

| <u>Section</u> | <u>Page No.</u> |
|--|-----------------|
| EXECUTIVE SUMMARY | ES-1 |
| A. Introduction/Background | ES-1 |
| B. Alternatives | ES-8 |
| C. Environmental Impact and Mitigation Measures..... | ES-23 |
| D. Summary Comparison of the Proposed Project and Alternatives..... | ES-24 |
| E. Issues to be Resolved..... | ES-27 |
| A. INTRODUCTION/OVERVIEW..... | A-1 |
| A.1 Overview of Proposed Project | A-2 |
| A.2 Project Purpose and Need | A-3 |
| A.2.1 Background | A-3 |
| A.2.2 Statement of Objectives | A-5 |
| A.3 Agency Use of this Document | A-5 |
| A.3.1 CPUC Process..... | A-5 |
| A.3.2 Other Agencies..... | A-6 |
| A.4 Reader's Guide to this EIR | A-7 |
| A.4.1 Available for Review | A-7 |
| A.4.2 EIR Organization | A-8 |
| A.5 References..... | A-9 |
| B. DESCRIPTION OF PROPOSED PROJECT | B-1 |
| B.1 Introduction..... | B-1 |
| B.2 Project Description..... | B-1 |
| B.2.1 Project Location and Regional Context | B-1 |
| B.3 Temporary and Permanent Land Requirements | B-20 |
| B.4 Project Construction..... | B-20 |
| B.4.1 Construction Schedule | B-20 |
| B.4.2 Construction Activities and Methods..... | B-21 |
| B.4.3 Construction Equipment and Personnel..... | B-24 |
| B.4.4 Staging Areas | B-27 |
| B.5 Operation and Maintenance | B-27 |
| B.6 Abandonment of Project | B-28 |
| B.7 SNGS Project Protocols..... | B-28 |
| B.8 References..... | B-33 |

| <u>Section</u> | <u>Page No.</u> |
|--|------------------------|
| C. ALTERNATIVES..... | C-1 |
| C.1 Alternatives Development and Screening Process | C-1 |
| C.2 Alternatives Screening Methodology | C-2 |
| C.2.1 Consistency with Project Objectives | C-5 |
| C.2.2 Feasibility..... | C-5 |
| C.2.3 Potential to Eliminate Significant Environmental Effects | C-6 |
| C.3 Summary of Screening Results..... | C-6 |
| C.3.1 Alternatives Analyzed in the EIR | C-7 |
| C.3.2 Alternatives Eliminated from EIR Consideration..... | C-7 |
| C.4 Alternatives Evaluated in this EIR..... | C-12 |
| C.4.1 Gas Field Alternatives..... | C-12 |
| C.4.2 Project Design Alternatives as Identified by SNGS, LLC for the Proposed Florin Gas Field Storage Project..... | C-21 |
| C.5 Alternatives Eliminated from Full EIR Evaluation | C-22 |
| C.5.1 Alternative Gas Fields..... | C-25 |
| C.5.2 Project Design Alternatives as Identified by SNGS, LLC for the Proposed Florin Gas Field Storage Project..... | C-30 |
| C.5.3 Alternatives to Natural Gas Storage | C-34 |
| C.6 No Project Alternative | C-35 |
| C.7 References..... | C-35 |
| D. ENVIRONMENTAL ANALYSIS..... | D.1-1 |
| D.1 Introduction to Environmental Analysis..... | D.1-1 |
| D.1.1 Introduction/Background | D.1-1 |
| D.1.2 Environmental Assessment Methodology | D.1-3 |
| D.1.3 References..... | D.1-5 |
| D.2 Air Quality | D.2-1 |
| D.2.1 Environmental Setting for the Proposed Project..... | D.2-1 |
| D.2.2 Applicable Regulations, Plans, and Standards..... | D.2-7 |
| D.2.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.2-16 |
| D.2.4 Project Alternatives..... | D.2-35 |
| D.2.5 Mitigation Monitoring, Compliance, and Reporting | D.2-42 |
| D.2.6 References..... | D.2-42 |
| D.3 Biological Resources | D.3-1 |
| D.3.1 Environmental Setting for the Proposed Project..... | D.3-1 |
| D.3.2 Applicable Regulations, Plans, and Standards..... | D.3-28 |

| <u>Section</u> | <u>Page No.</u> |
|--|------------------------|
| D.3.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.3-32 |
| D.3.4 Project Alternatives..... | D.3-39 |
| D.3.5 Mitigation Monitoring, Compliance, and Reporting | D.3-44 |
| D.3.6 References..... | D.3-44 |
| D.4 Cultural Resources | D.4-1 |
| D.4.1 Cultural Resources Setting for the Proposed Project..... | D.4-1 |
| D.4.2 Applicable Regulations, Plans, and Standards..... | D.4-9 |
| D.4.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.4-11 |
| D.4.4 Project Alternatives..... | D.4-14 |
| D.4.5 Mitigation Monitoring, Compliance, and Reporting | D.4-18 |
| D.4.6 References..... | D.4-18 |
| D.5 Geology and Soils | D.5-1 |
| D.5.1 Environmental Setting for the Proposed Project..... | D.5-1 |
| D.5.2 Applicable Regulations, Plans, and Standards..... | D.5-11 |
| D.5.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.5-15 |
| D.5.4 Project Alternatives..... | D.5-22 |
| D.5.5 Mitigation Monitoring, Compliance, and Reporting | D.5-26 |
| D.5.6 References..... | D.5-26 |
| D.6 Hazardous Materials, Public Health and Safety | D.6-1 |
| D.6.1 Environmental Setting for the Proposed Project..... | D.6-1 |
| D.6.2 Applicable Regulations, Plans, and Standards..... | D.6-4 |
| D.6.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.6-13 |
| D.6.4 Project Alternatives..... | D.6-39 |
| D.6.5 Mitigation Monitoring, Compliance, and Reporting | D.6-43 |
| D.6.6 References..... | D.6-43 |
| D.7 Hydrology and Water Quality..... | D.7-1 |
| D.7.1 Environmental Setting for the Proposed Project..... | D.7-1 |
| D.7.2 Applicable Regulations, Plans, and Standards..... | D.7-9 |
| D.7.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.7-13 |
| D.7.4 Project Alternatives..... | D.7-24 |
| D.7.5 Mitigation Monitoring, Compliance, and Reporting | D.7-36 |
| D.7.6 References..... | D.7-36 |

| <u>Section</u> | <u>Page No.</u> |
|--|------------------------|
| D.8 Land Use, Agriculture, and Recreational Resources | D.8-1 |
| D.8.1 Environmental Setting for the Proposed Project..... | D.8-1 |
| D.8.2 Applicable Regulations, Plans, and Standards..... | D.8-17 |
| D.8.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.8-27 |
| D.8.4 Project Alternatives..... | D.8-52 |
| D.8.5 Mitigation Monitoring, Compliance, and Reporting | D.8-55 |
| D.8.6 References..... | D.8-55 |
| D.9 Noise and Vibration | D.9-1 |
| D.9.1 Environmental Setting for the Proposed Project..... | D.9-1 |
| D.9.2 Applicable Regulations, Plans, and Standards..... | D.9-5 |
| D.9.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.9-7 |
| D.9.4 Project Alternatives..... | D.9-12 |
| D.9.5 Mitigation Monitoring, Compliance, and Reporting | D.9-16 |
| D.9.6 References..... | D.9-16 |
| D.10 Population and Housing | D.10-1 |
| D.10.1 Environmental Setting for the Proposed Project..... | D.10-1 |
| D.10.2 Applicable Regulations, Plans, and Standards..... | D.10-4 |
| D.10.3 Environmental Impacts and Mitigation Measures | D.10-6 |
| D.10.4 Project Alternatives..... | D.10-9 |
| D.10.5 Mitigation Monitoring, Compliance, and Reporting | D.10-13 |
| D.10.6 References..... | D.10-13 |
| D.11 Public Services and Utilities | D.11-1 |
| D.11.1 Environmental Setting for the Proposed Project..... | D.11-1 |
| D.11.2 Applicable Regulations, Plans, and Standards..... | D.11-6 |
| D.11.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.11-7 |
| D.11.4 Project Alternatives..... | D.11-14 |
| D.11.5 Mitigation Monitoring, Compliance, and Reporting | D.11-18 |
| D.11.6 References..... | D.11-19 |
| D.12 Transportation and Traffic | D.12-1 |
| D.12.1 Environmental Setting for the Proposed Project..... | D.12-1 |
| D.12.2 Applicable Regulations, Plans, and Standards..... | D.12-5 |
| D.12.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.12-6 |
| D.12.4 Project Alternatives..... | D.12-16 |

| <u>Section</u> | <u>Page No.</u> |
|---|------------------------|
| D.12.5 Mitigation Monitoring, Compliance, and Reporting | D.12-23 |
| D.12.6 References..... | D.12-23 |
| D.13 Visual Resources..... | D.13-1 |
| D.13.1 Visual Setting for the Proposed Project | D.13-1 |
| D.13.2 Applicable Regulations, Plans, and Standards..... | D.13-13 |
| D.13.3 Environmental Impacts and Mitigation Measures for the Proposed Project | D.13-13 |
| D.13.4 Project Alternatives..... | D.13-21 |
| D.13.5 Mitigation Monitoring, Compliance, and Reporting | D.13-27 |
| D.13.6 References..... | D.13-27 |
| E. COMPARISON OF ALTERNATIVES..... | E-1 |
| E.1 Comparison Methodology | E-1 |
| E.2 Evaluation of Project Alternatives | E-2 |
| E.2.1 Summary of Environmental Impact Conclusions | E-4 |
| E.2.2 Gas Field Alternatives..... | E-14 |
| E.2.3 Project Design Alternatives | E-16 |
| E.2.4 No Project Alternative | E-18 |
| E.3 Environmentally Superior Alternative..... | E-19 |
| E.4 Economic Considerations | E-20 |
| E.5 References..... | E-21 |
| F. OTHER CEQA CONSIDERATIONS | F-1 |
| F.1 Growth-Inducing Effects | F-1 |
| F.1.1 Growth Caused by Direct and Indirect Employment for Construction of the Proposed Project | F-2 |
| F.1.2 Growth Related to Additional Natural Gas Storage | F-2 |
| F.2 Significant Irreversible Environmental Changes..... | F-2 |
| F.3 Significant Environmental Effects That Cannot be Avoided | F-3 |
| F.4 Cumulative Impacts | F-3 |
| F.4.1 Air Quality | F-4 |
| F.4.2 Biological Resources | F-11 |
| F.4.3 Cultural Resources | F-11 |
| F.4.4 Geology and Soils | F-12 |
| F.4.5 Hazardous Materials, Public Health and Safety | F-12 |
| F.4.6 Hydrology and Water Quality..... | F-12 |
| F.4.7 Land Use, Agriculture, and Recreational Resources | F-13 |
| F.4.8 Noise and Vibration | F-14 |

| <u>Section</u> | | <u>Page No.</u> |
|-----------------------|---|------------------------|
| F.4.9 | Population and Housing..... | F-14 |
| F.4.10 | Public Services and Utilities | F-14 |
| F.4.11 | Transportation and Traffic | F-15 |
| F.4.12 | Visual Resources..... | F-16 |
| F.5 | References..... | F-16 |
| G. | MITIGATION MONITORING AND REPORTING | G-1 |
| G.1 | Authority for the Mitigation Monitoring, Compliance, and Reporting Program..... | G-1 |
| G.2 | Organization of the Final Mitigation Monitoring Program | G-1 |
| G.3 | Roles and Responsibilities | G-3 |
| G.4 | Enforcement Responsibility..... | G-4 |
| G.5 | Mitigation Compliance Responsibility | G-4 |
| G.6 | Dispute Resolution..... | G-5 |
| G.7 | General Monitoring Procedures..... | G-5 |
| G.7.1 | Environmental Monitors | G-5 |
| G.7.2 | Construction Personnel | G-6 |
| G.7.3 | General Reporting Procedures | G-6 |
| G.7.4 | Public Access to Records..... | G-6 |
| G.8 | Condition Effectiveness Review | G-7 |
| G.9 | Mitigation Monitoring Program Table..... | G-7 |
| G.10 | References..... | G-59 |
| H. | PUBLIC PARTICIPATION | H-1 |
| H.1 | EIR Scoping Process..... | H-1 |
| H.1.1 | Notice of Preparation | H-1 |
| H.1.2 | Public Scoping Meetings | H-2 |
| H.1.3 | Scoping Report..... | H-2 |
| H.1.4 | Follow-Up Agency Consultation | H-3 |
| H.2 | Public Notice and Participation | H-3 |
| H.2.1 | Public Notification | H-4 |
| H.2.2 | Public Review Period..... | H-4 |
| H.2.3 | EIR Information and Repository Sites..... | H-4 |
| H.3 | References..... | H-5 |
| I. | REPORT PREPARATION | I-1 |
| I.1 | List of Preparers | I-1 |
| I.2 | List of Acronyms and Abbreviations | I-2 |

Page No.

APPENDICES

- A Air Quality Data
- B System Safety and Risk of Upset

LIST OF TABLES

| | <u>Page No.</u> |
|--|------------------------|
| ES-1 Summary of Impacts and Mitigation for the Proposed Project..... | ES-28 |
| ES-2 Proposed Project vs. Alternatives Summary of Environmental Impact Conclusions..... | ES-62 |
| ES-3 Proposed Project vs. Alternatives: Summary of Significant Unmitigable (Class I) Impacts | ES-72 |
| A-1 Permits Required for the Sacramento Natural Gas Storage Facility..... | A-6 |
| B-1 Project Land Requirements by Project Component..... | B-20 |
| B-2 Project Construction Schedule as Proposed by SNGS, LLC..... | B-21 |
| B-3 Estimated Construction Vehicle Types and Duration of Use | B-27 |
| B-4 Applicant Proposed Measures for Each Issue Area..... | B-29 |
| B-5 Applicant Proposed Measures for Proposed Project..... | B-29 |
| C-1 SNGS Proposed Project—Summary of Alternatives Screening Analysis..... | C-8 |
| D.2-1 Local Ambient Air Quality Monitoring Data Stockton Boulevard Monitoring Station..... | D.2-5 |
| D.2-2 National and California Ambient Air Quality Standards..... | D.2-8 |
| D.2-3 National Ambient Air Quality Standards and Status Sacramento Valley Air Basin (Sacramento County)..... | D.2-9 |
| D.2-4 California Ambient Air Quality Standards and Status Sacramento Valley Air Basin (Sacramento County)..... | D.2-10 |
| D.2-5 GHG Sources in California—2004..... | D.2-15 |
| D.2-6 SMAQMD CEQA Air Quality Significance Thresholds..... | D.2-18 |
| D.2-7 Applicant Proposed Measures1 for Air Quality..... | D.2-20 |
| D.2-8 Maximum Daily Construction Emissions Sacramento County | D.2-23 |
| D.2-9 Operational Emissions from Stationary Sources | D.2-26 |
| D.2-10 Estimated Operational Emissions under Current Zoning | D.2-27 |

| | <u>Page No.</u> |
|--|------------------------|
| D.2-11 Comparison of Operational Emissions under Current Zoning and with the Proposed Project | D.2-28 |
| D.2-12 Results of Health Risk Screening Analysis of Project TAC Emissions | D.2-29 |
| D.2-13 Odor Analysis | D.2-30 |
| D.2-14 Annual Construction Emissions..... | D.2-33 |
| D.2-15 Estimated GHG Emissions | D.2-35 |
| | |
| D.3-1 Unverified Wetlands and Waters within the Study Area..... | D.3-9 |
| D.3-2 Previously Verified Wetlands and Waters within the Study Area..... | D.3-10 |
| D.3-3 Rapanos Estimate of Unverified Wetlands and Waters in the City of Sacramento Proposed Project Area that Would be Under ACOE Jurisdiction ... | D.3-23 |
| D.3-4 Applicant Proposed Measures for Biological Resources..... | D.3-33 |
| | |
| D.4-1 Cultural Resources Identified in Proximity to the SNGS Facility | D.4-6 |
| | |
| D.5-1 General Descriptions and Characteristics of the Geologic Formations | D.5-2 |
| D.5-2 Active Faults within 100 Miles of the Proposed Project Area..... | D.5-5 |
| D.5-3 The Modified Mercalli Scale of Earthquake Intensities | D.5-6 |
| D.5-4 Applicant Proposed Measures for Geology and Soils | D.5-16 |
| | |
| D.6-1 Applicant Proposed Measures for Hazardous Materials, Public Health and Safety | D.6-14 |
| D.6-2 Explosion Overpressure Damage Thresholds | D.6-21 |
| D.6-3 Vapor Cloud Explosion Modeling Results | D.6-28 |
| D.6-4 Torch Fire Modeling Results | D.6-29 |
| D.6-5 Flash Fire Modeling Results | D.6-29 |
| D.6-6 Societal Risk Summary for Occupants of Residential and Commercial Buildings | D.6-30 |
| D.6-7 Societal Risk Summary for Vehicle Occupants..... | D.6-31 |
| | |
| D.7-1 Waterbodies Crossed by the Proposed Project | D.7-2 |
| D.7-2 2002 California 303(d) List and Total Maximum Daily Load (TMDL) Priority Schedule..... | D.7-6 |
| D.7-3 Applicant Proposed Measures for Hydrology and Water Quality | D.7-14 |
| | |
| D.8-1 Recreational Facilities..... | D.8-16 |
| D.8-2 Applicable Local Planning Documents by Project Component | D.8-19 |

| | <u>Page No.</u> |
|--|------------------------|
| D.8-3 Consistency Analysis with Applicable 1988 General Plan, Policy, or Goal for the Proposed SNGS City of Sacramento Project Components | D.8-29 |
| D.8-4 Consistency Analysis with Applicable South Sacramento Community Plan, Policy, or Goal for the Proposed SNGS City of Sacramento Project Components | D.8-38 |
| D.8-5 Consistency Analysis with Applicable Proposed 2030 General Plan, Policy, or Goal for the Proposed SNGS City of Sacramento Project Components | D.8-40 |
| D.8-6 Consistency Analysis with Applicable County of Sacramento General Plan, Policy, or Goal for the Proposed SNGS County of Sacramento Project Component..... | D.8-44 |
| | |
| D.9-1 Definitions..... | D.9-1 |
| D.9-2 Typical Sound Levels Measured in the Environment and Industry..... | D.9-2 |
| D.9-3 Ambient Noise Measurements—SNGS Project Study Area | D.9-4 |
| D.9-4 City of Sacramento Exterior Noise Standards | D.9-6 |
| D.9-5 Typical Noise Levels of Construction Equipment..... | D.9-7 |
| | |
| D.10-1 Population Characteristics | D.10-2 |
| D.10-2 Demographic Profile for the Project Study Area..... | D.10-2 |
| D.10-3 Housing Characteristics | D.10-3 |
| D.10-4 Employment and Labor Force Characteristics, Year 2000..... | D.10-3 |
| | |
| D.11-1 Utility and Service Providers by Jurisdiction | D.11-1 |
| D.11-2 Landfill Capacity | D.11-5 |
| D.11-3 Applicant Proposed Measures for Public Services and Utilities | D.11-7 |
| | |
| D.12-1 Roadways within the Vicinity of the Proposed Project | D.12-1 |
| D.12-2 Bus Routes within the Vicinity of the Proposed Project..... | D.12-2 |
| D.12-3 Light Rail Line within the Vicinity of the Proposed Project | D.12-3 |
| D.12-4 Bicycle Routes within the SNGS Facility Area..... | D.12-4 |
| D.12-5 Applicant Proposed Measures for Transportation and Traffic | D.12-7 |
| | |
| D.13-1 Summary of Visual Sensitivity Findings Viewer Types, Viewer Exposures, and Visual Quality..... | D.13-12 |
| D.13-2 Summary of Applicable Regulations, Plans, and Standards for Visual Resources..... | D.13-13 |

Sacramento Natural Gas Storage Project
TABLE OF CONTENTS

| | <u>Page No.</u> | |
|--------|--|---------|
| D.13-3 | Guidelines for Determining Adverse Visual Impact Significance | D.13-15 |
| D.13-4 | Applicant Proposed Measure for Visual Resources..... | D.13-16 |
| E-1 | Proposed Project vs. Alternatives: Summary of Significant Unmitigable (Class I) Impacts..... | E-3 |
| E-2 | Proposed Project vs. Alternatives Summary of Environmental Impact Conclusions..... | E-5 |
| F-1 | Cumulative Scenario—Approved and Pending Projects | F-5 |
| F-2 | Project Features Consistent with Scoping Plan Strategies..... | F-8 |
| F-3 | Project Features Consistent with Early Action Measures1 | F-8 |
| G-1 | Mitigation Monitoring Program..... | G-8 |
| I-1 | EIR Preparers | I-1 |
| I-2 | Acronyms and Abbreviation | I-2 |

Page No.

LIST OF FIGURES

| | | <u>Page No.</u> |
|--------|--|------------------------|
| ES-1 | Overview of Proposed Project | ES-3 |
| ES-2 | Alternative Natural Gas Storage Sites | ES-11 |
| B-1 | Regional Map..... | B-3 |
| B-2 | Florin Gas Field | B-5 |
| B-3 | Compressor Station, Wellhead Site, and Connecting Pipelines | B-7 |
| B-4 | Subsurface Diagram of Florin Gas Field | B-11 |
| B-5 | Wellhead Site Schematic | B-15 |
| B-6 | Compressor Station Schematic | B-17 |
| B-7 | Horizontal Directional Drilling Process..... | B-25 |
| C-1 | Alternative Natural Gas Storage Sites | C-3 |
| C-2 | Freeport Gas Field Alternative..... | C-13 |
| C-3 | Snodgrass Slough Gas Field Alternative | C-17 |
| C-4 | Thornton Gas Field Alternative | C-19 |
| C-5 | Alternative Connecting Pipelines | C-23 |
| C-6 | Alternative Compressor Station Sites and Well Site | C-31 |
| D.3-1 | Jurisdictional Delineations Report Boundaries (City of Sacramento Project Components) | D.3-3 |
| D.3-2 | Vegetation Map for Compressor Station, Wellhead Site & Connecting Pipelines | D.3-7 |
| D.3-3a | Preliminary Jurisdictional Delineation (City of Sacramento Project Components) Sheet 1 | D.3-11 |
| D.3-3b | Preliminary Jurisdictional Delineation (City of Sacramento Project Components) Sheet 2 | D.3-13 |
| D.3-3c | Preliminary Jurisdictional Delineation (City of Sacramento Project Components) Sheet 3 | D.3-15 |
| D.3-3d | Preliminary Jurisdictional Delineation (City of Sacramento Project Components) Sheet 4 | D.3-17 |
| D.3-3e | Preliminary Jurisdictional Delineation (City of Sacramento Project Components) Sheet 5 | D.3-19 |
| D.7-1 | Hydrology Map..... | D.7-3 |
| D.7-2 | FEMA Flood Zone A | D.7-7 |

Sacramento Natural Gas Storage Project
TABLE OF CONTENTS

| | <u>Page No.</u> |
|---|------------------------|
| D.8-1 Regional Jurisdiction Map | D.8-3 |
| D.8-2 Existing Land Use Diagram: City & County of Sacramento Project Components | D.8-5 |
| D.8-3a General Plan Land Use Diagram: South Sacramento Community Plan and County of Sacramento..... | D.8-9 |
| D.8-3b General Plan Land Use Diagram: Draft Fruitridge Broadway Community Plan | D.8-11 |
| D.8-4 Enterprise Zones: Army Depot and Florin-Perkins | D.8-25 |
| | |
| D.13-1 Key Observation Points of Wellhead Site | D.13-5 |
| D.13-2 Key Observation Points of Compressor Station Site | D.13-7 |
| D.13-3 Rendering of 10-Foot Wellhead Site Masonry Wall | D.13-19 |