REPORT
PHASE I ENVIRONMENTAL SITE ASSESSMENT
COLMAC ENERGY COGENERATION PROJECT
NEAR MECCA, CALIFORNIA
FOR SWISS BANK

JOB NO. 17429-005-128
AUGUST 29, 1989

Dames & Moore

RIVERSIDE, CALIFORNIA

1.0 INTRODUCTION

Dames & Moore is pleased to present this report of a Phase I environmental assessment of the property proposed for a cogeneration facility located in Riverside County near Mecca, California (Figure 1). We understand that the proposed cogeneration facility will be a 47 megawatt biomass to energy facility utilizing wood and agricultural waste as fuel. The project is proposed on approximately 100 acres of currently undeveloped desert land controlled by the Cabazon Band of Mission Indians and is designed to be a turn-key operation to the Cabazon Band in forty years.

This project was conducted under authorization from Swiss Bank who wishes to perform a study of the site to review available environmental information and to assess current site conditions and the likelihood of the presence of hazardous substances at the site. This project included the evaluation of Native American Indian archeological issues.

2.0 PURPOSE AND SCOPE

The purpose of this preliminary assessment was to review past and present land use practices and site operations to evaluate the potential presence of hazardous substances in soil and/or ground-water at the site. This assessment was accomplished by, and limited to, a review of presently and readily available pertinent documentation regarding past and current land use for indications of the manufacture, generation, use, storage and/or disposal of hazardous substances at the site. It included a preliminary evaluation of the potential for soil and/or ground-water contamination resulting from past and present site land use activities and nearby off-site operations and archaeological considerations, based upon the scope of services described below. This Preliminary Site Assessment did not include collection of soil or ground-water samples or performance of analytical laboratory analysis for the presence of contaminants.

The following specific tasks were performed for this Phase I study:

- Researched and reviewed pertinent, readily available geologic and hydrogeologic literature, and available historical aerial photographs of the site and surrounding area;

- Reviewed site maps and geotechnical reports provided by the client regarding site development;

- Performed a reconnaissance of the site and surrounding areas to inspect for visible evidence of potentially hazardous substances;

- Evaluated planned, current and previous land use at the site based on available municipal, county and state agency records and a review of archival air photos;

- Reviewed U.S. Environmental Protection Agency (EPA) lists and records for known hazardous waste sites within one mile of the subject site;

- Performed an on-site evaluation of Native American Indian archeological issues.

- Prepared this report to present our findings, conclusions and recommendations.

3.0 GEOLOGIC AND HYDROGEOLOGIC OVERVIEW

The site is located in the Salton Trough Geomorphic Province, a desert basin with an average elevation of 200 feet below mean sea level (msl). The subject site is approximately 170 feet below msl and slopes gently to the southwest (United States Geological Survey

(USGS), 1962). The Salton Trough is characterized by predominately continental clastic strata of late Cenozoic age consisting of alluvial and fan deposits interbedded with lacustrine silts and clays (California Division of Mines and Geology, 1966). Shallow soil borings drilled approximately one mile to the south of the subject site encountered alternating layers of fine sands, silt and clay. (Buena Engineering, 1988.)

Ground-water is present in the subsurface generally between 3 and 16 feet below ground surface (bgs) in the immediate site vicinity (Coachella Valley Water District (CVWD), 1989). Although local ground-water gradients may follow topography, regional gradient is southwest, towards the Salton Sea (Tenera Environmental Services (Tenera), 1988). Based on data obtained from wells installed by Tenera to the south of the site, ground-water flows at a rate of approximately 30 feet per year in the site vicinity.

Ground-water quality in the site vicinity has been reported as good by the CVWD from this upper saturated zone. Limited water quality data were available from two wells, designated J and H, located approximately 1500 feet south of the site (Figure 2). Total dissolved soils (TDS) concentrations below 200 parts per million (ppm) were reported from these two wells, and well J is reported by the CVWD to be in domestic use. The Colorado River Regional Water Quality Control Board (CRRWQCB) reports that ground-water has been degraded locally by leaking underground storage tanks (USTs) in the site vicinity. Additional information concerning leaking USTs is presented in Section 6.0 of this report.

4.0 SITE HISTORY

Information concerning past activities on the subject site were obtained primarily from a review of archival aerial photos located at the Riverside County Flood Control District (RCFCD) and

the Fairchild Collection at Whittier College. Photos were available for review for the years 1949, 1952, 1956, 1974, and 1984. A list of these photos is presented in the References section. These photos showed the site vicinity in a progressive transition over the years from desert scrublands to agricultural use. Although the properties to the northeast and south appeared in agricultural use from 1956 to 1984, the subject site was observed to be vacant and unused in each photo reviewed for this report.

Two longstanding features, the Southern Pacific Railroad on the western boundary and an irrigation pipeline on the northwest boundary of the site were observed in each photo available for review. Braided drainages trending northeast-southwest were observed traversing the site on several of the photos.

No industrial, commercial, agricultural or residential use of the subject site was observed in the available photos. Indications that the site was used for prolonged refuse dumping or the storage or disposal of hazardous materials were not observed in these photos.

5.0 PRESENT SITE CONDITIONS

The site is bound by State Highway 111 a pressurized irrigation pipeline to the northwest, an apparently abandoned bean farm to the north, vacant land to the east and the Bagdezarian Farms facilities at 65-500 Lincoln Street to the south.

The site surface soils consisted of a hard fine sand and silt cover. A very loose silt was present from the ground surface to approximately 2 feet below the ground surface in the places where this cover had been disturbed. The site was sparsely vegetated with shrubs and weeds at this time.

Two graded access roads, apparently used for service to the irrigation pipeline, traversed the site. A small gauging station was located at the intersection of the access roads near the northeast corner of the site. The access roads appeared free of debris and the gauging station equipment was encased in culverts. An approximate 3-foot square, 2-foot deep wood lined casing of unknown use was present approximately 30 feet to the east of the gauging station. This well contained minor amounts of debris and wood, but staining or odors to indicate the presence of hazardous materials were not observed.

Several mounds of agricultural debris were present throughout the site, and some refuse, consisting predominantly of bottles and household debris, was present along the east boundary of the site. Other than these features, the site appeared relatively debris-free and visual evidence to indicate the presence, use, storage or disposal of potentially hazardous materials was not observed on the site during this visit.

A drive-by survey was conducted on the day of the site visit to evaluate conditions in the immediate site vicinity. The site was surrounded predominantly by vacant land and citrus orchards. The Bagdezarian Farms facility to the south of the site, reported to be a food processing facility, was the only major commercial facility observed during this survey. Although county records on registered USTs were not available for review at the time of this investigation, a company representative was contacted by phone and indicated that USTs were not present on the site (Bozac, 1989). Indications of hazardous materials storage were not observed in the area surrounding this facility or other properties adjacent to the subject site during this drive-by survey.

6.0 REVIEW OF AGENCY LISTS AND CONTACTS

Several government agency lists were reviewed. These lists record sites within one mile of the subject property which are under investigation, or which may be investigated in the future, because of known or suspected hazardous materials usage, generation, or contamination.

At this time, no National Priorities List sites, or sites proposed for addition to that list within one mile of the subject property were identified. EPA's CERCLIS list did not contain any sites within one mile of the property. There were no listings of hazardous waste sites in the site vicinity on the California Department of Health Services (DHS) Expenditure Plan.

The State Water Resources Control Board (SWRCB) and the CRRWQCB listed one UST leak within a mile of the site. The Coachella Valley Farming facility is located approximately one mile southeast of the site at 91-800 Avenue 64 near Mecca in Riverside County, California. In May 1987, elevated concentrations of petroleum hydrocarbons were reported in subsurface soils at this site during the removal operations of a 12,000-gallon diesel UST. Subsequent soil and ground-water investigations by Rossi (Jonathan L. Rossi, 1988) and Tenera indicated that although the subsurface soils were impacted by hydrocarbons in the immediate vicinity of the former USTs, the impact to ground-water was minimal. A final round of ground-water samples obtained in July 1988 reportedly contained concentrations of petroleum hydrocarbons within drinking water standards set by the state. A phone conversation with the Regional Water Quality Control Board indicated that this site is currently under review for closure by the Regional Board (CRRWQCB, July 1989).

7.0 ARCHEOLOGICAL SURVEY

To evaluate potential cultural resource issues, i.e. those relating to archaeological, historical, and Native American heritage sites, Dames & Moore has conducted a records search, brief literature review, agency contacts, and a brief field visit. The records search was conducted at the Eastern California Information Center of the California Archaeological Inventory, maintained by the Archaeological Research Unit, University of California, Riverside. Contacts with the following agencies were made:

- Bureau of Indian Affairs - California State Office, Sacramento and Riverside district office;
- Bureau of Land Management - California State Office, Sacramento;
- Cabazon Indian Band - Business office; and
- California Energy Commission - Environmental division California Office of Historic Preservation - Section 106 compliance group.

Our research reveals that a complete archaeological survey of the proposed leasehold, access road, and transmission line has been accomplished. Two archaeological sites have been reported within the leasehold, but not within the area to be disturbed by construction of the plant itself. One of the sites, probably the remnants of the Native American village of Cabazones, could be marginally affected by construction of the security fence around the leasehold. The effects of the project on cultural resources are amenable to mitigation procedures as described in the Environmental Impact Statement (EIS) and in accordance with Federal regulations implementing Section 106 of the National Historic

Preservation Act. If there is local opposition to the project, proponents should be sure that the appropriate Section 106 consultations are thoroughly documented in writing to avoid project delays. Our findings are presented in greater detail in the following sections of this report.

Records housed at the Archaeological Information Center reveal that an intensive survey of the Cabazon Indian Reservation lands upon which the project is proposed was conducted in 1976 in conjunction with the development of the existing jojoba plantation (Wells and Martz 1976). This survey resulted in the recording of three "sites" and several additional prehistoric and historic artifact scatters. All of these materials have been recorded at the Information Center as site CA-Riv-859. This site is probably the location of the Cahuilla Indian village of Cabazones recorded by USGLO surveyors in 1856 (Wells and Martz 1976; Wilke and Lawton 1975).

One additional site is recorded at the Information Center: CA-Riv-1046 was originally recorded in 1972 and described as a light scatter of cultural material in a dense mesquite thicket. However, this site was not noted by Wells and Martz (1976), and a reassessment of the Colmac project area by archaeologists from the Information Center conducted in 1986 also failed to relocate it (Wilke 1986). It is presumed to have been destroyed by initial clearing of the jojoba plantation prior to the Wells and Martz survey.

It should be noted that the reassessment of the Colmac project area resulted in the reduction of the boundaries of site CA-Riv-859. Much of the site as recorded by Wells and Martz (1986) is no longer visible on the ground surface. It should also be noted that the site contains a Native American cemetery which is still in existence. As the cemetery lies approximately one-quarter

mile outside of the lease boundary, it probably would not be adversely affected by the project.

Federal regulations implementing Section 106 of the National Historic Preservation Act require (1) that an inventory of potentially significant cultural resources be compiled, (2) that the significance of these resources be assessed in relation to the criteria of eligibility for the National Register of Historic Places, (3) that the effect of the project on eligible sites be determined, and (4) that the Federal agency consider prudent and feasible measures to avoid or mitigate adverse effects to eligible sites. The State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation are given authority to review and comment on Federal projects with regard to Section 106 compliance. These regulations should not be taken lightly. Additionally, state laws and regulations require the consideration of impacts to significant cultural resources. Implementation of State and Federal policies raise several issues with regard to the Colmac project. These are discussed below.

- Adequacy of the Inventory - In Dames & Moore's opinion the work already performed by Wells and Martz (1976) and Wilke (1986) serves as an adequate inventory of cultural resources. It should be noted, however, that dune formations and agricultural impacts could obscure sites from discovery through traditional archaeological survey methods. Thus, additional sites could be discovered during construction. This possibility is addressed by Colmac project documentation and is discussed further below.

- Significance of the Known Resources - Site CA-Riv-859 was recommended as meeting the National Register criteria by Wells and Martz (1976). Despite subsequent impacts, the

site appears to maintain sufficient integrity to remain eligible in Dames & Moore's opinion. Under Federal regulations, BIA should consult with the SHPO regarding eligibility. To date, Dames & Moore has not been able to confirm that formal consultation on this issue has occurred. This consultation might require the compilation of data on the site's current condition. The SHPO's comment period is then 30 days. Given the nature of the site and of the project, it seems likely that BIA and SHPO could concur on eligibility on the basis of existing data. The other site, CA-Riv-1046, is probably not eligible and would not need further consultation.

- Project-Related Impacts - The plant site, access road and transmission line would not directly effect site CA-Riv-859 as the boundaries are currently drawn. It should be noted that the plant site is in close proximity to artifacts and features recorded by Wells and Martz (1976), suggesting the increased likelihood of uncovering cultural materials during construction. Despite this possibility, by current standards a finding of no effect from the plant site, access road, and transmission line would be the likely outcome of the Section 106 review process. However, the security fence around the leasehold would pass through the currently defined site boundary. This is a relatively minor effect, but it still needs to be brought to the attention of the SHPO.

- Mitigation Measures - The cultural resource assessment of the Colmac Project recommended monitoring of construction activities by an archaeologist and a representative of the Cabazon band. The final EIS adopted this recommendation as a mitigation measure.

This mitigation appears to be appropriate, given the nature of the resource and the level of potential effect. It should be extended to construction of the fence in the vicinity of site CA-Riv-859 as currently defined. Additionally, the project proponents should consider the possibility of moving the eastern security fence approximately 200 feet to the west in the northeast quadrant of the leasehold in order to avoid impacts to site CA-Riv-859.

- Native American Concerns - The village of Cabazones (CA-Riv-859) is a resource of heritage concern to Native Americans. Not only is it of historical significance, but it also contains a Native American cemetery. Consequently, it is a highly sensitive resource. Fortunately, the project largely avoids impacting this resource, and appropriate mitigation measures are available to address potential concerns about the project. The Cabazon tribal council supports the project and has not raised concerns about potential conflicts with cultural resources. Consequently, it appears unlikely that heritage concerns would render the project infeasible or create high mitigation costs.

- Discovery During Construction - A significant potential does exist for the discovery of previously unrecorded cultural resources during construction. Due to previous impacts, the integrity of such resources is likely to be poor, however. Appropriate and relatively inexpensive mitigation measures are available to deal with such discovery situations. Dames & Moore recommends that a cultural resource monitoring plan be developed prior to construction. This plan should address procedures to be implemented in the case of a discovery during construction, and should be developed in consultation

with the Cabazon band, the BIA, the SHPO and potentially the Advisory Council on Historic Preservation.

- California Energy Commission Review - For cogeneration projects over 50 megawatts, the CEC would have regulatory review over cultural resource as well as other permitting issues. CEC requirements with regard to cultural resources are sometimes different and more stringent than Federal regulations. The CEC has reviewed the Colmac project and concluded that they do not have jurisdiction as currently proposed. However, if a design change were to increase the generating capacity above the 50 megawatt limit, CEC review would be mandated to review and license the project.

8.0 CONCLUSIONS

Based on the data obtained as a result of this Phase I environmental assessment, Dames & Moore has not identified direct evidence to suggest that soil or ground-water beneath the site has been affected by potentially hazardous substances due to current or past site usage. In addition, it is unlikely that past or current operations at neighboring properties have adversely impacted the site.

Based on pending closure of the Coachella Valley farming facility by the water board and an inferred ground-water flow away from the subject site, it is unlikely that this reported tank leak would have contributed to soil or ground-water degradation beneath the site. Because of past agricultural land use in the area, however, there is a potential for pesticide residues to be present in the site soils and ground-water. Evidence from this investigation indicates that the site has never been used for agricultural purposes, and as such there is little chance that residual pesticides are present in the soil. Additionally, the CVMWD reports that one ground-water well is currently in commercial

use within one mile of the site, presumably producing water within state guidelines for pesticides. In our judgement a ground-water or soils investigation for pesticides would not be required by a regulatory agency at this time.

Significant cultural resources are present within the Colmac's area of potential effect. Moreover, additional cultural resources could be encountered during construction.

Current project documentation provides for appropriate mitigation of potential effects, and it appears that cultural resource issues can be addressed adequately within the context of current project plans. Thus, in Dames & Moore's opinion cultural resource issues do not pose a potential fatal flaw to the project and should not result in high mitigation costs.

Project coordinators should take steps to ensure that appropriate Section 106 documentation has been obtained prior to the start of construction. This documentation should be in writing, and should include concurrence between BIA, SHPO, and potentially the Advisory Council on Historic Preservation. If this documentation is not in order, prospective project opponents could bring suit in Federal court and temporarily halt the project. If this were to occur during construction significant costs could be incurred.

Dames & Moore has performed the work, made the findings, and proposed the recommendations described in this report in accordance with generally accepted environmental science practices for Phase I Property Transfer Site Assessments in effect in the southern California area at the time the work was performed. This warranty stands in lieu of all other warranties, expressed or implied. While this report can be used as a guide by Swiss Bank, it must be understood that it is neither a rejection nor an endorsement of the property. It must also be understood that changing circumstances

in the environment and in the use of the property can alter the conclusions and information contained in this report.

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Dames & Moore appreciates the opportunity to assist you on this project. We trust that this report meets your current requirements. Please contact us if you have any questions regarding this report or require additional information.

Respectfully submitted,

DAMES & MOORE
A PROFESSIONAL LTD.
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CBC:DB:JSK:ljj
MECCA.DOC

REFERENCES

RIVERSIDE COUNTY FLOOD CONTROL DISTRICT
AERIAL PHOTO COLLECTION

DATE	SCALE	FLIGHT
1974	1:2000	County
1980	1:2000	County

FAIRCHILD AERIAL PHOTOGRAPHY COLLECTION
WHITTIER COLLEGE

DATE FLOWN	FLIGHT NUMBER	FRAME NUMBERS
7/19/49	C-14031	4:67-72, 108-113
6/4/52	C-17850	1:34-36
1956	C-22695	1:34-36

Bozac, Mike, August 1989, personal communications.

Buena Engineers, Inc., March 16, 1988 Hydrocarbon Study, CV Minimex, Mecca, California, unpublished report.

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California Department of Natural Resources, Division of Mines, Bulletin 170, Richard H. Hans, 1954.

California Division of Mines and Geology, 1966, Bulletin 161, Mineral Resources of California.

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Colorado River Basin Regional Water Quality Control Board, 1989 Underground Tank Database List.

_____ May, 1989, Julie Maurer, personal communications.

Rossi, Jonathan L., Consulting Hydrogeologist
Results of Phase I Site Assessment for Petroleum Hydrocarbon Contamination in the Soil and the Ground-Water at the Sungiant, Inc., site, 91-800 Avenue 64, Mecca, Riverside, County, California. (T7S/R9E, NE1/2 sec 8), unpublished report.

Tenera Environmental Services, July, 1988, Subsurface Investigation of the Mecca Ranch site, unpublished report.

United States Environmental Protection Agency, 1988, CERCLA List.

_____, 1988, National Priorities List (Superfund) Sites and proposed additions to the National Priorities List.

KEY PROJECT PERSONNEL SUMMARY

Following are brief summaries of selected Senior Consultants with both environmental and energy backgrounds who worked on this project.

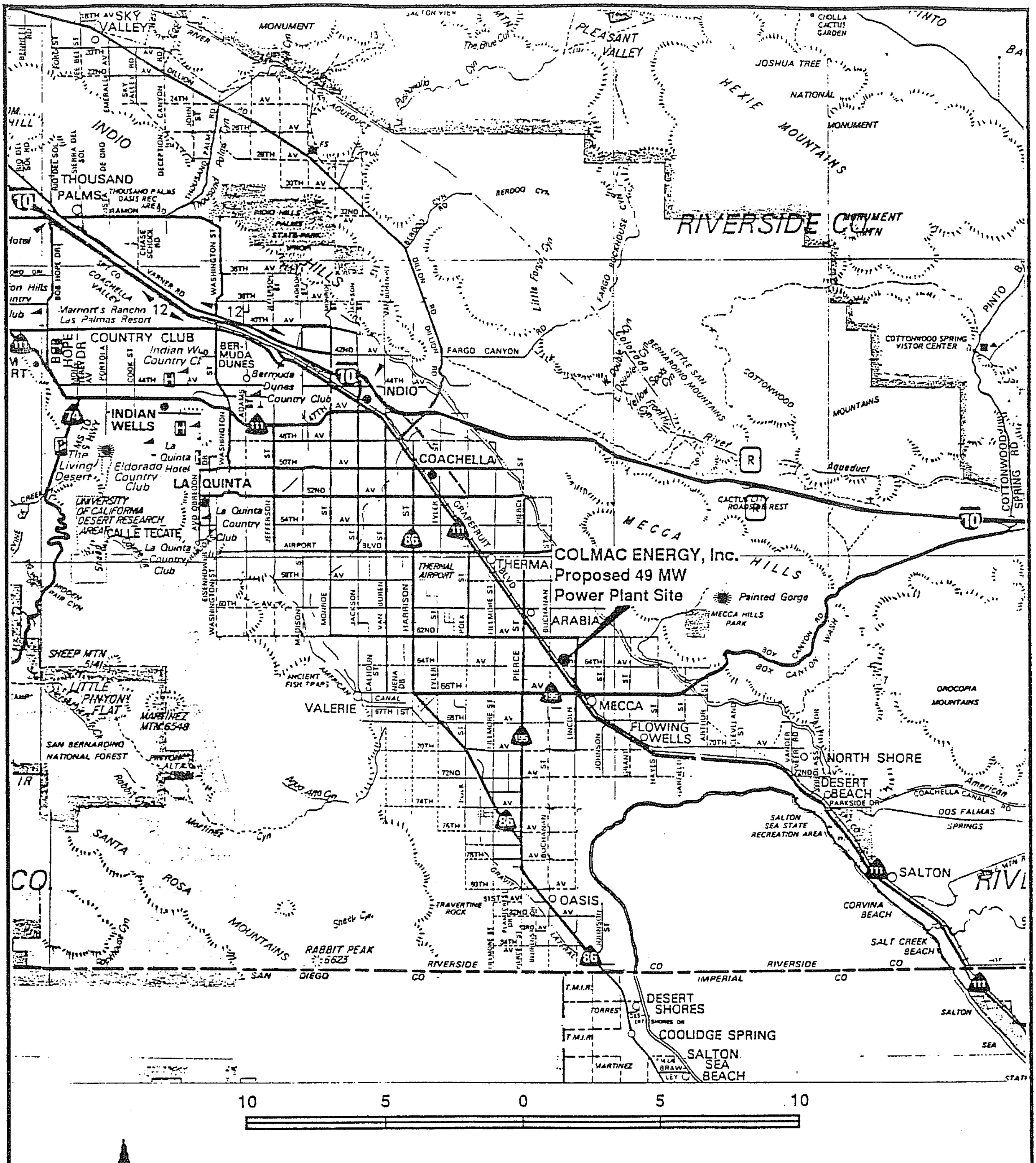
CHERYL BLY CHESTER, P.E., R.E.A.
B.S.C.E., M.I.M. (International Management)

Ms. Chester is a Senior Project Engineer with Dames & Moore's Geosciences and Hazardous Materials Group. She currently manages the Environmental Assessment Practice for Northern California. Ms. Chester is a Registered Civil Engineer in California and Virginia with nine years of design, construction, and consulting experience in the transportation, energy and environmental fields. In addition, she is a Registered Environmental Assessor in California having managed environmental assessments for over 200 sites throughout the United States as well as in Europe and Southeast Asia. While with Dames & Moore, she has conducted several environmental assessments for alternative energy facilities including biomass to energy cogeneration facilities and geothermal plants. Prior to joining Dames & Moore, she was a Senior Consultant with International Energy Associates Limited where she managed several projects involving design, construction and regulatory compliance of power plants and energy waste facilities for utilities and government agencies in the United States, Japan, Peoples Republic of China, Canada, and Europe.

JAMES H. CLELAND, PRINCIPAL INVESTIGATOR
Ph.D., Anthropology, University of Virginia
M.A., Anthropology, University of Virginia
B.A., Anthropology, Univeristy of Michigan

Dr. Cleland currently manages Dames & Moore's Cultural Resources Group in California and has extensive experience in all aspects of cultural resources investigations throughout the state. He is an expert in federal and state compliance processes and has personally prepared numerous compliance documents for state and federal agencies, as well as several professional papers on various aspects of public archaeology. Dr. Cleland has conducted or directed Phase I archaeological surveys, Phase II test excavations, and he has provided expert testimony on such comparisons for the California Energy Commission, The California Public Utilities Commission, and The Federal Energy Regulatory Commission.

In addition to his work in California, Dr. Cleland has conducted historic and prehistoric research in the Southwest, Great Britain, northern Plains, Eastern Woodlands, and abroad. Prior to joining Dames & Moore, he managed Wirth Associate's archaeological group. Dr. Cleland has taught archaeology at Virginia Commonwealth University and directed The Archaeological Services Center there.



REGIONAL SITE LOCATION MAP

COLMAC ENERGY POWER PLANT SITE
CABEZON INDIAN RESERVATION
RIVERSIDE COUNTY, CALIFORNIA
For Swiss Bank

REFERENCE: Thomas Bros. Maps, California Road Atlas & Driver's Guide, Pages 100, 101, 107 & 108; 1988 Revised 6th Edition

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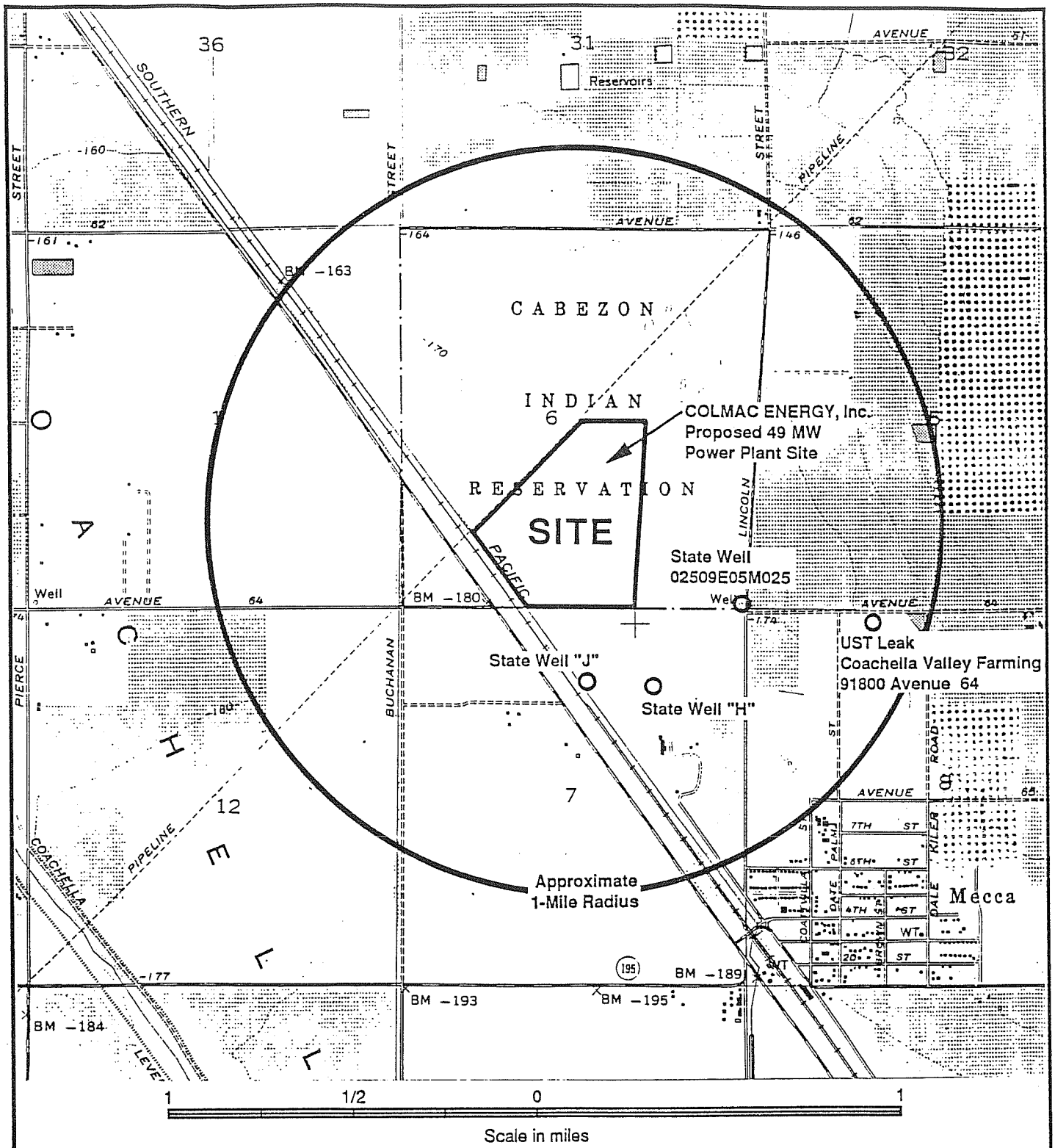
FIGURE 1



SITE VICINITY MAP

COLMAC ENERGY POWER PLANT SITE
CABEZON INDIAN RESERVATION
RIVERSIDE COUNTY, CALIFORNIA
For Swiss Bank

REFERENCE: USGS 7.5 Minute Series Topographic Map, "Mecca, California" Quadrangle, Photorevised 1972.

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FIGURE 2