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Socioeconomic Impacts of Nuclear Generating Stations

Rancho Seco Case Study

Prepared by P. A. Bergmann/MWRI

Mountain West Research, Inc.
with
Social Impact Research, Inc.

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Rancho Seco Case Study

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ABSTRACT

This report documents a case study of the socioeconomic impacts of the construction and operation of the Rancho Seco nuclear power station. It is part of a major post-licensing study of the socioeconomic impacts at twelve nuclear power stations. The case study covers the period beginning with the announcement of plans to construct the reactor and ending in the period, 1980-81. The case study deals with changes in the economy, population, settlement patterns and housing, local government and public services, social structure, and public response in the study area during the construction/operation of the reactor.

A regional modeling approach is used to trace the impact of construction/operation on the local economy, labor market, and housing market. Emphasis in the study is on the attribution of socioeconomic impacts to the reactor or other causal factors. As part of the study of local public response to the construction/operation of the reactor, the effects of the Three Mile Island accident are examined.

TABLE OF CONTENTS

		PAGE
CHAPTER 1: INTRODUCTION		1
1.1	The NRC Post-Licensing Studies	1
1.1.1	Objectives of the Post-Licensing Studies	1
1.1.2	Components of the Post-Licensing Studies	2
1.1.3	Three Mile Island	4
1.2	Overview of the Case Study Organization	4
CHAPTER 2: OVERVIEW AND DESCRIPTION OF THE PROJECT		11
2.1	Introduction	11
2.2	Location	11
2.3	The Utility	11
2.3.1	Corporate Background	11
2.3.2	Service Area	14
2.3.3	Generating Capacity and Production	14
2.4	The Project	14
2.4.1	The Project Site	14
2.4.2	The Plant	18
2.5	Construction	19
2.5.1	Announcement	19
2.5.2	Schedule and Cost	20
2.5.3	Construction Phase Work Force	20
2.5.4	Construction Phase Experience	23
2.6	Operation	23
2.6.1	Schedule and Cost	23
2.6.2	Work Force	23
2.6.3	Operating Phase Experience	25
2.7	Taxes	27
2.8	Corporate/Community Programs	28
2.8.1	Emergency Planning	28
2.8.2	Visitors' Center	28
2.8.3	Rancho Seco Park	29
2.9	Chronology of Major Events	30

TABLE OF CONTENTS (Continued)

		PAGE
CHAPTER 3:	DISTRIBUTION OF DIRECT PROJECT EFFECTS AND IDENTIFICATION OF THE STUDY AREA	32
3.1	Introduction	32
3.2	The Study Region	32
3.2.1	Description of the Region	32
3.2.2	Specification of Places within the Region	37
3.3	Distribution of Direct Project Effects within the Region	39
3.3.1	Distribution of Direct Basic Employment by Place of Work	40
3.3.2	Distribution of Direct Basic Workers by Place of Residence	41
3.3.3	Distribution of Equipment and Materials Purchases	43
3.3.4	Distribution of Taxes	45
3.4	Selection of the Study Area	47
CHAPTER 4:	ECONOMY OF THE STUDY AREA	51
4.1	Introduction	51
4.2	Economic History of the Study Area	51
4.3	Economic Changes during the Study Period	55
4.3.1	Employment in the Local Economy	55
4.3.2	Employment of Local Residents	57
4.4	Economic Changes in the Study Area due to the Project	61
4.4.1	Estimation of Project-Related Employment and Income Effects	61
4.4.2	Effects of the Project on the Study Area Economy, 1968-1978	77
4.4.3	Effects of the Project on the Residents of the Study Area, 1968-1978	79
CHAPTER 5:	POPULATION	82
5.1	Introduction	82
5.2	Demographic Trends Prior to the Study Period	82
5.3	Demographic Changes during the Study Period	85

TABLE OF CONTENTS (Continued)

		PAGE
5.4	Population Effects due to the Project	90
5.4.1	Introduction	90
5.4.2	Population Effects in 1972	91
5.4.3	Population Effects in 1978	94
5.4.4	Summary	96
CHAPTER 6: SETTLEMENT PATTERNS AND HOUSING		97
6.1	Introduction	97
6.2	Settlement Patterns	97
6.2.1	Factors Influencing Settlement Patterns in the Study Area	97
6.2.2	Land Use in the Study Area	98
6.3	Housing	100
6.3.1	Housing Trends Prior to the Study Period	100
6.3.2	Changes in Housing during the Study Period	102
6.3.3	Housing Effects due to the Project	105
CHAPTER 7: LOCAL GOVERNMENT AND PUBLIC SERVICES		108
7.1	Introduction	108
7.2	Government Structure	108
7.2.1	The City of Galt	108
7.2.2	Unincorporated Area	113
7.3	Selected Public Services	115
7.3.1	Education	116
7.3.2	Transportation	119
7.3.3	Public Safety	123
7.3.4	Social Services	127
7.4	Summary	128
CHAPTER 8: SOCIAL STRUCTURE		129
8.1	Introduction	129
8.2	Social Structure at the Beginning of the Study Period	129
8.2.1	Identification of the Social Groups	129
8.2.2	Group Profiles	130
8.2.3	Interaction among the Groups	138
8.3	New Groups in the Study Area during the Study Period	140

TABLE OF CONTENTS (Continued)

		PAGE
8.4	Distribution of the Project Effects to the Groups	141
8.4.1	Economic Effects	141
8.4.2	Demographic Effects	141
8.4.3	Settlement Patterns and Housing Effects	144
8.4.4	Government and Public Services Effects	145
8.4.5	Other Effects	146
8.5	Changes in Social Structure during the Study Period and the Role of the Project Effects	146
8.5.1	Changes in the Profiles of the Groups	146
8.5.2	Changes in the Relationships among the Groups	151
CHAPTER 9: PUBLIC RESPONSE		153
9.1	Introduction	153
9.2	Public Response during the Preconstruction Period	153
9.2.1	Project Announcement	153
9.2.2	Project Siting	154
9.2.3	Construction Permit Hearing	154
9.2.4	Summary and Evaluation of Public Response during the Preconstruction Period	155
9.3	Public Response during the Construction Period	156
9.3.1	Operation License Hearing	156
9.3.2	Measure H	157
9.3.3	Rancho Seco Unit 2 Environmental Report	158
9.3.4	Summary and Evaluation of Public Response during the Construction Period	160
9.4	Public Response during the Operation Period	162
9.4.1	Annexation Issue	162
9.4.2	The Accident at Three Mile Island	163
9.4.3	Summary and Evaluation of Public Response during the Operation Period	168
9.5	Effects of Public Response on the Sacramento Municipal Utility District	170
CHAPTER 10: EVALUATION AND SIGNIFICANCE OF THE SOCIOECONOMIC EFFECTS OF THE RANCHO SECO NUCLEAR GENERATING STATION		173
10.1	Introduction	173
10.2	Evaluation of the Effects by Group	173

TABLE OF CONTENTS (Continued)

		PAGE
10.2.1	The Agricultural Community	173
10.2.2	The Townspeople	175
10.2.3	The Newcomers	177
10.2.4	The Hispanic Community	180
10.3	Significance of the Plant	180
BIBLIOGRAPHY		183
NEWSPAPER REFERENCES		195
PERSONAL COMMUNICATIONS		202

LIST OF FIGURES

FIGURE NUMBER	TITLE	PAGE NUMBER
1-1	United States Nuclear Regulatory Commission, Post-Licensing Study, Case Study Sites	3
1-2	Case Study Organization	5
2-1	Location of Rancho Seco Nuclear Generating Station	12
2-2	Sacramento Municipal Utility District Service Area	15
2-3	Average Quarterly Construction Work Force, Rancho Seco Nuclear Generating Station	21
3-1	Study Region: Four Counties in Central California	34
3-2	Rancho Seco Nuclear Generating Station Study Area: Galt County Census Division	50
4-1	Estimation of Project-Related Employment and Income Effects	63
4-2	Project-Related Employment by Place of Work in Study Area, 1968-1978	78
5-1	Galt County Census Division Zones	89

LIST OF TABLES

TABLE NUMBER	TITLE	PAGE NUMBER
2-1	Power Production, Sacramento Municipal Utility District, 1975-1979	16
2-2	Annual Average Daily Construction Work Force, Rancho Seco Nuclear Generating Station, 1969-1975	22
2-3	Annual Operation and Maintenance Costs, Rancho Seco Nuclear Generating Station, 1975-1979	24
2-4	Annual Average Daily Operation Work Force, Rancho Seco Nuclear Generating Station, 1974-1979	24
2-5	Annual Nuclear Plant Capacity Factors, Rancho Seco Nuclear Generating Station and all U.S. Nuclear Plants, 1975-1979	27
2-6	Chronology of Major Events, Rancho Seco Nuclear Generating Station, 1964-1975	31
3-1	Population of Study Region Counties and Incorporated Places, Rancho Seco Nuclear Generating Station, 1972 and 1978	35
3-2	Direct Basic Workers by Place of Residence Rancho Seco Nuclear Generating Station, 1972 and 1978	41
3-3	Selected Construction Period Contracts, Rancho Seco Nuclear Generating Station, 1967-1970	44
3-4	Summary of Direct Project Effects, Rancho Seco Nuclear Generating Station, 1972 and 1978	48
4-1	Estimated Employment by Place of Work, Galt County Census Division 1968, 1972, and 1978	56
4-2	Labor Force Characteristics, Galt County Census Division, 1960, 1970, and 1975	58
4-3	Per Capita Income Estimates, City of Galt and Sacramento County 1969, 1972, 1974, 1975, and 1977	60
4-4	Total Project-Related Basic Employment and Income, Galt County Census Division, 1972	67

LIST OF TABLES (Continued)

TABLE NUMBER	TITLE	PAGE NUMBER
4-5	Project-Related Basic Employment and Income by Type of Worker, Galt County Census Division, 1972	68
4-6	Estimated Effective Basic Income, Galt County Census Division, 1972	70
4-7	Total Project-Related Employment and Income, Galt County Census Division, 1972	72
4-8	Total Project-Related Basic Employment and Income, Galt County Census Division, 1978	74
4-9	Project-Related Basic Employment and Income by Type of Worker, Galt County Census Division, 1978	75
4-10	Estimated Effective Basic Income, Galt County Census Division, 1978	75
4-11	Total Project-Related Employment and Income, Galt County Census Division, 1978	76
4-12	Annual Average Direct Basic Employment and Estimated Annual Project-Related Employment by Place of Work, Galt County Census Division, 1968-1978	79
4-13	Annual Average Direct Basic Employment and Estimated Annual Project-Related Employment by Place of Residence, Galt County Census Division, 1968-1978	80
5-1	Population, Galt County Census Division, 1950-1980	83
5-2	Population by Racial Composition, Galt County Census Division, 1960 and 1970	85
5-3	Age Distribution, Galt County Census Division, 1960, 1970, and 1975	86
5-4	Distribution of Population by Zone, Galt County Census Division, 1970 and 1978	88
5-5	Project-Related Employment by Type of Worker, Galt County Census Division, 1972	91

LIST OF TABLES (Continued)

TABLE NUMBER	TITLE	PAGE NUMBER
5-6	Population In-Migration Due to the Project, Galt County Census Division, 1972	92
5-7	Project-Related Employment by Type of Worker, Galt County Census Division, 1978	94
5-8	Population In-Migration Due to the Project, Galt County Census Division, 1978	95
5-9	Population Increase Due to In-Migration of Project-Related Workers and Household Members, Galt County Census Division, 1968-1978	96
6-1	Major Land Uses, Galt County Census Division, 1975	99
6-2	Selected Housing Characteristics, Galt County Census Division, 1960 and 1970	101
6-3	Distribution of Housing Units by Zone, Galt County Census Division, 1970 and 1978	103
6-4	Distribution of Housing Types by Zone, Galt County Census Division, 1970 and 1978	104
7-1	General Revenues, City of Galt, FY 1967/1968 through FY 1977/1978	111
7-2	General Expenditures, City of Galt, FY 1967/1968 through FY 1977/1978	112
7-3	Annual Fall School Enrollments, Galt County Census Division, 1968-1978	117
7-4	Traffic Volume, Annual Average Daily Traffic California State Highway 104, 1968-1978	121
8-1	Total Project-Related Employment and Income Effects, Galt County Census Division, 1972 and 1978	142
8-2	Estimated Employment and Income Effects by Group, Galt County Census Division, 1972 and 1978	143

NRC POST-LICENSING STUDY

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CHAPTER 1: INTRODUCTION

1.1 The NRC Post-Licensing Studies

This report—the case study of the Rancho Seco Nuclear Generating Station located in Sacramento County, California—is one of a series of reports that are being prepared as part of the NRC Post-Licensing Studies. The purpose of this chapter is to describe the objectives of the NRC Post-Licensing Studies, the major components of the studies, and the relationship of research concerning Three Mile Island to the overall study plan, and the organization of this case study report.

1.1.1 Objectives of the Post-Licensing Studies

The Post-Licensing Studies have four main objectives: to determine the socioeconomic effects of nuclear power stations; to ascertain the significance of these effects to individuals and groups affected; to identify the determinants of the effects and their significance; and to determine whether currently available assessment methodology could have been used to anticipate the most significant of these effects.

Each of the latter three objectives depends upon clear identification of the effects of the nuclear station—the difference in the socioeconomic conditions as they occurred with the station and those that would have prevailed had the station not been built. Once the effects have been identified and their incidence among groups established, they must be placed in the context of the values of the individuals affected by them to determine their significance. The explication of the effects, the evaluation of those effects, and their significance to local residents permits an analytic consideration of the overall evaluation and the response of local residents to the presence of the nuclear facility in or near their communities.

After determining the patterns of effects caused by the facilities and the meaning of the effects to local residents across sites, the Post-Licensing Studies will turn to an examination of the causes of the documented effects. It is necessary to know what combination of site, project, or other circumstantial determinants appears to be responsible for the effects that ensued and for the levels of significance attached to them by local residents. In short, some plausible explanation for the consequences of constructing and operating the stations must be developed.

The final objective of the Post-Licensing Studies is somewhat different from the preceding three in that it is directly concerned with the methodology of the socioeconomic-assessment process. The central question is whether there are assessment methods currently available that could have been used to foresee the most significant of the socioeconomic effects associated with the nuclear plant. Based on the answer to this question, recommendations will be developed with respect to the assessment methods that can most appropriately be applied to anticipate the effects of the construction and operation of nuclear generating stations.

1.1.2 Components of the Post-Licensing Studies

The Post-Licensing Studies have three distinct components: the individual case studies, the cross-site analysis, and the methodological recommendations. The individual case studies are being conducted at twelve sites, as listed in Figure 1-1. The twelve case study reports will meet the first two objectives of the study. They will establish the social and economic effects of the nuclear station, and they will determine the significance of the effects for those persons affected by them.

Once the twelve case studies have been completed, work will begin on the part of the study referred to as the cross-site analysis. The results from all twelve case studies will be utilized to identify more specifically the causal mechanisms responsible for the effects that occurred. Of particular importance will be the establishment of the relative roles of site characteristics, project characteristics, and external forces in determining the consequences of constructing and operating a nuclear plant. The objective is to understand why effects occurred as they did and what was responsible for the significance they assumed. It must be remembered that twelve case studies is a very small sample and will not support rigorous statistical analysis of postulated causal relationships. At the same time, twelve comparable observations are more than have heretofore been available, and it is anticipated that the cross-site analysis will contribute substantially toward an understanding of why the socioeconomic effects occurred as they did and what determined the significance of the effects for the individuals affected by them.

The final component of the study will develop recommendations for methods to be applied in assessing the social and economic effects of proposed projects. The recommendations will be based on an evaluation of the relative success that various assessment methods would have had in anticipating the most significant effects of the twelve

FIGURE 1-1. UNITED STATES NUCLEAR REGULATORY COMMISSION

POST-LICENSING STUDY

CASE STUDY SITES

nuclear stations. Based on these results, methodological recommendations will be made, with an attempt to indicate the relative strengths and weaknesses of the alternatives.

1.1.3 Three Mile Island

Since Three Mile Island was one of the case-study sites, the scope of the Post-Licensing Studies was expanded to include an analysis of the social and economic effects of the accident on the residents of south-central Pennsylvania. Because a reliable data base was necessary to support this effort, the NRC Telephone Survey of 1,500 households was conducted in late July (Flynn, 1979). Since that time, an additional report was prepared. This report described the social and economic consequences of the accident during the six-month period from the end of March through September (Flynn and Chalmers, 1980).

Because of the unique circumstances surrounding the accident, the research at Three Mile Island will culminate in an individual report with two major parts. Part I will describe the pre-construction, construction, and operating experience of the station from late 1966 through 27 March 1979. This part will be based on the same methodology being used at the other eleven nuclear station sites and will be directly comparable to those case study reports. Part II will describe the emergency and the post-emergency periods covering the period from 28 March through the summer of 1981.

In addition to the expanded effort at the Three Mile Island site itself, the accident will affect the Post-Licensing Studies in one other way. Each of the case study sites will be examined for consequences of the Three Mile Island accident. There are two possibilities: the accident may have directly affected social or economic conditions at other sites, or the accident may have caused recognized effects to be evaluated in a different way and, therefore, to assume increased significance in the eyes of local residents. Both possibilities will be investigated.

1.2 Overview of the Case Study Organization

As was explained above, the purposes of the individual case study reports are to describe the socioeconomic effects of the construction and operation of the nuclear station that were experienced by residents of the area being studied and to indicate the significance of those effects to the individuals and groups affected. Each report contains ten chapters, the contents of which are summarized in Figure 1-2.

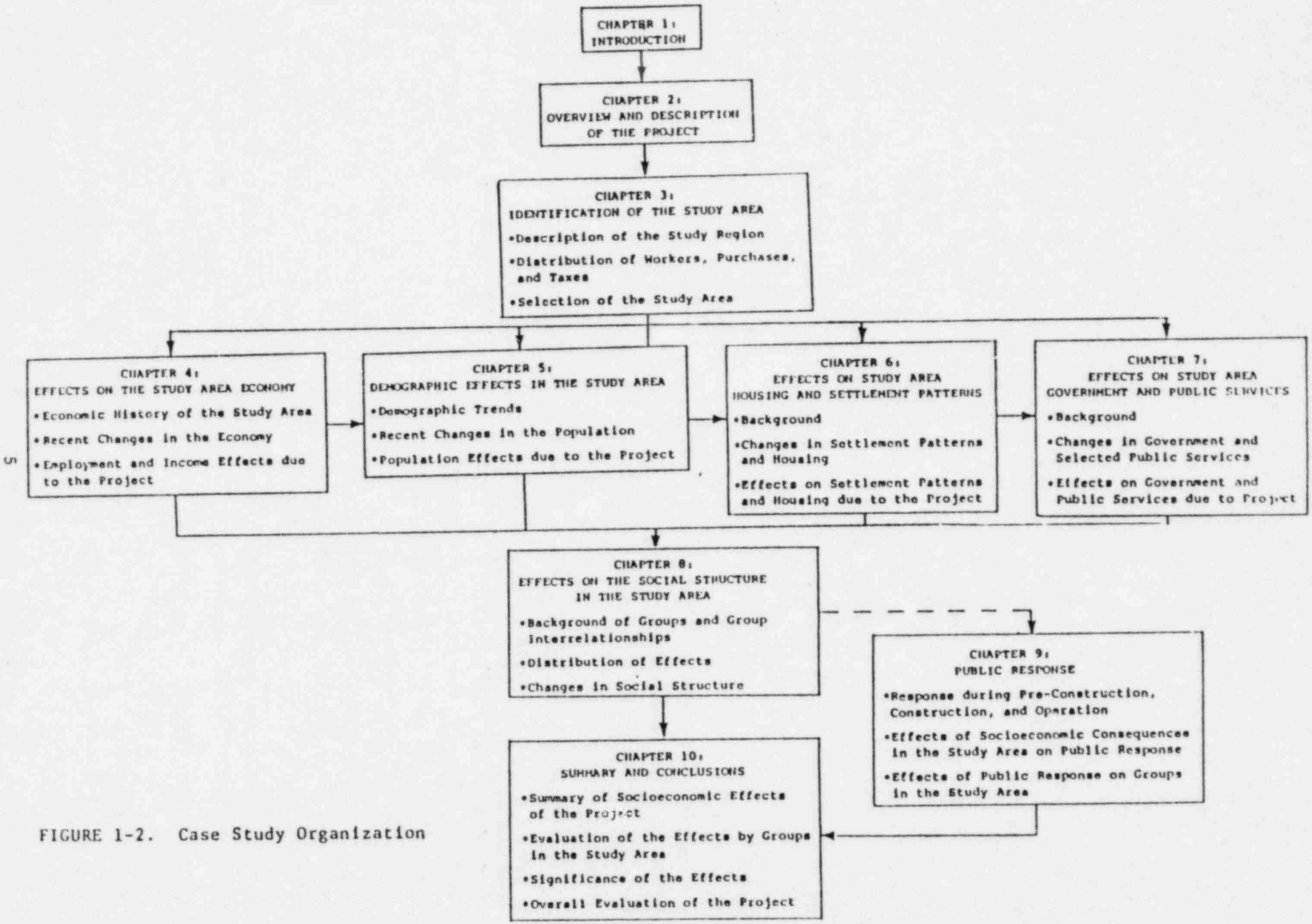

FIGURE 1-2. Case Study Organization

Following this introduction, Chapter 2 describes the project with emphasis on those project characteristics that are important determinants of socioeconomic effects. Chapter 3 then provides a general description of the region in which the project is located, both as an orientation and as a prelude to selecting the smaller study area that will be intensively analyzed in the remainder of the case study. Actual selection of the study area relies on the spatial distribution of project consequences and on the geographic extent of the major social, economic, and political systems that function in the vicinity of the plant. The consequences of the project that are examined in this context are the spatial distribution of the persons directly employed in constructing or operating the nuclear station, the distribution of direct purchases of goods or services made by the utility in order to build or operate the facility, and the spatial distribution, by jurisdiction, of the tax payments from the utility due to the nuclear station. The study area is then defined with reference both to the spatial distributions of these major consequences of the project and to the spatial distribution of the functional, social, economic, and political systems that operate in the vicinity of the station.

The next four chapters trace the effects of the plant on the study area economy, on the size and composition of the area's population, on housing and settlement patterns in the study area, and on government and the provision of public services in the study area. There are several organizing principles used to present this information. First, an attempt is made to describe conditions as they existed in the study area prior to the start of construction and as they changed from that time to the present. An explicit attempt is then made to identify that part of the change, or lack of change, due to construction and operation of the nuclear station. The temporal focus of the attribution of changes to the nuclear facility is on two points in time: the peak year of construction and a recent year during which the station was in full operation.

The second major organizing principle concerns the way in which effects are attributed to the nuclear station. There are two basic approaches to this problem. The first is to identify and control the effects of all other exogenous forces acting on the study area and, after their effects have been isolated, to attribute remaining effects to the nuclear station. The second approach is to make explicit causal arguments that directly tie postulated effects back to some known aspect of the construction or operation of the station. Both approaches require use and acceptance of the same kinds of behavioral hypotheses. Using the first approach, it is necessary to define the direct and indirect effects of other exogenous forces acting on the study area so that the effects

due to the station can be determined as a residual. Using the second approach, the same kinds of hypotheses and behavioral relationships are used to directly argue the nature and extent of socioeconomic effects stemming from the construction and operation of the station. The most convincing case for attributing effects to the nuclear station results from use of both approaches—control of other exogenous influences and identification of direct causal links to the plant. Where possible, both approaches are pursued in the case studies. In general, however, the social and economic changes that have taken place in the areas examined in this study over the ten- to fifteen-year period of investigation are so complex that the second general approach is relied upon more heavily than the first.

Chapter 4 begins with a description of the jobs and income directly associated with the station and then establishes other employment, income, and labor force effects experienced in the study area. Chapter 5 works directly from these estimates of employment change to examine effects on the size and composition of the study area's population, both from the in-migration of workers and their families and from reduced out-migration of local persons induced to remain in the area due to opportunities offered by the construction or operation of the station. Once population change due to the station has been established in Chapter 5, Chapter 6 examines the effects of the combined economic and demographic changes on housing and settlement patterns in the study area. The emphasis is principally on changes in the number, type, and spatial distribution of residences, although, where relevant, effects on patterns of commercial and industrial activity are also described.

Chapter 7 summarizes the major consequences of the station and of its economic, demographic, and housing effects on the local government in the study area. It begins by examining the major local jurisdictions in the study area for evidence of change in organization or structure due to the station. The effects on the revenues of local jurisdictions are then described. Finally, there is a discussion of the combined influence of changed revenues and changed levels of demand for public services on the provision of services in the study area. It was decided that these effects could be shown most clearly by focusing on a smaller number of important services rather than by trying to examine the provision of all public services in the study area. The services chosen are education, transportation, public safety, and social services.

Chapters 4, 5, 6, and 7 proceed in sequence, therefore, to trace the economic, demographic, housing, and governmental implications of constructing and operating a

nuclear station. The geographic focus is the study area defined in Chapter 3. The temporal focus is on the change from pre-construction to the construction peak and on the change from pre-construction to a recent year of full operation. Finally, the attribution of the effects to the nuclear station is achieved primarily through the establishment of direct causal relationships that are linked to effects directly associated with the station.

Chapter 8 examines the social structure of the study area and the ways in which it has been affected by the construction and operation of the nuclear station. The social structure is defined by the groups that exist in the area, their principal characteristics, and their social, political, and economic interrelationships. The chapter begins by identifying a set of functional groups into which the study area population is divided. A profile of each group is then developed. Each group is characterized in terms of livelihood, size, outstanding demographic characteristics, location, property ownership, values and attitudes, and patterns of intragroup interaction. The economic, political, and social interrelationships of the groups are then identified and described. An appreciation of these group characteristics and interrelationships helps to understand the way in which the effects of the project were evaluated and to explain group response to these effects. In addition, the characterization of groups and their interrelationships prior to the project serves as the basis for assessing the degree to which groups and social structure were altered as a consequence of the project.

The final step in the analysis of social structure is to determine the distribution of the economic, demographic, housing, and governmental effects of the station. The distribution of effects across groups provides explanatory information concerning the changes in group structure and characteristics and provides data for interpreting and understanding the group evaluations of the project.

Chapter 8 is designed, therefore, to accomplish two very important objectives. First, it makes operational the concept of social structure so that its constituent parts can be described and so that the effects of the construction and operation of the plant on social structure can be assessed. Second, the approach permits the examination of the effects of the plant on each group. The information on group characteristics and on the project effects accruing to each group provides the basis for determining the project's impact on the groups, discussed in Chapter 10.

Chapter 9 provides another perspective on the socioeconomic effects of constructing and operating the nuclear station by examining the public response to the project. The emergence and expression of public concerns and the issues that arose over the plant during the three study periods--pre-construction, construction, and operations, including post-Three Mile Island--are described and assessed. The issues are described in terms of topic, time of occurrence, actors, positions, and resolution. Unlike the previous five chapters of the case study, which focused on the effects of the nuclear station within the study area defined in Chapter 3, the analysis of public response is regional in scope. The principal sources of information concerning public response are the local and regional press, transcripts of hearings, and key informants.

The analysis of public response focuses on three questions: the extent to which the socioeconomic effects of the station on individuals and groups in the study area played a causal role in the public response to the project; the level of the direct participation of study area residents in publicly responding to the project; and the effects of the public response itself on the residents of the study area. The latter question involves the degree to which issues and confrontations that arose in the course of building and operating the nuclear station were responsible for changes in social or economic conditions within the study area. The strategy of Chapter 9, therefore, is to identify public response to the nuclear project and then sort out the reciprocal causal links from local socioeconomic effects to public response and from public response to local socioeconomic effects.

The overall objectives of the individual case studies are to establish the socioeconomic consequences of constructing and operating a nuclear power station on the residents of the local area in which a station is located and to provide a perspective on the significance of these effects to the people who experienced them. Chapter 10 will focus on the evaluation of the major socioeconomic consequences of the project by each group in the study area. The next step in Chapter 10 is to combine the information on group characteristics, effects, and group-specific evaluations to reach conclusions about the impacts and significance of the effects of the project. Absolutely large effects combined with strong positive or negative evaluations would imply strong significance. Similarly, absolutely small effects would tend to offset strong positive or negative evaluations, or indifferent evaluations could offset large effects and produce low levels

of significance. This process leads to a summary of the significance of the effects of the project.

CHAPTER 2: OVERVIEW AND DESCRIPTION OF THE PROJECT

2.1 Introduction

The purpose of Chapter 2 is to provide an overview of the Rancho Seco Nuclear Generating Station and a description of the Sacramento Municipal Utility District (SMUD), the project site, and the project characteristics. This information will be provided in sufficient detail to support and orient the discussions and analyses of the subsequent chapters and to facilitate comparison of the twelve case studies. Therefore, information is provided regarding: (1) the project's location, size, type, and site characteristics; (2) the utility; (3) the magnitude and duration of the construction effort; and (4) the project's operating characteristics.

2.2 Location

The Rancho Seco Nuclear Generating Station Unit 1, owned and operated by the Sacramento Municipal Utility District, is located in Sacramento County in central California. As shown in Figure 2-1, the plant, which is between San Francisco and Reno, is approximately 25 miles southeast of Sacramento, the state capital, and 26 miles northeast of Stockton. The project site is linked to the major urban areas by Interstate 5 and U.S. Highway 99, which run through Sacramento and Stockton, and Interstate 80, which connects San Francisco, Sacramento, and Reno. In addition, Interstate 508 provides access to the San Francisco area south of Stockton.

2.3 The Utility

2.3.1 Corporate Background

The Sacramento Municipal Utility District was established as a political subdivision of the State of California by an election in July 1923. The purpose of the district's formation was to provide water and low cost electric power to a 75-square-mile area encompassing Sacramento, North Sacramento, and adjacent areas. The district, which has its headquarters in Sacramento, is governed by a five-member board of directors elected for staggered four-year terms.[1] The district's operations are the

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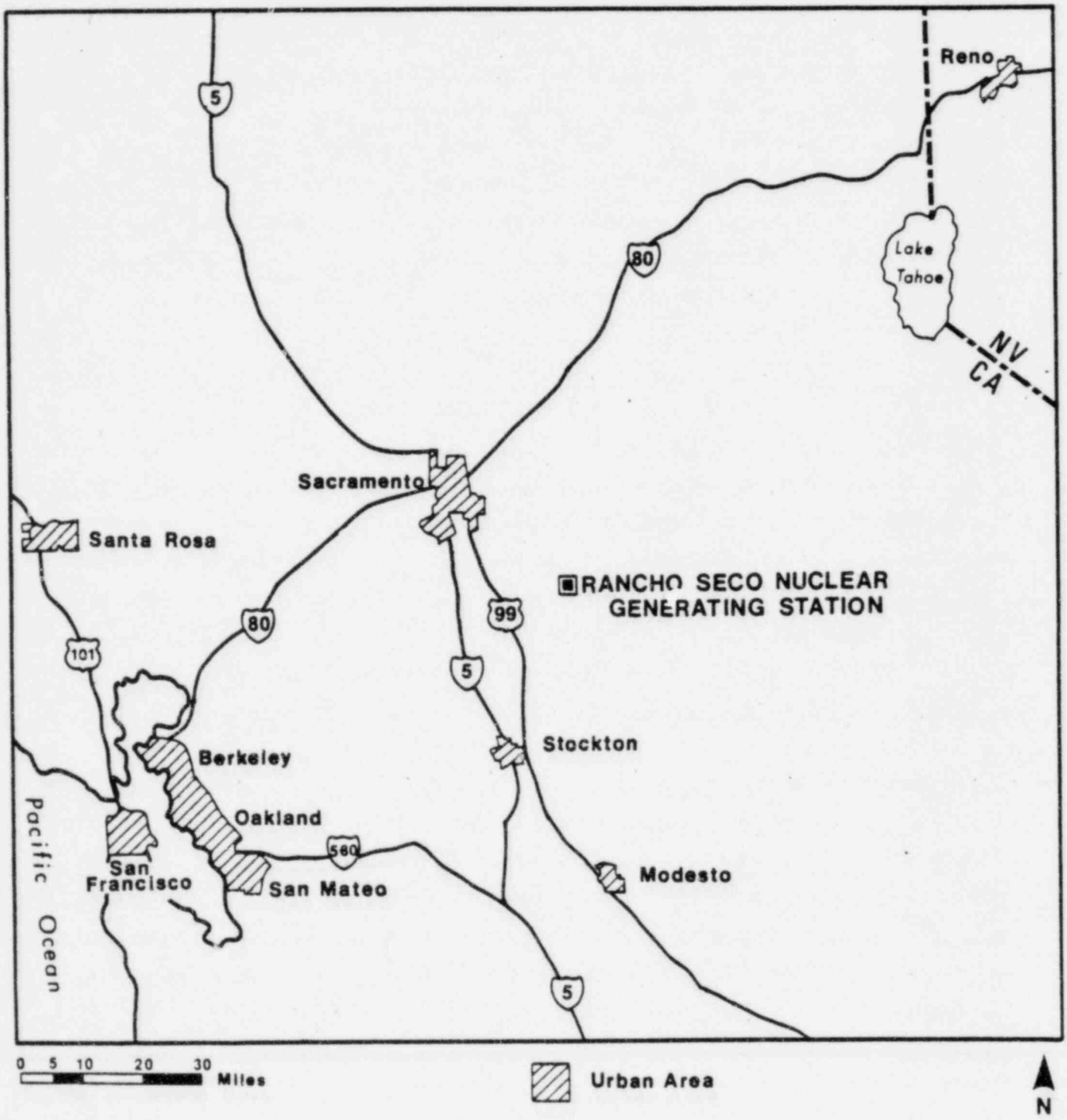
[1]In the past, the board of directors had been elected at large from the entire district. However, in 1975, the service area was divided into five wards with one board member representing each area (Ward 3 surrounds Rancho Seco). (Mattimoe, personal communication, October 1980.)

FIGURE 2-1. LOCATION OF RANCHO SECO NUCLEAR GENERATING STATION



responsibility of the general manager, who is appointed by the board of directors. (Ward, 1973:13.)

The district first began distributing electricity in 1947; however, until 1961 all electrical power was obtained through purchase agreements with private and public sources. To assure a continuous supply of low cost electricity, SMUD began constructing its first electrical generation facilities, the Upper American River Project, in late 1957. The first units of the six hydroelectric power plants comprising this project began producing electricity in 1961; all were completed by 1971. In addition to the district's hydroelectric and nuclear generation capabilities, SMUD maintains power agreements with the United States Bureau of Reclamation, Pacific Gas & Electric Company (PG&E), and Bonneville Power Administration (BPA). To date, SMUD's activities have been limited to the generation, transmission, and distribution of electricity. (SMUD, 1980b:1; Moodys, 1980:515.)

SMUD's involvement in the development of nuclear power has been primarily focused on the construction and operation of Rancho Seco Unit 1 (the first nuclear plant for SMUD and the third for California) and on the planning of Rancho Seco Unit 2. Prior to planning the construction of the first unit, SMUD activities in the nuclear industry were limited to monitoring progress made in the development of the generation of electric power through the use of nuclear energy. This included sending SMUD engineers to visit the first commercial nuclear plant in the United States at Shippingport, Pennsylvania in the 1950s. (Ward, 1973:76-77.)

In the 1960s, SMUD planned to construct several nuclear plants at the Rancho Seco site. The SMUD 1967 Annual Report stated that the site purchased for Rancho Seco Unit 1 was large enough for three or four large nuclear generation plants (SMUD, 1968:6). Plans for a second unit at Rancho Seco were well publicized by 1974 with the release of the environmental impact statement for Unit 2. However, in January 1976, the SMUD board of directors voted to table the project, citing the rapidly increasing costs of providing nuclear power, the disappointing operating record of nuclear power plants, lingering political problems, and the government's indecision in resolving nuclear fuel cycle problems. (The Sacramento Union, 9 January 1976.)

2.3.2 Service Area

The original 75-square-mile service area of the Sacramento Municipal Utility District was increased to 656 square miles in 1934. The service area, as shown in Figure 2-2, encompasses the majority of Sacramento County, including the Sacramento metropolitan area and a small portion of southern Placer County. In June 1978, the service area was expanded to 756 square miles through the annexation of a 100- square-mile area in southeastern Sacramento County surrounding the Rancho Seco plant site. The area serviced approximately 350 customers.[1] (Ward, 1973: 26-28; Beck, 1979:36.) In 1978, SMUD provided electrical service to 309,735 customers, a 46.8 percent increase over the utility's 210,976 customers in 1968. (SMUD, 1969:16; SMUD, 1979:16.)

2.3.3 Generating Capacity and Production

In 1978, the total net generating capacity of SMUD's system was 1,562 megawatts. Of this, Rancho Seco provided 913Mw or 58.5 percent of the total generating capacity. The remainder was provided by nine turbine generators in SMUD's Upper American River hydroelectric project. (Moodys, 1980:515.) In 1975, the first year of commercial operation, Rancho Seco provided 2,472,624 megawatt hours or 55 percent of SMUD's total electrical production. As shown in Table 2-1, the plant has continued to provide an increasingly significant portion of SMUD's total output since it began commercial operation in 1975. Electrical energy generated at Rancho Seco was particularly critical in 1977 when a drought in Northern California reduced the total annual production of SMUD's hydroelectric generated electricity to 3.4 percent.

2.4 The Project

2.4.1 The Project Site

The Rancho Seco Nuclear Generating Staton is located in the southeastern corner of Sacramento County, California. Two general areas were examined in the site selection studies that were undertaken between 1963 and 1966: (1) the delta area at the confluence of the Sacramento and San Joaquin rivers (including the upper reaches of the San Francisco Bay), and (2) the rural area southeast of Sacramento adjacent to the Sierra Nevada foothills and along the route for a proposed Central Valley Project canal, the Folsom South Canal. While the delta site initially received the most intensive

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[1] Electrical service to the residents within the annexed area began in May 1980 (Mattimoe, personal communication, June 1980).

FIGURE 2-2. SACRAMENTO MUNICIPAL UTILITY DISTRICT SERVICE AREA

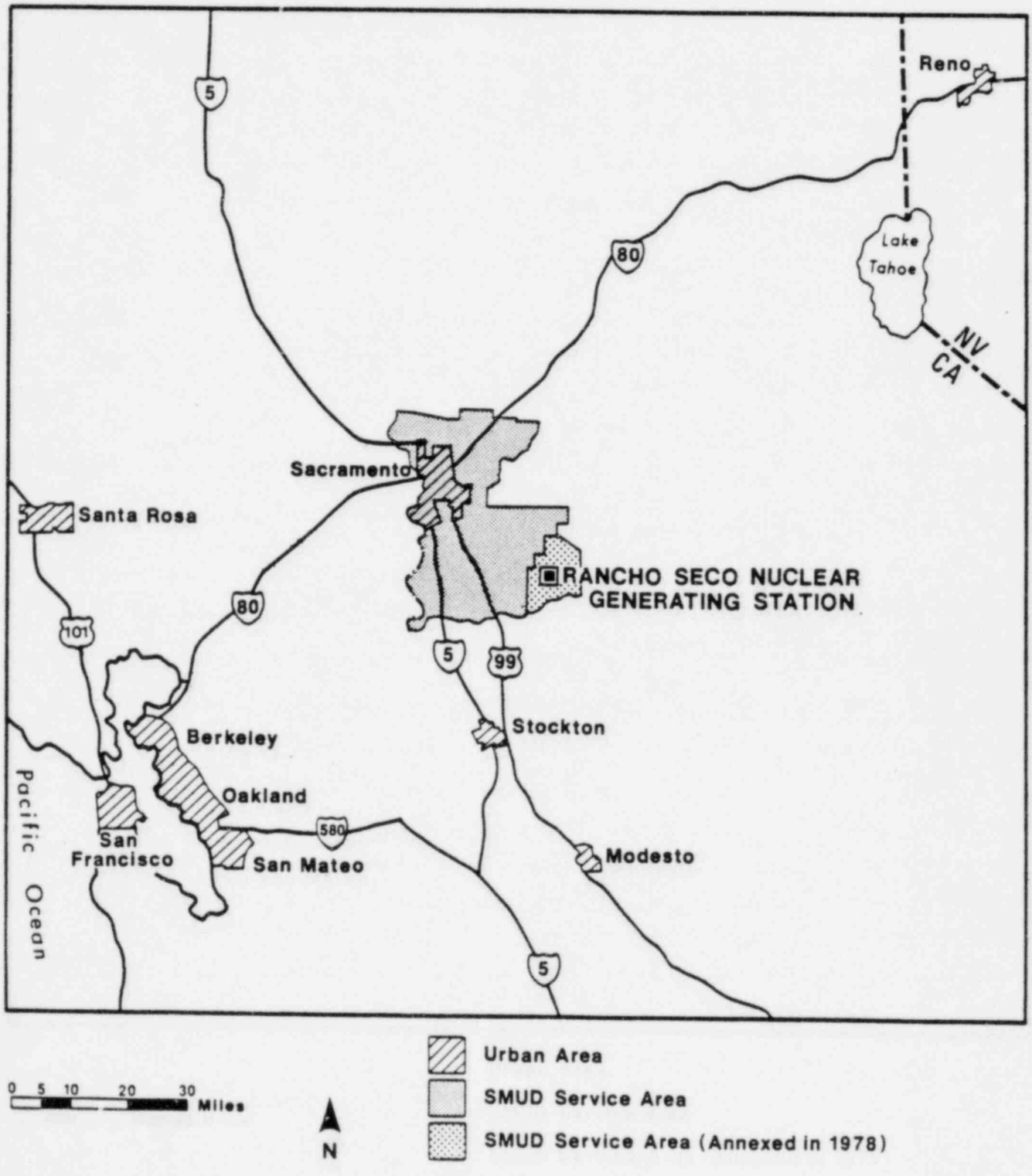

TABLE 2-1

POWER PRODUCTION
SACRAMENTO MUNICIPAL UTILITY DISTRICT
1975-1979
(Megawatt Hours)

Production Source	1975	Percent	1976	Percent	1977	Percent	1978	Percent	1979	Percent
Hydroelectric	2,023,803	45.0	1,038,936	32.3	209,717	3.4	1,705,497	25.6	1,673,322	22.6
Nuclear	2,472,624	55.0	2,181,261	67.7	5,870,832	96.6	4,965,812	74.4	5,717,476	77.4
Total	4,496,427	100.0	3,220,197	100.0	6,080,549	100.0	6,671,309	100.0	7,390,798	100.0

Source: Sacramento Municipal Utility District, 1980, 1979 Annual Report, Sacramento, California, pp. 17-18.

consideration, economic and environmental factors subsequently directed attention to the foothills site. This site was unique in that the plant was not located on a water body; thus, the potential thermal pollution problems associated with water-based plants were eliminated. (SMUD, June 1971:5.3-1.)

The district selected the site in southeastern Sacramento County on the basis of its remoteness from large population centers; its low potential for future alternative land uses; its proximity to transmission lines and to rail and highway transportation (the Southern Pacific Railroad and California State Highway 104); its access to a long-term water supply (the proposed Folsom South Canal[1]); and its acceptability in terms of plant foundations and seismicity. The availability for purchase of 2,100 acres from one owner was also a significant factor in the site-selection decision. In addition, the size of the initial parcel insured room for additional units and for a controlled buffer around the generating installations. (SMUD, June 1971:5.3-1 and 1.3-1; U.S. AEC, 1973:II-1.) The site was named Rancho Seco, which means "dry ranch".

The plant site, which totals 2,480 acres, was acquired through three transactions at a total cost of $488,600. The largest segment, 2,100 acres, was purchased in 1966 from the Elmer O'Connell estate at a cost of $348,600 or $166 per acre. An adjoining 80-acre parcel was subsequently purchased for $350 per acre as a buffer zone, and a 320-acre section of the Richard H. Hamel ranch was acquired in 1969 (following condemnation proceedings) for $350 per acre for the construction of a reservoir. (Mori, personal communication, July 1980; Marciel, personal communication, July 1980; Mattimoe, personal communication, July 1980; SMUD, June 1971:1.3-1; The Sacramento Bee, 7 April 1966 and 6 March 1969.)

The site is within a semiarid region characterized by slightly rolling topography. Prior to SMUD's purchase, the land was held privately and was used on a marginal basis for cattle grazing. The development of the site resulted in the relocation of a KRAK

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[1]The Folsom South Canal, constructed in 1971 through 1973 from the Cosumnes River to the Rancho Seco nuclear plant, is part of the U.S. Bureau of Reclamation Central Valley Project. The canal was designed to serve the municipal, industrial, and agricultural use needs of the East Bay Municipal Utility District and other public agencies in Sacramento and San Joaquin counties. (SMUD, June 1971: 3.2-1.)

radio station transmitter at a cost of $269,000 to SMUD. In the mid-1960s, the site was rezoned from agricultural to industrial use by the Sacramento County Board of Supervisors. Of the 2,480 acres, approximately 574 acres are utilized directly: 81 acres for the plant structures (which are set back approximately one-half mile from the site boundaries), 60 acres for roads, and 433 acres for the recreation area including the reservoir. The remaining area is leased by SMUD for grazing, thus continuing the prior land use. (The Sacramento Bee, 7 April 1966 and 6 March 1969; U.S. AEC, 1973: I-1, II-10, and V-1.)

2.4.2 The Plant

Rancho Seco utilizes a pressurized water reactor steam supply system obtained from Babcock & Wilcox Company with a rated capacity of 963 gross megawatts or 913 net megawatts. The steam turbine generator was furnished by Westinghouse Electric Corporation. The exhaust steam, cooled with water from the Folsom South Canal, is circulated through two 425-feet hyperbolic natural-draft cooling towers, the most notable of the site features. The plant makeup water is delivered from the canal to the site through a 66-inch buried pipeline approximately 3.5 miles in length. SMUD has a forty-year contract with the United States Bureau of Reclamation for 75,000 acre feet of canal water each year. Unit 1 of Rancho Seco requires approximately 20,000 acre feet of water annually, which represents only 1 percent of the canal's total capacity. (U.S. AEC, 1973:III-5,III-7; SMUD, June 1971: 1.3-2; Wong, 1978:5).

A storage reservoir was constructed by SMUD to supply Rancho Seco's water requirements for thirty days in the event of a canal outage. Surface runoff and canal water are used to maintain the reservoir volume. The reservoir contains 2,700 acre feet of storage capacity, 165 acres of surface area, and 4 miles of shoreline. The reservoir and adjacent area were developed as a county park and are open to the public. (U.S. AEC, 1973:III-5 through III-7.)

Three sets of 230kV transmission lines were constructed to Rancho Seco for power distribution. One tower system, which was constructed by SMUD from March through October 1971 and which contains two transmission lines, extends 7.6 miles westward from Rancho Seco to an existing line (the Rio Oro-Bellota tie line) and continues an additional 5.3 miles west to the existing Gold Hill-Tesla tie lines. The second tower system, constructed by PG&E to tie into the PG&E system, runs 23 miles from the plant south to the Bellota Substation. The new rights-of-way traverse sparsely populated

nonwooded lands. The final 4 miles to the Bellota Substation follows an existing transmission line. A fourth 230kV transmission line is planned from Rancho Seco to the Hedge Substation, a distance of approximately 13 miles. This line, which is scheduled to be in service in 1982, is to insure system reliability. In addition to the transmission lines, a one mile rail spur was constructed from the Ione branch of the Southern Pacific Railroad to the plant site. (U.S. AEC, 1973:III-3 through III-5; Mattimoe, personal communication, June 1980.)

The overall design-review and construction-management supervision of Rancho Seco was performed by SMUD. The prime contractor was Bechtel Power Corporation of San Francisco, hired in 1967 as the architect/engineer and construction manager responsible for project design, construction supervision, and administration. In addition, SMUD held over twenty-five other construction contracts. (Wong, 1978:12.)

2.5 Construction

2.5.1 Announcement

The announcement for plans to construct SMUD's first nuclear power plant was made by utility staff to the SMUD Board of Directors at a regular board meeting in Sacramento in mid-1964. There were no press releases at that time. The project cost, including nuclear fuel, was estimated by SMUD staff at $180 million. The justification given for the project was the district's need to meet increased demand for electricity and to produce the required energy cheaply by using economies of size. The capacity was estimated at approximately 800 megawatts, and the projected in-service date was May 1973. There were no estimates for the required work force. (Mattimoe, personal communication, June 1980.)

The SMUD 1964 annual report stated that one of the two future sources of power that the district was either planning or negotiating was a nuclear-powered steam plant. The report further stated that ". . . load growth predictions indicate a need for this plant by the mid-1970s. It would be sized to handle the base load for the SMUD system." (SMUD, 1965:9.) The justification for the project was further defined by the environmental report:

> There is a need for electrical energy to serve both the SMUD area and the regions adjacent to it in the year 1973. Rancho Seco Unit No. 1 . . . is intended to meet this demand by providing base load energy. This will ensure the reliability of the electrical supply in the area and improve the operating economies of the SMUD system. (SMUD, June 1971:9.5-1.)

2.5.2 Schedule and Cost

The construction of Rancho Seco, which began in 1969 with the installation of a one-mile railroad spur and the construction of two access roads, was completed in April 1975 when the plant went into commercial operation (The Sacramento Bee, 12 March 1969). This was approximately two years behind the original estimate. The first significant revision in the original cost and schedule estimates were recorded in the SMUD 1972 annual report:

> Rancho Seco was originally scheduled for operation in the spring of 1973. Because of mandatory design changes, labor problems, and late material and equipment deliveries, the plant is approximately 16 months behind schedule. For the same reasons, Rancho Seco's cost has risen to an estimated $355,822,000. This includes related transmission facilities and the first fuel loading. (SMUD, 1973:6.)

The total cost of the plant (including the reservoir, pipelines, rail spur, and visitors' center) at its completion in 1975 was $335,353,000. The switchyard and transmission line facilities cost an additional $6,875,593. SMUD expenditures for nuclear fuel by December 1975 were $40,203,237, including $31,391,481 for the initial core. Thus, the actual cost of the plant and fuel (excluding the transmission lines and switchyard) was over $375 million, which represented approximately twice the original estimate of $180 million. The cost and time overruns were attributed to changes in plant design and size, inflation, changes in regulatory requirements, and a lack of experience in the construction of a nuclear facility and in the estimation of project costs. (SMUD, 1975:3, 1976:10, and 1980a:31; Wong, 1978:13; Mattimoe, personal communication, June 1980.) Since 1975, plant modifications to improve plant reliability and to satisfy new NRC requirements (particularly those related to plant security, plant fire protection, and additional design modifications resulting from the Three Mile Island Nuclear Station (TMI) accident) have increased the cost of the plant by more than $20 million (R. W. Beck, 1979:30-31; Vance, personal communication, June 1980).

2.5.3 Construction Phase Work Force

The construction of Rancho Seco Nuclear Generating Station occurred during a six-year period beginning in 1969 and extending through March 1975. The average on-site work force by quarter is shown in Figure 2-3 for the construction period. As illustrated in the figure, the work force increased steadily from the first quarter of 1969 well into 1972. By December 1971, approximately 60 percent of the plant was completed,

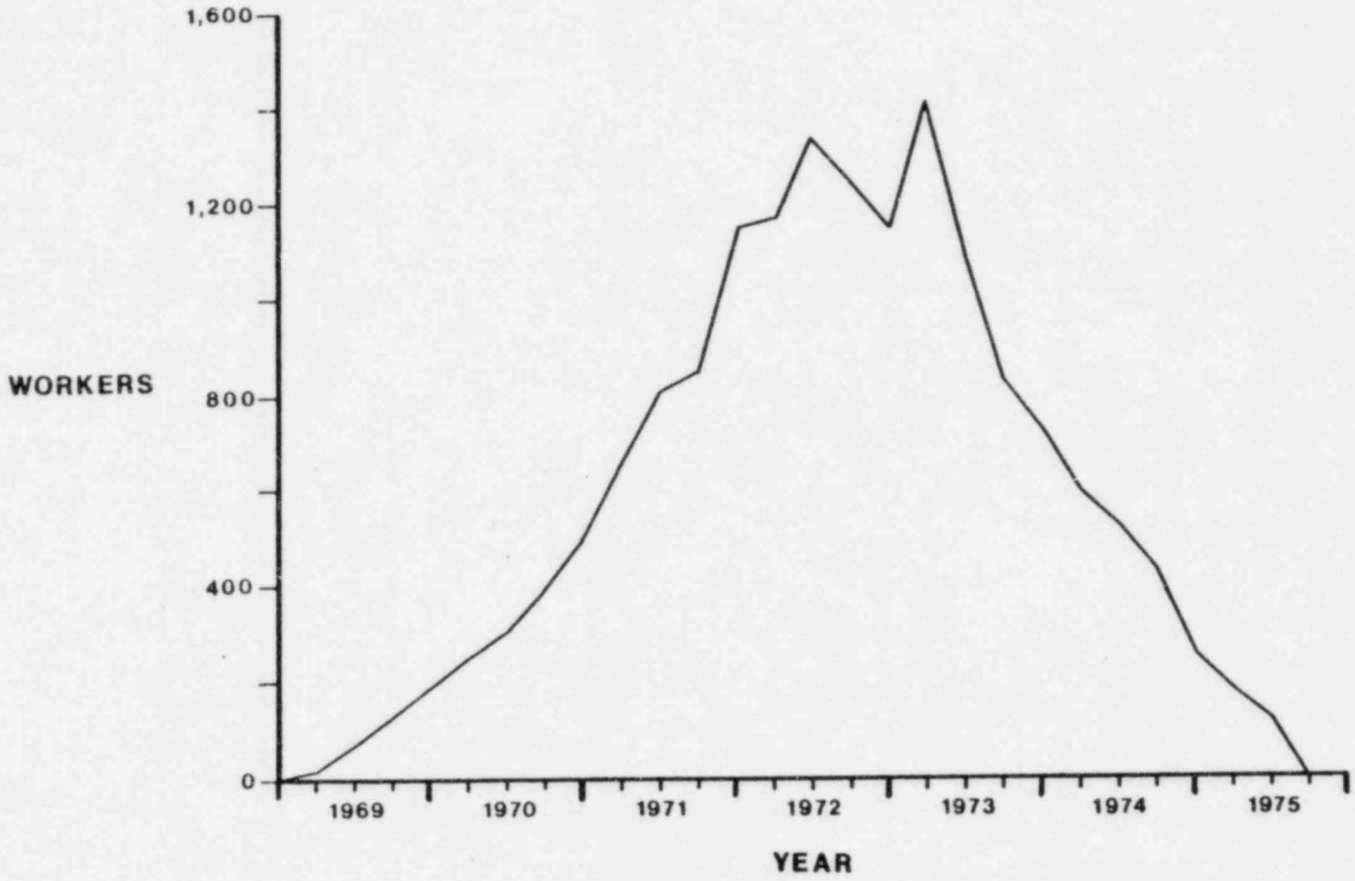

FIGURE 2-3. Average Quarterly Construction Work Force, Rancho Seco Nuclear Generating Station.

including the cooling towers. (SMUD, 1972:6). Over 1,000 workers were on-site from October 1971 through June 1973. During this period, the largest number of on-site workers, based on a quarterly average, was recorded: 1,408 workers in the first quarter of 1973. By mid-1973, the number of workers began declining. At the end of that year, construction of the plant was 99 percent complete. (SMUD, 1974:3).

Table 2-2 shows the annual average daily construction work force on site during the construction period. As shown in the table, 1972 was the peak construction year with 1,227 manual and nonmanual workers. Throughout the construction period, the majority of the work was done by contract workers, primarily manual workers. In general, the number of on-site SMUD nonmanual employees increased steadily and security personnel stayed relatively constant. Beginning in 1972, additional SMUD employees were located on site to begin plant operations and testing. (Mattimoe, personal communication, June 1980.)

TABLE 2-2

ANNUAL AVERAGE DAILY CONSTRUCTION WORK FORCE
RANCHO SECO NUCLEAR GENERATING STATION
1969-1975

Year	Average Annual Employment
1969	103
1970	360
1971	866
1972	1,227
1973	1,012
1974	454
1975	153

Sources: E. S. Wong, March 1978, Sacramento Municipal Utility District, Rancho Seco Nuclear Power Station, Unit #1 Final Report, California, pp. 48-49; Sacramento Municipal Utility District, November 1978, SMUD Employee Roster, Sacramento County, California; John J. Mattimoe, personal communication, June 1980; E. S. Wong, personal communication, June 1980; Breck Viley, personal communication, June 1980; Jess W. Vance, personal communications, July and September 1980.

Over eleven million hours of labor were utilized in the construction of Rancho Seco (Wong, 1978:20). The majority of the work was unionized with workers hired through union locals in central California, primarily Sacramento and Stockton. Most of the work was completed during a 40-hour work week. Overtime, which was

approximately 15 percent of the total construction hours, was used only when necessary to maintain construction schedules. No regular incentive programs were used to attract workers (although welders and pipefitters were given on-site training) since there were no other large projects competing for area labor during that time period. (Vanderknyff personal communication, June 1980; Mattimoe, personal communication, June 1980.)

2.5.4 Construction Phase Experience

There were a total of fifteen work stoppages during the construction of Rancho Seco. Together, they accounted for 173,786 hours of work lost, or 2.8 percent of the total manual hours required to complete the plant. Five of the work stoppages were only one day in duration; eight lasted between two and nine days. Two of the work stoppages lasted approximately one month each, and together accounted for 69.1 percent of the total time lost. The first strike, which began in August 1971, was called by the Teamsters Union due to a breakdown in contract negotiations. The second strike began in June 1974 with the expiration of the carpenters' contract. In both cases, other workers joined the strike in sympathy. (Wong, 1978:19,20.)

2.6 Operation

2.6.1 Schedule and Cost

Commercial operation of Rancho Seco began 18 April 1975. It was the largest nuclear power plant west of the Mississippi River and the first to be built on a dry site. (SMUD, 1975:31.) As shown in Table 2-3, the annual operation and maintenance costs of the plant, including nuclear fuel, generally increased, rising from an estimated $14,946,000 in 1975 to $30,228,000 in 1979. In 1975, nuclear fuel comprised approximately 46 percent of the total cost. Since 1977, however, nuclear fuel has become an increasingly larger proportion of the total cost.

2.6.2 Work Force

Although Rancho Seco did not begin commercial operation until 1975, operation personnel were assigned to the plant beginning in 1972 (Mattimoe, personal communication, June 1980). As shown in Table 2-4, the average annual operation work force at Rancho Seco increased steadily, rising from 118 persons in 1974 (when the plant first reached criticality) to 618 persons in 1979. The work force consisted of SMUD employees (plant managers, operators, engineers, and clerical workers), maintenance workers, and security guards. The majority of the maintenance work was subcontracted to companies such as Bechtel Power Corporation, Babcock & Wilcox Company,

TABLE 2-3

ANNUAL OPERATION AND MAINTENANCE COSTS
RANCHO SECO NUCLEAR GENERATING STATION
1975-1979

Year	Operation and Maintenance	Nuclear Fuel	TOTAL
1975	$ 8,000,000[a]	$ 6,946,000	$ 14,946,000
1976	10,142,000	6,581,000	16,723,000
1977	12,492,000	16,268,000	28,760,000
1978	9,231,000	13,507,000	22,738,000
1979	9,015,000	21,213,000	30,228,000
	$48,880,000	$64,515,000	$113,395,000

[a]Estimated cost.

Sources: Sacramento Municipal Utility District, 1980, 1979 Annual Report, Sacramento, California, p. 10; Jess Vance, personal communication, July 1980.

TABLE 2-4

ANNUAL AVERAGE DAILY OPERATION WORK FORCE
RANCHO SECO NUCLEAR GENERATING STATION
1974-1979

Year	Average Annual Employment
1974[a]	118[b]
1975	363
1976	449
1977	507[c]
1978	597[d]
1979	618

[a]Rancho Seco first reached criticality in 1974.

[b]Workers assigned to the plant for testing and operating were first considered operation workers in the SMUD accounting system in 1974.

[c]This total includes 457 SMUD, security, and maintenance workers, plus 175 temporary refueling workers on site for 74 days (averaged over one year).

[d]This total includes 569 SMUD, security, and maintenance workers, plus 200 temporary refueling workers on site for 37 days (averaged over one year).

Sources: Sacramento Municipal Utility District, November 1978, SMUD Employee Roster, Sacramento County, California; John J. Mattimoe, personal communication, June 1980; Breck Viley, personal communication, June 1980; Jess W. Vance, personal communications, July and September 1980.

Westinghouse Corporation, and Monterrey Mechanical. In addition, SMUD utilized Vanguard Security Systems for the security work force. The increase in the size of the operation work force was due to an increase in each labor component as a result of plant modifications and additional security requirements primarily resulting from new NRC guidelines.

In addition to the operation and maintenance work force, supplemental temporary labor is required during refueling periods: 175 persons in 1977 and 200 persons in 1978. During refueling outages, approximately one-third of the fuel assemblies are withdrawn and replaced and other scheduled maintenance and repair activities are completed. (R. W. Beck, 1979:30; Vance, personal communication, July 1980.)

2.6.3 Operating Phase Experience

Rancho Seco Nuclear Generating Station was licensed for commercial operation on 8 April 1975; however, it was restricted by the NRC to 92.6 percent of its capacity. This restriction was lifted 5 March 1976 when the NRC issued a full power license. (R. W. Beck, 1979:30.)

The operating experience of Rancho Seco, in terms of outages, has been eventful. Since Rancho Seco began commercial operation, it has undergone two extensive shutdowns, a six-month reduction in power (all due to nonnuclear-related equipment failures), and three refuelings. The first major shutdown occurred on 30 June 1975 (only 2.5 months after the plant began commercial operation) as a result of a loss of blades from a low-pressure turbine rotor. The outage lasted approximately eight months (until 25 February 1976). (R. W. Beck, 1979:30; SMUD, 1976:4.) The second major outage began less than two months later (4 April 1976) when the plant was shut down for an equipment inspection. A breakdown of insulation in the generator stator windings (caused by overheating) resulted in the replacement of all eighty-four stator coils and a six-month shutdown (until 10 October 1976). (R. W. Beck, 1979:30; SMUD, 1977:5.)

The first shutdown for refueling occurred on 20 August 1977 and continued for approximately two months (until 2 November 1977). During this time, the turbine generator received a complete overhaul in addition to the refueling. (R. W. Beck, 1979:30; Vance, personal communication, July 1980; SMUD, 1978:3.)

On 14 January 1978, a local storm with high winds resulted in the failure of one of the plant's two main transformers. Consequently, the plant was required to operate at 70

percent capacity for over six months (until 25 July 1978), when repairs were completed and the plant was authorized to return to full power. (R. W. Beck, 1979:30; SMUD, 1978:4; SMUD, 1979:3.)

In late 1978 (14 November to 21 December), Rancho Seco went through its second scheduled refueling in thirty-six days and eight hours. No major supplemental maintenance activities were required during the outage. (SMUD, 1979:3; Janis, personal communication, September 1980.) As a result of the TMI accident, Rancho Seco was shut down on 28 April 1979 for approximately two months to incorporate design changes, to perform analyses, and to improve operator training as directed by the NRC[1] (R. W. Beck, 1979:30-31; SMUD, 1980a:3).

The third refueling outage for Rancho Seco began on 14 January 1980 and lasted until 12 May 1980, a period of four months. During this time, additional modifications, repairs, and maintenance work were conducted. (Vance, personal communication, July 1980.)

The major outages experienced by Rancho Seco and the numerous other shutdowns of shorter duration are reflected in the plant's annual capacity factors. As shown in Table 2-5, Rancho Seco's capacity factors in both 1975 and 1976 were well below the average for all nuclear plants in the United States. Beginning in 1977, however, Rancho Seco's capacity factors exceeded the United States average despite its numerous shutdowns. Prior to the plant's refueling and maintenance outage in August 1977, SMUD boasted that "Rancho Seco produced more energy during the first seven months of the year than any of the more than 200 operating nuclear plants throughout the world." (SMUD, 1978:3). During that period, the plant's capacity factor was 97.6 percent (SMUD, July 1978:1).

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[1]The Rancho Seco Nuclear Generating Station contains a Babcock & Wilcox reactor, which is similar to the Babcock & Wilcox reactor in the TMI plant (R. W. Beck, 1979:31).

TABLE 2-5

ANNUAL NUCLEAR PLANT CAPACITY FACTORS
RANCHO SECO NUCLEAR GENERATING STATION AND ALL U.S. NUCLEAR PLANTS
1975-1979

Year	Capacity Factor	
	Rancho Seco	Average for All U.S. Nuclear Plants
1975	31.8	52.7
1976	27.2	52.2
1977	73.0	62.0
1978	62.4	61.7
1979	69.1	52.4

Sources: Nucleonics Week, 20 December 1979:18; 25 January 1979:18; 2 February 1978:16; 27 January 1977:14; 29 January 1976:12.

2.7 Taxes

Established as a political subdivision of the State of California, SMUD was authorized to assess taxes on property owners in the district in order to acquire an electrical system (Ward, 1973:13-14). However, the district has not levied property taxes since December1946 when SMUD acquired its electrical system (R. W. Beck, 1979:21).

Taxes represent one portion of SMUD's total construction and operating expenses. The majority of the taxes charged to plant operation were social security contributions. In addition, ad valorem taxes on land and water rights and on improvements of the Upper American River Project were paid to El Dorado County. Following the acquisition of the Rancho Seco project site, property taxes were paid to Sacramento County until the area was annexed to the SMUD service area in 1978. (SMUD, 1974:9.) During the eleven-year period from 1966 to 1978, SMUD paid Sacramento County between $100,000 and $150,000 in property taxes on the Rancho Seco site (Graham, personal communication, September 1980). The district also pays California state taxes, local sales taxes, use taxes, and state gasoline taxes. These taxes are added to the cost of materials, equipment, and supplies, and are charged to either construction costs or to operating expenses. (SMUD, 1973:6.)

2.8 Corporate/Community Programs

2.8.1 Emergency Planning

The original emergency plan for Rancho Seco Nuclear Generating Station was developed in accordance with the United States Atomic Energy Commission (AEC) requirements for applying for an operation license. The plan focused on evacuation procedures within a two-mile radius of the plant and an emergency planning zone within a five-mile radius. The major concern was for the safety of on-site personnel with little emphasis given to off-site planning due to the perceived remoteness of the possibility of a major accident. The plan included agreements with hospitals, ambulance services, civil defense groups, law enforcement agencies, fire and rescue squads, schools, and military installations. (Bradley, personal communication, June 1980; The Sacramento Bee, 29 January 1977.)

The original plan was updated and revised several times, typically in response to critiques following emergency drills and practices. Following the TMI accident and the recognition that the potential for an accident was real and that off-site evacuation was as important as on-site evacuation, the plan's first major revisions began. These included improvements in communication lines and an increase in the number of emergency facilities and personnel. It also included extending the planning zone to ten miles for plume exposure and fifty miles for food and ingestion (thereby encompassing portions of San Joaquin and Amador counties). The principal parties involved in the new plan, which is scheduled to be submitted to the NRC by 1 January 1981, were SMUD, the California Office of Emergency Services, the Sacramento County Office of Emergency Operations, Amador and San Joaquin counties, other state and local agencies, and a planning consultant. Within the local area, the plan included agreements with the Galt Fire Department (for ambulance service), the Herald Fire Department, and the California Division of Forestry Fire Fighting School in Ione. (Bradley, personal communication, June 1980.)

2.8.2 Visitors' Center

The $100,000 Rancho Seco Information Center, located on a small hill overlooking the plant structures, was opened to the public on 6 September 1970. The purpose of the center was to allow visitors to look down onto the site and observe construction. Moreover, it provides visitors with a working concept of how the plant operates through the use of educational and interpretive information shown in static, backlighted

displays. (The Sacramento Union, 20 February 1970; The Sacramento Journal, 14 September 1970; Kane, personal communication, June 1980.)

Prior to 1977, the one-room, 1,000-square-foot center was unstaffed and was open continuously. When visitors entered the structure, a projection film was activated that described the plant. Because of problems with vandalism, in February 1977 SMUD enclosed the center, staffed it with a full-time attendant, and reopened it to the public on a daily basis. (Kane, personal communication, June 1980.)

SMUD estimates that, prior to staffing the facility, approximately 10,000 persons visited the center each year. The attendance in 1977 (15,031) and 1978 (15,217) was similar, with the largest number of visitors recorded in May of both years. In 1979, however, that attendance dropped to 11,621 persons, a decrease of approximately 24 percent from the 1978 figure. According to SMUD personnel, this reduction was due to the accident at TMI, the decrease in school operating funds resulting from California's Proposition 13, and the increase in the cost of gasoline. Student groups were a significant, but decreasing, proportion of the total number of visitors: 34.9 percent in 1977; 30.9 percent in 1978; and 25.2 percent in 1979). (Kane, personal communication, June 1980; SMUD, unpublished data, n.d.)

In addition to the information center, SMUD has maintained an active public relations effort between the utility and the communities near the project site (notably Galt, Elk Grove, and Ione) and has sought to keep local residents informed about nuclear power, particularly its safety aspects. During construction, SMUD representatives often conducted on-site tours and spoke at meetings and functions of local groups such as the Chamber of Commerce, Lions, and Jaycees. Following the TMI accident, SMUD held a series of meetings in communities near Rancho Seco to discuss the accident and the similarities between the TMI and Rancho Seco plants. (Schnieder, personal communication, June 1980; The Sacramento Union, 12 December 1965.)

2.8.3 Rancho Seco Park

Rancho Seco Park was developed in conjunction with the construction of the Rancho Seco Nuclear Generating Station. The park is located within the project site, east of the visitors' center. Looking toward Rancho Seco from the park, the plant's cooling towers are the prominent landscape features.

The 40-acre park was developed around Rancho Seco Lake, a reservoir created by SMUD to provide standby cooling water for the nuclear plant. The lake, which has 165-acre feet of surface area and three miles of shoreline, was stocked with bluegill and bass by the California Department of Fish and Game. The park was developed by SMUD with the aid of a $50,000 grant from the State of California under the David Grunsky Act. Since the facility opened in June 1973, it has operated as a regional park under the Sacramento County Department of Parks and Recreation. Park facilities and improvements include a boat launching ramp, boating and fishing docks, picnic and camping areas, a beach, a protected swimming area, and refreshment concessions. (SMUD, 1980b:1; Carlos, personal communication, June 1980; Ward, 1973:95.)

Major park activities include swimming, picnicking, fishing, sailing, rowing (it is the only lake in the area which is restricted to motorless boating), and group overnight camping. Park attendance was estimated to be 100,000 persons in 1974, increasing to 149,300 in 1975, to 187,400 in 1976, and peaking at 227,091 in 1977. Attendance then dropped to 176,324 persons in 1978 followed by 170,164 persons in 1979. The park manager attributed the drop in attendance to the TMI accident and to increased gasoline prices. The greatest number of visitors was recorded annually between May and August. Over one-third of the park users were from nearby local communities, while the remainder were from the Sacramento metropolitan area. (Hamson, personal communication, July 1980.)

SMUD was actively involved in the development of recreational facilities prior to the Rancho Seco Park. In conjunction with the development of the Upper American River project in El Dorado County, the Crystal Basin Recreation Area was created on the western slope of the Sierra Nevadas. Operated and maintained by the United States Forest Service, the area provided a wide variety of outdoor recreation opportunities utilizing the lakes, streams, and forests. SMUD widely promotes its role in the development of recreational areas for public use in conjunction with energy development. (SMUD, 1980b:1; Ward, 1973:95.)

2.9 Chronology of Major Events

The major milestones of the construction of Rancho Seco are shown in Table 2-6. The twelve-year period covers the time from the formal announcement of the plant in 1964 to commercial operation in 1975.

TABLE 2-6

CHRONOLOGY OF MAJOR EVENTS
RANCHO SECO NUCLEAR GENERATING STATION
1964-1975

Year	Month	Day	Event
1964	—	—	Rancho Seco project is announced.
1967	November	20	SMUD files application with AEC for provisional construction permit.
1968	September	17-18	Public hearing on construction permit is held by AEC in Sacramento.
1968	October	11	Construction permit is issued by AEC.
1969	April	1	Construction begins.
1973	January-March	—	Quarterly construction work force peaks at 1,408 workers.
1973	June	14-15	Public hearing on operation license is held by AEC in Sacramento.
1974	August	16	Operating license is issued by AEC.
1974	September	16	Initial criticality is reached.
1975	April	18	Rancho Seco begins commercial operation.

Sources: U.S. Atomic Energy Commission, Directorate of Licensing, March 1973, Final Environmental Statement Related to Operation of Rancho Seco Nuclear Generating Station, Unit 1, SMUD - DOCKET NO. 50-312; The Sacramento Bee, 14 June 1973, "SMUD Hearing: AEC Calls Rancho Seco Unit Safe"; E. S. Wong, March 1978, Sacramento Municipal Utility District, Rancho Seco Nuclear Power Station, Unit #1 Final Report, Sacramento, California; Sacramento Municipal Utility District, 12 July 1978, Rancho Seco Nuclear Generating Station, Sacramento, California; John J. Mattimoe, personal communication, June 1980.

CHAPTER 3: DISTRIBUTION OF DIRECT PROJECT EFFECTS AND IDENTIFICATION OF THE STUDY AREA

3.1 Introduction

This chapter serves as a transition between the focus on the Rancho Seco Nuclear Generating Station and the focus on the socioeconomic effects resulting from the construction and operation of the plant presented in the remaining chapters. As such, it has two principal purposes. The first is to describe a multi-county region surrounding the Rancho Seco plant and the distribution of direct project effects—jobs, workers, purchases, and tax payments—within that region. The second is to identify the area in which the consequences of the direct project effects will be studied in detail.

The identification and selection of the study area is an important element in the overall case study methodology. Initially, the counties contiguous to the project site that received appreciable direct project effects were identified as the study region. Within the counties, minor civil divisions (or municipal units) that received direct project effects were identified. Based on the magnitude of the direct project effects in relationship to the size of the minor civil divisions' population and economy and the proximity to the project site, aggregate units were formed. The distribution of jobs, workers, purchases, and tax payments relating directly to the construction and operation of Rancho Seco were identified for the aggregate units of the study region. The pattern of the distribution of direct project effects and the population size of the aggregate units were then examined to identify those where the greatest intensity of direct project effects had occurred. Based on the intensity of direct project effects and the relationships among the aggregate units, alternate study areas were considered. A study area was then selected that would serve as the unit for analysis of the economic, demographic, housing, governmental, and social structure effects of the Rancho Seco Nuclear Generating Station.

3.2 The Study Region

3.2.1 Description of the Region

Three counties in central California—Sacramento, Amador, and San Joaquin—were examined and described in the Rancho Seco Unit 1 Preliminary Site Visit Report (York, 1979). Based on subsequent analysis of the residency locations of Rancho Seco construction and operations workers, El Dorado County was also included in the study

region. Therefore, the counties of Sacramento, Amador, San Joaquin, and El Dorado constitute the study region.[1]

The four-county region stretches from central California east to Lake Tahoe and the Nevada/California state line. Rancho Seco Nuclear Generating Station is located in southeastern Sacramento County, approximately in the center of the region, as shown in Figure 3-1.

The total population of the 4,684 square-mile, four-county region was 981,100 persons in 1970 (California Department of Finance, 1978:3, 9, 38, and 43). Most of the population is centered in the valley areas: 64.7 percent in Sacramento County in 1970 and 29.7 percent in San Joaquin County. El Dorado County, the largest of the four counties, contained only 4.5 percent of the total population while Amador County, the smallest both in terms of land area and population, had only 1.2 percent of the total for the four-county area in 1970. Table 3-1 shows the total population for each of the four counties and their incorporated places in 1972 and 1978. These data emphasize the rural nature of both Amador and El Dorado counties in contrast to Sacramento and San Joaquin counties.

The diversity of the region's natural setting has resulted in the presence of a wide range of economic and recreation opportunities, settlement patterns, and unique sociocultural elements. The region encompasses the delta area of the Sacramento and San Joaquin rivers in southwestern Sacramento County and northwestern San Joaquin County. This area, much of which is located below sea level, is an important agricultural area as well as a water-based recreation center for the region. Small river towns, houseboats, dikes, drawbridges, and broad expanses of flat agricultural land are typical sights. (Sacramento Metropolitan Chamber of Commerce, 1978:1.)

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[1]While Calaveras County is located relatively close to Rancho Seco, difficult access to the project site and a small county population (14,050 persons in 1972) resulted in an insignificant number of Calaveras County residents being employed at Rancho Seco during either project construction or operation (California Department of Finance, 1978:5; Mattimoe, personal communication, June 1980).

FIGURE 3-1. STUDY REGION: FOUR COUNTIES IN CENTRAL CALIFORNIA

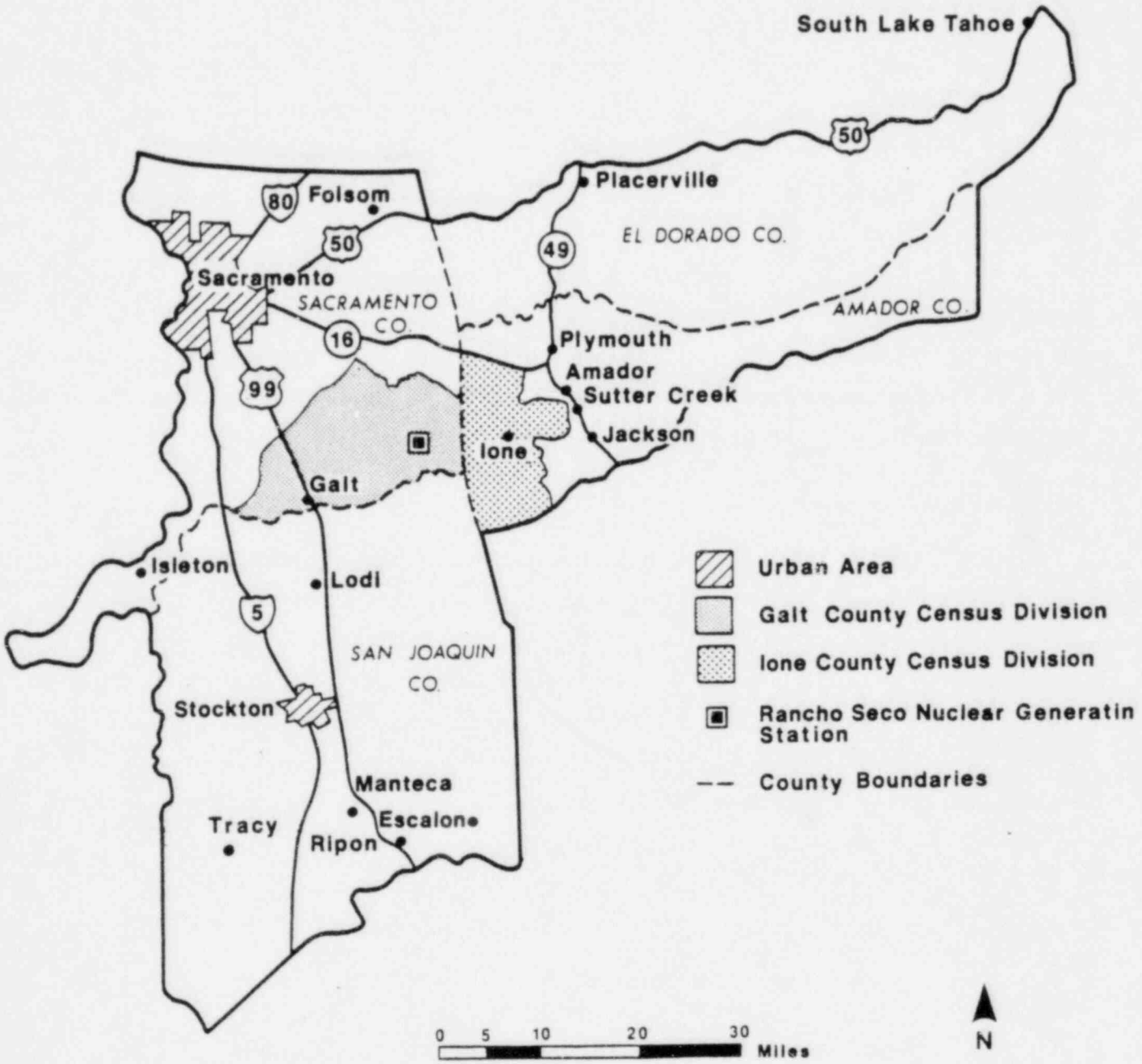

TABLE 3-1

POPULATION OF STUDY REGION COUNTIES AND INCORPORATED PLACES
RANCHO SECO NUCLEAR GENERATING STATION
1972 AND 1978

Place	1972	1978
Sacramento County	656,500	728,500
--City of Sacramento	261,200	262,900
--Folsom	7,375	9,550
--Galt	3,620	5,225
--Isleton	770	940
San Joaquin County	294,100	310,600
--Stockton	112,400	127,300
--Lodi	30,000	32,950
--Manteca	15,000	20,100
--Tracy	14,900	16,400
--Ripon	2,740	3,040
--Escalon	2,440	2,750
El Dorado County	48,400	70,600
--South Lake Tahoe	15,600	20,600
--Placerville	5,325	6,525
Amador County	12,850	17,150
--Ione	2,340	2,340
--Jackson	2,170	2,670
--Sutter Creek	1,560	1,690
--Plymouth	520	670
--Amador	150	160

Source: California Department of Finance, 1978, Population Estimates for California Cities and Counties 1970-1978 (Provisional), Sacramento, California, pp. 3, 9, 38, and 43.

The majority of Sacramento and San Joaquin counties lie in the flat, fertile Sacramento and San Joaquin valleys. These valleys are the location for most of the four-county area's population and business activities and are recognized as important agricultural regions. San Joaquin County has consistently been one of the leading counties in the nation in gross value of farm products produced. Industries that depend strongly on agriculture, including food processing, wholesale trade, and transportation, are also important components of the county's economic base as are nonagricultural-oriented activities, such as educational institutions, federal defense installations, and

service industries. The City of Sacramento, the area's largest population center, is the capital of California, the county seat of Sacramento County, and the heart of the commercial, financial, business, and cultural activities for the entire region. Sacramento County's economic activities reflect a diversified economic base. Together, trade and services account for the largest percentage of all jobs, with government (primarily state, county, and city employees) running a close second. Food processing is the most important manufacturing industry, while the aerospace industry has historically been an important component of the manufacturing of durable goods. (Sacramento Metropolitan Chamber of Commerce, 1978:1; California Health and Welfare Agency, 1980a:9 and 1980b:9; Security Pacific Bank, 1977:51-52.)

The eastern portions of Sacramento and San Joaquin counties and the western sections of Amador and El Dorado counties form the transition between the agricultural valleys to the west and the Sierra Nevada Mountains to the east. This transitional area is noted for rolling grasslands and tree-covered slopes, and for increased urbanization, outdoor recreation, and second homes. (Sacramento Metropolitan Chamber of Commerce, 1978:1.)

The eastern portions of Amador and El Dorado counties rise to elevations of over 9,000 and 11,000 feet, respectively. The mountainous sections, most of which are publicly owned national forests, parks, and wilderness areas, are typified by their scenic beauty and their multitude of alpine-related, year-round recreational opportunities, including Lake Tahoe. The highland portions of these counties are also famous for their setting in the Mother Lode region of the Sierra Nevadas and for their role in the California Gold Rush. Many of the settlements were established as gold mining towns in the latter half of the 1800s. Tourism has supplemented the traditional economic activities of agriculture, mining, and lumbering, as the area increasingly becomes an important center for tourists and recreation enthusiasts from all of Northern California. Much of the employment in both Amador and El Dorado counties is generated by tourists drawn to the historic towns and abundant recreational areas and facilities. The major employment opportunities in Amador County, by industry, include retail trade (which is largely tourist-dependent), lumbering, manufacturing, and government. In El Dorado County, approximately one-half of the area's jobs are in service and trade industries which are primarily tourist-related. Government jobs provide the second largest employment opportunity. (Sacramento Metropolitan Chamber of Commerce,

1978:1; California Health and Welfare Agency, 1980c:9 and 1980d:9; Security Pacific Bank, 1977:37 and 41.)

Transportation networks continue to be an important factor in the region's development and economic activities. Sacramento and San Joaquin counties exhibit the most highly developed systems. Two seaports (the Port of Stockton and the Port of Sacramento) provide important transportation links for the region and its resources to the San Francisco Bay area. In addition, the region's two major airports are also located in the Central Valley. Three transcontinental railroads--the Southern Pacific, the Western Pacific, and the Santa Fe--provide necessary rail linkages throughout the region; the City of Sacramento contains the largest rail switching yard west of Chicago. Major highways include: U.S. Highway 99 (US-99) and Interstate 5 (I-5)--north-south routes through the Central Valley connecting the cities of Sacramento and Stockton; U.S. Highway 50 (US-50)--an east-west route from the City of Sacramento through El Dorado County to Lake Tahoe; and Interstate 80 (I-80)--an east-west route linking the City of Sacramento to San Francisco and Reno. In addition, California State Highway 16 (CA-16) provides a direct route from Amador County to the City of Sacramento, and California State Highway 49 (CA-49) is the north-south route through the Mother Lode area in El Dorado and Amador counties. (Sacramento Metropolitan Chamber of Commerce, 1978:1; Security Pacific Bank, 1977:37, 41, 51, and 52.)

3.2.2 Specification of Places within the Region

The geographic areas delineated in this section function as the geographic framework within which the distribution of the direct effects of the Rancho Seco project are identified in the study region. Alternate study areas (units that would serve as the framework for the analysis of the socioeconomic effects of the construction and operation of Rancho Seco) are included in the geographic areas identified.

Initially, small cities and communities in proximity to the plant site were examined in the four-county study region as alternate study areas based on the distribution of jobs, workers, purchases, and tax payments in relationship to the size of the place and distance from Rancho Seco. Two places, the Galt County Census Division (Galt CCD) in Sacramento County and the Ione County Census Division (Ione CCD) in Amador County, were identified as alternate study areas. The concentration of jobs, workers, purchases, and tax payments was not sufficient enough to warrent identification of particular places in either San Joaquin or El Dorado County. Therefore, based on

preliminary information regarding the characteristics of the four-county region and the distribution of direct project effects, the individual cities and remaining unincorporated areas were aggregated to county totals with the exception of the Galt County Census Division and the Ione County Census Division.

3.2.2.1 Galt County Census Division

The Galt County Census Division, located in southeastern Sacramento County, is generally delineated by Amador County to the east, San Joaquin County to the south, the Cosumnes River on the northwest, and Laguna Creek on the northeast (see Figure 3-1). Rancho Seco Nuclear Generating Station is in the east-central portion of the area. The major population and economic center within the Galt CCD is the City of Galt with a 1970 population of 2,300 persons and an estimated 1978 population of 5,225 persons. Originally established in 1869 as a railroad town, the city functions as a service center for the surrounding agricultural land and increasingly as a bedroom community for Sacramento, Lodi, and Stockton. Major employment opportunities within Galt include retail stores and service centers, light manufacturing, and the public school system. (Galt District Chamber of Commerce, 1978:1-4.)

The remainder of the Galt County Census Division is primarily agricultural with field crops grown in the delta area southwest of US-99, dairies and field crops in the central area, and grazing in the eastern portion that includes Rancho Seco. The unincorporated communities of Herald and Wilton provide a limited number of goods and services to local residents. The population of the unincorporated area of the Galt CCD grew from 4,781 persons in 1970 to 6,193 in 1978. A large proportion of this increase resulted from the in-migration of urban dwellers seeking a more rural lifestyle while commuting to Sacramento, Lodi, and Stockton for employment. (Sacramento Regional Area Planning Commission, 1978:3-4.)

3.2.2.2 Ione County Census Division

The Ione County Census Division, located on the western end of Amador County, is generally outlined by Sacramento County to the west, Calaveras County to the south, CA-16 to the north, and CA-49 to the east (see Figure 3-1). The area encompasses the community which is the closest town to Rancho Seco, the City of Ione. Founded in the Gold Rush days of Amador County and incorporated in 1952, Ione grew as a supply center, first to area mines and then to ranchers and farmers in the Ione Valley. In more recent years, the city has experienced a slight increase in its retail trade and

service sectors due to an increase in local tourist activities. (Amador County Board of Trade, 1978:1-2; Ione City Council, 1972:1-2.)

The largest employers in the Ione CCD by industrial sector are government (including the Ione Unified School District), mining and manufacturing, and retail trade and services. The Preston School of Industry, established in Ione in 1889 for the correction of juvenile offenders, continues to function as a training, rehabilitation, and correction center for convicted youths as well as a major employer in the area (336 persons in 1980). The original building stands as a local landmark and noted historic structure. The California Division of Forestry Fire Academy, opened in 1967 northwest of Ione, provides a variety of firefighting courses for over 1,000 persons annually and employs approximately 30 persons. The mining and processing of clay, sand, and limestone has been, and continues to be, an important local economic activity, producing several products that are unique to the Ione area. Four major companies have mining and processing operations in the Ione CCD. Together they employed approximately 175 persons in 1980. (Ione Planning Commission, 1972:1-2; Ione Merchants Association, 1979:2-5; Longman, personal communication, September 1980; Wiley, personal communication, September 1980.)

The area's population remained fairly constant during the last decade. As a result, in the mid-1970s, Ione lost its long-time position of being the largest city in Amador County to Jackson, the Amador County seat. The total population of the Ione CCD was 2,892 persons in 1970. Of this number, 2,369 lived in the City of Ione. Buena Vista, a tiny unincorporated community south of Ione, is the only other population center in the Ione CCD. Agriculture in the area, primarily cattle grazing, centers in the Ione Valley. (California Department of Finance, 1978:3; Longmore, personal communication, September 1980; Wiley, personal communication, September 1980.)

3.3 Distribution of Direct Project Effects within the Region

In this section, the distribution of the direct project effects resulting from the construction and operation of the Rancho Seco Nuclear Generating Station--direct basic

employment,[1] direct basic workers,[2] utility purchases, and tax payments--are identified for six geographic areas: El Dorado County, San Joaquin County, the Galt County Census Division, the Ione County Census Division, and the remainder of Sacramento and Amador counties. This analysis was completed for two time periods: 1972, the year of peak project construction, and 1978, an operating year. The incidence of the direct project effects for these years was the principal determinant for identifying the study area.

3.3.1 Distribution of Direct Basic Employment by Place of Work

The Rancho Seco Nuclear Generating Station is located in the Galt County Census Division. Therefore, all project work and all direct basic employment occurred within the boundaries of the Galt CCD in both 1972 and 1978. In 1972, the annual average daily employment at the project site was 1,227 persons; in 1978 it was 597 (see Table 2-2 and Table 2-4).

The three major elements of the construction work force included SMUD employees (both manual and nonmanual) and contractor/subcontractor manual and nonmanual workers (including security personnel). The contractor/subcontractor manual workers comprised 72.1 percent (885 persons) of the total on-site work force in 1972. Contractor/subcontractor nonmanual personnel contributed an additional 20.9 percent (257 persons). The remaining 6.9 percent (85 persons) were SMUD employees.

The operation work force consisted of manual and nonmanual SMUD employees, security personnel, maintenance contractors, and refueling workers. Of these, the maintenance workers contributed 46.4 percent of the total number of people employed on site in 1978. SMUD personnel (with 237 full-time employees) accounted for 39.7 percent. The majority of the remaining workers were security people. While there were approximately 200 refueling workers (including SMUD and SMUD contractors) on site, their annual average daily employment was only 28 persons.

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[1]Direct basic employment is the employment at the Rancho Seco Nuclear Generating Station. In this discussion, the focus is on the number of jobs measured by place of work.

[2]Direct basic workers are workers employed at the Rancho Seco Nuclear Generating Station. In this discussion, the focus is on the number of workers measured by place of residence.

3.3.2 Distribution of Direct Basic Workers by Place of Residence

The allocation of workers by place of residence to the six geographic areas within the study region was completed through an analysis based on interviews with: (1) business agents of union locals; (2) SMUD and contractor personnel; (3) Rancho Seco construction and operation workers; (4) realtors; and (5) apartment, mobile home, and motel managers. In addition, SMUD employee rosters were used to locate areas where district employees working at the plant lived. The distribution of workers by place of residence for 1972 and 1978 is outlined in Table 3-2.

TABLE 3-2

DIRECT BASIC WORKERS BY PLACE OF RESIDENCE
RANCHO SECO NUCLEAR GENERATING STATION
1972 AND 1978

Place	1972 Number of Workers	1972 Percent of Total Work Force	1978 Number of Workers	1978 Percent of Total Work Force
Sacramento County	879	71.6	500	83.8
Galt County Census Division	121	9.9	45	7.5
Residual	758	61.8	455	76.2
Amador County	127	10.4	39	6.5
Ione County Census Division	50	4.1	9	1.5
Residual	77	6.3	30	5.0
San Joaquin County	63	5.1	26	4.4
El Dorado County	81	6.6	24	4.0
Daily Commuters[a]	77	6.3	8	1.3
TOTAL	1,227	100.0	597	100.0

[a]These workers lived outside the four-county region and are, therefore, classified as daily commuters.

Source: Mountain West Research, Inc., September 1980, based on SMUD personnel rosters (November 1978) and interviews with business agents of union locals, SMUD, Bechtel, and security personnel, construction and operation workers, realtors, and apartment, mobile home, and motel managers (June and July 1980).

In 1972, as shown in Table 3-2, 71.6 percent (879 workers) of the employees at Rancho Seco during project construction lived in Sacramento County. Of these, 13.8 percent (121 workers) resided in the Galt County Census Division (representing 9.9

percent of the total work force). An additional 10.4 percent of the construction workers lived in Amador County, and 4.1 percent of the workers lived in the Ione County Census Division. The remaining construction workers (approximately 18 percent) were distributed between San Joaquin and El Dorado counties and other places outside the four-county region. During the operation year of 1978, 83.8 percent of the total number of workers employed at Rancho Seco lived in Sacramento County. Of these, 9 percent lived in the Galt CCD (or 7.5 percent of the total number of workers). The remaining workers were fairly evenly distributed among Amador County (6.5 percent), San Joaquin County (4.4 percent), and El Dorado County (4.0 percent).

Several factors were influential in the geographic distribution of the construction work force. Sacramento, the largest metropolitan area in the region, was located within easy commuting distance to the Rancho Seco project site. In addition, Sacramento contained the region's largest construction labor pool and many of the local headquarters for construction labor unions. During project construction, the demand for housing (hotels, motels, mobile homes, apartments, and single family dwellings) far exceeded the housing available in the smaller communities close to the project site. Thus, the shortage of available housing close to the project, the amenities offered in the Sacramento urban area, the relatively short commuting distance to Rancho Seco, and the existence of a large labor pool all contributed to the large number of Rancho Seco workers residing in the Sacramento urban area. (Mattimoe, personal communication, July 1980; Vanderknyff, personal communication, July 1980; Vance, personal communication, July 1980.)

A comparison of the distribution of workers in 1972 and 1978 (see Table 3-2) indicates that a higher percentage of workers resided in Sacramento County during the operation period than during the construction period. Operation-period jobs were generally long-term; thus, more workers chose to live in the Sacramento urban area and commute daily to the project site, since that area offered the widest range of housing, goods and services, and recreation and cultural amenities. Since construction period jobs generally provided only short-term employment at the project site, a larger proportion of workers were willing to commute long distances on a daily basis to work (6.3 percent in 1972 compared to only 1.3 percent in 1978). (Mattimoe, personal communication, July 1980.)

Construction workers may be classified into three categories of workers: (1) nonmovers—workers who were residents of the four-county area before construction

began and who did not relocate; (2) movers--workers who relocated into the area to work on the project; and (3) daily commuters--workers who commuted daily from outside the four-county area. The Rancho Seco project superintendent for Bechtel Power Corporation estimated that up to 10 percent of the total Rancho Seco construction work force could have been movers. According to company reports, a total of 2,605 Bechtel workers were employed on the project from 1969 to 1974. Of these, approximately 26 percent of the 374 nonmanual workers and 3 percent of the 2,231 manual workers were movers (a total of 165 movers). The movers were primarily engineers and staff who were considered power plant specialists. Prior to moving to the area near Rancho Seco, many of the Bechtel workers were employed at a power plant in Arizona. Upon the completion of Rancho Seco, a large number were transferred to the San Onofre Nuclear Power Plant being constructed near Los Angeles. The majority of the daily commuters resided in Yolo and Placer counties. (Vanderknyff, personal communications, June and July 1980; Socio-Economic Systems, Inc., 1975:22.)

3.3.3 Distribution of Equipment and Materials Purchases

Purchases of equipment and materials during project construction and operation were made by SMUD and SMUD contractors. While detailed records of purchases were not available, key purchasing agents stated that the vast majority of all purchases associated with the construction and operation of Rancho Seco were made outside of the four-county region and that there was no deliberate effort by SMUD to purchase items from any particular place or geographic area. Table 3-3 provides a partial list of contracts awarded during the construction period that were publicized in daily newspapers in Sacramento. Of those listed, less than $300,000 in contracts went to companies in Sacramento County. (Farrell, personal communication, July 1980; Wood, personal communications, June and September 1980; Vanderknyff, personal communication, July 1980.)

TABLE 3-3
SELECTED CONSTRUCTION PERIOD CONTRACTS
RANCHO SECO NUCLEAR GENERATING STATION
1967-1970

Contract Amount	Product/Service	Company/Location
$20,000,000	Turbine generator	Westinghouse Electric Corporation, Pennsylvania
28,500,000	Steam reactor system	Babcock & Wilcox Company, San Francisco, California
8,000,000	Uranium enrichment	Utah Construction & Mining Company, San Francisco, California
7,700,000	Two cooling towers	Hammond-Cottrell, Inc., New Jersey
2,300,000	Condensor and related auxiliary equipment	Westinghouse Electric Corporation, Pennsylvania
399,850	Four circulating water pumps & equipment	Hitachi New York Ltd., San Francisco, California
477,259	Site preparation	J. Rodoni & Son, Saratoga, California
886,000	Tension system for reactor building	VSL Corporation, Los Gatos, California
1,000,000	Reservoir dam	J. Rodoni & Son, Saratoga, California
35,000,000	Installation of all mechanical and electrical systems and equipment	Bechtel Power Corporation, San Francisco, California
120,700	Construction of warehouse	John F. Otto, Inc., Sacramento, California
164,117	Switchyard foundations	John F. Otto, Inc., Sacramento, California

Sources: The Sacramento Bee, 4 May 1967, "SMUD Buys Unit for Nuclear Power"; The Sacramento Bee, 17 August 1967, "SMUD Lets Atom Plant Steam System Contract"; The Sacramento Bee, 7 December 1967, "SMUD Orders Initial Fuel for Nuclear Power Plant"; The Sacramento Bee, 7 February 1969, "SMUD Buys $10.4 Million Cooling Plant"; The Sacramento Bee, 5 June 1969, "SMUD Awards Contracts Exceeding $1 Million"; The Sacramento Bee, 1 June 1970, "SMUD Awards Dam Bid for $1 Million"; The Sacramento Union, 26 June 1970, "$35 Million Pact on Nuclear Power Plant is Awarded"; The Sacramento Bee, 21 August 1970, "SMUD Okays $2.25 Million Outlay for Operations Yard".

According to utility estimates, SMUD's Rancho Seco purchases in 1972 totaled $2,474,350. Of this, $371,000 was spent in Sacramento County (86 percent for electrical supplies and 14 percent for steel materials and fabrication). No significant amounts were expended in Amador, El Dorado, or San Joaquin counties and none were recorded in the Ione County Census Division. SMUD purchase records for 1978 were unavailable. (Wood, personal communications, June and September 1980.) The Rancho Seco project superintendent for Bechtel Power Corporation stated that, while Bechtel purchased some consumables in the City of Sacramento and some structural steel in the City of Stockton, the majority of materials and equipment were purchased outside the four-county region (Vanderknyff, personal communication, June 1980).

Based on discussions with local suppliers in the Galt area, it was estimated that approximately $270,000 was spent in the Galt County Census Division (primarily in the City of Galt) during the entire construction period. In 1978, less than $25,000 (current dollars) was spent in the same area, the Galt CCD. There were no records of purchases in the Ione CCD in 1972 or 1978. (Farrell, personal communication, July 1980; Heinle, personal communication, July 1980; Weathers, personal communication, July 1980; Nickels, personal communication, July 1980; Pickrell, personal communication, 24 July 1980; Adams, personal communication, July 1980; Ambrogio, personal communication, July 1980; Pullen, personal communication, July 1980; Diede, personal communication, June 1980; Roether, personal communication, July 1980.)

Thus, the volume of transactions in the four-county region compared to the total trading activities in each county was too small to have resulted in an observable increase in employment or income in any of these places.[1] While local purchases may have been important to some of the individual establishments in Galt, the purchases were not of consequence to the city's total economy.

3.3.4 Distribution of Taxes

Taxes are one portion of SMUD's total construction and operating expenses. The majority of the taxes charged to plant operation were social security contributions. In

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[1]It is estimated that purchases of approximately $100,000 (in constant 1972 dollars) from the wholesale trade sector would generate one additional job (Drake, personal communication, 1980).

addition, ad valorem taxes on land and water rights and improvements of the Upper American River Project were paid to El Dorado County. Under the California state constitution, municipalities are exempt from paying taxes on property within their own boundaries. Property taxes are assessed on land owned by SMUD which is outside the district's service area; however, the land is taxed according to its value and use at the time of acquisition (grazing land in the case of Rancho Seco) and not on subsequent improvements. Following the acquisition of the Rancho Seco project site in 1966, property taxes were paid to Sacramento County until the area was annexed into the SMUD service area in 1978. (SMUD, 1974:9.) From 1966 to 1978, the total property taxes paid to Sacramento County on the Rancho Seco site were between $100,000 and $150,000[1] (Graham, personal communication, September 1980). Therefore, since 1978, no taxes have been assessed on the Rancho Seco plant that are paid to the counties or minor civil divisions in the four-county region (DuPaul, personal communication, August 1980).

California state sales taxes, which have fluctuated between 5 and 6 percent since 1969, are comprised of three components: state tax, county tax, and city tax. In order for sales tax revenues from Rancho Seco to be allocated to Sacramento County, purchases for the plant must either have been made in Sacramento County or they must have been delivered to the job site (if they were purchased outside the county). For purchases made in incorporated places in Sacramento County, 0.25 percent of the sales tax would be returned to the county, 1 percent would go to the incorporated area, and the remainder of the tax would be funded to the state.[2] On the other hand, for purchases made in an unincorporated area of Sacramento County, 1.25 percent of the sales tax revenues would be returned to the county, while the remainder would be allocated to the state. (Martin, personal communication, June 1980.)

According to the Sacramento County Executive Office, Administration and Finance Agency, the Sacramento County Board of Supervisors' reserves 1 percent of the

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[1] Property tax payments made by SMUD to Sacramento County from FY 1975-1976 through FY 1977-1978 were $15,265.06, $12,597,16, and $13,300.22 (Graham, personal communication, September, 1980).

[2] For example, if Rancho Seco paid a 5 percent sales tax on a $100 item purchased in an incorporated place in Sacramento County, the $5.00 in taxes would be distributed as follows: $0.25 to the incorporated area, $1.00 to the county, and $3.75 to the state.

1.25 percent of the sales tax revenues collected in unincorporated areas for requirements of residents in those areas, such as sheriffs, planning, roads, and libraries. The other 0.25 percent goes into the Regional Transportation System (which is separate from the unincorporated areas fund) for transit subsidy, primarily buses, for the Sacramento area. These revenues are placed into, and are the largest contributor of, the unincorporated areas fund, which was $25.3 million in FY 1979-1980. The majority of the expenditures from the fund are made in the unincorporated urban area around the City of Sacramento (including North Highlands, Orangevale, and Citrus Heights). The area around Rancho Seco (Herald, Wilton, Elk Grove, and the unincorporated area around Galt) receives only a very small portion with the sheriff's patrol receiving the bulk of the monies. Sales tax revenues fluctuate annually. According to the Administration and Finance Agency, the construction and operation of Rancho Seco resulted in no noticeable increase in sales tax revenues for the county. (Cassady, personal communication, June 1980.)

3.4 Selection of the Study Area

Table 3-4 summarizes the distribution of direct basic employment (by place of work and by place of residence) and property tax payments for 1972 and 1978 for each division of the study region. Since the purchase of equipment and materials was not of any consequence to the economy of any selected place, it was eliminated as a criterion for study area selection. Table 3-4 also displays each place in the study region and the percentage distribution of the population, direct basic employment, and property taxes compared to the study region totals.

The direct basic employment by place of work, which contributed 1,227 jobs in 1972 and 597 jobs in 1978 to the Galt CCD economy, was all located in the Galt County Census Division. The direct basic employment by place of residence was distributed throughout the four-county region. In order to examine the concentration of the project's direct effects by place of residence for each selected area, each area's portion of the total direct basic employment was compared to each area's portion of the total 1970 population. In 1972, the Ione CCD had the highest percentage-of-workers-to-percentage-of-population ratio; that is, the share of direct basic employment by place of residence was 4.1 percent, or 13.7 times greater than the Ione CCD's share of the total population of the study region. The Galt CCD had the second highest ratio: the share of direct employment by place of residence was 9.9 percent, or 12.4 times greater than the Galt CCD's share of the study region's population. In 1978, however, the Galt CCD exhibited the highest ratio of the selected areas within the study region: 7.5 percent of

TABLE 3-4

SUMMARY OF DIRECT PROJECT EFFECTS
RANCHO SECO NUCLEAR GENERATING STATION
1972 AND 1978

Place	Total Population	Direct Basic Employment (Place of Work)		Direct Basic Employment (Place of Residence)		Property Taxes (Constant 1972 Dollars)	
	1970[a]	1972[a]	1978[a]	1972[a]	1978[a]	1972[a]	1978
Sacramento County	634,373	1,227	597	879	500	$15,000	—
	(64.7)	(100.0)	(100.0)	(71.6)	(83.8)	(100.0)	
Galt County Census Division	7,981	1,227	597	121	45	—	—
	(0.8)	(100.0)	(100.0)	(9.9)	(7.5)		
Residual	626,392	—	—	758	455	—	—
	(63.8)			(61.8)	(76.2)		
Amador County	11,821	—	—	127	39	—	—
	(1.2)			(10.4)	(6.5)		
Ione County Census Division	2,892	—	—	50	9	—	—
	(0.3)			(4.1)	(1.5)		
Residual	8,929	—	—	77	30	—	—
	(0.9)			(6.3)	(5.0)		
San Joaquin County	291,073	—	—	63	26	—	—
	(29.7)			(5.1)	(4.4)		
El Dorado County	43,833	—	—	81	24	—	—
	(4.5)			(6.6)	(4.0)		
Outside the Study Region	N/A	—	—	77	8	—	—
	—			(6.3)	(1.3)		
TOTAL	981,100	1,227	597	1,227	597	$15,000	0
	(100.1)[b]			(100.0)	(100.0)	(100.0)	

[a]Numbers in parentheses indicate the percentage of the figure as a portion of the total (which is 100 percent).

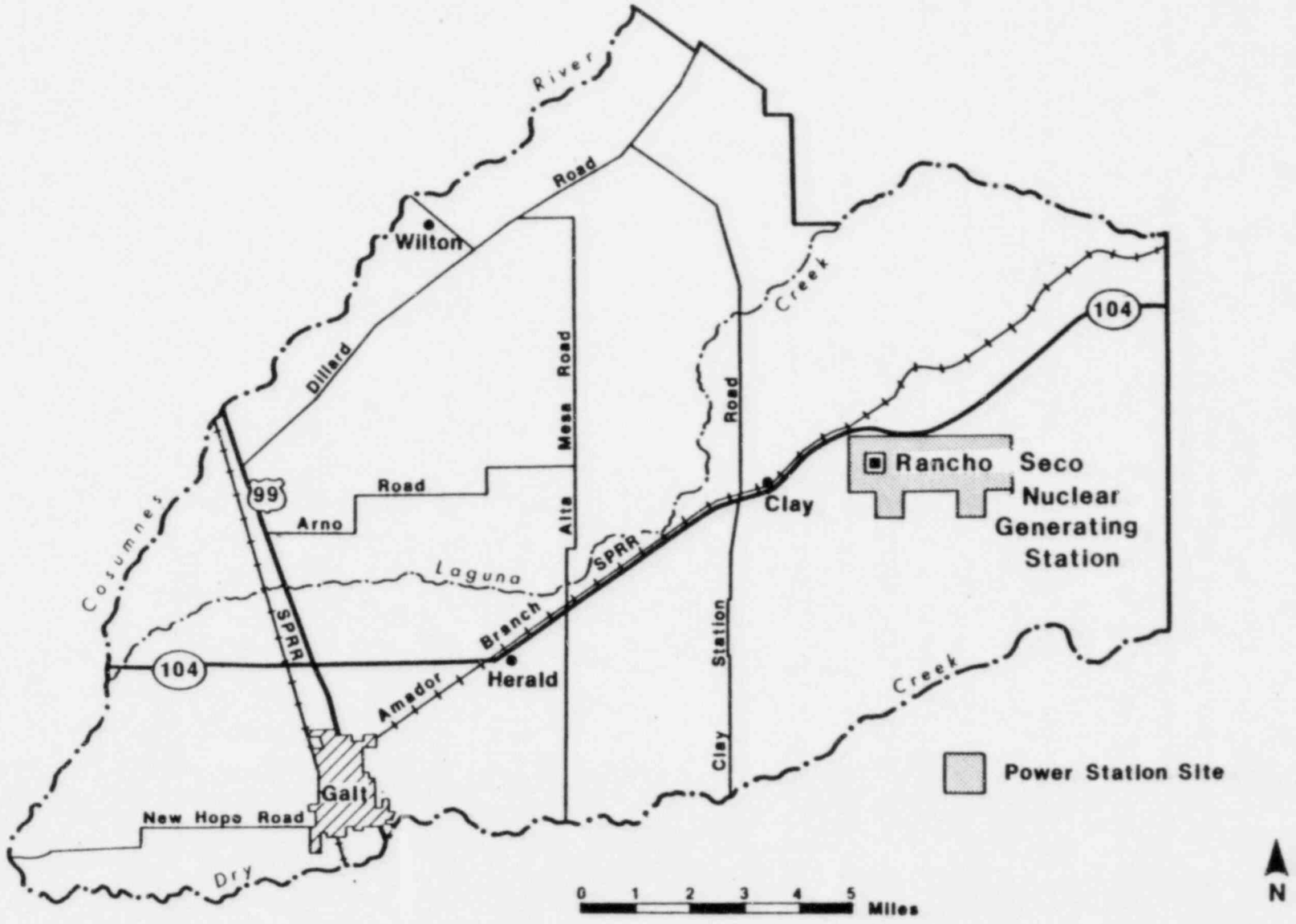
[b]Totals may not add due to rounding.

Sources: California Department of Finance, 1978, Population Estimates for California Cities and Counties 1970–1978 (Provisional), Sacramento, California; Mountain West Research, Inc., 1980.

the workers, which was 9.4 times greater than the Galt CCD's portion of the total study region's population. The Ione CCD had 1.5 percent of the workers, which was 5 times greater than the Ione CCD's share of the study region's total population. In terms of property taxes within the selected areas in the study region, only Sacramento County received property taxes, estimated at $15,000 in 1972. As discussed in Section 3.3.4, no property taxes have been assessed on the Rancho Seco site since the site's annexation into the SMUD service area in 1978.

In summary, the Galt CCD received the highest aggregate intensity of direct project effects. None of the other five aggregate units had a comparable intensity of direct project effects. Therefore, the Galt County Census Division was selected as the Study Area, the geographic unit that will serve as the basis for the analysis of the economic, demographic, housing, governmental, and social structure effects of the construction and operation of Rancho Seco Nuclear Generating Station. A map of the Study Area is provided in Figure 3-2.

FIGURE 3-2. RANCHO SECO NUCLEAR GENERATING STATION STUDY AREA: GALT COUNTY CENSUS DIVISION



CHAPTER 4: ECONOMY OF THE STUDY AREA

4.1 Introduction

The purpose of this chapter is to identify and discuss the effects of the construction and operation of the Rancho Seco Nuclear Generating Station on the economy of the Study Area, the Galt County Census Division. Emphasis is placed on changes in the local economy and on changes in the employment, income, and labor force status of the area population. The impacts of the project on the standard of living of the Study Area residents are also assessed.

The analysis begins by providing an overview of the economic history of the Study Area. A more detailed examination is then made of changes that occurred in the economy of the Study Area from 1968 (the year prior to the beginning of project construction) through 1978. The next sections trace the economic effects of both the construction and the operation of the plant. The analysis of the effects of plant construction is centered on 1972 (the peak construction year); the analysis of the effects of plant operation focuses on 1978. An economic base approach is utilized to identify and analyze the three elements of basic employment and income as well as the nonbasic employment and income that together constitute the total employment and income effects of the project. A summary of the employment and income effects due to the construction and operation of the Rancho Seco nuclear plant and a summary of the labor force and standard-of-living effects of the project complete the chapter.

4.2 Economic History of the Study Area

Until the arrival of the Spanish in the 1700s, the Study Area was inhabited by Native Americans with their characteristic subsistence economy and settlement patterns which focused on the location of waterways. Originally claimed and explored by the Spanish in the 18th Century, California came under Mexican rule in 1822. The Mexican government, considering the lands of central California to be of little value, offered large areas to Mexican citizens as land grants to encourage settlement. Land grants within the Study Area included: San Juan de los Mokelumnes (or Chabolla), Hartnell, and Arroyo Seco. In 1848, California became part of the United States under the Treaty of Guadalupe Hidalgo. (Sperry, 1970:1-2; Sperry, 1975:1; Reed, 1923:map; Spink Corporation, 1975:8.)

As the region became more populated with the discovery of gold to the east, political subdivisions called townships were established. The Study Area contained two townships: Alabama Township and Dry Creek Township.[1]

Alabama Township was organized in 1856 east of Dry Creek Township. The first settlers established their homes along major streams (including Laguna Creek and Dry Creek), the location of the richest soils. Stock-raising was the principal economic activity, first cattle, and then sheep. Following passage of the No-Fence Law, farmers turned from livestock grazing to crop cultivation, notably wheat, barley, and hay. It was estimated that one-eighth of the township was under cultivation in 1879. (Thompson, 1880:209.)

The Sacramento and Stockton stages ran through the township, stopping at a hotel and stage stop along Dry Creek. In 1876, the Amador Branch of the Central Pacific Railroad was built between Galt and Ione. This 27-mile route provided access to lignite coal mines near Ione. (Thompson, 1880:209; Reed, 1923:245.)

By 1880, the population of Alabama Township was estimated at 300 persons. The only notable settlement was Clay Station, settled by Thomas Steele in 1858 in the center of the township along the Central Pacific Railroad. A post office and store were established in Clay Station in 1878 and a blacksmith shop in 1879. While there were no established churches in the area, the township contained three school districts. (Thompson, 1880:210.)

Dry Creek Township was organized in 1853, mostly within the 35,508 acre Chabolla Grant (Sperry, 1975:12). Early settlers established homes in the area in the early 1850s. These settlers were primarily cattlemen and dairymen, producing beef and dairy products for the increasing population in the gold fields. By 1880, the township was still dominated by agriculture, but the emphasis had shifted to grain, with wheat the

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[1]Dry Creek Township was delineated by San Joaquin County to the south, the Cosumnes River to the northwest, and Alabama Township to the east (a north-south line two miles east of Galt and one mile west of Herald). Alabama Township was bounded by Amador County to the east, San Joaquin County to the south, Dry Creek Township to the west, and Cosumnes Township to the north (an east-west line five miles north of Clay Station). (Reed, 1923:map.)

most important crop. (Thompson, 1880:216-217; Galt Area Chamber of Commerce, n.d.:1.)

In the late 1860s, the Central Pacific Railroad was constructed through Dry Creek Township, connecting Sacramento and Stockton and bypassing the City of Liberty (a scheduled stop for the Wells Fargo Stage) south of the San Joaquin County line.[1] Dr. Obed Harvey, who owned the land along the railroad right-of-way known as Troy Place, took advantage of a California law which allowed him to survey a town site and sell lots. In 1869, Dr. Harvey established the town that was to become known as Galt. Originally 120 acres, the Galt townsite had a church at each corner and a railroad station in the center. (Thompson, 1880:217; Sperry, 1970:23, 30, 41-42.)

By 1880, Galt was noted as a grain shipping center, primarily for wheat, most of which went to Stockton. In addition, outlying mines shipped ores through the town. In 1880, Galt contained a post office; two general merchandise stores; one variety store; one hotel; one harness shop; two blacksmith shops; two wagon and carriage manufacture and repair shops; one wood yard; one livery stable; two barber shops; two shoe stores; two saloons; one meat market; one barley mill; a Wells, Fargo and Company Express Office; three physicians; one attorney; four lodges (including the Galt Grange); a First Congregational Church; and a new school (the local population had outgrown the original structure built in 1869). (Thompson, 1880:217; Galt Centennial, 1969:4; Sperry, 1970:39.)

Following the introduction of irrigation in the early 1900s, the production of grain increased in importance throughout the Study Area, particularly around Galt. The town maintained its role as an important rail center for local agricultural products (including grain, livestock, and dairy products) well into the 1900s. (Sacramento County Planning Department, 1961:3.)

The City of Galt developed around the railroad, and the original downtown was adjacent to the railroad station. According to the 1961 general plan, the shift from railroad to automobile transportation caused important changes in Galt. The railroad station was closed and U.S. Highway 50/99 was routed through the eastern portion of the town in the mid-1950s. (Sacramento County Planning Department, 1961:3.) These

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[1]In the 1900s, the Central Pacific Railroad became the Southern Pacific Railroad.

changes signaled the beginning of a shift away from Galt's historical emphasis on the provision of goods and services primarily for the surrounding agricultural land. In 1960, however, the county planning department still characterized Galt as an important farm and local trade center for the rural portion of Sacramento County (Sacramento County Planning Department, 1961:4-5). By the beginning of the study period, the economic base of Galt had become more diversified and included light manufacturing firms.

As Galt celebrated its 100th birthday in 1969, the area's agricultural role continued to be lauded:

> For more than a century, over 50 percent of Sacramento County's dairy production has been from this district where the majority of the operators are Grade A producers. Beef cattle production is also very important to the area followed by poultry, sheep, and hog raising. Much of the land in Galt is irrigated and the major portion of this is in pasture, but seed production for Ladino Clover, Sudan grass, and alfalfa is playing an increasingly important role. Rice is another large crop while large quantities of the apiary products for Sacramento County are produced around Galt. (Galt Centennial, 1969:23.)

In 1965, most of the land east of US-99 was still devoted to agriculture. The eastern edge of the Study Area was characterized by dry pastures held in large cattle ranches. In addition, there were three cattle feedlots in the area near Clay Station. More intensive agriculture, which included grain farming and dairying, was found in the area closer to Galt and along the Cosumnes River. (Sacramento County Planning Department, 1965:1-2.)

While the area east of US-99 was considered sparsely populated in 1965, a demand for rural homesites had developed. New rural, nonfarm homes were established, primarily on 5- and 10-acre lots, in and around the area's historical communities of Clay, Herald, and Wilton. Of the three communities, Wilton and Herald were the largest centers by the mid-1960s. Wilton consisted of several stores, a post office, an elementary school, a church, a gas station, and a few small residential lots. Herald, the smaller of the two communities, had a grocery store, an elementary school, a post office, a state and county rehabilitation center, and a fire station. In 1965, the total population of the area east of US-99 was estimated at 2,000 persons. (Sacramento County Planning Department, 1965:2.)

4.3 Economic Changes during the Study Period

Two perspectives are taken in this section on changes in the economy of the Study Area from 1968 through 1978. The first perspective focuses on the level of economic activity occurring within the boundaries of the area being studied. The primary measure of this activity is the number of jobs at places of work within the Study Area. The second perspective focuses not on economic activity occurring within the Study Area, but on the people residing in the area. The discussion centers on the labor force status of area residents and on the income they earn. Therefore, while employment is a key indicator in both cases, the distinction in the employment concepts must be maintained. The first perspective deals with employment in terms of the number of jobs measured at the place of work, while the second perspective measures the number of employed persons at their place of residence.

4.3.1 Employment in the Local Economy

In 1968, the majority of the employment opportunities in the Study Area were located in the City of Galt. These jobs were primarily in trade and services, manufacturing, and public administration. Other places of employment in the Galt CCD included small service centers: a general store, a plumbing/heating/hardware store, a feed store, and a post office in Wilton; a general hardware store, a post office, and an elementary school in Dillard. (Lang, personal communication, July 1980; Mori, personal communication, July 1980.)

Table 4-1 displays the estimated total number of jobs located within the Galt County Census Division in 1968, 1972, and 1978. In 1968, as shown in the table, 50.3 percent of the total employment was in trade and services. Of the employers in that category, the major employer (in terms of the number of workers) was the area's schools (in Galt, Wilton, and Dillard), followed by retail stores (primarily in Galt), wholesale outlets, and board and care homes for both senior citizens and developmentally disabled persons (located throughout the Study Area). Agriculture was the second largest employment sector with 28.9 percent of the total. Employment in agriculture included wage earners at dairies and livestock yards and occasional seasonal workers, as well as farm, dairy, and ranch proprietors and their families. The third largest employment sector in the Study Area was manufacturing, with 14.5 percent of the total. With a payroll of 100 persons in 1968, Commodore Corporation (a mobile home fabrication company) was the largest of the manufacturing firms. The remainder of the manufacturing industries, which employed fifteen or less persons, included: Certified

Products (mag wheels and swimming pool filters), Goods of the Woods (household products), Crystallite Block (cement blocks), Spaans Cookies (bakery goods), V & W Marbeline (marble ornaments and formica molds), and the Galt Herald (newspapers). The public administration sector included the Galt fire and police department, city administrators, and employees of the county and federal government (post offices). (Galt District Chamber of Commerce, 1969:4, 1971:3, 1978:3, and 1980:3.)

TABLE 4-1

ESTIMATED EMPLOYMENT BY PLACE OF WORK
GALT COUNTY CENSUS DIVISION
1968, 1972, AND 1978

Industrial Sector	1968	1972	1978
Agriculture	330	330	330
Construction	20	1,257	50
Manufacturing	168	142	118
Transportation, Communication, and Public Utilities	10	40	549
Trade/Services	574	637	857
Public Administration	40	48	77
TOTAL	1,142	2,454	1,981

Sources: Mountain West Research, Inc., 1980. Based on Galt District Chamber of Commerce Galt Community Economic Profiles (1969, 1971, 1978, 1980); Galt General Plans (1967, 1975, 1979); California Board of Equalization, Trade Outlets and Taxable Retail Sales data; and interviews with area residents, 1980.

During the first four years of the study period (1968 to 1972), the total number of jobs increased by 115 percent (1,312 jobs). In contrast, however, during the next six years (from 1972 through 1978), the total number of jobs decreased by 19.3 percent (473 jobs). Within the employment sectors, the most dramatic changes were in construction in 1972 and in transportation, communication, and utilities in 1978. The trade and service sector and the public administration sector showed increases from 1968 through 1978, while agriculture remained stable and manufacturing employment decreased.

The construction and operation of Rancho Seco Nuclear Generating Station within the Galt County Census Division accounted for the dramatic changes in the construction

and in the transportation, communication, and utilities sectors. The increases in the trade and service sector and in public administration were in response to the increased needs of the area's growing population. In 1973, the Commodore Corporation, which had employed 100 persons in 1968 and 75 persons in 1971, closed. The Commodore facility was subsequently utilized by Building Materials Distributers, Inc., a wholesaler that employed 68 persons in 1978. In addition, two new manufacturing firms were established in Galt during the study period: (1) Lodi Iron Works in 1971, an aluminum and bronze castings firm that employed 10 persons in 1971 and 12 in 1978; and (2) Hess Plastics in the mid-1970s, a manufacturer of compression, injection, and vacuum-forming molding and an employer of 10 persons in 1978. In addition, the Galt Herald expanded its employment significantly, from 15 persons in 1972 to 42 persons in 1978. (Galt District Chamber of Commerce, 1969:4, 1971:3, 1978:3, and 1980:3.)

4.3.2 Employment of Local Residents

The 1960, 1970, and 1975 labor force characteristics for residents of the Galt County Census Division are summarized in Table 4-2. In general, the total labor force in the Galt CCD experienced a significant increase (71.9 percent) from 1960 and 1970. Males contributed 682 persons to the total increase of 1,252, which resulted in a 52.8 percent increase in the male labor force. Although females accounted for only 570 of the total increase, the total female labor force increased by 127 percent. By 1970, the rapid increase in the Study Area labor force had slowed so that, between 1970 and 1975, the labor force increased by only 5.7 percent, or 171 workers. During this five-year period, the number of women in the labor force decreased by approximately 10.6 percent, while the number of males increased by 14.1 percent.

As shown in Table 4-2, while the total number of employed persons increased from 1,665 in 1960 to 2,875 in 1975 (an increase of 72.7 percent), the percentage change from 1970 to 1975 was only 2.7 percent. Total unemployment in the Study Area rose during the 15-year period--4.4 percent in 1960; 6.4 percent in 1970; and 9.1 percent in 1975. While the unemployment rate remained fairly constant for males (5.1 percent in 1970 and 5.9 percent in 1975), the rate for women almost doubled during the same time period (from 9.1 percent in 1970 to 17.1 percent in 1975).

The aggregate labor force participation rate for men decreased during the fifteen year period--72.0 percent in 1960; 64.2 percent in 1970; and 58.8 percent in 1975 (see Table 4-2). In contrast, the rate for women increased--25.4 in 1960 and 35.6 in 1970. By

1975, however, the participation rate for women fell to 24.9 percent; this was slightly below the 1960 level. Thus, the total labor force participation rate in the Galt CCD rose from 48.7 percent in 1960 to 50.4 percent in 1970, then declined to 42.2 percent in 1975, reflecting a labor force that was increasing at a pace which was slower than the population growth.

In 1974, the Sacramento County Department of Social Welfare opened a branch office in Galt to better serve local residents. According to department personnel, while unemployment in the area increased during the study period, most of the increase was centered in the City of Galt, rather than in the remainder of the Galt CCD. The construction of low-income housing within Galt (some of which was set aside as housing for migrant laborers) and the closing of the Commodore Corporation were two factors cited as contributing to the increased unemployment rate during the study period. (Harrah, personal communications, July and September 1980.)

TABLE 4-2

LABOR FORCE CHARACTERISTICS[a]
GALT COUNTY CENSUS DIVISION
1960, 1970, AND 1975

Labor Force Characteristic	1960	1970	1975
Labor Force			
Male	1,292	1,974	2,253
Female	449	1,019	911
TOTAL	1,741	2,993	3,164
Employed			
Male	1,254	1,874	2,120
Female	411	926	755
TOTAL	1,665	2,800	2,875
Unemployed			
Male	38 (2.9%)	100 (5.1%)	133 (5.9%)
Female	38 (8.5%)	93 (9.1%)	156 (17.1%)
TOTAL	76 (4.4%)	193 (6.4%)	289 (9.1%)
Labor Force Participation Rate			
Male	72.0%	64.2%	58.8%
Female	25.4%	35.6%	24.9%
TOTAL	48.7%	50.4%	42.2%

[a]The labor force characteristics were based on persons age 14 and over.

Sources: U.S. Department of Commerce, Bureau of the Census, 1960, Census Tracts, Sacramento California Standard Metropolitan Statistical Area, Washington, D.C., p. 55; U.S. Department of Commerce, Bureau of the Census, 1971, 1970 Census Fifth Count Summary File, Sacramento County, California, Washington, D.C., p. 683; Sacramento County Planning Department, 1975, Sacramento County 1975 Census Data, Sacramento, California, Table 13.

During the study period, the Galt CCD's position as a bedroom community for the region's urban areas increased as the number of new residents outpaced the increase in the job opportunities within the Study Area. According to Galt's 1975 general plan, an estimated 55 percent of the city's labor force was employed in Sacramento, Lodi, and Stockton (Spink Corporation, 1975:86). This trend was particularly evident in the rural portions of the Galt CCD where few new residents found employment in the Study Area.

A comparison of selected per capita income estimates for both the City of Galt and Sacramento County is presented in Table 4-3. As shown in the table, in constant 1972 dollars, the per capita income of Galt increased from $3,182 in 1969 to $3,682 in 1977 (15.7 percent). Sacramento County, on the other hand, showed a slightly higher increase (17.2 percent) during the same time period. While the per capita income in the City of Galt did increase from 1969 to 1977, it was approximately 20 to 22 percent below that of the entire county.

While measures of income for the entire Galt County Census Division indicate that the area was generally poorer than Sacramento County as a whole, the income within the Galt CCD was distributed unevenly. For example, in 1975 the median household income for the entire Galt CCD was $10,485, which placed it below that of Sacramento County which was $11,337. Although the median family income of the City of Galt was only $8,167 (38.8 percent less than the county), the median household income for the unincorporated area east of US-99 was $13,244 (14.4 percent more than the county), and the median family income for the unincorporated area west of US-99 was $12,019 (5.7 percent more than the county). Thus, these data illustrate that the residents of the City of Galt had median family incomes that were substantially lower than that of the county and the remainder of the Study Area. The higher incomes in the area east of US-99 reflected the incomes of the rural nonfarm residents who had moved to the area. (California Department of Finance, May 1975.)

According to local residents, the City of Galt was characterized by its significant proportion of lower- to middle-income residents and its lack of upper-income residents. During the study period, particularly since the mid-1970s, many of the city's new residents were retired people on fixed incomes living in new mobile home parks, and low-income families moving into new federally-subsidized housing. Thus, the proportion of lower-income residents increased relative to middle- and upper-income residents.

TABLE 4-3

PER CAPITA INCOME ESTIMATES
CITY OF GALT AND SACRAMENTO COUNTY
1969, 1972, 1974, 1975, AND 1977

Year	City of Galt[b]		Sacramento County[b]
	Total	Percent of County	
1969[a]	$2,816		$3,391
	(3,182)	79.6	(3,832)
1972	$3,412		$4,086
	(3,412)	80.2	(4,086)
1974	$4,045		$4,926
	(3,460)	78.2	(4,214)
1975	$4,432		$5,328
	(3,504)	79.8	(4,212)
1977	$5,181		$6,320
	(3,682)	78.0	(4,492)

[a]Income figures are based on the 1970 census.

[b]Numbers in parentheses indicate constant 1972 dollars.

Sources: U.S. Department of Commerce, Bureau of the Census, May 1977, 1973 (Revised) and 1975 Population Estimates and 1972 (Revised) and 1974 Per Capita Income Estimates for Counties and Incorporated Places in California, P-25, No. 653, p. 13; U.S. Department of Commerce, Bureau of the Census, January 1979, 1976 Population Estimates and 1975 and Revised 1974 Per Capita Income Estimates for Counties and Incorporated Places in California, P-25, No. 774, p. 11; U.S. Department of Commerce, Bureau of the Census, June 1980, 1977 Per Capita Money Income Estimates for Counties and Incorporated Places in California, P-25, No. 886, p. 26.

In the late 1960s, most of the people residing in the unincorporated rural area outside of Galt were farmers and dairymen. During the study period, the majority of the population increase in the unincorporated portion of the Galt CCD, particularly east of US-99, were middle- to upper-income families with wage and salary jobs in Sacramento, Lodi, and Stockton. Most of the in-migrants purchased 2-, 5-, 10-, or 20-acre parcels; provided their own wells, sewage disposal systems, and electrical hookups; and constructed their own houses. Since the mid-1970s, the area around Wilton has been noted as an upper-income area with a large number of professional people from

Sacramento. Thus, while the income level of people residing in the unincorporated rural area outside the City of Galt was generally higher than that of people living in Galt, this disparity increased during the study period. For example, in 1959 the median family income for all families east of US-99 was $5,527 (current dollars) compared to $4,957 (current dollars) for all families west of US-99. By 1975, the median household income was $13,030 (current dollars) east of US-99 and $8,668 (current dollars) west of US-99. (U.S. Department of Commerce, 1960:23; California Department of Finance, May 1975.)

4.4 Economic Changes in the Study Area due to the Project

The purpose of this section is to describe the effects of the construction and operation of the Rancho Seco Nuclear Generating Station on the economic conditions in the Galt County Census Division. As was the case in the previous section, the analysis focuses on three perspectives: the effect of the project on economic activity in the area studied (i.e., on jobs and income on a place-of-work basis); the effect of the project on the labor force of the residents of the area; and the effect of the project on the standard-of-living of area residents.

To accomplish these objectives, an economic base analysis, supplemented with an input-output analysis, was utilized. The premise of this analysis was that the economic activities of the Rancho Seco nuclear project (the employment at the project, the purchases of materials and services for the project, and other market effects of the project) caused additional economic activity in the Study Area. The determination of the total project effects on employment and income in the Study Area required the quantification of both the direct project activity and the additional induced nonproject activity. Once these income and employment consequences of the project had been estimated, their impacts on the area's economy, on the area's labor force, and on the area residents' standard-of-living were summarized.

4.4.1 Estimation of Project-Related Employment and Income Effects

The first of the three components of total project-related basic income and employment is designated as "direct" basic income and employment. Persons directly employed in the construction or operation of the Rancho Seco nuclear plant are direct basic employees; the income they earn is direct basic income. Direct basic employment and income are analyzed in two ways: (1) the number of jobs and income earned at the

place of work and their effects on the economy of the Study Area, and (2) the number of Study Area residents employed at the project, their project-related income, and the subsequent effects on the labor force and the standard-of-living in the Study Area.

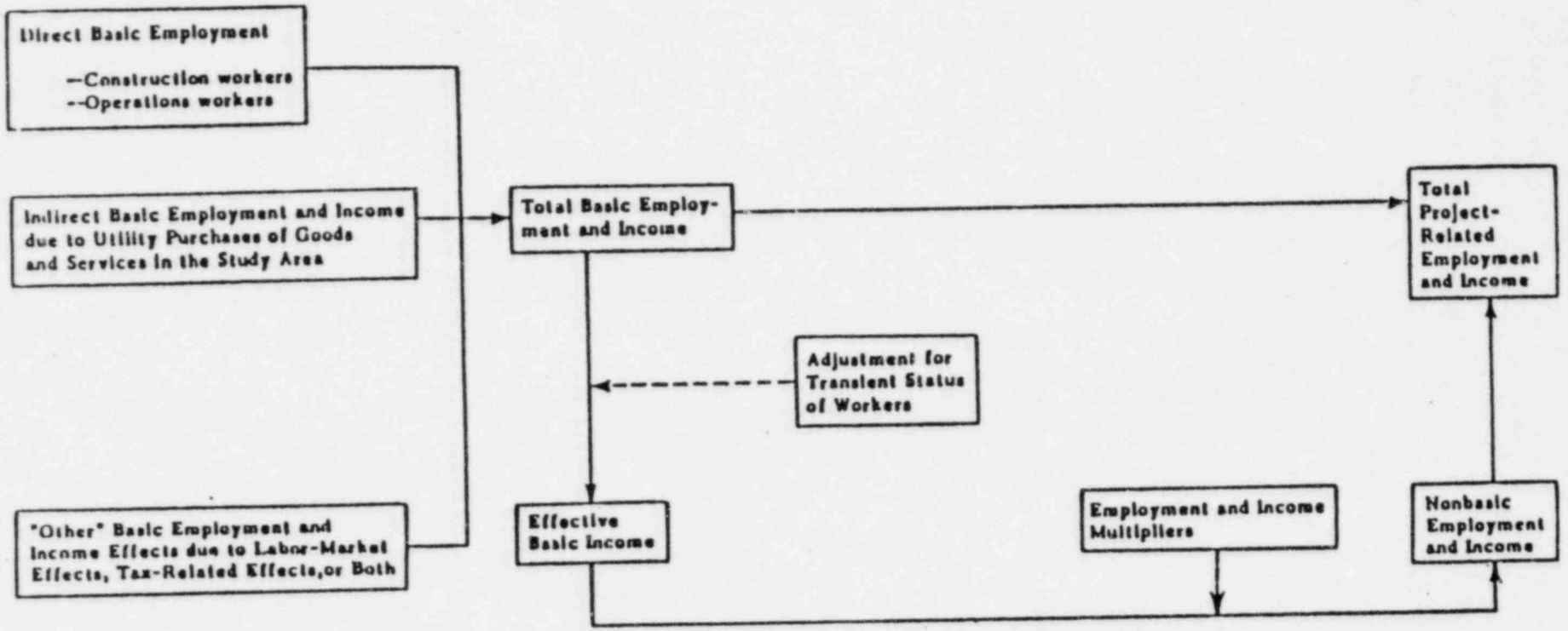
The second component of total project-related basic income and employment is referred to as "indirect" basic, the income and employment that result from the purchase of equipment, materials, and services by the utility and its contractors for the construction and operation of the plant. The amount of indirect basic income produced by a given purchase is determined by the ratio of indirect basic income to product value, which varies according to the type of goods and the type of establishments involved in the transactions. The indirect basic income and employment in the Study Area due to the project was calculated by applying an income-and-employment-to-value-of-purchases ratio derived from the Regional Industrial Multiplier System (RIMS) developed for the Regional Economic Analysis Division of the Bureau of Economic Analysis (U. S. Department of Commerce, 1977; Anderson, 1980).

The third component of the project's basic income and employment effects is categorized as "other" basic income and employment. The construction of a nuclear plant could result in labor market effects due to labor shortages, higher wages, or changes in economic activity in response to fiscal impacts due to the plant. For example, wage-induced effects might occur in agricultural areas or in areas experiencing underemployment if higher wages paid at the construction site attracted workers from lower-paying jobs. Theoretically, this could result in an increase in wage rates and in labor shortages throughout the local economy. To the extent that such responses changed the income or employment of local residents, the change would be categorized as other basic income and employment. The three major sources of change in basic income and employment—direct basic, indirect basic, and "other" basic—are summarized in Figure 4-1.

A high proportion of the project-related basic income in the Study Area was earned by workers who lived outside the Galt County Census Division or who resided in the Study Area only during the work week. As a result, these workers spent a smaller

FIGURE 4-1

ESTIMATION OF PROJECT-RELATED EMPLOYMENT AND INCOME EFFECTS



proportion of their income in the Study Area than did workers who lived in the Study Area and earned the same income. Therefore, the total project-related basic income earned in the Study Area was adjusted to make each dollar of project-related basic income equivalent in its effect on the economy of the Study Area to an average dollar of basic income earned there. The resulting adjusted income total is referred to as "effective" basic income.

"Nonbasic" income and employment, the final component of project-related employment and income effects, results from the expenditure and re-expenditure of effective basic income in the local economy. In general, the larger the economy, the smaller the income leakages due to imports and the larger the multiplier. Once a multiplier has been estimated that is appropriate to the size of the local economy, the change that effective basic income produces in nonbasic employment and income can be calculated. The method for estimating the nonbasic employment and income response to an increase in effective basic income is based on RIMS.[1] Nonbasic employment and income can then be added to the three categories of basic employment and income to estimate the total employment and income effects of the construction and operation of the nuclear plant.

4.4.1.1 Employment and Income Effects of the Project in 1972

Direct Basic Employment and Income Effects of the Project in 1972

The Rancho Seco nuclear plant is located in the Galt County Census Division in Sacramento County. Therefore, in terms of employment and income by place of work,

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[1]In general, the RIMS technique develops industry-specific input-output types of multipliers based on national interindustry relationships at the 496-sector level of disaggregation, adjusted to reflect the availability of required inputs from suppliers in the county. In the simplest case, if an industry does not exist in the county economy, any requirements from that industry are assumed to be supplied by imports from outside the county economy. If an industry does exist in the county at the same, or greater, proportion to the county economy as the industry is to the national economy, the county demands from that industry are assumed to be met within the county economy. If an industry represents a smaller proportion of the county economy than it did of the national economy, some of the county demand is assumed to be supplied from within the county and some is assumed to be imported. (Drake, personal communication, July 1980).

all direct basic employment and income from the project (1,227[1] jobs in 1972) accrued to the Study Area economy, as did the direct basic income ($27.2 million[2]) generated by the project (Vance, personal communications, July and September 1980; California Business and Transportation Agency, 1972).

A determination of direct basic income and employment by place of residence in the Study Area required information about the residential location patterns of the direct basic employees (as outlined in Section 3.3.2), since the majority of the direct basic employees resided outside of the Study Area. In terms of employment and income by place of residence in 1972, it was estimated that 121 direct basic employees, earning $2.7 million in income from the project, were residents of the Study Area.

Indirect Basic Employment and Income Effects of the Project in 1972

In 1972, SMUD and its contractors purchased approximately $74,000 of equipment and materials (primarily automotive parts from the wholesale and retail trade and services sectors) in the Galt County Census Division. Based on employment and income multipliers for the Study Area,[3] these purchases created approximately $3,000 in additional earnings and, at most, one additional job in the Study Area. The purchases were divided between five outlets. Based on discussions with personnel from each outlet, it was determined that no additional employees were hired as a result of this increased business activity. (Adams, personal communication, July 1980; Roether, personal communication, July 1980; Weathers, personal communication, July 1980; Nickels, personal communication, July 1980; Pullen, personal communication, July 1980.)

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[1]This employment figure is based on annual average daily employment.

[2]This income total includes 15 percent overtime.

[3]The income multiplier for Sacramento County was estimated to be $93 per $1,000 of purchases; the employment multiplier for the county was estimated at .00118 jobs per $1,000 of purchases. The multipliers for the Galt CCD were $39 in income per $1,000 of purchases and 0.0005 jobs per $1,000 of purchases. (See discussion of nonbasic-to-basic multipliers for an explanation of the adjustment for the Study Area.) (Drake, personal communication, July 1980.)

"Other" Basic Employment and Income Effects of the Project in 1972

In 1972, Rancho Seco was within easy commuting distance for over 245,000 persons in the civilian labor force in Sacramento County (U.S. Department of Commerce, 1977:67). Manual workers were hired out of the local union halls, primarily those located in Sacramento. The jobs were paid at the usual union scale, and no significant special inducements were used. (Vanderknyff, personal communication, July 1980.)

Interviews with local businesspersons and area farmers revealed no significant "other" basic income and employment effects resulting from the construction of Rancho Seco. The only exception was one of the larger retail grocery stores in Galt where the wages of clerical help did increase due to the significantly higher wages paid at the plant. However, this response was atypical; few places within the Galt CCD employed people other than family members as clerical workers. In addition, several local residents indicated a desire to work at Rancho Seco due to high wages, but indicated that lack of membership in a labor union prevented them from qualifying for the desired position. (Heinle, personal communication, July 1980; Weathers, personal communication, July 1980; Ambrogio, personal communication, July 1980; Spaans, personal communication, July 1980; Weakley, personal communications, July and November 1980; Diede, personal communication, July 1980.)

While the Galt CCD had an important agricultural component, the majority of area farms and dairies were family owned and operated. Persons who filled the relatively few part-time and full-time labor positions typically did not have the necessary skills or union membership to qualify for jobs at the plant. As a result, there were no wage-induced "other" basic employment or income effects in the Galt CCD agricultural sector. (Silva, personal communication, November 1980; Mansur, personal communication, November 1980; and Vanwarmerdan, personal communication, November 1980.)

As discussed in Section 3.3.4, while property taxes were assessed on the plant site from 1966 to 1978, the assessed valuation of the land was based on the area as grazing land. Thus, there were no tax-induced "other" employment effects. In summary, the total "other" basic employment and income effects in 1972 in the Galt County Census Division were estimated to be zero.

Total Basic Employment and Income Effects of the Project in 1972

The total basic employment and income effects of the project are the sum of the three basic components--direct basic, indirect basic, and "other" basic. As shown in Table 4-4, the total number of basic jobs added to the Study Area economy by the Rancho Seco project (by place of work) was 1,227 in 1972. These jobs generated a basic income of approximately $27.2 million. Many of these jobs, however, were filled by workers who lived outside the Study Area. In 1972, only 121 project-related basic employees, earning about $2.7 million, were residents of the Galt County Census Division.

TABLE 4-4

TOTAL PROJECT-RELATED BASIC EMPLOYMENT AND INCOME
GALT COUNTY CENSUS DIVISION
1972

Employment and Income	By Place of Work (Number of Jobs)	By Place of Residence (Number of Resident Workers)
Basic Employment		
Direct	1,227	121
Indirect[a]	0	0
"Other"	0	0
TOTAL Basic Employment	1,227	121
Basic Income[b]		
Direct	$27,154,000	$2,678,000
Indirect	3,000	3,000
"Other"	0	0
TOTAL Basic Income	$27,157,000	$2,681,000

[a]While approximately $3,000 in indirect income was generated in the Study Area, no additional employees were hired.

[b]Income is reported in constant 1972 dollars.

Source: Mountain West Research, Inc., 1980.

Nonbasic Employment and Income due to the Project in 1972

The amount of nonbasic employment and income caused by the project in the local economy is determined primarily by the interaction of the project's effective basic income and the nonbasic-to-basic employment and income multipliers.

Effective basic income. Two principal factors influenced the amount of effective basic income that resulted from the project: (1) the residential location of the workers

earning the basic income, and (2) the magnitude of the workers' outside financial commitments. The effects of these factors were analyzed by dividing the project-related basic workers into four groups:

Nonmovers--employees who resided in the Study Area prior to their employment on the project and who did not move because of this employment;

Movers accompanied by families--employees who moved into the Study Area because of their employment on the project and were accompanied by families;

Movers unaccompanied by families--employees who moved into the Study Area because of their employment on the project and were not accompanied by families (including single employees); and

Daily commuters--employees who lived outside the Study Area but commuted daily into the Study Area to work at the project.

Table 4-5 shows the distribution of project-related basic employment and basic income among these four groups for the Study Area. In 1972, approximately 10 percent of the 1,227 project-related basic jobs in the Study Area were held by workers residing there.

TABLE 4-5

PROJECT-RELATED BASIC EMPLOYMENT AND INCOME BY TYPE OF WORKER
GALT COUNTY CENSUS DIVISION
1972

Type of Worker	Total Basic Employment	Total Basic Income[a]
Nonmover[b]	63	$ 1,397,000
Movers Accompanied by Families	28	620,000
Movers Unaccompanied by Families (or Single)	30	664,000
Daily Commuters	1,106	24,477,000
TOTAL[c]	1,227	$27,157,000

[a]Income is reported in constant 1972 dollars.

[b]All $3,000 of indirect basic income was distributed among nonmovers.

[c]Totals may not add exactly due to rounding.

Source: Mountain West Research, Inc., 1980.

Based on information about residential locations and outside financial commitments of the work force, and on examination of the availability and cost of goods and services in the local economy, the basic income of each group was weighted to reflect the average proportion of earnings spent in the local economy by members of each group and their household as compared to the proportion spent by nonmovers.

County specific multipliers were based on the consumption patterns of average county residents; thus, nonmovers served as the standard for defining effective basic income. As a result, all nonmover income was considered as effective income and was weighted by a factor of 1.0. Expenditures for each group of workers were, therefore, compared to nonmover income which was based on average annual expenditures for all families and single consumers in the $20,000-24,999 income bracket in California in 1972, the category which encompassed the average Rancho Seco construction worker (U.S. Department of Labor, 1978). Annual family expenditures were divided into major categories, including: food, housing, clothing, transportation, health, personal care, and recreation. The assumptions concerning local purchases that were made within each consumption category were based on discussions with workers and local residents.

It was assumed that nonmovers and movers accompanied by families would have the same consumption patterns. Therefore, it was estimated that $8,028 would be spent locally out of a total consumption of $15,306 for both groups (that is, 52.5 percent of the consumption would be within the Galt County Census Division). For movers unaccompanied by families or single and daily commuters, the amounts spent locally were estimated to be substantially less. For movers unaccompanied by families or single, the percentage spent in the Galt CCD was estimated to be 23.2 percent; for daily commuters it was only 1.0 percent.

Based on these estimates, the effects on the local economy of income paid to movers unaccompanied by families (or single) and daily commuters would be less than that paid to nonmovers accompanied by families. For movers unaccompanied by families (or single), the appropriate weight was 0.4423, based on their local expenditures (23.2 percent) relative to that of the nonmovers (52.5 percent). For the daily commuters, the appropriate weight was 0.0189, based on their local expenditures (1.0 percent) relative to that of the nonmovers (52.5 percent). As shown in Table 4-6, these weights resulted in an estimated effective income in the Galt CCD of $2.8 million or 10.2 percent of the total project-related basic income by place of work.

TABLE 4-6

ESTIMATED EFFECTIVE BASIC INCOME
GALT COUNTY CENSUS DIVISION
1972

Type of Worker	Basic Income[a]	Factor	Total Effective Basic Income[a]
Nonmovers	$1,397,000	1.0	$1,397,000
Movers Accompanied by Families	620,000	1.0	620,000
Movers Unaccompanied by Families or Single	664,000	0.4423	294,000
Daily Commuters	24,477,000	0.0189	463,000
TOTAL[b]	$27,157,000		$2,774,000

[a]Income is reported in constant 1972 dollars.

[b]Totals may not add exactly due to rounding.

Source: Mountain West Research, Inc., 1980.

Nonbasic-to-basic multipliers. The second factor determining the nonbasic employment and income effects of the project in the Study Area is the nonbasic-to-basic employment and income multipliers. Based on the RIMS analysis, $1,000 of effective basic income would result in 0.0431 nonbasic jobs and $261 in nonbasic income in Sacramento County (by place of work).[1]

The RIMS multipliers were derived from data on Sacramento County and, therefore, required adjustment to be applicable to the Study Area analysis, where the multipliers were expected to be smaller due to the smaller size of the Study Area economy. This adjustment was made by applying the results of research on the size and distribution of nonbasic response to increased basic activity in size-ordered economic

[1]These figures are in constant 1972 dollars and are based on the 1976 national input-output table. Since the structure of the Sacramento County economy did not change substantially between 1972 and 1976, the 1976 relationships are considered appropriate for this analysis.

systems[1] (Anderson, 1980). Data from this research were used to calculate the ratio of nonbasic response to an increase in basic income among economies in a system according to the position of the economy in a six-order size hierarchy. Placement of an economy in the hierarchy is based on the total personal income of residents in the economy's area. The Study Area, with total personal income of more than $42.3 million in 1972, was in the smallest order, while Sacramento County, with total personal income of approximately $3.086 billion in 1972 was in the sixth, or largest, order (California Department of Finance, 1978:38).

Based on this categorization, the nonbasic-to-effective-basic-income and employment multipliers in the Study Area were estimated to be only 42.4 percent of those of Sacramento County. Therefore, the appropriate multipliers for the Study Area were as follows: $1,000 of effective basic income in the Study Area resulted in 0.0183 nonbasic jobs (0.424 x 0.0431) and $110.66 in nonbasic income (0.424 x $261.00).[2] When applied to the $2.8 million of effective basic income, these multipliers gave an estimated nonbasic response in the Study Area of 51 jobs and $307 thousand in income, by place of work. Based on a consideration of labor force availability, commuting patterns, and discussions with local residents, it was estimated that about 80 percent (41 jobs) of the 51 nonbasic jobs created by the project in the Study Area were filled by nonmovers, that about 15 percent (7 jobs) were filled by movers with families, and that about 5 percent (3 jobs) were filled by daily commuters. Study Area residents, therefore, obtained approximately 48 nonbasic jobs and $289 thousand in nonbasic income from the project in 1972.

Total Employment and Income due to the Project in 1972

The total employment and income created in the Galt County Census Division by the project in 1972 is the sum of the four employment and income components--direct basic, indirect basic, "other" basic, and nonbasic. As shown in Table 4-7, the total number of new jobs created in the Study Area in 1972 by place of work was estimated at 1,278; total income from this employment generated approximately $27.5 million. The employment and income effects by place of residence were substantially smaller. In the

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[1]The size of the economy was measured by total personal income of residents.

[2]The multiplier of 42.4 percent was derived by dividing the ratio of gammas (multipliers) for first order places by gammas for sixth-order places.

Study Area, the project provided employment for about 169 residents, who earned approximately $3 million from project-related jobs.

TABLE 4-7

TOTAL PROJECT-RELATED EMPLOYMENT AND INCOME
GALT COUNTY CENSUS DIVISION
1972

Employment and Income	Place of Work	Place of Residence
Employment		
Basic	1,227	121
Nonbasic	51	48
TOTAL	1,278	169
Income[a]		
Basic	$27,157,000	$2,681,000
Nonbasic	307,000	289,000
TOTAL	$27,464,000	$2,970,000

[a]Income is reported in 1972 constant dollars.

Source: Mountain West Research, Inc., 1980.

4.4.1.2 Employment and Income Effects of the Project in 1978

Direct Basic Employment and Income Effects of the Project in 1978

As in 1972, all income earned at the Rancho Seco nuclear plant and all employment at the plant site are attributed to the Study Area for analysis of the economic effects on a place-of-work basis. In 1978, the annual average daily employment of operation and maintenance workers at the Rancho Seco project was estimated at 597,[1] which resulted in approximately $9.1 million of basic income in constant 1972 dollars (Vance, personal communications, July and September 1980).

In 1978, as in 1972, not all of the direct basic employees were residents of the Study Area. In terms of employment and income effects by place of residence in 1978, it

[1]This includes 200 temporary refueling workers on-site for 37 days, which is equivalent to approximately 28 person years of labor.

is estimated that 45 direct basic employees, earning approximately $685 thousand (constant 1972 dollars) in income from the project area, were residents of the Galt CCD.

Indirect Basic Employment and Income Effects of the Project in 1978

In 1978, the value of the goods and services purchased by SMUD and its contractors in the Study Area was less than $5,000. Therefore, the indirect basic employment and income effects of the project during that year of operation are too small for consideration and are estimated at zero. (Wood, personal communication, July 1980.)

"Other" Basic Employment and Income Effects of the Project in 1978

As in 1972, no "other" basic employment or income were found to be attributable to the Rancho Seco nuclear plant in 1978. There were no discernible wage or tax effects of the plant operation which might produce "other" basic effects. (Diede, personal communication, July 1980; Silva, personal communication, November 1980; Vance, personal communication, July 1980.)

Total Basic Employment and Income Effects of the Project in 1978

The total basic employment and income due to the operation of the Rancho Seco project in the Study Area in 1978 are shown in Table 4-8. These figures are substantially smaller than the comparable figures for 1972 (the year of peak construction) due primarily to the large reduction in the work force between these two years. In the Study Area, estimated total basic employment by place of work was 597, and estimated total basic income was $9.1 million (constant 1972 dollars). In terms of employment by place of residence, an estimated 45 basic employees earning approximately $685 thousand (constant 1972 dollars) were residents of the Study Area in 1978.

Nonbasic Employment and Income Effects of the Project in 1978

Following the analysis discussed for 1972, the basic income earned in the Study Area by each of the four categories of workers--nonmovers, movers accompanied by families, movers unaccompanied by families or (single), and daily commuters--was weighted to determine the total effective basic income in the Study Area. Tables 4-9 and 4-10 show: (1) the distribution of basic workers and basic income among these four categories, (2) the weights applied to the income of each group and, (3) the total effective basic income effects of the project in the Study Area. As seen in these tables, the total project-related basic income earned in the Study Area in 1978 was

approximately $9.1 million (constant 1972 dollars). However, about 92.5 percent of the total project-related basic income earned in the Study Area was earned by daily commuters, while only about 7.5 percent was earned by workers living in the Study Area (5.2 percent were nonmovers, 0.7 percent were movers accompanied by families, and 1.6 percent were movers unaccompanied by families (or single). As shown in Table 4-10, the total effective project-related basic income in the Study Area in 1978 was estimated to be $759 thousand (constant 1972 dollars).

TABLE 4-8

TOTAL PROJECT-RELATED BASIC EMPLOYMENT AND INCOME
GALT COUNTY CENSUS DIVISION
1978

Employment and Income	By Place of Work (Number of Jobs)	By Place of Residence (Number of Resident Workers)
Basic Employment		
Direct	597	45
Indirect	0	0
"Other"	0	0
TOTAL Basic Employment	597	45
Basic Income[a]		
Direct	$9,087,000	$685,000
Indirect	0	0
Other	0	0
TOTAL Basic Income	$9,087,000	$685,000

[a]Income is reported in constant 1972 dollars.

Source: Mountain West Research, Inc., 1980.

Conversion of the effective basic income to nonbasic employment and income was done as in 1972. The same RIMS multiplier was used for Sacramento County. Since both the Study Area and Sacramento County remained in the same size order (one and six respectively), the same adjustment factor (0.424) for the multipliers was used for the Study Area. The estimated nonbasic employment and income by place of work for the Study Area was 13 jobs and $84 thousand (constant 1972 dollars).

TABLE 4-9

PROJECT-RELATED BASIC EMPLOYMENT AND INCOME BY TYPE OF WORKER
GALT COUNTY CENSUS DIVISION
1978

Type of Worker	Total Basic Employment[a]	Total Basic Income[b]
Nonmovers	31	$472,000
Movers Accompanied by Families	4	61,000
Movers Unaccompanied by Families (or Single)	10	152,000
Daily Commuters	552	8,402,000
TOTAL	597	$9,087,000

[a]Since no indirect basic or other basic employment or income were identified, these components were not included in the table.

[b]Income is reported in constant 1972 dollars.

Source: Mountain West Research, Inc., 1980.

TABLE 4-10

ESTIMATED EFFECTIVE BASIC INCOME
GALT COUNTY CENSUS DIVISION
1978

Type of Worker	Basic Income[a]	Factor	Total Effective Basic Income[a]
Nonmovers	$472,000	1.0	$472,000
Movers Accompanied by Families	61,000	1.0	61,000
Movers Unaccompanied by Families or Single	152,000	0.4423	67,000
Daily Commuters	8,402,000	0.0189	159,000
TOTAL[b]	$9,087,000		$759,000

[a]Income is reported in constant 1972 dollars.

[b]Totals may not add exactly due to rounding.

Source: Mountain West Research, Inc., 1980.

The distribution of the nonbasic employment among the four categories of workers was estimated as follows: 10 of the 13 nonbasic jobs in the Study Area were filled by nonmovers, 2 by movers accompanied by families, and 1 by a daily commuter. The estimated 12 nonbasic workers residing in the Galt CCD earned approximately $78 thousand (constant 1972 dollars).

Total Employment and Income Effects of the Project in 1978

Table 4-11 shows the total employment and income due to the operation of the Rancho Seco nuclear plant in the Study Area by place of work and by place of residence for 1978. The total number of new jobs created by the project in the Study Area was an estimated 610, including 597 direct basic and 13 nonbasic jobs. Total income generated by the project in the Study Area was approximately $9.2 million (constant 1972 dollars). By place of residence, an estimated 57 (45 basic and 12 nonbasic workers) residents were employed in project-related jobs in 1978. They earned a total of about $762 thousand (constant 1972 dollars).

TABLE 4-11

TOTAL PROJECT-RELATED EMPLOYMENT AND INCOME
GALT COUNTY CENSUS DIVISION
1978

Employment and Income	Place of Work	Place of Residence
Employment		
Basic	597	45
Nonbasic	13	12
TOTAL	610	57
Income[a]		
Basic	$9,087,000	$685,000
Nonbasic	84,000	78,000
TOTAL	$9,171,000	$762,000

[a]Income is reported in constant 1972 dollars.

Source: Mountain West Research, Inc., 1980.

4.4.2 Effects of the Project on the Study Area Economy, 1968-1978

The construction and operation of Rancho Seco Nuclear Generating Station produced economic impacts on the local area through the on-site employment of workers and the purchase of local goods and services. This section summarizes those economic effects for the Study Area on a place of work basis.

The annual employment at the Rancho Seco nuclear plant was estimated to allow a comparison of the size and duration of the effects of the project on the economy of the Galt County Census Division. This estimation was completed by assuming that the ratio of direct basic employment to total project-related employment remained constant at the 1972 level from 1968 to 1972, then increased between 1972 and 1978 at a constant annual rate. The assumption was made since direct basic employment dominated all total employment analyses.

Table 4-12 shows the annual average direct basic employment and the total estimated project-related employment by place of work for the project from 1968 through 1978. As seen in the table, the estimated total employment in the Study Area was more than 900 workers from 1971 through 1973, and more than 450 workers from 1974 through 1978.

Figure 4-2 illustrates the estimated total employment in the Galt County Census Division, both with and without the Rancho Seco project, in 1968, 1972, and 1978. In addition, the total project-related employment is also delineated. Thus, as shown in the figure, the estimated effect of the construction and operation of the Rancho Seco nuclear plant on employment in the Galt CCD by place of work was significant. Approximately 52 percent of all jobs in the Study Area were estimated to be project-related during 1972, the peak construction year. The presence of the project-related jobs more than doubled the total number of jobs in the Study Area economy in 1972 as compared to 1968. By 1978, the percentage of Study Area jobs that were due to the project decreased to approximately 30 percent, which still represented a significant portion of the total number of Study Area jobs. In addition, the income generated through the project-related jobs in the Study Area was also significant.

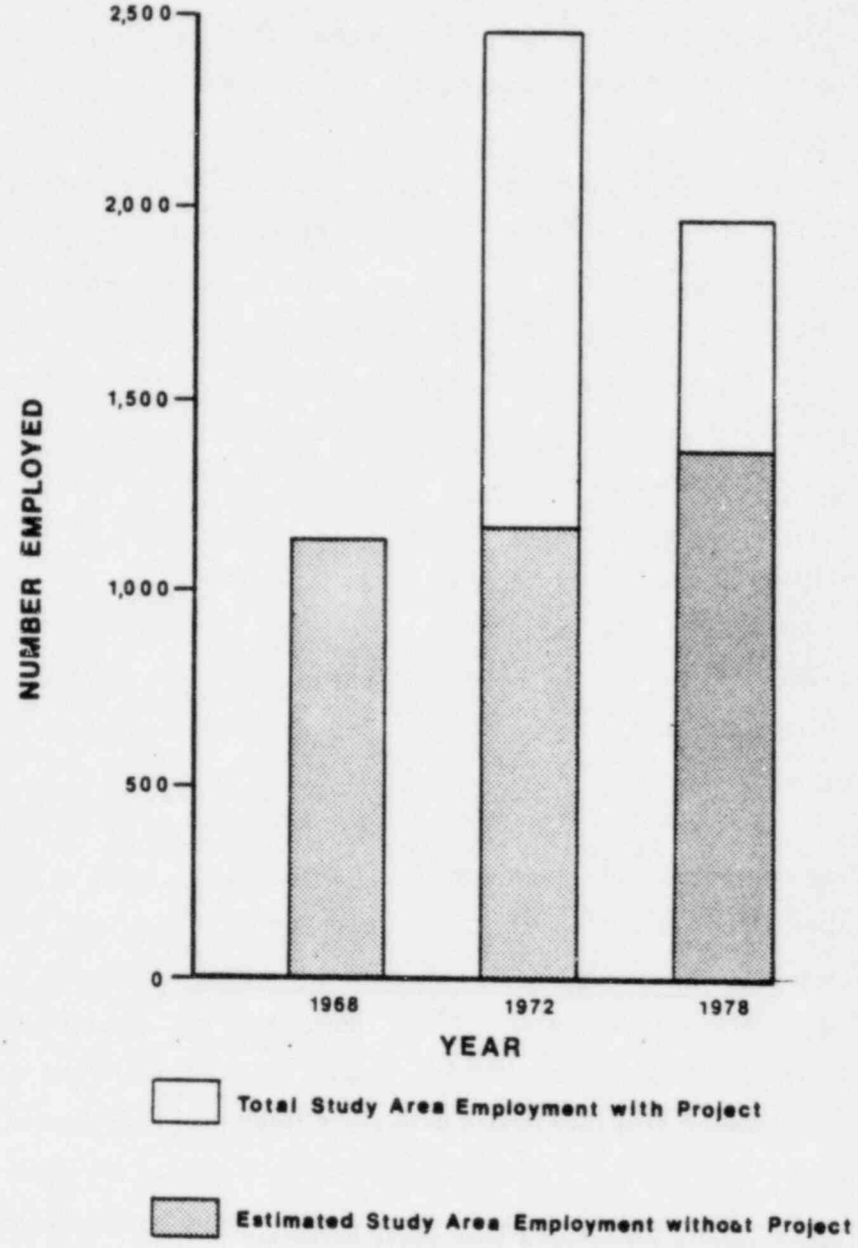

FIGURE 4-2. Project-Related Employment by Place of Work in Study Area, 1968-1978.

TABLE 4-12

ANNUAL AVERAGE DIRECT BASIC EMPLOYMENT AND ESTIMATED ANNUAL PROJECT-RELATED EMPLOYMENT BY PLACE OF WORK
GALT COUNTY CENSUS DIVISION
1968-1978

Year	Annual Average Daily Employment			Estimated Total Annual Project-Related Employment[a]
	Construction	Operation	Total	
1968	0	0	0	0
1969	103	0	103	107
1970	360	0	360	375
1971	866	0	866	902
1972	1,227	0	1,227	1,278
1973	1,012	0	1,012	1,051
1974	454	118	572	592
1975	153	363	516	532
1976	0	449	449	462
1977	0	507	507	520
1978	0	597	597	610

[a]The employment figures for 1969 to 1972 are based on the constant ratio of 1972 direct basic employment to total employment. The 1973 to 1978 figures are adjusted to the 1978 ratio at a constant average rate.

Source: Mountain West Research, Inc., 1980.

4.4.3 Effects of the Project on the Study Area Residents, 1968-1978

The employment effects of the project on the residents of the Galt County Census Division between 1968 and 1978 are shown in Table 4-13. These estimates were derived utilizing the same constant direct-basic-employment-to-total-project-related-employment ratios as discussed in Section 4.4.2. As shown in the table, over 100 residents of the Study Area were employed in project-related jobs from 1971 through 1973. The significant effect that the Rancho Seco project had on the economy of the Galt CCD, in terms of employment and income by place of work, is in contrast to the much smaller effect of the project on the resident labor force in the Study Area.

During 1972, the peak year of construction, approximately 63 Study Area residents who had lived in the area prior to the project were employed in jobs at the project site. Another estimated 58 persons moved into the Study Area for employment in such jobs. In

addition, approximately 48 Study Area residents obtained work in the nonbasic jobs created by the project in the Study Area. In 1978, approximately 31 nonmovers were employed at the Rancho Seco project while another 14 persons moved to the Galt CCD for jobs at the plant, and an additional 12 Study Area residents worked in nonbasic project-related jobs in the Study Area. Although the project-related jobs were a substantial proportion of the total number of jobs in the Study Area economy, they accounted for less than 7 percent and 3 percent of the jobs held by Study Area residents in 1972 and 1978, respectively. The large proportion of residents commuting out of the Study Area for jobs diffused the effects of changes in employment opportunities at any particular location on unemployment and underemployment.

TABLE 4-13

ANNUAL AVERAGE DIRECT BASIC EMPLOYMENT AND ESTIMATED ANNUAL PROJECT-RELATED EMPLOYMENT BY PLACE OF RESIDENCE GALT COUNTY CENSUS DIVISION 1968-1978

Year	Annual Average Daily Employment	Estimated Total Annual Project-Related Employment[a]
1968	0	0
1969	10	14
1970	35	49
1971	85	119
1972	121	169
1973	100	137
1974	56	76
1975	39	52
1976	34	45
1977	38	49
1978	45	57

[a]The employment figures for 1969 to 1972 are based on the constant ratio of 1972 direct basic employment to total employment. The 1973 to 1978 figures are adjusted to the 1978 ratio at a constant average rate.

Source: Mountain West Research, Inc., 1980.

Rancho Seco employed only a small proportion of the Study Area residents[1] thus, the income generated in the Study Area as a result of the plant construction and operation did not substantially affect the median family or per capita income of Study Area residents. This is not to say, however, that the employment and income from project-related jobs were not significant for the standard-of-living of the individuals and families affected, but rather that the employment of local residents at the project site and the induced employment effects in other sectors of the economy were insufficient to affect the overall standard-of-living of the Study Area population.

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[1]While local residents indicated that a number of Study Area women found employment in project-related jobs, both during construction and operation, the total number was not significant.

CHAPTER 5: POPULATION

5.1 Introduction

The purpose of Chapter 5 is to identify and analyze the population effects of the Rancho Seco Nuclear Generating Station in the Study Area, the Galt County Census Division. The first step is to examine the historical and recent demographic trends in the Study Area. The second step is to determine the demographic implications of the basic and nonbasic employment created by the project. Two sources of population increase are considered: increases due to the in-migration of workers and their household members, and increases due to the diminished out-migration of local residents and their household members. The third step is to take these estimates, formulated into annual series, and examine the population impacts of the project in terms of the percentage of the total Study Area population affected.

5.2 Demographic Trends Prior to the Study Period

The recent population trends for the Galt CCD, which includes the City of Galt (incorporated in 1946) and Census Tract 94 and Census Tract 95[1], are shown in Table 5-1. The total population of the Galt CCD increased by 62 percent (3,054 persons) from 1960 to 1970,[2] which represented an average annual rate of growth of 4.9 percent. The average annual growth rate for the City of Galt during the same time period (5.5 percent) was higher than the entire Galt CCD; however, Galt's average annual rate of growth from 1950 to 1970 was only 4.5 percent. Between 1950 and 1970, the City of Galt grew by approximately 140 percent, increasing from 1,333 persons in 1950 to 3,200 in 1970. During these two decades, Galt's largest percentage increase occurred between 1960 and 1970 (71.3 percent). During the 1960 to 1970 time period, the City of Galt increased its share of the total Study Area population from 37.9 percent in 1960 to 40.1 percent in 1970.

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[1]The Galt County Census Division is comprised of two census tracts: Census Tract 94, located west of U.S. Highway 99 (US-99), and Census Tract 95, located east of US-99. Since the City of Galt is divided by US-99, Galt is within both census tracts; however, the majority of the city is within Census Tract 95.

[2]While the study period begins in 1968, the 1970 census provides the only available data that are comparable to 1960 statistics.

TABLE 5-1

POPULATION
GALT COUNTY CENSUS DIVISION
1950-1980

Year	City of Galt		Census Tract 94[d]		Census Tract 95[e]		Galt County Census Division	
	Total	Average Annual Growth %	Total	Average Annual Growth %	Total	Average Annual Growth %	Total	Average Annual Growth %
1950[a]	1,333	—	NA	NA	NA	NA	NA	NA
1960[a]	1,868	3.4	NA	NA	NA	NA	4,927	NA
1970[a]	3,200	5.5	3,782	NA	4,199	NA	7,981	4.9
1971[c]	3,380	5.6	3,987	5.4	4,389	4.5	8,376	4.9
1972[c]	3,620	7.1	4,089	2.6	4,523	3.1	8,612	2.8
1973[c]	3,840	6.1	4,217	3.1	4,525	0.0	8,742	1.5
1974[c]	4,140	7.8	4,296	1.9	4,975	9.9	9,271	6.1
1975[b]	4,320	4.3	4,638	8.0	5,280	6.1	9,918	7.0
1976[c]	4,530	4.9	4,768	2.8	5,513	4.4	10,281	3.7
1977[c]	4,700	3.8	4,970	4.2	5,668	2.8	10,638	3.5
1978[c]	5,225	11.2	5,190	4.4	6,228	9.9	11,418	7.3
1979[c]	5,275	1.0	5,430	4.6	6,303	1.2	11,733	2.8
1980[c]	5,400	2.4	5,767	6.2	6,414	1.8	12,181	3.8
1970-1980	—	5.4	—	4.3	—	4.3	—	4.3
1970-1978	—	6.3	—	4.0	—	5.1	—	4.6

[a]Population data are based on the federal census.

[b]Population data are based on the State of California special census.

[c]Population data are California Department of Finance estimates.

[d]Approximately 3 percent of the total population in Census Tract 94 resides within the Galt city limits.

[e]Approximately 78 percent of the total population in Census Tract 95 resides within the Galt city limits.

NA: Not available.

Sources: U.S. Department of Commerce, Bureau of the Census, 1960, Census Tracts, Sacramento, California, Standard Metropolitan Statistical Area, Washington, D.C., p. 23; U.S. Department of Commerce, Bureau of the Census, 1971, 1970 Census Fifth County Summary File, Sacramento County, California, Washington, D.C., p. 674; California Department of Finance, Population Research Unit, 1978, Population Estimates for California Cities and Counties 1970-1978 (Provisional), Sacramento, California, p. 38; California Department of Finance, Population Research Unit, 1980, Population Estimates of California Cities and Counties January 1, 1979 and January 1, 1980, Sacramento, California, p. 7; Sacramento Regional Area Planning Commission, Sacramento Regional Information System, 1975, Revised Population Module Summary by Major Zone, Sacramento, California, pp. 55-56; Sacramento Regional Area Planning Commission, Research and Information Services, 1980, Population Module by Major Zone and Jurisdiction, Sacramento, California, pp. 132-133, and 144.

As shown in Table 5-2, in terms of ethnicity, in 1960 and 1970, the majority of the population within the Galt CCD was white. Hispanics were the largest ethnic subgroup. In contrast to Galt, several communities close to the Study Area, such as Thornton and Acampo, were noted for large concentrations of Hispanic residents. Japanese, Chinese,[1] and Filipinos comprised the third largest ethnic group in both years, while only a small percentage of the total population was black. Between 1960 and 1970, the ethnic composition of the Study Area experienced a slight shift as the proportion of white residents to the total population decreased from 94.4 percent to 87.7 percent. The greatest percentage increase occurred in the Hispanic community as their proportion of the total Galt CCD population increased from 3.9 to 9.2 percent. The majority of the non-white population resided in the City of Galt rather than in the unincorporated rural areas.

The 1960, 1970, and 1975 age distribution for the Galt County Census Division population is shown in Table 5-3 for people under 18 years of age, people aged 18-64, and people aged 65 and older. While all groups increased in terms of absolute numbers between 1960 and 1970, the 18-64 age category experienced the only increase in terms of its share of the total population, rising from 50.4 percent in 1960 to 53.2 percent in 1970. While the total number of residents under 18 years of age increased by 1,076 persons (57 percent), this group's proportion of the total population decreased from 38.3 percent in 1960 to 36.6 percent in 1970. A similar trend was exhibited by the group aged 65 years and older.

A comparison of the age distribution of the Galt CCD to Sacramento County, as shown in Table 5-3, illustrates that the largest differences between the two areas were in the 18-64 years old category (with Sacramento County having the larger percentage) and in the 65 years and older category (with the Study Area containing the larger percentage). Between 1960 and 1970, the proportion of residents under age 18 decreased for both areas, while the proportions of the residents aged 18-64 increased in both areas. However, the proportion of residents aged 65 and older decreased for the Galt CCD and increased for the county during the same ten-year period.

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[1]Several communities near the Galt CCD, such as Locke, are noted for their significant number of Chinese residents.

TABLE 5-2

POPULATION BY RACIAL COMPOSITION
GALT COUNTY CENSUS DIVISION
1960 AND 1970

	1960		1970	
Ethnic Group	Persons	Percent	Persons	Percent
White	4,653	94.4	7,109	87.7
Hispanic	192	3.9	745[a]	9.2
Japanese/Chinese/Filipino	82	1.7	173	2.1
Black	0	0.0	26	0.3
Other	0	0.0	53	0.7
TOTAL	4,927	100.0	8,106[b]	100.0

[a]Total was calculated from age/sex breakdown for Hispanics.

[b]The figure for the 1970 Galt CCD in Table 5-1 is a SRAPC revised figure based on the 1970 census. The above 1970 Galt CCD population is the 1970 census figure.

Sources: U.S. Department of Commerce, Bureau of the Census, 1960, Census Tracts, Sacramento California Standard Metropolitan Statistical Area, Washington, D.C., p. 23; U.S. Department of Commerce, Bureau of the Census, 1971, 1970 Census Fifth Count, Summary File, Sacramento County, California, Washington, D.C., pp. 674, 678.

5.3 Demographic Changes during the Study Period

While the study period for the Rancho Seco project is 1968 through 1978, data on demographic characteristics for the Galt CCD in 1968 and 1969 were unavailable, and little data existed (except population estimates) for the Study Area following 1970. Thus, the information presented in this section is principally qualitative.

As shown in Table 5-1, the total population of the Galt CCD grew from 7,981 persons in 1970 to 11,418 persons in 1978. During that time, the most rapid increases occurred during the 1973-1975 and 1977-1978 periods. Thus, between 1970 and 1978, the Study Area population grew by 3,437 persons (43.1 percent), or an average annual rate of growth of 4.6 percent (which was slightly less than the 1960 to 1970 average annual growth rate). The average annual growth rate for the City of Galt continued to be larger than that of the entire Galt CCD, increasing its 5.5 percent rate from 1960 to 1970, to

TABLE 5-3

AGE DISTRIBUTION
GALT COUNTY CENSUS DIVISION
1960, 1970, AND 1975

	1960			1970			1975		
Age	Persons	Percent		Persons	Percent		Persons	Percent	
Under 18	1,887	38.3	(37.4)[b]	2,963	36.6	(35.5)[b]	3,350	33.8	(30.0)[b]
18-64	2,484	50.4	(55.7)[b]	4,313	53.2	(57.4)[b]	5,584	56.4	(61.8)[b]
65 and Over	556	11.3	(6.9)[b]	830	10.2	(7.1)[b]	974	9.8	(8.3)[b]
TOTAL	4,927	100.0	(100.0)[b]	8,106[a]	100.0	(100.0)[b]	9,908[a]	100.0	(100.1)[b]

[a]The figures for the 1970 and 1975 Galt CCD in Table 5-1 are SRAPC revised figures based on the 1970 and 1975 censuses. The above 1970 and 1975 Galt CCD populations are the 1970 and 1975 census figures.

[b]Numbers in parentheses are percentages for Sacramento County.

Source: U.S. Department of Commerce, Bureau of the Census, 1960, Census Tracts, Sacramento, California, Standard Metropolitan Statistical Area, Washington, D.C., p. 42; U.S. Department of Commerce, Bureau of the Census, 1971, 1970 Census, Fifth Count, Summary file, Sacramento County, California, Washington, D.C., p. 675; California Department of Finance, May 1975, Special Census Tract 94, Tract 95, City of Galt, Sacramento, California; Sacramento Regional Area Planning Commission, n.d., Data Summaries: Comparative Age Data 1960-2000, Vol. 5, No. 3, Sacramento, California.

6.3 percent from 1970 through 1978. The estimated 1978 Galt population was 5,225 persons, an addition of 2,025 persons (63.3 percent) from the 1970 figure. Between 1970 and 1978, Galt continued to increase its share of the total Study Area population, rising from 40.1 percent in 1970 to 45.8 percent in 1978.

Table 5-4 shows the distribution of the 1970 and 1978 total population for the Galt County Census Division and subareas of the Galt CCD (designated as zones on Figure 5-1). As shown in the table, the major population concentration was in the City of Galt in Zone A, which had approximately 60 percent of the total Study Area population in 1970 and 1978. The second area of population concentration was in Zone B, which corresponded to the Wilton/Dillard area. While the area encompassing the Rancho Seco nuclear plant (Zone F) had a population of only 98 persons in 1970, its increase to 316 persons in 1978 represented the largest percentage change (222.4 percent) and the largest average annual growth rate (15.8 percent) of the Galt CCD subareas. The Wilton/Dillard area (Zone B) had the second largest growth rate, followed by Zone C and Zone A. Zone E, which is west of U.S. Highway 99, was the only subarea which showed a decrease in total population during the eight-year period. Between 1970 and 1978, the percentage of the total population decreased in Zone A, Zone D, and Zone E, while the remaining zones (including the zone encompassing the Rancho Seco project) increased their share of the total population.

Although the 1975 special census gathered data on ethnicity, the data are not comparable to the 1970 census statistics. In 1975, respondents were asked which ethnic group most members of the household identified with. Of the households that responded, 87.7 percent identified themselves as white, 9.2 percent as Mexican-American or Chicano, and 2.1 percent as Japanese, Chinese, and Filipino. (Sacramento County Planning Department, 1975:Table 4.)

Between 1960 and 1970, the total number of Hispanic residents increased from 3.9 percent to 9.2 percent of the total Study Area population. Based on discussions with local residents, it is estimated that the proportion of Hispanic residents to the total number of residents in Galt continued to rise during the study period. This increase occurred in the City of Galt (in contrast to the rural, unincorporated portion of the Study Area) where, in the early to mid-1970s, a significant number of federally subsidized

TABLE 5-4

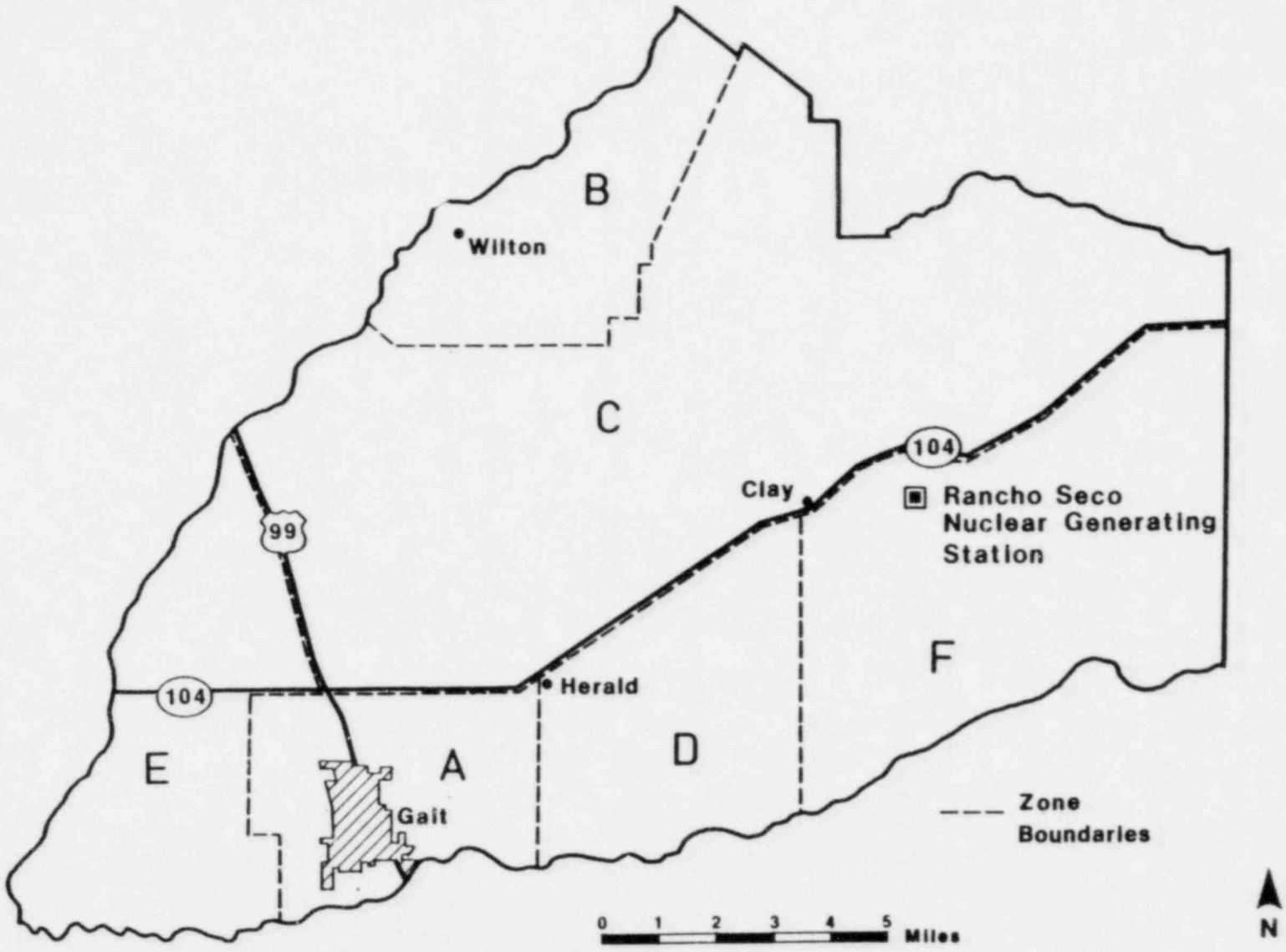
DISTRIBUTION OF POPULATION BY ZONE
GALT COUNTY CENSUS DIVISION
1970 AND 1978

Area	1970	Percent of Total	1978	Percent of Total	Percent Change (1970 to 1978)	Average Annual Growth (%)
Zone A	4,892	61.3	6,748	59.1	37.9	4.1
Zone B	1,187	14.9	2,025	17.7	70.6	6.9
Zone C	986	12.4	1,464	12.8	48.5	5.1
Zone D	505	6.3	553	4.8	9.5	1.1
Zone E	313	3.9	312	2.7	-0.3	-0.04
Zone F	98	1.2	316	2.8	222.4	15.8
Galt County Census Division[a]	7,981	100.0	11,418	99.9	43.1	4.6

[a]Totals may not add to 100.0 due to rounding.

Sources: Sacramento Regional Area Planning Commission, Sacramento Regional Information System, 1975, Revised Population Module Summary by Minor Zone, Sacramento, California; Sacramento Regional Area Planning Commission, Research and Information Services, 1980 Population Module by Minor Zone and Jurisdiction, Sacramento, California.

FIGURE 5-1. GALT COUNTY CENSUS DIVISION ZONES



low-income housing was constructed. The majority of that housing was purchased by Hispanics. By the end of the study period, the City of Galt contained a distinct Hispanic community. (Tanner, personal communication, July 1980; Hollison, personal communications, July and October 1980; Gonzalez, personal communication, July 1980.)

Between 1970 and 1975 (see Table 5-3), each of the age groups identified in the Study Area increased in absolute numbers: the under-18 age group increased by 13.1 percent; the 18-64 age group increased by 29.5 percent; and the 65 and older age group increased by 17.3 percent. The trends begun in the 1960 to 1970 time period (the proportion of each age component to the Study Area total and to the Sacramento County total) continued from 1970 through 1975. For example, in the Study Area, the proportion of people under age 18 decreased to 33.8 percent of the total Galt CCD population, while the proportion of people aged 18-64 rose to 56.4 percent, and the proportion of people aged 65 and older decreased to 9.8 percent.

5.4 Population Effects due to the Project

5.4.1 Introduction

Two categories of population effects that are directly attributable to the construction and operation of the Rancho Seco project are examined: population change due to in-migration, and population change due to diminished out-migration.[1] For both categories, employment due to the project was the force assumed to be driving the population change.

The number of project-related workers in the Study Area was identified for both basic and nonbasic employment in Chapter 4. In addition, the number of workers who moved into the Galt CCD and the number of workers who were already residents of the Study Area were determined for this project-related employment. The following sections present estimates for both categories of population effects resulting from the construction and operation of the Rancho Seco nuclear plant.

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[1] Although it is possible that a project could cause out-migration or prevent in-migration or both, neither case appears to apply for the Rancho Seco plant.

5.4.2 Population Effects in 1972

5.4.2.1 Population Change due to In-migration

The principal demographic effects attributable to the Rancho Seco project are those resulting from the in-migration of workers and accompanying household members to the Study Area due to project-related employment. In 1972, the project created an estimated 1,278 jobs in the Galt County Census Division. Table 5-5 shows the distribution of these jobs in the Study Area among the four categories of workers—nonmovers, movers accompanied by families, movers unaccompanied by families (or single), and daily commuters. It is estimated that, in the Study Area in 1972, 63 of the 1,227 basic jobs were held by nonmovers, 28 were held by movers accompanied by their families, 30 were held by movers who were either unaccompanied by their families or were single, and 1,106 were held by daily commuters. In 1972, the project is estimated to have created an additional 51 nonbasic jobs in the Study Area, 41 of which were held by nonmovers[1], 7 by movers accompanied by their families, and 3 by daily commuters.

TABLE 5-5

PROJECT-RELATED EMPLOYMENT BY TYPE OF WORKER
GALT COUNTY CENSUS DIVISION
1972

Type of Worker	Basic	Nonbasic	TOTAL
Nonmovers	63	41	104
Movers Accompanied by Families	28	7	35
Movers Unaccompanied by Families (or Single)	30	0	30
Daily Commuters	1,106	3	1,109
TOTAL	1,227	51	1,278

Source: Mountain West Research, Inc., 1980, based on interviews with business agents of union locals, construction workers, local residents, and motel, mobile home, and apartment owners and managers.

[1]Including family members of other project-related workers.

The Study Area population change due to in-migration was assumed to be the result of the movers and their accompanying household members. The distribution of the basic and nonbasic jobs among the four categories of workers was discussed in Chapter 4, where the number of movers unaccompanied by families or single and the number of movers accompanied by families were estimated. An average family size of 3.25 was used for accompanied basic workers based on figures for workers on similar projects in the West (Malhotra, 1979:210). The average household size in California in 1970 (2.94) was used to estimate the number of additional houshold members in-migrating to the Study Area with nonbasic workers (U.S. Department of Commerce, 1972:6-1318). As shown in Table 5-6, the total in-migration to the Study Area due to the project in 1972 was estimated at 142 persons: 65 workers, 35 spouses, and 42 children.

TABLE 5-6

POPULATION IN-MIGRATION DUE TO THE PROJECT
GALT COUNTY CENSUS DIVISION
1972

Employment Category	Workers	Additional Family Members	TOTAL
Basic Workers[a]			
Movers Accompanied by Families	28	63	91
Movers Unaccompanied by Families (or Single)	30	0	30
Nonbasic Workers[b]			
Movers Accompanied by Families	7	14	21
Movers Unaccompanied by Families (or Single)	0	0	0
TOTAL IN-MIGRANTS	65	77	142

[a]The totals were based on average family size of 3.25 (Malhotra) for basic workers.

[b]The totals were based on the 1970 average household size in California of 2.94.

Source: Mountain West Research, Inc., 1980.

5.4.2.2 Population Change due to Diminished Out-Migration

Population increases due to the construction of the Rancho Seco nuclear plant could also have resulted from diminished out-migration. Workers who would normally have left to obtain employment elsewhere may have stayed because they found work on project-related jobs, thus increasing the population from the level that it would have been without those jobs. The maximum population effect from reduced out-migration would have occurred if all locally-hired residents had been mobile, had perceived other job opportunities, and had out-migrated if not employed. The minimum population effect would have occurred if the best alternative for these locally-hired residents was to remain unemployed in the Study Area, in which case no population increase from diminished out-migration would have been caused by the project.

The employment created by the project, particularly that filled by Study Area residents, was only a small fraction of the total employment opportunities in the labor market area. Therefore, some of the 104 workers from the Study Area who were employed in project-related jobs in 1972 might have out-migrated had those jobs not been available. Interviews with area residents and employers indicated that the percentage of nonmovers who obtained jobs at the project who otherwise would have out-migrated was probably small, and less than the margin of error of the total nonmover worker and additional household member estimates.[1] Consequently, for the purposes of estimating total population effects, no diminished out-migration was attributed to the Rancho Seco project.

5.4.2.3 Total Population Effects in 1972

The total population effects of the project in 1972 are the sum of the increase due to in-migration and the increase due to diminished out-migration. Since no diminished out-migration has been attributed to the project, in 1972 the total estimated population effects were those shown in Table 5-6: an increase of 142 persons (65 workers and 77 additional household members) in the Galt County Census Division.

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[1]The lack of population response to the employment drop following peak construction supports this analysis.

5.4.3 Population Effects in 1978

5.4.3.1 Population Change due to In-Migration

In 1978, as in 1972, the Rancho Seco project caused a population increase as a result of the employment of in-migrants in project-related jobs. In 1978, as shown in Table 5-7, a total of 16 basic and nonbasic workers moved into the Study Area for employment on project-related jobs. As shown in Table 5-8, the total 1978 estimated population increase in the Study Area due to project-related in-migration was 28 persons, (16 workers, 6 spouses, and 6 children).

TABLE 5-7

PROJECT-RELATED EMPLOYMENT BY TYPE OF WORKER
GALT COUNTY CENSUS DIVISION
1978

Type of Worker	Basic	Nonbasic	TOTAL
Nonmovers	31	10	41
Movers Accompanied by Families	4	2	6
Movers Unaccompanied by Families or Single	10	0	10
Daily Commuters	552	1	553
TOTAL	597	13	610

Source: Mountain West Research, Inc., 1980, based on interviews with business agents of union locals, construction workers, local residents, and motel, mobile home, and apartment owners and managers.

5.4.3.2 Population Change due to Diminished Out-Migration

As in 1972, consideration of the estimated 41 nonmovers employed in project-related jobs in the Study Area and the availability of alternative employment in the area

resulted in the attribution of no significant population effects due to diminished out-migration.[1]

5.4.3.3 Total Population Effects in 1978

The total population effects of the project are therefore those resulting from in-migration. As shown in Table 5-8, the Study Area population in 1978 is estimated to have been increased by 28 persons due to the project.

TABLE 5-8

POPULATION IN-MIGRATION DUE TO THE PROJECT
GALT COUNTY CENSUS DIVISION
1978

Employment Category	Workers	Additional Family Members[a]	TOTAL
Basic Workers			
Movers Accompanied by Families	4	8	12
Movers Unaccompanied by Families or Single	10	0	10
Nonbasic Workers			
Movers Accompanied by Families	2	4	6
Movers Unaccompanied by Families or Single	0	0	0
TOTAL IN-MIGRANTS	16	12	28

[a]Based on the 1970 average household size in California of 2.94 for nonbasic workers.

Source: Mountain West Research, Inc., 1980.

[1]As in 1972, the total number of nonmovers employed in project-related jobs was an insignificant portion of the population in the Study Area. Therefore, the effect of diminished out-migration was negligible. Lacking a valid basis for estimation, it was not quantified.

5.4.4 Summary

Based on the calculations of project-related population increases in 1972 and 1978, the annual population effects of the project shown in Table 5-9 were estimated, assuming a constant relationship between population increase and total work force, weighted for the ratio of construction to operation workers on site. As seen in this table, the population due to the project reached its highest level in 1972 when it accounted for only approximately 1.7 percent of the estimated Study Area population.

Based on this analysis, the population effects of the project on the Study Area were relatively small, considering the magnitude and value of the project, and the size and duration of the construction period. The population due to the project was not a dominant element of the overall population changes in the area.

TABLE 5-9

POPULATION INCREASE DUE TO IN-MIGRATION
OF PROJECT-RELATED WORKERS AND HOUSEHOLD MEMBERS
GALT COUNTY CENSUS DIVISION
1968-1978

Year	Construction Work Force	Operation Work Force	Total Work Force	Project-Related Population Increase[a]	Galt CCD Population[b]	Project-Related Population as a % of Study Area Percent
1968	0	0	0	0	7,302	—
1969	103	0	103	12	7,634	0.2
1970	360	0	360	43	7,981	0.5
1971	866	0	866	103	8,376	1.2
1972	1,227	0	1,227	146	8,612	1.7
1973	1,012	0	1,012	120	8,742	1.4
1974	454	118	572	68	9,271	0.7
1975	153	363	516	24	9,918	0.2
1976	0	449	449	21	10,281	0.2
1977	0	507	507	24	10,638	0.2
1978	0	597	597	28	11,418	0.2

[a]The following project-related population increase to total work force factors were used: 0.119 from 1968-1974 and 0.047 from 1975-1978.

[b]The population increase for years other than 1972 and 1978 is based on the ratio of population increase to total work force for 1972 and 1978. The 1972 factor of 0.119 was used for 1968-1974; the 1978 factor was used for 1975-1978.

Source: Mountain West Research, Inc., 1980.

CHAPTER 6: SETTLEMENT PATTERNS AND HOUSING

6.1 Introduction

The purpose of Chapter 6 is to identify the effects of the construction and operation of the Rancho Seco Nuclear Generating Station on settlement patterns, land use, and housing in the Galt County Census Division. In this chapter, the historical trends are examined, with particular attention given to the changes that took place during the study period. The chapter concludes with a discussion of the effects of the Rancho Seco nuclear project on the housing supply and demand in the Study Area.

6.2 Settlement Patterns

6.2.1 Factors Influencing Settlement Patterns in the Study Area

The general settlement patterns within the Study Area have been influenced by a variety of natural and cultural features, including climate, topography and related stream and soil patterns, and transportation routes (stagecoach lines, railroads, and highways). In addition, the Study Area's location between two large urban areas (Sacramento and Stockton) has been an important factor influencing growth and development.

Early settlement patterns focused on agriculture and developed near streams and productive soils. Smaller landholdings generally emerged in the western two-thirds of the Study Area where richer soils, access to water for irrigation, and flat topography resulted in more intensive agricultural uses. The eastern portion of the area, which was more removed from water sources and which exhibited poorer soils and a rolling topography, was used more extensively for cattle grazing. These landholdings were characterized by large ranches and a less dense population.

Small communities, such as Herald, Wilton, and Clay, formed along transportation routes (stagecoach lines and railroads). Subsequently, they became neighborhood service centers for surrounding agricultural landholdings and for rural nonfarm residences.[1]

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[1]Clay lost its prominence as a local service center after the closing of the Clay post office prior to the study period (H. LaVine, personal communication, November 1980).

The City of Galt, which was established along the railroad, functioned for many decades as a shipping and service center for its agricultural hinterland. With the closing of the railroad station in the mid-1950s and the completion of U.S. Highway 50/99 (US-99) on the eastern edge of Galt, population and economic growth in the city shifted east of the railroad along US-99. The completion of US-99, coupled with Galt's location between Lodi, Sacramento, and Stockton, enhanced its position as a bedroom community for local residents seeking a wider range of employment opportunities.

During the 1960s and 1970s, metropolitan areas in California experienced an out-migration of residents seeking a more rural lifestyle. In general, this movement followed national trends. At the same time, in the Galt County Census Division, agricultural residents with marginally profitable farms, particularly Grade B dairies,[1] found it advantageous to sell all or portions of their land for residential development. The availability of two to twenty acre parcels, the rural nature of the area, the easy and close access to employment centers, and the low price of the land (compared to Sacramento, San Francisco, and Los Angeles) resulted in an increased number of persons moving to the rural portions of the Study Area to establish homes. In addition, during the past decade, residents of the region's cities were also attracted to Galt due to its small-town atmosphere and its location within easy commuting distance of Sacramento, Lodi, and Stockton. (Tanner, personal communication, July 1980; H. LaVine, personal communications, June and July 1980.)

6.2.2 Land Use in the Study Area

The majority of the land area in the Galt County Census Division has always been devoted to rural land uses, primarily cultivated crops and grazing land. The Study Area is considered one of the most rural areas in Sacramento County. Table 6-1 displays the major land uses in the Galt CCD in 1975. As shown in the table, 96.7 percent of the Study Area was in agriculture or open space in 1975; the remaining 3.3 percent was developed. Of the developed area, 39.3 percent of the total was residential; 35.2 percent were highways, streets, and roads; 13.6 percent was used for transportation (other than highways, streets, and roads), communication, and utilities; and 5.3 percent was in public and quasi-public open space.

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[1]Grade B milk is used to produce cheese, butter, and milk powder rather than liquid milk (Moore, personal communication, July 1980).

Residential land uses and highways, streets, and roads occurred throughout the Study Area and, thus, were the most dispersed type of development; manufacturing, retail activities, and most public land uses (with the exception of Rancho Seco Park) were concentrated in the City of Galt. Over 75 percent (126 acres) of the 165.1 acres of industrial, nonmanufacturing land was related to agriculture (e.g. grain storage, stockyards, and agricultural services). Of those 126 acres, 93.6 were stockyards located in the eastern portion of the Study Area near the Rancho Seco nuclear plant.

TABLE 6-1

MAJOR LAND USES
GALT COUNTY CENSUS DIVISION
1975

Land Use	Number of Acres	Percent of Total Developed Land
Residential	1,827.7	39.3
Industrial, Nonmanufacturing	165.1	3.5
Manufacturing	11.7	0.3
Transportation, Communications, and Utilities	631.1	13.6
Retail Activities	34.7	0.7
Office Activities	1.4	0.0
Public and Quasi-public Buildings	100.8	2.2
Public and Quasi-public Open Space	246.6	5.3
Streets and Roads	1,636.8	35.2
Total Developed[a]	4,655.1	100.0
Agriculture and Open Space	129,192.0	—
TOTAL	133,847.9	—

[a]Totals may not add exactly due to rounding.

Sources: Sacramento Regional Area Planning Commission, 1975, Land Use Module, Sacramento, California; Sacramento Municipal Utility District, 1980, SMUD Electric Power for the Heart of California, Sacramento, California.

While the 120-acre Rancho Seco nuclear plant site accounted for almost 20 percent of the 631.1 acres developed for transportation, communication, and utilities in 1975, and the 205-acre Rancho Seco Park contributed over 83 percent of the total land area in public and quasi-public open space, both the plant site and the park represented only approximately 7 percent of the total developed acreage in the Study Area and an insignificant portion of the total number of acres in the Galt CCD.

During the study period, the most noticeable change in land use in the unincorporated portion of the Study Area resulted from the addition of an increased number of rural nonfarm residences to the characteristicly scattered farm houses. Prior to the study period, the majority of the development in Galt was between U.S. Highway 99 and the Southern Pacific Railroad; however, between 1968 and 1978, residential development spread to the south, west, and north. (Sacramento County Planning Department, 1961; Sacramento County Planning Department, 1967; Spink Corporation, 1975; Sacramento County Community Development and Environmental Protection Agency, 1979.)

6.3 Housing

6.3.1 Housing Trends Prior to the Study Period

Table 6-2 shows selected housing characteristics for the Study Area in 1960 and 1970.[1] Prior to the study period, housing in the Study Area was primarily scattered, single-family farm houses in the unincorporated portion of the Galt CCD. Housing was concentrated in the City of Galt, primarily on the west side of the freeway. By 1960, there were a total of 1,565 housing units in the Study Area. Of this number, 97 percent were single family units. While the City of Galt contained 32 duplex units and 15 multiple family units, there were no multiple family units east of US-99. Of the total number of housing units in 1960, approximately 8 percent (128 units) were vacant (19 were for sale and 26 were for rent). Of the 1,437 occupied housing units, 71.3 percent (1,024) were owner occupied. Of the total number of housing units, 72.7 percent were considered sound, 19.2 percent were classified as deteriorated, and 8.1 percent were categorized as dilapidated. In terms of age, 44.1 percent of the units were constructed

[1]While the study period begins in 1968, the 1970 census provides the only available data that are comparable to the 1960 statistics.

in 1939 or earlier, 27.4 were constructed from 1940 to 1949, and 28.5 percent were constructed between 1950 and 1959. (U.S. Department of Commerce, 1960:72.)

TABLE 6-2

SELECTED HOUSING CHARACTERISTICS
GALT COUNTY CENSUS DIVISION
1960 AND 1970

Housing Characteristics	1960	1970
Total Housing Units	1,565	2,378[a]
Total Occupied	1,437	2,249
Owner Occupied	1,024	1,570
Renter Occupied	413	679
Vacancies	128	129
For Rent	26	39
For Sale	19	17
Units in Structure		
1	1,518	1,969
2	32	75
3-4	10	65
5+	5	90
Mobile Homes	0	179

[a]The total number of housing units for the Galt County Census Division in 1970 was recorded as 2,370 by the Sacramento Regional Area Planning Commission.

Sources: U.S. Department of Commerce, Bureau of the Census, 1960, Census Tracts, Sacramento California Standard Metropolitan Statistical Area, p. 72; U.S. Department of Commerce, Bureau of the Census, 1971, 1970 Census Fifth Count Summary File, Sacramento County, California, pp. 686 and 690.

In 1970, the total number of housing units in the Study Area was 2,378, an increase of 813 housing units (51.9 percent) over the 1960 figure. Of this total, 1,038 housing units were located in the City of Galt, 986 were rural nonfarm residences, and 354 were farm houses (U.S. Department of Commerce, 1971:674). The mixture of housing types diversified somewhat (see Table 6-2) between 1960 and 1970. In 1970, only 82.8 percent of the total housing units were single family structures, while 9.7 percent were multiple family units, and 7.5 percent were mobile homes. In addition, the vacancy rate dropped from 8.2 percent in 1960 to 5.4 percent in 1970, and the percentage of owner occupied housing units decreased slightly: 71.3 percent in 1960 to 69.8 percent in 1970.

6.3.2 Changes in Housing during the Study Period

Table 6-3 shows the 1970 and 1978 distribution of housing units for the Galt County Census Division and subareas of the Galt CCD (designated as zones on Figure 5-1). As shown in the table, the total number of housing units in the Study Area increased by 1,336 units (56.4 percent) during the eight-year period. The major concentration of housing was in the City of Galt in Zone A, with approximately 60 percent of the Study Area housing in 1970 and 1978. The second area of population concentration was in Zone B, which corresponded to the Wilton area. While the area encompassing the Rancho Seco nuclear plant (Zone F) had only 29 housing units in 1970, its increase to 102 housing units in 1978 represented the largest percentage change (251.7 percent) and the largest average annual growth rate (17.0 percent) of the Galt CCD subareas. The Wilton area (Zone B) had the second largest growth rate, followed by Zone C, and Zone A. Between 1970 and 1978, the percentage of the total number of housing units decreased in Zone A, Zone D, and Zone E, while the remaining zones (including the zone encompassing the Rancho Seco project) increased their percentage of the total number of housing units.

Table 6-4 provides a breakdown of the distribution of housing units in 1970 and 1978 by housing type for the Galt CCD. As shown in the table, 82.2 percent of all housing units in 1970 were single family structures. This percentage decreased to 76.0 in 1978, although 869 new single family housing units were constructed. The number of mobile homes increased from 183 (7.7 percent of the total housing units in the Study Area) in 1970 to 475 (12.8 percent of the total) in 1978; multiple family units increased from 240 units (10.1 percent of the total housing units in the Study Area) in 1970 to 415 (11.2 percent of the total) in 1978.

In 1970 and 1978, the largest number of multiple family units and mobile homes were located in the City of Galt in Zone A. However, by 1978 mobile homes accounted for 15 percent or more of the total housing stock in Zones B, C, D, and F. In 1970, only 29 housing units were located in Zone F around the Rancho Seco plant. By 1978, 73 new housing units had been added: 32 single family homes, 27 mobile homes, and 14 multiple family units (primarily duplexes).

TABLE 6-3

DISTRIBUTION OF HOUSING UNITS BY ZONE
GALT COUNTY CENSUS DIVISION
1970 AND 1978

Area	1970	Percent of Total	1978	Percent of Total	Percent Change (1970 to 1978)	Average Annual Growth (Percent)
Zone A	1,446	61.0	2,193	59.2	51.7	5.3
Zone B	362	15.3	654	17.6	80.7	7.7
Zone C	284	12.0	479	12.9	68.7	6.8
Zone D	153	6.5	160	4.3	4.6	0.6
Zone E	96	4.1	118	3.2	22.9	2.6
Zone F	29	1.2	102	2.8	251.7	17.0
Galt County Census Division[a]	2,370[b]	100.1	3,706	100.0	56.4	5.7

[a]Totals may not add to 100.0 due to rounding.

[b]The total number of housing units for the Galt County Census Division in 1970 was recorded as 2,378 by the Bureau of the Census.

Sources: Sacramento Regional Area Planning Commission, Sacramento Regional Information System, 1975, Housing Module Summary by Rad, Minor Zone, Sacramento, California; Sacramento Regional Area Planning Commission, Research and Information Services, 1980, Housing Module by Minor Zone and Jurisdiction, Sacramento, California.

TABLE 6-4

DISTRIBUTION OF HOUSING TYPES BY ZONE
GALT COUNTY CENSUS DIVISION
1970 AND 1978

	1970								1978							
	Single Family		Mobile Homes		Multiple-Family Units		Total		Single Family		Mobile Homes		Multiple-Family Units		Total	
Area	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total[a]	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total[a]
Zone A	1,142	79.0	106	7.3	198	13.7	1,446	100.0	1,592	72.6	209	9.5	392	17.9	2,193	100.0
Zone B	286	79.0	46	12.7	30	8.3	362	100.0	559	85.5	92	14.1	3	0.5	654	100.1
Zone C	272	95.8	0	—	12	4.2	284	100.0	370	77.2	109	22.8	0	—	479	100.1
Zone D	123	80.4	30	19.6	0	—	153	100.0	128	80.0	30	18.8	2	1.3	160	100.0
Zone E	95	99.0	1	1.0	0	—	96	100.0	106	89.8	8	6.8	4	3.4	118	100.0
Zone F	29	100.0	0	—	0	—	29	100.0	61	59.8	27	26.5	14	13.7	102	100.0
Galt County Census Division	1,947	82.2	183	7.7	240	10.1	2,370[b]	100.0	2,816	76.0	475	12.8	415	11.2	3,706	100.0

[a]Totals may not add to 100.0 due to rounding.

[b]The total number of housing units for the Galt County Census Division in 1970 was recorded as 2,378 by the Bureau of the Census.

Sources: Sacramento Regional Area Planning Commission, Sacramento Regional Information System, 1975, Housing Module Summary by Rad, Minor Zone, Sacramento, California; Sacramento Regional Area Planning Commission, Research and Information Services, 1980, Housing Module by Minor Zone and Jurisdiction, Sacramento, California.

During the study period, the majority of the new housing units in the City of Galt were mobile homes and low-income subsidized housing. Between 1968 and 1978, over 200 additional mobile home spaces were added in the city. Two new mobile home parks opened: Country Villa Mobile Home Park in 1970 (51 spaces) and Three Palms Mobile Estates in 1973 (128 spaces). In addition, Galt Mobile Estates, the only mobile home park in the Study Area prior to the construction of the Rancho Seco project, increased its total number of spaces from 65 to 100 in 1978. (Kratt, personal communication, June 1980; Schock, personal communication, June 1980; Hayes, personal communication, June 1980; Spink Corporation, 1975:76.)

During the early 1970s, there were 141 new single family, owner occupied, low income subsidized housing units constructed in two subdivisions in Galt. The Baumback development (subsequently identified as Golf Side Estates) contained 67 Farmers' Home Administration (FmHA) subsidized units, 37 of which were constructed in part by the owners under the FmHA self-help program. The 74 units in the Meadowview Subdivision were sold as part of the conventional FmHA 502 Program. Between 1975 and 1978, 252 new housing units were constructed in the City of Galt: 157 single family, 22 two-four units, 61 five or more units, and 12 mobile homes. According to city officials, many of the housing units constructed during this time period were also low-income FmHA 502 homes built with the assistance of the Rural California Housing Corporation under their self-help program. In addition, most of the housing constructed between 1975 and 1978 was located in the Meadowview Subdivision. (Sacramento County Community Development and Environmental Protection Agency, 1979:55; Spink Corporation, 1975:76; City of Galt, 1979:1.)

There was a limited moratorium on housing construction during the early 1970s in the City of Galt due to capacity problems with the city's sewage disposal system. The moratorium, which was in effect only for new subdivisions, did not stop the construction of new homes outside of subdivisions, nor did it prevent the construction of a maximum of 25 houses per year within each subdivision approved prior to the moratorium. (Tanner, personal communication, July 1980; Shelley, personal communication, November 1980.)

6.3.3 Housing Effects due to the Project

The supply and demand of construction worker housing was one component of the housing analysis. The peak project-related housing demand occurred in 1972 when several hundred movers sought housing in the region. While demand was high, housing

availability in the Galt County Census Division was limited. For example, there were no hotels, motels, or apartments, nor were there mobile home, camper, or travel trailer parks in the unincorporated portion of the Study Area. Moreover, Sacramento County zoning laws prohibited mobile home placement on a parcel of land smaller than ten acres unless the mobile home provided temporary housing while a single family structure was constructed. Further, rental houses were scarce and the development of property was expensive.[1] Within the City of Galt, there were only a limited number of rental units available (a twelve-unit motel, a scattering of apartments and houses, and two mobile home parks) and these were filled to capacity by construction workers during the construction period. (H. LaVine, personal communication, July 1980; Schock, personal communication, June 1980; Herburger, personal communication, 1980.)

In general, the demand for housing by construction workers in the Study Area far exceeded the supply. However, workers who could not find, or did not choose, housing within the Galt CCD had many housing options available within easy commuting distance to the plant site, notably in the Sacramento urban area. The majority of those workers who did reside in the Study Area lived in rental units on a temporary basis. In addition, a few construction workers purchased houses. The small number of construction and operation workers who moved to the area on a permanent basis were residentially dispersed, thus any potential effects on settlement patterns were minimized. (H. LaVine, personal communication, July 1980; Turner, personal communication, July 1980; Schock, personal communication, 1980.)

The overall effect of the construction and operation of the Ranchc Seco nuclear plant on the housing market in the Galt CCD was minimal. There was no evidence that the plant encouraged the development of new housing units (single family, multiple family, or mobile homes), the conversion of existing units into multiple family structures, or the renovation and upgarding of deteriorated housing stock. In addition, there was no apparent increase in rental prices or in the price of housing, in general, due to project-related demand. While some residents felt that the announcement of the project created some speculation in land prices near the plant site and along Twin Cities Road (CA-104),

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[1]In the unincorporated area, lots were sold in two to twenty acre parcels. Persons developing the property were responsible for providing a well, a sewage disposal system, and an electrical hookup in addition to building a house (H. LaVine, personal communication, July 1980).

there was no clearcut evidence of widespread inflation in land values during construction. Similarly, while some residents believed that following the accident at TMI land values and the market for land in proximity to the Rancho Seco nuclear plant decreased, there was no conclusive evidence to either support or reject this perception. The most rapid increase in the number of new housing units throughout the Study Area, and particularly in the unincorporated area near the plant site, occurred between 1975 and 1978 during the operation period, thus, supporting the idea that the trend in the increased number of housing units was due to the influx of rural nonfarm residents, retirees, low-income families, and commuters rather than project-related workers. (Hayes, personal communication, June 1980; Tanner, personal communication, July 1980; Hickey, personal communication, July 1980; Turner, personal communication, June 1980; Schock, personal communication, June 1980; H. LaVine, personal communication, July 1980; Smith, personal communication, July 1980).

The construction and operation of the Rancho Seco project had little impact on the housing sector in the Galt CCD, primarily because of the project's proximity to urban centers which contained an excess supply of all types of housing. In addition, the temporary nature of the housing demand by construction workers, the much smaller demand by operation workers, and the moratorium on new housing developments, contributed to the lack of impact. Since few plant-related construction and operation workers lived within the Galt County Census Division, their presence resulted in minimal secondary socioeconomic effects.

CHAPTER 7: LOCAL GOVERNMENT AND PUBLIC SERVICES

7.1 Introduction

The purpose of Chapter 7 is to describe the basic structural components of the local governments in the Study Area, to examine the source of revenues, to discuss the pattern of expenditures, to indicate the level of services, and to describe specific areas of services over the study period. The objective is to focus on the provision of public services and on any changes in the source of revenues and in the levels and patterns of expenditures that resulted from the construction and operation of the Rancho Seco Nuclear Generating Station. The discussion is designed to highlight changes associated with significant social or political consequences rather than to provide a detailed fiscal analysis of the Study Area governments.

The discussion of public services focuses on employment and service trends in education, transportation, public safety, and social services. These services were selected for more detailed examination because they are usually responsive to socioeconomic changes in the community, they are often cited as impacted services in the literature, and they are likely to be indicative of other public services effects experienced in the Study Area.

7.2 Government Structure

Galt is the only incorporated city and distinct governmental unit within the Study Area. The remainder of the Galt County Census Division is unincorporated and is thus under the jurisdiction of Sacramento County.

7.2.1 The City of Galt

The City of Galt, incorporated in 1946, was established as a General Law, 6th Class City with a mayor-council form of government. Throughout the study period, the city was headed by an unpaid five-member city council, with each member elected for a four-year term. The mayor (one of the five council members) was elected for a two-year term by the council at the first meeting following each biennial election. The council held regular bi-monthly meetings open to the public. Additional meetings were scheduled as necessary; the majority of these were open to the public. (Shelley, personal communication, October 1980; Galt District Chamber of Commerce, 1969:2.)

As the city grew and governmental fuctions expanded in the 1950s and 1960s, a city administrator was hired by the city council to coordinate Galt's administrative affairs. The city administrator acts under the city council as the administrative head of Galt. Major functions include overseeing nonelected city employees and preparing annual budgets. (Shelley, personal communication, October 1980.)

Throughout the study period, Galt had an unpaid planning commission appointed by the mayor and approved by the city council. Originally established in 1951 as a five-member commission, the membership was expanded in 1966 to seven persons to provide transitional representation for the water and sanitation districts, which had been dissolved. During the study period, the planning commission reverted to its original five-member board. In addition to the regular members, there was a full-time planning commission secretary and a city planner employed on a part-time basis. Thus far, four general plans have been developed for the city council. These plans (adopted by the city council in 1961, 1967, 1975, and 1979) were completed in conjunction with the Sacramento County Planning Department, the Sacramento County Planning Commission, the Sacramento Regional Area Planning Commission, and private consultants. (Shelley, personal communications, October and November 1980; Tanner, personal communication, July 1980; Sacramento County Planning Department, 1961 and 1967; Spink Corporation, 1975.)

As of 1978, other administrative personnel for the City of Galt included: the city clerk and city treasurer (both elected officials); the city attorney, city engineer, and chief of police (all appointed by the city council); the building inspector and office personnel (including clerks, accountants, and typists); and employees of the police and the public works departments. While the number of employees increased during the study period (from six in the early 1960s to approximately thirty in the late 1970s), the increase was in response to the city's growth, and was not directly attributable to the construction and operation of the Rancho Seco nuclear plant. (Shelley, personal communications, October and November 1980; Sacramento County Community Development and Environmental Protection Agency, 1979:51; Spink Corporation, 1975:97.)

During the study period, the City of Galt was responsible for police protection, water and sanitation services, and street construction and maintenance.[1] Fire protection and ambulance services were provided by the Galt Fire District.

The city's water system was considered adequate from 1968 through 1978. While the average consumption increased from 300,000 million gallons per day (mg/d) in 1969 to 325,000 mg/d in 1978, the city maintained a constant maximum pumping capacity of 3,745,900 mg/d during the same time period. The city's liquid waste disposal system, however, presented problems throughout the study period. While the capacity of the facility (constructed in 1950) remained at 500,000 gallons per day, the peak flow increased with the continued population expansion: 313,400 mg/d in 1969 and 350,000 mg/d in 1971. By the mid- to late-1970s, the capacity of the treatment facility was regularly exceeded. The failure of the sewage system to adequately meet the growing needs of the city resulted in a limited moratorium on housing construction in the early 1970s which was lifted in 1975. As of 1980, the problem remained unresolved. (Galt District Chamber of Commerce, 1969:1,3, 1971:2, and 1978:2; Sacramento County Community Development and Environmental Protection Agency, 1979:50; Tanner, personal communication, July 1980; Shelley, personal communication, November 1980.)

The annual revenues and expenditures for the City of Galt are shown in Tables 7-1 and 7-2 for FY 1967/1968 through FY 1977/1978. Total revenues (in constant 1972 dollars) increased by approximately $674,000 (250 percent) during the ten-year period, while per capita revenues (in constant 1972 dollars) almost doubled during the same time period.

The major components in each revenue category illustrated in Table 7-1 include: secured, current year property taxes (Property Taxes); sales and use taxes (Other Taxes); business licenses and construction permits (Licenses and Permits); vehicle code fines (Fines and Penalties); rents and concessions (Use of Money and Property); state gasoline tax, federal revenue sharing, and other federal revenue (Other Agencies); and refuse collection (Current Services Charges). During the study period, property taxes gradually

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[1]In 1966, the Galt County Water District and the Galt Sanitation District were dissolved. The City of Galt assumed the provision of these services for area residents. (Sacramento County Planning Department, 1961:45; Shelley, personal communication, November 1980.)

TABLE 7-1

GENERAL REVENUES
CITY OF GALT
FY 1967/1968 THROUGH FY 1977/1978

Fiscal Year	Property Taxes	Other Taxes	Licenses and Permits	Fines and Penalties	Use of Money and Property	Other Agencies	Current Service Charges	Other	Total (Current Dollars)	Total (Constant 1972 Dollars)	Per Capita Revenues (Constant 1972 Dollars)
1967/1968	$72,303	$46,216	$9,182	$3,829	$8,167	$55,184	$27,784	$4,976	$227,641	$269,079	$98.46
1968/1969	77,394	44,195	10,732	5,883	8,022	63,901	23,712	21,662	255,501	288,702	92.12
1969/1970	69,702	59,503	4,420	3,980	5,982	73,822	52,908	3,520	273,837	296,040	92.51
1970/1971	76,093	62,951	6,566	5,672	13,640	80,197	33,460	24,681	303,260	313,934	92.88
1971/1972	84,857	75,941	4,365	4,720	33,448	87,709	60,264	22,303	373,607	373,607	103.21
1972/1973	89,482	88,254	7,199	7,765	33,589	148,364	75,157	42,930	492,740	467,052	121.63
1973/1974	81,500	98,296	14,982	6,157	40,306	165,563	44,173	61,995	512,972	438,813	105.99
1974/1975	96,011	148,631	14,003	6,211	52,798	198,639	76,174	54,005	646,472	511,045	118.30
1975/1976	126,894	175,181	4,097	9,675	68,697	364,306	65,014	42,893	856,757	643,211	141.99
1976/1977	144,655	238,348	17,389	16,251	80,190	251,688	107,998	22,314	878,833	624,615	132.90
1977/1978	177,770	281,525	8,838	19,069	93,637	676,866	155,443	3,862	1,417,010	942,788	180.44

Sources: California State Comptrollers Office, 1969-1979, Annual Report of Financial Transactions Concerning Cities of California (1967-1968 through 1977-1978), Sacramento, California; Sacramento Regional Area Planning Commission, Research and Information Services, 1980, Population Module by Major Zone and Jurisdiction, Sacramento, California; Sacramento Regional Area Planning Commission, Sacramento Regional Information System, 1975, Revised Population Module Summary by Major Zone, Sacramento, California.

TABLE 7-2

GENERAL EXPENDITURES
CITY OF GALT
FY 1967/1968 THROUGH FY 1977/1978

Fiscal Year	General Government (Departmental)	General Government (Nondepartmental)	Public Safety	Public Works	Health	Parks and Recreation	Contributions to Other Government Funds	Total (Current Dollars)	Total (Constant 1972 Dollars)	Per Capita Expenditures (Constant 1972 Dollars)
1967/1968	$29,392	$23,526	$54,691	$65,330	$ —	$21,133	$3,165	$197,237	$233,141	$85.31
1968/1969	38,382	30,090	62,582	160,514	—	18,979	—	310,547	350,901	111.97
1969/1970	46,716	36,699	64,165	72,203	—	15,515	32,966	268,264	290,015	90.63
1970/1971	51,600	32,186	73,306	69,955	—	15,637	—	242,684	251,226	74.33
1971/1972	63,739	63,844	75,858	87,534	—	17,011	—	307,986	307,986	85.08
1972/1973	68,795	56,971	84,889	122,127	—	14,114	—	346,896	328,811	85.63
1973/1974	71,514	98,963	89,589	132,438	58	18,724	—	411,276	351,819	84.98
1974/1975	87,201	92,611	110,998	121,508	—	30,210	—	442,528	349,825	77.32
1975/1976	107,145	120,349	124,810	176,262	—	23,634	—	552,200	414,565	91.52
1976/1977	87,427	203,641	166,222	197,150	—	30,372	—	684,812	486,718	103.56
1977/1978	178,816	182,870	176,513	185,761	—	34,223	—	758,183	504,446	96.54

Sources: California State Comptrollers Office, 1969-1979, Annual Report of Financial Transactions Concerning Cities of California (1967-1968 through 1977-1978), Sacramento, California; Sacramento Regional Area Planning Commission, Research and Information Services, 1980, Population Module by Major Zone and Jurisdiction, Sacramento, California; Sacramento Regional Area Planning Commission, Sacramento Regional Information System, 1975, Revised Population Module Summary by Major Zone, Sacramento, California.

decreased in importance as the largest category of revenue, slipping from first place in FY 1967/1968 and FY 1968/1969, to second place in FY 1969/1970, to third place in FY 1973/1974. The category "Other Taxes" was in third place at the beginning of the study period but, through increased sales and use taxes, moved to second place in FY 1973/1974. The most notable change occurred in "Other Agencies," which moved from second place to first place in FY 1969/1970. The large increase in FY 1972/1973 was a result of federal revenue sharing funds. In addition to the federal revenue sharing funds, other federal grants monies first appeared in FY 1974/1975. Both types of federal monies retained their importance as significant portions of the city revenues from FY 1972/1973 to the present. Fluctuations in the category "Current Service Charges" were due primarily to changes in subdivision fees and sewer service revenues.

Expenditures, as shown in Table 7-2, also increased by approximately 116 percent (in constant 1972 dollars) during the study period, rising from $233,141 in FY 1967/1968 to $504,446 in FY 1977/1978. Per capita expenditures (in constant 1972 dollars) fluctuated throughout the study period, ranging from a low of $74.33 in FY 1970/1971 to highs of $111.97 in FY 1968/1969 and $103.56 in FY 1976/1977.

With the exceptions of FY 1970/1971 and FY 1976/1977, public works accounted for the largest portion of budget expenditures during the study period. Streets, storm drains, street lighting, waste collection and disposal, and sewage collection and disposal were the major public works components. Public safety was generally the second largest portion of the budget, particularly prior to FY 1976/1977. Law enforcement comprised the largest share of public safety. Expenditures for the police department increased substantially, from $52,723 in FY 1967/1968 to $165,969 in FY 1977/1978 (current 1972 dollars). General government, both the departmental (primarily wages and salaries of city employees) and nondepartmental (bonds and insurance) types, showed the most dramatic increases in city expenditures. Both categories increased by over 500 percent since FY 1967/1968. According to city officials, the increases in the city's revenues and expenditures were in response to the area's growth, and were independent of the construction and operation of the Rancho Seco plant (Tanner, personal communication, July 1980; Shelley, personal communications, October and November 1980.)

7.2.2 Unincorporated Area

The majority of the Galt County Census Division lies within an unincorporated portion of Sacramento County. Thus, it is under the legislative jurisdiction of the

Sacramento County Board of Supervisors, the governing body of the county. During the study period, the board consisted of five supervisors who held staggered four-year terms. The Galt CCD was located in the 5th District. Members of the board elected one of its members as the board chairperson at the first meeting of each year. The chairperson's duties included signing documents in the name of the county and presiding at board meetings. (Sacramento County Board of Supervisors, 1979:1-2.)

Planning for the area was the responsibility of the Sacramento County Board of Supervisors since the board was empowered to enact land use ordinances and to set county policy, including the approval of general plans. In addition, there were a variety of groups (many of which were appointed by the board) responsible for implementing the planning process. These groups included: the Planning Commission (which was subsequently split into the Policy Planning Commission and the Project Planning Commission); the Subdivision Review Committee; the Zoning Administrator; the Community Planning Advisory Councils; the Community Planning Advisory Committees; and the Board of Zoning Appeals. (Sacramento County Planning and Community Development Department, n.d.:1.) The following is a list of primary plans that provided growth and development guidelines for the Study Area from 1968 through 1978: the Southeast Area Plan (1965), the Sacramento County General Plan (1965), and the Sacramento County General Plan (1973).

Services within the unincorporated area of the Galt CCD were provided by a variety of groups and agencies. Traffic-related law enforcement was the responsibility of the California Highway Patrol; nontraffic-related law enforcement was provided by the Sacramento County Sheriff's Department. Fire protection was furnished by five independent fire districts: Galt, Herald, Wilton, Alta Mesa, and Elk Grove. The Galt and Elk Grove fire districts also rendered ambulance services. Water for commercial, domestic, and agricultural use was obtained by area residents principally through individual wells, while solid and liquid waste disposal was regulated and monitored through Sacramento County. Road construction and maintenance was the responsibility of the California Department of Transportation (U.S. Highway 99 and California State Highway 104) and Sacramento County (secondary roads). (Rademacher, personal communication, October 1980; Cox, personal communication, October 1980; Payne, personal communication, October 1980; Marchand, personal communication, July 1980; Hendrickson, personal communication, October 1980; Jackson, personal communication, October 1980; Sacramento County Planning Department, 1973:96-101.)

7.3 Selected Public Services

This section examines public services and facilities in greater detail to more clearly illustrate the effects of the construction and operation of the Rancho Seco Nuclear Generating Station on the quality, cost, and availability of publicly funded services in the Galt CCD. Three public services--education, transportation, and public safety--were selected as key services for analysis. This selection was made on the basis that, among those services identified in the literature as vulnerable to impact, they were ones for which:

1. The magnitude and nature of project-related demand could be estimated with reasonable confidence;

2. The mechanisms/alternatives for response (by public services) to increased demand were relatively straightforward and direct; and

3. The project-related demand was potentially of sufficient magnitude to affect the quality, cost, and availability of the service.

The first two conditions are critical if, as in this study, a substantial portion of the analysis is based on the evaluation of key informants. Unless these key informants have a clear understanding of project-related demand, this evaluation will not be valid.

An additional reason for selecting transportation and public safety for analysis was that they exemplify services which are affected by commuters into the area as well as by Study Area residents.

Also included in this section is a brief discussion of the effects of the project on social services. Social services were not analyzed in detail because: (1) the relationship between the types of project-related changes is not sufficiently clear, and (2) the provision of social services is shared by such a wide variety of governmental agencies that accurate analysis was beyond the scope of this study.

Each section provides a brief background description of the service, a discussion of changes in the service (such as staffing and facilities) during the study period, and a

discussion of the role the construction and operation of the Pancho Seco nuclear plant played in those changes.[1]

7.3.1 Education

Public education in the Galt County Census Division was provided by two elementary school districts, the Arcohe Elementary School District and the Galt Joint Union Elementary School District; by the Galt Joint Union High School District; and by a small portion of the Elk Grove Unified School District (the Dillard Elementary School). The Rancho Seco nuclear plant was located in the Arcohe Elementary School District and the Galt Joint Union High School District. During the study period, the following public schools were located within the Study Area: the Galt Joint Union and Estrellita high schools; the Galt Joint Union, Fairsite, and Valley Oaks elementary schools; the Herald Elementary School; and the Dillard Elementary School.

The Galt Joint Union High School District contained the Galt Joint Union High School (the first high school in the Study Area) and the Estrellita High School, both located in the City of Galt. The Estrellita High School was founded in 1968 as a continuation school for students with special problems (such as students exhibiting learning disabilities or students working full time). Both schools served grades nine through twelve. (Olson, personal communication, October 1980.)

Table 7-3 shows the 1968-1978 combined total annual fall enrollment data for both schools. As shown in the table, total enrollment for the Galt Joint Union High School District increased by more than 28 percent during the ten-year period, from 829 students in 1968 to 1,064 in 1978.[2] School administrators attributed this growth not to the construction and operation of the Rancho Seco nuclear plant, but to the increase in the local population. It was estimated that a negligible portion of the total increase could

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[1]The construction and operation of the Rancho Seco Nuclear Generating Station did not result in the increased assessed valuation of the plant site; thus, the Rancho Seco plant did not contribute an increased amount of property taxes to Sacramento County. The plant did not increase the revenue of any of the selected public services described in the following section. Therefore, historical budgetary data were not presented for those services.

[2]Enrollment in Estrellita High School, which increased throughout the study period, consistently represented less than 10 percent of the total high school district enrollment (Olson, personal communication, October 1980).

TABLE 7-3

ANNUAL FALL SCHOOL ENROLLMENTS
GALT COUNTY CENSUS DIVISION
1968-1978

Fall	Dillard Elementary School[a]		Arcohe Union Elementary School District		Galt Joint Union Elementary School District		Galt Joint Union High School District	
	Number of Students	Percent Increase	Number of Students	Percent Increase	Number of Students	Percent Increase	Number of Students	Percent Increase
1968	222	—	272	—	1,210	—	829	—
1969	230	3.6	268	-1.5	1,236	2.1	887	7.0
1970	249	8.3	288	7.5	1,205	-2.5	897	1.1
1971	280	12.4	280	-2.8	1,208	0.2	942	5.0
1972	277	-1.1	263	-6.1	1,189	-1.6	905	-3.9
1973	261	-5.8	270	2.7	1,169	-1.7	915	1.1
1974	306	17.2	243	-10.0	1,250	6.9	937	2.4
1975	280	-8.5	242	0.4	1,262	1.0	972	3.7
1976	285	1.8	278	14.9	1,240	-1.7	982	1.0
1977	305	7.0	259	-6.8	1,242	0.2	1,080	10.0
1978	285	-6.6	294	13.5	1,226	-1.3	1,064	-1.5

[a]The Dillard Elementary School is located within the Elk Grove Unified School District.

Sources: California Department of Education, 1968-1978, "Active Total Elementary and High School Enrollments, Sacramento County," unpublished computer printouts based on R-30 Enrollment Reports; Dorothy Campbell, personal communication, October 1980.

have been attributed directly to Rancho Seco. (Littleton, personal communications, June and November 1980; Olson, personal communication, October 1980.)

Preschool, kindergarten, elementary, and intermediate school facilities in the Study Area, which were located both in the Galt Joint Union Elementary School District and the City of Galt, included: Fairsite Elementary (opened in 1955) for preschool and kindergarten through grade five; Valley Oaks Elementary (opened in 1966) for kindergarten through grade five; and Galt Union Elementary (opened in 1949) for grades six through eight. The 1977/1978 addition of five classrooms to ease crowded conditions at Valley Oaks Elementary was the only major facility expansion during the study period. As shown in Table 7-3, the total enrollment of the three schools in the Galt Joint Union Elementary District fluctuated throughout the study period without exhibiting much sustained growth. The district superintendent estimated that the three elementary schools may have absorbed between 20 and 30 children of Rancho Seco-related construction workers. However, it was noted that this increase would have occurred during the decreased 1972-1973 enrollment period that coincided with the peak construction of the Rancho Seco plant. Thus, additional Rancho Seco-related students helped mitigate the decreasing enrollment trends and did not result in a negative impact to the elementary schools. (McCaffrey, personal communication, October 1980.)

Arcohe Elementary School was the only school in the Arcohe Union Elementary District. Located in the community of Herald, it was the closest school to the plant site. The school, which was constructed in 1957, served students from kindergarten through grade eight. As shown in Table 7-3, total enrollment at Arcohe fluctuated during the the study period, generally decreasing between 1970 and 1975 with the exception of a small increase in 1973. According to school officials, the fluctuations responded to the overall construction of rural nonfarm homes in the area; the construction and operation of the Rancho Seco nuclear plant had a negligible impact on school enrollments. (Morris, personal communication, July 1980; Johnson, personal communication, November 1980.)

The Dillard Elementary School, located near Wilton, served kindergarten through sixth grade students.[1] The existing school was constructed in 1956 and expanded in

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[1]Junior high and high school age students attended school in Galt (Campbell, personal communication, October 1980).

1962. In addition, three portable classrooms were added to the facility, two in 1977 and one in 1978. As shown in Table 7-3, the total Dillard school enrollment fluctuated throughout the study period, generally increasing from 222 students in 1968 to slightly over 300 in 1977, but decreasing between 1971 and 1973, the peak years of the construction of Rancho Seco. According to school officials, changes in the school enrollment were due not to the construction and operation of the Rancho Seco plant, but rather to the increased development of rural nonfarm homes in the area. (Campbell, personal communication, October 1980.)

The total project-related demand for educational facilities in the Study Area in 1972 and 1978 was calculated from worker and population data in Chapter 5. The total estimated number of family members accompanying project-related workers in-migrating to the Study Area was 81 persons in 1972 (35 spouses and 46 children) and 12 persons in 1978 (6 spouses and 6 children).[1] The 46 in-migrating children in 1972 represented only 1.7 percent of the total number of students enrolled in the six schools in the Study Area that year; the 6 in-migrating children in 1978 represented only 0.2 percent of the total enrollment that year. This analysis substantiates the statements by local school administrators concerning the minimal effects of the construction and operation of the Rancho Seco nuclear plant on area schools.

7.3.2 Transportation

The primary transportation routes within the Galt County Census Division during the study period included U.S. Highway 99 and the Southern Pacific Railroad (SPRR), the major north-south links connecting the City of Galt to Sacramento, Lodi, and Stockton. The major east-west routes were California State Highway 104, also known as Twin Cities Road, and the Ione branch of the SPRR. The remainder of the Study Area encompassed the streets in Galt, which were maintained by the city, and a network of secondary roads, which were constructed and maintained by Sacramento County. This rural transportation network, which was more fully developed in the central portion of the Galt CCD, provided farm-to-market access for farmers and commutation routes for the rural nonfarm residents. (Marchand, personal communication, July 1980.)

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[1] In 1972, an estimated 39 children accompanied basic workers and 7 accompanied nonbasic workers; in 1978, an estimated 4 children accompanied basic workers and 2 accompanied nonbasic workers.

Due to the increased population, including rural nonfarm residents, traffic generally increased throughout the Study Area during the study period. In addition, traffic volume rose due to the construction and operation of the Rancho Seco nuclear plant. While visitation at the Rancho Seco Information Center and usage of the Rancho Seco Park contributed to the rise in traffic volume, the primary increase was due to construction worker traffic, particularly during shift changes. During the construction period, three roads carried the major portion of traffic: US-99, CA-104, and Clay Station Road. Many of the workers who commuted daily from Sacramento used US-99 and CA-104, while workers from the eastern portion of the Sacramento urban area, from Elk Grove, and from communities in Placer and El Dorado counties took secondary roads through the central portion of the Study Area (particularly Clay Station Road) for direct access to the plant site. Of the roads in the Study Area, CA-104 and Clay Station Road were the most noticeably affected by the project-related traffic.[1] (Mattimoe, personal communication, July 1980; H. LaVine, personal communication, November 1980.)

Twin Cities Road received the highest increase in traffic in absolute terms. Table 7-4 reflects the increase in average daily traffic flows along CA-104, particularly during the peak construction years, 1972 and 1973. Accident statistics for CA-104 from 1970 through 1979 show a slight increase in the total number of accidents in 1972;[2] however, the increase is insignificant and cannot be directly attributed to increased traffic due to the construction of the Rancho Seco nuclear plant.[3]

Prior to the construction of the Rancho Seco nuclear plant, Clay Station Road was one of the many unimproved gravel county roads in the Study Area used primarily by local agriculturally-related traffic. During the initial stages of the construction period,

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[1]The City of Galt was relatively unaffected by the Rancho Seco-related traffic since US 99 bypasses Galt and most plant-related traffic originated in the Sacramento urban area; thus, traffic exited off US-99 and onto CA-104 north of the city. (H. LaVine, personal communication, November 1980.)

[2]The total number of accidents recorded for CA-104 from 1970-1979 is as follows: 8 in 1970, 15 in 1971, 21 in 1972, 14 in 1973, 16 in 1974, and 78 (or an average of 15 each year) from 1975-1979 (California Department of Transportation, 1980).

[3]Local residents stated that, prior to the construction of the Rancho Seco plant and the increased population in the Herald area, traffic accidents were relatively rare. The Herald Fire District fire chief indicated that several accidents to which the department responded involved construction workers. (Hendrickson, personal communication, October 1980; Blaukoff, personal communication, July 1980.)

TABLE 7-4

TRAFFIC VOLUME
ANNUAL AVERAGE DAILY TRAFFIC
CALIFORNIA STATE HIGHWAY 104
1968-1978

Junction of CA-104	Miles from Junction	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
US-99	----	1,500	1,100	1,150	1,200	2,100	2,100	1,700	1,750	1,850	1,850	2,150
McKenzie Road	0.60	NA	860	860	900	2,100	2,100	1,700	NA	NA	NA	NA
Cherokee Lane	2.61	1,000	810	810	850	1,750	1,750	1,100	1,200	1,250	1,250	1,200
Borden Road	3.32	850	640	640	650	1,600	1,600	800	NA	NA	NA	NA
Ivie Road	3.87	680	570	570	600	1,550	1,650	800	NA	NA	NA	NA
Angle Road	5.11	800	470	470	500	1,650	1,650	800	900	950	950	840
Clay-East Road	9.22	200	300	330	350	1,200	1,400	700	900	950	950	780

NA = Not applicable.

Source: California Department of Transportation, Business and Transportation Agency, Division of Maintenance and Operations, Office of Traffic, Traffic Volumes on the California State Highway System, Annual Reports for 1968-1975, Sacramento: California Department of Transportation.

project-related workers who used Clay Station Road complained of the road's inadequacies. A group of 136 workers presented the following petition to the Sacramento County Board of Supervisors in the early 1970s:

> We, the undersigned, employed at Rancho Seco, petition you for the immediate repair of approximately 4-1/2 miles of Clay Station Road for the following reasons:
>
> 1. With the anticipated rapid increase of employment at Rancho Seco, the heavy traffic situation on the main approach, Route 104 to the west, will become critical. A serviceable Clay Station Road would shorten the approach bottleneck on Route 104 from 8 miles to 4 miles.
>
> 2. Clay Station Road in its present condition presents an extreme hazard to those who do use it.
>
> 3. Clay Station Road is the shortest route by over 6 miles to the Carmichael-Fair Oaks-Rancho Cordova Area.
>
> (Employees at Rancho Seco Nuclear Generating Station, n.d.)

Complaints about the road came from local residents as well as from construction workers. These complaints included problems of congestion, noise, dust, speeding, and general hazards during shift breaks. (Marchand, personal communication, July 1980.)

According to county officials, while Clay Station Road would have been upgraded eventually under the county's road improvement program, the heavy use of the road by Rancho Seco construction workers accelerated the time frame for improving the road. In addition, paving the road reduced additional maintenance costs. The funds used to upgrade 7.5 miles of the road (from a 20-foot wide gravel road without shoulders to two, 12-foot wide standard paved lanes with 6-foot shoulders and minor bridges) were shifted to Clay Station Road from other unidentifiable county secondary road funds. The total cost of the road improvements, which were made between September 1972 and July 1973, was $687,000. The funds were part of the county's $9,903,347 for road expenditures in FY 1972-1973. While other county secondary roads were upgraded during the study period, only Clay Station Road received improvements and increased maintenance as a direct result of the construction and operation of the Rancho Seco plant. (Marchand, personal communication, July 1980; California State Controller, 1972-1973 Annual Report, p. 111.)

According to California Department of Transportation personnel, the state considered CA-104 a minor road. While some minor upgrading, such as enlarging curves

and lengthening culverts, was completed on CA-104 during the study period, the work was done after the construction of the Rancho Seco project. The Rancho Seco project did not result in any additional major maintenance requirements for the highway. (Payne, personal communication, October 1980.) Local residents indicated that, prior to the construction of the Rancho Seco nuclear plant, CA-104 was widened, several culverts were lengthened, and curves were straightened. However, this work was completed primarily in response to local complaints regarding the road hazards for local school buses. (H. LaVine, personal communication, November 1980.)

7.3.3 Public Safety

The major public safety services provided in the Galt County Census Division during the study period included law enforcement, fire protection, and ambulance service. These services were provided by a number of departments, agencies, and districts with sometimes overlapping jurisdictions. Within the incorporated city limits of Galt, law enforcement was provided by the city's police department; fire protection and ambulance service were the responsibility of the Galt Fire District. In the unincorporated portion of the Study Area, traffic-related law enforcement was under the jurisdiction of the California Highway Patrol; nontraffic-related law enforcement was the responsibility of the Sacramento County Sheriff's Department. Fire protection was provided by five fire districts: Galt, Herald, Wilton, Alta Mesa, and Elk Grove; emergency ambulance service was rendered by the Galt and Elk Grove fire districts.

7.3.3.1 Law Enforcement

The Galt Police Department was responsible for law enforcement in the City of Galt. While officers were authorized to respond to emergencies in the surrounding unincorporated areas, their official jurisdiction was within the Galt city limits. The police department staff expanded during the study period, increasing from five full-time and six reserve officers in 1969 to six full-time and six reserve officers in 1971, and from seven full time and three reserve officers in 1975 to seven full-time and four reserve officers in 1978. The construction and operation of the Rancho Seco nuclear plant had no effect on the level of service or number of staff of the Galt Police Department. (Galt District Chamber of Commerce, 1969:3, 1971:3, and 1978:3; Spink Corporation, 1975:92; Tanner, personal communication, July 1980.)

Law enforcement within the unincorporated areas of the county was the joint responsibility of the California Highway Patrol and the Sacramento County Sheriff's

Department.[1] Security at the Rancho Seco nuclear plant was provided by SMUD through a contract with Vanguard Security Systems. (Drolette, personal communication,, October, 1980; Viley, personal communication,, June 1980.)

The California Highway Patrol was responsible for traffic-related law enforcement on state and county roads within the Study Area. At the time of plant construction, allocations of patrol staff in the county were based on a sector concept with additional staff assigned to heavily travelled routes. The Galt County Census Division was located in the sector containing US-99, a major highway. During the construction period, one officer was assigned to patrol US-99 and to respond to accident calls on the remaining state and county roads in the area. The highway patrol did not increase the number of officers or units in the Study Area due to the increased traffic associated with the construction of the Rancho Seco plant. In general, the level of traffic-related law enforcement did not increase proportionately with the increased population growth and increased traffic in the Galt CCD. During the operation period of the Rancho Seco nuclear plant, the highway patrol had a maximum of one unit and one officer in the Study Area at night and two units and two officers during the day, all primarily patrolling US-99. During the anti-nuclear demonstrations at Rancho Seco in 1979, the highway patrol provided perimeter and traffic control. (Drolette, personal communication. October 1980; Rademacher, personal communication, October 1980.)

The Sacramento County Sheriff's Department was responsible for all nontraffic-related law enforcement in the unincorporated portion of the Study Area. During the study period, there was no real change in patrol activities even though the local population increased substantially. In 1968, the area was patrolled each day in three eight-hour shifts with twenty-four hour coverage (one officer per shift). In 1978, the level of activity was similar; however, each day was divided into three, overlapping ten-hour shifts with one officer per shift. There were no supplemental officers assigned to the area on a regular basis during the construction of the Rancho Seco plant. The only exceptional requirement due to the construction and operation of Rancho Seco was the need for extra sheriff's department personnel during a wildcat strike by steelworkers in

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[1]The California State Police, which had jurisdiction over state property throughout California, had no direct responsibilities in the Galt County Census Division (Rademacher, personal communication, October 1980).

the early 1970s and during an anti-nuclear demonstration at the plant in April 1979. During the demonstration, Rancho Seco security guards arrested twelve persons for trespassing. Following the arrests, the deputy sheriffs at the site assumed responsibility for the arrested persons. (Cox, personal communication, October 1980.)

7.3.3.2 Fire Protection and Ambulance Service

Between 1968 and 1978, the Study Area encompassed all or most of the Galt, Herald, Wilton, and Alta Mesa fire districts. In addition, a small portion of the Elk Grove Fire District was included in the northwestern portion of the Study Area.[1] While only the Galt and Elk Grove fire districts provided emergency ambulance service, all fire districts in Sacramento County had mutual aid fire and ambulance agreements. Revenues for the districts came primarily from county property taxes based on the assessed valuation of property in the service area of each district (Johnson, personal communication, November 1980).

The Galt Fire District encompassed approximately 48 square miles and centered around the City of Galt. The district provided fire protection and ambulance service to hospitals and emergency centers in Lodi, Sacramento, and Stockton. In 1977, a second fire station was opened on the west side of Galt in response to increased residential growth and to insure that fire protection was available on both sides of the Southern Pacific Railroad. The number of district staff and the amount of equipment increased during the study period: 1 part-time, 3 full-time, and 27 volunteer firefighters and 6 pieces of motorized equipment in 1969; 1 part-time, 4 full-time, and 26 volunteer firefighters and 7 pieces of motorized equipment in 1971; 7 full-time and 29 volunteer firefighters in 1975; and 8 full-time and 37 volunteer firefighters (out of a limit of 45 volunteers) and 14 pieces of motorized equipment in 1978. According to the assistant fire chief, this growth was in response to the increased population of the district, particularly in the City of Galt, and was not related to the construction or operation of the Rancho Seco project. While the district did sign an ongoing written agreement with SMUD in the early 1970s to provide ambulance service to the plant, the agreement did not necessitate the acquisition of any new equipment, nor did the district receive any

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[1]While the Elk Grove Fire District is not described in the following section since its primary service area was outside the Galt CCD, it should be noted that the district provided emergency ambulance service within the Study Area (Hendrickson, personal communication, October 1980).

payments, grants, or equipment from SMUD. (Harbert, personal communication, October 1980; Galt District Chamber of Commerce, 1969:3, 1971:3, and 1978:3; Spink Corporation, 1975:92.)

The Herald Fire District, formed in 1947, encompassed a 98.6 square mile area that included areas now occupied by the Rancho Seco Nuclear Generating Station. The district was under the authority of a five-member board of directors (elected for four-year terms) that appointed the fire chief. During the study period, the district increased both its number of personnel and amount of equipment: between 1968 and 1972, there were 25 trained volunteers, 5 trucks, and 1 pickup; in 1978 there were 30 trained volunteers, 8 trucks, and 1 pickup. The increase in both the number of volunteers (limited to 30 by the board) and the amount of equipment was in response to the growing number of residences within the district. In addition, in 1976 the district constructed a new firehouse with a $35,000 federal grant.

Since the Rancho Seco nuclear plant is within the Herald Fire District, the Herald district volunteers are responsible for responding to emergency calls from the nuclear plant, including incidents of contamination. In addition, the district signed an agreement authorizing SMUD to utilize the firehouse as the command center during plant emergencies. Since the plant has been in operation, SMUD has contributed approximately $30,000 worth of support equipment to the district for fighting fires at the Rancho Seco plant. (This equipment may also be used for non-plant-related fires.) SMUD also purchased additional equipment (such as phones) to meet NRC regulations for the command center. Moreover, the utility has provided annual training sessions for the district to familiarize volunteers with the plant site and its structures. (Hendrickson, personal communication, October 1980; Blaukoff, personal communication, July 1980.)

During the study period, the Alta Mesa Fire District provided fire protection for a 14 square-mile area adjacent to the Herald and Wilton fire districts. Between 1968 and 1972, the district had approximately 12 volunteer firemen and 2 trucks. By 1978 the number of volunteer firefighters increased to 15, and the number of vehicles increased to 3. In March 1979, the Alta Mesa Fire District was consolidated with the Wilton Fire District. (Jackson, personal communication, November 1980.)

The Wilton Fire Protection District, organized in the early 1920s, originally encompassed 44 square miles. After its consolidation with the Alta Mesa Fire District in

1969, the district served a 58 square-mile area. The original district contained two fire stations from 1968 through 1977: one constructed in the 1940s, and one constructed in 1968 (which replaced an older structure). In 1978, a new station was added to the district; in 1979, the Alta Mesa firehouse (built in 1977) also became part of the district. The number of district volunteer firefighters and pieces of equipment increased throughout the study period, beginning with 20 volunteers and 5 trucks in 1968, increasing to 20-25 volunteers and 6 trucks in 1972, and rising to 30-35 volunteers and 7 trucks in 1978. Following the consolidation of the districts, the Wilton district had 50 volunteer firefighters and 12 pieces of equipment, including 2 rescue units purchased in 1979 and 1980. According to the fire chief, the increased number of volunteers and pieces of equipment was due to the increased number of residences in the district's service area. The construction and operation of the Rancho Seco nuclear plant had no effect on the district or its service. (Jackson, personal communication, November 1980.)

7.3.4 Social Services

In 1968, the Sacramento County Welfare Department, located in the City of Sacramento, was the primary agency providing public social services for the Galt County Census Division. There were no subcounty public social service agencies sponsored by the City of Galt or the unincorporated communities. Therefore, area residents typically obtained services in Sacramento. In 1970, the Sacramento County Welfare Department began sending outstation workers to the Galt City Hall and to the Elk Grove library for two to four days each week. Study Area residents north of Dillard Road received social services in Elk Grove, while the remainder of the residents went to Galt. (Harrah, personal communication, November 1980.)

In February 1974, the Sacramento County Department of Social Welfare opened offices in Galt and Elk Grove. These subcounty offices were established as part of a countywide effort to move social services out of Sacramento and into rural areas. Since the mid-1970s, the number of social services available to Study Area residents increased, both in Galt and in Elk Grove, primarily in response to the population growth in the area, particularly low-income in-migrants in Galt. New agencies in Galt (which have a variety of funding sources) include the Galt Helping Network, the Galt Community Concilio, Inc., the Senior Citizens' Nutrition Program, and the Alta California Regional Center. (Harrah, personal communication, November 1980.)

7.4 Summary

The preceding sections described the basic structural components of the local governments in the Study Area and examined employment and service trends in education, transportation, public safety, and social services. In general, there were few project-related changes identified. They included: the mitigation of a decrease in the Galt elementary schools during the peak construction years, an increase in traffic on California State Highway 104 and Clay Station Road, the paving of Clay Station Road, and the contribution of fire-fighting equipment to the Herald Fire District. The lack of major government and public services effects was attributed to two basic factors: (1) the absence of substantial project-related property tax revenues, and (2) the small number of project-related workers who moved to the Study Area.

CHAPTER 8: SOCIAL STRUCTURE

8.1 Introduction

The purpose of this chapter is to identify and examine the effects of the construction and operation of the Rancho Seco Nuclear Generating Station on the social structure and process within the Galt County Census Division.[1] This chapter identifies the major functional social groups at the beginning of the study period, develops a profile of each group, and describes the major features of the relationships among the groups. A premise of the study is that relationships among people in a community[2] are structured and that people in a community form functional and interacting groups that can be identified and described.

Once the groups within the Study Area are identified and characterized and the relationships among the groups are defined, the economic, demographic, housing, government, and public services effects of the project (identified in Chapters 4 through 7) are distributed among the groups. Changes in the profile of the groups and in the relationships among groups during the study period are then identified, and the role of the project in those changes is determined. Much of the information is based on interviews with key informants who were knowledgeable about the groups in the area. Secondary data were also used to substantiate the information provided by the key informants and to further define the groups.

8.2 Social Structure at the Beginning of the Study Period

8.2.1 Identification of the Social Groups

The selection of the social groups was based primarily on an examination of the historical development of the area and on interviews with key informants regarding the organization and structure of the Study Area; the process was supplemented by personal

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[1]The following discussion represents a synthesis of the information obtained through interviews with Study Area residents. In order to protect the confidentiality of the information provided by these persons, statements are not attributed to specific people. Persons interviewed are included in the list of Personal Communications at the end of this report.

[2]Warren's (1978) definition of community is used: that combination of social units and systems that performs the major social functions having locality relevance. Functions are defined to include: production, distribution, consumption; socialization; social control; social participation; and mutual support.

observations and secondary data. An additional consideration was the distinctiveness of each group in relation to the effects of the Rancho Seco nuclear plant. In the Galt CCD, four groups were identified as the important functioning social units: the agricultural community, the townspeople, the newcomers, and the Hispanic community.

8.2.2 Group Profiles

Based on a review of the literature on community organization, social structure, and large-scale project effects, seven attributes were identified that seemed most critical to the specification and description of the groups and the social structure, and to the analysis of the effects of the nuclear project on them. These seven attributes were:

(1) Size of the group;
(2) Livelihood of group members;
(3) Demographic characteristics;
(4) Geographic location (residential and occupational);
(5) Property ownership characteristics;
(6) Dominant attitudes and values toward growth, environment, community participation, and planning; and
(7) Patterns of interaction among group members (cohesion).

A profile of each group was developed on the basis of these seven attributes by synthesizing secondary data and information from key informants. Because the purpose of these profiles is to explicate the social structure and to provide a basis for the analyses of project effects, the modal characteristics of each group were described in order to provide an indication of the group's diversity.

The patterns of interaction among group members are examined for three spheres of activity—economic, political, and social. The focus of the discussions regarding the interactions among group members in these three spheres is as follows: employment and income; political control, representation, and participation; and social participation or control of formal social organizations and the degree of informal social contact.

8.2.2.1 The Agricultural Community

Of the four Study Area groups, the agricultural community, numbering approximately 1,300 persons, ranked third in size in 1968. The group represented less than 20 percent of the total Galt CCD population.

The agricultural community contained three major subgroups: farmers, dairymen, and ranchers. For the purpose of this study, farmers were defined as members of the agricultural community who cultivated field and row crops, including Ladino clover and

Sudan grass (principally for seed), oats, and corn. The landholdings, which were located in the central and western portions of the Study Area, ranged in size from 100 to 2,000 acres with most being either 160 or 320 acres. Dairymen were scattered throughout the same area as the farmers.[1] The size of the dairy units ranged from 80 to 2,000 acres. A typical dairy was either 160 or 320 acres in size and included approximately 200 cows. In addition, most of the dairies included 150 to 200 acres of associated farmland used for growing feed. Local ranchers generally lived in the eastern part of the Galt CCD and owned 2,000 or more acres.[2] The ranches often included several noncontiguous landholdings.[3]

The majority of the agricultural land in the Study Area was family owned and operated. There were few corporate farms, and absentee land ownership was uncommon. While a limited number of "old-time" agricultural families lived in the area (primarily ranchers who acquired land through inheritance), much of the land ownership was relatively new. For example, most of the dairies which had been in the area for a number of decades had changed owners several times.

The agricultural operations depended primarily on family labor. In addition, dairies employed at least one full-time milker, and the larger landholders in each subgroup hired irrigation hands. Supplemental labor was hired, as necessary, on a seasonal basis. Since most of the agricultural operations were highly mechanized and, since the crops grown in the Study Area did not require extensive manual labor, large numbers of seasonal workers were not required.

Family income generated from agricultural activities ranged from low to middle income. Large landowners with successful agricultural operations and high incomes were the exception and not the rule. While a portion of the subsistence farmers and dairymen supplemented their income with wage and salary employment outside of the Study Area, this was not characteristic of the group as a whole.

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[1]The Study Area was within the milkshed of the Sacramento urban area.

[2]The average carrying capacity for the area was ten acres for each animal per season. Two thousand acres was the minimum size for an economically viable ranching unit.

[3]The eastern portion of the Galt CCD was also the location of three large stockyards.

Ethnically, the landowners were predominantly Anglo, and the farm laborers were Hispanic. Most of the dairies were owned and operated by people of either Portuguese or Dutch descent. Many of these dairymen were relatively recent immigrants, having come to the United States within the last 40 to 50 years.

Agriculture for the farmers, and to a lesser extent for the dairymen and the ranchers, was approached more as a business than as a way of life. Typically, the land had not been owned by the same family for several generations. In addition, there was a willingness to sell or lease the land and to seek wage and salary employment elsewhere when agricultural units were no longer economical. While there was no attempt to dissuade members of the group from subdividing their land or selling it for any nonagricultural purpose, land-use planning and zoning were generally supported as a way to help stall urban encroachment and to preserve agricultural land.

Under the California Land Conservation Act of 1965, which was enacted because of the encroachment of rural nonfarm residences into agricultural areas, members of the agricultural community could place their land in an agricultural preserve for twenty years in order to protect their land from rising property taxes. Under the contract, the landowner agreed to keep the land (a minimum of 100 acres) in commercial agricultural production; in return, property taxes were based on agricultural capability rather than on the land's appraised value. A large number of the group members utilized the program, which helped maintain the viability of the most productive farmlands in the Study Area.

The agricultural community believed in utilizing the land to its fullest potential. This required accepting progressive ideas and monitoring the industry's latest products and equipment. Their attitude toward the environment was that it should be modified to any extent necessary (including soil conservation practices and actual crop production techniques) in order to maximize agricultural output.

The agricultural community maintained economic ties within its group through business transactions (leasing land and selling crops and livestock) and through membership in agricultural organizations. The Farm Bureau served as the one organization that drew members from each of the three agricultural subgroups. Area seed growers were members of CAL/WEST, a statewide farmer-owned cooperative that milled and marketed seed (primarily Ladino clover and Sudan grass); local dairymen belonged to a variety of regional and state dairy associations. In general, with the exception of the dairymen, the level of active participation in these business organizations was low.

The agricultural community as a whole did not participate widely in community activities. Members of the group rarely took a united stand on an issue. The Farm Bureau, which represented the interests of the agricultural community, was the only organization which occasionally identified areas of concern and sought group support. The major source of power and influence for group members within the Study Area was through participation in the local school boards, the fire and irrigation district boards, and the County Board of Supervisors. While the agricultural community wielded influence in these governing bodies, only a few members were active participants. Those who were recognized by the group as being influential were identified through a combination of family name, land ownership, and wealth. In addition, a small number of dairymen were noted for their influence in dairy associations at the regional and state levels.

Group members exhibited a low level of participation in social, economic, and political activities. Social interactions which did occur centered around family ties and participation in school and church activities. The local Granges (Alta Mesa and Valley Oaks) were not particularly active organizations; the Farm Bureau, CAL/WEST, and dairy associations had few social functions. Membership in the Herald Garden Club and the Wilton Thursday Club was limited to a small number of older women.

While the agricultural community as a whole maintained a low level of cohesion, there were three separate subgroups which were notably cohesive: the Swiss, Portuguese, and Dutch dairymen. Even though these subgroups maintained distinct and separate identities, they also exhibited common characteristics: they retained ties to their mother country, spoke their native language, maintained strong familial ties, and actively participated in their own church and social groups.

8.2.2.2 The Townspeople

The townspeople were identified as a group based on their residency within the City of Galt.[1] With an estimated 3,200 persons in 1968, this was the largest group in the Galt County Census Division.

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[1]Members of the Hispanic community were the only Galt residents who were not considered townspeople for the purposes of this study.

The vast majority of the jobs in Galt were filled by townspeople. This employment was characterized by a mixture of blue and white collar jobs, principally in the trade and services and manufacturing industries. Most of the local businesses were family owned and operated by group members. Those who were not employed in Galt commuted outside of the Study Area for employment, primarily to Lodi and Sacramento. The income of the townspeople ranged from the low to upper-middle categories, with retirees being on the lower end of the scale and local business proprietors on the higher end.

Demographically, there was no predominant ethnic background discernible among the group members; most of the group members were Anglo. A significant proportion of the residents (approximately 10 percent) were 65 years of age or older. The retirees were a mixture of longtime Galt residents and recent in-migrants from nearby urban areas.

By definition, the group was concentrated within the city limits of Galt. The majority of their housing was single-family, owner-occupied units. However, more townspeople lived in multiple family units and mobile homes than did members of any other group. The mobile homes (which were primarily owned and occupied by retirees) were located in the northern part of Galt in the city's only mobile home park; the apartments (mostly old, small rental units) were scattered throughout the town.

Political and business leaders in the city favored growth and development. By 1968, few of the anti-growth, old-time residents who had historically opposed changes in the community (such as the construction of stores along U.S. Highway 99 and the city's first shopping center) remained in positions of power and influence. The city council and Chamber of Commerce were both active in the search for new industry and residential developments. Moreover, environmental issues were generally not of concern to the group as a whole.

The townspeople showed strong intragroup economic ties since many of the group members were either proprietors or employees of other group members. In addition, the majority of the townspeople filled their needs for goods and services in Galt, thereby maintaining a strong buyer/seller network which had developed over a long period of time.

Members of the business community were the primary political leaders in the city. Positions on the city council, including that of the mayor, were held by longtime

Galt businessmen with business interests outside of the Study Area. Typically, these councilmen were re-elected for a number of terms. In addition, proprietors of businesses located in Galt (generally successful, relatively longtime residents and property owners) wielded substantial influence in community affairs through participation in organizations such as the Chamber of Commerce, the Lions Club, and the Jaycees. Aside from a few Galt residents, the townspeople as a group were politically inactive except when an issue emerged that affected them directly (for example, changes in zoning regulations or modernizing the police department).

Of the four groups in the Study Area, the townspeople exhibited the highest level of social interaction. This was evidenced by the generally high level of visitation among members of the group; numerous family ties; shared participation in church activities; and widespread involvement in social, service, and civic organizations. In addition, the level of social interaction was enhanced by the group's geographic concentration within the City of Galt, particularly among the group members who had resided in the town for many years and shared community and familial experiences.

8.2.2.3 The Newcomers

The newcomers, as a group, were characterized by two variables: (1) their length of residency, and (2) their geographic location. As defined for the purposes of this study, newcomers were the nonagricultural residents of the unincorporated portion of the Galt CCD who moved to the Study Area after 1964. At the beginning of the study period, there were approximately 2,300 persons in this category. This represented over 30 percent of the total Galt CCD population; thus, the newcomers were the second largest group.

One of the most notable characteristics of the newcomers was that group members commuted outside of the Study Area for employment, primarily to Sacramento, Lodi, and Stockton. Members of the group were generally upwardly mobile. The income level of the group (middle to upper-middle) was the highest in the Study Area. This group's relative affluence was often reflected in the size and quality of their residences, which were conspicuous when compared to the homes of the agricultural and Hispanic communities and the townspeople.

The newcomers were principally Anglo and were of mixed ethnic background. Typically, the group consisted of married couples with young children and generally high educational levels.

Geographically, members of the group lived near the old, established communities of Herald, Wilton, Clay, and Galt and along major area roads. Houses were often located on land previously held for marginal agricultural activities, notably Grade B dairies. The newcomers, on the whole, owned 2- to 20-acre parcels of land on which single family houses were built.

The majority of the newcomers were from large metropolitan cities, including Sacramento, Los Angeles, and San Francisco. Many of the group members moved to the area to escape urban problems and to seek a rural lifestyle. To the newcomers, the area represented "breathing space," a chance to be a weekend or a hobby farmer, and an opportunity to instill a sense of the importance of land in their children through involvement in programs such as 4-H and Future Farmers of America. The commutation to work was considered an acceptable trade off for living in the country. However, despite the fact that the group sought a rural lifestyle, they also wanted city-like services, including progressive and varied educational programs, modern and efficient fire and police departments, and public garbage collection services.

Within the group, there was a sense of belonging to and an association with the communities of Herald, Wilton, and Galt. These ties resulted principally from the residents' proximity to those communities and to their location within particular school and fire districts. For many of the newcomers, the local schools and fire department represented the primary community focus and place of community interaction for group members. Generally, newcomers with children participated in school-related programs, including parents' organizations, school board meetings, and youth athletic and agricultural activities. Both the schools and the fire department served as places for social interaction.

Aside from participation in the schools and fire departments, group interaction and group cohesion were relatively low, principally because most of the newcomers' economic, social,[1] and political ties were outside the Study Area. In addition, the group had no recognized leaders and generally did not operate as an organized unit. While the opportunity existed for the newcomers to become politically involved in the local area through participation on school and fire district boards and on the Sacramento County

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[1]A notable exception was the Herald Community Club, which was organized as a social club and whose members were mostly newcomers.

Board of Supervisors, members of the group were not active participants in these organizations.

8.2.2.4 The Hispanic Community

Prior to the beginning of the study period, approximately 700 Hispanic persons lived in the Study Area. While the Hispanic community was the smallest of the Study Area groups, it represented approximately 10 percent of the total Galt CCD population.

Historically, in the rural portions of California's Central Valley, the presence of Hispanics was associated with agriculture. Similarly, the majority of Hispanic residents in the Study Area were employed in agriculturally-related jobs--working in fields, canneries, packing sheds, wineries, and dairies. While a small portion of the group worked as milkers and irrigation hands on farms and dairies located within the Galt CCD, the majority of the group were employed outside the Study Area in Thornton, Lodi, Stockton, Lockford, and Acampo. Due to the seasonal and migrant nature of job opportunities, the group was noted for its low income, high unemployment rate, and participation in welfare programs.

Members of the Hispanic community were generally younger than members of the other Study Area groups, and their family size was typically larger. Spanish, which was commonly spoken in the home, was the first and only language for many adults and older residents. While parents supported the education of their children, the group as a whole exhibited a low educational level.

The largest concentration of Hispanics in the Study Area occurred in the older sections of the City of Galt. Due to their low incomes, Hispanics were generally not property owners. Typically, they lived in small rental units which were in need of upgrading, often sharing the residence with relatives. The remainder of the Hispanic group lived throughout the unincorporated portion of the Study Area. Full-time employees of the local agricultural community generally lived in houses furnished by the employer on their dairy, farm, or ranch.

Economic growth in the area was viewed by the Hispanics as a positive force since it increased local employment opportunities. Environmental and political issues were generally outside of the group's frame of reference: their primary concern was fulfilling subsistence needs.

Within the Hispanic community, there was a sense of group identity, strengthened through informal family ties, the Spanish language, and the Catholic Church. Traditional family celebrations, such as baptisms and weddings, were important family events, and extended family structures were common. In general, family and social ties were traditional, strict, and conservative. However, although members shared common economic interests and often worked together in canneries, packing sheds, and fields, the group's overall sense of social cohesion was low. There were no recognized Hispanic leaders, nor were there business or social organizations (other than the Catholic Church) in which group members participated. In general, the group operated and functioned outside of the mainstream of the larger community. Their level and frequency of participation in local political, social, and economic affairs were minimal.

8.2.3 Interaction among the Groups

The interaction patterns among members of different groups in the period before the construction of the Rancho Seco nuclear project varied considerably. The following discussion outlines the dominant interactions among the groups in the Study Area and completes the description of the social structure of the Galt CCD.

8.2.3.1 Economic

In 1968, there were no strong employment ties between the four Study Area groups.[1] Most of the newcomers and Hispanics were employed in jobs outside of the Study Area. While the agricultural community and the townspeople were the two groups whose members worked principally within the Study Area, the types of work typical of each group were located in geographically separated places—on rural farms and in the City of Galt. As a whole, most of the employment opportunities in the Study Area were located in the City of Galt, and the vast majority of those jobs were filled by townspeople. The remaining members of the townspeople group necessarily sought employment outside the Study Area, as did the newcomers and the Hispanics.

The major source of economic interaction between the groups was the buying and selling of goods and services. In general, the townspeople owned and operated the businesses that provided goods and services for the Hispanic community and members of the agricultural group (including banks and a livestock auction). The majority of the

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[1]Only a small number of Hispanics were employed by the agricultural community within the Galt CCD. Thus, there were no strong ties between these two groups such as is found in other areas in central California.

newcomers shopped elsewhere (principally Lodi and Sacramento), taking advantage of lower prices and better selections. The agricultural community developed an economic link with the newcomers by selling them animals, feed, and other products for their hobby farms.

8.2.3.2 Political

The City of Galt and Sacramento County were the local government bodies with jurisdiction over the Study Area. Political leadership on the Galt City Council was in the hands of longtime Galt residents—principally businessmen who were re-elected for a number of terms. The agricultural community and the newcomers could not hold political office in the city because their homes and land were located outside the city limits.

The unincorporated portion of the Study Area was represented by a county supervisor, generally a full-time or part-time farmer with ties to the agricultural community. In addition to the board of supervisors, the agricultural group (along with townspeople) also exercised power and influence in the local area by acquiring school board positions in Galt, Herald, and Wilton and by dominating the board membership of rural fire departments and irrigation districts. Aside from these activities, the agricultural community remained aloof from the affairs of the City of Galt. In 1968, the newcomers and the Hispanic community were both notable for their lack of leadership and participation in local government. Thus, neither of those groups represented a viable political force in the Study Area.

8.2.3.3 Social

Study Area schools, particularly the Galt High School, were the source of the highest level of community participation and social interaction for each of the four groups in the Galt CCD. School functions, such as sports events, received broad-based support from every group and represented a place where the group members freely intermixed. Secondary places of social interaction included volunteer fire departments and churches. The fire departments stimulated interaction between the agricultural community and the newcomers; the churches primarily integrated the townspeople with the agricultural community.

Aside from the schools, the fire department, and the churches, each group maintained its own formal and informal social ties. The largest number of kinship ties among the Study Area groups were exhibited between the townspeople and the

agricultural community. Most of the clubs and civic organizations were dominated by members of one group, with the Galt High School Boosters' Club being the most important exception because of its diverse membership. For example, the Wilton Thursday Afternoon Club and the Herald Garden Club were primarily supported by agricultural residents; the Chamber of Commerce and the Lions Club were controlled by townspeople; and the Herald Community Club was dominated by newcomers. The Hispanic community generally exhibited a low level of social interaction with the other groups.

8.2.3.4 Study Area Cohesion

As indicated by their profiles and by the description of their patterns of economic, political, and social interaction, the four functional social groups in the Galt County Census Division generally exhibited a low level of cohesion. The townspeople and the agricultural community dominated the economic, political, and social activities in the Study Area and maintained longstanding business, family, and political ties, while the Hispanic and newcomer groups functioned outside of the mainstream of the larger community's activities. The majority of the members of both the Hispanic and newcomer groups commuted outside of the Galt CCD for employment. As a result, the newcomers maintained social and political ties to the places of their employment. The Hispanic community on the other hand, was simply not an active economic or political force; in addition, the group exhibited social ties almost exclusively among members of its own group.

8.3 New Groups in the Study Area during the Study Period

No new functional groups emerged in the Galt County Census Division during the study period, despite the construction and operation of the Rancho Seco nuclear plant. The project-related workers were not identified as a new group due to their small number, their generally temporary residency patterns, and their failure to function as a social unit with distinct economic, political, and social patterns of behavior. As a result, the project-related in-migrants to the Study Area were incorporated into the existing functional groups. Therefore, while the size and composition of the groups changed during the study period, the number of groups remained constant. Because most of the in-migrants lived in Galt, the majority of the project-related workers were incorporated into the townspeople group.

8.4 Distribution of the Project Effects to the Groups

The effects of the construction and operation of the Rancho Seco Nuclear Generating Station on the Study Area economy, labor force, population, settlement patterns, and public services were identified and described in Chapters 4 through 7. This section outlines the distribution of those effects among the four groups in the Galt CCD. The distribution of effects to the Study Area groups was derived from available empirical evidence, key informant information, and analytic judgment.

8.4.1 Economic Effects

Table 8-1 summarizes the employment and income impacts of the construction and operation of the Rancho Seco project in the Study Area for 1972 and 1978. The distribution of these economic effects to the four social groups in the Galt CCD is shown in Table 8-2. In 1972, there were an estimated 169 residents of the Study Area who worked in project-related jobs, including 121 basic and 48 nonbasic jobs. This employment was allocated among the four groups as follows: townspeople—102; newcomers—52; Hispanic community—10; and agricultural community—5. It was estimated that, of the newcomers, approximately 10 of the 52 persons who obtained jobs were movers to the Study Area. Thus, the townspeople (Galt residents) obtained approximately 60.4 percent of the total number of jobs held by Study Area residents. In terms of income, approximately $1,795 thousand was earned by the townspeople, $915 thousand went to the newcomers, $176 thousand was earned by the Hispanics, and $88 thousand by the agricultural community.

By 1978, the total work force at the project site had decreased significantly. Once again the townspeople, with an estimated 61.4 percent of the total project-related Study Area employment, was the group holding the largest number of jobs. The newcomers had about 31.6 percent (18) of the total project-related jobs, and the Hispanic and agricultural communities together accounted for only approximately 7 percent of the total. Total project-related income earned by Galt CCD residents in 1978 was estimated at $762 thousand. Of this amount, the townspeople earned about $468 thousand, the newcomers earned approximately $241 thousand, and the Hispanic and agricultural groups together earned about $54 thousand.

8.4.2 Demographic Effects

The demographic effects of the project on the Study Area were discussed in Chapter 5. The total project-related increase in the Galt CCD population between 1968

TABLE 8-1

TOTAL PROJECT-RELATED EMPLOYMENT AND INCOME EFFECTS
GALT COUNTY CENSUS DIVISION
1972 AND 1978

Galt County Census Division	1972 Employment			1972 Income[a]			1978 Employment			1978 Income[a]		
	Basic	Non-Basic	TOTAL	Basic	Non-Basic	TOTAL	Basic	Non-Basic	TOTAL	Basic	Non-Basic	TOTAL
Nonmovers	63	41	104	$1,401,139	$247,053	$1,648,192	31	10	41	$471,870	$64,598	$536,468
Movers Accompanied by Families	28	7	35	619,662	42,180	661,842	4	2	6	60,886	12,920	73,806
Movers Unaccompanied by Families (or Single)	30	0	30	663,924	0	663,924	10	0	10	152,216	0	152,216
TOTAL[b]	121	48	169	2,684,725	$289,233	$2,973,958	45	12	57	$684,973	$77,518	$762,491

[a]Income is reported in constant 1972 dollars.

[b]Totals may not add exactly due to rounding.

Source: Mountain West Research, Inc., 1980.

TABLE 8-2

ESTIMATED EMPLOYMENT AND INCOME EFFECTS BY GROUP
GALT COUNTY CENSUS DIVISION
1972 AND 1978

	1972				1978			
	Employment			Income	Employment			Income
Social Groups	Basic	Nonbasic	Total	TOTAL	Basic	Nonbasic	TOTAL	TOTAL[a]
Agricultural Community	5	0	5	$87,987	2	0	2	$26,754
Townspeople	64	38	102	1,794,933	25	10	35	468,196
Newcomers	42[b]	10	52	915,064	16	2	18	240,787
Hispanic Community	10	0	10	175,974	2	0	2	26,754
TOTAL	121	48	169	$2,973,958	45	12	57	$762,491

[a]Income is reported in constant 1972 dollars.

[b]It is estimated that approximately ten of the newcomers with basic jobs were movers.

Source: Mountain West Research, Inc., 1980.

and 1978 was summarized in Table 5-9.[1] In 1972, the total in-migration of project-related people to the Study Area was estimated at 146 persons (58 basic workers accompanied by 67 family members and 7 nonbasic workers with 14 family members). In 1978, there were an estimated 28 in-migrants (14 basic workers accompanied by 8 family members and 2 nonbasic workers with 4 family members).

This additional population was distributed among two of the four social groups in the Study Area, the townspeople and the newcomers. In 1972, approximately 112 in-migrants were added to the townspeople group. This included all nonbasic workers and their family members, plus all basic workers with the exception of 10 movers accompanied by families who were allocated to the newcomer group. In 1978, an estimated 22 workers and their family members were classified as townspeople, and 2 basic workers with 4 family members were distributed to the newcomer group.

8.4.3 Settlement Patterns and Housing Effects

As indicated in Chapter 6, settlement patterns in the Galt CCD were not significantly affected by the construction and operation of the Rancho Seco nuclear plant since the majority of the project-related workers who moved to the area lived in existing rental units (mobile home parks, apartments, and a motel). The few construction and operation workers who permanently moved to the area and built new homes were residentially dispersed; thus, any potential effects on settlement patterns were minimized.

While the demand for project-related housing in the Study Area far exceeded the supply, there was no identifiable market response to provide temporary additional housing to meet the increased demand. Thus, the overall effect of the project on the housing market in the Galt CCD was minimal. There was no evidence that the plant significantly encouraged the development of new housing units, the conversion of existing units into multiple family structures, or the renovation and upgrading of deteriorated housing stock. In addition, no apparent increases in rental costs or home purchase prices could be attributed to project-related demands.

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[1]Of the two potential components of the increased population, in-migration and diminished out-migration, only in-migration was found to have had a measurable effect on the Galt CCD population.

While some residents felt that the announcement of the project created some speculation in land prices near the plant site and along California State Highway 104, there was no clear-cut evidence of widespread inflation in land values during construction. Similarly, while some residents believed that the value of land and the market for land (both for agricultural and residential uses) in proximity to the Rancho Seco nuclear plant decreased following the Three Mile Island accident, there was no conclusive evidence to either support or reject the perception.

In general, it was the townspeople, and not the newcomers, Hispanic, or agricultural groups, who benefited economically from the small increase in housing activity due to the construction and operation of the Rancho Seco project. The townspeople were the owners of the motel, the apartments, and the mobile home parks that received project-related business. In addition, the townspeople were the major real estate investors and developers in the area.

8.4.4 Government and Public Services Effects

Chapter 7 described the basic structural components of local government in the Study Area (the City of Galt and Sacramento County) and examined employment and service trends for four public services: education, transportation, public safety, and social services. As was indicated in Chapter 7, few changes in public services could be directly attributed to the construction and operation of the Rancho Seco nuclear plant. The lack of major government and public services effects due to the project resulted from two basic factors: (1) the absence of an increase in tax payments to Sacramento County, and (2) the small number of project-related workers who moved to the Study Area.

The project-related effects that were identified included the mitigation of a decrease in enrollment in the Galt elementary schools in 1972 and 1973, an increase in traffic on California State Highway 104 and Clay Station Road, the paving of Clay Station Road, and the contribution of fire-fighting equipment to the Herald Fire District. Of these effects, the increased traffic in the area, the upgrading of Clay Station Road, and the additional equipment for the Herald Fire Department generally affected only the newcomers and the agricultural community. The mitigation of the decrease in enrollment in the Galt elementary schools primarily affected the townspeople. Thus, the Hispanic community was unaffected by the government and social services impacts.

8.4.5 Other Effects

Aside from the project-related effects described in the above sections, there were three additional impacts (all of which were indirect effects) resulting from the construction and operation of the nuclear plant that were important to the Study Area residents. The first was the construction of Rancho Seco Park—a facility used heavily by each Galt CCD group with the exception of the agricultural community. The second effect was the annexation into the SMUD service area of approximately 300 families (primarily newcomers as well as some agricultural residents) in a 100-square-mile area surrounding the plant site. This annexation resulted in significant decreases in the area residents' monthly electric bills. The third effect was the construction of the Folsom South Canal and the subsequent allocation of water from the facility to members of the agricultural community for agricultural use.

8.5 Changes in Social Structure during the Study Period and the Role of the Project Effects

8.5.1 Changes in the Profiles of the Groups

This section describes the major changes in the profile of each of the groups during the study period. In addition, the role of the project's effects in those changes is examined.

8.5.1.1 The Agricultural Community

Between 1970 and 1978, the population of the agricultural community decreased by about 300 persons (from an estimated 1,300 in 1970 to approximately 1,000 in 1978), making the agricultural group the smallest of the four study groups by the end of the study period.

Even though the group had decreased in size, the general characteristics of the agricultural community remained relatively constant throughout the study period. Nevertheless, two notable changes occurred, neither of which resulted from the construction and operation of the Rancho Seco nuclear plant.[1] First, the number of agricultural units decreased as small farms and dairies (particularly Grade B dairies) became uneconomical due to both the increased costs of production and more stringent milk regulations. The marginal agricultural units were either sold to realtors for

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[1]While the Rancho Seco plant was constructed on what had been grazing land, the amount of land used by the facility was insignificant to the agricultural community as a whole.

residential development or were sold or leased to area farmers for continued agricultural production. In addition, as agricultural production costs escalated, it became more difficult for children of group members to use agriculture as their source of livelihood. Second, the remaining farms, dairies, and ranches became larger and more mechanized during the study period. This change enabled the agricultural community to utilize the economic efficiencies of large-scale production in order to maintain a profitable business. Supplemental land was often obtained through the leasing of small land units that were uneconomical when farmed individually. In addition, new crop land was leveled, irrigated, and placed into cultivation for intensive agricultural production.

8.5.1.2 The Townspeople

During the study period, the number of townspeople increased by almost 1,000 persons to an estimated 4,150. In terms of the Galt CCD, the group decreased in its share of the total population, thus becoming the second largest group in the Study Area.

Between 1968 and 1978, Galt's role as a bedroom community increased. New group members included suburbanites who commuted to urban areas for employment as well as a large number of retirees. The Rancho Seco-related workers who lived in the city created no significant long-term demographic effects since the majority of the workers lived in Galt on a temporary basis. The project-related employment and indirect and nonbasic economic effects were also too small to result in a change in the overall economic structure of the townspeople. However, the addition to the group of a significant number of elderly people on fixed incomes skewed the age structure and income level of the group as a whole.

The townspeople who moved to the area during the study period lived in newly constructed multiple-family units, mobile home parks, and single-family houses. The retirees located primarily in Galt's first mobile home park (which had been expanded) and in two newly opened facilities. While a small number of construction and operation workers resided in rental units, the construction of additional rental units during the study period was not in response to the project-related demands.

Although the City of Galt underwent significant economic, political, and social changes during the study period, the changes were a result of the city's growth rather than a function of the construction and operation of the Rancho Seco nuclear plant. The major factor contributing to these changes was the in-migration of persons in three subgroups: elderly persons on fixed incomes; middle-income surburbanites; and

low-income Hispanics with large, young families and high unemployment rates (see Section 8.5.1.4). Together, the retirees and Hispanics changed the basic socioeconomic structure of the community (e.g., the ethnic composition, age structure, family size, income level, and labor force participation rate).

Prior to the study period, the townspeople were a relatively homogeneous group with few distinct subgroups. During the 1970s, however, the elderly and the Hispanics emerged as viable social forces in the community with expressed interests and group-specific problems; the suburbanites maintained economic, political, and social ties outside the Study Area. As a result, the townspeople became socially and politically fragmented. The emergence of the Hispanics as a political entity--particularly their expression of political and economic goals--resulted in community conflicts. Politics became confrontational and issue-oriented. New leadership emerged in the city among the townspeople, the Hispanics, and the elderly, and political participation became more broadly based. In addition, social interaction became more defined within respective group boundaries, and the general level of group cohesion decreased.

8.5.1.3 The Newcomers

The newcomers continued to in-migrate to the rural portion of the Study Area during the study period, thereby increasing the group's size. In 1978, it was estimated that the number of newcomers had risen to 5,100 persons. Thus, it had become the largest of the four Study Area groups.

The construction and operation of the Rancho Seco nuclear plant provided a limited number of jobs to those newcomers who were already residents of the Galt CCD, including women.[1] In addition, the nuclear plant resulted in the in-migration of a small number of people subsequently categorized as newcomers. Nevertheless, in terms of the total size of the newcomer group, the project-related in-migration and employment did not create discernible changes in the group's demographic or economic characteristics.

Between 1968 and 1978, the total number of housing units in the rural portion of the Study Area increased as the area's population grew. This period was marked by an increase in the number of mobile homes compared to the total housing stock, an increase

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[1]For women, the major attractions of jobs at the project included the plant's proximity as well as the civil service pay-scale and benefits, which were significantly better than other employment in the Study Area.

which was a direct response to the higher cost of land and housing.[1] Mobile homes offered a less expensive housing alternative for those people seeking a rural lifestyle who could afford to buy the land but who could not afford to construct a house. As residential developments continued to concentrate near existing communities and along major roads, settlement patterns became more dense.

One result of the increase in population density was that members of the newcomers' group became protective of the area's remaining open space, agricultural land, and rural environment. The newcomers (many of whom lived on former agricultural land themselves) wanted farmers to retain their land in agriculture in order to help preserve the area's rural atmosphere. In general, it was the newcomers, rather than the agricultural group, who felt most strongly about preserving agricultural land. For example, in the mid-1970s, group members living on two-acre parcels in the Wilton area supported changing local zoning regulations to a minimum five-acre lot for one house; agricultural residents opposed the zoning change. In general, the newcomers supported planning and zoning in order to protect the rural environment; they resisted the subdivision of new areas and promoted the development of previously subdivided land. The newcomers' concerns were not prevalent prior to the beginning of the study period since, at that time, the forces that precipitated the concern (a rapid increase in the population and an increase in the density of settlement patterns) were not noticeable and were not commonly perceived as a potential threat to the rural lifestyle.

During the study period, the general level of group interaction and participation in community activities remained low for the newcomers' group as a whole. Nevertheless, a few of the newcomers, through participation in the schools and fire departments as well as through participation in issues of general concern to area residents, had assumed positions of power and influence in both Herald and Wilton. These newcomers assumed community leadership roles and became highly visible and influential in monetary and policy-making areas of concern. For example, they were responsible for helping to upgrade fire-fighting training and for instituting Emergency Medical Training.

The Rancho Seco nuclear project played three important roles in the changing interaction patterns of the newcomers. First, a small number of the newcomers who

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[1]For example, ten-acre parcels in the eucalyptus grove near the Rancho Seco project, which sold for $500 an acre in 1968, sold for $4,000 an acre in 1978.

became active community leaders were employed at the plant and had moved to the area because of their plant-related jobs. Second, due to issues centered on the plant itself and on plant-related effects, the presence of the Rancho Seco project stimulated political activism by newcomers, including both those with and those without economic ties to the plant. (These issues and the involvement by Study Area residents are examined in detail in Chapter 9.) Third, as a result of the accident at Three Mile Island and the subsequent controversy surrounding the Rancho Seco nuclear plant (the two facilities were similar in design), the first visible anti-nuclear sentiment emerged among a small number of group members. There is evidence to suggest that the presence of strong pro- and anti-nuclear beliefs among the active members of the group created an ideological schism between several newcomer residents which manifested itself in a change in their previously established patterns of social interaction.

8.5.1.4 The Hispanic Community

By 1978, due to the increased size of the group and its overall increased participation in the community, the Hispanic community had become a more distinct and important group within the City of Galt. It is estimated that by 1978 approximately 1,200 Hispanics lived within the Study Area--a substantial increase in absolute terms. The majority of the group lived within the city limits of Galt.

The increase in the size of the group resulted primarily from the in-migration of Hispanics from nearby rural areas (including Thornton and Walnut Grove) because of the availability of a large number of new, low-income, Farmers Home Administration subsidized housing units in Galt. These single-family, owner-occupied houses were concentrated in two subdivisions, Golf Side Estates and Meadowview, located in the south and southwestern portions of the town.

Due largely to their increased numbers and to their positions as homeowners, by the end of the study period members of the Hispanic community were playing an ever-increasing role in community affairs. As property owners, group members developed an increasing sense of belonging and community awareness. Members of the Hispanic community began organizing formal associations to help meet the needs of its own group as well as the needs of other low-income residents in the area. For example, in 1978 the Galt Community Concilio, Inc., was founded to help the poor, the disadvantaged, and the minority populations in the area establish access to the health and social services systems. The agency provided specialized assistance for Spanish-speaking people, including immigration services, translations, interpretations, and English classes. In

addition, the Concilio was instrumental in establishing the Galt Community Medical Center. Hispanic residents played a key role in organizing and structuring this agency. More recently, two additional organizations were founded: the Galt Latin Organization (formed in 1979 to raise money for a scholarship fund) and the United Concilio Youth Group (organized in 1980 to provide recreation and leisure-time activities for Galt area teenagers).

A new sense of awareness and group pride began developing within the group. In 1980, the Hispanic community widely supported a Cinco de Mayo celebration sponsored by the Galt Latin Organization. The City of Galt responded by adopting a resolution that established the celebration as an annual event. In the mid-1970s, the Hispanic community began to recognize leaders within its own group, typically those persons active in the Hispanic organizations. The positions of power were based on education, knowledge of the issues, and ability to act as liaison between the Hispanic and Anglo communities. Also, the group as a whole became more politically active and group members began to participate in community-wide issues. Thus, the Hispanic group underwent important changes during the study period. None of those changes, however, could be attributed to the effects of the construction and operation of the Rancho Seco Nuclear Generating Station.

8.5.2 Changes in the Relationships among the Groups

This section describes the major changes in the relationships of each of the four Study Area groups during the study period. The role of the Rancho Seco nuclear plant in those changes is included in the examination.

8.5.2.1 Economic

The basic pattern of economic relationships that existed between the Study Area groups remained relatively constant throughout the study period. The only noticeable economic change, which was the continuation of a previously established trend, occurred in the relationships between the agricultural community and the townspeople. Between 1968 and 1978, the economic ties between the groups weakened--as Galt became more of a business and commercial center catering to the townspeople and as agriculture became more mechanized and sophisticated, members of the agricultural group had to seek the wider range of products and services which were available only in large urban centers. Neither the local employment opportunities originating from the construction and

operation of the Rancho Seco project, nor the in-migration of newcomers, Hispanics, and townspeople, resulted in any significant changes in the overall pattern of economic interaction among the groups.

8.5.2.2 Political

During the study period, the pattern of political interaction between the four Study Area groups underwent several changes. First, the Hispanic community in Galt began to become politically involved with issues of concern to their group, thereby stimulating political interaction with the townspeople. Second, the historical links between the townspeople and the agricultural community were weakened as fewer members of the agricultural community held school board positions in the city. Third, new political ties were created between the agricultural community and the newcomers as the latter, through their participation on school boards and in fire departments, rose to positions of leadership and power in the rural areas. The changes in the interaction patterns between the agricultural community and the newcomers may be at least partially attributable to the Rancho Seco project since several of the key leaders in the newcomers' group lived in the Study Area because of jobs at the nuclear plant.

8.5.2.3 Social

The basic pattern of social interacton between the groups in the Study Area remained the same throughout the study period. The schools, churches, and fire departments continued to serve as the social centers around which group interrelationships and interaction were formed.

8.5.2.4 Study Area Cohesion

At the end of the study period, the four groups in the Galt County Census Division continued to exhibit a generally low level of cohesion. During the study period, in fact, the significant increases in the number of Study Area residents (townspeople, Hispanics, and newcomers) had served to further decrease the area's level of cohesion since the majority of these in-migrants maintained economic, political, and social ties to people and groups outside the Galt CCD.

CHAPTER 9: PUBLIC RESPONSE

9.1 Introduction

The purpose of this chapter is to present the major issues and to describe the public response that arose in conjunction with the construction and operation of the Rancho Seco Nuclear Generating Station. These descriptions, which are presented in chronological order, provide important background information for understanding the evaluation and response of Study Area groups to the project. The responses to the Rancho Seco nuclear plant included those of actors from outside the Study Area as well as participants from within the Galt County Census Division. Regional and state responses are provided in order to more fully describe the situation that existed for local respondents as they considered the effects of the project. In addition, an analysis of the effects of the public response on the Sacramento Municipal Utility District is presented.

9.2 Public Response during the Preconstruction Period

The preconstruction period began with the announcement of the Rancho Seco Nuclear Generating Station in 1964. This period, which lasted approximately five years, concluded in 1969 when plant construction began. The major project-related events during this period included the project announcement, the purchase of the plant site, and the construction permit hearings.

9.2.1 Project Announcement

In mid-1964, without fanfare or press releases, the proposed nuclear plant was announced by the utility staff to the Sacramento Municipal Utility District Board of Directors. Since the location of the project site was uncertain at that time, there was no direct response by Study Area residents to the utility's plans.

County and state officials strongly supported the plant, applauding SMUD's foresightedness and progressiveness. In 1965, the Governor of California (Edmund G. Brown) signed a bill (passed unanimously by the state legislature) that authorized SMUD to finance the construction of nuclear plants with revenue bonds. Public officials saw the plant as a way to maintain SMUD's cheap electrical rates and, thus, to continue contributing to the commercial and industrial expansion of the Sacramento area. (The Sacramento Bee, 10 July 1965.)

9.2.2 Project Siting

The 2,480 acre project site was acquired from three property owners. The largest section (2,100 acres) was purchased in 1966 from the Elmer O'Connell estate. The site, which was in a rather isolated rural portion of southeastern Sacramento County, was previously used as marginal grazing land. No opposition by Study Area residents was recorded—neither to the plant's location nor to the Sacramento County Board of Supervisors' approval of the rezoning of the land from agricultural to industrial use. (Mori, personal communication, July 1980; Mattimoe, personal communication, July 1980.)

The announcement of the plant's location near Herald and the discussions of anticipated plant-related traffic on California State Highway 104 resulted in the re-emergence of the issue of upgrading the highway. The president of the Galt Chamber of Commerce, the superintendent of Arcohe Elementary School, and the state senator for the area used the proposed construction of the Rancho Seco nuclear plant as an additional argument in their long-standing fight to secure state funds for upgrading CA-104. These actions helped to obtain state money for limited improvements of the highway prior to the construction period. (H. LaVine, personal communication, November 1980; The Galt Herald, 14 July 1966; The Sacramento Union, 22 September 1966.)

9.2.3 Construction Permit Hearing

In September 1968, the U.S. AEC Safety and Licensing Board conducted a two-day public hearing in Sacramento regarding the issuance of a construction permit for the Rancho Seco plant. The nuclear project received support from almost everyone in attendance, including the California State Resources Agency, the California State Department of Commerce, and the California State Economic Development Agency. There was no formal intervention in the hearings; only two persons made limited appearances in opposition to the project. The first, a Sacramento physician and former medical director of the Sacramento branch of Aerojet Corporation, was concerned about the effects of weather and air inversions on the accidents postulated in the safety application submitted in conjunction with the construction permit. He disagreed with several assumptions used in the calculation of potential risks to local populations in the event of an accident. The second, a Galt farmer who was secretary of the Galt Irrigation

District, expressed concern for the effects of the plant's discharged cooling water on local underground water systems. In addition, he stated that, in his opinion, the water used by the plant for electrical generation would, at some point in the future, be more valuable if it were available for agriculture instead. (The Sacramento Bee, 17 September 1968.)

There was no record of Galt CCD residents showing organized opposition to or united support for the plant during the construction permit hearings. The Galt farmer who appeared before the Safety and Licensing Board did not represent the views of the agricultural community at large. In October 1968, the AEC issued the construction permit for the Rancho Seco nuclear plant. (The Sacramento Bee, 17 September 1968: Mori, personal communication, July 1980; U.S. AEC, 1973:4.)

9.2.4 Summary and Evaluation of Public Response during the Preconstruction Period

The preconstruction period of the Rancho Seco nuclear plant (1964-1969) was characterized by solid support for the project, particularly from public officials in Sacramento. Two factors played an important role in the absence of organized opposition during this time period. First, SMUD developed an effective public relations program to specifically address questions or problems related to the proposed power plant. Representatives of the utility spoke to groups and organizations throughout the Sacramento area, emphasizing the safety of nuclear power in order to minimize opposition to the facility and to smooth the way for project construction. This program was particularly effective in diffusing potential problems in the Study Area because of the propensity of the local residents to place their trust in technology, experts, and persons in authority. (The Sacramento Bee, 12 December 1965.)

The second factor contributing to the lack of organized opposition to the proposed project was a combination of locational and operational features: the Rancho Seco facility (unlike the Diablo Canyon and San Onofre nuclear plants) was located inland, rather than on the coast, and the operation of the plant would not result in the thermal pollution of a natural water body. While concerns for the natural environment had increased throughout California in the 1960s, the fight to protect coastal areas was particularly strong. Because of the Rancho Seco plant's inland location (on marginal grazing land and in a sparsely populated rural area) and the lack of thermal pollution, the coastal and water-related environmental issues were nullified. As a result, governmental

bodies, such as the California Resources Agency, which were formal interveners at the hearings for the Diablo Canyon plant, did not oppose the construction of the Rancho Seco project.[1] (The Sacramento Union, 17 September 1968; The Sacramento Bee, 17 September 1968.)

9.3 Public Response during the Construction Period

Project construction, which began with the building of access roads at the site in April 1969, continued for a period of six years. The following sections describe the three events which resulted in the most active public response during this time frame: (1) the operation license hearing for Rancho Seco Unit 1; (2) the proposal for a SMUD revenue bond (which included funds to finance a second nuclear plant at the Rancho Seco site); and (3) the issuance of the environmental report for Rancho Seco Unit 2.

9.3.1 Operation License Hearing

The operation license hearing served as a catalyst for a group of eight Sacramento area residents (primarily faculty members at colleges and universities in Sacramento) to organize and begin opposing the Rancho Seco plant. In November 1972, they filed a petition requesting formal participation in the AEC public hearing concerning the issuance of the operating license for the facility. The petitioners included the following contentions as the basis for their intervention: (1) that the plant, because of its location in an area highly susceptible to temperature inversions, posed a danger to Sacramento residents in the event of a radiation leak; (2) that the normal operation of the plant posed the threat of more cancer deaths and genetically linked diseases; (3) that the plant had an inadequate emergency core cooling system; and (4) that a deliberate sabotage of the facility was a realistic possibility. (The Sacramento Bee, 20 November 1972; The Sacramento Union, 21 November 1972.) SMUD's response was to request that the AEC deny the petition on the grounds that the petition did not adequately set forth any contention that could serve as the basis for a hearing. The utility maintained that the

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[1] In 1968, the California Resources Agency signed an agreement with SMUD to support the Rancho Seco project. In return, SMUD agreed to dispose of plant waste material only in areas where it could not be washed into streams (unless specifically authorized otherwise); to protect fish from water intake facilities; to conduct water quality and radiological surveillance programs; and to cooperate with local and state organizations interested in developing recreational facilities near the plant. (The Sacramento Union, 17 September 1968; The Sacramento Bee, 17 September 1968.)

contentions were either not specific enough or that they challenged the rule-making authority of the AEC rather than the issuance of an operating license to a specific nuclear plant.[1] (The Sacramento Bee, 27 November 1972.)

In June 1973, the U.S. AEC Safety and Licensing Board held a two-day operation license hearing in Sacramento. While most of the hearing was devoted to testimony on the technical aspects of the project's design and construction, a limited appearance was granted for comments from the general public. There were a total of twelve oral and written statements, all in opposition to the nuclear plant. The statements were from Sacramento residents (there were none from Study Area residents) and included the original eight petitioners who had withdrawn from the formal intervention process. In addition to the contentions raised in the petition, the statements criticized the transportation of radioactive wastes from the power plant and the lack of public participation in the planning of the Rancho Seco project. (The Sacramento Union, 14 June 1973; The Sacramento Bee, 15 June 1973.) In August 1974, the AEC granted the Rancho Seco plant a full operating license.

9.3.2 Measure H

In the fall of 1974, SMUD proposed the issuance of a $650 million electricity revenue bond (which became known as Measure H) to provide funds to finance a ten-year district expansion program. The measure became an issue because of the amount of money involved and because it included funds to finance the construction of a second nuclear power plant at the Rancho Seco site. As a result, the SMUD Ratepayers Association (SMUDRA)[2] formed to oppose the utility's spending policies and the construction of Rancho Seco Unit 2. The group, through an organized petition drive, succeeded in forcing a public vote on the measure. At the same time, a second special interest group, the Consumers for Needed Electric Power, organized in support of the revenue bond. The measure (which became a symbol for support of or opposition to a

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[1]The group later withdrew from the formal intervention process stating that fighting the U.S. AEC Safety and Licensing Board was a long, difficult process and that the board refused to listen to generic issues concerning nuclear plants. The petitioners organized a group called The Interveners (which subsequently evolved into the Citizens for Safe Energy) to begin educating the public about the potential dangers of nuclear power. (The Sacramento Union, 19 April 1973.)

[2]In 1977, this group became known as the Original SMUD Ratepayers Association.

second nuclear plant) was approved by residents of the SMUD district by a vote of 92,900 to 77,900. (The Sacramento Union, 6 November 1974.)

The bond election, which was the largest in Sacramento County history, was important because it was the first time that SMUD policies were openly questioned by consumers. In addition, with over 45 percent of the voters opposing the bond issue, supporters of Measure H could not claim an overwhelming mandate by district residents to spend $650 million on an expansion program that included a second nuclear plant. (The Sacramento Union, 27 October 1974.)

9.3.3 Rancho Seco Unit 2 Environmental Report

By 1972, SMUD's plans to construct a second nuclear plant at the Rancho Seco site were well publicized. One of the first opportunities for formal public and agency comment on the proposed project occurred when the utility released the environmental impact report (EIR) for the second unit in September of 1974. The report was soundly criticized by several environmental groups, including SMUDRA and Citizens for Safe Energy as well as by other environmentalists in Sacramento County.

Both the Sacramento County Planning Commission and the Planning Department criticized the report for failing to fully answer or address a number of important issues: (1) the utility's predictions of doubled energy demands by 1984; (2) health and safety hazards; (3) the justification for the immediate construction of the facility; (4) alternative energy proposals; (5) growth-inducing impacts; (6) problems of the storage and disposal of high-level nuclear waste; (7) alternatives, such as energy conservation; (8) plant security measures; (9) the reliability and efficiency of nuclear power; and (10) potential development around the site. (The Sacramento Bee, 16 November 1974; The Sacramento Union, 11 September 1974, 17 October 1974, and 19 November 1974.)

The Sacramento County Board of Supervisors supported the Planning Commission's negative report in a 4-0 vote. In addition, the board directed SMUD to provide additional information on the proposed nuclear plant, particularly in the area of radioactive waste disposal. These actions by the board were significant since they represented the board's first direct expression of concern for nuclear power. Following the action of the

Sacramento County Board of Supervisors, the City of Sacramento Planning Commission voted unanimously to support the county's evaluation of the EIR. (The Sacramento Union, 28 November 1974; The Sacramento Bee, 13 December 1974.)

In April 1975, as a result of the problems encountered by the EIR, the SMUD Board of Directors held a two-day hearing at the utility headquarters in Sacramento on the proposal to build Rancho Seco Unit 2. The purpose of the hearing was to provide an overview of local opinion prior to the board making its decision whether to accept or reject the SMUD staff's recommendation to construct the additional unit. Over 250 persons attended the hearing; the ratio of the persons who opposed the building of the second unit was approximately 2 to 1. Of the estimated 60 persons who made limited appearances at the hearing, about half supported the project, while the remainder opposed it. Project supporters (who included representatives of business, industry, and labor unions, the mayor of Sacramento, and one county supervisor) generally argued for the nuclear plant on the basis of the area's continued demand for abundant, economical, and clean electricity. Those persons opposing the second unit argued that the need for additional power was unproven and that safer, cheaper alternatives existed. They also warned of the risks involved in the transportation and storage of high-level radioactive wastes and of the many operational failings of commercial nuclear plants. In addition, SMUD was criticized for hiring expert witnesses to rebut the claims expressed by persons in opposition to the plant. The notable antinuclear groups appearing at the hearing included SMUDRA, Citizens for Safe Energy, and People's Lobby—all Sacramento-based organizations. While a small number of Study Area residents attended the hearing, the mayor of Galt (who spoke in favor of the second unit) was the only local person making a limited appearance. (The Sacramento Bee, 16 April 1975; The Sacramento Union, 16 April 1975.)

Following the hearing, SMUD released a supplemental document to the EIR for Rancho Seco Unit 2. However, once again the report received substantial criticism from the Sacramento County Planning Department, the Sacramento County Planning Commission, the Sacramento County Board of Supervisors, and the City of Sacramento Planning Commission. Two of the major objections to the supplemental report were the lack of clarification on the amount of electricity to be used locally and the lack of delineation of the steps to be taken to prevent development near the plant. In addition, SMUD was rebuked for hiring Bechtel Power Corporation (the prime contractor for

Rancho Seco Unit 1) to prepare the report. (The Sacramento Union, 16 April 1975; The Sacramento Bee, 30 April 1975; The Sacramento Union, 13 May 1975.)

In January 1976, the SMUD Board of Directors voted to table plans for constructing a second nuclear unit at the Rancho Seco site. The utility's general manager cited the rapidly increasing cost of providing nuclear power, the disappointing operating record of nuclear power plants, and the government's indecision in resolving nuclear fuel cycle problems as major factors in the decision to seek other energy alternatives. (The Sacramento Union, 9 January 1976.)

9.3.4 Summary and Evaluation of Public Response during the Construction Period

The six-year construction period (1969-1975) of the Rancho Seco project was characterized by several changes in public response. The first change involved a modification in the attitudes of both county and state government officials toward nuclear power. Up through the operation license hearing, the government representatives supported the construction and operation of the Rancho Seco nuclear plant. In 1971, the state legislature voted to approve a bill allowing SMUD directors to issue short-term general obligations bonds to purchase fuel for the Rancho Seco facility.[1] In that same year, the State of California and Sacramento County aided SMUD in its development of a park surrounding the plant reservoir.[2] By 1974 however, government officials in the Sacramento area had changed their attitudes about nuclear power as was evidenced by their criticism of SMUD's environmental impact report for the proposed Rancho Seco Unit 2. In all likelihood, this shift in attitude was the result of the interaction of a variety of interrelated factors including: a growing state and national concern for the potential risks of nuclear power; a change in the ideological composition of the board and commission members; a heightened concern for the increased costs of

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[1]The only opposition to the bill was raised by the California Taxpayers' Association, a special interest group from Sacramento. The group argued against the measure, suggesting that revenue bonds be used and that the public be given a chance to vote on the issuance of the bonds. In addition, the group suggested building up a fund with which to purchase nuclear fuel. (The Sacramento Bee, 8 June 1971.)

[2]The State of California provided SMUD with a $50,000 grant to help develop the Rancho Seco Park; Sacramento County entered into a 50-year contract with the utility in which the county agreed to operate and maintain the facility as a regional park (The Sacramento Bee, 20 March 1969 and 8 June 1969; The Sacramento Union, 24 February 1971).

constructing a nuclear facility; and the quality of the EIR. (The Sacramento Bee, 20 March 1969 and 8 June 1969; The Sacramento Union, 24 February 1971.)

The emergence of the first organized opposition to the Rancho Seco nuclear plant was the second change in public response during the construction period. The opposition, which was rooted in the colleges and universities in the Sacramento area, included a number of people who had previously been active in supporting other issues of concern. The resulting groups, which formed in response to the Rancho Seco-related issues, emphasized community organization (petition drives), public education (editorials, press conferences, films), and participation in established channels of intervention and involvement (SMUD Board of Directors' meetings and NRC hearings).

An additional change in public response during the construction period occurred as nuclear power emerged as a notable issue in the Sacramento area. The controversy surrounding Measure H was the first evidence of widespread concern over nuclear power among SMUD district residents.

During the construction period, the residents of the Galt County Census Division continued their noticeable lack of involvement in issues emerging around the Rancho Seco plant. The major exception was in 1971 when the issue of potential radiation effects from the nuclear plant was raised by four ranching families during a three-week trial in Sacramento (held to establish the value of a 53-acre easement condemned by SMUD for a 230 kilovolt transmission line from the Rancho Seco plant). The property owners sought payment for the easement as well as payment for damages to their adjacent property due to purported radiation effects from the Rancho Seco plant. They maintained that proximity to the nuclear facility devalued their land.[1] While this was the first time radiation effects were raised as an issue, and while the defendents lived within the Study Area, this was an isolated incident which did not trigger broad support from the local area, not even within the agricultural community. (The Sacramento Bee, 16 October 1971; Mattimce, personal communication, October 1980.)

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[1]The court awarded the property owners $33,660 for the 53-acre easement, which included compensation for damages to adjacent property (The Sacramento Bee, 16 October 1971).

9.4 Public Response during the Operation Period

The Rancho Seco Nuclear Generating Station began commercial operation in April 1975. The major project-related issues during the operation period included the annexation of an area surrounding the plant site into the SMUD district, and the accident at the Three Mile Island (TMI) nuclear plant near Harrisburg, Pennsylvania.

9.4.1 Annexation Issue

In March 1976, approximately 25 homeowners from the Herald area attended a SMUD Board of Directors' meeting to request that a 100-square-mile area in southeastern Sacramento County (which received electrical service from Pacific Gas & Electric Company) be annexed into the SMUD service area. Stressing that the group was not antinuclear, the residents stated that, because they lived in proximity to the Rancho Seco nuclear plant, their lives and the value of their homes and property were inextricably connected to the Rancho Seco nuclear operation. Their basic contention was that, as neighbors to the Rancho Seco plant, they were vulnerable to the plant's potential risks; therefore, they should be in the district in order to benefit from SMUD's significantly lower electrical rates. (The Sacramento Union, 5 March 1976.)

This drive for annexation into the SMUD service area, which had begun in early 1974, was maintained through the efforts of a small number of Herald area residents. When the SMUD Board of Directors held a public hearing on the issue in early 1978, residents once again argued for annexation. In mid-February, the board (in a 3-2 decision) voted to approve the action. Under the terms of the annexation, the new customers agreed to pay SMUD a monthly surcharge of up to 40 percent for a maximum of 25 years in addition to their regular electrical bills.[1] Herald area residents approved the annexation by a majority vote in June 1978; SMUD electrical service to the area began in May 1980. (The Sacramento Union, 3 February 1978; The Sacramento Bee, 10 February 1978; Bell, personal communication, November 1980.)

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[1] The purpose of the surcharge was to reimburse SMUD for the difference between the cost of purchasing the Pacific Gas & Electric Company system within the annexed area and the projected cost of constructing new SMUD facilities. Following the final cost analysis, the SMUD board voted to eliminate any surcharge. (Mattimoe, personal communication, June 1980.)

9.4.2 The Accident at Three Mile Island

Due to design similarities in the two plants, the March 1979 accident at the Three Mile Island facility near Harrisburg, Pennsylvania, had important and almost immediate implications for the operation of the Rancho Seco Nuclear Generating Station. The likenesses of the two facilities (both plants contained pressurized water reactors designed and built by Babcock and Wilcox Company) were emphasized by the news media; the Rancho Seco plant was characterized as a "clone" or sister plant of the TMI nuclear facility, inferring that the Rancho Seco nuclear plant had the same accident potential.

The TMI accident triggered a series of public responses in the Sacramento area. The following section describes the most important of those responses. The discussion is organized around three types of public response: (1) the direct response to the TMI accident in the month following the incident; (2) the indirect response to the accident subsequent to the shutdown of the Rancho Seco nuclear plant in late April; and (3) the trial of the Rancho Seco 13 in the summer of 1979.

9.4.2.1 Direct Response to the TMI Accident

Following the accident at Three Mile Island, a wide variety of individuals, groups, and agencies (both public and private) called for the immediate shutdown of the Rancho Seco nuclear plant. While there were numerous secondary motivations for the request, the primary issue was safety—people were apprehensive in light of the design similarities of the TMI and Rancho Seco reactors. Nonetheless, the SMUD staff, three members of the SMUD Board of Directors (the board had a total of five members), and the NRC stood fast in their conviction that an unscheduled shutdown was unnecessary.

Within the first week following the accident, two members of the SMUD Board of Directors, numerous environmental groups (led by the Sacramento Chapter of Friends of the Earth), the Union of Concerned Scientists, Governor Brown, several state legislators, and both daily newspapers in Sacramento took actions requesting that the NRC or SMUD shut down the Rancho Seco Nuclear Generating Station. In addition, the City of San Francisco Board of Supervisors submitted a formal letter and the cities of Sacramento and Davis passed resolutions calling for a shutdown. It was also during this period that thirteen protestors were arrested during the first demonstration ever held at the plant site. (The Sacramento Bee, 31 March-7 April 1979; The Sacramento Union, 31 March 1979-7 April 1979.)

Pressure for a temporary plant shutdown continued through April. The most notable actions during this time included the attendance of over 1,000 persons at a regularly scheduled SMUD Board of Directors' meeting,[1] a second demonstration at the Rancho Seco plant, and a California Energy Commission recommendation that the plant's output be reduced to 70 percent.[2] In addition, SMUD began a series of informational meetings in Herald, Wilton, Galt, and Elk Grove to address the implications of the TMI accident and to acquaint local residents with plant safety procedures and emergency and evacuation plans. (The Sacramento Bee, 9 April 1979, 10 April 1979, and 18 April 1979; The Sacramento Union, 13 April 1979.)

Aside from a small number of vocal residents (which included representatives of both sides of the nuclear issue), few people from the Study Area participated in the activities which advocated the temporary closing of the Rancho Seco plant. During this time period, the primary response of the Galt CCD residents was their attendance at the informational meetings held by SMUD throughout the Study Area. There was no move by persons outside of the Galt CCD to organize the local residents—neither in support of nor in opposition to the continued operation of the plant.

On April 28, the NRC ordered SMUD to shut down the Rancho Seco nuclear plant until safety and operating standards were improved. This order was made in conjunction with continued and extensive meetings between the NRC and SMUD staffs and followed an agreement by SMUD to make changes in the nuclear plant's feedwater systems and operating procedures. (The Sacramento Bee, 23 April 1979 and 28 April 1979.)

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[1]On 6 April 1979, approximately 1,100 persons attended a regularly scheduled SMUD Board of Directors' meeting, thus making it the largest board meeting in the utility's history. Of the 90 persons who signed up to speak, only a handful (including representatives of the Sacramento Metropolitan Chamber of Commerce and the pro-nuclear SMUD Ratepayers' Association) supported the continued operation of the Rancho Seco plant. Representatives of the groups advocating the closing of the facility supported their argument with a petition containing approximately 5,000 signatures calling for the immediate shut down of the unit.

[2]The chairman of the California Energy Commission suggested that the plant be temporarily shutdown (The Sacramento Union, 13 April 1979).

9.4.2.2 Indirect Response to the TMI Accident

The temporary closing of the Rancho Seco Nuclear Generating Station, in compliance with the NRC order, signaled the end of the direct response to the TMI accident and the beginning of more generic antinuclear actions. Following the order, a new issue emerged almost immediately—whether the NRC Safety and Licensing Board should hold a full-scale public hearing prior to authorizing SMUD to bring the Rancho Seco plant back on line.

By mid-May, the Sacramento County Board of Supervisors, the Friends of the Earth, the Environmental Council of Sacramento, the Original SMUDRA, the Sacramento City Council, a state representative, two members of the SMUD Board of Directors, and Governor Brown, all publicly requested that such a hearing be held. In addition, the environmental groups (led by Friends of the Earth) and the two members of the SMUD Board of Directors formally petitioned the NRC for the hearing. (The Sacramento Bee, 11 May-18 May 1979; The Sacramento Union, 11 May-18 May 1979.)

As the reopening of the plant grew imminent, two environmental groups began dissimilar efforts, both of which were designed to keep the Rancho Seco plant shut down pending a hearing. The Friends of the Earth (joined by a member of the California Energy Commission) used legal channels and filed an emergency motion for a temporary restraining order in a U.S. Circuit Court of Appeals in San Francisco.[1] The same day, twenty members of the People United Against Rancho Seco (a group which organized following the first demonstration at the Rancho Seco site) were arrested at a protest at SMUD headquarters in Sacramento. (The Sacramento Union, 4 July 1979; The Sacramento Bee, 4 July 1979.)

Despite actions by the environmental groups, the NRC authorized the plant to renew operation on 6 July 1979. Nevertheless, the issues of concern surrounding the plant's operation continued. Prior to the February 1980 hearing (which had been granted in August 1979), both the People United Against Rancho Seco and the Friends of the Earth continued their disparate struggle to shut the plant down pending the hearing. In late November, nine members of the People United Against Rancho Seco were arrested

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[1]The order charged that the NRC abused its discretion by permitting the plant start-up without a hearing (The Sacramento Bee, 4 July 1979).

for trespassing at the plant site during a protest. In addition, members of the group staged a 39-day protest in Governor Brown's office in an attempt to persuade the governor to use emergency powers to close the plant. Following the identification of the topics to be allowed in the hearing, the Friends of the Earth and the two SMUD directors withdrew from the formal hearing process, maintaining that the contentions were too narrowly defined and that the hearing would not result in a clear statement that the Rancho Seco nuclear plant was safe.[1] The Friends of the Earth turned their attention to a case in the U.S. Circuit Court of Appeals which contended that the July 1979 NRC authorization to restart the Rancho Seco plant was not accompanied by assurances that the plant would meet health and safety standards. (The Sacramento Union, 7 February 1980 and 16 March 1980; The Sacramento Bee, 30 November 1979 and 21 February 1980.)

At the NRC Safety and Licensing Board hearing in Sacramento, only 30 persons made limited appearances during the two days set aside for public comment. In general, the comments centered on typical arguments both for and against nuclear power. Of those persons who made appearances, approximately twenty supported the continued operation of the Rancho Seco plant. Two Study Area residents—the founder of SMUDRA[2] and a rancher who lived in proximity to the plant site—were among the pro-nuclear speakers.[3] The Citizens for Safe Energy (a coalition of Sacramento-based environmental groups) boycotted the hearings and staged an informational picket line outside the federal building; two members of the People United Against Rancho Seco were arrested at the proceedings. (The Sacramento Union, 27 February 1980 and 28 February 1980; The Sacramento Bee, 28 February 1980.)

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[1]The hearing topics were limited to the following: (1) modifications to the Rancho Seco plant after the Three Mile Island incident; (2) prompt completion of recommended long-term modifications; (3) the plant's ability to respond to feedwater accidents after modifications; and (4) the competence of SMUD management (The Sacramento Union, 7 February 1980).

[2]The Sacramento Municipal Utility District Ratepayers Association (SMUDRA), which participated at the hearing, was the pronuclear energy group organized in 1977 by a Study Area resident. The Original Sacramento Municipal Utility District Ratepayers Association (the Original SMUDRA) was the antinuclear energy group formed in 1976 to oppose Measure H. The Original SMUDRA, first organized as SMUDRA, subsequently changed the name of the group to the Original SMUDRA.

[3]The rancher pleaded that the NRC hearing board keep the Rancho Seco plant open so that the resident's livestock operation could continue to acquire electrical power necessary for operation (The Sacramento Bee, 28 February 1980).

9.4.2.3 Trial of the Rancho Seco 13

In April 1979, thirteen persons were arrested for trespassing at the Rancho Seco nuclear site. The arrests occurred during a larger protest which called for the shutdown of the nuclear facility following the accident at Three Mile Island. The majority of the protestors, dubbed by the press as the "Rancho Seco 13," were from the San Francisco Bay area; none lived within the Study Area. (Galt Herald, 31 May 1979; The Sacramento Bee, 25 April 1979.)

The resulting trial of the protestors (the only trial as a consequence of Rancho Seco-related arrests) was significant to legal proceedings involving antinuclear activists. The testimony of the first few weeks, which had focused on the issue of trespassing, was followed by the judge's ruling to accept a "defense of necessity," which allowed the protestors to show that their actions were taken to protect the public from imminent danger. This ruling, which set a precedent in California nuclear protest trials, allowed the issue of nuclear safety to be used as a defense. As a result, the trial's final weeks centered on expert witnesses (on both sides of the nuclear power issue) testifying on generic issues of nuclear safety.[1] (The Sacramento Bee, 24 July 1979 and 15 August 1979.)

While the trial of the Rancho Seco demonstrators did not become an issue in the Galt County Census Division, the trial did receive a significant amount of attention and publicity in the Study Area because the first part of the proceedings were held in Herald and Galt.[2] The trial served to keep the issue of nuclear power in the minds of local residents and to provide them the opportunity to hear the arguments on both sides of the nuclear safety issue.

Even though the trial and its publicity did alter the feelings of some Study Area residents toward nuclear power, the majority of the residents did not support the Rancho Seco 13 defendants. Local residents expressed the feeling that the trial judge was wrong

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[1] The trial ended with one conviction, one acquittal, and a mistrial ruling for the remaining defendents.

[2] The 52-day trial, held first in Herald and then in Galt, was eventually moved to Elk Grove in an attempt to find a facility which would suitably accommodate the large number of defendants and spectators.

to accept a "defense of necessity"—the issue was trespassing, and the defendants were guilty. In addition, the defendants were regarded as outsiders, hippies, environmentalists, and professional demonstrators. Local residents resented outsiders coming into their area to create trouble when persons living in the area accepted the plant, were not afraid of the facility, and supported its continued operation. Study Area residents also resented the Rancho Seco 13 defendants because they did not hold regular jobs and could not pay for defense attorneys; thus, the local area was forced to assume the costs of the trial.

9.4.3 Summary and Evaluation of Public Response during the Operation Period

Prior to the accident at Three Mile Island, the operation period of the Rancho Seco project was relatively uneventful in terms of public response. Following the accident, a complex series of events unfolded. An analysis of the public response from 1975 into 1980 revealed four changes in the previously established trends.

The first modification to public response during the operation period involved a change in the nature of the participants. During the initial phases of operation, only a small number of residents from the Galt County Census Division became involved in plant-related issues and, even then, their activities were primarily to counteract a general rise in regional antinuclear activities. In addition to seeking annexation into SMUD's service area, study area residents were responsible for the formation of two separate pronuclear organizations (SMUDRA and the California Energy Council), as well as for the opposition to the construction of a proposed gas turbine plant at the Rancho Seco site. (The local residents argued that a second nuclear plant would represent a safer, cleaner, and cheaper alternative than the gas turbine plant.) In addition, the accident at Three Mile Island triggered the active participation of several Study Area residents in the antinuclear movement. Following the accident at TMI, environmental groups from the San Francisco Bay area (including Marin and Sonoma counties) also became active participants in the Sacramento area in the fight to temporarily close the Rancho Seco plant. Many of the group members had been activists at the Diablo Canyon plant; they focused their energies on the Rancho Seco facility because the plant was in

operation[1] and because of its design similarities to the TMI reactor. Moreover, most of the persons from the Bay area resided within a couple of hours' drive of the Rancho Seco site.

The second change in public response between 1975 and 1980 revolved around the types of issues that were of concern to area residents. Prior to the accident at TMI, the major Rancho Seco-related concerns included the issues of service area annexation and the proposed gas turbine plant. Both of these concerns resulted in the verbalization of support for nuclear power and the Rancho Seco project. Following TMI, generic issues of nuclear power were raised, in addition to safety concerns related directly to the Rancho Seco reactor.

The final two changes in public response during the operation period were interrelated: a shift in the nature of the involvement and opposition between environmental groups. Prior to TMI, a small number of Sacramento-based groups dominated the antinuclear activities for the Rancho Seco plant. Their principal courses of action included: organizing petition drives, writing editorials, holding press conferences, showing films, and participating in SMUD Board of Directors' meetings and NRC hearings. In short, the groups emphasized community organization, public education, and participation through established channels. Following the accident at TMI and the influx of San Francisco-based environmental organizations, a wide variety of direct actions (including demonstrations, sit-ins, rallies and planned civil disobediences resulting in arrests) were used in the move to secure a temporary shutdown of the Rancho Seco facility. In general, the presence in the Sacramento area of the San Francisco-based groups with their philosophy of direct action resulted in frictions between the two groups. Differences in the ideologies of the two groups were publicized, and the Sacramento-based organizations publicly renounced the actions of the San Francisco-based groups.

While a small number of Study Area residents became involved in Rancho Seco-related issues during the operation period, the vast majority of the Galt CCD residents remained inactive. This lack of participation reflected their general low level of involvement in community social, economic, and political activities. All except one of

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[1]The Diablo Canyon nuclear plant did not have an operating license.

the local residents who became involved in plant-related issues were members of the newcomers group, and all of the pronuclear advocates had employment ties to the Rancho Seco project. In addition, the most active participants were women who lived in the area close to the plant site and who held leadership roles in the community. Their primary types of activities included writing editorials, attending SMUD board meetings, organizing petition drives, and generally working through established processes. The local residents exhibited an independent spirit by forming their own organizations rather than joining existing special interest groups.

9.5 Effects of Public Response on the Sacramento Municipal Utility District

Much of this chapter focuses on an examination of the nature and variety of public response to the construction and operation of the Rancho Seco Nuclear Generating Station. In the case of the Rancho Seco project, however, there is an important additional perspective which the study considers: the effects of public response on the Sacramento Municipal Utility District. An analysis of changes in SMUD during the study period seems to indicate that the construction and operation of the Rancho Seco nuclear plant induced a public response which, in turn, contributed to changes in the structure and operation of the utility. The analysis also suggests that SMUD's status as a municipal entity, rather than as a private company, helped make the utility more vulnerable to those modifications. The changes are identified in the following discussion.

During the initial opposition to the issuance of the operating license in 1973, a number of Sacramento residents began attending the regular meetings of the SMUD Board of Directors. While the meetings had always been open to the public, attendance by persons other than board members and SMUD staff was rare; regular attendance by the members of the public or special interest groups simply did not occur. Beginning in 1973, a larger number of people, particularly members of environmental groups, became active and regular participants in the meetings. As a result, the tone and conduct of the meetings changed, and the board's decision-making processes became more visible.

In 1974, a Sacramento newspaper began publicizing an allegedly questionable practice of the SMUD Board of Directors for acquiring new members. Purportedly, board members on the verge of retiring would resign prior to election time so that a new person of the board's choosing could be appointed to complete the retiree's term. During the next election (in which the members were elected at large from the district), the newly

appointed board member ran as an incumbent, which typically ensured him of winning the position. In 1975, as a result of the publicity and support by local special interest groups, procedures for electing SMUD board members were modified. The district was divided into five wards with one member elected from each ward. Following this change, the elections were filled with issues, including opposition to nuclear power. In addition, environmental groups in Sacramento began to play a highly visible and active role in the elections, supporting candidates of their choice. (The Sacramento Bee, 26 October 1974.)

The modification in the election procedures for the SMUD Board of Directors and the involvement by environmental groups in the election process resulted in a change in the board's composition. In 1976, two new directors were elected to represent the wards in the Sacramento urban area. Local environmental groups (which had been involved in the important issues surrounding the Rancho Seco nuclear plant) provided them with active campaign support. The new board members were young and represented more liberal views in contrast to the conservative, older businessmen and ranchers who had typically comprised the board. During the controversies surrounding the Rancho Seco plant following the accident at Three Mile Island, both of the new directors maintained active antinuclear viewpoints. For example, they attended a rally at the Rancho Seco site and urged that the plant be shut down and, following the plant's shutdown, they petitioned the NRC to hold full-scale public hearings prior to the restart-up of the facility. As a result of the interjection of new ideologies into the board, meetings often became confrontational as obvious points of disagreement emerged. In addition, board votes were often split in a predictable 3-2 pattern.

The relationship between the SMUD Board of Directors and the utility staff (who were hired by the board) also changed during the study period. Historically, the board functioned as a rubber stamp for staff recommendations (such as in the approval of Rancho Seco Unit 1). After the 1976 election, however, the board openly criticized the staff for its decisions and accused the staff of withholding information necessary for board decision-making. That the board no longer provided blanket approval for staff recommendations was illustrated in the board's decision to shelve plans for Rancho Seco Unit 2.

The change in the composition of the SMUD Board of Directors and in the relationship between the SMUD board and staff resulted, in turn, in two changes in the general public response and attitude toward the board and the utility. First, the presence

on the board of persons who exhibited active, antinuclear perspectives helped to legitimize the broad antinuclear movement in the Sacramento area as well as the specific actions which were taken to shut down the Rancho Seco plant. Second, the widely publicized incidents of division and strife among the board members and between the board and the staff contributed to an overall evaluation by some area residents that the SMUD Board of Directors no longer represented a strong, unified, authoritative body. As a result, the trust, confidence, and respect which residents historically had placed in the utility became somewhat diminished.

Therefore, during the time period which encompassed the construction and operation of the Rancho Seco project, five important and interrelated changes occurred in the structure and operation of the Sacramento Municipal Utility District: (1) the regular meetings of the board of directors became widely attended by the public; (2) the election procedures for the board members were modified; (3) the composition of the board of directors was altered; (4) the relationship between the SMUD board and staff shifted; and (5) the general public response and attitude toward the board and the utility changed. While it was not possible to establish direct causal linkages between the construction and operation of the Rancho Seco nuclear plant and these changes in the utility, there was sufficient evidence to suggest that the project certainly played some role in those changes.

CHAPTER 10: EVALUATION AND SIGNIFICANCE OF THE SOCIOECONOMIC EFFECTS OF THE RANCHO SECO NUCLEAR GENERATING STATION

10.1 Introduction

The purpose of this chapter is: (1) to describe the evaluation of the effects of the construction and operation of the Rancho Seco Nuclear Generating Station by the four major social groups in the Study Area; and (2) to determine the overall significance of the nuclear plant and its effects on the Study Area as a whole. In the determination of the evaluation of the effects by group, the research sought to ascertain the perception of the magnitude of the individual effects, the positive/negative dimension of the effects, the duration of the changes, and the saliency of the effects to each group and to the Study Area. Following the evaluation of the individual effects, the overall evaluation of the plant was measured in terms of its perceived benefits and risks.

The final section describes the overall rating of the significance of the nuclear plant and its effects on the Study Area as a whole. The following criteria were utilized in this determination: (1) the relative magnitude of the effects; (2) the duration of the effects; (3) the distribution of the effects among the groups; (4) the evaluation of the effects; and (5) the role of the plant in the Study Area.

10.2 Evaluation of the Effects by Group

10.2.1 The Agricultural Community

Members of the agricultural community indicated that the group was relatively unaffected by the construction and operation of the Rancho Seco nuclear plant. Project-related effects identified by the group included increased traffic in the local area, limited employment opportunities for group members, the upgrading of Clay Station Road and the Herald Fire Department, the allocation of water from the Folsom South Canal to ranchers for agricultural use, and a reduction in electrical rates.[1]

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[1]The reduction in electrical rates resulted from the annexation of 100 square miles around the project site into the SMUD service area.

Discussions with members of the agricultural community indicated that the project's limited effects on the agricultural group were viewed as beneficial, with the exception of the increase in local traffic which was considered a nuisance and a hazard. Members of the group whose homes were located along or who used the affected roads (primarily California State Highway 104 and Clay Station Road) stated that they modified their personal schedules and driving patterns in an attempt to avoid the traffic problems.

The group's key informants evaluated the overall importance of the effects of the Rancho Seco project on the agricultural community as low. Group members made this judgment based on the fact that some of the effects were small in terms of their magnitude or size (for example, the number of jobs received by group members and the dollars involved in the upgrading of the fire department); and most of the changes affected only a small portion of the total agricultural community (the allocation of water for agricultural use, the decrease in electrical rates, and the upgrading of Clay Station Road). While most of the effects were long-term (with the exception of project-related traffic), they were either too small or too limited to affect the group's overall evaluation of importance.

The Rancho Seco project created false expectations among members of the agricultural community concerning the allocation of water for agricultural use from the Folsom South Canal and the allocation of excess water from the nuclear plant for irrigation. According to key informants, when the project site was announced, one reason that the agricultural community supported the proposed plant was its belief that the construction of the nuclear facility would facilitate the building of the canal which, in turn, would bring an abundant supply of water into the area for the irrigation of agricultural land. In addition, the utility talked of allocating excess water from the nuclear plant to agricultural residents for irrigation purposes. Despite these expectations, only a small number of agricultural residents and a small amount of land actually received water from the facility. Because their expectations were not realized, several members of the agricultural community developed a negative attitude toward the utility. However, this change in attitude did not manifest itself in negative evaluations of the nuclear plant.

Interviews with group members indicated that, prior to the accident at Three Mile Island, the agricultural community showed no widespread concern regarding safety or health hazards presented by the plant, even following the publicity of a suspected incident of radiological contamination of milk at a local dairy. Group members stated that, while this incident created temporary concern among some of the local dairymen, group members in general exhibited trust and confidence in the subsequent findings of the utility and other authority figures--findings which, according to SMUD, vindicated the Rancho Seco plant.

From the group's perspective, the accident at Three Mile Island generated a new level of awareness within the group concerning the presence of the nuclear plant and its potential risks. Group members indicated that, while they recognized the low probability of a major accident occurring at the Rancho Seco plant, a nagging feeling remained that such an accident was nonetheless possible. In addition, several members of the group maintained that the value of agricultural property in proximity to the plant site had decreased; consequently, these members felt that they would have to take a long, hard look at many variables before making significant investments in agricultural land or property near the nuclear plant. Nonetheless, the agricultural community, as a whole, continued to support the existence of the Rancho Seco nuclear plant. It was the general consensus of persons interviewed that, while the agricultural community did not receive important benefits from the Rancho Seco plant and while group members had come to recognize that the plant contained a potential risk (albeit remote) to their health and safety, the plant's positive contributions to the region, in terms of the production of needed electrical power, justified its existence.

10.2.2 The Townspeople

According to Galt residents, the construction and operation of the Rancho Seco nuclear plant provided a small number of jobs for group members, increased the sales of local businesses, and provided local residents with another county park. Interviews with townspeople indicated that each of the project-related impacts was regarded as beneficial to the group. Nevertheless, in terms of both individual and collective importance, the project effects were evaluated by group members as low. In general, key informants indicated that the identified impacts were either too small (the limited number of jobs for group members) or too short-term (the increased sales of local businesses) to be important to the group as a whole. For example, while a rise in business activity increased the income of local businessmen, the additional sales were sporadic

and were not important to the town's long-term economic well-being or to the economic viability of the affected businesses.

Townspeople indicated that neither local community and business leaders nor individual entrepreneurs put forth a concerted effort to increase or enhance the effects of the Rancho Seco nuclear plant through activities such as the provision of construction-worker housing or job-training programs. Key informants stated that, when the project was announced, the townspeople hoped that the plant-related activities would result in an economic boon to the Galt area. However, group members indicated that the townspeople had no firsthand experience with large construction projects and were unaware of what steps could have been taken in order to obtain additional benefits. Interviews pointed to the fact that group members realized in retrospect, that the community could have increased the benefits it received from the project. The fact that the group lacked the foresight and ability to plan for the nuclear plant is viewed by several townspeople with a certain degree of regret.

Several members of the group (notably businessmen) indicated that concern was expressed about the plant's substantial cost overruns during the construction period and about the numerous breakdowns during the operation period, implying that this would not occur in a business or organization that was managed and operated properly and efficiently. Nevertheless, interviews indicated that the townspeople were convinced that the Rancho Seco nuclear plant itself was safe. According to key informants, it was not until the accident at Three Mile Island that members of the group felt any health or safety concerns over the presence of the nuclear facility. The publicity concerning the trial of the Rancho Seco 13 in Galt provided local residents with a wide variety of information on both sides of the nuclear power issue. In addition, it kept the questions concerning the safety and risks of nuclear power highly visible. Nonetheless, from the group's perspective, while the Rancho Seco project still seemed far removed from the City of Galt and from the townspeople's day-to-day activities, after the accident at TMI, local residents no longer felt that the nuclear plant was foolproof. They accepted the possibility that a TMI-type accident could occur at the Rancho Seco project.

In summary, the townspeople as a group supported nuclear power and the Rancho Seco plant. While group members acknowledged that the presence of the facility posed certain safety risks, their overall evaluation of the project emphasized the plant's role in

helping SMUD to maintain an independence from foreign energy supplies and to fight increasing energy production costs due to rising oil prices.

10.2.3 The Newcomers

According to group members, the newcomers were the recipients of a variety of impacts resulting from the construction and operation of the Rancho Seco Nuclear Generating Station. These included direct effects—such as increased traffic in the local area and employment opportunities for group members; and indirect effects—improvements in the Herald Fire Department and Clay Station Road, increased recreation opportunities, a reduction in electrical rates,[1] and a change in the group's social and political interaction patterns.

The overall importance of the project's effects was evaluated during interviews with key informants. These people indicated that all of the identified effects, with the exception of the increase in local traffic, were beneficial to the group. However, they further stated that, based on the criteria of magnitude, duration, and diffusion, the overall importance of the project's effects on the group as a whole was low. This evaluation was the same, whether the effects were considered individually or collectively.

The distribution of the project's effects within the group was an important consideration in the group's evaluation of project-related changes. As described in Chapter 8 (Section 8.2.2.3), newcomers generally identified themselves with one of the three Study Area communities: Herald, Wilton, or Galt. It was the opinion of the persons interviewed that, while the collective effects of the project were not important to the newcomers in the Galt and Wilton areas, the effects were relatively more important to newcomers in the Herald area since all of the Rancho Seco-related impacts potentially affected most residents in the Herald area.

While the increase in local traffic was named by local residents as the major plant-related impact to the newcomers group (particularly those who lived along the heavily traveled roads), the importance of this impact was lessened because it was

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[1]The reduction in electrical rates resulted from the annexation of 100 square miles around the project site into the SMUD service area.

viewed as being a short-term affect. Moreover, members of the group who were affected by the increased traffic stated that by changing their driving patterns and schedules much of the traffic-related problems could be avoided.

Members of the newcomers group actively worked to obtain the benefits of the Rancho Seco nuclear plant, thereby increasing the plant's positive effects on the group as a whole. For example, a small number of newcomers actively sought and obtained jobs at the plant site. In addition, several members of the group were successful in a six-year effort to persuade SMUD to annex 100 square miles surrounding the plant site into the utility's service area. As a result, the electric rates for persons residing in the annexed area were substantially reduced, an indirect project-related change considered as important by the affected persons.

Interviews with key informants indicated that, prior to the construction of the Rancho Seco plant, SMUD established a false expectation among a number of group members within the Arcohe Elementary School District with respect to the local school. Because the nuclear facility was within the boundaries of the Sacramento Municipal Utility District, property taxes were not assessed on the project. Thus, there was no increase in the assessed valuation of the plant site that benefited local taxing jurisdictions (including the Arcohe school district). According to local residents, while SMUD representatives indicated that the utility would provide financial compensation to the school in lieu of the tax benefits, the expectations held by the newcomers were never fulfilled. However, during project construction, there was no significant increase in the school's enrollment due to the in-migration of plant-related workers and their families; therefore, the school did not need funds to help mitigate project-related impacts. Nonetheless, this difference in perception on the part of the affected newcomers resulted in a negative attitude concerning the utility and its willingness to stand behind its promises. While this change in the newcomers' attitude did not result in a negative evaluation of the nuclear plant per se, there is some evidence that the change in attitude did play a part in subsequent unsuccessful negotiations between SMUD and school officials regarding the use of the school facilities as emergency operation headquarters for the Rancho Seco plant.

Local residents indicated that, prior to the accident at Three Mile Island, the group strongly supported the Rancho Seco plant and nuclear power in general. For example, several newcomers formed a pronuclear organization and voiced support for the

Rancho Seco project, primarily through editorials in local and regional newspapers. Following SMUD's announcement of plans to build a gas turbine power plant at the Rancho Seco site, local residents voiced their opposition to the gas facility and stated their preference for a second nuclear plant, maintaining that it represented a quiet, clean, and safe alternative.

Discussions with group members showed that local residents supported the Rancho Seco project because of their perception of the plant's important role in the production of electricity for the Sacramento area. The facility was also endorsed by the newcomers because of its employment opportunities. In addition, a number of Rancho Seco plant managers, operators, and engineers lived in the area and were active participants in community affairs. According to the newcomers, the fact that plant employees had located their homes and families near the nuclear plant symbolized to local residents, the faith plant employees' had in the safety of the facility. This attitude was reinforced through friendship and familial ties to people working at the site.

Group members indicated that it was not until after the accident at Three Mile Island that they experienced their first real concern over the safety of the Rancho Seco plant. It was at that time that a small number of newcomers began to express antinuclear sentiments. In addition, several newcomers (particularly those in the Herald area) indicated that their awareness of the plant's proximity and their vulnerability should a nuclear accident occur was heightened by the publicity concerning the evacuation plans for local areas in the event of an accident. Other newcomers reported that, following the TMI accident, SMUD's assurances of the safety of the Rancho Seco plant were not necessarily accepted without question. However, while there were rumors of decreased land values and of group members putting their homes up for sale because of their location near a nuclear plant, there was no clear-cut evidence that any newcomers moved or that any property values were in fact depressed. On the contrary, people continued moving into the area throughout the study period.

In their final evaluation, the newcomers indicated that the majority of the group continued to support the existence of the Rancho Seco plant. It was their belief that while the accident at TMI caused local residents to accept the possibility that a major accident could occur at the nuclear facility, the newcomers, as a group, continued to believe that the probability of such an accident was remote. The group's reasons for initially supporting the project (the plant's important role in the production of electricity

for the area and the provision of local employment opportunities) were still valid and continued to outweigh any perceived risks.

10.2.4 The Hispanic Community

The only impacts identified by group members for the Hispanic community as a result of the construction and operation of the Rancho Seco nuclear plant were the employment of group members at the plant and the opening of Rancho Seco Park. Persons from the Hispanic community indicated that the importance of these impacts, when evaluated from the group's perspective, was low. While the opening of Rancho Seco Park provided the group with a new recreational facility near Galt (principally for picnicking, swimming, and fishing), key informants emphasized that the recreational opportunities offered at the park were not unique to the local area. In terms of employment, the construction and operation of the nuclear plant greatly increased the number of jobs within the Study Area as a whole. However, local residents indicated that while members of the Hispanic community sought jobs at the plant, their lack of construction-related skills and labor union membership prevented the group from acquiring a significant number of employment positions. There was no attempt by the utility, the utility contractors, or the Hispanic community to provide relevant job training, even though the acquisition of project-related jobs would have helped mitigate the group's chronic unemployment problems.

Thus, the Rancho Seco project did not have any important socioeconomic effects on the Hispanic community in the Galt CCD. Following the accident at Three Mile Island, some group members acknowledged that the plant posed certain health and safety risks to the local area; however, they did not act to oppose the plant's operation. Key informants indicated that the Rancho Seco nuclear plant was generally considered to be outside of the Hispanic community's frame of reference. Their primary concerns were centered on problems such as high unemployment rates, low wages, substandard housing, and a lack of social services.

10.3 Significance of the Plant

The construction and operation of the Rancho Seco nuclear plant resulted in few economic, demographic, housing, public services and facilities, and social organization effects in the Galt County Census Division. In terms of economic changes, the total project-related employment of Study Area residents was relatively small. For example, only approximately 170 Galt CCD residents were employed during the peak construction

year (which represented less than 3 percent of the total Study Area population). The small number of project-related workers who resided in the Study Area was primarily the result of a lack of available housing in the Galt CCD in combination with the proximity of the site to the Sacramento urban area. The employment of Study Area residents and the induced employment and income effects in other sectors of the local economy did not represent an important contribution to the Galt CCD since the economic effects were too small and temporary to change the area's overall labor force participation rates, median and per capita income, or standard of living.

The demographic effects of the Rancho Seco plant were also relatively small and were evaluated by the Study Area groups as unimportant. For example, during the peak year of construction, the project-related in-migration was only approximately 140 persons. This represented less than 1 percent of the total Study Area population. The demographic characteristics of the Galt CCD did not change as a result of the project-related in-migration. The rapid increase in rural suburbanization in the area, concomitant with the construction of the plant, further reduced any demographic effects that may have occurred.

Project-related changes in the Study Area housing sector were minimal since no adjustments were made in the housing stock to accommodate greater numbers of workers and since a number of local constraints mitigated against the significant expansion of the housing sector. Furthermore, the construction and operation of the Rancho Seco plant resulted in few changes in the Study Area's public services and facilities because the number of workers who moved to the Galt CCD was small and because the amount of property taxes paid by the utility was insignificant. Moreover, Study Area groups evaluated the overall importance of those changes as low.

In terms of social processes and interaction patterns, the construction and operation of the Rancho Seco nuclear plant did not result in any noticeable changes in the Study Area's social organization, nor did the groups perceive any effects. The changes that did occur were the consequence of the area's growth and rural suburbanization rather than the presence of the nuclear plant. While there was some evidence that a number of plant-related in-migrants took leadership positions in the community, those changes were individualistic rather than group specific, and the resulting cumulative shifts in social interaction patterns were minor. Moreover, the public response to the plant that occurred following the accident at Three Mile Island

was not characteristic of a major change in the orientation of local citizen involvement. In summary, given the small magnitude of the project-related effects, their short duration, and their evaluation by Study Area groups as unimportant, the overall significance of the Rancho Seco Nuclear Generating Station to the residents of the Galt County Census Divison was rated as low.

BIBLIOGRAPHY

Amador County Board of Trade, Amador County, California

1978 Amador County, Heart of the Mother Lode.

Anderson et al.

1980 Spatial Interaction and the Economic Hierarchy in the Western United States. Tempe, Arizona: Mountain West Research, Inc.

Bechtel Corporation

1976 Construction Report for Rancho Seco Nuclear Generating Station, Unit No. 1. Sacramento, California. (Prepared for Sacramento Municipal Utility District.)

California Board of Equalization

1969 Trade Outlets and Taxable Retail Sales in California during 1968.

1970 Trade Outlets and Taxable Retail Sales in California during 1969.

1971 Trade Outlets and Taxable Retail Sales in California during 1970.

1972 Trade Outlets and Taxable Retail Sales in California during 1971.

1973 Trade Outlets and Taxable Retail Sales in California during 1972.

1974 Trade Outlets and Taxable Retail Sales in California during 1973.

1975 Trade Outlets and Taxable Retail Sales in California during 1974.

1976 Trade Outlets and Taxable Retail Sales in California during 1975.

1977 Trade Outlets and Taxable Retail Sales in California during 1976.

1978 Trade Outlets and Taxable Retail Sales in California during 1977.

1979 Trade Outlets and Taxable Retail Sales in California during 1978.

California Business and Transportation Agency, Department of Public Works, Division of Highways

1972 Equipment Rental Rates and General Prevailing Wage Rates.

1978 General Prevailing Wage Rates.

California Department of Education

1968-1978 "Active Total Elementary and High School Enrollments, Sacramento County." Unpublished computer printouts based on R-30 Enrollment Reports.

1970 California Public Schools, Selected Statistics 1968-69.

1971 California Public Schools, Selected Statistics 1969-70.

1972 California Public Schools, Selected Statistics 1970-71.

1973 California Public Schools, Selected Statistics 1971-72.

1974 California Public Schools, Selected Statistics 1972-73.

1975 California Public Schools, Selected Statistics 1973-74.

1976 California Public Schools, Selected Statistics 1974-75.

1977 California Public Schools, Selected Statistics 1975-76.

1978 California Public Schools, Selected Statistics 1976-77.

1979 California Public Schools, Selected Statistics 1977-78.

California Department of Finance

1975 Special Census for Sacramento County, California: City of Galt and Census Tracts 94 and 95.

1975 Special Census: Tract 94, Tract 95, City of Galt.

1979 Housing Units by Type for California Cities and Counties 1970, and 1975 through 1979.

California Department of Finance, Population Research Unit

1978 Population Estimates for California Cities and Counties 1970-1978 (Provisional).

1980 Population Estimates of California Cities and Counties January 1, 1979 and January 1, 1980.

California Department of Transportation, Office of Traffic Engineering

1969 1968 Traffic Volumes on the California State Highway System.

California Department of Transportation, Office of Traffic Engineering

1970 1969 Traffic Volumes on the California State Highway System.

1971 1970 Traffic Volumes on the California State Highway System.

California Department of Transportation, Traffic Operations Branch

1972 1971 Traffic Volumes on the California State Highway System.

1973 1972 Traffic Volumes on the California State Highway System.

1974 1973 Traffic Volumes on the California State Highway System.

1975 1974 Traffic Volumes on the California State Highway System.

1976 1975 Traffic Volumes on the California State Highway System.

1977 1976 Traffic Volumes on the California State Highway System.

1979 1978 Traffic Volumes on the California State Highway System.

1980 1970-79 Accident Statistics on State Highway 104 (unpublished data).

California Energy Commission

1979 Emergency Planning for Nuclear Power Plants.

California Health and Welfare Agency, Employment Development Department

1980a Annual Planning Information, Sacramento County 1980-81.

1980b Annual Planning Information, Stockton 1980-81.

1980c Labor Market Newsletter (planning edition) Amador County 1980-81.

1980d Labor Market Newsletter (planning edition) El Dorado County.

California State Comptrollers Office

1969 Annual Report of Financial Transactions Concerning Cities of California, 1967-1968.

1970 Annual Report of Financial Transactions Concerning Cities of California, 1968-1969.

1971 Annual Report of Financial Transactions Concerning Cities of California, 1969-1970.

California State Comptrollers Office

1972 Annual Report of Financial Transactions Concerning Cities of California, 1970-1971.

1973 Annual Report of Financial Transactions Concerning Cities of California, 1971-1972.

1974 Annual Report of Financial Transactions Concerning Cities of California, 1972-1973.

1975 Annual Report of Financial Transactions Concerning Cities of California, 1973-1974.

1976 Annual Report of Financial Transactions Concerning Cities of California, 1974-1975.

1977 Annual Report of Financial Transactions Concerning Cities of California, 1975-1976.

1978 Annual Report of Financial Transactions Concerning Cities of California, 1976-1977.

1979 Annual Report of Financial Transactions Concerning Cities of California, 1977-1978.

1979 1978-79 Annual Report, Financial Transactions Concerning Counties of California.

Campbell, James M.

1976 General Plan Elements: Land Use, Open Space, Conservation. Amador County, California. (Prepared for the Amador County Board of Supervisors and Planning Commission.)

C. E. Erickson & Associates

n.d. Reference Map of Sacramento County, California. Sacramento, California.

City of Galt, California

1979 Housing and Community Development Block Grant Application, Fiscal 1979-80.

Cory, Kenneth

1978 1977-78 Annual Report of Financial Transactions Concerning School Districts of California. California State Controller.

Economic Research Associates, and Duncan & Jones

1980 Placerville Downtown Comprehensive Revitalization Plan--Final Report. (Prepared for the City of Placerville, California.)

Employees at Rancho Seco Nuclear Generating Station

n.d. Petition to the Sacramento County Board of Supervisors. Herald, California.

Galt Area Chamber of Commerce

n.d. Galt, Sacramento County, California.

1967 A Welcome from Galt.

Galt Centennial, Inc.

1969 Galt Centennial 1869-1969. Galt, California.

Galt District Chamber of Commerce

1969 Standard Industrial Survey Report: Galt, California.

1971 Community Economic Profile for Galt, California.

1978 Community Economic Profile for Galt, Sacramento County, California.

1980 Community Economic Profile for Galt, Sacramento County, California (draft).

1980 Directory--Galt Area.

Ione City Council

1972 Welcome to Ione.

Ione Merchants' Association

1979 In and Around Ione (newspaper). Ione, California: Amador Progress-News.

Ione Planning Commission

1974 General Plan of the City of Ione.

Lodi Community Development Department

1975 Special Census, City of Lodi.

1978 Residential Growth Statistics, City of Lodi.

Lodi District Chamber of Commerce

1978 Community Economic Profile for Lodi, San Joaquin County, California.

Malhotra, Suresh and Diane Manninen

1979 A Preliminary Report, Socioeconomic Impact Assessments: Profile Analysis of Worker Surveys Conducted at Nuclear Power Plant Construction Sites. Seattle, Washington: Battelle Memorial Institute.

Moody's Investors Service

1964-
1980 Moody's Public Utility Manual. New York: Moody's Investors Service, Inc.

Nucleonics Department Editor

1975-
1979 Nucleonics Week. (Weekly Service--annual nuclear generation status reports for the years 1975-1979.) New York: McGraw-Hill Book Co.

Public Response Associates, Inc.

1979 Report of a Residential User Customer Attitude Survey. San Francisco, California. (Prepared for Sacramento Municipal Utility District.)

Ralph Anderson & Associates

1980 Sphere of Influence and Fiscal Impact Analysis, City of Placerville. Sacramento, California. (Prepared for City of Placerville.)

Reed, G. Walter (editor)

1923 History of Sacramento County, California. Los Angeles, California: Historic Record Company.

R.W. Beck and Associates

1979 $50,000,000 Sacramento Municipal Utility District Electric Revenue Bonds, Series H. Sacramento, California. (Prepared for Sacramento Municipal Utility District.)

Sacramento County Board of Supervisors

1971 Agreement Between SMUD and the County of Sacramento for the Administration, Operation, and Maintenance of Recreation Facilities, Rancho Seco Reservoir.

1979 County of Sacramento Board of Supervisors, 1979.

Sacramento County Community Development and Environmental Protection Agency and Earl D. Fraser, Planning Consultant

1979 City of Galt, California, General Plan 1979.

Sacramento County Department of Agriculture

1968 Annual Crop Report for Year 1968.

1969 Annual Crop Report for Year 1969.

1970 Annual Crop Report for Year 1970.

1971 Annual Crop Report for Year 1971.

1972 Annual Crop Report for Year 1972.

1973 Annual Crop Report for Year 1973.

1974 Annual Crop Report for Year 1974.

1975 Annual Crop Report for Year 1975.

1976 Annual Crop Report for Year 1976.

1977 Annual Crop Report for Year 1977.

1978 Annual Crop Report for Year 1978.

1979 Annual Crop Report for Year 1979.

1979 Sacramento County Agricultural Crop and Livestock Report.

Sacramento County Department of General Services

1979 Response to Governor's Review Panel Questionnaire on Nuclear Power Plant Emergency Planning.

Sacramento County Office of County Counsel

1979 Charter of the County of Sacramento as Amended through November 1978.

Sacramento County Office of Emergency Operation

1976 Sacramento County Nuclear Power Plant Emergency (Rancho Seco) Contingency Plan.

Sacramento County Parks and Recreation Department

1978 County Parks Facilities.

Sacramento County Planning Department

1961 A General Plan for the City of Galt and Vicinity.

1965 The General Plan, Sacramento County.

1965 Southeast Area Plan, Sacramento County, 1965.

1966 The Sacramento County General Plan.

1967 The Galt General Plan.

1973 Sacramento County General Plan, Technical Report.

1975 Sacramento County 1975 Census Data.

Sacramento County Planning and Community Development Department

n.d. Planning Handbook, Sacramento County, California.

1978 Elk Grove Community Plan.

1978 Sacramento: Area Analysis (revised).

Sacramento Municipal Utility District (SMUD), Sacramento, California.

n.d. Rancho Seco.

n.d. SMUD Electric Power for the Heart of California (map).

1965 1964 Annual Report.

1966 1965 Annual Report.

1967 1966 Annual Report.

1968 1967 Annual Report.

1969 1968 Annual Report.

1970 1969 Annual Report.

1971 1970 Annual Report.

1972 1971 Annual Report.

1973 1972 Annual Report.

1974 1973 Annual Report.

Sacramento Municipal Utility District (SMUD), Sacramento, California.

1975 1974 Annual Report.

1976 1975 Annual Report.

1977 1976 Annual Report.

1978 1977 Annual Report.

1979 1978 Annual Report.

1980a 1979 Annual Report.

1971 Rancho Seco Nuclear Generating Station Environmental Report.

1978 Rancho Seco Nuclear Generating Station.

1978 SMUD Employee Roster.

1980b SMUD Electric Power for the Heart of California (map).

Sacramento Regional Area Planning Commission

n.d. Analysis Districts (map).

n.d. Data Summaries: Comparative Age Data 1960-2000. vol. 5, no. 3.

1975 Land Use Module

1978 Galt Community Area.

1979 First Review Draft South Sacramento County Transit Development Program.

Sacramento Regional Area Planning Commission, Research and Information Services

1980 Housing Module by Major Zone and Jurisdiction.

1980 Housing Module by Minor Zone and Jurisdiction.

1980 Population Module by Major Zone and Jurisdiction.

1980 Population Module by Minor Zone and Jurisdiction.

Sacramento Regional Area Planning Commission, Sacramento Regional Information System

1975 Housing Module Summary by Rad, Minor Zone.

1975 Revised Housing Module Summary by Major Zone.

Sacramento Regional Area Planning Commission, Sacramento Regional Information System

1975 Revised Population Module Summary by Major Zone.

1975 Revised Population Module Summary by Minor Zone.

Sacramento Regional Area Planning Commission and Sacramento County Health Council

1978 The Rural Sacramento Community Area: A Profile of the People and Their Health.

San Joaquin County Planning Commission

1976 Policies for Development--Land Use/Circulation Element.

1976 San Joaquin County General Plan to 1995--Land Use/Circulation Element.

San Joaquin County Planning Department

1975 Census of San Joaquin County and its Incorporated Cities.

Security Pacific Bank

1977 Central California Economic Trends in the Seventies.

Socio-Economic Systems, Inc.

1975 Rancho Seco Nuclear Generating Station, Unit 2, Volume 2 Final Environmental Impact Report. Los Angeles, California. (Prepared for Sacramento Municipal Utility District.)

Sperry, Baxter

1975 Mexican Land Grants, Sacramento County. Galt, California: Laurel Hill Press.

1970 The City of Galt, a Short History. Galt, California: Laurel Hill Press.

Spink Corporation

1975 Galt General Plan 1975-1995. Galt, California. (Prepared for Galt City Council.)

State of California

1970 California Statistical Abstract.

BIBLIOGRAPHY (Continued)

Thompson, Thomas Hinckley and Albert Augustus West

1880 History of Sacramento County, California. Sacramento, California.

U.S. Atomic Energy Commission, Directorate of Licensing

1973 Final Environmental Statement Related to Operation of Rancho Seco Nuclear Generating Station, Unit 1. SMUD-Docket No. 50-312.

1973 Safety Evaluation by the Directorate of Licensing, U.S. A.E.C. in the Matter of SMUD-Rancho Seco Nuclear Generating Station Unit #1, Docket No. 50-312.

U.S. Department of Commerce, Bureau of Economic Analysis

1977 Industry-Specific Gross Output Multipliers for BEA Economic Areas. (Prepared for the U.S. Water Resources Council.)

1979 Survey of Current Business vol. 59, no. 4.

U.S. Department of Commerce, Bureau of the Census

1960 Census Tracts, Sacramento, California Standard Metropolitan Statistical Area.

1971 1970 Census Fifth County Summary File, Sacramento County, California.

1972 1970 Census of Population, Detailed Characteristics, California.

1977 1973 (revised) and 1975 Population Estimates and 1972 (revised) and 1974 Per Capita Income Estimates for Counties and Incorporated Places in California P-25, No. 653.

1979 1976 Population Estimates and 1975 and Revised 1974 Per Capita Income Estimates for Counties and Incorporated Places in California P-25, No. 774.

1980 1977 Per Capita Money Income Estimates for Counties and Incorporated Places in California P-25, No. 886.

U.S. Department of Labor, Bureau of Labor Statistics

1978 Consumer Expenditure Survey Series: Interview Survey, 1972-73, Annual Expenditures and Sources of Income Cross-Classified by Family Characteristics, (1972 and 1973 combined).

Ward, Ruth Sutherland

1973 For the People, Story of the Sacramento Municipal Utility District. Sacramento, California: Sacramento Municipal Utility District.

BIBLIOGRAPHY (Continued)

Warren, Roland

1978 The Community in America, 3rd ed. Chicago: Rand McNally.

Wong, E.S.

1978 Sacramento Municipal Utility District, Rancho Seco Nuclear Power Station, Unit #1 Final Report. Sacramento, California.

York, Michael N.

1979 Rancho Seco, Unit 1 Preliminary Site Visit Report. Tempe, Arizona: Mountain West Research, Inc. (Prepared for the U.S. Nuclear Regulatory Commission.)

NEWSPAPER REFERENCES

The Galt Herald

14 July 1966 — "Senator Alan Short Comments: Rural Areas Are Entitled to Better Highway Service."

22 September 1966 — "Immediate Action Seen to Improve Highway 104."

7 December 1967 — "Atomic Plant: SMUD Plans Recreational Area on Rancho Seco Site."

13 February 1969 — "Where Is Rancho Seco? Clay Station Is No More."

31 May 1979 — "Judge Assigned to Protestors' Trial."

Los Angeles Times

7 April 1979 — "Stormy Sacramento Debate: Rancho Seco Chairman Cast Decisive 3-2 Vote."

The Sacramento Bee

10 July 1965 — "SMUD Is in Atomic Age."

12 December 1965 — "Capital Area Is Nearing Era of Nuclear Power."

7 April 1966 — "SMUD Buys Site for Nuclear Power Plant."

4 May 1967 — "SMUD Buys Unit for Nuclear Power."

17 August 1967 — "SMUD Lets Atom Plant Steam System Contract."

7 December 1967 — "SMUD Orders Initial Fuel for Nuclear Power Plant."

17 September 1968 — "SMUD, State Resources Agency Agree on Nuclear Power Plant Pact."

17 September 1968 — "Two Question Safety of SMUD Nuclear Plant."

7 February 1969 — "SMUD Buys $10.4 Million Cooling Plant."

6 March 1969 — "SMUD Directors Okay Nuclear Fuel Purchase."

12 March 1969 — "Clay Station Will Retain Its Name and Won't Be Changed to Rancho Seco."

12 March 1969 — "Work Starts on SMUD's Site at Rancho Seco."

20 March 1969 — "County Reacts Coolly to Suggestion for Park at SMUD Nuclear Plant."

5 June 1969 — "SMUD Awards Contracts Exceeding $1 Million."

1 June 1970 — "SMUD Awards Dam Bid for $1 Million."

21 August 1970 — "Smud Okays $2.25 Million Outlay for Operation Yard."

8 June 1971 — "SMUD Would Get Short-Term Bond OK Under Terms of Rodda Measure."

16 October 1971 — "Jury Sets $33,660 Value for SMUD Plant Easement."

20 November 1972	"Rancho Seco Foes Seek AEC Parley."
27 November 1972	"SMUD Calls for Denial of AEC Hearing Plea."
14 June 1973	"SMUD Hearing: AEC Calls Rancho Seco Unit Safe."
26 October 1974	"SMUD Backs Election of Directors—If."
16 November 1974	"Rancho Seco Impact."
13 December 1974	"City Planners Are Critical of SMUD's Impact Report."
16 April 1975	"Nuclear Critics Claim SMUD 'Stacked' Deck."
30 April 1975	"Critical Analysis Adopted: Nuclear Plant EIR Rejected."
29 January 1977	"County Works on a Complete Disaster Emergency Plan."
10 February 1978	"Annexation Gets SMUD Approval."
31 March 1979	"SMUD Plant Is Allowed to Stay Open."
31 March 1979	"SMUD to Keep Rancho Seco Open."
1 April 1979	"Matsui Favors Probe of Rancho Seco."

NEWSPAPER REFERENCES (Continued)

1 April 1979	"Thirteen Arrested after Scaling Gate in Demonstrations at Rancho Seco."
3 April 1979	"SMUD Stands Pat, Seco Keeps Humming."
4 April 1979	"Recall Move Threatened for Three SMUD Directors."
4 April 1979	"SMUD Should Close Rancho Seco."
6 April 1979	"Crowd Fails to Sway Seco Stand."
9 April 1979	"Two Hundred Fifty Urge Closure at Seco."
10 April 1979	"Same Old Nuke Concerns."
18 April 1979	"SMUD Plans Five More Meetings on Rancho Seco Safety Procedures."
28 April 1979	"NRC Orders Seco Shut Down to Improve Safety Standards."
16 May 1979	"Seco Hearings Urged Before Restart Allowed."
4 July 1979	"Rancho Seco Due to Hum Again Today."
24 July 1979	"Seco Plant Safety Allowed as Issue in Protesters' Trial."

———————

15 August 1979 "Mistrial in Rancho Seco Case on Nine Nuclear Protesters."

———————

30 November 1979 "Seco Protest and Jail."

———————

21 February 1980 "Nuclear Foes Call SMUD Hearings Whitewash."

———————

28 February 1980 "Nuclear Supporters, Goat Testify at Seco Safety Hearings."

The Sacramento Journal

14 September 1970 "Visitors' Center at Rancho Seco Open to Public."

The Sacramento Union

22 September 1966 "Highway 104 Funds Urged: Senator Short Reports to California Division of Highways."

———————

17 September 1968 "Hearing Today on SMUD's Plant."

———————

20 February 1970 "SMUD's $100,000 Plan for Atomic Education."

———————

26 June 1970 "$35 Million Pack on Nuclear Power Plant Is Awarded."

———————

24 February 1971 "County to Operate Recreation Facilities at SMUD Plant."

———————

21 November 1972 "Hearing Asked on Rancho Seco."

———————

19 April 1973 "A Crowd of Sixteen Demands Halt at Rancho Seco."

NEWSPAPER REFERENCES (Continued)

14 June 1973 — "Rancho Seco Called Safe: Hearings Begin on Local Power Plant."

15 June 1973 — "Rancho Seco Called Risk to Generations."

11 September 1974 — "SMUD Ratepayers Assail New Report."

17 October 1974 — "County Planners Hit SMUD's Impact Report."

27 October 1974 — "SMUD Bonds: Power Big Issue."

6 November 1974 — "Measure H Wins OK of Voters."

19 November 1974 — "Atomic Plant Criticism Commended."

28 November 1974 — "Board Expresses Concern over 2nd Rancho Seco Plant."

16 April 1975 — "Future Is the Key to Rancho Seco No. 2."

13 May 1975 — "New Power Plant EIR Fails to Please City."

9 January 1976 — "SMUD Delays Proposal for Nuclear Plant."

5 March 1976 — "Rural Residents Want SMUD's Electricity."

———————

3 February 1978 "SMUD Service Sought by 350."

———————

31 March 1979 "Two on SMUD Board Urge Rancho Seco Shutdown."

———————

1 April 1979 "Thirteen Arrested in Protest at Rancho Seco."

———————

2 April 1979 "Brown Asks NRC to Shut Down Rancho Seco."

———————

6 April 1979 "Shut Plant Down Rancho Seco Foes Tell SMUD Board."

———————

13 April 1979 "Energy Chief Urges Seco Shutdown."

———————

11 May 1979 "County Asks Hearing on Rancho Seco."

———————

18 May 1979 "Flip-Flop Brings Same Vote: No Rancho Seco Hearing."

———————

4 July 1979 "Police Arrest 20 in Seco Protest."

———————

7 February 1980 "Two SMUD Directors Walk Out on NRC."

———————

28 February 1980 "Florida Leak at Issue: NRC Delays Seco Evidence."

———————

16 March 1980 "Fractures in Anti-Nuclear Movement."

San Francisco Examiner and Chronicle

3 April 1979 "Supervisors Say: Shut All N-Plants."

PERSONAL COMMUNICATIONS

Adams, Gary;
Manager, Galt Auto Parts, Galt, California.

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PERSONAL COMMUNICATIONS (Continued)

Goodman, Paul;
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Harbert, Frank;
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Hayes, Art and Effie;
Former Managers, Galt Mobile Estates, Galt, California.

Heinle, Arthur R.;
Vice-President, Farmers & Merchants Bank, Galt, California.

Hendrickson, Glen;
Fire Chief, Herald Fire District, Herald, California.

Hendrickson, Nancy;
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Herburger, Roy;
Owner and Publisher, The Galt Herald, Galt, California.

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Hickey, Margaret;
Owner, Booth Motel, Galt, California.

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This report documents a case study of the socioeconomic impacts of the construction and operation of the Rancho Seco nuclear power station. It is part of a major post-licensing study of the socioeconomic impacts at twelve nuclear power stations. The case study covers the period beginning with the announcement of plans to construct the reactor and ending in the period, 1980-81. The case study deals with changes in the economy, population, settlement patterns and housing, local government and public services, social structure, and public response in the study area during the construction/operation of the reactor.

A regional modeling approach is used to trace the impact of construction/operation on the local economy, labor market, and housing market. Emphasis in the study is on the attribution of socioeconomic impacts to the reactor or other causal factors. As part of the study of local public response to the construction/operation of the reactor, the effects of the Three Mile Island accident are examined.

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