{234,000 \text{ GPD} \times 2 \text{ days}}{1} = 468,000 \text{ gal}$
 Additional Storage Required = $\frac{468,000 \text{ gal} - 220,000 \text{ gal}}{1} = 250,000 \text{ gal}$

INITIAL SYSTEM PRESSURE:

Zone I

Elevation of High Water Level Tanks --- ft Low Water Level --- ft
 Elevation of Highest House Served --- ft; Lowest House Served --- ft
 Max Static Pressure --- ft = --- PSI Min Static Pressure --- ft = --- PSI

Zone II

Elevation of High Water Level Tanks --- ft Low Water Level --- ft
 Elevation of Highest House Served --- ft; Lowest House Served --- ft
 Max Static Pressure --- ft = --- PSI Min Static Pressure --- ft = --- PSI

**PRELIMINARY DESIGN ANALYSIS
WATER SUPPLY AND DISTRIBUTION SYSTEM**

COMMUNITY/SYSTEM Cibecue RESERVATION Fort Apache

INITIAL WATER CONSUMPTION & POPULATION SERVED:

Homes w/Full Facilities	<u>245</u>	X	<u>600</u>	GPD/Home =	<u>147,000</u>	GPD
Homes w/o Facilities	<u>30</u>	X	<u>50</u>	GPD/Home =	<u>1,500</u>	GPD
Homes w/Outside Hyd. Only	<u>10</u>	X	<u>200</u>	GPD/Home =	<u>2,000</u>	GPD
Non-Residential Use						GPD
Total:	<u>285</u>	Homes	Total:	<u>150,500</u>		GPD
Population =	<u>4.4</u>	People/Home X	<u>285</u>	Homes =	<u>1,254</u>	People
Consumption = Total	<u>150,500</u>	GPD/	<u>1254</u>	People =	<u>120</u>	GPCD

DESIGN WATER CONSUMPTION & POPULATION SERVED:

Growth Factor	<u>20</u>	%	Design Population	<u>1505</u>	Consumption	<u>150</u>	GPCD
Average Daily Total =	<u>1505</u>	People X	<u>150</u>	GPCD =	<u>225,750</u>		GPD

WATER SOURCE: Present usage has been as high as 300 GPCD
1505 x 300 = 451,500 GPD

Name	Natural Fl Level	Currently Fluoridated	Currently Chlorinated	Current Pump Yield	Test Yield
<u>CBO # 2</u>	<u>0.2</u> ppm	<u>Yes</u>	<u>No</u>	<u>50</u> GPM	<u>150</u> GPM
<u>CBQ # 3</u>	<u>0.2</u> ppm	<u>Yes</u>	<u>No</u>	<u>200</u> GPM	<u>350</u> GPM
<u>Johnson</u>	<u>-</u> ppm	<u>No</u>	<u>No</u>	<u>40</u> GPM	<u>--</u> GPM
<u>_____</u>	<u>_____</u> ppm	<u>_____</u>	<u>_____</u>	<u>_____</u> GPM	<u>_____</u> GPM
<u>_____</u>	<u>_____</u> ppm	<u>_____</u>	<u>_____</u>	<u>_____</u> GPM	<u>_____</u> GPM
Total Yields:				<u>290</u> GPM	<u>_____</u> GPM

Initial Pump Cycle = $\frac{150,500 \text{ GPD}}{(290 \text{ GPM} \times 60)} = 8.6 \text{ hr/day}$
 Design Pump Cycle = $\frac{225,750 \text{ GPD}}{(290 \text{ GPM} \times 60)} = 12.9 \text{ hr/day}$
 Additional Supply Required? _____ Type _____ Yield _____

At usage of 300 GPCD. There is not enough current pump capacity. New well is
 WATER STORAGE: proposed under project 89-676.

<u>_____</u> ft (D)	<u>_____</u> ft (H)	= <u>10,000</u> gal;	<u>33</u> ft (D)	<u>24</u> ft (H)	= <u>150,000</u> gal
<u>_____</u> ft (D)	<u>_____</u> ft (H)	= <u>10,000</u> gal;	<u>27</u> ft (D)	<u>24</u> ft (H)	= <u>100,000</u> gal
<u>11</u> ft (D)	<u>28</u> ft (H)	= <u>15,000</u> gal;	Total Storage Capacity <u>800,000</u> gal		

Existing Storage Available = $\frac{800,000 \text{ gal}}{150,500 \text{ GPD}} = 5.3 \text{ days}$
 Design Storage Required = $\frac{225,750 \text{ GPD} \times 2 \text{ days}}{150,500 \text{ GPD}} = 2.99 \text{ days}$
 Additional Storage Required = _____ gal - _____ gal = _____ gal

At high usage of 300 GPCD, 2 day storage = 903,000 gal
 INITIAL SYSTEM PRESSURE: Would need an additional 100,000 storage tank

Zone I
 Elevation of High Water Level Tanks _____ ft Low Water Level _____ ft
 Elevation of Highest House Served _____ ft; Lowest House Served _____ ft
 Max Static Pressure _____ ft = _____ PSI Min Static Pressure _____ ft = _____ PSI

Zone II
 Elevation of High Water Level Tanks _____ ft Low Water Level _____ ft
 Elevation of Highest House Served _____ ft; Lowest House Served _____ ft
 Max Static Pressure _____ ft = _____ PSI Min Static Pressure _____ ft = _____ PSI

PRELIMINARY DESIGN ANALYSIS
WATER SUPPLY AND DISTRIBUTION SYSTEM

COMMUNITY/SYSTEM North Fork RESERVATION Fort Apache

INITIAL WATER CONSUMPTION & POPULATION SERVED:

Homes w/Full Facilities	<u>524</u>	X	<u>600</u>	GPD/Home =	<u>314,400</u>	GPD
Homes w/O Facilities	<u>6</u>	X	<u>50</u>	GPD/Home =	<u>300</u>	GPD
Homes w/Outside Hyd. Only	<u> </u>	X	<u> </u>	GPD/Home =	<u> </u>	GPD
Non-Residential Use	<u> </u>		<u> </u>		<u> </u>	GPD
	Total:		<u>530</u>	Homes Total:	<u>314,700</u>	GPD
Population =	<u>4</u>	People/Home X	<u>530</u>	Homes =	<u>2120</u>	People
Consumption = Total	<u>314,700</u>	GPD/	<u>2120</u>	People =	<u>148</u>	GPCD

DESIGN WATER CONSUMPTION & POPULATION SERVED:

Growth Factor	<u>20</u> %	Design Population	<u>2544</u>	Consumption	<u>150</u>	GPCD
Average Daily Total =	<u>2544</u>	People X	<u>150</u>	GPCD =	<u>381,600</u>	GPD

WATER SOURCE:

Name	Natural Fl Level	Currently Fluoridated	Currently Chlorinated	Current Pump Yield	Test Yield
A # 2	<u> </u> ppm	<u>Yes</u>	<u>No</u>	<u>150</u> GPM	<u> </u> GPM
A # 3	<u> </u> ppm	<u>Yes</u>	<u>No</u>	<u>250</u> GPM	<u> </u> GPM
<u> </u>	<u> </u> ppm	<u> </u>	<u> </u>	<u> </u> GPM	<u> </u> GPM
<u> </u>	<u> </u> ppm	<u> </u>	<u> </u>	<u> </u> GPM	<u> </u> GPM
<u> </u>	<u> </u> ppm	<u> </u>	<u> </u>	<u> </u> GPM	<u> </u> GPM
Total Yields:				<u>400</u> GPM	<u> </u> GPM

Initial Pump Cycle = $\frac{314,700 \text{ GPD}}{(400 \text{ GPM} \times 60)} = 13.1 \text{ hr/day}$
 Design Pump Cycle = $\frac{381,600 \text{ GPD}}{(400 \text{ GPM} \times 60)} = 15.9 \text{ hr/day}$
 Additional Supply Required? Yes Type Well Yield 130 gpm

WATER STORAGE:

 ft (D) ft (H) = 250,000 gal; ft (D) ft (H) 400,000 gal
 ft (D) ft (H) = 220,000 gal; ft (D) ft (H) gal
 ft (D) ft (H) = 300,000 gal; Total Storage Capacity 1,170,000 gal

Existing Storage Available = $\frac{1,170,000 \text{ gal}}{314,700 \text{ GPD}} = 3.7 \text{ days}$
 Design Storage Required = $381,600 \text{ GPD} \times 2 \text{ days} = 763,200 \text{ gal}$
 Additional Storage Required = gal - gal = gal

INITIAL SYSTEM PRESSURE:

Zone I

Elevation of High Water Level Tanks ft Low Water Level ft
 Elevation of Highest House Served ft; Lowest House Served ft
 Max Static Pressure ft = PSI Min Static Pressure ft = PSI

Zone II

Elevation of High Water Level Tanks ft Low Water Level ft
 Elevation of Highest House Served ft; Lowest House Served ft
 Max Static Pressure ft = PSI Min Static Pressure ft = PSI

PREPARED BY EAC DATE 2/14/92

APPROVED BY DATE

APPENDIX C
PROJECT PROPOSAL

DEPARTMENT OF
HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE

FORM APPROVED
O.M.B. NO. 0915-0018
EXPIRES 4/30/87
(See reverse for instructions and
information)

PROJECT PROPOSAL FOR PROVISION OF SANITATION FACILITIES (P.L. 86-121)

1. NAME AND ADDRESS OF INDIAN TRIBE OR GROUP

White Mountain Apache Tribe
P.O. Box 700 Whiteriver, Arizona 85941

2. DESCRIPTION OF TYPE OF FACILITIES NEEDED

Individual sanitation facilities for 30 new housing units on the Fort Apache Indian Reservation and a contribution to the HUD/CDBG Solid Waste Project.

3. IS THERE A COMPREHENSIVE PLAN FOR IMPROVING SANITATION FOR YOUR RESERVATION OR COMMUNITY

YES NO

4. IF ITEM 3 IS YES, DOES THE PROPOSED PROJECT FIT INTO THE PLAN

YES NO

5. IF ITEM 3 IS NO, DOES YOUR TRIBE OR GROUP INTEND TO ADOPT A PLAN

YES NO

6. COULD YOUR TRIBE OR GROUP MAKE A CONTRIBUTION TOWARD THE PROJECT OF FUNDS

YES NO LABOR YES NO OTHER (Specify)

7. DOES YOUR TRIBE OR GROUP ANTICIPATE THE PROVISION OF FUNDS FROM ANOTHER SOURCE TO COMPLEMENT THE FUNDS REQUESTED FROM THE INDIAN HEALTH SERVICE FOR THE PROPOSED PROJECT

YES NO

8. IF ITEM 7 IS YES, PLEASE IDENTIFY THE SOURCE OF THE ANTICIPATED ADDITIONAL FUNDS

FEDERAL: BIA HUD EPA FHA FmHA
NON-FEDERAL: STATE PRIVATE OTHER (Specify)

9. DOES YOUR TRIBE OR GROUP HAVE AN OPERATION AND MAINTENANCE ORGANIZATION THAT WILL ASSUME RESPONSIBILITY FOR OPERATION AND MAINTENANCE OF THE SANITARY FACILITIES WHEN COMPLETED. IF ANSWER IS "YES" GO TO ITEM #11

YES NO

10. IF ITEM 9 IS NO, WILL YOUR TRIBE OR GROUP BE WILLING TO ASSUME RESPONSIBILITY FOR OPERATION AND MAINTENANCE OF FACILITIES WHEN COMPLETED

YES NO

11. DOES YOUR TRIBE OR GROUP HAVE LAWS OR REGULATIONS WHICH WILL HELP IN THE MAINTENANCE OF SANITARY FACILITIES THAT WOULD BE ACQUIRED

YES NO

12. IF ITEM 9 IS NO, WOULD YOUR TRIBE OR GROUP BE WILLING TO ADOPT SUCH REGULATIONS

YES NO

13. NAME AND ADDRESS OF ORGANIZATION AND OFFICIAL THAT WILL BE DESIGNATED TO REPRESENT YOUR TRIBE OR GROUP IN DEALING WITH THE PUBLIC HEALTH SERVICE

Ronnie Lupe, Tribal Chairman, White Mountain Apache Tribe, PO Box 700 Whiteriver AZ

14. REMARKS (include pertinent comments not covered above)

August 10, 1992 Tribal Chairman

15. DATE

16. SIGNATURE AND TITLE OF PERSON COMPLETING THE PROJECT PROPOSAL



17. TO BE COMPLETED BY PUBLIC HEALTH SERVICE REPRESENTATIVE

FORWARD 3 COPIES OF THIS PROPOSAL TO:

DIRECTOR IN CHARGE

SUD WHITERIVER

(Name and Address of Indian Health Facility)

