

# Table of Contents

---

Section 1	Executive Summary .....	1-1
1.1	Introduction and Project Overview .....	1-1
1.2	Organization of the PEA and Chapter Description .....	1-7
Section 2	Project Purpose and Need .....	2-1
2.1	Project Objectives .....	2-1
2.2	Need for the Project .....	2-1
Section 3	Project Description.....	3-1
3.1	Project Location .....	3-1
3.2	Existing Gas and Electric Systems .....	3-41
3.3	Project Objectives .....	3-41
3.4	Project Overview .....	3-41
3.5	Project Components .....	3-46
3.5.1	Subsurface Reservoir Characteristics and Well Design .....	3-46
3.5.2	Reservoir Injection / Withdrawal Wells and Connecting Flowlines .....	3-51
3.5.3	Observation Well Pad Locations and Design .....	3-60
3.5.4	Central Compressor Station.....	3-61
3.5.5	Central Water Separation, Dehydration, and Disposal .....	3-62
3.5.6	PG&E Interconnection and Meter Facility .....	3-65
3.5.7	Plant Metering .....	3-65
3.5.8	Balance of Plant.....	3-66
3.5.9	Electric Power Substation and Wood Pole Alignment .....	3-67
3.5.10	Gas Transmission Pipeline .....	3-70
3.6	Right of Way Requirements .....	3-74
3.7	Construction .....	3-76
3.7.1	Construction Schedule .....	3-76
3.7.2	Equipment and Material Staging Areas .....	3-76
3.7.3	Access Roads and Construction Vehicle Circulation.....	3-78
3.7.4	Construction Workforce and Equipment .....	3-85
3.7.5	Well Pad Preparation, Drilling, Surface Facilities, and Gathering Lines.....	3-85
3.7.6	Central Compressor Facility and Electrical Substation.....	3-95
3.7.7	Tap and Meter Facility .....	3-97
3.7.8	Electric Power Lines .....	3-97
3.7.9	Gas Transmission Pipeline .....	3-101
3.8	Operations and Maintenance Procedures .....	3-106
3.9	Summary of Design, Construction and Operations Compliance Measures ...	3-111
3.10	Required Permits and Plans .....	3-122
Section 4	Environmental Assessment.....	4.1-1
4.1	Introduction .....	4.1-1
4.2	Aesthetics.....	4.2-1
4.2.1	Environmental Setting .....	4.2-1
4.2.2	Regulatory Setting .....	4.2-4
4.2.3	Impact Assessment.....	4.2-4

4.3	Air Quality.....	4.3-1
4.3.1	Air Quality Setting .....	4.3-1
4.3.2	Overview of Air Quality Standards.....	4.3-5
4.3.3	Existing Air Quality.....	4.3-7
4.3.4	Regulatory Setting .....	4.3-19
4.3.5	Quantitative Impact Assessment .....	4.3-41
4.3.6	Consistency with Applicable Regulations .....	4.3-59
4.4	Biological Resources .....	4.4-1
4.4.1	Environmental Setting.....	4.4-1
4.4.2	Regulatory Setting .....	4.4-61
4.4.3	Impact Assessment.....	4.4-67
4.4.4	Mitigation Measures.....	4.4-77
4.5	Cultural Resources .....	4.5-1
4.5.1	Environmental Setting.....	4.5-1
4.5.2	Existing Cultural Resources.....	4.5-6
4.5.3	Regulatory Setting .....	4.5-15
4.5.4	Impact Assessment.....	4.5-17
4.6	Geology, Soils, and Paleontology .....	4.6-1
4.6.1	Environmental Setting.....	4.6-1
4.6.2	Regulatory Setting .....	4.6-14
4.6.3	Impact Assessment.....	4.6-16
4.7	Hazards and Hazardous Materials.....	4.7-1
4.7.1	Environmental Setting.....	4.7-1
4.7.2	Regulatory Setting .....	4.7-3
4.7.3	Impact Analysis .....	4.7-12
4.8	Hydrology and Water Quality .....	4.8-1
4.8.1	Environmental Setting.....	4.8-1
4.8.2	Regulatory Setting .....	4.8-13
4.8.3	Impact Assessment.....	4.8-18
4.9	Land Use, Planning, and Agriculture .....	4.9-1
4.9.1	Environmental Setting.....	4.9-1
4.9.2	Regulatory Setting .....	4.9-10
4.9.3	Impact Assessment.....	4.9-17
4.10	Mineral Resources .....	4.10-1
4.10.1	Environmental Setting.....	4.10-1
4.10.2	Regulatory Setting .....	4.10-2
4.10.3	Impact Assessment.....	4.10-3
4.11	Noise .....	4.11-1
4.11.1	Environmental Setting.....	4.11-1
4.11.2	Regulatory Setting .....	4.11-7
4.11.3	Impact Assessment.....	4.11-10
4.12	Population and Housing.....	4.12-1
4.12.1	Environmental Setting.....	4.12-1
4.12.2	Regulatory Setting .....	4.12-2
4.12.3	Impact Assessment.....	4.12-3
4.13	Public Services / Utilities and Service Systems / Recreation .....	4.13-1
4.13.1	Environmental Setting.....	4.13-1
4.13.2	Regulatory Setting .....	4.13-5
4.13.3	Impact Assessment.....	4.13-8
4.14	Transportation and Traffic.....	4.14-1
4.14.1	Environmental Setting.....	4.14-1
4.14.2	Regulatory Setting .....	4.14-6
4.14.3	Impact Assessment.....	4.14-8
4.15	Cumulative Impacts .....	4.15-1

**Section 5 Alternatives** ..... 5-1

    5.1 Alternatives Evaluated in this PEA..... 5-1

    5.2 Alternative Gas Storage Locations ..... 5-2

    5.3 Alternative Well Pad, Compressor, and Electric Substation Sites..... 5-4

        5.3.1 Alternative Well Pad Sites..... 5-4

        5.3.2 Alternative Compressor Station Sites ..... 5-5

        5.3.3 Alternative Electric Substation Sites ..... 5-7

    5.4 Alternative Pipeline Alignments ..... 5-8

    5.5 Alternative Electric Power Line Routes..... 5-17

    5.6 Alternative Compressor Station Equipment Configurations ..... 5-21

    5.7 The “No Project” Alternative..... 5-22

**Section 6: References** ..... 6-1

**Section 7: List of Preparers** ..... 7-1

A P P E N D I C E S

**Appendix A Project Description Information**

    Compressor Station and Meter Facility Design Details

    Gas Pipeline Alignment Sheets

    Gas Pipeline Surface Facility Details

    Gas Pipeline Typical Specifications

    Gas Pipeline Crossing Details

    Well Drilling Details

**Appendix B Environmental Information**

    B.1 Air Quality Information

    B.2 Biological Resources Information

    B.3 Cultural Resources Information

    B.4 Geology and Soils Information

    B.5 Hazardous Materials Information

    B.6 Agricultural Mitigation Plan

    B.7 Cumulative Projects

    B.8 List of Less than Significant Impacts

    B.9 CEQA Checklist

**Appendix C Land Information**

T A B L E S

Table ES-1: Summary of Potential Significant Impacts and Mitigation Measures..... 1-9

Table 3.1-1: Index of Site Photographs..... 3-9

Table 3.5-1: Gill Ranch Proposed Surface Facility Locations and Existing Uses..... 3-57

Table 3.5-2: Onsite Fluid Storage and Change-Out Intervals..... 3-65

Table 3.7-1: Staging Areas..... 3-77

Table 3.7-2: Storage Well Pad Construction Estimated Equipment ..... 3-86

Table 3.7-3: Gathering Line Construction Estimated Equipment..... 3-87

Table 3.7-4: Compressor Station Construction Estimated Equipment.....3-88

Table 3.7-5: Tap and Meter Facility Construction Estimated Equipment.....3-89

Table 3.7-6: Electrical Power Lines Construction Estimated Equipment.....3-90

Table 3.7-7: Pipeline Construction Estimated Equipment.....3-91

Table 3.7-8: Typical Pole Installation Details .....3-100

Table 3.7-9: Pipeline Construction Methods at Crossings .....3-102

Table 3.10-1: Agency Approvals .....3-122

Table 4.3-1: Ambient Air Quality Standards.....4.3-6

Table 4.3-2: Ozone Levels at Madera-Pump Yard, Madera, 1998-2007 .....4.3-8

Table 4.3-3: Nitrogen Dioxide Levels at Madera-Pump Yard, Madera, 1998-2007 .....4.3-10

Table 4.3-4: Carbon Monoxide Levels at Fresno-Skypark, Fresno, 1998-2007 .....4.3-11

Table 4.3-5: Sulfur Dioxide Levels at Bethel Island, 1998-2007 .....4.3-13

Table 4.3-6: Particulate Sulfate Levels in Bakersfield, 1995-2002 .....4.3-14

Table 4.3-7: PM<sub>10</sub> Levels at Fresno-First Street, Fresno, 1998-2007 .....4.3-15

Table 4.3-8: PM<sub>2.5</sub> Levels Fresno-First Street, Fresno, 1998-2007 .....4.3-17

Table 4.3-9: Airborne Lead.....4.3-19

Table 4.3-10: PSD Class II Increments .....4.3-23

Table 4.3-11: District Major Facility Thresholds .....4.3-24

Table 4.3-12: District BACT Emission Thresholds .....4.3-30

Table 4.3-13: District Offset Emission Thresholds .....4.3-30

Table 4.3-14: Regulations and Permits for Protection of Air Quality.....4.3-39

Table 4.3-15: Nominal Fuel Properties – Natural Gas .....4.3-44

Table 4.3-16: Maximum Emission Rates – Heaters (each) .....4.3-44

Table 4.3-17: Maximum Emission Rates – Dehydrator Reboilers (each) .....4.3-45

Table 4.3-18: Storage Tank Specifications .....4.3-45

Table 4.3-19: Maximum Emission Rates – Dehydrator Thermal Oxidizers (each).....4.3-46

Table 4.3-20: Emissions from New Equipment .....4.3-47

Table 4.3-21: Maximum Proposed TAC Emissions: Project.....4.3-48

Table 4.3-22: Screening Health Risk Assessment Results.....4.3-55

Table 4.3-23: SJVAPCD Recommended Thresholds of Significant Impact .....4.3-59

Table 4.3-24: Facility Best Available Control Technology Requirements .....4.3-61

Table 4.4-1: Vegetation Community Distribution within the Project Area .....4.4-9

Table 4.4-2: Agricultural Canals, Ponds and Other Aquatic Areas .....4.4-17

Table 4.4-3: Special-status Plant Species Potentially Occurring in the Project Area .....4.4-53

Table 4.4-4: Special-Status Wildlife Species Potentially Occurring in the Project Area .....4.4-57

Table 4.5-1: Previously Identified Cultural Resources .....4.5-11

Table 4.5-2: Known Cultural Resources Investigations within Project Area .....4.5-12

Table 4.5-3: Cultural Resources Discovered during the Survey .....4.5-14

Table 4.6-1: Site Elevations .....4.6-1

Table 4.6-2: Active Faults in the Project Vicinity .....4.6-8

Table 4.6-3: Modified Mercalli Intensity Scale.....4.6-11

Table 4.7-1: Physical Properties of Methane .....4.7-3

Table 4.7-2: Pipeline DOT Hazard Classifications.....4.7-5

Table 4.8-1: Flood Hazard Zones .....4.8-9

Table 4.9-1: Important Farmland Definitions.....4.9-1

Table 4.9-2: Agricultural Acreage Converted to Non-Agricultural Uses.....4.9-20

Table 4.11-1: Typical Sound Levels Measured in the Environment.....4.11-2

Table 4.11-2: Noise Measurements Showing Existing Noise Conditions at Key Locations .....4.11-4

Table 4.11-3: County of Fresno Exterior Residential Noise Thresholds .....4.11-8

Table 4.11-4: County of Madera Maximum Allowable Noise Exposure for Non-Transportation Noise Sources<sup>1</sup> .....4.11-9

Table 4.11-5: Noise Levels and Abatement Potential of Construction Equipment Noise at 25, 50, and 100 Feet (dBA).....4.11-13

Table 4.12-1: Growth Trends in Fresno and Madera Counties.....4.12-1

Table 4.13-1: Solid Waste Disposal Facilities in Fresno and Madera Counties .....4.13-4

Table 4.14-1: Traffic Counts for Key Roadways in the Vicinity of the Project.....4.14-5

Table 4.14-2: Volume to Capacity Ratio and Traffic Flow Conditions for Level of Service Designations.. 4.14-7

Table 4.14-3: Capacities (number of trips) Per Hour Per Lane for Various Highway Facilities ..... 4.14-7

Table 4.14-4: Project Impact on Key Roadways—During Peak Construction Months (Months 8 and 9) .. 4.14-13

Table 5.2-1: Alternative Gas Storage Field Assessment ..... 5-3

Table 5.3-2: Alternative Compressor Station Locations..... 5-5

Table 5.4-1: Alternative Pipeline Routes\* ..... 5-16

F I G U R E S

Figure 1.1-1: Project Location ..... 1-3

Figure 3.1-1: Project Overview ..... 3-3

Figure 3.1-2: Gill Ranch Facility Sites ..... 3-5

Figure 3.1-3: Electrical Power Line Route ..... 3-7

Figure 3.4-1: Block Flow Diagram ..... 3-43

Figure 3.5-1: Conceptual Diagram of an Underground Natural Gas Storage Reservoir..... 3-47

Figure 3.5-2: Diagrammatic Cross Section with Injection/Withdrawal Well and Water Disposal Well 3-49

Figure 3.5-3: Generalized Scematic View of Deep Drilling Fresh Water Aquifer Protection..... 3-53

Figure 3.5-4: Typical Well Pad Layout ..... 3-55

Figure 3.7-1: Construction Schedule ..... 3-79

Figure 3.7-2: Construction Staging Locations and Haul Routes ..... 3-83

Figure 3.7-3: Construction Personnel..... 3-93

Figure 4.2-1: Compressor Station Simulation at Close Range ..... 4.2-7

Figure 4.2-2: Compressor Station Simulation from Nearest Residences..... 4.2-9

Figure 4.3-1: 2004 Annual Wind Rose ..... 4.3-4

Figure 4.3-2: Maximum 1-hour Ozone Level: Madera-Pump Yard: 1997-2007 ..... 4.3-8

Figure 4.3-3: Maximum 8-hour Ozone Level: Madera-Pump Yard: 1997-2007 ..... 4.3-9

Figure 4.3-4: Maximum 1-Hour NO<sub>2</sub> Level: Madera-Pump Yard: 1997-2007 ..... 4.3-11

Figure 4.3-5: Maximum 1-Hour Average CO Level: Fresno-Skypark: 1997-2007 ..... 4.3-11

Figure 4.3-6: Maximum 8-Hour Average CO Level: Fresno-Skypark: 1997-2007 ..... 4.3-12

Figure 4.3-7: Maximum 24-Hour Average SO<sub>2</sub> Level: Bethel Island Road: 1995-2007 ..... 4.3-13

Figure 4.3-8: Maximum 24-Hour Average PM<sub>10</sub> Level: Fresno-First Street: 1995-2007 ..... 4.3-15

Figure 4.3-9: Estimated Violations of the 24-Hour PM<sub>10</sub>: Fresno- First Street: 1995-2007 ..... 4.3-16

Figure 4.3-10: Annual Average PM<sub>10</sub>:Level: Fresno- First Street: 1995-2007 ..... 4.3-16

Figure 4.3-11: Federal Annual Average PM<sub>2.5</sub>: Level Madera-Pump Yard: 1995-2007 ..... 4.3-18

Figure 4.3-12: Maximum 24-Hour PM<sub>2.5</sub>: Level Madera-Pump Yard: 1995-2007 ..... 4.3-18

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 1 of 13) ..... 4.4-23

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 2 of 13) ..... 4.4-25

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 3 of 13) ..... 4.4-27

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 4 of 13) ..... 4.4-29

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 5 of 13) ..... 4.4-31

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 6 of 13) ..... 4.4-33

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 7 of 13) ..... 4.4-35

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 8 of 13) ..... 4.4-37

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 9 of 13) ..... 4.4-39

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 10 of 13) ..... 4.4-41

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 11 of 13) ..... 4.4-43

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 12 of 13) ..... 4.4-45

Figure 4.4-1: Sensitive Resources and Agricultural Canals (map 13 of 13) ..... 4.4-47

Figure 4.4-2: Map 1, California Natural Diversity Database — Plants ..... 4.4-49

Figure 4.4-2: Map 2, California Natural Diversity Database — Animals ..... 4.4-51

Figure 4.4-3: Preliminary Survey Results: Special-status Plant Species ..... 4.4-55

Figure 4.5-1: Cultural Resource Survey Areas..... 4.5-9

Figure 4.6-1: Geologic Setting..... 4.6-3

Figure 4.6-2: Regional Active Faults .....4-6-9  
 Figure 4.8.1: FEMA Flood Zones .....4-8-11  
 Figure 4.9-1 General Plan Land Use Designations.....4-9-5  
 Figure 4.9-2 Zoning .....4-9-7  
 Figure 4.9-3 Farmland .....4-9-11  
 Figure 4.9-4 Williamson Act.....4-9-13  
 Figure 4.11-1: Noise Monitoring Locations.....4.11-5  
 Figure 4.14.1: Transportation Routing in Project Area.....4.14-3  
 Figure 5.4-1: Alternative Pipeline Routes.....5-9

P H O T O S

Photo 1 Pipeline MP 0.0 .....3-11  
 Photo 2 Pipeline MP 2.7 .....3-11  
 Photo 3 Pipeline MP 9.0 .....3-13  
 Photo 4 Pipeline MP 17.0 .....3-13  
 Photo 5 Pipeline MP 17.5 .....3-15  
 Photo 6 Pipeline MP 18.0 .....3-15  
 Photo 7 Pipeline MP 18.5 .....3-17  
 Photo 8 Pipeline MP 19.5 .....3-17  
 Photo 9 Pipeline MP 21.5 .....3-19  
 Photo 10 Pipeline MP 22.4 .....3-19  
 Photo 11 Pipeline MP 22.6 .....3-21  
 Photo 12 Pipeline MP 25.1 .....3-21  
 Photo 13 Pipeline MP 25.1 .....3-23  
 Photo 14 Pipeline MP 25.1 .....3-23  
 Photo 15 Pipeline MP 25.2 .....3-25  
 Photo 16 Pipeline MP 26.8 .....3-25  
 Photo 17 Compressor Station .....3-27  
 Photo 18 Well pad .....3-27  
 Photo 19 Well pad .....3-29  
 Photo 20 Gathering Line.....3-29  
 Photo 21 Road 16 Access .....3-31  
 Photo 22 Road 16 Access .....3-31  
 Photo 23 Road 16 Access .....3-33  
 Photo 24 Road 16 Access .....3-33  
 Photo 25 Power line MP 0.0 .....3-35  
 Photo 26 Power line MP 2.5 .....3-35  
 Photo 27 Power line MP 2.7 .....3-37  
 Photo 28 Power line MP 7.0 .....3-37  
 Photo 29 Power line MP 7.1 .....3-39

A C R O N Y M S

µg/m3 micrograms per cubic meter  
 AADT Annual Average Daily Trips  
 AB Assembly Bill  
 ACHP Advisory Council on Historic Preservation  
 ACT California Clean Air Act  
 Æ Applied EarthWorks, Inc.  
 AE Agriculture Exclusive

ALUC	Airport Land Use Commission
APCD	Air Pollution Control District
APCO	Air Pollution control Officer
APFZA	Alquist-Priolo Fault Zoning Act
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
ASER	Alkali Sink Ecological Reserve
ASME	American Society of Mechanical Engineers
ATC	Authority to Construct
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
bcf	Billion cubic feet
BMP	Best Management Practices
BP	Before present
BRMIMP	Biological Resource Mitigation Implementation and Monitoring Plan
BST	Buried Site Testing
BTU/LB	British Thermal Units per pound
Cal/OSHA	California Occupational Health and Safety Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDOE	California Department of Education
CE	California Endangered Species
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFP	California Fully Protected Species
CFR	Code of Federal Regulations
cfs	cubic feet per second
CFZ	Calaveras Fault Zone
CGS	California Geological Survey
CH <sub>4</sub>	Methane (unburned natural gas)
CIWMB	California Integrated Waste Management Board
cm	Centimeter
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level

CNPS	California Native Plant Society
CO	Carbon monoxide
COG	Councils of Government
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRSBB	Coast Range Sierran Block Boundary
CT	California Threatened
CUPA	Certified Uniform Program Agency
CVP	Central Valley Project
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationship
dB	Decibel
dba	A-weighted Decibels
DOC	Department of Conservation
DOF	Department of Finance
DOGGR	Department of Conservation, Division of Oil, Gas, and Geothermal Resources
DOT	United States Department of Transportation
DPA	Drainage Project Area
DPR	California Department of Parks and Recreation
DWR	Department of Water Resources
EDD	Employment Development Department
EDR	Environmental Data Resource
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
EPCRA	Emergency Planning and Community Right to know Act
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
ESD	emergency shut down
FAA	Federal Aviation Administration
FBE	Fusion Bond Epoxy
FCFPD	Fresno County Fire Protection District
FCRTA	Fresno County Rural Transit Agency
FCSD	Fresno County Sheriff's Department
FD	Delisted from the federal endangered species list
FE	Federally Endangered or Candidate for the Federally Endangered List
FEMA	Federal Emergency Management Agency



FP	California Fully Protected
FPE	proposed for listing as endangered
FPT	proposed for listing as threatened
FSZs	Farmland Security Zones
FT	Federally Threatened
g	Gram
gal	Gallon
Gas Field	Gill Ranch Gas Field
GIS	Geographic Information System
gpd	Gallons per Day
GPS	Global Positioning System
gr/dscf	Grains per day standard cubic foot
GRS	Gill Ranch Gas Storage, LLC
H&SC	Health and Safety Code
HAP	Hazardous Air Pollutant
HCA's	High Compression Areas
HDD	Horizontal Directional Drill
HFC	Hydrofluorocarbons
HMBP	Hazardous Materials Business Plan
HP	Horsepower
HS&C	Health and Safety Code
HSP	Health and Safety Plan
HWQ	Hydrology and Water Quality
Hz	Hertz
I	Interstate
I/E	Implementation/Electrical
I/W	Injection/withdrawal well
IEPR	Integrated Energy Policy Report
IGC	International Gas Consulting
IW	Injection and Withdrawal
K	Kindergarten
kV	Kilovolt
LAER	Lowest achievable Emission Rate
Lbs/gal	pounds per gallon
LDAR	Leak Detection and Repair
Ldn	Day/night noise Level
Leq	Equivalent Sound Level

LGS	Lodi Gas Storage LLC
Lmax	maximum noise level
Lmin	minimum noise level
LOS	Level of Service
LTS	Less than Significant
MAOP	Maximum Allowable Operation Pressure
MBTA	Migratory Bird Treaty Act
MCFD	Madera County Fire Department
MCSD	Madera County Sheriff's Department
MCTC	Madera County Transportation commission
MEI	Maximally exposed individual
mJ	Megajoules
MLD	Most Likely Descendent
MM	Mitigation Measures
MMBtu/hr	Million British Thermal Units
MMcfd	Million cubic feet per day
MMI	Modified Mercalli Intensity
MMSCF	million standard cubic feet
mol	Mole
MP	Milepost
MRZ	Mineral Resource Zone
MSDS	Material Safety Data Sheets
MW	Monitoring Well
NAAQS	National ambient air quality standards
NAD	North American Datum
NAHC	Native American Heritage Commission
NAWQA	National Water Quality Assessment Program
NEPA	National Environmental Policy Act of 1969
NESC	National Electric Safety Code
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NGPSA	Natural Gas Pipeline Safety Act
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NO	Nitric oxide
NO <sub>2</sub>	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration

NO <sub>x</sub>	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NSPS	New Stationary Sources
NSR	New Source Review
NWI	Inventory
NWP	Nationwide Permit
OEHHA	Office of Environmental Health Hazard Assessment
°F	Degrees Fahrenheit
OFZ	Ortugalita Fault Zone
OM	Observation and Monitoring
OPR	California Office of Planning and Research
OPS	Office of Pipeline Safety
PCR	Polymerase Chain Reaction
PEA	Proponent's Environmental Assessment
PFCS	Perfluorocarbons
PG&E	Pacific Gas & Electric Company
PHMSA	Pipeline and Hazardous Materials Safety Administration
PIR	Potential Impact Radius
PLC	programmable logic controller
PM	Plant Manager
PM <sub>10</sub>	Particulate matter with a diameter less than 10 microns
PM <sub>2.5</sub>	Particulate matter with a diameter less than 2.5 microns
ppm	parts per million
ppmv	Parts per million/Volume
PPV	Peak Particle Velocity
Project	Gill Ranch Natural Gas Storage Project
PSD	Prevention of Significant Deterioration
PSIA	Pipeline Safety Improvement Act
Psig	Pounds per Square Inch Gauge
QSFZ	Quien Sabe Fault Zone
RCRA	Resource Conservation and Recovery Act
REL	Reference exposure level
RHA	Rivers and Harbors Act
ROW	Right of Way

RWQCB	Regional Water Quality Control Board
S	Significant
SAFZ	San Andreas Fault Zone
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SC	Species of Special Concern
sec	Second
SF6	Sulfur Hexafluoride
SHPO	State Historic Preservation Officer
SHRA	Screening Health Risk Assessment
SIP	State Implementation Plan
SLIC	Spills, leaks Investigation and Cleanup
SMARA	Surface Mining and Reclamation Act
SNFFS	Sierra Nevada Foothills Fault System
SO2	Sulfur dioxide
SOx	Sulfur oxides
SPCC	Site specific Spill Prevention, Countermeasure and Control Plan
SR	State Highway/Route
STVAPCD	San Joaquin Valley Air Pollution Control District
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	Sate Water Resources Control Board
TAC	Toxic Air Contaminants
TBACT	Toxics-Best Available Control Technology
TEG	Tri-ethylene glycol
TMDL	Total Daily Maximum Load
TUA	Temporary Use Area
UCMP	University of California Museum of Paleontology
UPRR	Union Pacific Railroad
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
USD	Unified School District
USDA	US Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
UTM	Universal Transverse Mercator
V/C	Volume to Capacity

VFD	Variable Frequency Drive
VOC	Volatile organic compound
VPFS	Vernal Pool Fairy Shrimp
VPTS	Vernal Pool Tadpole Shrimp
WDR	Waste Discharge Requirements
Wild Goose	Wild Goose Storage, Inc.
WMA	Wildlife Management Area
WWD	Westland's Water District

THIS PAGE IS INTENTIONALLY BLANK

<b>PEA Checklist Cross-Reference</b>	
<b>CPUC PEA Checklist for Underground Gas Storage Facilities (Draft, June 2008)</b>	<b>Gill Ranch Gas Storage Project PEA Contents</b>
Executive Summary	1 Executive Summary
1 Purpose and Need	2 Purpose and Need
2 Project Details	3 Project Description
2.1 Project Background	3.3 Project Overview
2.2 Project Ownership	3.3 Project Overview
2.3 Site Description	3.1 Project Location and 3.5
2.4 Existing Facilities	3.2 Existing Gas and Electric Systems
2.5 Existing Operations (if expansion of existing storage)	Inapplicable; not an expansion of existing storage
2.6 Project Components	3.5 Project Components
2.7 Facility and Route Selection and Evaluation Process	3.5 Project Components
2.8 Production Information	3.5 Project Components
2.9 Reservoir Information	3.5 Project Components
2.10 Project Land Requirements	3.6 Right of Way Requirements
2.11 Right-of-Way Requirements	3.6 Right of Way Requirements
2.12 Construction	3.7 Construction
2.13 Operation and Maintenance	3.8 Operations and Maintenance Procedures
2.14 Future Plans	3.5 Project Components
2.15 Regulatory Requirements	3.11 Required Permits and Plans
3 Environmental Setting	Addressed for each resource issue area in Section 4.0 Environmental Assessment
4 Environmental Impact Assessment	4 Environmental Assessment
4.1 Aesthetics	4.2 Aesthetics
4.2 Agricultural Resources	4.9 Land Use, Planning and Agriculture

<b>PEA Checklist Cross-Reference</b>	
<b>CPUC PEA Checklist for Underground Gas Storage Facilities (Draft, June 2008)</b>	<b>Gill Ranch Gas Storage Project PEA Contents</b>
4.3 Air Quality	4.3 Air Quality
4.4 Biological Resources	4.4 Biological Resources
4.5 Cultural Resources	4.5 Cultural Resources
4.6 Geology, Soils, and Seismicity	4.6 Geology, Soils, and Paleontology
4.7 Hazards and Hazardous Materials	4.7 Hazards and Hazardous Materials
4.8 Hydrology and Water Quality	4.8 Hydrology and Water Quality
4.9 Land Use and Planning	4.9 Land Use, Planning and Agriculture
4.10 Mineral Resources	4.10 Mineral Resources
4.11 Noise	4.11 Noise
4.12 Population and Housing	4.12 Population and Housing
4.13 Public Services	4.13 Public Services/ Utilities and Service Systems/ Recreation
4.14 Recreation	4.13 Public Services/ Utilities and Service Systems/ Recreation
4.15 Transportation and Traffic	4.14 Transportation and Traffic
4.16 Utilities and Services Systems	4.13 Public Services/ Utilities and Service Systems/ Recreation
4.17 Cumulative Analysis	4.15 Cumulative Analysis
4.18 Growth – Inducing Impacts, if Significant	Growth-inducing impacts are not significant. Refer to Section 4.12 Population and Housing
5 Detailed Discussion of Significant Impacts	4.0 Environmental Assessment
5.1 Mitigation Measures to Minimize Significant Effects	Mitigation Measures are addressed in individual issue area sections, where applicable
5.2 Growth- Inducing Impacts	4.12 Population and Housing
6 Alternatives	5.0 Alternatives
6.1 Factors used in selecting Alternatives	Factors are described for individual Project



<b>PEA Checklist Cross-Reference</b>	
<b>CPUC PEA Checklist for Underground Gas Storage Facilities (Draft, June 2008)</b>	<b>Gill Ranch Gas Storage Project PEA Contents</b>
	components in Section 5.0
6.2 Alternatives Evaluated in the PEA	Alternatives evaluated in this PEA are addressed for individual Project components in Section 5.0
Table ES-1 Summary Impacts and Mitigation Measures	Executive Summary Table 1-1
Table ES-1 Summary of Alternatives	Section 1 Executive Summary
Table 2.8.2-1 Major Construction Phases and Workforce	Various tables in Section 3.7 Construction
Table 2.8.2-2 Construction Schedule	3.7 Construction and Figure 3.7-1
Table 2.8.2-3 Construction Activity, Equipment and Workforce	Various tables in Section 3.7 Construction
Table 2.8.2-4 Construction Equipment Type and Use	Various tables in Section 3.7 Construction
Table 2.8.4-1 Construction Access Roads – Type, Description, Acreage	3.7 Construction

THIS PAGE IS INTENTIONALLY BLANK