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REPORT BY THE

Comptroller General

OF THE UNITED STATES

Uncertainties Over Federal Requirements For Archeological Preservation At New Melones Dam In California

This report on programs to preserve archeological and historical resources at the New Melones Dam project in California exemplifies problems facing Federal agencies responsible for implementing archeological salvage laws.

Specific criteria have not been established to provide guidance on the amount of work that must be done to adequately comply with archeological salvage laws. This has contributed to conflicting stories about actions taken to protect these resources.

GAO is making no recommendations until it completes a more indepth review.

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DECEMBER 21, 1979

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-125045

The Honorable Morris K. Udall
Chairman, Committee on Interior and
Insular Affairs
House of Representatives HSE01900

Dear Mr. Chairman:

This report, prepared in response to your request, describes Federal efforts to recover and protect archeological and historical resources at the New Melones Dam in California.

As arranged with your office, unless you publicly announce its contents earlier we plan no further distribution of this report until 10 days from the date of the report. Also as requested by your office this report has not been provided to the various responsible agencies for formal comments in order that it could be more quickly issued. At that time we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT
TO THE CHAIRMAN, COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
HOUSE OF REPRESENTATIVES

UNCERTAINTIES OVER FEDERAL REQUIREMENTS FOR ARCHEOLOGICAL PRESERVATION AT NEW MELONES DAM IN CALIFORNIA

D I G E S T

Efforts to preserve archeological and historical resources at the New Melones Dam project in California have been clouded by the lack of Federal guidance on the adequacy of archeological preservation and who should direct the program.

Responsible Federal agencies--~~Interior's~~ National Park Service and Heritage Conservation and Recreation Service, and the Army Corps of Engineers--have not developed criteria to use in deciding the extent of mitigation efforts needed to satisfy requirements of archeological salvage laws. Without such guidelines to measure agency actions, GAO was unable to determine whether Federal agencies were complying with the laws.

The lack of guidance has left a void. Should efforts center on physical protection, such as preservation, avoidance, or salvage? Or should an extremely costly effort be made to accumulate information from any and all sources on the history of the project area?

Controversies over concerns such as the scope and adequacy of archeological work to be done, and the amount of funds that may be spent, have surrounded the project for some time. Concerns also have been expressed for saving a 9-mile stretch of white water rapids which will be inundated if the reservoir is filled to capacity. The State of California's right to control the level of water in the reservoir, the ultimate use of the project at its designated and congressionally approved level

for electric power generation, and other benefits have been another point of controversy. (See p. 10.)

The Army Corps of Engineers was authorized to construct the dam in 1944. Current estimated costs are $346 million. The Congress enacted many laws dating back to 1906 requiring Federal agencies to identify, preserve, and protect archeological and historical treasures at construction sites. These laws authorized up to 1 percent of construction funds to be used to mitigate the effects of a project on historic sites. (See p. 7.)

Lacking guidelines on how much mitigation is enough, Federal agencies to date have funded 15 archeological studies, over a 30-year period, costing $2.4 million. The Corps of Engineers now plans to fund additional studies up to the "maximum" $3.46 million authorized by legislation. Even this, though, may not satisfy critics and their claim that not enough has been done.

The Heritage Conservation and Recreation Service assumed responsibility for the ongoing program on December 7, 1979, because the Dam was turned over to the Department of the Interior for operation. The Service has set up a task force to determine the extent of archeological work to be done at New Melones. Neither the contractor nor the Corps was aware of how the Service expected to reorient the program, and this has led to delays of decisions on the final phases of the contract.

The Chairman, House Committee on Interior and Insular Affairs, asked GAO to make this review. At the Chairman's request, the report was not provided to responsible Federal agencies for their comments in order that it could be more quickly issued. Its contents, however, have been discussed with the Army Corps of Engineers, the Heritage Conservation and Recreation Service, and the mitigation contractor.

GAO believes the New Melones Dam is an excellent example of problems facing Federal agencies responsible for implementing

archeological salvage laws. GAO is not making its legislative and administrative recommendations until ~~it completes~~ a more indepth review is completed.

Contents

ABBREVIATIONS

Corps	Army Corps of Engineers
GAO	General Accounting Office
HCRS	Heritage Conservation and Recreation Service
NPS	National Park Service

CHAPTER 1

INTRODUCTION

The Chairman, House Committee on Interior and Insular Affairs, requested us to review cultural and archeological resources programs Federal agencies are conducting at the New Melones Dam project in California. We were requested to determine if the agencies are complying with archeological salvage laws and to inquire into the conflicting stories about the actions taken to protect the resources.

Federal agencies are required by law and Executive order to evaluate the effect of their actions on archeological and historical resources and to take necessary mitigation 1/ measures to identify, preserve, and protect these resources. The Secretary of the Interior, acting through the Heritage Conservation and Recreation Service(HCRS), has been given the responsibility to advise and help Federal, State, and local governments with these responsibilities.

ARCHEOLOGICAL BACKGROUND

Archeological studies enable us to discover many details of man's long history. By doing so we can better understand ourselves and how we have achieved our present state. This leads to a better understanding of human interrelationships, changes over time in these interrelationships, and the cause of such changes. These studies also make possible a greater understanding of the long-term effect of man on his environment and of that environment on man. Archeology by concentrating its attention on the material artifacts produced by man provides insight into the complex interrelationships between the things we make and how those things affect our lives.

Through archeology our knowledge about the period within written history is vastly increased and our knowledge of human history before written history is expanded. With this background we are in a better position to understand and make decisions concerning both the present and the future.

1/Mitigation in this report is defined as the action to lessen or minimize the adverse effect on cultural resources--archeological and historical--resulting from Federal projects.

FEDERAL ARCHEOLOGICAL REQUIREMENTS

The Federal role in preserving cultural resources began with the passage of the Antiquities Act of 1906 (Public Law 59-209). This act gave the President authority to withdraw public lands for purposes of protecting prehistoric and historic ruins, monuments, and objects located on Federal property. A national policy of preserving historic resources of national significance for public use and inspiration was established by the Historic Sites Act of 1935 (Public Law 74-292). The Secretary of the Interior, acting through the National Park Service (NPS), was given the authority to survey, document, evaluate, acquire, and preserve archeological and historical sites throughout the country.

Later, the Reservoir Salvage Act of 1960 (Public Law 86-523) gave the Department of the Interior, and through it NPS, major responsibility for the preservation of archeological data that might be lost through Federal dam construction. The Archeological and Historic Preservation Act of 1974 (Public Law 93-291) significantly expanded the scope of the Reservoir Salvage Act of 1960 by requiring preservation of cultural resources affected as a result of any Federal or federally related land modification activity. The act gave the Secretary of the Interior the responsibility for coordinating and administering a nationwide program for the recovery, protection, and preservation of scientific, prehistoric, historic, and archeological data which would otherwise be damaged or destroyed. This act, referred to as the Moss-Bennett Act, for the first time provided specific funding for Federal construction projects up to 1 percent of cost. In the period between enactment of the 1960 act and its expansion, the National Historic Preservation Act of 1966 (Public Law 89-665) was passed. This act established the Advisory Council on Historic Preservation and provided for federally funded State Historical Preservation Offices. It also includes section 106 which requires Federal agencies to "take into account" the effect of their projects on cultural and archeological resources.

In addition to these mandates, Federal agencies must also consider the National Environmental Policy Act of 1969 (Public Law 91-190) which requires Federal agencies to assess environmental aspects of major Federal actions including the effect on cultural resources. Executive Order 11593 is designed to insure that Federal actions record, preserve, and maintain archeological, historical, or cultural resources. NPS, until 1978, was the Federal focal

point for identifying and preserving archeological and historical sites. In January 1978 the Secretary transferred the majority of these responsibilities to the newly created Heritage Conservation and Recreation Service.

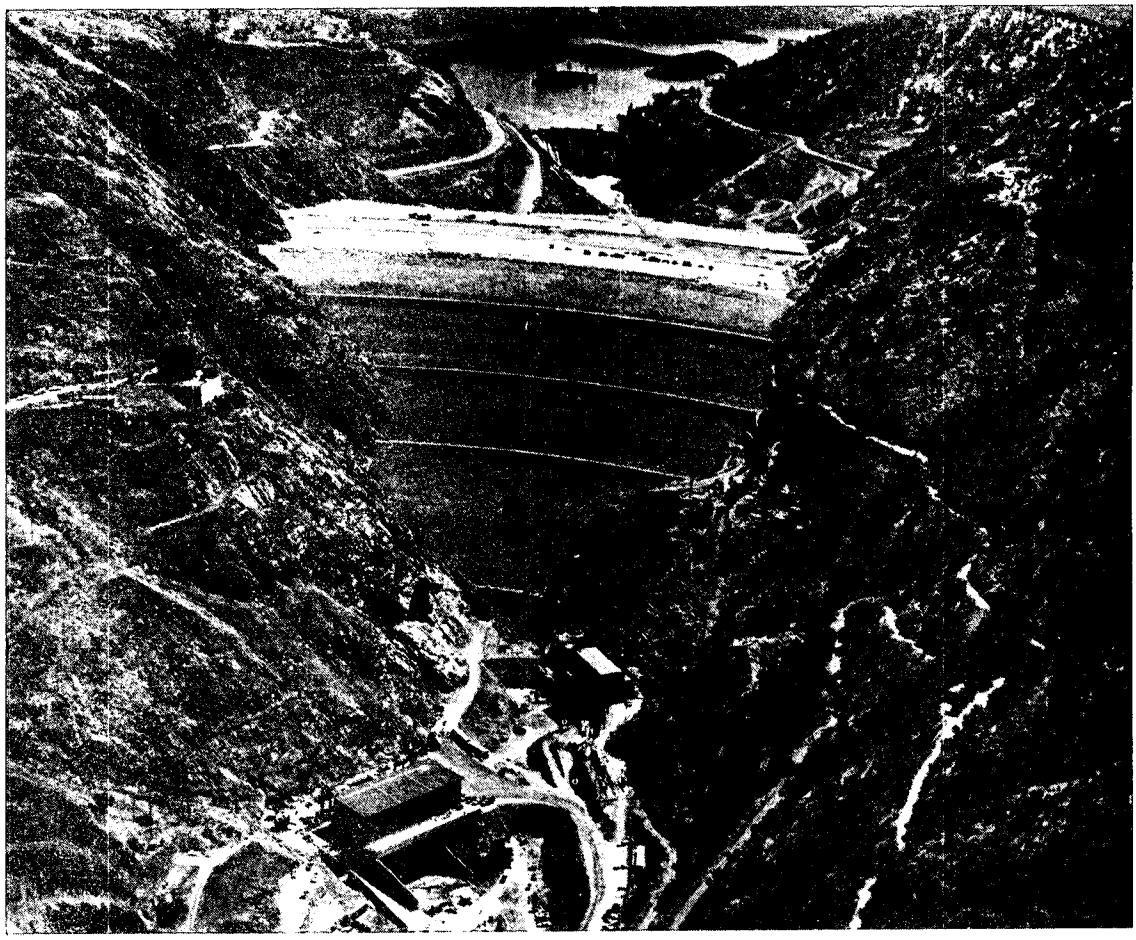
PROFILE OF THE NEW MELONES PROJECT AREA

The earth-rock filled New Melones Dam, completed in 1978, replaced and inundated the smaller, 186 foot, concrete old "Melones" Dam and its reservoir built in 1926. (See picture on p. 4.) The New Melones project area has been described by archeologists as an area rich in cultural resources with important evidence available showing aboriginal uses back to prehistoric times. According to archeologists, recent occupants have left significant examples of mining technologies from the gold rush era of the 1800's and early 1900's.

The New Melones project is located in the sparsely populated middle Stanislaus River basin in central California's Sierra Nevada foothills. The approximately 39 square mile project area encompasses lands in both Calaveras and Tuolumne Counties. The topography, in the 500 to 2,500 foot elevation range, varies from rolling hills with little vegetation, other than oak trees and grass, to steep rugged densely vegetated mountain canyons. (See picture on p. 5.) Accessibility to much of the project is extremely difficult, especially in the rainy, snowy winter season. The summers are arid and hot, with little if any rain.

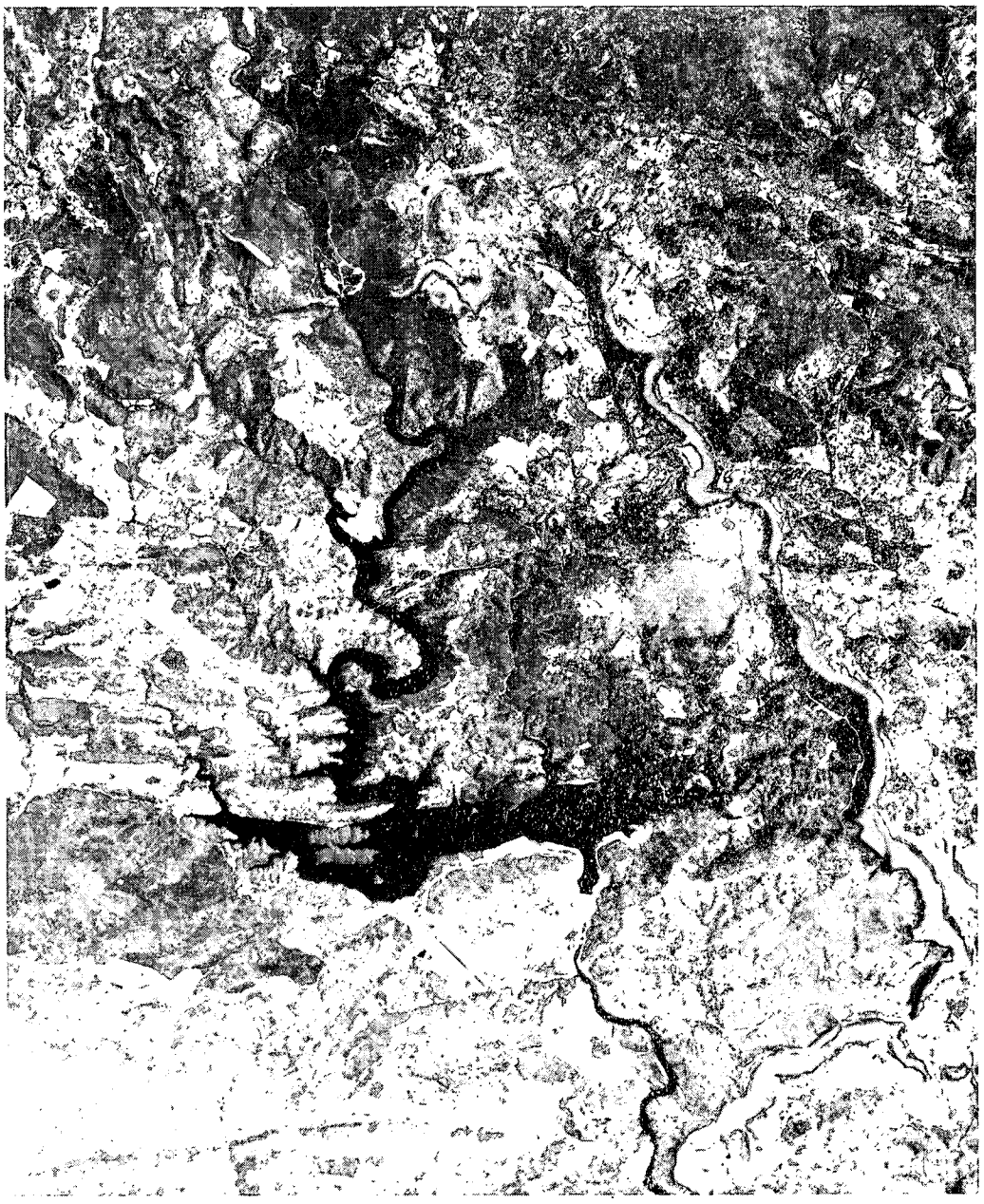
The 625 foot New Melones Dam is the second highest earth-rock filled dam in the United States, and the estimated project cost is $346 million. This cost is made up of the cost of the completed dam and also includes estimates of work yet to be done, such as recreation projects and clearing trees from the new reservoir area. The reservior has a 2.4-million acre-foot capacity which will yield an additional 210,000 acre-feet of water annually for irrigation. The hydroelectric power plant is capable of generating 400 million kilowatt hours of electricity annually, the equivalent of 30 million gallons of oil.

The lands in the vicinity of the project are used for summer and winter recreation, cattle ranching, and forestry-related industry. Water from the New Melones Dam is expected to backup approximately 16 miles above the dam and will inundate some 9 miles of white-water rapids.



FACING UPSTREAM ALONG IRON CANYON ON THE STANISLAUS RIVER, CALIFORNIA. NEW MELONES DAM UNDER CONSTRUCTION, DWARFS THE OLD MELONES DAM BEHIND IT

PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS



AERIAL VIEWS OF NEW MELONES PROJECT SITE FROM 60,000 FEET SHOWING THE DAM AND THE TOWNSITE WHERE MELONES WAS FORMERLY LOCATED

PHOTOGRAPH COURTESY OF NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

REVIEW OBJECTIVES AND SCOPE

Our review focused on (1) the archeological and historical resources program controversies that have arisen, (2) the numerous studies Federal agencies made in response to the increasing number of Federal requirements, and (3) the progress and products of the program to protect archeological and historical resources. Our review was performed at HCRS headquarters in Washington D.C., and its regional office in San Francisco; the regional and district offices of the Army Corps of Engineers in San Francisco, and Sacramento, California; and at the mitigation contractor's (Science Applications Inc.) headquarters in La Jolla, California, and its field operation at the project site.

We were assisted by a consultant, Dr. Charles R. McGimsey III, Director, Arkansas Archeological Survey, University of Arkansas.

CHAPTER 2

UNCERTAINTIES ON EFFORTS NEEDED TO SATISFY ARCHEOLOGICAL REQUIREMENTS

The New Melones Dam was authorized in 1944. At that time there were few Federal requirements to evaluate the effect of the dam on archeological and historical resources. In 1960, 1966, and 1974 the Congress enacted laws which in effect:

--Required Federal agencies to take the necessary mitigation measures to identify, preserve, and protect archeological and historical resources.

--Authorized up to 1 percent of construction project funds to be used for archeological and historical mitigation efforts.

Responsible Federal agencies, the National Park Service, the Historic Preservation and Recreation Service, and the Corps of Engineers, however, had not developed criteria to use in deciding the extent of mitigation efforts needed to satisfy the requirements of the archeological laws. Therefore, pressured by special interest groups and archeologists, Federal agencies have funded numerous archeological studies at New Melones Dam.

The results as of November 1, 1979, are:

--Federal agencies plan to fund studies up to the maximum 1 percent authorized by law, or $3.46 million.

--A series of unrelated and unintegrated New Melones archeological studies have been performed over a 30-year period.

ARCHEOLOGICAL PROFESSION AND ITS AFFECT ON LEGISLATION

Prehistoric man occupied the North American continent for thousands of years leaving records of his occupation buried in the ground awaiting scientific investigation by subsequent people who could benefit from his experience. With arrival of the peoples from Europe and elsewhere, alteration of the land for occupational uses began. This alteration increased dramatically over time and was accelerated by many Federal programs in the middle of the 20th

century. Such programs as highway construction and dam building were especially destructive. This process not only affected prehistoric records, but also dramatically affected the historical resources left by the earlier occupations which displaced the aboriginal populations and destroyed remnants left by prehistoric man.

While this was going on the American archeological profession was developing at a slow rate and had not recognized the destructive effects of this subsequent occupation. Additionally, while some archeological work had been done, it was extremely limited and had only meager funding. As these threats to archeological and historical resources became widely recognized, the archeological interests began to bring these problems to the attention of the Congress, pointing out that within 20 years the most significant of the remaining resources would be lost forever. The Congress, recognizing these problems, enacted Federal legislation not only to protect and preserve these resources, but also authorized the necessary funding to mitigate the effect of Federal land alteration projects.

The New Melones Dam project is an excellent example of the situations which prompted the laws. Prehistoric man and the aboriginal populations occupied the lands for long periods of time and left records of their usage buried in the Sierra Nevada foothills. With the intrusion of the thousands of gold rush miners, the aboriginal population became displaced and the records in the ground often destroyedby the mining activity. Subsequently, even the cultural resources (mining equipment, buildings, and other remnants) left by these later mining occupations were affected. Buildings were destroyed and the mining equipment removed for scrap iron for use in World War II. Eventually the New Melones Dam will inundate much of the area where this occupation took place. However, as we will discuss later, the Federal program did have its effect on mitigating this last event.

LACK OF ARCHEOLOGICAL OVERSIGHT AND GUIDANCE

Federal archeological programs have been in a state of evolution and clarification. Major controversies exist regarding exactly what is required in the form and extent of cultural resources mitigation and who should judge the adequacy of the process and its products. Disagreements exist among Federal agencies, the private sector, and the professional archeological community as to what is "adequate"

mitigation. In response to our inquiry, the District Engineer, Sacramento District, Corps of Engineers stated:

> "As you are probably aware, the definition of "adequate" cultural resources mitigation is extremely elusive and unspecific. To my knowledge, no governmental agency or professional archeological body has, as yet, provided any explicit guidelines quantifying or qualifying this phrase. Only the authorization for expenditure of funds for cultural resources mitigation (Public Law 93-291) has been established. Nevertheless, I believe we have made every effort to develop a responsible and appropriate program for the project." (See app. I.)

Opinions on adequacy range from the barest of archeological excavations and avoidance of sites, to the other extreme of

--100 percent excavation,

--extensive research into past written works,

--reviews of any and all historic records, and

--indepth interviewing of long-term residents to hopefully develop information from the recent past to prehistory times.

Federal laws establishing requirements for mitigation of projects provide little guidance about what should be done, other than to limit fund transfers between agencies to 1 percent of construction costs which some Federal agencies view as the maximum that may be spent on archeological studies. Further, Federal agencies have not developed generally accepted guidelines on what constitutes adequate mitigation at New Melones Dam. Therefore, an environment exists where outside special interest groups can and have raised questions on the adequacy of archeological studies which has added more controversy to an already controversial project.

The New Melones Dam is one of the earlier, larger, and more complex cultural resource mitigation projects required by the Federal Government under the various laws that have been passed. Additionally, it is situated in an area where many diverse interests lie, such as power, irrigation, recreation, white-water recreation, environmental protection,

and others. These factors coupled with the delayed start of the mitigation program and problems encountered by the contractor have generated controversy and national publicity.

A Memorandum of Agreement generally serves as the focal point for establishing an acceptable mitigation program and is signed by representatives of the principal responsible agencies. The agreement, which is developed under the provisions of the National Historic Preservation Act, of 1966 (Public Law 89-665), establishes the basis for the mitigation program, and should, especially on large projects, include consideration of research design, significance of geographic area and sites, and funding priorities.

The New Melones Memorandum of Agreement was prepared in July 1978, following two interim agreements in December 1975 and July 1976 which were developed to permit construction to continue as programed. This final agreement was signed by three parties; the Corps, as sponsoring agency, the California State Historic Preservation Officer, representing State interests, and the Advisory Council on Historic Preservation, representing the national perspective. Following the signing of the Memorandum of Agreement, the Corps awarded a $1 million phase one mitigation contract to Science Applications, Inc. (See p. 22.)

The Memorandum of Agreement provided an inventory of known cultural resource sites; and a generalized requirement that the sites be analyzed, tested, and the results recorded. Other general provisions were included, such as requiring coordination with other Federal agencies and protecting some unspecified cultural resource sites, etc. The Agreement, however, did not define what cultural resources mitigation was necessary at New Melones to satisfy the requirement of Federal archeological laws--such as identifying and setting the extent of work on the specific sites to be tested, significance of the cultural resources, resources to be salvaged, history to be covered, etc. As a result the Corps, in a defensive position, plans to fund studies up to the 1-percent limitation, or $3.46 million.

NEW MELONES CONTROVERSIES

For a long time controversies have surrounded the New Melones Dam. These controversies include such concerns as preservation of archeological and historical resources, saving a 9-mile section of white-water rapids which will be inundated when the reservoir is filled to capacity, application of the 1 percent of construction cost limitation for cultural resource work, and the State's right to control the level of the water in the Dam reservoir.

With closure of the Dam in November 1978, and the subsequent rising of water in the reservoir, numerous complaints concerning the progress being made toward mitigation of cultural resources were raised by the archeology community, white-water rafting interests, and Federal archeologists within HCRS. These issues were ultimately brought to the attention of the Secretary of the Interior.

The Secretary of the Interior, on December 8, 1978, requested the Advisory Council on Historic Preservation to inquire into the Corps' performance to mitigate the effects of the New Melones Dam on archeological and historical resources. In a January 25, 1979, letter, the Advisory Council concluded that the mitigation project, while having experienced a number of problems that delayed work, was on schedule and would meet scheduled deadlines. The report also stated that participants in the review expressed doubt about the quality of work, but noted that this was opinion, rather than fact. The report concluded that further proof would have to be obtained based on a review of these research activities by a Joint Review Committee composed of responsible agency officials.

A Joint Review Committee representing the Corps, the Interior, the Advisory Council, and the State Historic Preservation Office met on March 12 and 13, 1979. This committee concluded that the Corps' mitigation program apparently did not produce the anticipated results and that the process was inadequate to fulfill the agreed upon scope of work. The committee did not make a judgment on the quality of the work, but instead recommended that an interagency task force of archeologists be established to determine actions needed for an adequate mitigation program.

An Interagency Task Force was formed, with members from the Advisory Council; the Inter-Agency Archeological Service, Department of the Interior; the Bureau of Reclamation; the State Historic Preservation Office, and the Corps. The task force visited the project site during the week of March 19, 1979. A report was issued which stated inundation of significant cultural resources below 808 feet elevation was imminent and unavoidable and reported that the majority of the resources below that elevation had been suitably recorded. The report also recommended that additional studies be performed before the spring 1979 flooding. The Corps negotiated an increased contract scope of $85,000 for the extra studies which were completed by April 1979.

After issuance of the task force report when the members had returned to their regular duties, the two representatives from the Inter-Agency Archeological Service expressed reservations and dissatisfactions with mitigation efforts at New Melones Dam. Subsequently, the Director, Historic Conservation and Recreation Service, wrote an April 26, 1979, memorandum to the Secretary of the Interior raising a number of issues. We presented these and other issues to the Corps and requested their comments on the validity of the statements.

The Corps on July 20, 1979, responded to our questions. In summary the Corps stated that the same concerns regarding the adequacy of mitigation work below 808 feet elevation had been raised and addressed in the past, and that it is difficult to understand why these concerns keep recurring since the recommendations of the interagency task force had been implemented by April 10, 1979. Other specific Corps responses were: (1) some accessible sites under 735 feet were mitigated but many were not included in the mitigation work as they had been inundated by the old reservoir for over 50 years, (2) all other significant sites under 808 feet have been extensively studied, and (3) the research design is regional in nature and was never intended to be site specific. (Appendix I contains the Corps' full response to the concerns which have been raised.)

The level at which the dam will be filled has been a matter of controversy involving both Interior and the State of California. The positions taken have been in a constant state of revision. The State of California Resource Director has supported limiting the reservoir level to 808 feet elevation until a need for water and power is demonstrated. At one time the State Department of Water Resources staff and the California State Department of Fish and Game recommended 880 feet elevation as the minimum necessary to protect salmon spawning in the lower Stanislaus River. The California State Board of Food and Agriculture supported filling the dam to the maximum 1,088 feet elevation, its designed capacity elevation for power and water.

Prior to October 31, 1979, Interior's position was to comply with the decision of the State Water Resource Control Board until resolution by the U.S. District Court in San Francisco, California, to settle a Federal-State dispute over control of water resources. Among other things this State decision provides that the water from the New Melones shall be used only for preservation and enhancement of fish and wildlife, recreation, and water quality control purposes. Irrigation and other consumption uses such as

hydro-electric power, have been eliminated from consideration in determining the Dam fill level. This in effect has precluded filling the dam to its designed operation capacity.

The following chart developed from information provided by the Corps of Engineers highlights the effect on water and power at the various Dam fill levels under consideration.

New Melones Additional Annual Benefits

Maximum water level in feet	Water for irrigation	Power in kilowatt hours	Power equivalent in gallons of oil
1,088	200,000 acre ft.	430 million	31.5 million
a/960	none	200 million	14.7 million
808	none	none	none
b/735	none	none	none

a/Maximum pool of 890 feet for conservation and 960 for flood control.

b/Old Melones Dam level.

On October 31, 1979, the Secretary of the Interior ordered the water level held at 808 feet elevation for one year (1980) to allow completion of the cultural resource mitigation program. The State Water Resource Control Board concurred with this decision.

A major disagreement has existed, and now in the process of being settled is the scope of the mitigation work to be done and which Federal agency will direct the program. This disagreement between Interior and the Corps prevented completion of the transfer and clouded the direction of the mitigation program. The point of contention was the amount of Corps funds available to complete the mitigation program and its scope.

The Corps believes that the 1-percent limitation includes not only work performed under the August 1978 mitigation contract, but also its other direct costs for cultural resource surveys and the cost of Corps staff to administer these contracts. With the cost of the project now amounting to about $346 million, the Corps maintains that $3.46 million is the maximum that can be spent on the

cultural resource program. About $650,000 has been spent for the earlier survey work, including contract costs and Corps inhouse labor. Since the amount obligated on the contract at November 1, 1979, was about $1.9 million, the Corps' position is that only about $900,000 remains for the balance of the program.

HCRS on the other hand, maintains that the 1-percent limitation only applies to work under the present mitigation contract. Therefore, the Corps should transfer the difference between the cost of the work currently covered by the 1978 contract and the $3.46 million limit, or about $1.5 million to Interior for future mitigation work should it take over administrating the mitigation contract.

In the interim while this debate has been going on, Interior directed its archeology staff to prepare their their own research design and prepare to take over the program when the problem is resolved. This confusion of who should administer the program has resulted in the Corps not negotiating the follow on phases of the mitigation contract, but rather only providing interim funding for the work after the first phase until some decision is made. The contractor, not knowing just what will be acceptable to the Federal Government has developed a two level proposal with a low level of about $3.1 million and a higher level of $4.4 million, the amount that the contractor feels is justified to adequately complete the mitigation program.

The Secretary of Interior however, signed an order on October 31, 1979, directing the transfer be accomplished, and HCRS assumed responsibility for the ongoing program on December 7, 1979. HCRS is now starting to evaluate the work done under the Corps direction and is negotiating with the Corps.

Thus, HCRS is taking over the cultural resource work started earlier by the National Park Service and then directed by the Corps. Apparently, HCRS will ultimately decide the extent of the mitigation work to be accomplished thus adding to the uncertainty on how much is enough to satisfy Federal archeological requirements.

NEW MELONES ARCHEOLOGICAL STUDIES

When the New Melones Dam was authorized in 1944, there were few Federal requirements to evaluate the effect of the project on archeological and historical resources. In 1966 when construction began, Federal requirements began increasing, culminating in passage of the Archeological and Historic Preservation (Moss-Bennett) Act in 1974 which provided

specific funding for cultural resource mitigation efforts on specific types of Federal construction projects. The response of Federal agencies to these changes in law resulted in a series of unrelated and unintegrated New Melones cultural resource studies spread over a 30-year period with different emphasis and substantially different levels of funding.

The timing of legislation was too sporatic to foster an indepth consideration of cultural resources during the early planning stages of the New Melones Dam, as would be expected if it were to be initiated today. While the National Historic Preservation Act of 1966 and Executive Order 11593 placed added emphasis on the identification of cultural resources on Federal lands, it was not until the 1974 Moss-Bennett amendments to the 1960 Reservoir Salvage Act that specific funding of any substance was targeted for cultural resource mitigation efforts on specific Federal construction projects. When Moss-Bennett was enacted, construction work at New Melones was already approximately 25-percent complete. Because of the limited scope of prior cultural resource studies, the Corps was placed in the position of having to initiate an archeological program which was totally out of phase with the construction program.

Before the Corps awarded the New Melones cultural resource mitigation contract in 1978, at least 14 different cultural resource studies costing $494,000 were performed as summarized in the chart on the next page.

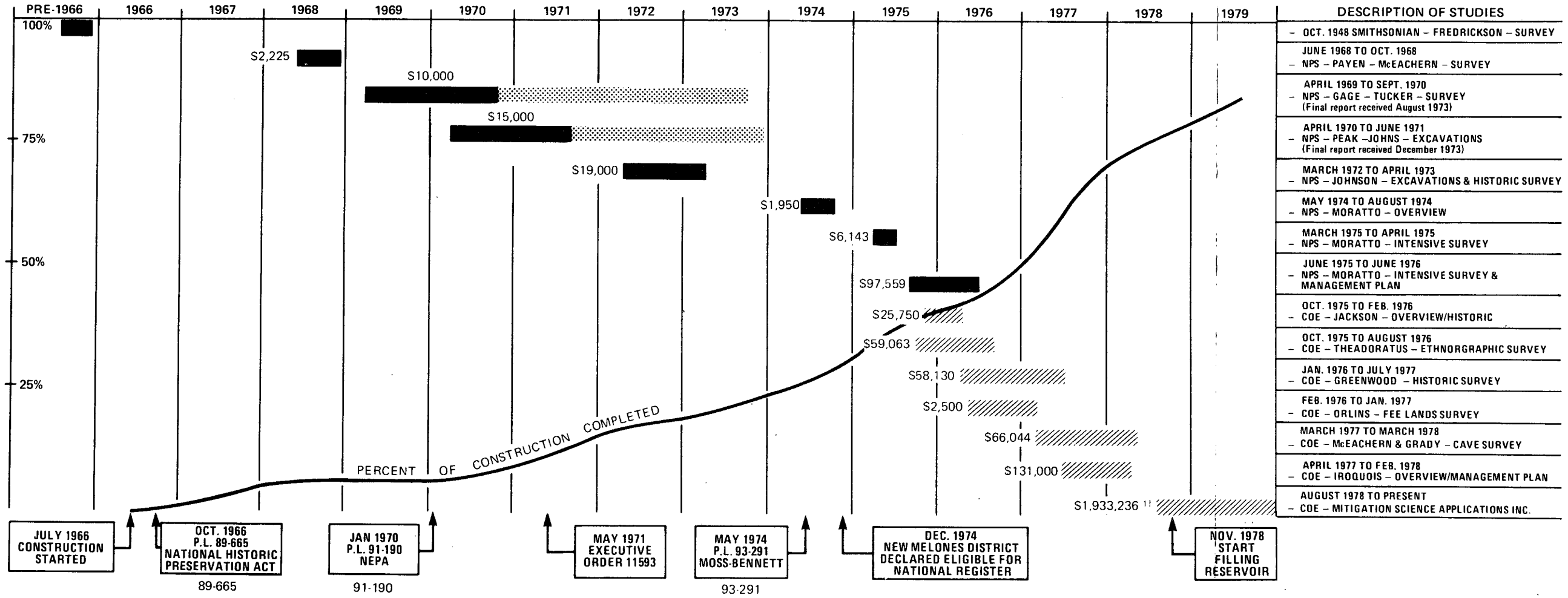
Smithsonian survey

The initial 1948 Smithsonian Institute study demonstrates how lightly cultural resources were treated in the past. Archeologists visited the New Melones site for several days and located four cultural resource sites. The Smithsonian team recommended no further studies be carried out in the New Melones Reservoir area. Both the survey work and resulting report have been characterized as superficial and cursory with respect to present day archeology survey expectations. One criticism is that the report failed to identify the actual area surveyed, the intensity of the survey, or the methodology used. The study was extremely limited and only provided a quick general assessment of the area's potential for large significant archeology sites based on a national prospective.

NPS studies

Following the Smithsonian study, the project area was archeologically inactive for some 20 years until the NPS began its archeological studies. Five of the studies were

NEW MELONES CULTURAL RESOURCE PROJECTS



1/ Mitigation contract estimated cost as of November 1, 1979

initiated before the Moss-Bennett Act during the time NPS handled the cultural resource program at New Melones. As described by the present mitigation contractor, these efforts were carried out in another "archeological era." The first four were very limited studies directed toward a token identification of resource site locations on a "grab sample" basis. The fifth study which was a review of prior work, characterized the prior studies as lacking coverage of historic sites, inadequately describing site locations, and over concentrating on areas near the Stanislaus River. Funding for the studies was limited with the largest costing $19,000.

The first two were made during 1968 and 1969 and early 1970. The objectives of the studies were to complete an archeology resources inventory of the 39 square mile project area to test sites to ascertain size, extent, and complexity and to perform an archival resources assessment. The studies, funded at $12,000, identified and recorded 106 prehistoric sites and 27 historic sites. Nine prehistoric sites above the project's maximum water level were excavated. Artifacts recovered consisted of beads and projectile points. Two sites were identified as potential permanent village sites. A 5-year, $400,000 cultural resource research program was recommended for the project area. These two studies were the first attempt to inventory the project area for prehistoric sites but significant areas were not examined because of accessibility problems. The studies also did not adequately describe the precise areas examined and the survey methodology used.

Two more studies funded at $34,000 were conducted during the next 3-year period, 1970-73. These studies concentrated on excavating prehistoric sites and identifying historic sites. Sites in portions of the project area not tested by earlier studies were excavated. About 29 prehistoric sites were either tested or extensively excavated and approximately 40 new historic sites were identified. These studies accomplished the first excavation in project areas subject to inundation and identified the need for major work at the Melones townsite. Aboriginal housepits, along with projectile points, and other artifacts were found at two sites not subject to inundation. Also, a site thought to have occupation potential as early as 100 A.D. was identified. Additional excavation was recommended for two sites and development of a prehistoric chronology was suggested. In one of the studies the archeology methodology and sites investigated were described in more detail than in earlier studies.

In 1973 deficiencies surfaced in the New Melones cultural resource studies NPS contracted. The agency experienced a series of reorganizations which shifted responsibility for the archeology program at New Melones. It became apparent that the archeology contract program and its reports were inadequate. NPS decided no further funds would be spent on the New Melones cultural resource program until the results from all previous contract work were received and found acceptable.

NPS agreed with the archeology community that some of the previous archeology investigations were "blatantly substandard" and often inaccurate and unuseable. Apparently the NPS external archeology program in the West had been operating with only one professional staff member who had been concentrating on "higher priority" work associated with another project.

In May 1974, NPS staff in the West was informed that the enactment of Public Law 93-291 (Moss-Bennett) had imposed new obligations on its external archeology program. That same month NPS awarded a new $2,000 contract requesting the fifth study, an overview report of cultural resource work done at New Melones and an identification of research needs still to be accomplished. The resulting report concluded that prior studies had identified 180 archeological sites, but that the studies were neither fully systematic or complete regarding coverage. New Federal policies were cited as establishing higher standards for cultural resource work. Deficiencies in previous archeology work at New Melones were cited including: (1) inadequate descriptions of the precise area studied, (2) concentration on sites near the Stanislaus River with little information on the extent that hills and ridges were surveyed, (3) variable degrees of intensity and care used to investigate sites, (4) inconsistent formats followed in recording data, (5) careless assignment of site designations including duplications, (6) inadequate coverage of historic resources, and (7) inaccurate mapping of site locations. The report also contained recommendations for added research concerning seven prehistoric problems and suggested additional historical research. An estimated cost of $1,048,000 was suggested to complete the research and mitigate cultural resources at New Melones.

Because previous survey efforts were inadequate, NPS decided to have an intensive survey performed covering the entire project area. In March 1975 an intensive survey of the Bostick Mountain area of the New Melones project was initiated under a $6,000 NPS contract. According to the present mitigation contractor, this was the first study which dealt with defining site significance and providing

some actions that might constitute adequate mitigation. In a 4 square mile area, almost 10 percent of the total project area, some 47 cultural resource sites were systematically located and recorded.

NPS, in June 1975, awarded its most significant contract for cultural resource work at the New Melones Dam. This $98,000 contract was funded jointly by the Corps and NPS. The Corps transferred $67,750 to NPS to help fund the contract.

In addition to preparing an intensive archeological inventory and maps, the contractor studied the cultural history of the area, reviewed previous studies, and outlined a resource management-data recovery program. Over 420 staff-days were expended surveying 17,300 of the project's 25,000 acres and identifying and recording 629 archeological sites. The 7,700 acres not surveyed consist of 1,850 acres inaccessible because of inundation by the old Melones Reservoir and 5,850 acres inaccessible due to dense chaparral and/or excessively steep canyon slopes. The management plan outlined covered only Native American (prehistoric) resources and estimated a potential budget for cultural resource mitigation of nearly $83 million. It did not establish management priorities, nor could the Corps and NPS fund the $83 million amount proposed for cultural resource mitigation with the 1-percent limitation on project funds available based on an estimated project cost of $340 million. The contractor subsequently submitted a revised plan with a cost estimate ranging from $1.8 million to $3.1 million assuming the project construction schedule was altered to provide more time for comprehensive data recovery. However, before a decision was made on this recommendation, the Corps assumed responsibility for cultural resource efforts at New Melones Dam.

In summary after 8 years, seven separate survey contracts, and $152,000 in funding, NPS still did not have what was considered an acceptable cultural resource inventory for the New Melones project area.

Corps of Engineers

With the advent of the 1974 Moss-Bennett Act, the Corps of Engineers became actively involved in the New Melones cultural resource program. Before Moss-Bennett, both the Corps and NPS were operating with the understanding that New Melones cultural resource studies and mitigation programs were the responsibility of NPS. Since the Moss-Bennett Act provided for use of up to 1 percent of the Corps' New Melones project funds for cultural resource

work, the Corps decided to become directly involved in the cultural mitigation program.

In January 1975 the Corps requested NPS to provide information on previous New Melones cultural resource studies, details on the additional work required, the estimated cost of needed work, and the amount of funds which NPS planned to program. NPS advised the Corps it had programed $38,000 for fiscal year 1975 and told the Corps that any further cultural resource preservation work at New Melones was the Corps' responsibility and should be part of the Corps' project budget request. NPS offered to manage the cultural resource work if the Corps would provide the funding plus 10 percent of the cost to cover NPS overhead and administration expenses. The Corps was also told the $1,048,000 estimate to complete mitigation reported by a previous contractor was only an educated guess based on inadequate and incomplete data.

In assessing the status of prior cultural resource work at New Melones, the Corps archeologist concluded that previous studies were mutually exclusive and that a comprehensive program needs to be developed. Such a program would address costs, significance, site mitigation, and protection regarding time and funding constraints.

From October 1975 to March 1977 the Corps awarded five contracts totaling $211,000 to assess New Melones cultural resources. The Corps realized that cultural resources included more than Native American sites and involved more than archeological investigations. Consequently, the Corps obtained services of other disciplines and other forms of surveys. Study work was especially needed in history and ethnohistory. 1/ The five studies the Corps contracted included: a historic overview, a ethnographic history, a historic survey, a fee lands survey, and a cave study. However, these studies were also independent contracts. These five studies produced another series of unintegrated survey reports on the various cultural aspects of the project area and did not result in a single mitigation approach. The Corps recognized that these studies needed to be pulled together before developing a mitigation program. The Corps had the option of pulling the studies together or contracting with an outside firm. It chose the latter to get an unbiased and independent assessment of the mitigation actions required.

1/The origin, distribution, relations, and characteristics of a race or culture.

In April 1977 the Corps awarded a $131,000 contract to Iroquois Research Institute to again review previous studies, establish priorities on resource sites by significance, and develop a comprehensive cultural resource management plan. This contractor was chosen after a nationwide solicitation to provide an independent overview and analysis of the earlier research work. In February 1978 the contractor submitted a plan proposing a $5 million, 4-year mitigation program. The contractor designated 164 of the 653 cultural resource sites as significant, based on the National Register of Historic Places criteria.

The Corps was not entirely satisfied with the recommended plan but used it and the earlier studies to develop an approach to the mitigation work. Acceptance of this approach was obtained from the California State Historic Preservation Office and the Advisory Council, and a request for proposals to perform cultural resources mitigation work at New Melones project was issued in May 1978. Proposals were received in June 1978 from two potential contractors: Science Application, Inc., a research corporation, and the Desert Research Institute, a university-centered joint venture.

In accordance with the Corps request for proposal, the two prospective contractors submitted both technical and cost proposals. The technical proposals were reviewed by at least three evaluation groups: a Cultural Resources Proposal Evaluation Team, consisting of Corps and Bureau of Reclamation staff; a Board of Advisors, consisting of local representatives from the public and academia; and a Joint Review Committee, consisting of representatives from the Advisory Council on Historic Preservation and the State of California Historic Preservation Office. According to the Corps, due to uncertainties in a cultural mitigation project of this size, neither proposal contained enough detail on specific mitigation work. All three evaluation groups concluded that the Desert Research Institute's technical proposal was superior. This conclusion apparently is based on the professional reputations and experience of the principal staff of the Desert Research Institute. However, both contractors were judged to be technically competent to do the mitigation work.

The cost proposals were evaluated only by the Corps. After a series of negotiation sessions, both contractors in July 1978 submitted a best and final offer. Desert Research Institute offered a cost-without fee arrangement totaling $5,201,000. Science Applications, Inc., offered a cost-plus-incentive fee arrangement totaling $4,446,000. The Corps judged the margin of technical merit of the Desert Research Institute offer as not worth the $755,000 price differential.

The Corps finished its evaluation and selection process in early August 1978. However, award of the contract was delayed almost a month while the Corps held discussions with the State Historic Preservation officer and other interested parties concerning the selection of a contractor and the mitigation work. The mitigation contractor, Science Applications, Inc., was not notified of its selection until a day or so before the formal August 30, 1979, contract award date.

MITIGATION PROCESS AND PROBLEMS

With award of the $1 million phase one mitigation contract to Science Applications, Inc., in August 1978, the final process to protect the cultural resources at New Melones Dam began. This process is expected to eventually cost at least $3.46 million, the limit provided for under existing law, and to take 4 years to complete. The contractor completed the first year of the archeological studies with work concentrated in the area below the minimum water level to produce power of 808-feet elevation. The mitigation process is very complex and the contractor has experienced problems with the archeological work.

Mitigation process

This complex process based on an evolving research plan, involves reviewing existing literature, excavating and salvaging antiquity items, developing historical information from interviews, reviewing records, providing physical protection of resources, and collecting and evaluating available evidence of mankinds' existence in the area from prehistoric to present times. The process will produce various products in the form of large amounts of descriptive information, detailed inventories of items discovered, and artifacts. The final step of the mitigation process will be the issuance of a synthesis report in the early 1980s relating all the information developed to specific research questions. It is anticipated that the data will be available to the public and to the scientific community for further analysis and investigation into events of the past. Thus, ongoing mitigation will continue for 2 to 3 years before the substance of it will be available to the public in a form that can be fully evaluated.

In the interim the process to mitigate effects continues with periodic interim descriptive reports and observable activities of the contractor's staff. This process continues even though specific criteria does not exist which sets forth the extent or magnitude of excavation and protection that should be accomplished, the significance of the sites being studied, and the work required to mitigate the effect of the Dam on archeological and historical resources.

As initiated, the mitigation program was based on several phases related to anticipated water levels to be contained by the New Melones Dam. This phased work schedule was necessary because the dam had been completed, and it was anticipated that the winter rains of 1978-79 would flood the reservoir as planned in the original construction schedule. Therefore, the contractor was required to concentrate first on those sites within the projected area of possible inundation. The request for proposal for the 4 year contract, as advertised, provided for mitigation in the following phases.

Phase	Sites	Water level (feet)	Significance of elevation
I	140	735-808	Old reservior level (735)
II	159	808-920	Minimum power pool (808)
III	76	920-1,088	Maximum pool (1,088)
IV	208	1,088-above	Recreation and other

Aside from the constraints imposed by the potential flooding of the basin, another significant restriction on the mitigation process developed. The local Native Americans opposed the recovery and analysis of human skeletal remains. This opposition resulted in a Corps policy which prevented the contractor from excavating Indian burial sites. The policy was adopted after award of the contract. This policy will limit the scope of information that can be developed to provide greater insight into the research questions that need to be answered on the cultural history of the Miwok Indians. This policy decision also increased academic criticism of the adequacy of mitigation measures being taken.

The New Melones mitigation efforts have been initiated under a contract which provided for only part of the 4 year program. The Corps did not have enough funds to contract for the entire program scope. The August 1978 phase one contract totaled about $1 million with the fieldwork scheduled to be completed on March 15, 1979. This first phase contract was subsequently increased to $1.4 million. Under this phase the contractor was to establish operations and develop procedures, hire staff, and obtain appropriate equipment to accomplish work, including partial excavation, analysis, evaluation, and reporting on at least 24 prehistoric sites located at or below 808 feet. The contractor also was to provide protective monitoring of cultural sites during clearing operations between elevation zones 906 to 1,088 feet, and to perform mitigation work on other specifically designated

sites. The work was divided into two stages with stage one directed toward surveying and evaluating all of the prehistoric sites at all elevations and stage two directed toward excavation, analysis, and recovery work on both prehistoric and historic sites in the priority elevation zones under 808 feet.

Mitigation problems

Starting the fieldwork late in the year slowed the pace of mitigation efforts since the work had to be done during unfavorable winter weather condition rather than the more desirable summer and fall. After the Corps staff completed its evaluation of the two proposals, around the first of August 1978, it was not until the end of August that the contractor was advised of the selection. It then took the contractor, who had only limited prior experience in the field of cultural resource management, about 6 weeks to mobilize his full staff and set up necessary facilities and operations at the remote New Melones site. Some additional coordination was required because of the contractor's approach to the project. The contractor decided to provide overall management and the key archeological staff through its own employees and to use a subcontractor to provide and control most of the staff to accomplish the fieldwork and laboratory operations.

As a result it was not until mid-October 1978 that full-scale operations began at the project site. This start late in the year resulted in problems and inefficiencies which had a detrimental affect on accomplising the mitigation work. For example, the contractor could not maintain his work schedule in November and December because of adverse weather conditions, such as rain and frozen ground. Thus, operations were carried out where it was difficult to excavate and sift the wet ground. Helicopters and boats were needed to reach inaccessible sites. In addition, the holiday season and unexpected illnesses attributed to time lost and affected work.

While conditions improved in early 1979 with a reduction in time lost, the work was still hampered throughout the winter season up through February due to bad weather conditions. Nevertheless, the contractor reported that he was able to keep the fieldwork on schedule through the use of extended workweeks and continued use of boats, rafts, four-wheel trucks, and helicopters. Some additional adverse effects were experienced necessitating adjustment of staff requirements because some site descriptions of earlier investigations were incorrect, some were on private property,

and some sites thought to be at higher elevations extended at least partially into the lower elevation higher priority zone.

An additional problem affected the contractor's operations. During the project, differences arose between the contractor's principal investigator and management and between the two organizations performing the work--the contractor and subcontractor. These differences ultimately reached the point in February 1979 where the principal investigator left the contractor's employment and the fieldwork was directed by the co-principal investigators from the contractor's archeological staff. After a nationwide solicitation, a new principal investigator was obtained, and he took over the onsite direction of the work on April 16, 1979. He proceeded to direct completion of the phase one work, preparation of interim technical reports, development of the research plan, and preparation of the contractor's proposal for the balance of the mitigation program. As this work continued, developments between the subcontractor and the contractor reached a point where the subcontractor's operation was not retained for the following phases of the contract and all aspects of the mitigation program were centered under the direct control of the new principal investigator.

The contractor was able to deal with the adverse situations and in April 1979 reported that all fieldwork in phase one had been concluded successfully and on schedule. The Corps agreed that the work was completed as planned and met the March 15, 1979, deadline for phase one work. This included the prehistoric and historic sites in the basic contract schedule. Work on additional sites found in phase one zones, and additional phase one fieldwork Government review groups recommended, was completed shortly afterward. With completion of the fieldwork on the first phase, the contractor's staff began developing appropriate written products and analyses.

Thus as the final stages of phase one were occurring and the new work on the final three phases of the program was being planned, the project was being accomplished by a new organizational structure, with new leadership from the new principal investigator.

NEW MELONES CULTURAL RESOURCES AND MITIGATION RESULTS

Although time and subsequent occupation have adversely affected the cultural resources, approximately 600 prehistoric and historic cultural resource sites were identified within

the project area by the various surveys made in the 30 years before the mitigation contract was awarded. The mitigation process which began in the fall of 1978 is a many faceted effort directed to evaluation of events that took place in the project area. It involves review of existing written works, review of local governmental historical records and census data, and intensive investigations of physical characteristics of the area. This investigation includes excavation and mapping of sites and recovering artifacts and soil samples. The artifacts are subjected to scientific analysis, including age dating and determining the origin. Other samples are analyzed to determine climatic and environmental conditions.

The first phase of mitigation work, completed in 1979, was carried out by contractor staff and consultants which reached a high of about 60 and at a cost exceeding $1.4 million. The process has produced a considerable amount of written scientific information and a number of artifacts for curation. The field effort, under this first phase, which was completed in March 1979, was directed to 127 sites which included testing 49 prehistoric Native American sites and reviewing a total of 78 historic sites. The excavation process applied to selected priority sites in phase one has produced over 150,000 artifact items, ranging from prehistoric projectile points, to historic mining activity debris, to modern-day trash. About 27 cubic meters of material had been held for curation, while the balance which was redundant or insignificant has been sent away for disposal.

The data from the mitigation activity has been developed into 10 draft volumes of information totaling 3,000 or more pages. These include historical, background, methodology and research design volumes; and several volumes containing detailed descriptions of each site investigated, maps of the sites, and drawings of the artifacts. Eventually the information in these volumes will be used with the research objectives to develop a synthesis report in 2 or more years, which will provide the interpretative and substantive mitigation product. The prehistoric and historic mitigation activities of the first phase are discussed below.

Prehistoric aboriginal cultures

While archeologists believe that there has been a succession of prehistoric cultures in California for some 10,000 years, they also believe that man's entry into the Sierra Nevada was relatively late. No unequivocal evidence of human occupation before 2,000 B.C. exists. The dominant

prehistoric cultural resources in the project area relate almost exclusively to the Miwok Indians, a tribe of hunters, acorn gathers, and basket weavers that have occupied the area for several hundred years, perhaps back to 100 A.D. The Miwok's most advanced technology was related to processing acorns for food and weaving intricate baskets. Rock tools, projectile points, and trading beads played an important part in the Miwok culture.

The Miwoks lived in small family clusters, in simple bark or brush covered structures, and followed a seasonal pattern of subsistence based on hunting and gathering acorns and other food in the lower foothills as the seasons permitted and moving into the higher elevations in the summer. During the 19th century, the Miwoks experienced a major population decline. The greatest decline occurred during the early 1850s Gold-Rush period, when it is estimated the population was reduced from 6,000 to 1,000 Miwok. A few descendents of the Miwok are still present in the area.

Visible evidence of early Miwok occupation in the project area is not readily apparent to the non-archeologist. There are no standing village structures or surface remains other than bedrock mortars (depressions in rocks used for grinding food) and a few petroglyphs (rock drawings). The lack of evidence is due to the small aboriginal populations that used the area and to the mass alteration of the project lands from the Gold-Rush period. The following table describes the prehistoric cultural resource sites investigated in the New Melones project.

Site description	Total
Bedrock-mortars (note a)	121
Midden (note b) and bedrock mortars	38
Caves and rockshelters	20
Middens	13
Middens, petroglyphs, (note c) and mortars	3
Bedrock mortars and petroglyphs	3
Petroglyphs	2
Total	200

a/Depressions in rocks used for grinding food.

b/Aboriginal usage sites, trash locations, distinguished by the presence of artifacts or the color of the soil indicating carbon deposits.

c/Drawings carved or pecked into rock walls.

Prehistoric mitigation activities

Much of the indepth information on the cultures, customs, and lifestyles of the aboriginal population is found by the mitigation contractor in review of works of earlier investigators and historians. Current archeology excavation to expand on this knowledge, as applied to the sites, has produced a number of rock implements, some projectile points, beads, and a few house pits. For the most part the sites excavated were overgrown with vegetation and were heavily modified during the Gold Rush. The most apparent surface indications of prehistoric occupation are the large numbers of bedrock mortars. Similar mortars, literally thousands, dot the entire Sierra Nevada foothills.

The contractor has developed the research questions for prehistoric mitigation relevant to the interests of the archeological community as a whole and to particular problems and interests important in California archeology, and in a manner acceptable to the Corps' mitigation requirements. A sample design was developed and continues to be updated to address these objectives. Excavation was performed on the sites with samples and artifacts subjected to various laboratory analyses and evaluation by consultants in various specialities. The information from this work will eventually be used to develop the synthesis report which will address the significance of the new information on the aboriginal cultures. The photographs on the following pages show examples of the prehistoric aboriginal sites, mitigation activity, and the artifacts that were discovered.

A NEW MELONES ABORIGINAL MIDDEN SITE BEFORE EXCAVATION

PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS

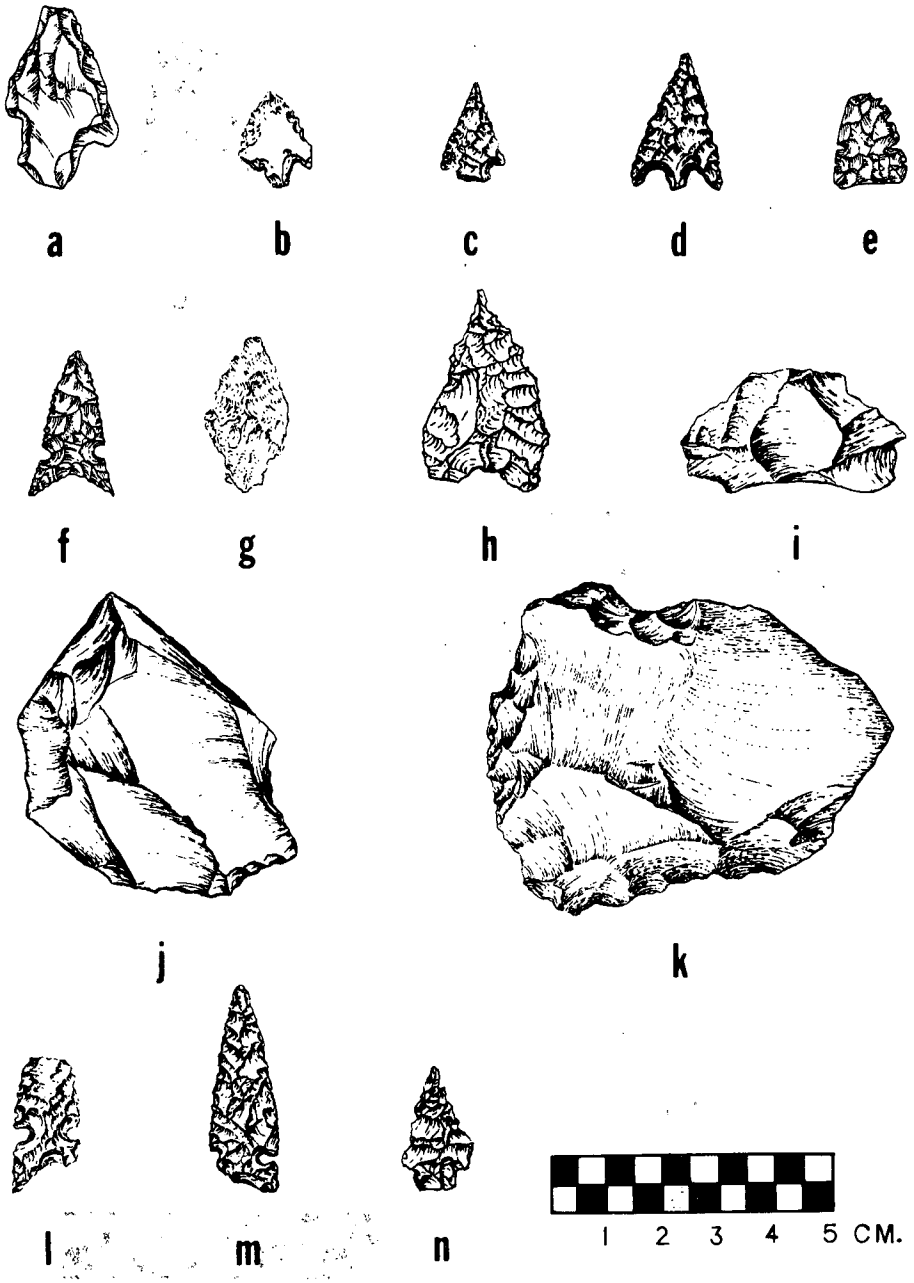
BEDROCK MORTAR SITE INDIANS USED TO GRIND FOOD

PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS

ABORIGINAL PETROGLYPH LOCATED ON NEW MELONES PROJECT SITE
PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS

NEW MELONES MITIGATION CONTRACTOR STAFF EXCAVATING AN ABORIGINAL MIDDEN SITE

PHOTOGRAPH COURTESY OF ARMY CORPS OF ENGINEERS



ARTIFACT DESCRIPTION

a,b,c,g,n—ROSE SPRING PROJECTILE POINTS (ARROW–HEADS)

d—GUNTHER BARBED PROJECTILE POINT

e—STOCKTON SERRATED PROJECTILE POINT

f,l,m—DESERT SIDE–NOTCHED PROJECTILE POINTS

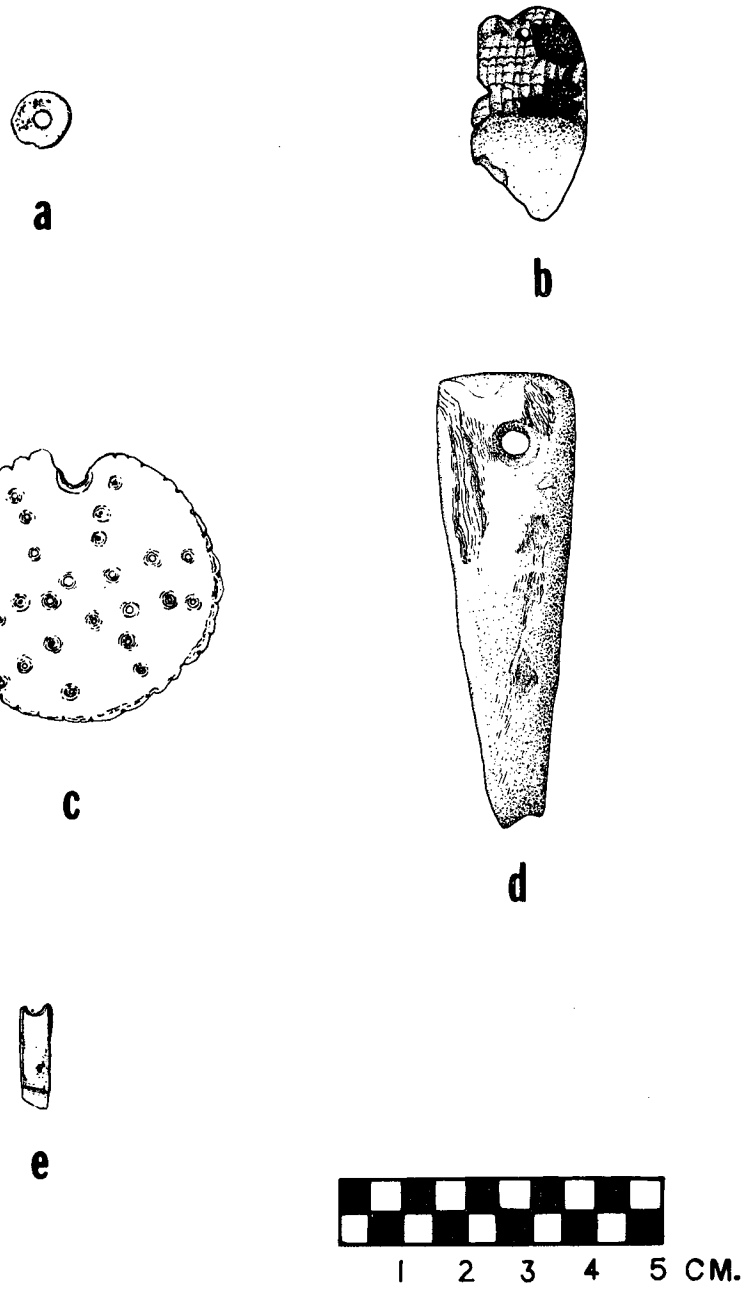
h—SIERRA CONCAVE BASE PROJECTILE POINT

i,j—FLAKES

k—SCRAPER

PREHISTORIC ARTIFACTS RECOVERED AT A NEW MELONES ABORIGINAL MIDDEN SITE

PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS



ARTIFACT DESCRIPTION

a— DISK HALIOTIS BEAD

b— OVAL HALIOTIS PENDANT

c— CIRCULAR HALIOTIS PENDANT

d— TRIANGULAR HALIOTIS PENDANT

e— TRIANGULAR HALIOTIS PENDANT

PREHISTORIC ARTIFACTS RECOVERED AT A NEW MELONES ABORIGINAL MIDDEN SITE

PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS

Historic cultures

The project area's prominent historicial cultural resources relate to California's Gold-Rush era and then to subsequent ranching. Probably the most significant aspect of the cultural resources at New Melones concerns the occupation and activities associated with the Gold Rush during the period from discovery of gold in the Mother Lode in the early 1850's through the early 1900's. In this period thousands of people entered and left the area, displacing the aboriginal peoples and destroying much of the evidence of their occupation. The gold seekers used the simplest of mining technology for panning gold in the early 1850's, to the highly developed industrialized mining during a resurgence of activity in the late 1800's and early 1900's. These more sophisticated techniques were either developed or refined in the project area.

In the early stages of the Gold Rush, large mining towns sprang up overnight in the Central Sierra. Melones, one of the more important towns, believed to have had a population of about 5,000 in the 1850's, has completely disappeared. This gold-rush town has been confused with what is presently referred to as the Melones townsite, inundated by the New Melones reservoir. The mitigation contractor has established that the Melones townsite was known as Robinson's Ferry until its name was changed to Melones in 1902. The gold-rush town of Melones itself is believed to have been located about 2 miles away from the Melones townsite and may not even be within the mitigation project boundaries.

Few structures from the Gold Rush era have remained intact. Many of the stamp mills used for crushing ore and much of the mining equipment were destroyed or salvaged for scrap iron during World War II. Also, portions of the projects townsites have been inundated by the old Melones Dam reservoir since the 1930's. The following 383 cultural resource sites were investigated in the New Melones project.

Site description	Total
Mine pits, walls, fences, and tailings	179
Rock walls, fences, and foundations	75
Flumes	32
Ranch or homestead	21
Roads and railroad beds	20
Chimneys and stone cairns	16
Dams	14
Mine pits, machinery, and stamp mills	12
Mining towns	3
Stamp mills and powerhouses	3
Graves	2
Troughs	2
Arrastra crushing device	1
Bridges and ferry crossings	3
Total	383

The absence of significant intact structures and artifacts is demonstrated by the mitigation contractor's plan to recommend that only five pieces of mining and farm equipment be salvaged.

In contrast to the New Melones project area, the adjacent Columbia Historic District, a State historic park which is on the national register of historic places, contains intact structures and artifacts. Columbia is located about 2 miles from the New Melones project area. It is one of the more important and best preserved of the Gold Rush boomtowns. In the 1850's there were more than 150 places of business at the townsite, including fandango dance halls, gambling parlors, saloons, and other houses of diversion common to mining towns of the era.

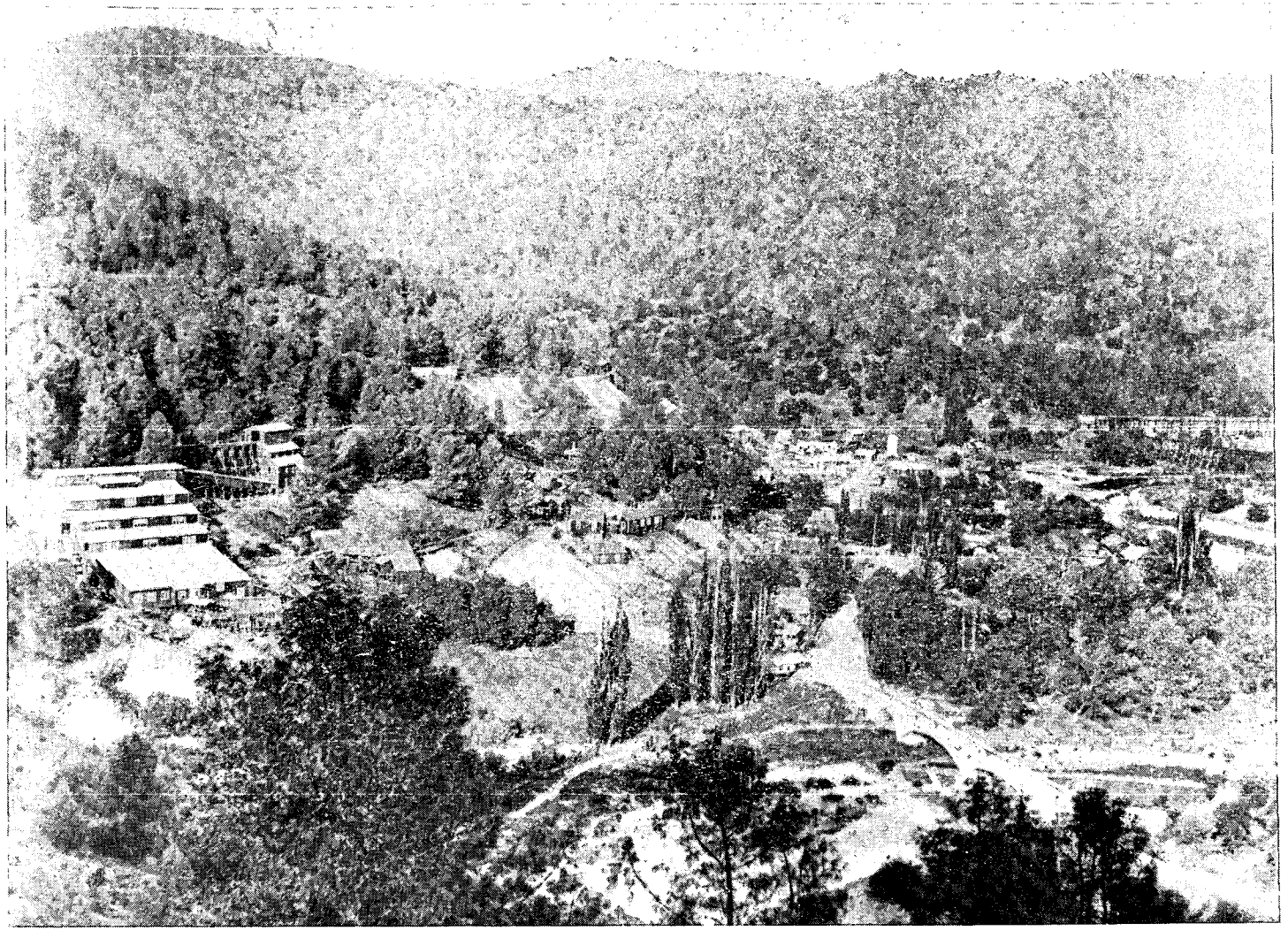
Historic mitigation activities

The general philosophy guiding the contractor's historic resources mitigation program has been the study of man and his past, especially through his relationship to his material culture and to the changes in the natural landscape and the patterns of occurences. A great deal of information on historical aspects is found in archives, private collections, written documents, sketches, photographs, oral histories, and

census and property records. Information developed from these sources has been used to reconstruct overviews of activities in the project area and to provide background for evaluation of archeological sites and the patterns of usage.

Because of the inadequacies found in previous surveys all sites in the priority zone were revisited, reassessed, and evaluated regarding the potential for further historical research. In total, 78 sites were investigated in this phase. Physical remains at the start of the work were sparse and consisted principally of foundations, parts of structures, some intact cabins, rock walls, railroad beds, roadways, and trash heaps. Field investigations in each site began with clearing vegetation and defining features. Brush was cleared and inspections were conducted with probes, metal detectors, and shovels to define walls, the density of trash areas, privy pits, and other features.

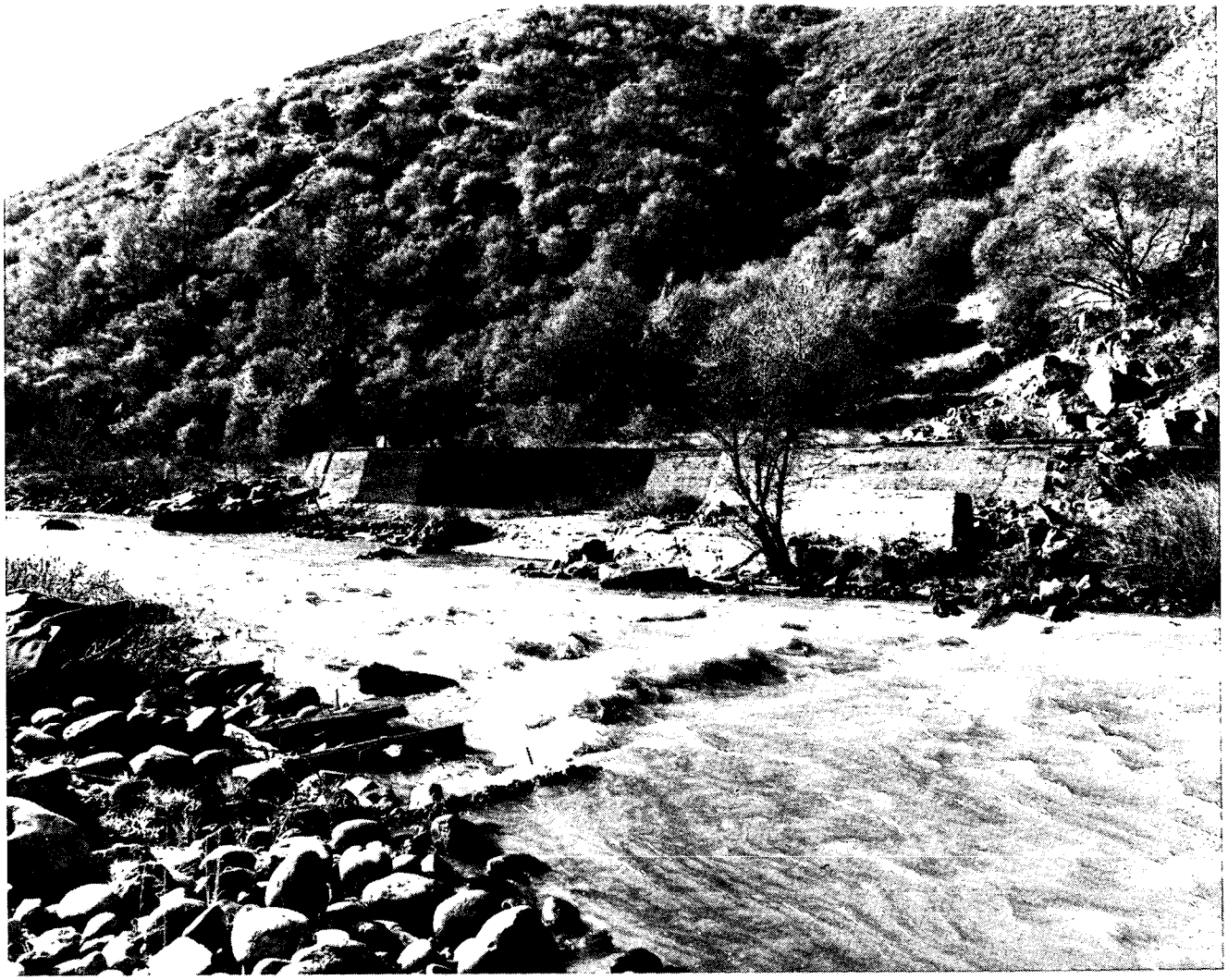
Archeological excavation activity was directed to 13 sites, including mining sites, cabin and homestead sites, and ranch sites. About one-half of the fieldwork in this phase was directed to the townsite of Melones. The products of this activity have been developed into a number of volumes of information, including descriptive reports for each site. As with the prehistoric research data, this historic information will eventually be used with the research objectives to develop the final mitigation product, the synthesis report, which will provide the interpretative product of the process. This should integrate the data from the surrounding area and thus contribute to a better understanding of the whole region. The following pages contain photographs showing examples of the historic mitigation process and some of its products.



MELONES, ROBINSON'S FERRY, AT THE TURN OF THE CENTURY

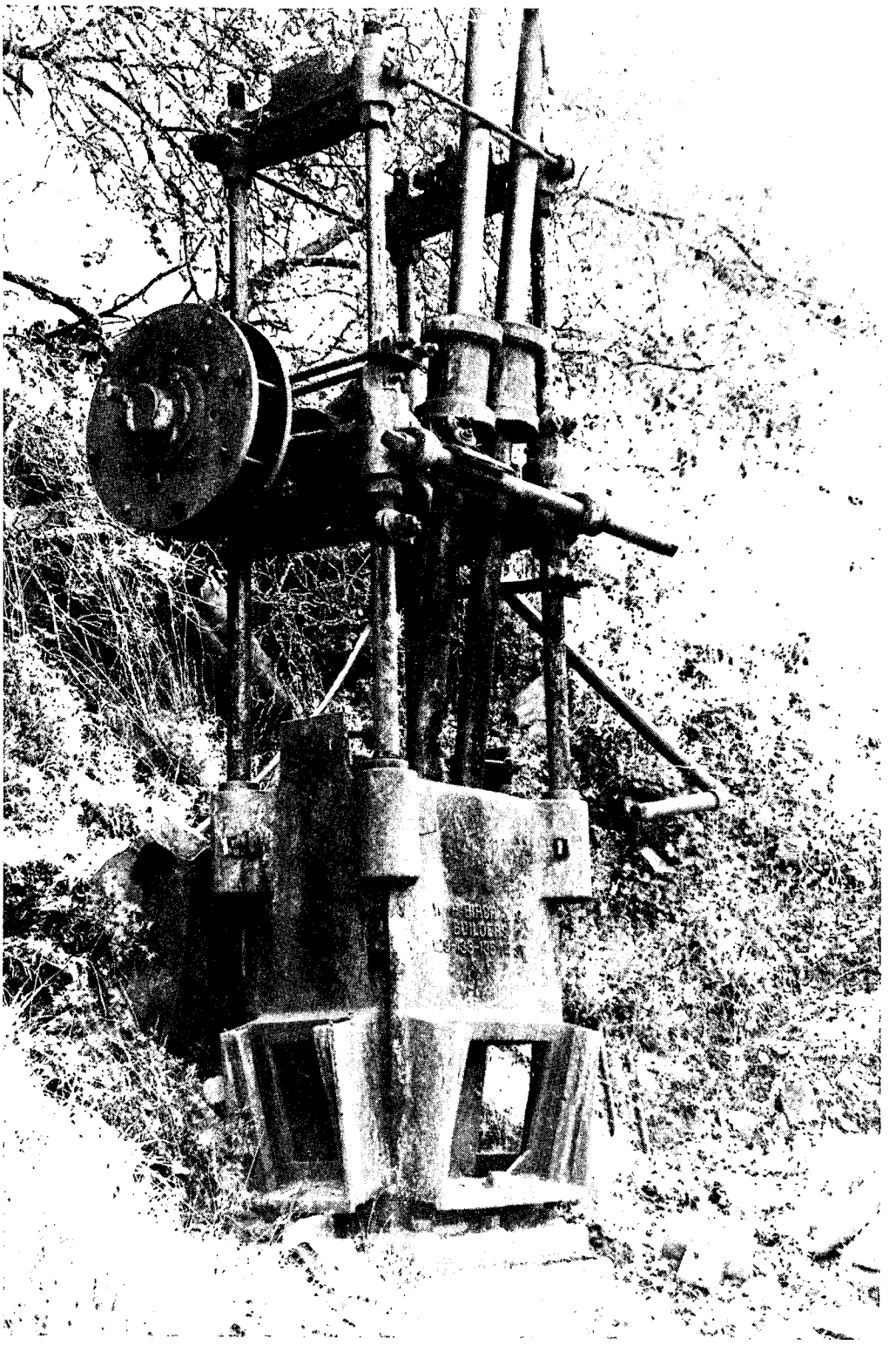
PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS

MELONES TOWNSITE IN JULY 1979, WHEN RESERVOIR WAS AT ABOUT 808 FEET ELEVATION



THE STAMP MILL SITE IN MELONES AS IT EXISTS NOW

PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS



NEW MELONES HISTORIC ARTIFACT, A TWO–STAMP MILL FOR CRUSHING ROCK PRIOR TO EXTRACTION OF GOLD

PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS

NEW MELONES HISTORIC ARTIFACT; PELTEN WHEEL USED AS A WATER WHEEL TO PROVIDE POWER TO OPERATE MINING EQUIPMENT

PHOTOGRAPH COURTESY OF THE ARMY CORPS OF ENGINEERS

CONCLUSIONS

New Melones Dam is an excellent example of the problems facing Federal agencies in deciding what is needed to mitigate the effects of Federal construction projects on archeological and historical resources to comply with legislative requirements. Lacking guidelines on how much mitigation is enough, Federal agencies to date have funded 15 archeological studies over a 30-year period, costing $2.4 million. The Army Corps of Engineers now plans to fund studies up to the maximum $3.46 million authorized by legislation. Even this may not satisfy critics and their claim that not enough has been done to satisfy Federal requirements.

The lack of guidance has also left a void regarding whether mitigation effects should be centered on physical protection, such as preservation, avoidance and salvage, or the costly effort of accumulating information from all sources that may reflect on the past history of the project area.

Also the lack of Federal guidance on who should decide the adequacy and who should direct the mitigation program has clouded the direction of the cultural resources work at New Melones. HCRS has been developing its own research priorities and now apparently plans to assume the direction of the ongoing mitigation program and change it from the approach planned by the Corps. Neither the contractor nor the Corps was aware of how HCRS expected to reorient the program and this has led to delays on decisions on the final phases of the contract.

Since this has been a rapidly changing program, with agencies responding differently, the magnitude of the problem is not known. In view of this ~~we are not~~ no recommendations will be made making legislative or administrative recommendations until a more in-depth review is completed.

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

SPKED-D

20 July 1979

Mr. Roy J. Kirk
Assistant Director
US General Accounting Office
Washington, DC 20548

Dear Mr. Kirk:

In your letter of 28 June 1979 you have referred to allegations questioning the adequacy of the cultural resources mitigation program at the New Melones Lake project. You further reiterate 10 points of concern raised by Mr. Delaporte, Director of the Heritage Conservation and Recreation Service and have asked that I comment on these matters.

As you are probably aware, the definition of "adequate" cultural resources mitigation is extremely elusive and unspecific. To my knowledge, no governmental agency or professional archeological body has, as yet, provided any explicit guidelines quantifying or qualifying this phrase. Only the authorization for expenditure of funds for cultural resources mitigation (Public Law 93-291) has been established. Nevertheless, I believe we have made every effort to develop a responsible and appropriate program for the project.

Please let me point out prior to answering the 10 points you list, that all of these concerns have been addressed previously in other letters and during the several investigations to which the project has been subjected. A 28 January 1979 report by the Advisory Council on Historic Preservation confirmed that we were in compliance with the Memorandum of Agreement signed by the State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP), and the Sacramento District Engineer, Corps of Engineers. In response to those who were still not satisfied with the mitigation program, the Joint Review Committee, composed of the SHPO, ACHP and Corps, assigned an Interagency Task Force to review the program and make recommendations for work below 808' elevation. This Interagency Task Force consisted of professional archeologists - two from Interagency Archeological Services, one from the Bureau of Reclamation, one from the State Historic Preservation Office, and one from the Corps' Sacramento District. Their report dated 23 March 1979 included several

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recommendations for work below 808' elevation which would, if completed, constitute adequate mitigation. The recommendations were approved by the District Engineer, implemented immediately, and completed by the Contractor, Science Applications, Inc. (SAI) by 10 April 1979. SAI's report on this work has been distributed to concerned parties, including the Interagency Task Force and Joint Review Committee. Since the Department of Interior (DOI) was well represented on the Task Force and DOI representatives have participated in all aspects of the mitigation program, including review of the offerors' proposals, prior to contract award, it is difficult to understand why these concerns keep reccuring. However, for your information I am providing the following comments to the 10 points as presented in your letter.

Comment 1: None of the 31 cultural sites under 735 feet, including the 9 identified by the New Melones Project Memorandum of Agreement as important were investigated by SAI.

Response: Prior water rights below 735' elevation are not subject to control by the Corps of Engineers. Sites below this elevation were originally recorded during periods of very low water levels. These sites have been inundated for the most part for over 50 years. However, recognizing that they might be exposed during the mitigation program, provisions were made in the Request for Proposal (RFP) for investigation of these sites.

In response to this, SAI studied two historic sites, Tuo-S-302, the remains of the old Scott Ranch, and Tuo-G-15, the old Melones Dam. The former site was mapped and a report on it will be included in the first descriptive report. The old Melones Damsite was, at the time of its construction, the highest overpour dam in the world. Its importance was confirmed in consultation with Donald Jackson of the Historic American Engineering Record (HAER) staff (3 April 1979). The As-Built drawings for this dam have been obtained by the Corps of Engineers. Excavations were also carried out at one of the prehistoric sites, Cal-3, which is partially located below 735 feet. This was a reported prehistoric site within the Melones townsite which, upon excavation, proved to be heavily disturbed and mixed with historic material. Excavations on the townsite of Melones, much of which is below 735' elevation, have also been completed.

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Comment 2: Representative historic sites below 808 feet need to be thoroughly investigated because of a lack of detailed information on Central Sierra historic sites.

Response: The RFP and Scope of Work required all the most significant historic sites be investigated, and the need for additional work on those of lesser significance reviewed. SAI has responded to this requirement by examining all historic sites in the field, by mapping, photographing and otherwise recording them, by excavations, archival research, collecting oral histories, and by obtaining consultants knowledgeable in mining technology and other aspects of historic settlement in the area.

Comment 3: SAI studies of industrial historic sites do not meet Historic American Engineering Record (HAER) standards.

Response: There are three important industrial sites which were investigated during Phase 1 (below 808') including Cal-S-315, the Melones Mining Creek Stamp Mill foundation (1898-1919), Cal-S-475, the Carson Hill Mining Co. Stamp Mill foundation (1920-1942), and Tuo-S-619, the Horseshoe Bend Stamp Mill foundation (1898-1920). Mr. Donald Jackson of the HAER staff was consulted and all sites were recorded to HAER standards. In addition, the main ranchhouse and barn at Cal-S-10, the Pendola Ranch, was recorded to Historic American Building Standards (HABS).

Comment 4: Old Melones Dam is nationally significant and should be recorded to HAER standards.

Response: The As-Built drawings of the Old Melones Damsite are currently held by the Corps of Engineers. They comprise considerably more complete documentation than is usually required to meet HAER standards.

Comment 5: Further excavation of the Melones townsite is necessary to investigate occupation back to 1848 and Native American acculturation.

Response: SAI has made these observations:

SAI has performed an intensive survey of the townsite of Melones. This survey included producing base maps of the early town from assessor's records. Heavy equipment was used to make exploratory trenches in areas determined to be important through historical research.

Modern changes in the old gold-rush town had obscured most early remains. The remains of the original ferry building were discovered under several feet of fill. The building had burned in 1909, sealing the basement contents which were recovered. While this was a 19th Century structure, its contents dated to the early 20th Century.

Efforts to document native acculturation has failed to yield any evidence indicating that Native Americans and Americans of European ancestry ever shared the New Melones site. Samples from two midden sites (04-Cal-3 and 04-Cal-S-565) located within the townsite have been studied. Briefly stated, preliminary results of these excavations do not indicate that these remnants represent a Miwok village contemporary with the Melones town. These preliminary findings are consistent with those of Hall (1978:90) which state, "Almost no Miwok villages were observed in this area at the height of the Gold Rush". The three exceptions she lists do not include Melones.

Comment 6: SAI needs to consult with HABS to adequately document nationally significant vernacular architecture.

Response: SAI is continuing to coordinate with HABS staff; however, SAI project staff is experienced in applying HABS standards. To date, only three standing structures were encountered in the project area, excluding the Pendola Ranch, for which two buildings were recorded to HABS standards. All three of these structures were "company houses" built by the Melones and Carson Hill Mining Company according to standard patterns and in the strictest sense are not "vernacular" architecture. Two of the structures were built in approximately 1920 and the third was moved into the area and additions made in 1955. All structures were photographed, interior and exterior dimensions were taken and floor plans were drawn. Detailed room inventories were also taken.

Comment 7: The data recovery program does not include the study of prehistoric remains.

Response: It has been expressed repeatedly by the local Native American that they do not wish the human burials from prehistoric Indian sites to be excavated. It was my decision to respect their wishes.

Comment 8: Further excavation of prehistoric middens below 808 feet is needed to define history, structures, surface features and artifacts.

Response: This question is similar to Question 2 in that it implies special significance to artifacts existing below an 808' elevation. There is no justification for this inference. All six middens known to exist below elevation 808' have been surveyed and mapped extensively. No structural features, such as house depressions, were observed at these sites, nor had they been recorded by other archeological teams in previous work on the same sites. The six sites have been excavated extensively during Phase 1, according to stratified sampling procedure. SAI is now in the process of analyzing the data retrieved and preparing the draft descriptive reports.

Additional excavation accomplished under recommendations of the Interagency Task Force revealed no new information concerning structures or surface features.

Comment 9: Detailed background historic studies of significance of historic domestic, ranching and industrial complexes, along with an ethnographic research of the Miwoks has not been completed.

Response: Documentary and oral history research into significant historical resources in the project area have been previously compiled by Dr. Turrentine Jackson and Dr. Dorothea Theodoratus. Moreover, SAI currently has a full-time project historian on the staff, in addition to the historical consultants, in order to perform the necessary detailed studies. Ethnographic research among the Miwok is continuing and the oral history and ethnohistorical investigations for specific sites are ongoing within the project.

Comment 10: A detailed site specific research design must be developed for excavations below 808 feet.

Response: The Research Design for the New Melones Lake Archeological Mitigation program was planned to provide an overview of the historic and prehistoric past of this region. It is not and was never intended to be site specific or related to arbitrary lake levels. A basic research orientation was outlined in SAI's original proposal. A preliminary Research

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Design was then prepared in January of 1979, and a major revision, based on accumulating project information, was prepared in May of 1979. The scope of work calls for at least annual review and revision of the Research Design. Strict adherence to this design at all elevations is necessary if information recovered from different areas is to be compared on a consistent scientific basis. The large number of sites being investigated and the variety of prehistoric and historic information available provide the opportunity to study this area as a region rather than as a sequence of isolated sites. The latter type of study is appropriate on smaller projects containing one or relatively few sites. Such studies do not individually permit the development of regional perspective because of their limited scope. Detailed site-specific investigations below 808 feet have been performed supplemental to the regionally oriented sampling program.

While the research design is regional in nature, individual sites such as the town of Melones, the Pendola Ranch and others have been studies in considerable detail. These detailed intensive studies have produced information in excess of that required for the regional research design. Thus, the research design being used will provide information concerning the historic and prehistoric past of the region and intensive studies of sites of special significance.

I hope these answers are sufficient for your needs.

Sincerely,

DONALD M. O'SHEI
Colonel, CE
District Engineer

(148050)