WILD GOOSE PHASE 3 GAS STORAGE EXPANSION

SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

– Draft –

JUNE 2010

Prepared for:

State of California
Public Utilities
Commission

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Executive Summary

Introduction

The Wild Goose Gas Storage Project involves past initial development and expansion, and potential future development, of a depleted and formerly abandoned underground natural gas field (the Wild Goose Gas Field, or field) in Butte County, California. The field is used for natural gas storage by Wild Goose Storage, LLC (Wild Goose, or the applicant). Initial development of the Wild Goose Gas Storage Facility (Wild Goose Facility) took place between April 1997 and April 1999 (the Base Project). An expansion (the Phase 2 Expansion) was approved and took place starting in 2002. The Base Project was approved by the California Public Utilities Commission (CPUC) through Certificate of Public Convenience & Necessity (CPCN) Decision 97-06-091, which was amended by Decision 02-07-036 for the Phase 2 Expansion. To evaluate the Base Project under the California Environmental Quality Act (CEQA), an Initial Study and Mitigated Negative Declaration were prepared in 1997; for the Phase 2 Expansion, the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR) was prepared; the 2002 EIR was certified in 2002.

Wild Goose is now proposing the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion), to extend the Wild Goose Facility's capabilities beyond those currently certificated. The expansion would allow fuller use of the injection, withdrawal, and storage capacity of the most suitable natural gas storage reservoirs in the field. The expansion would increase cumulative total injection capacity from 450 million cubic feet per day (MMcfd) to approximately 650 MMcfd, increase withdrawal capacity from 700 to approximately 1,200 MMcfd, and increase storage from approximately 20 billion cubic feet (Bcf) to 50 Bcf.

Wild Goose submitted an Application to Amend its CPCN and an accompanying Proponent's Environmental Assessment (PEA) to the CPUC on April 24, 2009. The application and accompanying PEA identified the proposed expansion and included a preliminary assessment of potential environmental impacts. During the review of the PEA and application, the CPUC requested clarification, and through a series of responses, the applicant submitted additional data.

This supplement to the 2002 EIR (Supplemental EIR, or SEIR) has been prepared to include information and analysis for the construction and operation of the Phase 3 Expansion; present mitigation measures which, if adopted by the CPUC, will avoid or minimize adverse significant environmental impacts; and describe changes in circumstances or new information since the 2002 EIR was prepared.

Background

Phase 3 Expansion Description

The Phase 3 Expansion would increase the physical footprint and current operations at the Wild Goose Facility, and would consist of the following four components:

1. Construction, operation, and maintenance of an expansion to the Remote Facility Site (RFS) in Butte County;
2. Reconductoring of up to 6 miles of electrical distribution line east of the RFS, by PG&E, in Butte County;
3. Modifications to the Delevan Interconnect Site in Colusa County; and

4. PG&E's installation of up to three new hot tapped pipeline connections between the Wild Goose Connection Pipeline and PG&E Lines 400 and 401, near the location of the Delevan Interconnect Site (in Colusa County), to increase permitted storage and operational capacity.

The Phase 3 Expansion would increase the current injection capacity of the Wild Goose Facility from 450 to 650 million cubic feet per day (MMcfd), the withdrawal capacity from 700 to 1,200 MMcfd, and the working gas storage capacity from 29 to 50 Bcf. Elements of the Phase 3 Expansion would be consistent with the 2002 facility improvements, and would extend facility operations in a similar way.

Table ES-1 Wild Goose Maximum Storage, Injection, and Withdrawal Limits for the Base Project, Phase 2 Expansion, and Phase 3 Expansion

	Initial (Base Project)	Existing	Proposed
Storage	14 Bcf	29 Bcf	50 Bcf
Injection	80 MMcfd	450 MMcfd	650 Mmcfd
Withdrawal	200 MMcfd	700 MMcfd	1,200 MMcfd

A map showing the vicinity of the Phase 3 Expansion is presented in Figure ES-1.

Objectives of Phase 3 Expansion

The continuing objective of the Wild Goose Facility is to provide highly flexible natural gas storage services to a variety of customers, which includes gas utilities, electric utilities, independent electric generators, gas marketers, gas producers, industrial gas users, and other wholesale and retail gas customers. The purpose of the Phase 3 Expansion is to capture the incremental storage, injection and withdrawal capacity of the natural gas storage facility to meet customer demands into the foreseeable future.

The Phase 3 Expansion would work towards achieving several goals related to the statewide need for additional natural gas supplies, as articulated by the CPUC. These goals include:

1. Ensuring the reliability of natural gas supplies to the State;
2. The development of in-state natural gas storage facilities, identified as a "key action" in the CPUC's Energy Action Plan II (2005); and
3. Ensuring the availability in the State of low-carbon fossil fuels, as a means of working towards the goals of California Assembly Bill 32 (the California Global Warming Solutions Act of 2006).

Approach to Environmental Review

As lead agency, the CPUC must determine through the CEQA process whether the Phase 3 Expansion would result in significant impacts to the environment, and whether those impacts could be avoided, eliminated, compensated for, or reduced to less than significant levels. This SEIR will become part of a body of evidence that the CPUC will use in deciding whether to approve Wild Goose's application.

Base map source: Bing Maps, 2010

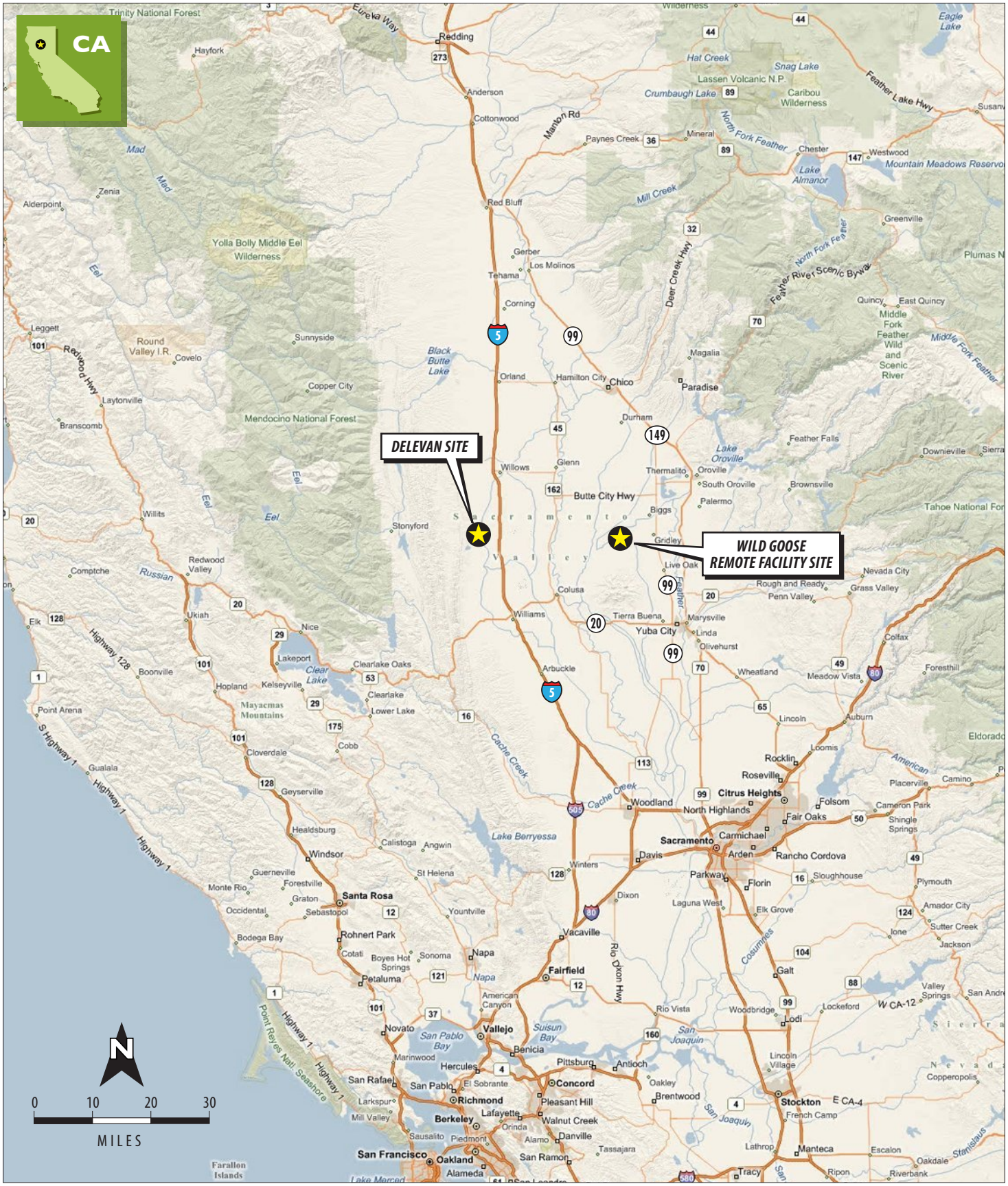

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Figure ES-1

Project Vicinity

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The CPUC is seeking comments on this Draft SEIR. The CPUC will respond to comments on the Draft Supplemental EIR, conduct additional analysis as necessary, and modify mitigation measures as appropriate. If the CPUC approves the Phase 3 Expansion, CPUC staff would closely monitor Wild Goose's compliance with the requirements imposed by the mitigation measures.

Purpose of the Supplemental EIR

This Supplemental EIR provides information and analysis for the Phase 3 Expansion and describes changes in circumstances or new information available since the 2002 EIR was prepared. According to CEQA Guidelines Section 15162, a lead agency may prepare an SEIR if modifications to a previous project would require inclusion of new information, or changes to the circumstances under which the project is undertaken occur, such that new, potentially significant impacts are identified and must be addressed. According to CEQA Guidelines Section 15163, an SEIR may be prepared when only minor additions or changes would be necessary in order for the previous EIR to adequately apply to the project in the changed situation. Considerations in preparing an SEIR include the following CEQA Guidelines from Section 15163:

- The supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised;
- A supplement to an EIR will be given the same kind of notice and public review as is given to a draft EIR under the CEQA Guidelines;
- A supplement to an EIR may be circulated by itself without recirculating the previous draft or final EIR; and
- When the agency decides whether to approve the project, the decision-making body will consider the previous EIR as revised by the SEIR. A finding will be made for each significant effect shown in the previous EIR as revised.

As required by CEQA, this SEIR examines the expected additional individual and cumulative impacts of the proposed expansion, and identifies ways to minimize potential adverse impacts (mitigation measures).

The CPUC is the lead agency in preparing this SEIR, and has principal responsibility for approving or denying the Phase 3 Expansion. The CPUC has prepared this SEIR to provide the public and responsible agencies with information about the potential effects of the additional expansion on the local and regional environment. This SEIR was prepared in compliance with CEQA and the CEQA Guidelines.

Notice of Preparation

In accordance with the CEQA Guidelines, the CPUC prepared a Notice of Preparation (NOP) for this SEIR (see Appendix B). The NOP was mailed on October 7, 2009, to local, state, and federal agencies (see Appendix B for mailing list) and the State Clearinghouse for a 30-day review period. The NOP provided a general description of the Phase 3 Expansion and a summary of the main regulations and permit conditions applicable to its development and operation. The CPUC received one comment letter on the NOP, from the Central Valley Regional Water Quality Control Board. This comment letter is presented in Appendix B.

Areas of Potential Controversy

One area of potential controversy was identified for the Phase 3 Expansion through the public agency participation process. This area of potential controversy is impacts from conversion of farmland to the expanded RFS use.

Impacts and Mitigation Measures

The CPUC concluded that the Phase 3 Expansion has the potential to result in significant environmental impacts. Because potentially significant impacts were only identified for Air Quality and Biological Resources, the SEIR format was considered appropriate for the Phase 3 Expansion, and only those two resource topics are included in the main text of the following discussion. Less than significant impacts associated with the following resource areas are discussed in Appendix A, Focusing Initial Study:

A.1 Aesthetic Resources
A.2 Agriculture and Forestry Resources
A.3 Cultural Resources
A.4 Geology, Soils, and Mineral Resources
A.5 Hazards and Hazardous Materials
A.6 Hydrology and Water Quality
A.7 Land Use and Planning
A.8 Noise
A.9 Population and Housing
A.10 Public Services and Socioeconomics
A.11 Recreation
A.12 Transportation and Traffic
A.13 Utilities and Service Systems

Table ES-2, located at the end of this Executive Summary, summarizes the environmental impacts that could result from implementation of the Phase 3 Expansion. Table ES-2 also includes mitigation measures that have been identified to minimize or avoid these impacts, as revised or new mitigation measures. Any additional mitigation measures identified in the Focusing Initial Study analysis are also included in the table. Additions and deletions are marked in underline and strikeout text, respectively.

Cumulative and Growth-Inducing Impacts

The CEQA Guidelines require that potential cumulative impacts be assessed by developing either a list of past, present, and probable future projects that would produce related or cumulative effects in combination with the project, or a summary of projections contained in adopted general plans or related planning documents. The discussion of cumulative impacts in Chapter 4 of this Draft SEIR describes the potential cumulative impacts for each resource topic, updating information as necessary from the 2002 EIR. An analysis of whether the Phase 3 Expansion would result in growth-inducing impacts is also presented in Chapter 4.

Major Conclusions of the Draft SEIR

As discussed in this Draft SEIR, no significant and unavoidable environmental impacts have been identified that would result from construction and operation of the Phase 3 Expansion. Impacts of the Phase 3 Expansion identified in the main text of the SEIR that would be less than significant after implementation of mitigation measures include the following:

Air Quality. Impacts were identified related to the potential of the Phase 3 Expansion to conflict with or obstruct implementation of the applicable air quality plan; and to generate greenhouse gas emissions, either directly or indirectly.

Biological Resources. Impacts were identified related to the potential of the Phase 3 Expansion to have an effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, polices, or regulations, or by the

California Department of Fish and Game or U.S. Fish and Wildlife Service; to have an effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; and to interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The mitigation measures that would be required to reduce these impacts to less-than-significant levels are identified and described in Sections 3.2 and 3.3 of the SEIR.

Impacts of the Phase 3 Expansion identified in the Focusing Initial Study (Appendix A of the SEIR) that would be less than significant after implementation of mitigation measures include the following:

Agriculture and Forestry Resources. Impacts were identified related to the potential of the Phase 3 Expansion to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and monitoring Program of the California Resources Agency, to non-agricultural use.

Cultural Resources. Impacts were identified related to the potential of the Phase 3 Expansion to cause a change in the significance of a historical resource as defined in Section 15064.5; and to cause a change in the significance of an archaeological resource pursuant to Section 15064.5.

Hazards and Hazardous Materials. Impacts were identified related to the potential of the Phase 3 Expansion to create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Hydrology and Water Quality. Impacts were identified related to the potential of the Phase 3 Expansion to place within a 100-year flood hazard area structures which would impede or redirect flood flows; and to expose people or structures to a risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Noise. Impacts were identified related to the potential of the Phase 3 Expansion to expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

The mitigation measures that would be required to reduce these impacts to less-than-significant levels are identified and described in Appendix A of the SEIR.

In addition, Table ES-2, Summary of Impacts, provides a summary of all identified Phase 3 Expansion impacts and associated mitigation measures.

Opportunities for Public Comment

The CPUC invites all interested persons to provide comments on the accuracy and completeness of the SEIR. Comments can be provided in writing to the CPUC at the address identified on the cover sheet of this SEIR. A public meeting will also be held to obtain public and agency input on the Draft SEIR. All written comments on the Draft SEIR received during the public comment period will be addressed in the Final SEIR.

Draft Mitigation Monitoring and Reporting Program

A draft Mitigation Monitoring and Reporting Program (MMRP) for the Phase 3 Expansion is contained in Chapter 6 of this SEIR. A final MMRP will be prepared if the CPUC approves the Phase 3 Expansion. The final MMRP will incorporate any changes to the Phase 3 Expansion or mitigation measures that are made as a result of the public review process and consideration of the Phase 3 Expansion by the CPUC.

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
Aesthetics	*No new impacts or mitigation measures*		
Agriculture and Forestry Resources	Potential to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and monitoring Program of the California Resources Agency, to non-agricultural use.	PHASE 3 MM AG-1. The applicant will purchase or obtain compensatory mitigation for the conversion of Prime Farmland and Farmland of Statewide Importance at a ratio of one unit of mitigation to one unit of agricultural land converted. Compensatory mitigation options for the conversion of FMMP designated farmland include one or more of the following: 1. Purchase of mitigation credits from an agricultural mitigation bank located within Butte County; 2. Placement of an easement or other restrictions to non-agricultural uses on existing agricultural land in Butte County; and/or 3. Purchase of wetlands mitigation credits from an appropriate wetlands mitigation bank at a ratio of two units of mitigation to one unit of agricultural land converted.	Less Than Significant
Air Quality and Greenhouse Gas Emissions	Potential to conflict with or obstruct implementation of the applicable air quality plan.	PHASE 3 MM AIR-1: To address potentially significant construction emissions at the RFS and the PG&E reconductoring component area, the applicant and PG&E will apply appropriate BCAQMD Best Available Mitigation Measures (BAMMs) and/or offsite measures such as purchase of offsets for NO_x and PM_{10} emissions, as presented in the BCAQMD CEQA Air Quality Handbook (2008), in order to reduce construction emissions to a less than significant level. This measure will apply to emissions of NO_x and PM_{10} in the years 2011 and 2012. The BCAQMD will include appropriate permit conditions on the Phase 3 Expansion ATC for the RFS to ensure that BAMMs and/or offsite measures such as purchase of offsets for NO_x and PM_{10} emissions chosen are adequate and applied.	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		PHASE 3 MM AIR-2: To address potentially significant construction emissions at the Delevan Site, and in coordination with the Colusa County Air Pollution Control District (CCAPCD), the applicant will purchase NO_x offsets for exceedances over the CCAPCD threshold limit during the construction period. Based on calculations of NO_x pounds per day emissions for the construction phase, total NO_x emissions are anticipated to exceed the CCAPCD limit of 25 pounds per day by a total of approximately 925 pounds over the construction period. The applicant will be required to purchase NO_x offset credits for this amount as part of Authority to Construct permit conditions, and provide documentation of the offsets purchase to the CPUC and the CCAPCD prior to construction activities.	Less Than Significant
		PHASE 3 MM AIR-3: To address potentially significant operations emissions at the RFS, the applicant will purchase offsets for NO_x and ROG emissions, either from existing market-based offsets within Butte County, or from the BCAQMD community offset bank, as available. Based on the calculations of NO_x and ROG pounds per day emissions for the construction phase, these emissions are anticipated to exceed the Level B BCAQMD 25 pounds per day limit by a total of approximately 23 tons of NO_x and 15 pounds of ROG over the entire construction period. The BCAQMD will include appropriate permit conditions in the Phase 3 Expansion Permit to Operate to ensure that offsets for NO_x and PM_{10} emissions are adequate and applied.	Less Than Significant
	Potential to generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	PHASE 3 MM AIR-4: Prior to construction of the Phase 3 Expansion, the applicant will enter into an agreement with PG&E to participate in PG&E's Climate Smart™ Program, to provide 50 percent of the electricity used at the RFS annually (approximately 900 tons CO_2e) from renewable energy sources. A copy of the agreement between the applicant and PG&E will be provided to CPUC prior to the start of operation of the expanded RFS. Annual reports on the applicant's participation in the program will also be submitted by the applicant to CPUC.	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		PHASE 3 MM AIR-5: Until the applicant can participate in an appropriate, verifiable, state-wide cap and trade program, the applicant will obtain and retire, by the end of each year of Phase 3 Expansion construction and operation, sufficient carbon credits to fully offset GHG emissions ("carbon offsets") below the 10,000 metric tons CO_2e level. Renewable Energy Certificates (RECs) and TRECS (Tradable RECs) do not qualify as GHG offsets. Carbon offsets will apply to Phase 3 Expansion construction GHG emissions (amortized over 30 years) as well as direct operational GHG emissions. Prior to completion of project construction, the applicant will prepare a detailed written summary of the carbon offsets, including offset type, location, calculation methodology protocol employed, and registration status. In addition, prior to completion of project construction, the applicant will provide to CPUC an independent verification opinion statement(s) for the carbon offsets, from a verification body registered with the California Climate Action Registry, ANSI, or the CARB. Offsets purchased from a third party or developed by the applicant must meet at least one of the following requirements: 1. Offset project is located within California; 2. Offset project is located in jurisdictions that hold current, specific agreements with California (such as the Climate Action Reserve), or exist in the context of an ISO-compliant regional trading system like that being developed in the Western Climate Initiative or other regional program; and/or 3. Offset project is an internally developed reduction measure following a recognized protocol (such as the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange). Some potential offset projects of this type include: • Fuel switching in applicant-owned equipment; • Energy efficiency upgrades beyond business as usual;	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		• Implementation of a quantifiable carpooling program above and beyond what is currently in place; and • Sequestration and/or destruction of GHG conducted in accordance with any protocol available at the time of construction from the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange. Any carbon offset either purchased or developed by the applicant through another entity will either be registered in, or developed in accordance with a protocol for, an established Carbon Reduction/Sequestration Project. Established projects and protocols include those provided by recognized organizations, such as the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange, that can provide a reasonable level of assurance that GHG reductions are real, additional, permanent, and verifiable. If the applicant were to develop a carbon offset project without registering it with one of the above-referenced registration bodies, the applicant will demonstrate to CPUC that the offset satisfies the four additionality tests as outlined in the UNFCC Additionality Tool, and will obtain an independent evaluation by a qualified third party confirming that the offset meets additionality testing requirements. Prior to the start of project operation, the applicant will submit a project design document describing baseline procedures and emissions levels as well as projected levels of emissions reductions/offsets to CPUC. The design document will include the requirement that the applicant submit a report annually to CPUC documenting the previous year's offset activities and purchases. The annual report will be independently verified by an ANSI-accredited GHG emissions reduction verification body.	

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
Biological Resources	Potential to have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, polices, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	PHASE 3 MM BIO-1: The following general measures will reduce impacts to all sensitive wildlife species during Phase 3 Expansion construction activities: 1. Preconstruction surveys will be conducted in suitable habitat in and adjacent to the Phase 3 Expansion areas at the RFS and the Delevan Site during the appropriate survey windows. Preconstruction surveys will be conducted in suitable habitat no more than 30 days in advance of construction. These surveys shall be conducted using standard approved methods, including the California Burrowing Owl Consortium Survey Protocol and Mitigation Guidelines (1993), the Swainson's Hawk Technical Advisory Committee Methodology for Nesting Surveys in California's Central Valley (TAC 2000), and the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Species (1996). 2. Construction employees shall strictly limit activities, including movement of vehicles, equipment, and construction materials, to the Phase 3 Expansion footprint and designated staging areas and routes of travel within the Phase 3 Expansion footprint. 3. The applicant shall not stockpile brush, loose soils, excavation spoils, or other similar debris material within sensitive habitats. 4. Sensitive plant surveys will be conducted prior to construction within suitable habitat in and adjacent to Phase 3 Expansion work areas and during the appropriate survey window. 5. Where sensitive plants occur within the construction area, the work area will be adjusted in order to minimize impacts. 6. Exclusion fencing will be provided to protect sensitive plants that occur within 50 feet of construction work areas.	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		7. A qualified biologist will monitor construction to ensure that no sensitive wildlife species inadvertently enter the work area. Should a sensitive species be found, the appropriate resource agencies will be notified within 24 hours (USFWS and CDFG). Animals will be allowed to passively exit the work areas, and construction will be halted as needed to accomplish this.	
		PHASE 3 MM BIO-2: The following specific measures will reduce impacts to the wildlife species described below during Phase 3 Expansion construction activities: 1. *Reptiles and Amphibians*. The following measures will be supplemented with measures prescribed in the Phase 2 Expansion USFWS Biological Opinion and CDFG Take Permit for the giant garter snake: • Preconstruction surveys for giant garter snake (RFS, reconductoring area, and Delevan Site), northwestern pond turtle (RFS and Delevan Site), and western spadefoot toad (RFS and Delevan Site) will be performed within 24 hours prior to construction. If a giant garter snake or any other sensitive species is found, it will be allowed to escape on its own, or will be removed by an authorized biologist and relocated to suitable habitat. USFWS and CDFG will be notified whenever a sensitive reptile or amphibian is handled by an authorized biologist. • Onsite monitoring biologists will obtain authorization from the USFWS and CDFG to handle the giant garter snake for the purposes of removing individuals during construction and operation of the Phase 3 Expansion components. • A qualified biologist will monitor construction to ensure that no sensitive reptile or amphibian species inadvertently enter the work area.	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		• Other than isolation dike construction and irrigation flow culvert installation, earthwork adjacent to flooded rice fields and other potential habitat will be confined to May through September unless otherwise authorized by the USFWS and CDFG. 2. *Raptors and Other Sensitive Nesting Species.* Preconstruction surveys will be conducted in suitable habitat at the RFS and Delevan Site to determine whether raptors or other sensitive bird species are nesting within or near the Phase 3 Expansion construction areas. The construction schedule or activities will be modified during nesting periods to preclude impacts. The general bird breeding season for this area is late February to early July. If it is not possible to adjust the schedule or construction activity, the following measures will be implemented: • Construction within 0.5 miles of active Swainson's hawk nests will be avoided between April 15 and August 1, if feasible. If not feasible, nesting hawks within 0.5 miles will be monitored, construction activities will be halted if signs of disturbance (i.e., birds show signs of upset, repeatedly leaving the nest as a result of construction) are noted as determined by a qualified biologist, and CDFG will be consulted to determine possible options. • A minimum 500-foot buffer will be maintained for other tree-nesting species such as white-tailed kites and the loggerhead shrike until after the young have fledged. • A minimum 250-foot buffer will be maintained for ground-nesting or shrub-nesting species (northern harriers, tricolored blackbird, black tern, white-faced ibis, burrowing owl, and loggerhead shrikes) until after nesting is complete.	

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		• Operations blowdowns and emergency shutdown valve blowdowns shall be routed into silencers. • The applicant will reduce the gas/volume in the pipeline to a minimum prior to a planned maintenance blowdown. 3. *Burrowing Owls.* Detailed preconstruction surveys will be conducted at the RFS and Delevan Site within 30 days prior to construction by a qualified biologist for burrowing owl within suitable habitat prior to the breeding season (February 1 through August 31). All areas within 250 feet of the Phase 3 Expansion areas at the RFS and Delevan Site, including road shoulders, will be surveyed. Where Phase 3 Expansion ground-disturbing activities will occur prior to the burrowing owl breeding season, all burrows, holes, crevices, or other cavities in suitable habitat in the Phase 3 Expansion areas at the RFS and Delevan Site, within the limits of proposed ground disturbance, will be thoroughly inspected by a qualified biologist before being collapsed. This will discourage owls from breeding on the construction site. Other species using burrows will be relocated prior to collapsing burrows. To the extent feasible, Phase 3 Expansion construction at the RFS and Delevan Site will avoid active burrows. If it is not possible to avoid burrowing owls, the following measures will be implemented: • If burrowing owls occur within the proposed construction area, a 250-foot exclusion zone will be maintained around the burrows until relocation is complete or until chicks have fledged. Passive relocation will be used during the non-breeding season (September 1 through January 31) if it is determined that construction activities would disturb owls. Passive relocation will include installing one-way doors on the entrances of burrows located within the Phase 3 Expansion area.	

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		• The occurrence and location of any burrowing owl will be documented by the authorized biologist, who will report all incidents of disturbance or harm to burrowing owls within 24 hours to the appropriate resource agencies (USFWS and CDFG). • Under the supervision of a qualified biologist, burrows within the proposed construction area will be excavated using hand tools and then refilled to prevent reoccupation. If any owls are found during the excavation, the excavation will cease and the owls will be allowed to escape. • For each burrow excavated, one natural or artificial burrow will be provided in the adjacent habitat outside the 250-foot buffer zone.	
		PHASE 3 MM BIO-3: For the reconductoring component area, if any vegetation removal occurs during the typical avian nesting season (February 1 – August 31), a pre-disturbance survey for common and special-status bird species protected under the MBTA and California Fish and Game Codes will be conducted, using standard approved methods, including the California Burrowing Owl Consortium Survey Protocol and Mitigation Guidelines (1993) and the Swainson's Hawk Technical Advisory Committee Methodology for Nesting Surveys in California's Central Valley (TAC 2000). The survey will be conducted by a qualified biologist no more than two weeks prior to the onset of vegetation removal. If active nests are found within or adjacent to proposed work areas during the avian nesting season, disturbance or removal of the next will be avoided until the young have fledged and the nest is no longer active. The project biologist will determine the appropriate buffer distance between work areas and active nests in coordination with the CDFG and depending on the species, site conditions, and proposed work activities near the active nest.	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
	Potential to have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	PHASE 3 MM BIO-4: The following measures will reduce impacts related to wetland fill at the RFS during Phase 3 Expansion construction activities: 1. Erosion and sediment control measures (e.g., silt fencing, erosion control fabric or other measures) will be implemented at all locations where construction occurs within or directly adjacent to aquatic features. 2. Sediment stockpiling will be a minimum of 50 feet from wetland/drainage systems. 3. Loss of wetland habitat will be compensated at an appropriate ratio. This ratio will likely be 2:1, but will be determined by resource and permitting agencies (USACE, USFWS, and CDFG) during consultation.	Less Than Significant
		PHASE 3 MM BIO-5: For the reconductoring component area, work will take place from existing paved surfaces or other maintained areas that lack wetland habitats. For the wetland areas that have been identified in the reconductoring Biological Assessment (TRC 2010) along West Evans Reimer Road and Pennington Road, the following measures will be taken: 1. A wetlands biologist will delineate the edges of each wetland area using USACE delineation methodology (USACE, 1987). Once wetland boundaries have been accurately identified, a 100-foot buffer area will be established around each wetland area. Buffer areas will be demarcated with lath and flagging, and no construction materials, equipment or vehicles will be permitted in this area. 2. Erosion and sediment control measures described under MM BIO-4 will be implemented to protect wetland habitats.	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
	Potential to interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	PHASE 3 MM BIO-6: The following measures will reduce impacts to downstream fisheries and aquatic habitat at the RFS during Phase 3 Expansion construction activities: 1. The applicant will participate in ongoing consultations with CDFG and USFWS to establish a rate of withdrawal such that unacceptable impacts to downstream fisheries do not occur. To this end, the applicant will adhere to the water withdrawal rate, volume, and timing established through the agency consultation process. The applicant will also submit documented evidence that the stipulated conditions of water withdrawal have been met to both CDFG and USFWS. 2. In coordination with CDFG and USFWS, the applicant shall conduct downstream monitoring to verify that withdrawal volume does not adversely impact fisheries or the aquatic life components that support special status aquatic species.	Less Than Significant
Cultural Resources	Potential to cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.	PHASE 3 MM CULT-1: To avoid impacts to unknown historical resources in the area of the reconductoring component, PG&E or its contractor will, prior to and during reconductoring activities: 1. Retain a qualified archeologist to conduct a cultural resources survey to identify all potentially eligible historic resources present on the surface of the reconductoring site. The survey will be conducted at 10 meter intervals and any cultural resources that are identified will be subsequently avoided during construction. All cultural resources identified will be recorded on Department of Parks and Recreation (DPR) 523 series forms and evaluated for their eligibility for inclusion in the NRHP and CRHR. The archaeologist will clearly mark the boundaries of any identified resources, including an additional 50-foot buffer area, around all identified sites, both on the ground and on construction maps. These boundaries will serve as construction exclusion zones where no reconductoring activities will be undertaken. 2. Retain an independent qualified archeologist for the duration of	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		the reconductoring, to serve as a periodic site monitor during ground-disturbing and other activities that may affect historic resources at the site. The timing and frequency of monitoring will be at the discretion of the archeologist. 3. Notify construction supervisory personnel of the existence of all marked historical resources sites, and instruct supervisory personnel to keep personnel and equipment away from these areas.	
	Potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	PHASE 3 MM CULT-2: To avoid impacts to known and unknown archeological resources in the area of the reconductoring component, PG&E or its contractor will, prior to and during reconductoring activities: 1. Retain a qualified archeologist to conduct an archaeological resources survey to identify all potentially eligible archaeological resources present on the surface of the reconductoring site. The survey will be conducted at 10 meter intervals and any archaeological resources that are identified will be subsequently avoided during construction. All archaeological resources identified will be recorded on DPR 523 series forms and evaluated for their eligibility for inclusion in the NRHP and CRHR. The archaeologist will clearly mark the boundaries of any identified resources, including an additional 50-foot buffer area, around all identified sites, both on the ground and on construction maps. These boundaries will serve as construction exclusion zones where no reconductoring activities will be undertaken. 2. Retain an independent, qualified archeologist for the duration of the reconductoring, to serve as a periodic site monitor during ground-disturbing and other activities that may affect archaeological resources at the site. The timing and frequency of monitoring will be at the discretion of the archeologist. 3. Notify construction supervisory personnel of the existence of all the indentified and marked prehistoric site, as well as other	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		marked archaeological sites, and instruct supervisory personnel to keep personnel and equipment away from these areas.	
Geology, Soils, and Mineral Resources	*No new impacts or mitigation measures*		
Hazards and Hazardous Materials	Potential to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Mitigation Measure 3.7-3. ~~At the end of each injection cycle~~ In the fall of each year, WGSI shall conduct surface gas monitoring and vegetation inspections at each abandoned well within the original productive area. If gas is detected, samples will be collected, if possible, and analyzed to determine its source or origin. If a leak is indicated by the data, the necessary remedial actions will be implemented consistent with DOGGR procedures outlined in California Code of Regulations § 1723 et. seq. All monitoring and sampling results will be submitted to the DOGGR. Any surface disturbance associated with implementing remedial actions shall be conducted consistent with the wetland impact minimization and mitigation measures specified under Impact 3.4- 4 on page 3.4-27.	Less Than Significant
		PHASE 3 MM HAZ-1: Prior to Phase 3 Expansion construction activities, the applicant will ensure the Wild Goose Purging of Natural Gas Pipeline Systems Practice incorporates and includes measures for implementing all recommendations addressing pipeline purging procedures issued by the U.S. Chemical Safety and Hazard Investigation Board and adopted into the National Fuel Gas Code, and submit the revised practice to CPUC for review and confirmation.	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		PHASE 3 MM HAZ-2: PG&E shall follow all applicable local, state, federal, and industry-specific regulations and procedures during hot tapped pipeline connection installation, and shall ensure that the following measures are taken: 1. Ensure that all appropriate local (Colusa County) permits and approvals have been obtained for welding and hot tapping; 2. Ensure that construction personnel working on the hot tapped pipeline connection installation are competent and have been properly trained and qualified in the use of the hot tap equipment; 3. Ensure that construction personnel working on the hot tapped pipeline connection installation review detailed, written, job-specific hot tapping procedures prior to starting construction activities; 4. Communicate safety procedures clearly to all construction personnel prior to hot tap activities, including fire protection, emergency response, and other appropriate procedures and instructions; 5. Ensure that at least one worker has been designated as a dedicated fire watch, trained for fire detection and prevention, equipped with a suitable fire extinguisher, and equipped with appropriate equipment to communicate with personnel working in the area; 6. Ensure equipment is in good working condition; 7. Install appropriate barricades and warning signs prior to hot tapping activities; 8. Establish procedures for isolation of the work area in the event of an emergency;	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
		9. Ensure provisions are made for an easily accessible means of egress from the work area; 10. Inspect the hot tapping location prior to hot tapping activities and confirm pipeline diameter, wall thickness, evidence of corrosion, and general soundness; 11. Use combustible gas and oxygen detectors during hot tapping procedures as necessary to ensure that hot tapping activities do not take place if vapor/air or vapor/oxygen mixtures in piping or equipment are near or within the flammable explosive range; 12. Follow manufacturer's instructions and directions for operating the hot tapping equipment; and 13. Ensure provisions are made to assure that adequate containment is available to control liquids and vapors trapped within the hot tapping equipment which could be released upon removal of the machine after work is completed.	Less Than Significant
Hydrology	Potential to place within a 100-year flood hazard area structures which would impede or redirect flood flows.	PHASE 3 MM HYDRO-1: Phase 3 Expansion components at the RFS, reconductoring component area, and Delevan Site would be engineered to withstand stresses associated with their proximity to waterways, and would be designed to withstand flooding associated with high ground water, agricultural activities, or overflow of canals during heavy rainstorms. Structures shall be constructed in compliance with the 2007 Uniform Building Code any other federal, state and local construction regulations.	Less Than Significant
	Potential to expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	*See PHASE 3 MM HYDRO-1, above.*	Less Than Significant

Table ES-2 Summary of Impacts

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation
Land Use and Planning	*No new impacts or mitigation measures*		
Noise	Potential to expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	PHASE 3 MM NOI-1: The applicant will employ the following noise reduction and control practices during construction: • Unnecessary engine idling from construction equipment will be limited during construction hours. • Construction equipment specifically designed for low noise emissions (i.e., equipment that is powered by electric or natural gas engines as opposed to those powered by diesel or gasoline reciprocating engines) will be used as much as feasible. • Temporary enclosures or noise barriers (i.e. noise blankets) will be used around loudest pieces of equipment, as feasible. • Construction traffic will be routed away from residences and other sensitive receptors, as feasible. • Noise from back-up alarms (alarms that signal vehicle travel in reverse) in construction vehicles and equipment will be reduced by providing a layout of construction sites that minimizes the need for back-up alarms and using flagmen to minimize time needed to back up vehicles. As feasible, and in compliance with the applicant's safety practices and public and worker safety provisions required in the Occupational Safety and Health Standards for the Construction Industry (29 CFR Part 1926), the applicant may also use self-adjusting, manually adjustable, or broadband back-up alarms to reduce construction noise.	Less Than Significant
Population and Housing	*No new impacts or mitigation measures*		
Public Services and Socioeconomics	*No new impacts or mitigation measures*		
Recreation	*No new impacts or mitigation measures*		
Transportation and Traffic	*No new impacts or mitigation measures*		
Utilities and Services Systems	*No new impacts or mitigation measures*		

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1. Introduction

The Wild Goose Gas Storage Project involves past initial development and expansion, and potential future development, of a depleted and formerly abandoned underground natural gas field (the Wild Goose Gas Field, or field). The field is used for natural gas storage by Wild Goose Storage, LLC (Wild Goose or the applicant). The Wild Goose Gas Storage Project consists of the initial development between April 1997 and April 1999 (the Base Project) and a later expansion (the Phase 2 Expansion) of the Wild Goose Gas Storage Facility (Wild Goose Facility). The Base Project was approved by the California Public Utilities Commission (CPUC) through Certificate of Public Convenience and Necessity (CPCN) Decision 97-06-091. Decision 02-07-036 approved the Phase 2 Expansion. To evaluate the Base Project under the California Environmental Quality Act (CEQA) and CEQA Guidelines, an Initial Study and Mitigated Negative Declaration were prepared in 1997; for the Phase 2 Expansion, the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR) was prepared; the EIR was certified in 2002.

Wild Goose is proposing to expand its existing natural gas storage facility beyond the capabilities currently certified to more fully use the injection, withdrawal, and storage capacity of the most suitable natural gas storage reservoirs in the field, resulting in a cumulative total of approximately 650 million cubic feet per day (MMcfd) of injection, 1,200 MMcfd of withdrawal, and 50 billion cubic feet (Bcf) of storage capacity. This expansion is called the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion).

Wild Goose submitted an Application to Amend its CPCN and an accompanying Proponent's Environmental Assessment (PEA) to the CPUC on April 24, 2009. The application and accompanying PEA identified the proposed expansion and included a preliminary assessment of potential environmental impacts. During review of the PEA and application, the CPUC requested clarification, and through a series of responses, the applicant submitted additional data.

1.1 Purpose of this Supplemental EIR

This document supplements the 2002 EIR and is therefore a Supplemental EIR (SEIR). It provides information and analysis for the Phase 3 Expansion and describes changes in circumstances or new information available since the 2002 EIR was prepared. According to CEQA Guidelines Section 15162, a lead agency may prepare an SEIR if modifications to a previous project would require inclusion of new information, or changes to the circumstances under which the project is undertaken occur, such that new, potentially significant impacts are identified and must be addressed. According to CEQA Guidelines Section 15163, an SEIR may be prepared when only minor additions or changes would be necessary in order for the previous EIR to adequately apply to the project in the changed situation. Considerations in preparing an SEIR include the following CEQA Guidelines from Section 15163:

- The supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised;
- A supplement to an EIR will be given the same kind of notice and public review as is given to a draft EIR under the CEQA Guidelines;
- A supplement to an EIR may be circulated by itself without recirculating the previous draft or final EIR; and
- When the agency decides whether to approve the project, the decision-making body will consider the previous EIR as revised by the SEIR. A finding will be made for each significant effect shown in the previous EIR as revised.

As required by CEQA, this SEIR examines the expected additional individual and cumulative impacts of the proposed expansion, and identifies ways to minimize potential adverse impacts (mitigation measures).

The CPUC is the lead agency in preparing this SEIR, and has principal responsibility for approving or denying the Phase 3 Expansion. The CPUC has prepared this SEIR to provide the public and responsible agencies with information about the potential effects of the additional expansion on the local and regional environment. This SEIR was prepared in compliance with CEQA and the CEQA Guidelines.

1.2 Project Overview

1.2.1 Background

Initial development and construction of the Base Project was completed in April 1999. The Base Project included the following components:

- Construction and operation of a new Well Pad Site (including the injection and withdrawal of natural gas) atop the depleted Wild Goose Gas Field,
- Construction of a bi-directional pipeline (Storage Loop Pipeline) from the Well Pad Site to a new remote operating facility (Remote Facility Site [RFS]), and
- Construction of the RFS, from which all operations of the storage field could be managed and monitored (see Figure 1.2-1).

The CPUC's initial approval authorized use of one of the Wild Goose Gas Field's 12 gas storage zones (zone L-4), with a maximum storage of 14 Bcf of natural gas. The CPUC also required that the daily injection and withdrawal of gas into and from the Field be limited to 80 Mmcfd and 200 Mmcfd, respectively.

For the Phase 2 Expansion, Wild Goose completed construction or expansion of four main components:

- Expansion of the Well Pad Site,
- Construction of a second Storage Loop Pipeline,
- Expansion of the RFS, and
- Construction of the Wild Goose Connection Pipeline and Delevan Interconnect Facility.

Wild Goose's permitted storage capacity was increased to 29 Bcf, with daily injection and withdrawal rates of 450 Mmcfd and 700 Mmcfd, respectively.

1.2.2 Phase 3 Expansion Project

The Phase 3 Expansion would result in an increase in the physical footprint and current operations at the Wild Goose Facility, and would primarily consist of the following four components:

1. Construction, operation, and maintenance of an expansion to the Remote Facility Site (RFS) in Butte County;
2. Reconductoring of up to 6 miles of electrical distribution line east of the RFS, by PG&E, in Butte County;

3. Modifications to the Delevan Interconnect Site in Colusa County; and
4. PG&E's installation of up to three new hot tapped pipeline connections between the Wild Goose Connection Pipeline and PG&E Lines 400 and 401, near the location of the Delevan Interconnect Site (in Colusa County), to increase permitted storage and operational capacity.

The Phase 3 Expansion would increase the current injection capacity of the Wild Goose Facility from 450 to 650 MMcfd, the withdrawal capacity from 700 to 1,200 MMcfd, and the working gas storage capacity from 29 to 50 Bcf, as shown in Table 1-1. Elements of the Phase 3 Expansion would be consistent with the 2002 facility improvements, and would extend facility operations in a similar way.

Table 1-1 Wild Goose Maximum Storage, Injection, and Withdrawal Limits for the Base Project, Phase 2 Expansion, and Phase 3 Expansion

	Initial (Base Project)	Existing	Proposed
Storage	14 Bcf	29 Bcf	50 Bcf
Injection	80 MMcfd	450 MMcfd	650 Mmcfd
Withdrawal	200 MMcfd	700 MMcfd	1,200 MMcfd

The vicinity of the Phase 3 Expansion and the location of the RFS and the Delevan Site are shown in Figures 1-1 and 1-2, respectively.

1.2.3 Objectives of Phase 3 Expansion

The continuing objective of the Wild Goose facility is to provide highly flexible natural gas storage services to a variety of customers, which includes gas utilities, electric utilities, independent electric generators, gas marketers, gas producers, industrial gas users, and other wholesale and retail gas customers. The purpose of the Phase 3 Expansion is to capture the incremental storage, injection and withdrawal capacity of the natural gas storage facility to meet customer demands into the foreseeable future.

The Phase 3 Expansion would work towards achieving several goals related to the statewide need for additional natural gas supplies, as articulated by the CPUC. These goals include:

1. Ensuring the reliability of natural gas supplies to the State;
2. The development of in-state natural gas storage facilities, identified as a "key action" in the CPUC's Energy Action Plan II (2005); and
3. Ensuring the availability in the State of low-carbon fossil fuels, as a means of working towards the goals of California Assembly Bill 32 (the California Global Warming Solutions Act of 2006).

1.3 CPUC CPCN Application Process

In response to Wild Goose's application, the CPUC must decide whether to amend the existing CPCN to allow Wild Goose to expand its storage and operational capacity. The CPUC conducts two parallel processes when considering any application for a CPCN: an application process similar to a court proceeding, in which the CPCN considers whether the expansion is needed and is in the public interest, and an environmental review process under CEQA. The CPCN application process focuses on utility ratepayer and public benefit issues. Through this process, the CPUC determines whether a project meets the criteria for approval. An Assigned Commissioner (one of the CPUC's five appointed commission members) and an Administrative Law Judge (ALJ) supervise the process. The Commission's Natural Gas Policy Statement (R. 98-01-011) and related prior orders favor development of gas storage facilities by

non-utility companies. However, Wild Goose must demonstrate, during the application process, that the project would clearly provide public benefit. The application process is further described in the 2002 EIR.

1.4 EIR Process

As lead agency, the CPUC must determine through the CEQA process whether the Phase 3 Expansion would result in significant impacts to the environment, and whether those impacts could be avoided, eliminated, compensated for, or reduced to less than significant levels. This SEIR will become part of a body of evidence that the CPUC will use in deciding whether to approve Wild Goose's application.

1.4.1 Notice of Preparation

In accordance with the CEQA Guidelines, the CPUC prepared a Notice of Preparation (NOP) for this SEIR (see Appendix B). The NOP was mailed on October 7, 2009, to local, state, and federal agencies (see Appendix B for mailing list) and the State Clearinghouse for a 30-day review period. The NOP provided a general description of the Phase 3 Expansion and a summary of the main regulations and permit conditions applicable to its development and operation. The comment letter that was received is presented in Appendix B.

1.4.2 Public Agency Participation

The CPUC consulted with other affected agencies and jurisdictions to gather information related to the possible environmental effects of Wild Goose's application, making early contact and opening a line of communication with key public agencies that would be directly affected by the Phase 3 Expansion, and, as part of this process, obtaining insight and information for this SEIR. The outreach program for the Phase 3 Expansion included consultations with more than 10 public agencies, and was conducted primarily by telephone and during visits by agency personnel to the Wild Goose Facility site in Butte and Colusa counties. Local agency representatives provided background information on the local setting, permitting requirements, regulatory requirements, land use information, community perceptions, and local environmental concerns. Chapter 7, Report Preparation, lists all agencies consulted during preparation of this SEIR.

1.4.3 Public Scoping

Given the limited scope of the Phase 3 Expansion environmental review, no public scoping meetings have been conducted by the CPUC to explain the environmental review process and receive public comments on the scope of this SEIR.

1.4.4 Draft EIR

This document is the Draft SEIR for the CPUC's Application for the Phase 3 Expansion. It describes the Phase 3 Expansion and the environmental setting, and identifies direct and cumulative impacts as well as mitigation measures for impacts found to be significant. Because the 2002 EIR included an adequate range of alternatives to the expansion of the Wild Goose Facility, additional alternatives are not included in this SEIR for evaluation.

Base map source: Bing Maps, 2010

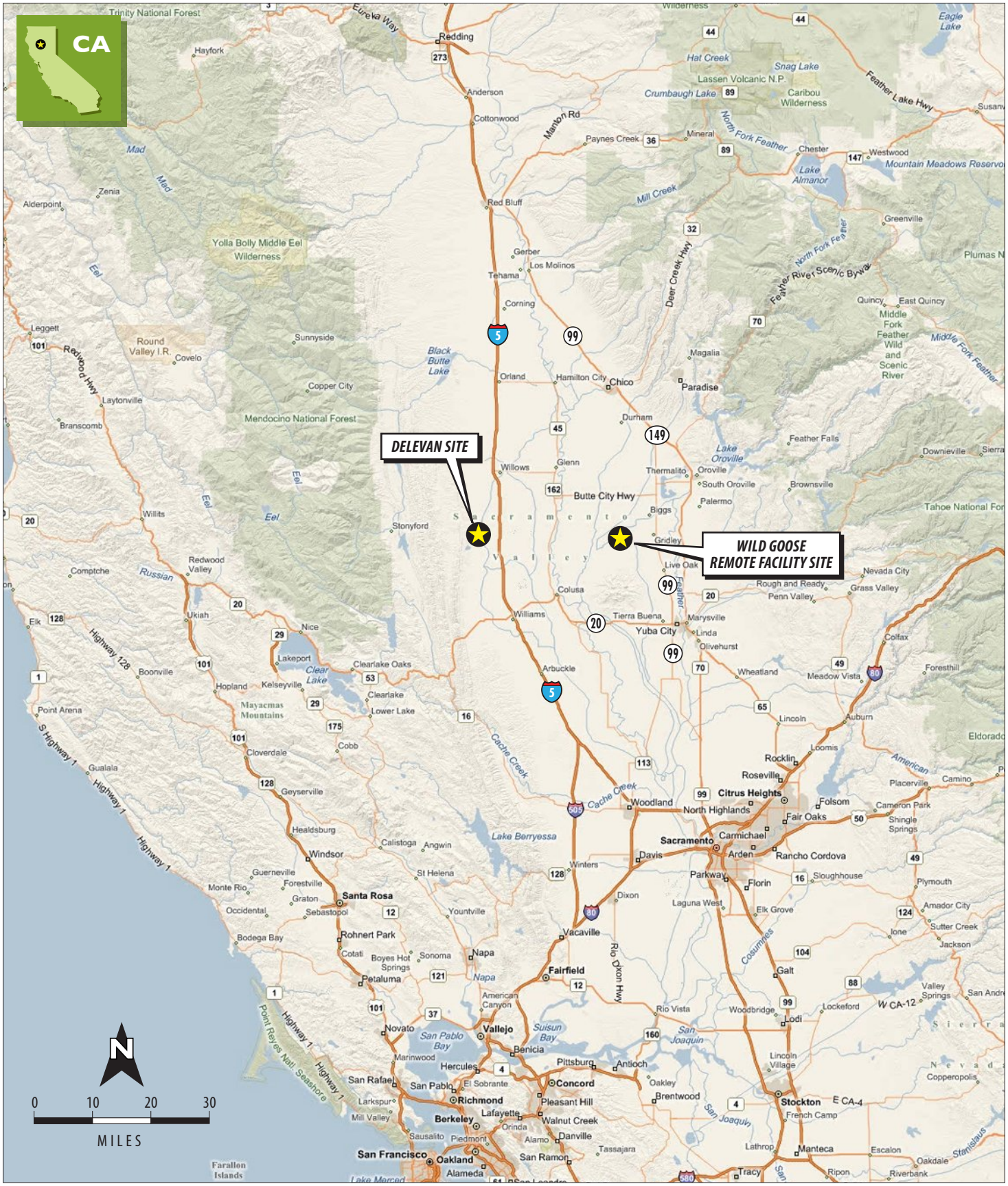

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Figure 1-1

Project Vicinity

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Base map source: USGS 1:100,000 topographic maps *(reduced)*, Yuba City (1993) and Lakeport (1994), CA

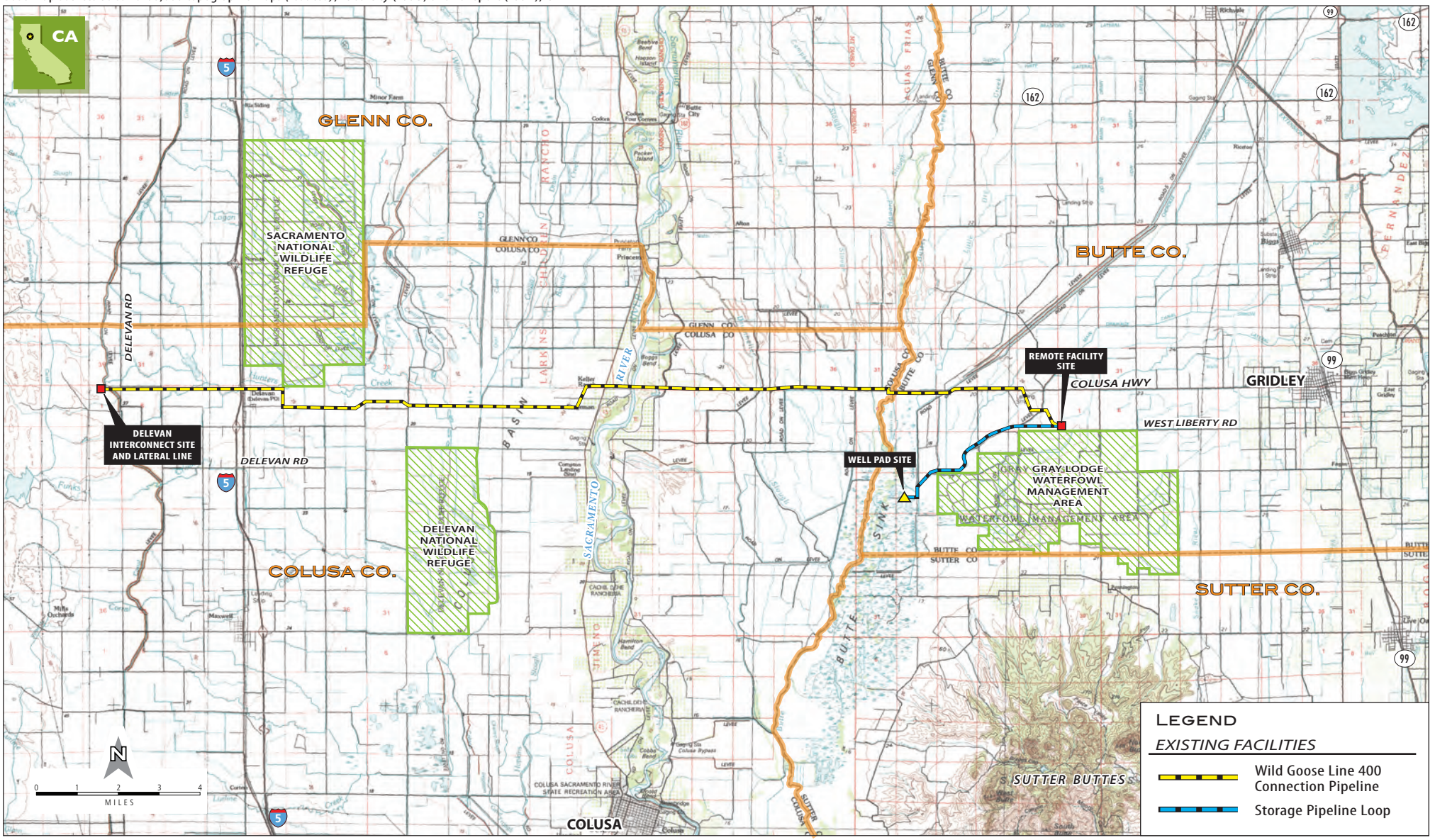

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Figure 1-2

Project Location Map

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1.4.5 Final EIR

Written and oral comments received in response to the Draft SEIR will be addressed in a Response to Comments document that, together with the Draft SEIR, will constitute the Final EIR (FEIR). The FEIR will be released for public review before the CPUC decides whether to certify the FEIR. The CPUC will then issue a proposed decision on the application and release it for public comment.

1.4.6 Mitigation Monitoring and Reporting Program

The SEIR includes revised and new mitigation measures, which have been clearly identified and presented in language that will facilitate establishment of a monitoring program.

1.5 Key Areas of Environmental Concern

The initial step in the environmental review of the Phase 3 Expansion was to evaluate whether the 2002 EIR adequately characterized the context of and potential impacts from the Phase 3 Expansion. Two environmental resource topic areas, Air Quality (including greenhouse gases) and Biological Resources, were determined to require information beyond that given in the 2002 EIR. For each of these resources, the setting information has changed since 2002 and potentially significant new environmental impacts have been identified. These two topic areas are included and discussed in the main body of the Phase 3 Expansion SEIR.

1.5.1 Areas of Potential Controversy

One area of potential controversy was identified for the Phase 3 Expansion through the public agency participation process. This area of potential controversy is impacts from conversion of farmland to the expanded RFS use.

1.6 Organization of the EIR

This SEIR comprises two parts: the main body, and Appendix A, the Focusing Initial Study. Both parts are supported by information in the 2002 EIR. For all resource areas other than Air Quality (including greenhouse gases) and Biological Resources, the Phase 3 Expansion was determined to involve substantially similar environmental setting and impact information as that provided in the 2002 EIR, and no new potentially significant impacts were identified for these areas. For this reason, the Focusing Initial Study was prepared to address resource areas other than Air Quality and Biological Resources.

The Focusing Initial Study discusses (1) changes in the overall project, as described in Chapter 2, Description of Phase 3 Expansion; (2) changes in the circumstances under which the Phase 3 Expansion would be undertaken compared with circumstances under which the Phase 2 Expansion was undertaken; and (3) new information of substantial importance that was not known at the time the 2002 EIR was completed. Specifically, the analysis of resource topic areas in the Focusing Initial Study considers changes to the resource area setting and any changes to applicable plans, policies, and regulations of agencies with jurisdiction over the Phase 3 Expansion that have occurred since the adoption of the 2002 EIR. Measures addressing potential impacts to resource areas that were adopted as part of the approvals for the 2002 Phase 2 Expansion are discussed, and any new mitigation measures required to address potential environmental impacts specific to the Phase 3 Expansion are also included, as appropriate.

Environmental issues in this Draft SEIR are analyzed based on significance criteria established in the CEQA Guidelines. Where no specific guidelines are given, professional judgment was used to develop

appropriate significance thresholds or criteria. Potential impacts are categorized as significant, less than significant with mitigation incorporation, less than significant, or no impact.

The CPUC reviewed and considered all of the relevant permit requirements and approvals, which are listed in Chapter 2. This Draft SEIR assumes that Wild Goose would operate its facilities within the parameters of the required permits (e.g., water discharge permits and air emission permits). Operations in excess of permitted levels (i.e., if Wild Goose added compression capability in the future) would require new discretionary permits and additional environmental review.

Feasible mitigation measures are identified in this Draft SEIR for impacts that could be considered potentially significant. Mitigation measures from the 2002 EIR that apply to each resource area topic are included in each resource section. Design or other project features proposed by the applicant are also discussed as elements of the project that would reduce impacts. For other potential impacts, the CPUC has identified additional mitigation measures to reduce the level of impact to less than significant.

The SEIR will include this Draft SEIR, which contains the environmental analysis of the Phase 3 Expansion, and the Final SEIR, which will contain comments received during the public review period along with the responses to those comments. This Draft SEIR contains the following sections and chapters:

Executive Summary. Presents a summary of the environmental impacts of the Phase 3 Expansion and mitigation measures identified to reduce or eliminate significant impacts. The Executive Summary also presents a summary of alternatives to the proposed expansion.

Chapter 1: Introduction. Provides an overview that describes the Phase 3 Expansion and the purpose of the SEIR, summarizes the SEIR review and certification process, identifies key areas of environmental concern, and outlines the CPUC's CPCN process.

Chapter 2: Project Description. Provides a detailed description of the Phase 3 Expansion, including facilities and construction methods, as well as the permits required for the Phase 3 Expansion's implementation.

Chapter 3: Environmental Impact Analyses. Describes existing conditions, evaluates the environmental impacts of the Phase 3 Expansion, and identifies mitigation measures for the impacts identified in this SEIR.

Chapter 4: Cumulative and Growth-Inducing Impacts. Describes cumulative and growth-inducing impacts resulting from implementation of the Phase 3 Expansion, together with reasonably anticipated future projects that may have related or cumulative impacts.

Chapter 5: Mitigation, Monitoring, and Reporting Program. Presents a revised mitigation monitoring and reporting framework for the mitigation measures proposed by Wild Goose.

Chapter 6: List of Preparers and Agencies Consulted. Lists people who prepared the report, identifies public agencies that were consulted, and describes public involvement in the SEIR process.

Chapter 7: References. Provides details on the sources of information cited in the SEIR.

Chapter 8: Acronyms and Abbreviations. Defines acronyms and abbreviations used in this SEIR, particularly those associated with the natural gas storage, transmission, and distribution processes and their regulation.

2. Description of Phase 3 Expansion

2.1 Introduction

The Wild Goose Gas Storage Facility (Wild Goose Facility), located in Butte County, California, began commercial operations in April 1999, underwent a significant facility expansion in 2002, and currently has approximately 29 billion cubic feet (Bcf) of storage capacity. The facility is owned by Wild Goose Storage, LLC (Wild Goose or the applicant), a subsidiary of Niska Gas Storage. Most of the facility is on land leased from adjacent agricultural landowners under a long-term agreement. The Wild Goose Facility is interconnected with Pacific Gas and Electric's (PG&E's) Transmission System Line 167, a local natural gas transmission system, as well as PG&E's Transmission System Line 400 via the Wild Goose Connection Pipeline (as shown in Figure 2.1). The expansion of the facility in 2002 included construction of a 25.5-mile natural gas pipeline (Wild Goose Connection Pipeline) from the main facility site (Remote Facility Site, or RFS) to PG&E Line 400. This pipeline passes through the Delevan Interconnect Site just before it reaches PG&E Line 400. The Delevan Interconnect Site was installed for monitoring, metering, and controlling gas flow from the RFS to PG&E Line 400. It is owned by PG&E but includes easements for Wild Goose Facility interconnect components.

The Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion) would result in an increase in the physical footprint and current operations at the Wild Goose Facility, and would primarily consist of the construction, operation, and maintenance of an expansion to the RFS; modifications to the Delevan Site; PG&E's installation of up to three new hot tapped pipeline connections between the Wild Goose Interconnect Pipeline and PG&E Lines 400 and 401 to increase permitted storage and operational capacity; and PG&E's reconductoring of up to 6.1 miles (32,400 feet) of electrical distribution line. The Phase 3 Expansion would increase the current injection capacity of the facility from 450 to 650 million cubic feet per day (MMcfd), the withdrawal capacity from 700 to 1,200 MMcfd, and the working gas storage capacity from 29 to 50 Bcf. Components of the Phase 3 Expansion would be consistent with the 2002 facility improvements, and would extend facility operations in a similar way. The Phase 3 Expansion would include four main components:

- **Modifications to the RFS.** The RFS is currently the operation hub of the Wild Goose Facility. Modifications would include installation of four new natural gas compressors in a new building; installation of four 15-foot-high associated gas coolers; and installation of two new 30-foot-high gas contactors (dehydration units). A new 6,000-gallon glycol storage tank may also be installed on the site. Work at the site would require the expansion of the existing site area from 12.2 acres to approximately 16.7 acres, and the resulting fill of approximately 4.5 acres of rice field agricultural wetlands. Work might also include modifications to existing site utilities. The existing RFS is described in more detail in Section 2.3, Existing Facility.
- **Modifications to the Delevan Site.** The Delevan Site is approximately 25 miles west of the RFS, in Colusa County. This facility is also described in more detail in Section 2.3, Existing Facility. Modifications would include expansions of both Wild Goose and PG&E operations at the Delevan Interconnect Site, including the installation of new meters, piping, valves, and associated equipment, to accommodate the increase in withdrawal and injection volume. This work would not result in an expansion of the existing site area.
- **Hot Tapped Pipeline Connections.** Up to four new subsurface pipeline connections, totaling approximately 200 feet in length, would be installed using a hot tap process. The pipelines would run from the Wild Goose Connection Pipeline to PG&E Line 401. (The Wild Goose Connection Pipeline currently only connects to PG&E Line 400.) The new hot tapped pipeline connections at PG&E's Line 401 would be installed largely within an existing 100-foot-wide easement held by

PG&E. The total area temporarily disturbed during construction would be approximately 0.25 acres, approximately 0.1 acres of which would be outside of the PG&E easement. Further description of the hot tap process are provided below.

- **PG&E Distribution Line Reconductoring.** To accommodate the increase in use at the Wild Goose Facility as well as to increase reliability, PG&E would upgrade distribution lines in the vicinity of the RFS by reconductoring up to 6 miles (32,400 feet) of electrical line. An additional ground- or pole-mounted 1,500-kilovolt-ampere (kVA) transformer would also be required.

2.2 Location, Setting, and Ownership

The RFS modifications would take place at the existing RFS in Butte County, and the Delevan Site modifications and hot tapped pipeline connections would be in Colusa County (Figure 2-1). The RFS is near the center of the Sacramento Valley, on a 12.2-acre site, approximately 67 miles northwest of Sacramento and approximately 6 miles west of Highway 99, in southwestern Butte County. Specifically, it is located on West Liberty Road, approximately 7 miles west of the town of Gridley, approximately 1.1 miles west of the intersection of West Liberty Road and Pennington Road, and approximately 6 miles west of Highway 99. Rice fields border the RFS to the north, east, and west. The rice fields are lower than the RFS, and are flooded during normal rice farming operations. Much of the land in the area is also under active agricultural cultivation, most commonly for rice production. The Gray Lodge Wildlife Area is south of the RFS, across West Liberty Road, and comprises a 9,100-acre wetland area managed by the California Department of Fish and Game (CDFG). An approximately 3.5-acre area to the west of the RFS is used for farm equipment storage and for seasonal hunter parking and camping. Other details on the location and setting of the RFS are provided in Chapter 2, Project Description, of the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR). An aerial photo of the RFS location is shown in Figure 2-2. The reconductoring component would be located east of the RFS, between the RFS and the City of Gridley, along Pennington Road and either the Colusa Highway or West Evans Reimer Road.

The Delevan Interconnect Site is approximately 0.6 acres in northeastern Colusa County. It is approximately 25 miles west of the RFS and 4 miles west of Interstate 5 and the community of Delevan (Figure 2-3). The site is at the base of the Coast Range foothills and is surrounded by annual grassland. The site is owned by PG&E, and includes easements for Wild Goose Facility pipeline equipment. PG&E's Line 400 and Line 401 (the location of the proposed hot tapped pipeline connections) are located below ground surface (bgs) within a 100-foot-wide easement, approximately 700 feet west of the Delevan Interconnect Site, also in Colusa County.

Natural gas from the RFS is routed to the Delevan Site by the Wild Goose Connection Pipeline, which runs east–west between the two sites (as shown in Figure 2-1). No modifications to this pipeline are proposed as part of the Phase 3 Expansion.

Further information on the location and setting of the RFS and the Delevan Site can be found in the 2002 EIR.

Base map source: USGS 1:100,000 topographic maps *(reduced)*, Yuba City (1993) and Lakeport (1994), CA

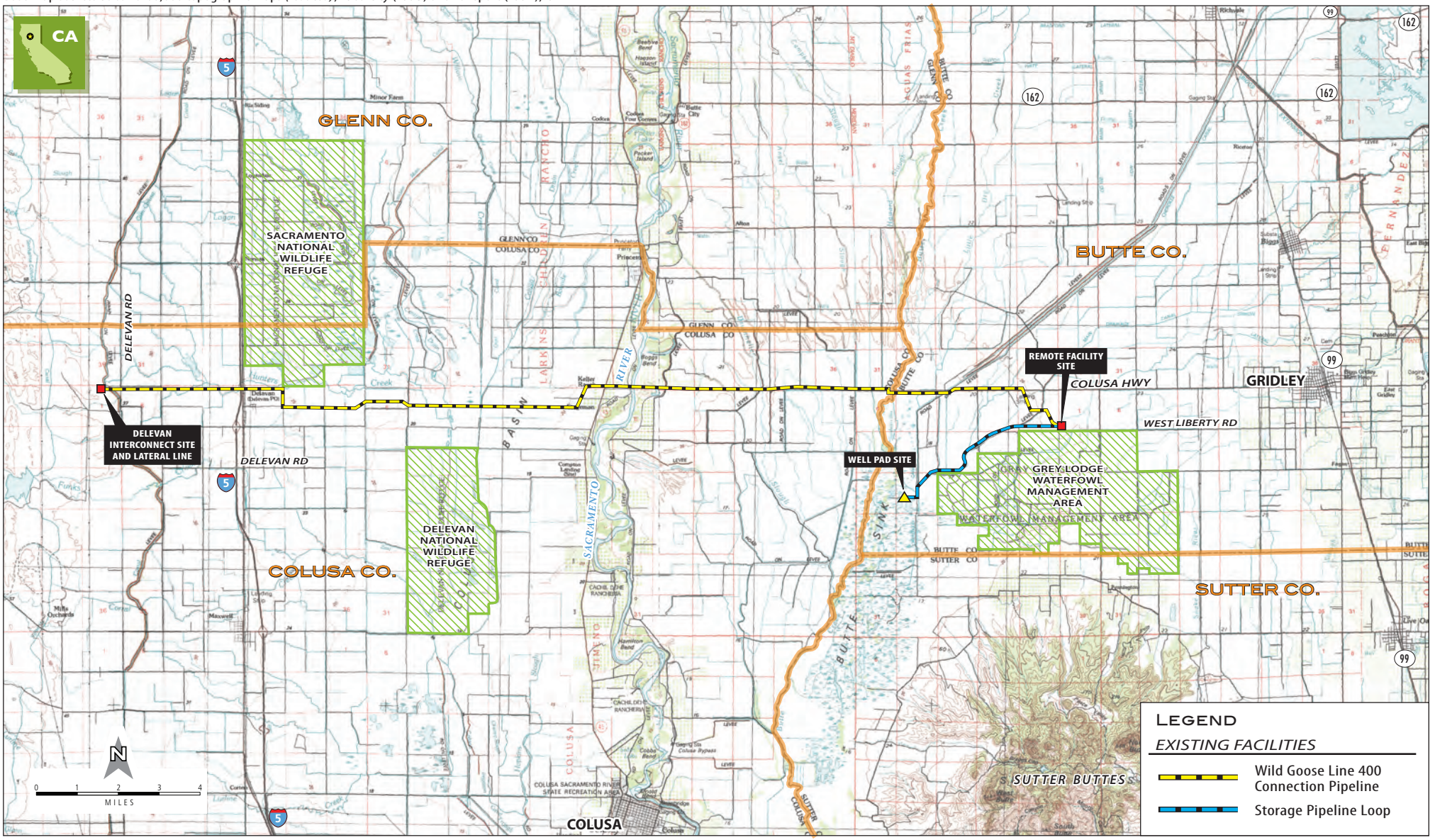

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Figure 2-1

Project Location Map

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Air photo source: maps.Google.com, Google ©2010

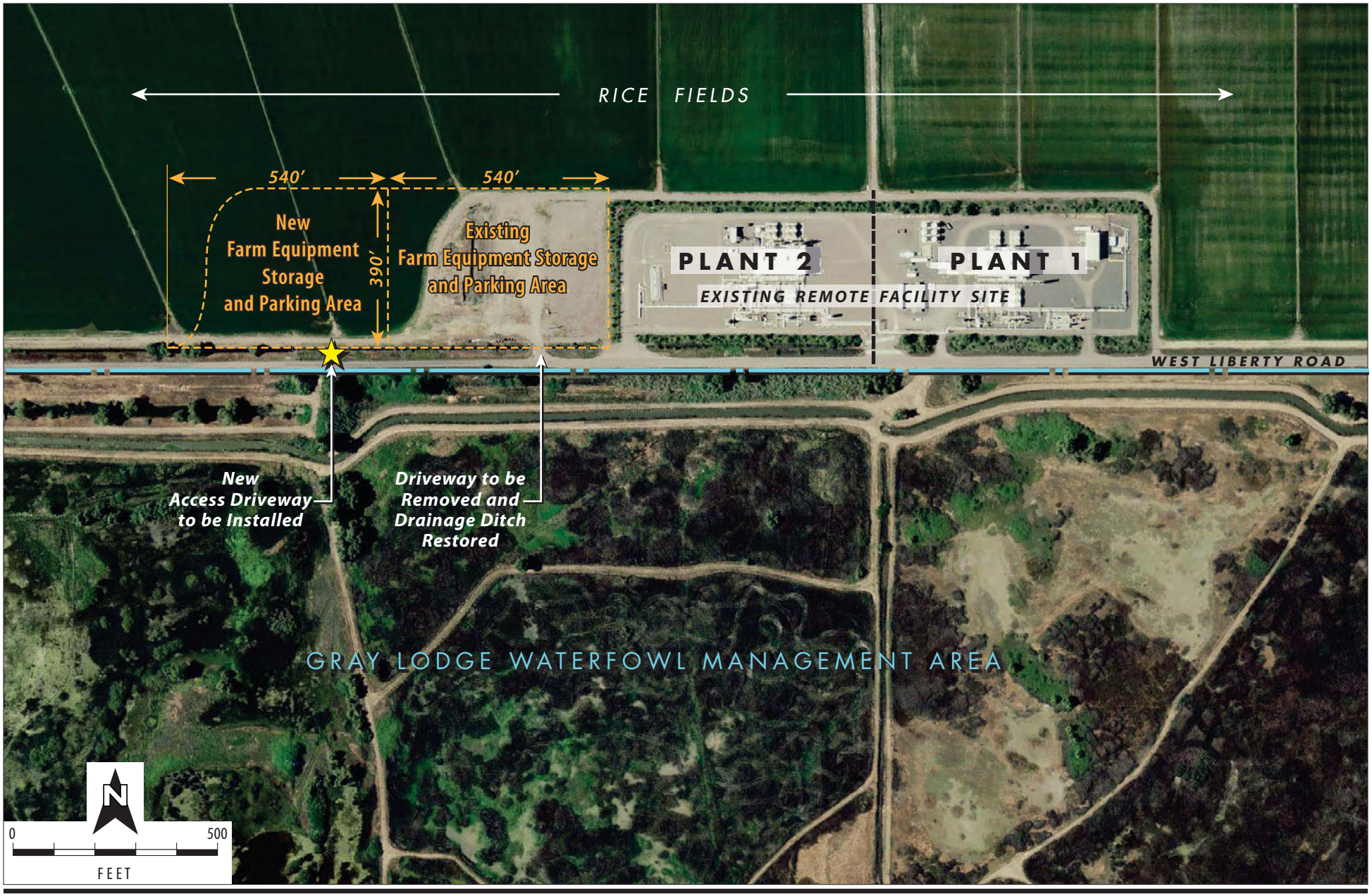

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Figure B-2

Remote Facility Site

Wild Goose Phase 3 Gas Storage Expansion Project

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Air photo sources: Wild Goose Gas Storage, LLC (2009) and Google Maps, 2009 (inset)

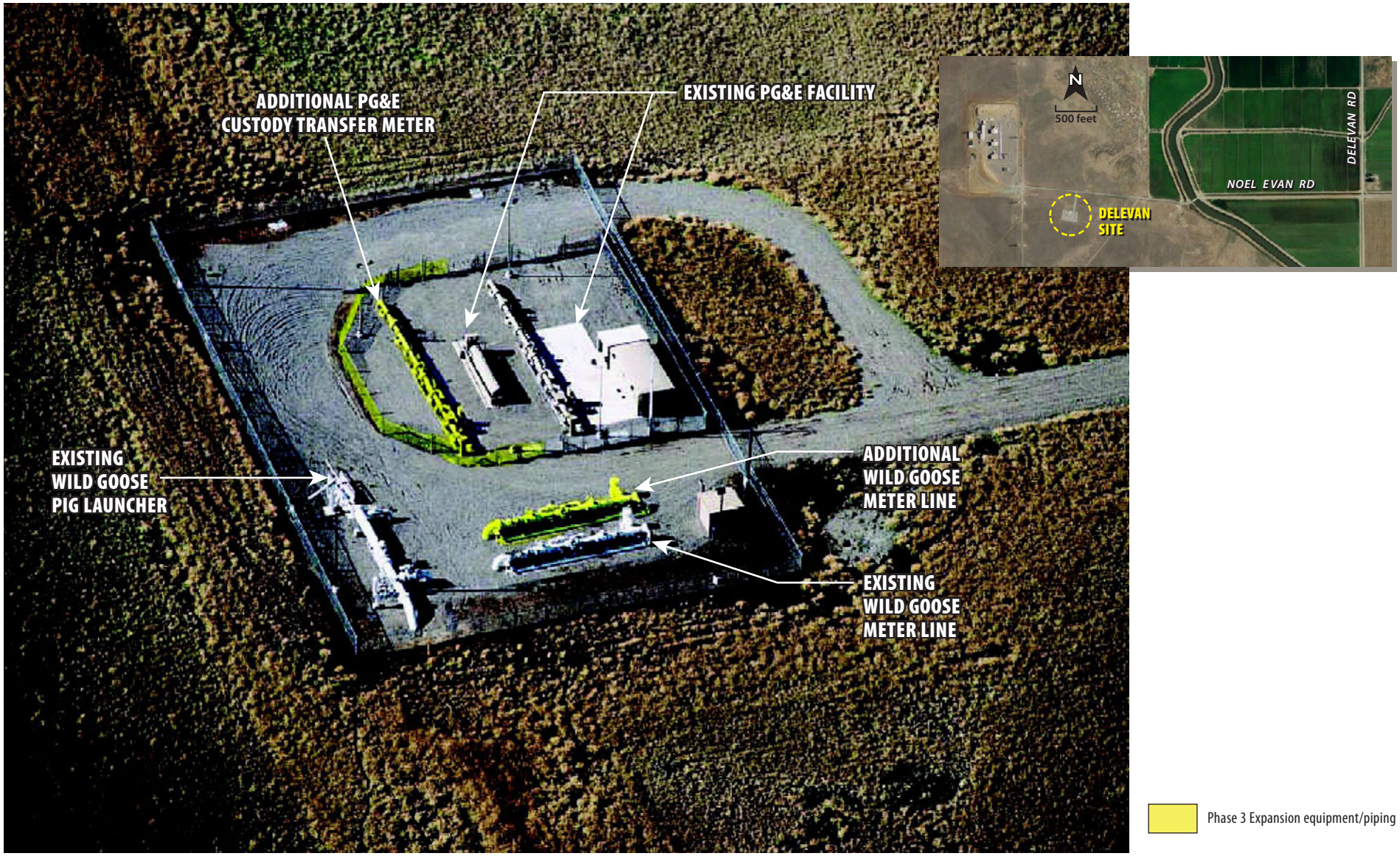

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Figure 2-3

Phase 3 Expansion Components – Delevan Site

Wild Goose Phase 3 Gas Storage Expansion Project

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2.3 Existing Facility

2.3.1 Natural Gas Reservoir and Storage

The Wild Goose Facility, which began commercial operations in April 1999, stores natural gas in the Wild Goose Gas Field, a depleted underground natural gas reservoir. The gas field consists of 12 distinct underground porous rock zones at depths ranging from 2,550 to 3,450 feet bgs, topped by an impervious, dome-shaped "cap rock" that varies in thickness from 10 to 75 feet and covers approximately 1 square mile. These are shown in Figure 2-4; further information on these rock zones may also be found in the 2002 EIR. Section 2.3.3, Gas Storage Operations (below), explains how the facility operates in more detail.

Between 1951 and 1988, the gas field produced more than 100 Bcf of natural gas, after which production ceased and the original wells were abandoned. The working natural gas storage capacity of the four active storage zones (L-1, L-4, U-1, U-2) is estimated to be more than 50 Bcf; total capacity of all 12 storage zones could exceed 80 Bcf (WGS 2009).

Zones L-1 and L-4 are currently actively used for storage, and the storage capacity and characteristics of zones U-1 and U-2 have been extensively tested and defined. To the extent that any of the remaining eight reservoirs could provide natural gas storage consistent with customer demands, they could also be developed as part of future expansions. However, detailed analysis of these reservoirs' storage capacity potential would be required first, and Wild Goose currently has no plans for further development of the facility beyond the Phase 3 Expansion. Further information describing the characteristics, history, and development of the Wild Goose Gas Field and underground reservoirs is presented in Section A.4, Geology, Soils, and Mineral Resources of this document, as well as in the 2002 EIR.

2.3.2 Existing Facility Infrastructure

The Wild Goose Facility was initially constructed between April 1997 and April 1999 (the Base Project), and expanded further between 2002 and the present (Phase 2 Expansion). The existing facility is described in the 2002 EIR and consists of the following components:

1. The RFS, which includes three main compressor units (Plants 1, 2, and 3) which comprise a total of (a) six gas-fueled engines yielding 21,000 horsepower (HP) and compressors with natural gas coolers (b) three dehydration units/gas process trains; (c) a 1,000-gallon tank containing mercaptan (a gas used to odorize natural gas); (d) six water storage tanks; (e) a water disposal pump skid; (f) a water re-injection well; (g) other associated equipment; and (h) administration buildings and parking spaces for facility staff. The RFS also includes natural-gas-fueled standby generators that activate when the local power supply is interrupted. The standby generators have the capacity to provide power for the existing lighting and Supervisory Control and Data Acquisition (SCADA) systems at each plant but do not have enough capacity to operate all plant systems.

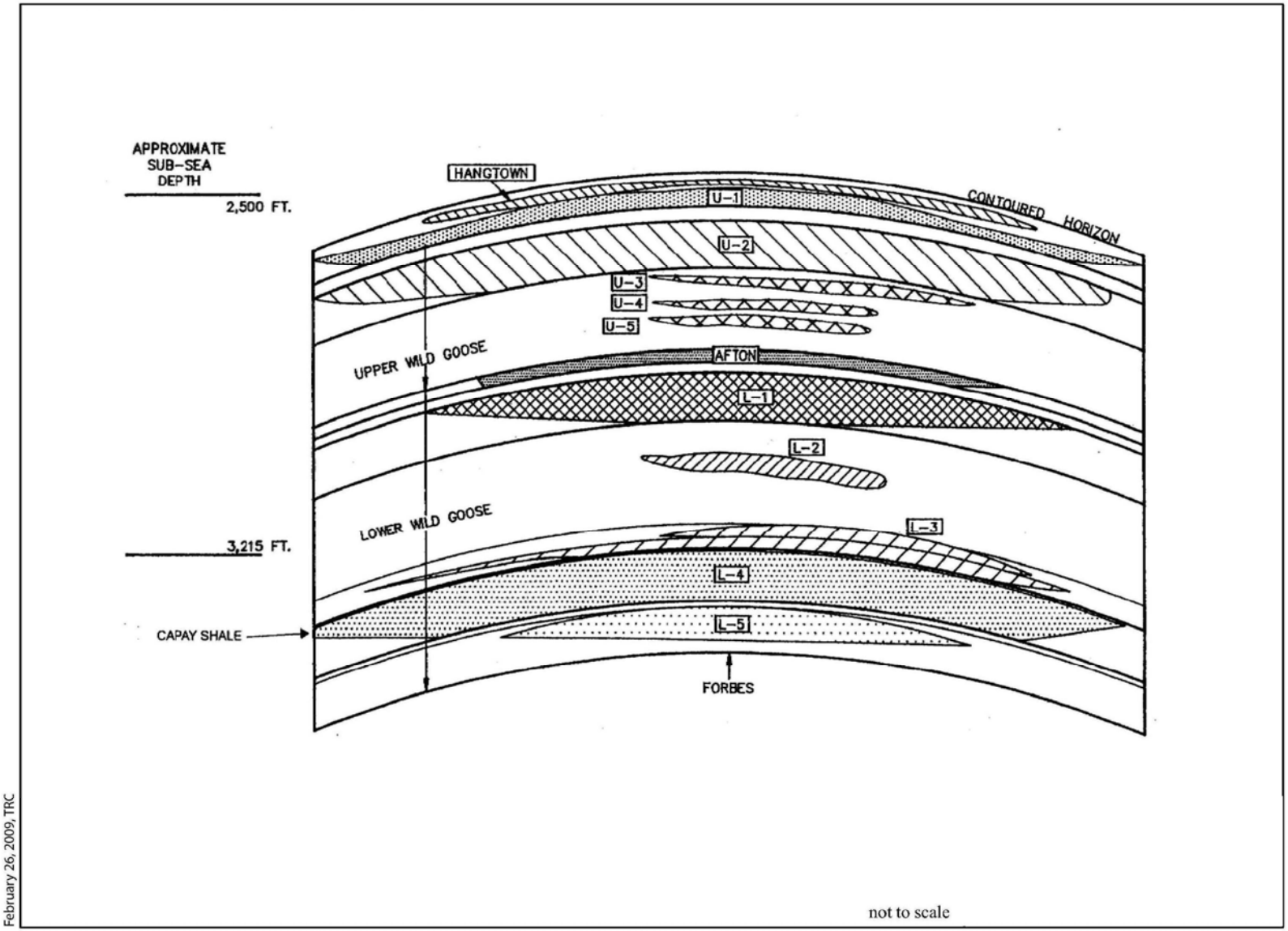


Figure 2-4 Wild Goose Storage Field Rock Zones
(SOURCE: 2002 EIR)

The compressors (Caterpillar 3600 series) are equipped with clean burn combustion chamber design as best available control technology (BACT). The compressor engines also use Selective Catalytic Reduction (SCR) and oxidation catalysts for nitrogen oxides (NO_x), carbon monoxide (CO), and reactive organic gas (ROG) control, and a positive crankcase ventilation system. In addition, other equipment at Plants 1, 2 and 3 are also of low emissions design.

2. An 8.5-acre Well Pad Site (WPS) at the abandoned original Wild Goose Gas Field production compression facility, which includes 24 current or planned injection/withdrawal and observation wells, on the property of the Wild Goose Club;
3. A 4.5-mile, 18-inch-diameter bi-directional natural gas pipeline (storage pipeline) and 3-inch-diameter water pipeline that removes water from the gas stream (produced water) during extraction; these pipelines are routed between the WPS and the RFS;
4. A second bi-directional natural gas pipeline, 24 inches in diameter, generally following the 18-inch pipeline between the WPS and RFS in the same right-of-way (ROW) as the 18-inch pipeline;
5. A natural gas pipeline that interconnects to PG&E's Line 167, which is a 12-inch-diameter transmission line that is part of PG&E's Sacramento Valley Local Transmission System (SVLTS);
6. The Wild Goose Connection Pipeline, a 25.5-mile, 30-inch-diameter bi-directional pipeline originating from the RFS and interconnected with PG&E's Line 400, a 36-inch-diameter natural gas transmission pipeline located to the west of the Delevan Site;
7. Two fiber optic communication cables (one primary and one spare), located in the trenches of both the storage pipeline and the Wild Goose Connection Pipeline, to allow data acquisition and remote operation of valves by Wild Goose;
8. A mid-valve station located approximately 11.5 miles west of the RFS that provides a means of stopping gas flow through the Wild Goose Connection Pipeline and segregating the east and west portion of the line; and
9. The Delevan Interconnect Site, which includes valves, metering, maintenance, and pressure monitoring equipment associated with operation of the Wild Goose Facility, as well as similar equipment operated by PG&E. The custody transfer and metering point of natural gas movements between PG&E's Line 400 system and the Wild Goose Facility occurs at the Delevan Interconnect Site. Within the fenced, approximately 0.6-acre site, a second fenced area encloses PG&E's station building, a bi-directional flow meter, and a mercaptan gas odorant tank. PG&E's station building is a small, pre-engineered metal structure that houses instrumentation electronics, a calibration system, a computer control system, high voltage alternating current (HVAC), recorders, a chromatograph, valve solenoids, and communications equipment. The bi-directional flow meter ties into PG&E's Line 400, which is located approximately 700 feet to the west of the site.

   Outside of the fenced area for PG&E's operations, but within the larger fenced-in portion of the Delevan Site, Wild Goose maintains an actuated block valve, control valve, and associated electrical instrumentation devices for monitoring and control of the pressure and flow of gas that is routed to or from Line 400, and a 30-inch pig barrel and launcher (an existing above-ground piping segment where "pigs," or pipeline cleaning and inspection devices, can be inserted into the connection pipeline).

   Electric service at the Delevan Site is currently provided by PG&E's existing 12-kilovolt (kV) electric distribution line running along the access road. Changes or increases to this service would not be required as a result of the Phase 3 Expansion (WGS 2009).

Approximately 400 gallons per day of water extracted from an existing well at the RFS is currently used for site operations, including sanitary usage. Drinking water is imported to the site. Sanitary wastewater from the plumbing in the office building at the RFS flows to a county-approved onsite septic holding tank, which is periodically pumped by a local sanitary waste hauler. Solid waste is removed by Waste Management, Inc.

A number of the Phase 2 Expansion components are yet to be completed at the RFS. Known as the "Phase 2B" components, these include the drilling of up to six additional withdrawal, injection, and observation wells and the installation of additional compression and dehydration/gas process train equipment. Installation and construction of these components is ongoing and is expected to be completed in late 2009 or early 2010. These components were included under permitting for the Phase 2 facility expansion, were reviewed under the 2002 EIR, and are not included as part of the Phase 3 Expansion.

More information on the existing facility can be found in Chapter 2, Project Description, of the 2002 EIR.

2.3.3 Gas Storage Operations

2.3.3.1 Natural Gas Injection, Withdrawal, and Conveyance

Natural gas at the Wild Goose Facility is injected via wells into the underground storage zones during periods of low demand (generally the winter season), and withdrawn during periods of peak demand (generally the summer season). During injection operations, natural gas flows from PG&E Line 400 through the Delevan Site, through the 25.5-mile Wild Goose Connection Pipeline, to the RFS compressor, and through the 4.5-mile pipeline to the WPS, for injection into the field. A schematic of natural gas flow through the Wild Goose Facility components is shown in Figure 2-5.

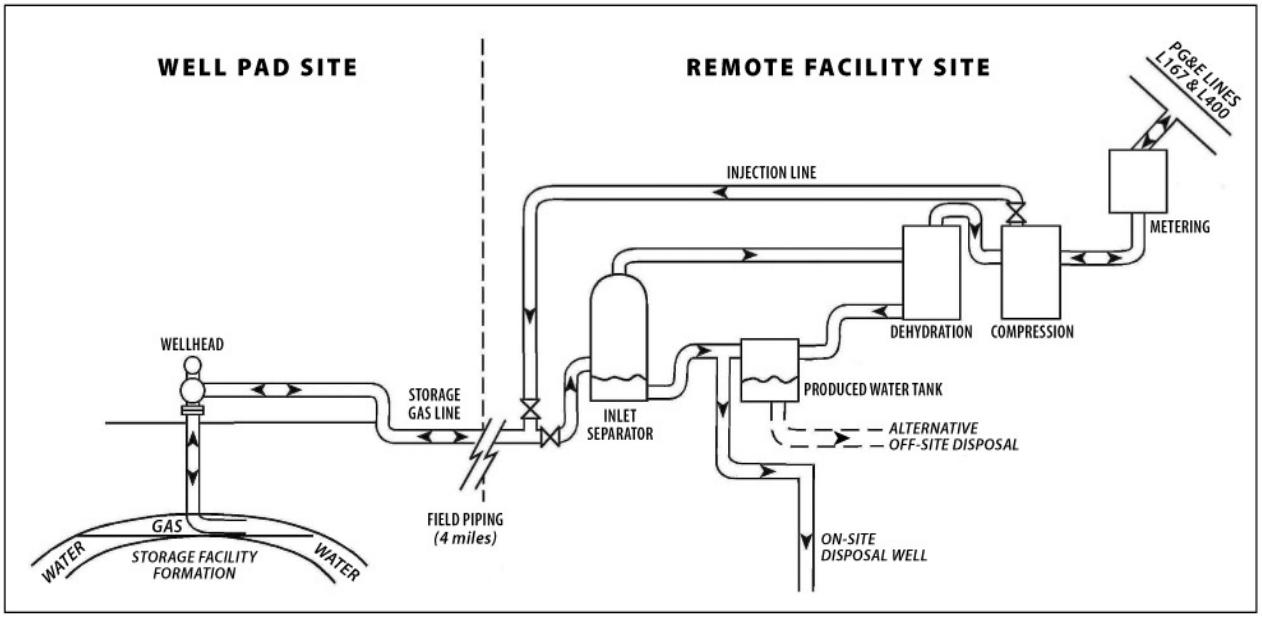


Figure 2-5 Natural Gas Flow Schematic
(SOURCE: TRC 2009)

Typically, natural gas is taken from PG&E's Line 400 at pressures ranging from approximately 650 to 1,000 pounds per square inch gauge (psig) and injected into the reservoir to a maximum design surface

pressure of 2,000 psig. The current injection capability is 250 MMcfd, although the facility is certified by the State of California Division of Oil, Gas, and Geothermal Resources (DOGGR) for an injection capability up to 450 MMcfd.

During withdrawal operations, natural gas flows from the WPS back through the RFS and on to PG&E's Line 167 and/or Line 400 transmission systems. Under withdrawal conditions, wellhead surface pressures typically range from 1,650 psig to approximately 500 psig (this is within the 0.7 psi/feet limit and permitted by DOGGR), and dictate the use of compression during the withdrawal mode. As described in the following section, gas is routed through inlet separation, filtration, and dehydration to achieve desired gas quality specifications prior to free flow or compressed flow into PG&E's system. The volume of daily, weekly, and monthly injections and withdrawals varies with customer demand, subject to the volume, suitability for delivery, and injection capabilities of the field. All injections and withdrawals are dispatched and controlled by facility personnel working at the RFS; this would continue after the Phase 3 Expansion.

2.3.4 Inlet Separation, Filtration, Dehydration, and Compression (Gas Withdrawal Process Train)

Small amounts of water, sediment, liquid hydrocarbons, and other chemicals from deep saline aquifers connected to the storage reservoir may be withdrawn with the gas when it is taken from the reservoir. Before the gas can be transported to consumers, this "produced water," which is high in mineral salt concentration, must be removed from the natural gas stream, along with other impurities, through a progressive system known as the gas withdrawal process train. The gas withdrawal process train separates large particles from the natural gas, filters out smaller particles, removes residual water, and then compresses the gas so that it is ready for delivery to the natural gas transmission lines. The overall process is shown in Figure 2-5 and explained in greater detail below.

As shown in the figure, the gas coming from the reservoirs is withdrawn from the wells at the WPS site and then is routed through an inlet separator located on the RFS. The inlet separator removes some water and larger particles, such as sediment and sand. The gas is then routed through a 15-micrometer process gas filter to remove other elements and compounds. Then the gas is routed through a pressure letdown station, which reduces the pressure of the gas as it moves through the process train. After the pressure has been reduced, the gas passes through the tri-ethylene glycol (TEG) contactor. TEG, a liquid desiccant compound that absorbs water, is combined with the natural gas stream in the TEG contactor to remove the remaining water from the gas. The gas is then routed through a second process gas filter (scrubber) to remove any remaining TEG. At this point, mercaptan, an odorant, may be added to the gas to supplement any odorant lost during storage and withdrawal.

After exiting the second process gas filter, the gas is routed through the compressors at Plant 1, 2, or 3 to increase the gas pressure prior to entering either PG&E Line 167 or Line 400. Because the compression process causes the gas to heat up, however, the gas must be cooled before it enters the buried pipeline to reduce the thermal stress on the pipeline and valves. The gas is, therefore, routed through six forced-air natural gas coolers (one for each compressor unit), which are located on the north side of the compressor buildings, to reduce temperature.

After it is used in this process, the TEG/water mixture is transported to the glycol re-generation system and reboiler units, where it is boiled to evaporate the water from the TEG. At this point, small amounts of other residual products, such as benzene, ethylbenzene, toluene, and xylene, are also incinerated in a closed system at approximately 1,500 degrees Fahrenheit, destroying all remaining residual material. The TEG may then be re-used nearly indefinitely in future process cycles, although some TEG is consumed during the process cycle.

When the gas inventory in the reservoir is near depletion, larger volumes of water are produced. Produced water is temporarily stored in a tank farm at the RFS. Produced water and the associated products filtered from the reservoir gas are returned to the aquifer associated with the reservoir through a deep injection well that is also located in the northwestern portion of the RFS. In the rare event that volumes of produced water are too small to be efficiently routed from the produced water tanks to the injection pump and well, the water is trucked to a disposal facility as approved by DOGGR. (Two loads, totaling 108 barrels (bbls) or 3,400 gallons, were trucked off site in 2007, and no water was required to be trucked off site in 2008 or 2009.) The water separation, storage, and re-injection system is automated.

The entire process train is fueled by both electricity and natural gas.

2.3.5 Pressure Relief Venting

As is typical for natural gas storage facilities, the Wild Goose Facility incorporates a number of safety systems into its overall operation. Pressure relief along compressor station piping, as required by code, is necessary for safe operation of the facility. Regular and emergency "blowdowns"—events of pressure release through valves or vents—provide for some of this pressure relief. During normal operations, sectional piping is usually blown down whenever a compressor unit shuts down. In addition, abnormal emergency conditions trigger activation of emergency shutdown valves and initiate a controlled blowdown of the entire facility. Both of these types of blowdowns rapidly depressurize the piping and equipment in a controlled manner. The vents that are used to relieve the pressure are equipped with silencers for noise attenuation. Five silenced blowdown vents are in place at the RFS.

A third type of depressurization is done via pressure safety valves, also called "pop valves." These valves activate only when the pressure exceeds a pre-set level on a vessel or piping. The safest method to relieve this potential overpressure situation is to immediately vent the gas pressure directly to the atmosphere, as opposed to slower, controlled release through a silencer. Consequently, this type of blowdown is extremely loud (as described further in Section A.8, Noise), but lasts only 5 to 10 seconds. In normal operating mode and even under the first level of alarm mode in which the emergency shutdown valves are activated, the pressure safety valves do not open. A total of 114 pressure safety valves serve or will serve the Wild Goose Facility at the RFS, including valves that are proposed for installation as part of the Phase 2B components.

2.3.6 Natural Gas Pipeline Purging

Purging natural gas pipelines entails displacing one gas with another. Purging is done while taking the pipelines in or out of service. As discussed in Section A.5, Hazards and Hazardous Materials, Wild Goose has developed a site-specific Purging of Natural Gas Pipeline Systems Practice to address purging new piping systems containing air, and existing systems containing natural gas, to guide onsite workers (WGS 2010). Pipeline purging at the Wild Goose Facility takes place out of doors, not within buildings or confined areas. Wild Goose's pipeline purging practice includes (1) using procedures for adding a slug of nitrogen into a pipeline during purging if a hazardous mixture may occur, to prevent formation of an explosive mixture; (2) ensuring that all workers engaged in pipeline purging activities are properly trained in the explosive properties of the gas concerned, in the purging procedure, and in the use of fire extinguishers; (3) use of combustible gas indicators during purging; (4) eliminating sparks and other potential ignition sources from the area of purging; and (5) appropriately notifying local emergency service providers and nearby property owners before and during purging activities.

2.3.7 Cushion Gas Injection

To safely and predictably maintain a minimum gas pressure for the reservoirs, a volume of gas known as "cushion gas" must be injected into the storage reservoirs in the field. Typically, a two- to three-month start-up phase is required to inject the cushion gas. At the Wild Goose Gas Field, cushion gas has been injected to re-establish the gas saturation, slowly depress the natural gas/water contact zone in the porous sandstone formations, and establish the base field pressure. Cushion gas becomes a permanent component of the reservoir and is not available for withdrawal as long as the storage site is being actively operated.

In 2007 and 2009, as part of the Phase 2 Expansion development of the U-1 and U-2 gas storage zones, Wild Goose performed an injection and withdrawal test in these reservoirs. One storage injection well was drilled in the U-2 reservoir and 1 Bcf of storage gas was injected in 2007. Monitoring of flow rates and pressures during the test indicated that the storage well behaved as expected for injection (WGS 2009). A withdrawal test was performed on the well drilled into the U-2 reservoir in 2009 to evaluate the withdrawal capacity of the well and help establish the minimum cushion gas requirement for this reservoir. The test demonstrated that the storage wells within the U-2 zone performed as expected for injection and withdrawal of gas and similar to the L-1 and L-4 wells; that the flow of storage gas from the well will take place with manageable levels of produced water; and that low levels of additional cushion gas would be required to develop the U-2 reservoir for gas storage (WGS 2009).

2.4 Phase 3 Expansion

Components and equipment modifications associated with the Phase 3 Expansion at the RFS, Delevan Site, Line 401 (hot tap) location, and PG&E reconductoring component are discussed below and shown in Figures 2-6 through 2-10.

2.4.1 Remote Facility Site

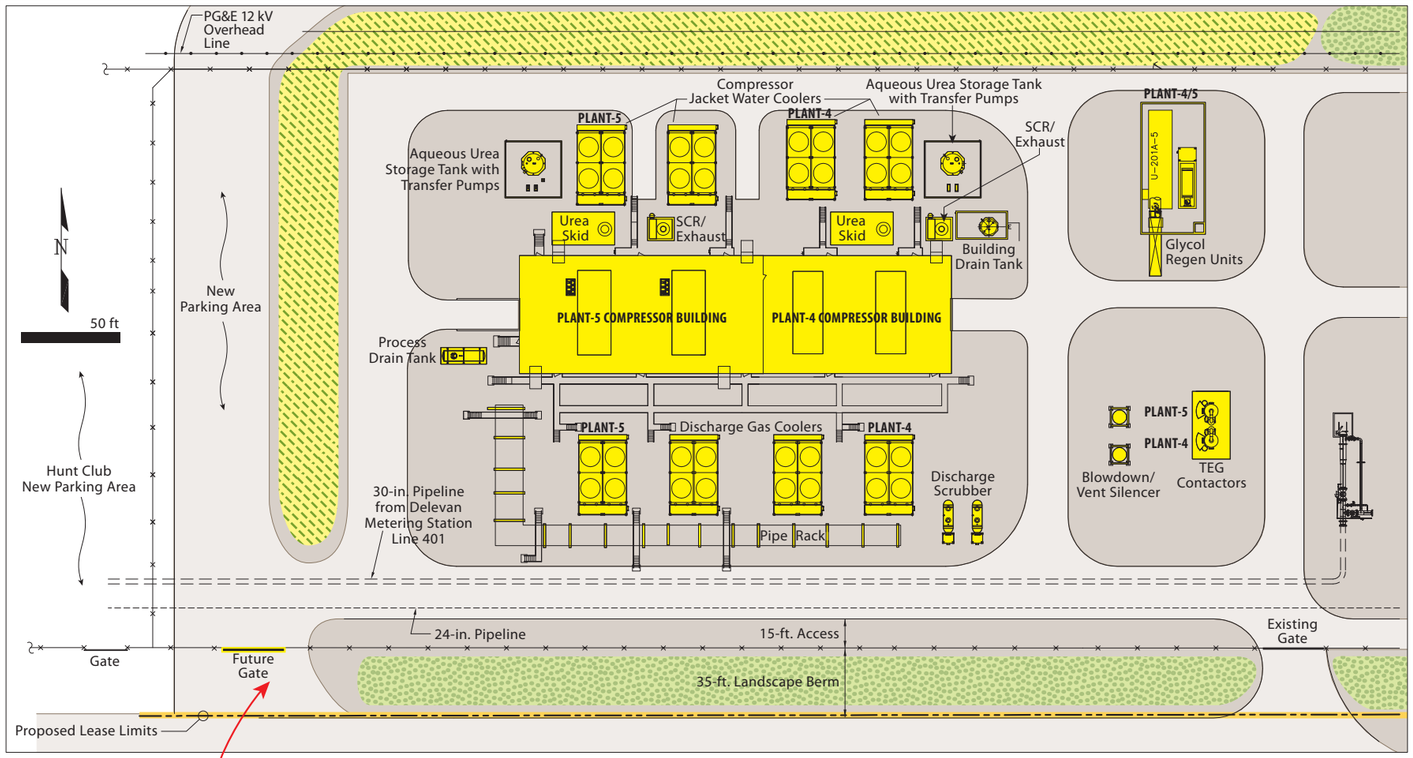
Phase 3 Expansion components at the RFS are shown in Figures 2-7 and 2-8 and would include:

1. Expansion of the RFS Footprint
    - Expansion of the existing RFS by approximately 540 feet, resulting in an increase in the facility footprint from approximately 12.2 acres to approximately 16.7 acres;
    - Conversion of approximately 4.5 acres of agricultural wetland (rice field) to industrial use and permanent relocation of rice field drainage systems; and
    - Relocation of an existing 3.5-acre farm equipment storage and parking area, currently located to the west of the RFS.
2. Plants 4 and 5 Construction and Operation
    - Installation of four new additional natural gas-fueled compressor units in a new compressor building, for an increase in total facility gas compression capacity from approximately 21,000 HP (six compressor units) to a total of approximately 35,000 HP (10 compressor units). New compressor units are anticipated to be the same model (Caterpillar 3600 series) and have the same emissions treatment as the existing compressors (clean burn combustion chamber design, SCR and oxidation catalysts, and positive crankcase ventilation system). The new pre-engineered compressor building would include noise attenuation features in the design of the walls and doors, and would be similar to the existing RFS compressor buildings in style and exterior materials. An engine jacket water cooler for each compressor unit (which would

control the engine's operating temperature by pumping water through a circuit) would be located along the north side of the compressor building.

- Installation of four horizontal, forced-air natural gas coolers (one for each new compressor unit) on the south side of the compressor buildings. The coolers would be approximately 15 feet high, and would be driven by electric fans.
- Installation of six new silenced blowdown vents and 45 new pressure safety valves in the area of the compressors.
- Installation of two new additional gas withdrawal process trains, for a total of five trains.
- Installation of two new additional glycol dehydration units (TEG contactors), with the ability to operate independently of one another, along with a single glycol regeneration system that would facilitate glycol processing demands for both dehydration units. The TEG contactors would each be approximately 30 feet high. A process gas filter (glycol after-scrubber) would be installed downstream of each TEG contactor to ensure complete removal of glycol from the gas before it enters PG&E's pipeline system. Glycol regeneration system usage would be optimized such that only the required glycol volume would be circulated, and the reboiler would be operated at the necessary process temperature to achieve desired lean concentration. Vapors from glycol regeneration would be routed to a single thermal oxidizer to reduce emissions.
- Annual generation of an additional 200,000 gallons of produced water, maximum (for an annual total of up to 400,000 gallons for all plant units). This increase could be accommodated within the existing 100,000-gallon capacity of the six existing produced water tanks. The existing system is set up so that produced water from the gas withdrawal process train is temporarily stored in the tank farm and is then routed through a pump skid to the deep aquifer injection well located at the RFS. In the rare event that produced water volume increased above the expected level, Wild Goose might use the services of a licensed trucker to haul the water to an approved disposal/injection well (truck trips associated with such an occurrence would be very few and are estimated at fewer than three per year).
- Installation of an additional glycol regeneration system, including reboilers and a low emissions design thermal oxidizer, similar to the existing equipment.
- Possible installation of a new, 6,000-gallon glycol supply and storage tank to supply make-up glycol for any minor amounts lost in the natural gas process train. The tank would also provide temporary storage for glycol removed from the dehydration system during maintenance.
- Installation of a 2.5-megawatt (MW) standby diesel-fueled generator. This generator would provide sufficient power to run the entire plant process temporarily while the PG&E power distribution system was down. The generator would be used rarely but would provide added reliability for California electrical and gas infrastructure when gas had to be withdrawn or placed onto PG&E's distribution system. Under a worst-case power loss scenario in which the generator would be required to operate up to 8 hours per quarter, the generator would use up to 4,500 gallons of diesel per year (WGS 2009). The generator would be housed in a new building on the RFS, and the existing standby generators would be taken out of service and re-used by Wild Goose.

References: WGX3 Plant 4, Plot Plan Phases 1-5 (2 companion maps), Swift Engineering Inc., 11/24/2009



Proposed Phase 3 expansion facililty

Existing landscape berm

Phase 3 proposed landscape berm

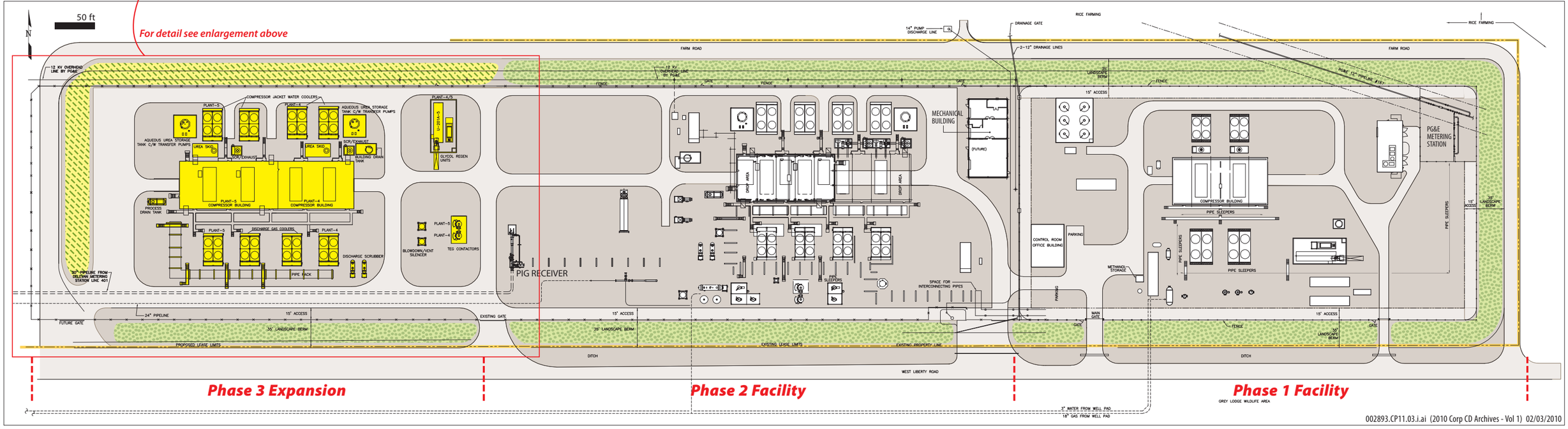


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Figure 2-6

Phase 3 Expansion Components – Remote Facility Site

Wild Goose Phase 3 Gas Storage Expansion Project

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Air photo source: Wild Goose Gas Storage, LLC

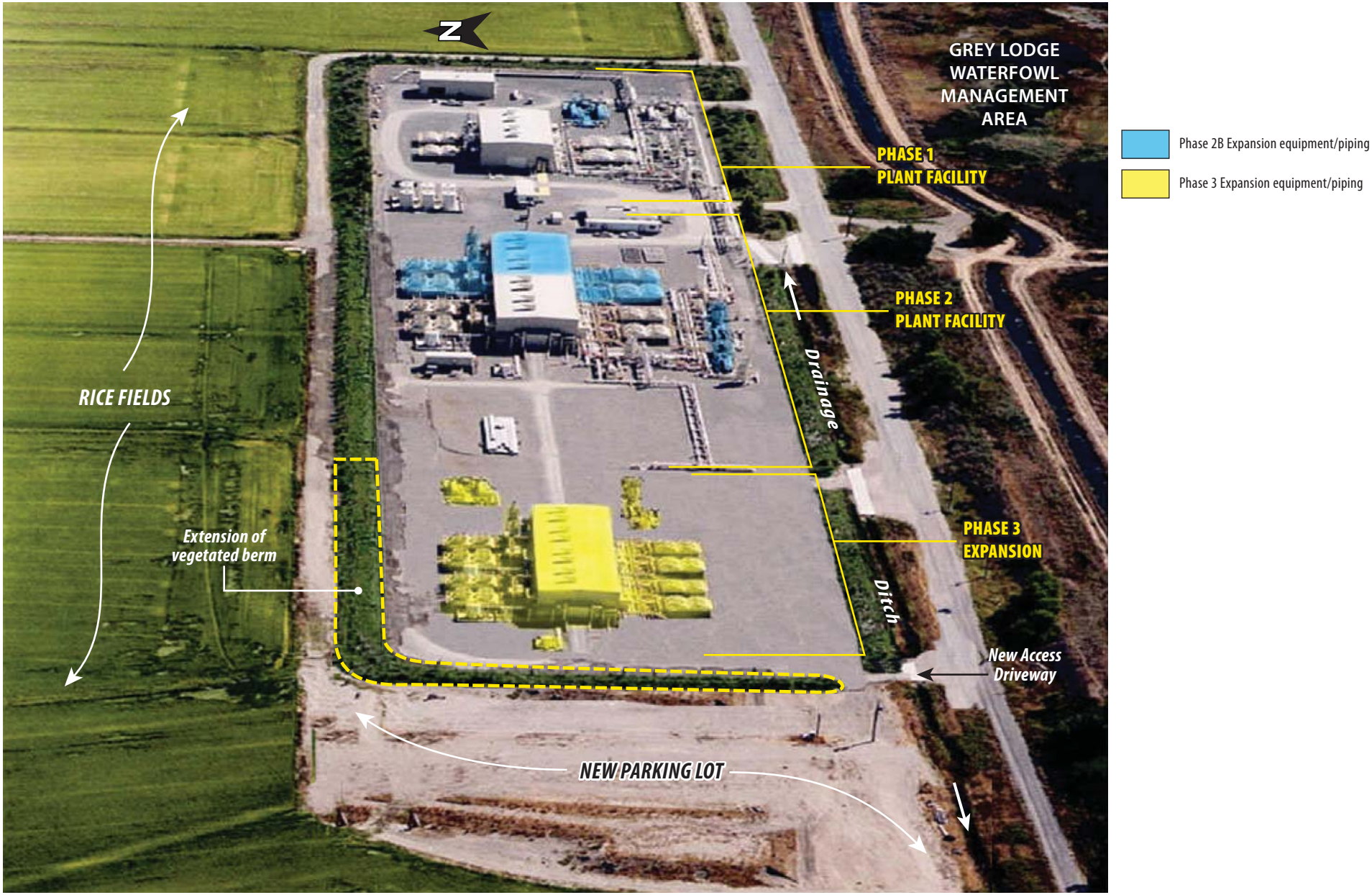

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Figure B-7

Phase 3 Expansion Components

Wild Goose Phase 3 Gas Storage Expansion Project

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Source: TRC, 2009, and (Base Map) Google.com, Google ©2010

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Figure 2-8

Phase 3 Expansion Components – Delevan Interconnect Site

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- Use of an additional 200 gallons of water per day (for a total of up to 600 gallons per day of onsite water usage). This increase in water usage would be accommodated by the current well at the site, which has a current yield of 60 gallons per minute. Only very minor changes in drinking water consumption volumes and wastewater handling are expected from the Phase 3 Expansion.
- Injection of cushion gas into the U-1 and U-2 zones to re-establish the gas saturation, slowly depress the natural gas/water contact zone in the porous sandstone formations, and establish the base field pressure. Cushion gas injection would take place two to three months prior to use of the U-1 and U-2 zones for gas storage. Data collected and analyzed from gas injection and withdrawal from the gas field as well as testing performed on the reservoirs indicates that cushion gas in these fields should be increased to from 0.5 to 6.2 Bcf in the L-1 zone, from 6.5 to 11.1 Bcf in the L-4 zone, and a total of 4.0 Bcf in the U-1/U-2 zone.
- Use of approximately an additional 5,250 pounds of mercaptan gas odorant (at a ratio of approximately 0.25 pounds of mercaptan per million standard cubic feet [MMSCF] of gas) for the increased volume of gas injected and withdrawn from the reservoir that will pass through the RFS gas withdrawal process train. The existing mercaptan storage facility at the RFS has the capacity to hold this increase in volume.

Testing and modeling of Phase 3 Expansion gas storage volumes indicates that the maximum injection pressure gradient that would be reached at 50 Bcf of gas storage would not exceed 0.6 psi/foot, below the maximum pressure gradient allowed by DOGGR of 0.7 psi/foot (WGS 2010).

Natural gas would be used as the fuel for the compressor engines and glycol reboiler. Diesel would be used to fuel the 2.5-MW standby generator. Fuel gas would be obtained directly from natural gas storage supplies or purchased from natural gas supplies available on the PG&E system.

Electricity from PG&E's existing 12-kV distribution line along West Liberty Road would continue to be used for the jacket water coolers, process gas coolers, pumps, site lighting, office lighting, HVAC system, air compressors, and other miscellaneous equipment. An analysis of the electricity requirements of the Wild Goose Facility including the Phase 3 Expansion, PG&E has indicated that upgrades to the existing distribution line would be required to handle the additional load, as described below in Section 2.4.4.

Pacific Bell provided upgraded phone service from its existing cable along Pennington Road during development of the first phase of the facility; no further upgrades would be required for the Phase 3 Expansion.

After construction, the RFS would be enclosed by a 6-foot-high chain link security fence. While the proposed expansion area, including berms, would increase the RFS lease area an additional 4.5 acres to a total of 16.7 acres, the total fenced operations area would increase by 3.7 acres to a total of 12.4 acres. The existing perimeter landscaped berm would be extended to surround the expanded site.

A driveway currently providing access from West Liberty Road to the existing farm equipment storage and parking area (shown in Figure 2-3) would be removed. The stormwater culvert beneath this access driveway in the drainage ditch along West Liberty Road would also be removed. A new driveway of similar dimensions providing access from West Liberty Road to the west edge of the lease area would be added to provide access to the new farm equipment storage and parking area, and a new culvert would be installed under this driveway.

All proposed aboveground structures would be painted the same neutral color as the existing facilities to minimize visual impact.

2.4.2 Delevan Interconnect Site

Phase 3 Expansion components at the Delevan Interconnect Site are shown in Figure 2-9 and would include:

- An expansion of Wild Goose operations at the Delevan Interconnect Site. Expansion elements would include installation of additional piping, valves, and instrumentation, including a new meter line. The new station piping improvements would tie in immediately downstream of the pig launcher before the pipeline enters the ground departing east toward the RFS. Some minor excavation (approximately 300 cubic yards) would be required for this work. Modifications, including the construction staging area, would be confined to within the existing 0.6-acre footprint of the site.
- An expansion of PG&E operations at the Delevan Interconnect Site, which would be carried out by PG&E. The changes would involve an increase in the size of the PG&E fenced area and the installation of a new custody transfer meter and associated piping, valves, and instrumentation, including pipeline monitoring equipment, that would parallel the existing meter run. Modifications would be expected to be confined to within the existing 0.6-acre footprint of the site.
- Minor upgrades to PG&E's electrical and telecommunications infrastructure, comprising lines that would extend from the Delevan Interconnect Site to the Line 400 transmission pipeline in an existing underground conduit with capacity for such upgrades.

The pipeline materials would be constructed of a high strength steel pipe and would be cathodically protected for corrosion control. Pipelines would have a factory-applied external protective coating, and field welds and connections would be coated or wrapped in a similar way. Pipeline wall thickness would be determined by the operating pressures in accordance with applicable codes and regulations.

2.4.3 Hot Tapped Pipeline Connections to PG&E Line 401

Currently, the Wild Goose Connection Pipeline only connects to the PG&E Line 400 pipeline, which runs parallel to the PG&E 401 pipeline. New connections from the Connection Pipeline to PG&E Line 401 are required to accommodate the increase in gas volume from the Phase 3 Expansion. This project component would be carried out by PG&E, and would include excavation at the location of PG&E's Line 401 and the installation of three approximately 50-foot-long pipeline segments from the Wild Goose Connection Pipeline to the PG&E Line 401. To avoid interruption to operations and gas flow through PG&E Line 401, this installation would be completed using a "hot tap" procedure, which allows the construction contractor to safely tie in to a pressurized system while the system is fully operational. A diagram of this procedure is presented in Figure 2-9.

Hot Tap Description and Process

A hot tap is defined as the process associated with safely cutting/tying in to a pressurized system while under full operating conditions. A typical hot tap installation consists of a tapping saddle, gate valve, and hot tap machine. The installation is tested, the valve is opened, and the cutter and pilot drill advanced. When the cut is completed, the cutter and pilot drill are retracted, the valve is closed, and the hot tap machine removed.

Basic steps for hot tap:

1. Weld a saddle (full encirclement) fitting with flanged nozzle to the exterior of the pipe that is being tapped.
2. Bolt a flanged gate valve to the flanged nozzle.
3. Bolt a hot tap drill machine to the downstream side of the gate valve.
4. Open the gate valve, and with the hot tap machine, drill a pilot hole through the wall of the process pipe.
5. Retract the drill and coupon, close the gate valve, and remove the hot tap machine.

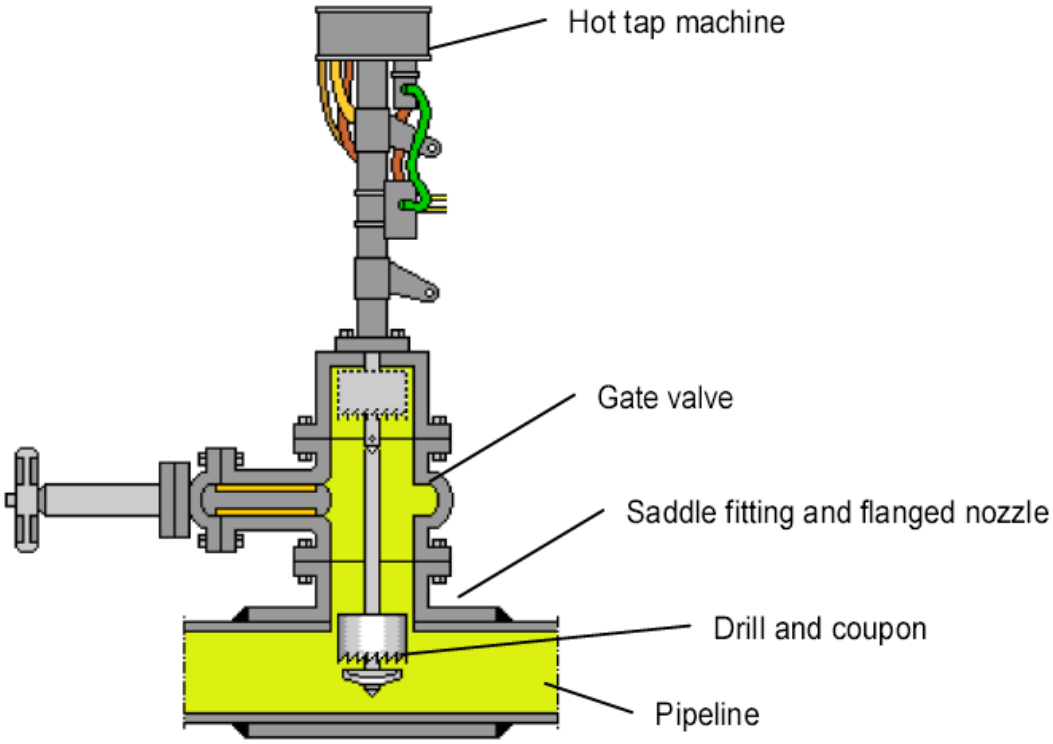

Figure 2-9 Hot Tap Description and Process
(SOURCE: WGS 2009)

The pipeline connection and all ground disturbance associated with this component of the Phase 3 Expansion would take place in an area of approximately 0.25 acres and would largely remain within PG&E's existing easement, except for an area approximately of 1,000 square feet (on land owned by a local agricultural producer) adjacent to the easement.

2.4.4 PG&E Electrical Distribution Line Reconductoring Component

As described previously, electricity from an existing PG&E 13-kV electrical distribution line would be used to power equipment and operations at the expanded RFS. An analysis of the electricity requirements of the Wild Goose Facility, including the Phase 3 Expansion completed by PG&E, indicates that an additional ground- or pole-mounted 1,500-kilovolt-ampere (kVA) transformer would be required, which would exceed existing capacity on the distribution line to the RFS. To accommodate the increase in use as well as to increase reliability, PG&E would upgrade distribution lines in the vicinity of the RFS by reconductoring up to 6 miles (32,400 feet) of electrical line. Reconductoring refers to the replacement of the existing, pole-supported electrical distribution line (conductor) with new, similar materials, through a process of "pulling and tensioning," as described below.

The existing distribution lines proposed for reconductoring are located along the road shoulders of West Liberty Road, Pennington Road, and the Colusa Highway. They are single-circuit, pole-mounted lines, each carrying a single 13-kV circuit between the RFS and local substations. A total of 196 poles support the distribution line segments that would be reconductored. Reconductoring would provide more reliable electrical service to the RFS, and would not increase the voltage (rating) carried by the line. As part of the Phase 3 Expansion, reconductoring activities would include the following:

- Removing conductors and replacing them with new aluminum cable and
- Replacing existing wood poles as necessary along the distribution lines to accommodate the higher tension load of the new conductors; replacement poles would be similar in type and dimensions to the existing structures.

PG&E has identified two potential alignments for the proposed reconductoring upgrade, as shown in Figure 2-10. Option A (the proposed alignment) is shown in blue and is approximately 23,000 feet long. Option B (the alternative alignment) is shown in yellow and is approximately 32,400 feet long. PG&E would implement either Option A or Option B, depending on the final results of electrical distribution engineering studies.

As shown in Figure 2-10, reconductoring the distribution line along the Option A alignment would be undertaken in three segments. The first segment of the Option A route would begin at the intersection of West Liberty and Pennington roads and extend south along Pennington Road for approximately 5,300 feet to the intersection with West Evans Reimer Road. The second segment would continue from this intersection east along the shoulder of West Evans Reimer Road for 9,000 feet. The next 14,000 feet along West Evans Reimer Road would not be reconductored; the third reconductoring segment would then begin and continue for approximately 8,700 feet until the intersection of the distribution line with State Route 99. A switch would be installed in the middle of the first segment of the route along Pennington Road. All the Option A reconductoring alignment would be in unincorporated Butte County.

Base map source: ***Butte County Important Farmland 2006***, California Dept. of Conservation, Farmland Mapping and Monitoring Program (FMMP), June 2008
Williamson Act Lands source: Butte County GIS, 2009

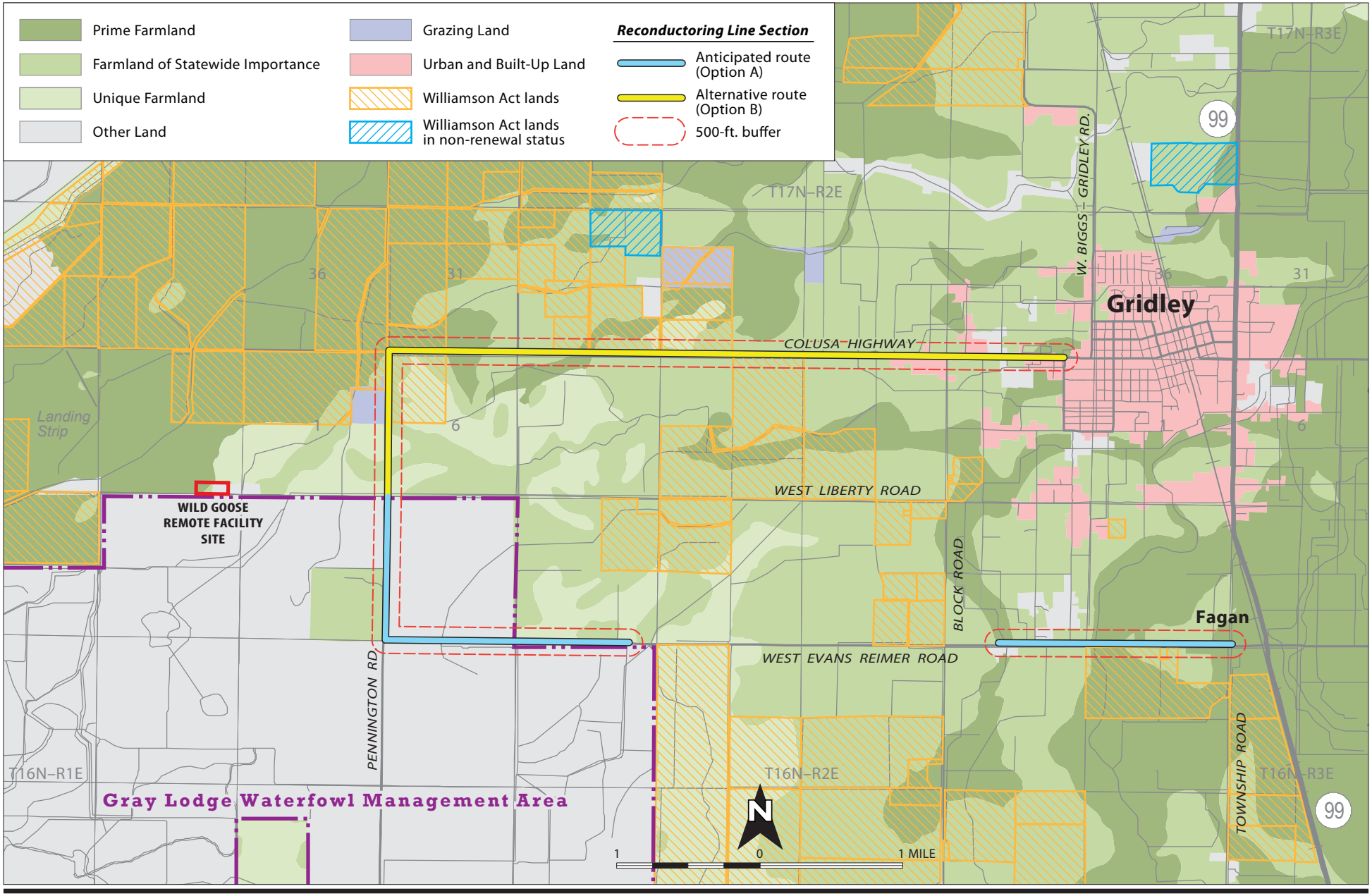

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Figure 2-10

PG&E Reconductoring Component

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As shown in Figure 2-10, reconductoring the distribution line along the Option B alignment would be completed in two segments. The first segment of the Option B route would begin at the intersection of West Liberty and Pennington roads and extend north along Pennington Road for approximately 5,400 feet to the intersection with the Colusa Highway. The second segment would continue from this intersection and extend east along the Colusa Highway for approximately 25,000 feet. Most of the Option B reconductoring alignment is in unincorporated Butte County, but approximately 2,000 feet is in the City of Gridley, as shown in Figure 2-10.

Specific details of the reconductoring activities are provided below.

Conductor Removal and Replacement

During the reconductoring process, the existing 13-kV distribution line and any distribution lines that cross or are co-located on the line would be temporarily taken out of service. Conductors would be removed and replaced between the wooden poles supporting the existing distribution line. For each section of new conductor (pull section), a "puller truck" with an empty conductor reel would remove the old conductor, and a "line truck" containing a large spool of conductor would feed new conductor onto the line (Figure 2-11). The puller truck would draw the new conductor into place, while another truck located at the opposite end of the pull section would draw tension on the line during placement (a process known as "tensioning"). Typical pull and tension sites are approximately 40 feet wide by 100 feet long. Pull and tension sites would be located directly adjacent to the wooden poles and would be spaced approximately 1 mile apart along the alignment. Where the alignment was at a 90-degree or greater angle, the new conductor would likely be pulled and tensioned from intermediate points along the alignment.

Figure 2-11 Typical Line Truck
(Source: PG&E)

Trucks used for conductor pulling and tensioning would operate from the roadway shoulder or partly within the road. For work in the road, the construction contractor would implement a traffic control and management plan to ensure safe operation and maintain traffic flow. PG&E or the reconductoring

contractor would also obtain any necessary approvals for road encroachment. No grading of the reconductoring sites and no additional construction staging areas would be required.

All work would be performed in accordance with PG&E's normal operations and maintenance procedures and safe practices. Conductor removal and replacement would follow the steps described below.

Step 1: Grounding

To protect workers, equipment would be grounded to capture induced voltage[1] from nearby active circuits. During reconductoring, 0.625-inch diameter copper rods (ground rods) would be driven into the ground near reconductoring equipment. Ground rods would be installed deep enough to reach firm ground, with approximately 1 foot of the rod protruding aboveground. Construction equipment would be connected to the ground rods during reconductoring and be disconnected when the line was restored to service.

Step 2: Unclipping and Traveler Installation

Detaching (unclipping) the existing conductor from the insulators on the poles would be carried out from a line truck with a worker lift attachment. After equipment grounding, workers in the lift would unclip and remove the existing conductor from the insulators, place new insulators for the new conductor, and place rollers at the insulator ends to receive the new conductor. The existing conductor would be supported by a line truck during the reconductoring process.

Step 3: Conductor Replacement

After the rollers were installed, a cable from the puller truck would be attached to the existing conductor at one end of the pull section (the pull site), and a nylon pulling rope would be attached to the existing conductor on the opposite end (the tension site). As the puller truck removed the old conductor and reeled it onto an empty conductor spool, the rope would be pulled into place along the rollers. Once the pull rope was in place, the new conductor would be attached to the rope at the opposite end. Reel stands mounted on a line truck at the tension site would feed new conductor along the rollers while maintaining tension in the new line so that it did not sag to the ground as the conductor was simultaneously drawn onto the rollers from the pull site. The new conductor would be pulled onto the poles under a controlled tension to maintain its elevation and keep the line away from obstacles, thereby preventing damage to the line and protecting the public.

Once the new conductor was pulled into place and the conductor tension between poles was adjusted, the conductor would be removed from the rollers and clipped into the end of each new insulator by workers in the truck lift. The rollers would then be removed, and vibration dampers and other accessories would be installed on the conductor as needed.

Old conductor would be removed from the sites on a line truck and trailer, then salvaged at a location such as the PG&E service yard in Gridley or recycled. Any construction debris (such as packing crates or spare bolts) would be picked up and removed for recycling or disposal. PG&E personnel would also conduct a final survey to ensure that cleanup activities had been successfully completed.

[1] Induced voltage refers to voltage generated in a conductor when subjected to a moving magnetic field. Although the distribution line would be taken out of service during reconductoring activities, equipment and other potentially conducting material might be subject to induced voltage from other active circuits nearby.

Wooden Pole Replacement

During reconductoring activities, PG&E may remove and replace some of the existing wooden poles along the distribution line route, if it were determined that older poles might not be sufficient to support the weight and tension of the new conductor. New poles would be installed adjacent to the existing poles to facilitate the easy transfer of the reconductoring materials.

The existing poles are not secured in the ground with concrete foundations. They would be removed using a line truck equipped with a boom arm, which the construction crew would use to loosen poles as needed and then to pull the poles directly out of the ground. Poles might also instead be cut at ground level or 6 to 12 inches below the ground and left in place.

Replacement poles would be installed in holes excavated by a line truck with an auger attachment (highway digger with a 15- to 18-foot depth capacity). New switches and other associated hardware would be installed on poles as needed. Soil excavated for new poles would be used for excavation backfill or would be spread on the ground near the pole excavation.

All removed poles, associated hardware, and any other construction waste would be taken from the reconductoring component area and disposed of in accordance with local, state, and federal regulations and guidance. Any areas disturbed during reconductoring would be restored after project activities in this area were complete.

Construction Staging, Schedule, and Equipment

Access to the reconductoring areas would be primarily by existing major roadways suitable for truck traffic, including highways and county roads. Staging for worker parking, and equipment and material storage during reconductoring activities, would be located in the road or along the road shoulder and no other areas along the proposed alignments would be disturbed during reconductoring activities.

Where areas of sensitive habitat or wetlands are located directly below or immediately adjacent to the distribution lines, reconductoring activities would be restricted to existing paved surfaces or other previously disturbed adjacent areas. Wetland areas would be delineated and flagged, and work crews would be instructed to completely avoid these features by restricting reconductoring activities to at least 50 feet from any identified wetlands. In addition, a Stormwater Pollution Prevention Plan (SWPPP) would be written for the entire project as described in APM HYDRO-2, and workers would receive written instructions on the plan as well as pre-construction (tailgate) training as needed.

As discussed in Section 3.3, Biological Resources, potential habitat for a number of special-status species such as GGS and western burrowing owl is present in areas adjacent to each of the reconductoring alignments. No more than 30 days in advance of site preparation or construction activities, the applicant or its contractor would perform preconstruction special status plant and wildlife species surveys within suitable habitat in and adjacent to reconductoring work areas during appropriate survey time periods, as described below and in Section 3.3. In addition, wherever possible, the applicant would avoid reconductoring activities from February 1 through August 31 (the typical avian nesting season) and from May through September, when GGS is most active and can disperse if threatened.

Encroachment permits would be obtained from the California Department of Transportation (Caltrans) and Butte County as necessary for work in roads or highways. Traffic control may be required for work along or in major roadways; all required permitting, notification, and safety measures for any traffic control would be completed and put in place prior to construction. As mentioned earlier in this section, a

traffic control and management plan would be prepared according to Caltrans requirements and submitted for approval to the Butte County Public Works Department.

The reconductoring work is projected to start in September 2011 and to take from 4 to 8 weeks. Expected equipment and personnel needs for the work are shown in Table 2-1.

Table 2-1 Anticipated Personnel and Equipment for Reconductoring

Activity	Personnel	Equipment	
		Quantity	Equipment
Pole and Conductor Installation (includes old pole removal)	4-6	2	crew-cab truck
		1	line truck with worker-lift attachment
		1	line truck with auger attachment
		1	wire reel attached to line truck
		1	puller attached to line truck
		1	tensioner attached to line truck

Operation and Maintenance

No additional maintenance along the reconductored distribution line would be required beyond existing ongoing maintenance. Existing maintenance includes aerial inspection, ground inspection, and climbing inspection, as needed. Aerial and climbing inspections are performed only if a problem is identified or a ground inspection indicates the need for a closer inspection. Frequency of inspection may vary depending on the age of the system, vegetation conditions, and other factors but typically occurs at least once a year. Inspection activities could include assessing the line for corrosion, misalignment, and deterioration, and assessing the condition of hardware, insulators, and conductors. PG&E personnel drive to the poles in a pick-up truck to perform inspections.

CPUC Notice of Construction for Reconductoring

The Notice of Construction process for PG&E's reconductoring component is an exemption from the CPUC's formal permitting requirements under CPUC General Order 131-D, Section III, B.1, which exempts from CPUC permitting requirements "the placing of new or additional conductors, insulators, or their accessories on supporting structures already built."

2.4.5 Construction Activities

This section describes construction activities specific to each of the Phase 3 Expansion components. Section 2.4.5 provides details of the overall Phase 3 Expansion construction schedule, work force, and equipment.

No more than 30 days in advance of site preparation or construction activities, the applicant or its contractor would perform preconstruction special status plant and wildlife species surveys within suitable habitat in and adjacent to project work areas at the RFS, Delevan Site, hot tapped pipeline connections locations, and reconductoring component area, and during the appropriate survey windows, as described below and in Section 3.3, Biological Resources.

The applicant would prepare and implement a Hazardous Materials Release Response Plan for the Phase 3 Expansion. Construction contractors would update the plan as required by state, local, and federal regulations. The applicant would also update the facility's Storm Water Pollution Prevention Plan (SWPPP) for the Phase 3 Expansion.

Remote Facility Site

Site Preparation/Development

As part of site preparation activities, species exclusion fencing and temporary berms would be installed around the Phase 3 Expansion area at the RFS. Prior to species exclusion fencing installation and berm construction, all utilities (such as stormwater drainage pipes) that could provide a conduit for species movement between the RFS and the adjacent rice fields would be closed or temporarily blocked.

Species exclusion fencing would then be installed at the RFS to prevent giant garter snake (*Thamnophis gigas*), a federal- and state-listed threatened species known to be present in the site vicinity, from moving onto the site during construction activities. Fencing would be installed within the site perimeter and outside of perimeter access routes such that worker access to the site would not be obstructed; after the installation of the temporary berms, the fencing would be relocated to within the berms and perimeter access routes. Wild Goose or its construction contractors would coordinate and confirm appropriate fencing materials, installation techniques, and maintenance with U.S. Fish and Wildlife Service (USFWS) and CDFG staff.

After the initial installation of the species exclusion fencing, temporary soil berms composed of local native materials approximately 3.5 feet wide and up to 3 feet high would be constructed within the fencing around the west and north perimeter of the increased RFS area. The source of materials for the berms would likely be imported native material similar to or the same as the material used for fill over the rest of the site, as described below.

Once the temporary berms were installed and species exclusion fencing was relocated, the site would be stripped of topsoil and organic material, and the area for building foundations would be over-excavated (i.e., excavated below the grade required for construction). Approximately 42,000 cubic yards of material would be excavated from the site during this stage and stockpiled on the existing RFS east of the Phase 3 Expansion area, for later use as part of the fill for the permanent perimeter berm. The foundation areas would be filled with structural fill and compacted to support the concrete foundations and anticipated weight of the Phase 3 equipment. The remainder of the fenced area would be filled, leveled, and compacted with clean structural fill to bring the subgrade up to the elevation of the adjacent rice field dikes. Approximately 45,000 cubic yards of structural fill material would likely be obtained from one of the two quarries on the Sutter Buttes to the south. Fill material would be composed of non-expansive, low plasticity soil mixtures with maximum particle size of 3 inches and organic content less than 3 percent. Due to the high water table at the site, engineered fill immediately under some foundations may be "flowable fill," a lean concrete mix that would self-consolidate and harden to the required integrity without mechanical compaction. Approximately 4,200 cubic yards of aggregate (clean gravel) would be spread and compacted over the subgrade to create a stable surface for construction activities. Drainage structures would be installed, and the final grade of the gravel surface would be sloped to drain into stormwater facilities and/or the existing drainage ditch immediately north of West Liberty Road.

Site development would continue with the civil, foundation, and structural work; mechanical and piping work; building erection and fabrication; electrical and instrumentation; and, finally, installation of permanent berms, landscaping, and cleanup. During foundation excavation, forming, and concrete work, sump pumps would be used to dewater the foundation areas. This groundwater would be pumped, filtered, and discharged into the West Liberty Road drainage ditch consistent with the applicable National Pollutant Discharge Elimination System permit.

Construction water would be obtained through contract arrangements with local water suppliers, irrigation and drainage districts, or hunting clubs that have water rights, as described in Section A.6, Hydrology.

Approximately 1.6 million gallons of water would be required for construction (primarily for dust control on roads), as described in Section A.6, Hydrology.

Construction Staging

Staging for worker parking, equipment, and material storage would be located in the existing RFS facility (Plants 1, 2, and 3) area, the Phase 3 Expansion area, and possibly within the relocated parking area. Construction office trailers may be located either near the existing control building or in the expansion area. Temporary construction electrical service connections would be made from the existing PG&E electric distribution line along West Liberty Road as needed. Contractors would drink bottled water and use portable toilets.

Site Access

Heavy equipment for the construction at the RFS would be brought in on West Liberty Road via Gridley Road and Pennington Road. The existing bridge on West Liberty Road was previously upgraded to handle standard maximum weight loads. Material delivery from Sutter County would use West Butte Road, North Butte Road, and Pennington Road. The condition of these roads would be reviewed with Public Works Department staff from Butte and Sutter counties prior to construction and again after construction. The counties would be reimbursed for road repairs necessitated by damage from construction traffic and hauling.

Cleanup

Cleanup and restoration of the surface and temporary workspaces would involve removing construction debris, final grading to the finished contour, decompaction of topsoil, and revegetation as described in Section 3.3, Biological Resources.

Commissioning

Commissioning would involve drying the inside of the pipeline, purging air, and filling the pipeline with natural gas.

Delevan Interconnect Site and Hot Tapped Pipeline Connections

Site Preparation/Development

Site preparation at the Delevan Interconnect site would be limited to the existing site footprint. A minor amount (approximately 300 cubic yards) of material excavated to approximately 7 feet bgs would be required for the installation of the new Wild Goose and PG&E site components. Site preparation at the location of the hot tapped pipeline connection would require excavating to approximately 15 feet bgs, removing approximately 740 cubic yards of material.

Cleanup and restoration of the surface and temporary workspaces would involve removing construction debris, grading to the finished contour, decompacting the topsoil, and revegetating, if needed. Commissioning would involve drying the inside of the pipeline, purging air, and filling the pipeline with natural gas.

Construction Staging

The construction staging area for the improvements planned by the applicant at the Delevan Site would be located within the existing site footprint.

PG&E would manage construction activities pertaining to modifications at the Delevan Site and installation of the pipeline connections that would be hot-tapped into Line 401. The construction staging

area for the PG&E elements would also be within the existing Delevan Site. The construction staging area may include worker parking, a construction office trailer, and/or a material laydown area. The staging area may also be fenced for security.

Staging for the hot tapped pipeline connections would take place within the existing PG&E easement for Line 400/401, as well as a small (approximately 4,500-square-foot) area adjacent to the easement. The total area disturbed during construction activities would be approximately 0.6 acres.

Construction contractors would drink bottled water and use portable toilets.

Site Access

The Delevan Site is accessed by the existing private paved road to the Delevan Compressor Station. Access to this private road is via graveled Delevan Road from Glenn County to the north or from the east via the end of Dirks Road in Colusa County. Access to the hot tap work location would be from an existing unpaved road that leads from the private road to the PG&E easement for Line 400/401.

Pipeline Installation (Hot Tap Connections)

The pipelines for the hot tap connections would be installed using a cut-and-cover approach, which entails excavating a trench, installing sections of pipeline into the trench, and backfilling the trench. Trenching would be conducted by tracked backhoes or ditchers, and would begin by removing the topsoil over the trench and segregating it at the edge of the construction area for replacement following construction. The excavated subsoil would be maintained in a windrow to be used as trench backfill following installation of the pipe. The trench would be a minimum of 45 inches wide (1.5 times the pipe diameter) and up to approximately 6 feet deep to ensure 3 feet of cover over the pipeline.

Backfilling the trench would involve replacing the excavated subsoil in the appropriate layers. The topsoil would then be re-spread to return the surface to its original grade. The bucket of the backhoe would be used to compact the backfill in the trench. When all the subsoil was replaced, the tracks of the backhoe might be driven along the trench to further compact the subsurface. The topsoil would be replaced last to re-establish the preconstruction soil profile. Topsoil may be mounded slightly over the trench to accommodate any future settling of the trench backfill. Backfilling would occur within 72 hours of pipeline installation to preclude potential impacts to wildlife that may fall into the trench. At the conclusion of each day's trenching activity, the end of the trench would be left ramped at an approximate 2-to-1 slope to allow any wildlife falling into the trench to escape.

On completion of pipeline construction, the pipeline would be hydrostatically tested. Test water would be analyzed for potential contaminants prior to testing; depending on its quality, the water would be either discharged upland or trucked to an appropriate offsite facility. The test and flushing water would be drawn from local sources and returned to these sources as described in Section A.6, Hydrology. An energy dissipation basin consisting of hay or straw bales would be assembled to control the water discharged from the pipeline following hydrostatic testing and flushing. All discharges to waterways would be conducted in compliance with the National Pollution Discharge Elimination System (NPDES) General Permit requirements administered by the Central Valley Regional Water Quality Control Board.

Cleanup

Cleanup and restoration of the surface and temporary workspaces would involve removing construction debris, grading to the finished contour, decompacting the topsoil, and revegetating as described in Section 3.3, Biological Resources.

Commissioning

As described above, commissioning would involve drying the inside of the pipeline, purging air, and filling the pipeline with natural gas.

Reconductoring Component Area

The reconductoring project component would require minimal site preparation and construction staging, as described above under Section 2.4.4. The area would be accessed by the existing paved roads, including Pennington, West Liberty, and West Evans Reimer roads, as well as the Colusa Highway. Further details of reconductoring activities are discussed above.

2.4.6 Construction Schedule, Work Force, and Equipment

Construction Schedule

Site preparation and construction would take into consideration, and would generally take place outside of, the windows of potential impacts to sensitive species, as described in Section 3.3, Biological Resources, and as summarized here, unless otherwise authorized by the USFWS and CDFG. These windows are:

- Giant garter snake – Inactive (hibernation) season, October through April
- Nesting birds (raptors) – Nesting season, mid-February through early July
- Burrowing owl – Breeding season, mid-February through August 31
- Amphibians – Breeding season, October through April (normal wet season)
- Aquatic/Wetlands/Vernal Pools Plants – Blooming season, October through April (normal wet season)

To avoid impacts on giant garter snake according to the above, site preparation at the RFS would occur between May and September. Because rice fields adjacent to the RFS would usually be flooded by May 1 and may not be harvested until the end of September, Wild Goose has negotiated with the agricultural landowner, who would install temporary rice dikes during normal rice field preparation activities around late March or early April to isolate the property from the adjacent fields and prevent it from flooding. Site preparation and temporary berm installation, along with any work on the berms, including landscaping and cleanup, would be performed outside of the hibernation period for the giant garter snake to avoid potential impacts, as discussed in Section 3.3, Biological Resources. Construction and cleanup activities at the RFS inside the snake exclusion fencing and landscaped berms could occur within the hibernation period. After primary construction was completed, mechanical and other work that did not entail ground disturbance might continue beyond September 30.

To avoid impacts on sensitive bird species during their breeding and nesting season, construction activities would be delayed near active nests until chicks had fledged. Further information on measures that would be taken by the applicant to avoid harm to sensitive species is included in Section 3.3, Biological Resources.

Impacts on waterfowl management and hunting activities in the area would also be avoided by limiting noise-producing construction activities during the hunting season, which typically runs from mid-October through late January, as described in Section A.8, Noise. The construction schedule provides a split construction period for the mechanical work at the RFS to reflect this constraint. Limited indoor activities or quiet outdoor activities such as electrical and instrumentation work might occur during hunting season. If schedule variables made it necessary to continue full outdoor construction activities into the beginning of hunting season, or to resume full outdoor construction activities before the end of hunting season, the

applicant would negotiate with the adjacent hunting lessees and the Gray Lodge Wildlife Area manager to compensate for the lost hunting opportunities.

A tentative Phase 3 Expansion schedule is provided in Table 2-2.

Construction Work Force

Based on the anticipated schedule, a maximum of approximately 176 workers (150 at the RFS, 20 at the Delevan Interconnect Site and hot tapped pipeline connection location, and 6 at the area of the reconductoring component) would be involved in the construction of the Phase 3 Expansion. Workers would typically be on site between 6 a.m. and 7 p.m., though these times may vary. Worker origin would depend on the Phase 3 Expansion component and is further described in Section A.9, Population and Housing. The workforce for construction of the proposed facilities would be composed of environmental health and safety personnel and the following skilled labor categories:

- Pipefitters
- Equipment operators
- Welders
- Carpenters
- Electricians
- Iron workers
- Surveyors
- Instrumentation personnel
- Laborers
- Swampers
- Mechanics
- Non-destructive examination (NDE) personnel
- Painters/insulators
- Electrical distribution line workers and pole removers

Equipment

Tables 2-3, 2-4 and 2-5 list the equipment proposed to be used during Phase 3 Expansion construction.

2.4.7 Operation and Maintenance

Operation and maintenance procedures of the Wild Goose Facility, including general system monitoring and control, facility inspection and surveys, and maintenance and repair, are described in the 2002 EIR. The Phase 3 Expansion would not require material changes to operation and maintenance procedures, although the expanded RFS facility would require additional staff.

The Wild Goose Facility currently has a staff of six operations and maintenance workers, all of whom are stationed at the RFS. The Phase 3 Expansion would increase the staff by up to three additional workers. The facility would remain staffed seven days per week with a day shift to meet customer injection or withdrawal nominations. Evening and weekend call-out duties would continue to rotate among the staff.

Maintenance of the reconductored distribution line would be infrequent and require few workers, as discussed above, in Section 2.4.4.

Table 2-2 Tentative Site Preparation, Construction, and Restoration/Cleanup Schedule

Activity	2010								2011												2012												2013				
	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
1. Site Prep																																					
2. Berms																																					
3. Civil etc.																																					
4. Mechanical etc.																																					
5. Electrical etc.																																					
6. Restoration etc.																																					
7. Reconductoring																																					

1. Site Preparation
2. Installation of Permanent Berms
3. Civil, Foundation, and Structural Work
4. Mechanical Piping and Building Fabrication/Erection
5. Electrical and Instrumentation Work
6. Landscaping, Cleanup, Restoration

□ PG&E Delevan Meter Station & Hot Tapped Pipeline Connection Construction Activities

□ Remote Facility Site Plant 4 Construction Activities

□ Reconductoring Activities

□ Remote Facility Site Plant 5 Construction Activities

Table 2-3 Equipment for Project Construction, Remote Facility Site

Emission Source	Quantity	Frequency (Days on Site)
Inspector pickup	24	616
Safety pickup	10	616
Niska car	8	94
Electrician pickup	20	352
Erector pickup	8	352
Van	14	203
Contractor pickup	44	616
Dump/Cement truck	8	73
Boom truck	4	160
Fuel truck	7	196
X-ray truck	4	20
Semi truck	6	25
Flatbed truck	13	308

Table 2-4 Equipment for Project Construction, Delevan Interconnect Site and Hot Tapped Pipeline Connection

Equipment	Quantity	Frequency (Days on Site)
Pickup truck (1/2 ton)	11	132
Flatbed truck	3	15
Dirt hauling truck	1	22
X-ray truck	1	10

Table 2-5 Equipment for Reconductoring Component

Equipment	Quantity	Frequency (Days on Site)
Crew-cab truck	2	40
Line truck with worker-lift attachment	1	40
Line truck with auger attachment	1	40
Wire reel attached to line truck	1	40
Puller attached to line truck	1	40
Tensioner attached to line truck	1	40

2.4.8 Phase 3 Expansion Design Considerations

The applicant has incorporated into the Phase 3 Expansion a number of structural elements and practices, or applicant proposed measures (APMs) to avoid or minimize potential impacts on environmental resources. These APMs are part of the Phase 3 Expansion and are distinguished from mitigation measures for potentially significant impacts under CEQA. APMs have not been identified for all resource areas. If the Phase 3 Expansion is approved, the applicant will implement the APMs listed in Table 2-6 regardless of whether potential significant impacts were or were not identified during the CEQA environmental analysis.

Table 2-6 Project Design Features (PDFs)

Air Quality
APM AIR-1: Emissions from Construction Vehicles and Equipment. The following measures have been incorporated into the Phase 3 Expansion to reduce ROG and NOx emissions during construction activities: 1. Maintain all construction equipment in proper tune according to manufacturer's specifications. 2. Maximize, to the extent feasible, the use of diesel construction equipment meeting the CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines. 3. Electrify equipment where feasible.

Table 2-6 Project Design Features (PDFs)

4. Substitute gasoline-powered for diesel-powered equipment, where feasible.
5. Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.
6. Use equipment that has Caterpillar pre-chamber diesel engines.
7. Carpooling or bussing of workers will be encouraged.
8. The facility contractor will prepare an Off-road Construction Equipment Reduction Plan prior to groundbreaking. The Plan will include a comprehensive inventory (i.e. make, model, engine year, emission year, emission rating, fuel consumption rate) of all the heavy-duty off-road equipment, 50 horsepower or greater, that will be used an aggregate of 40 or more hours for the construction project, and will include the following:
    a. 20 percent of the heavy duty off-road equipment included in the inventory should be powered by USEPA/CARB certified off-road engines or by engine retrofit technology, exhaust filtration and low-sulfur diesel fuel, emulsified diesel fuels, or other CARB verified or certified technology.
    b. Construction equipment exhaust emissions will not exceed BCAQMD Rule 202 Visible Emission limitations.
    c. Utilize existing power sources (e.g. power poles) or clean fuel generators rather than temporary power generators. Minimize idling time to 10 minutes.
    d. Employ construction activity management techniques, such as extending the construction period outside the ozone season of May through October, reducing the number of pieces of equipment used simultaneously, increasing the distance between emission sources, reducing or changing the hours of construction, and scheduling activity during off-peak hours.
9. Develop a customized Construction Mitigation Program with assistance from the BCAQMD. The Construction Mitigation Program will incorporate the measures listed above, and reduce the construction impacts below BCAQMD significance thresholds.

APM AIR-2: Construction Fugitive Dust. The following measures have been incorporated into the Phase 3 Expansion to ensure PM10 emissions are minimized during construction activities:

1. Water shall be applied by means of trucks, hoses, and/or sprinklers as needed prior to any land clearing or earth movement. A water truck shall be on site at all times. All visibly dry soil surfaces and unpaved roads shall be watered to minimize dust emission. Water shall be applied to disturbed areas a minimum of two times daily. Haul roads will be sprayed down at the end of the work shift to form a thin crust. This application shall be in addition to the minimum rate of application.
2. Earthwork will be suspended when winds exceed 20 miles per hour.
3. Haul vehicles transporting soil into or out of the property shall be covered.
4. Onsite vehicles will be limited to a speed that minimizes dust emissions on unpaved roads. Vehicles entering and exiting construction areas shall travel at a speed that minimizes dust emissions.
5. A publicly visible sign will be posted with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective actions within 24 hours. The telephone number of the district shall also be visible to ensure compliance with District Rule 200 and 205 (Nuisance and Fugitive Dust Emissions).
6. Existing roads and streets adjacent to the Project will be cleaned at least once per day unless conditions warrant a greater frequency.
7. Access points will be stabilized with 6 inches of gravel to remove mud from construction equipment prior to entering paved roads.
8. Construction workers will park in designated parking areas to help reduce emissions.
9. Soil pile surfaces will be moistened if dust is being emitted from the piles. Adequately secured tarps, plastic, or other materials may be required to further reduce dust emissions.
10. Non-toxic chemical soil stabilizers or mulch will be used on construction areas that are inactive for at least four consecutive days.
11. Disturbed areas will be vegetated following construction.

Table 2-6 Project Design Features (PDFs)

APM AIR-3: Operational Emissions Permits. Issuance of an Authority to Construct and an amendment to the existing Permit to Operate by the Butte County AQMD will include measures that will confirm potential air quality impacts associated with the Phase 3 Expansion are less than significant. The applicant will provide a copy of the Authority to Construct and/or Amended Permit to Operate to the CPUC prior to construction of the proposed combustion facilities and equipment.
APM AIR-4: Valves and Flanges. The following measures will minimize fugitive emissions from valves and flanges: 1. Valves and flanges will be subject to a leak test following installation and following any maintenance on the valve. 2. Welded connections will be used to the extent feasible to minimize the number of flanges and threaded connections. 3. Unless necessitated by specific design requirements or valve location limitations, pipeline pressure valve actuators will not be used by the applicant. At the Phase 3 Expansion site, pneumatic valve actuators are presently powered by compressed air.
APM AIR-5: No Open Burning of Vegetation. No open burning of vegetation will be conducted during the Phase 3 Expansion.
APM AIR-6: Use of IC Engines Rather Than Gas Turbine Engines. The applicant has based the selection of compressor station engines on efficiency in order to reduce fuel consumption. The applicant determined that the only gas turbine engines available for Phase 3 Expansion application would be the Solar Centaur 40 Mechanical Drive engines. These engines are listed with an efficiency of 26 percent (12,905 BTU/kW-hr). In order to minimize fuel consumption, the Phase 3 Expansion has selected the Caterpillar 3616 IC engine, listed with an efficiency of 38 percent. This will reduce fuel consumption by 31 percent, resulting in a GHG reduction of over 14,000 MT CO2e/yr.
APM AIR-7: Use of Oxidizing Catalyst on Engine Exhaust. The four engines at the Phase 3 Expansion will incorporate catalytic oxidizers that have a destruction effectiveness of 60 percent. This will reduce the emissions of methane by 6,607 MT CO2e/yr below Interstate Natural Gas Association of America (INGAA) estimates of emissions of methane from incomplete combustion.
APM AIR-8: Incinerate Regenerator Emissions. The Phase 3 Expansion will use an existing thermal oxidizer to abate emissions from the Phase 3 Expansion. By using the existing thermal oxidizer, these emissions are reduced to 0.5 MT CO2e/yr.
APM AIR-9: Thermal Oxidizer Design. The thermal oxidizer processing Phase 3 Expansion emissions will have an efficiency of 99.95 percent. This will reduce GHG emissions from INGAA estimates assuming the thermal oxidizer would have an efficiency of 98 percent.
APM AIR-10: Replace Gas-Operated Pneumatic Valve with Air-Operated Valves. The Phase 3 Expansion will use instrument air instead of natural gas for valve operation. By using instrument air for the valves, GHG emissions will be reduced to zero.
APM AIR-11: Replace Gas-Operated Pneumatic Pumps with Electric Pumps. As a reduction measure, all of the chemical feed pumps in the Phase 3 Expansion will be electric-motor-driven, completely eliminating methane emissions from gas operated chemical feed pumps.
APM AIR-12: Fugitive GHG Emissions. The Phase 3 Expansion will reduce fugitive methane emissions with a well designed monitoring program. The program includes daily visual inspections, periodic sniffer monitoring, and many other operational practices.
Biological Resources
APM BIO-1: Giant Garter Snake Measures. Mitigation described in the Biological Resources Protection Plan for the giant garter snake, and consistent with the requirements in USFWS Biological Opinion dated September 13, 2002 (File No. 1-1-02-F-0060) and the CDFG Take Permit dated September 26, 2002 (File No. 2081-2002-017-02), will be implemented for the Phase 3 Expansion area. In addition, in order to avoid impacts to the giant garter snake, surface disturbing activities in potential snake habitat cannot generally occur during the months of October through April while the snake is hibernating. Potential habitat includes all flooded rice fields, wetlands, and both agricultural and natural water bodies.
APM BIO-2: Wetlands Measures. Wetlands (such as the drainage ditch along West Liberty Road and the rice fields to the west of the existing Wild Goose Facility) impacts will be offset with mitigation as described in and consistent with the Corps Section 404 permit dated December 17, 2002 (File No. 200100383).

Table 2-6 Project Design Features (PDFs)

APM BIO-3: Pre-Construction Surveys. A qualified biologist will be on-site during construction activities in suitable habitat for sensitive species to perform supplemental surveys just prior to construction and to monitor compliance with mitigation measures.
APM BIO-4: On-Site Environmental Training Program. An environmental training program will be provided to all construction and construction management personnel. Training will include information about protection measures for sensitive species in the Phase 3 Expansion area, requirements for working in sensitive habitats, and consequences for noncompliance.
APM BIO-5: Vehicle Measures. Vehicles will be confined to existing roads and only approved access roads.
APM BIO-6: Refueling and Hazardous Materials Storage Measures. Refueling and hazardous materials storage will be restricted to areas farther than 100 feet from the boundaries of all wetlands, streams, and drainages, or refueling will be limited to designated areas that are protected with berms lined with a non-porous material to ensure that accidental spills will not contaminate the water body. All hazardous materials spills will be cleaned up immediately and disposed of properly.
APM BIO-7: Clear Construction Area Boundaries. The edge of the work area will be clearly marked to contain construction activities.
APM BIO-8: Equipment Washing. The introduction of noxious weeds carried in with construction equipment will be minimized by washing the equipment before it is delivered to the Phase 3 Expansion areas. In addition, only weed-free erosion control materials will be used for the Phase 3 Expansion.
APM BIO-9: Trench Backfilling. Trench backfilling will occur within 72 hours of pipeline installation to preclude potential impacts to wildlife that may fall into the trench.
APM BIO-10: Trench Ramping. At the conclusion of each day's trenching activity, the end of the trench will be left ramped at an approximate 2 to 1 slope to allow any wildlife falling into the trench to escape.
APM BIO-11: Water Withdrawal for Hydrostatic Testing. Water withdrawal for hydrostatic testing will be timed and conducted in a manner to avoid adverse effects to fish and aquatic life.
APM BIO-12: Restoration of Grasslands Over Pipeline (Delevan Site). Surface disturbance along the pipeline ROW in grasslands will be scarified and allowed to re-establish using the existing seed base in the topsoil, or if necessary, will be hydroseeded with a suitable native seed mix.
APM BIO-13: The Comprehensive Landscape Restoration Plan. The Comprehensive Landscape Restoration Plan prepared during the Phase 2 Expansion will be implemented to ensure that vegetation is restored and noxious weeds are controlled.
APM BIO-14: Avoidance of Vernal Pools and Swales. Phase 3 Expansion construction activities will avoid vernal pools and swales.
APM BIO-15: Protection of Sensitive Plants. The following measures will be implemented to protect sensitive plants in the areas of the Phase 3 Expansion: 1. Construction activities in the Phase 3 Expansion areas will avoid plant flowering periods to the extent possible. 2. Topsoil in the construction area will be stripped and stockpiled on site. 3. Construction activities in the drainage ditch south of the RFS along West Liberty Road will be limited to the driest periods (approximately early-June through mid-August).
APM BIO-16: Invertebrate Species Protection Measures. To prevent impacts to invertebrate species in the area of the Delevan Site, the following measures will be implemented: 1. Temporary erosion controls will be installed and maintained during construction in the grassland areas north of the Glenn-Colusa Canal. 2. Construction vehicles and equipment will be confined to the access road that leads to the Delevan Site. 3. Dust control measures will be implemented on the Delevan Site access road.

Table 2-6 Project Design Features (PDFs)

APM BIO-17: Reptile Species Protection Measures. To prevent impacts to reptile species, including Northwest pond turtle and giant garter snake, in the area of the Phase 3 Expansion, the following measures will be implemented:
1. A qualified biologist will monitor construction to ensure that no sensitive reptile species inadvertently enter the work area.
2. Preconstruction surveys for Northwest pond turtle will be conducted to determine whether turtles will be impacted by Phase 3 Expansion construction activities.
3. Measures for the protection of Northwestern pond turtle as described in the Biological Resources Protection Plan that were developed for the Phase 2 Expansion will be implemented for the Phase 3 Expansion. Per the Biological Resources Protection Plan, any Northwestern pond turtles identified will be relocated from harm's way.

2.4.9 Future Plans

The Phase 3 Expansion would complete full development of the existing capacity of the reservoirs in the natural gas storage field, based on the applicant's current understanding of the field's capabilities. The Phase 3 Expansion reflects re-engineering to use the reservoirs targeted by earlier phases more efficiently. The applicant expects that, with implementation of the Phase 3 Expansion, there would be adequate infrastructure to meet the maximum foreseeable market demands for natural gas storage services. Future development beyond the proposed scope would require detailed studies of inactive subsurface storage zones and is not anticipated.

2.4.10 Regulatory Requirements

The Phase 3 Expansion must conform to the same safety and environmental standards that applied to the Base Project and the Phase 2 Expansion, as applicable. The following summary of the most pertinent regulatory agencies that have oversight responsibility for the design, construction, and operation of gas storage, gas pipelines, and related facilities is derived and updated from the 2002 EIR.

Federal Regulations

U.S. Department of Transportation – Office of Pipeline Safety

The U.S. Department of Transportation (DOT) Office of Pipeline Safety regulates the design, construction, testing, operation, and maintenance of natural gas pipelines and associated facilities (separation, compression, dehydration, valve, and interconnect facilities) in accordance with published regulations (49 CFR 192). These regulations require the following:

- Materials for the pipe and components for use in pipelines must maintain structural integrity under temperature and other environmental conditions that may be anticipated and must be chemically compatible with any gas to be transported.
- The pipe must be designed with sufficient wall thickness or must be installed with adequate protection to withstand anticipated external pressures or loads.
- Each component of a pipeline must be able to withstand operating pressures and other anticipated loadings without impairment of its serviceability.
- Welding must be performed by a qualified welder in accordance with welding procedures set forth in 49 CFR 192, Subpart E.
- The pipeline must be constructed in accordance with comprehensive written specifications or standards that are consistent with 49 CFR 192, Subpart G.

- The pipeline must be inspected to ensure that it has been constructed in accordance with 49 CFR 192, Subpart G.
- The pipeline must be protected from external corrosion by an external protective coating and a cathodic protection system.
- A new, repaired, or relocated pipeline must be tested to substantiate the maximum allowable operating pressure and to ensure that all leaks have been located and eliminated before it can be placed into service.
- The operator shall prepare and follow a manual of written procedures for conducting operations and maintenance activities, responding to emergencies, and handling abnormal conditions.
- The operator shall establish a continuing education program to enable customers, the public, appropriate government agencies, and persons engaged in excavation-related activities to recognize a gas pipeline emergency and report it to the operator and/or the appropriate public officials.
- The program must be conducted in English and in other languages commonly understood by a significant portion of the non-English speaking population.
- The operator shall have a patrol program to observe surface conditions on and adjacent to the pipeline right-of-way for indications of leaks, construction activity, and other factors affecting safety and operation.
- A pipeline that is abandoned in-place or deactivated must be disconnected from all sources of gas, purged of gas, and sealed at the ends.

U.S. Environmental Protection Agency

The proposed project requires the use and storage of potentially hazardous materials and wastes. The acts described below govern handling of these materials.

Resource Conservation and Recovery Act (RCRA)

RCRA enables the U.S. Environmental Protection Agency to administer a "cradle-to-grave" regulatory program that includes all aspects of hazardous materials exposure—from generation and transportation to treatment, storage, and disposal—at all facilities and sites in the U.S.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

CERCLA (known as Superfund) was passed to facilitate cleanup of the nation's toxic waste sites. In 1986, Superfund was amended by the community right-to-know laws (42 U.S. Government Code 1100 et seq.), which stated that past and present owners of land contaminated by hazardous substances can be liable for the entire cost of the cleanup, even if the material was illegally dumped when the property was under previous ownership.

State Regulations

California Regional Water Quality Control Board – Central Valley Region: National Pollutant Discharge Elimination System General Industrial Storm Water Discharge Permit

In 1999, the California State Water Resources Control Board adopted a General Industrial Storm Water Discharge Permit (Water Quality Order 99-08-DWQ), which requires facility operators to file a Notice of Intent to discharge stormwater runoff to waters of the United States from specified industrial activities, including mining and oil and gas facilities. The permit requires dischargers to eliminate non-stormwater

discharges to stormwater systems, develop and implement a SWPPP, perform inspections of stormwater pollution prevention measures, and monitor water quality.

California Environmental Protection Agency – Department of Toxic Substances Control

Hazardous Materials Release Response Plan and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act of 1985 (known as the Business Plan Act) requires that any business using hazardous materials must prepare a plan describing its facilities, inventories, emergency response plans, and training programs. State regulations in Chapter 6.96 of the California Health and Safety Code and Title 19 of the California Code of Regulations identify detailed planning and management requirements to ensure that hazardous materials are handled, stored, and disposed of properly to reduce risks to human health and the environment.

Hazardous Waste Control Act

The Hazardous Waste Control Act describes the requirements for proper management of hazardous wastes, including criteria for:

- Identification and classification of hazardous wastes;
- Generation and transportation of hazardous wastes;
- Design and permitting of facilities that recycle, treat, store, and dispose of hazardous wastes;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

Local Requirements

Butte and Colusa Counties

The Tanner Act (Assembly Bill 2984) requires that each county develop (1) a hazardous waste management plan that includes information on current and projected hazardous waste generation, including household hazardous waste; (2) an inventory of contaminated sites and hazardous waste treatment, storage, and disposal facilities; and (3) administrative policies and implementation measures. In addition, the county is responsible for enforcing many state regulations governing hazardous materials management, including waste generation, minimization, and storage. The County Office of Emergency Services (OES) oversees preparation of emergency plans and inventories by businesses that handle hazardous material. The OES requires businesses that use specific hazardous substances to prepare a comprehensive plan to reduce the risk of an accident. The counties are responsible for administering applicable provisions of their locally adopted general plans, zoning ordinances, and building codes.

2.4.11 Permit Requirements

The CPUC is the lead state permitting agency and the U.S. Army Corps of Engineers (USACE) is the lead federal agency responsible for review of the Phase 3 Expansion. In addition to the permits from these two agencies, the applicant for the Phase 3 Expansion will obtain permits from several other federal, state, and local agencies, as shown in Table 2-7. The applicant has consulted and will continue to consult with other local agencies, officials, and individuals, as needed. Where appropriate, amendments to the existing permits from the 2002 Phase 2 Expansion will be requested, to cover the Phase 3 Expansion. Local landowners and lessees will also continue to be consulted during easement negotiations and implementation of the Phase 3 Expansion.

Table 2-7 Permits Required for Phase 3 Expansion

Permits	Agency	Regulatory Authority	Jurisdiction/Purpose
Federal			
Section 404 Individual Permit	USACE	Clean Water Act, Section 404	Waters of the U.S. (temporary construction access at RFS) and NEPA lead agency
Section 7 Consultation (through USACE permit process)	U.S. Fish and Wildlife Service & NOAA Fisheries	Endangered Species Act, Section 7	Threatened and Endangered Species Biological Opinion and Take Authorization
State			
Certificate of Public Convenience and Necessity	California Public Utilities Commission	California Public Utilities Code Sections 399.25 and 1001	Overall project approval and CEQA lead agency
Notice of Construction (Reconductoring Only)	California Public Utilities Commission	California Public Utilities Commissions General Order 131-D, Section III, B.1	Noticing requirement
NPDES Construction Storm Water General Permit	State Water Resources Control Board	Clean Water Act, NPDES Program	Surface disturbance greater than 1 acre
NPDES Industrial Storm Water General Permit	State Water Resources Control Board	Clean Water Act, NPDES Program	Industrial storm water discharges
NPDES General Permit for Discharges from Utility Vaults and Other Underground Structures	State Water Resources Control Board	Clean Water Act, NPDES Program	Short-term intermittent discharges from utility vaults to Waters of the U.S.
NPDES General Permit covering Dewatering and Other Low Threat Discharges to Surface Water	State Water Resources Control Board	Clean Water Act, NPDES Program	Short-term discharges from construction dewatering, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, miscellaneous dewatering
Section 401 Certification and Low Threat Discharge Permit	Central Valley Regional Water Quality Control Board	Clean Water Act, Section 401	Water quality certification, hydrotesting water discharge, and dewatering
Streambed Alteration Agreement	California Department of Fish & Game	California Fish and Game Code, Section 1602	Waterways and adjacent wildlife habitat areas (temporary construction access at RFS)
Section 2081(b)/2080.1 Permit	California Department of Fish & Game	California Fish and Game Code, Section 2081(b)/2080.1	State-listed Endangered Species Take Authorization
Cultural Resources Section 106 Consultation (if required for the Corps permit amendment)	State Historic Preservation Office	National Historic Preservation Act, Section 106	Cultural resources protection and management
Local			
Land Use Permit[a]	Colusa County Planning	Colusa County Ordinance	Delevan Interconnect Site
Road Encroachment Permits	Butte County Public Works	Butte County Ordinance	Temporary construction access from West Liberty Road to RFS expansion area

Table 2-7 Permits Required for Phase 3 Expansion

Permits	Agency	Regulatory Authority	Jurisdiction/Purpose
Building Permits	Butte County and Colusa County Development Services	Butte County and Colusa County Ordinances	Building permits for structures and buildings
Authority to Construct/Operate	Butte County Air Quality Management District	Clean Air Act	Combustion emission reduction and monitoring for compressor engines

Notes:

[a]Permits for work at the Delevan Interconnect Site will be the responsibility of PG&E.

Key:

USACE = U.S. Army Corps of Engineers

NEPA = National Environmental Policy Act

NOAA = National Oceanic and Atmospheric Administration

NOAA Fisheries = National Marine Fisheries Service

NPDES = National Pollutant Discharge Elimination System

References

Wild Goose Gas Storage, LLC (WGS). 2009. Personal communication in response to data request. February.

———. 2010. Personal communication in response to data request. October.

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3. Environmental Analysis

3.1 Introduction

Sections 3.2 and 3.3 of this Supplemental Environmental Impact Report (EIR) present the additional findings of the environmental analysis conducted for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion). Each section identifies the environmental and regulatory setting, and includes an analysis of potential impacts and mitigation.

Because only potentially significant impacts associated with Air Quality and Biological Resources were identified for the Phase 3 Expansion, only those two topic areas are included in the following discussion. Less than significant impacts associated with the following resource areas are discussed in Appendix A, Focusing Initial Study:

A.1 Aesthetic Resources
A.2 Agriculture and Forestry Resources
A.3 Cultural Resources
A.4 Geology, Soils, and Mineral Resources
A.5 Hazards and Hazardous Materials
A.6 Hydrology and Water Quality
A.7 Land Use and Planning
A.8 Noise
A.9 Population and Housing
A.10 Public Services and Socioeconomics
A.11 Recreation
A.12 Transportation and Traffic
A.13 Utilities and Service Systems

Analysis within each issue area is focused on supplementing information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR).

3.1.1 Environmental Setting

The environmental setting sections present a description of the physical environment for each of the two resource areas. As appropriate, separate environmental setting discussions are presented for federal, state, regional, and local environments.

3.1.2 Regulatory Setting

Similar to the environmental setting discussions, current regulatory settings are presented for each of the two resource areas. Federal, state, regional, district, and local regulations applicable to the lands on which the Phase 3 Expansion would be built and to the Phase 3 Expansion itself are identified.

3.1.3 Environmental Analysis

The results of the environmental analyses conducted for the Phase 3 Expansion are presented in Sections 3.2 and 3.3. Each of the environmental analysis discussions present areas of potential environmental concern, thresholds or criteria of significance, impact discussion, levels of significance of impacts, and mitigation measures. The areas of potential environmental concern identify a range of potential impact areas for each resource area. The significance threshold and criteria discussions outline the point at which a significant impact would occur for each of the individual areas of potential environmental concern.

Each of the environmental analysis sections presents discussions on the potential effects of the Phase 3 Expansion on the environment. Analyses are presented for each area of potential environmental concern, with a determination made as to whether or not the Phase 3 Expansion would result in a significant environmental impact based on the established thresholds and criteria of significance. If warranted, mitigation measures are identified that could reduce the impact to a less than significant level. If warranted by the resource area, the area of potential environmental concern, or the significance criteria or threshold, the impact analyses are divided into the two basic components of the Phase 3 Expansion, and further divided into construction and operation discussions.

Wild Goose Storage, LLC (Wild Goose, or the applicant) has incorporated into the proposed Phase 3 Expansion a number of specific measures and procedures to avoid or reduce adverse impacts (applicant proposed measures, or APMs). In addition, some APMs that were adopted as part of the earlier, Phase 2 Expansion would also apply to the Phase 3 Expansion, and are discussed as necessary in the following sections. In the assessment of impacts, these measures have been assumed to be part of the Phase 3 Expansion and are not included as mitigation measures; however, implementation of each APM will be monitored by the CPUC. The APMs that are intended to reduce the potential impacts in a particular resource area are listed in the section addressing that resource area.

Mitigation measures adopted as part of the Phase 2 Expansion are presented in the following sections, amended as necessary to address the expanded (post-Phase 3 Expansion) project, and included in the Executive Summary and Chapter 5, Mitigation, Monitoring, and Reporting Program.

3.2 Air Quality and Greenhouse Gas Emissions

To determine whether the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion) would result in any new impacts related to air quality or greenhouse gases (GHGs), or increases in the severity of air quality impacts previously disclosed in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), this analysis considers changes to the resource area setting and changes to applicable plans, policies, and regulations of agencies with jurisdiction over the Phase 3 Expansion. The most significant change with respect to analysis of air quality since the publication of the 2002 EIR is the establishment of policies and plans in California that specifically address impacts related to GHGs. Several documents were reviewed for this analysis, including the Butte County Air Quality Management District (BCAQMD) California Environmental Quality Act (CEQA) Air Quality Handbook (BCAQMD 2009), the California Air Resources Board (CARB) Area Designations Maps (CARB 2009a), and the CARB document "Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act" (CARB 2008c).

The 2002 EIR identified 14 potentially significant impacts to air quality that would result from implementation of the Phase 2 Expansion. These potential impacts were reduced to less than significant through implementation of mitigation measures identified in the 2002 EIR and described below.

3.2.1 Environmental Setting: Air Quality

The Phase 3 Expansion components include the Remote Facility Site (RFS) expansion in Butte County; the improvements associated with the Delevan Interconnect Site and the new hot tapped pipeline connections to Pacific Gas and Electric Company (PG&E) Lines 400 and 401 in Colusa County; and PG&E's reconductoring of electrical distribution line east of the RFS in Butte County, as described in Chapter 2, Description of Phase 3 Expansion. Both of these counties are located in the Northern Sacramento Valley Air Basin (NSVAB), which also includes Sutter, Yuba, Glenn, Tehama, and Shasta counties. The BCAQMD and Colusa County Air Pollution Control District (CCAPCD) are the local air districts within which the project components would be located.

Average annual precipitation in Butte and Colusa counties is approximately 26 and 17 inches, respectively (NOAA 2009). Average annual temperature in the area is approximately 60 degrees Fahrenheit. Prevailing winds tend to be from the south. Other characteristics of the NSVAB are described in the 2002 EIR, Section 3.3, Air Quality.

Baseline air quality in the NSVAB and in Butte and Colusa counties was described in the 2002 EIR, and is updated here.

3.2.1.1 Ambient Air Quality

All of the air districts in the NSVAB, with the exception of Colusa and Glenn counties, have been designated as nonattainment areas for the state ozone Ambient Air Quality Standard (AAQS; NSVPA 2006). Colusa and Glenn counties have been designated as non-attainment transitional areas for ozone. All of the air districts in the NSVAB, including the BCAQMD and the CCAPCD, have been designated as non-attainment areas for the state standards for particulate matter with a diameter of 10 micrometers or less (PM_{10}). All other pollutants with state or federal AAQSs are in attainment or are unclassified in the NSVAB. The attainment status of the BCAQMD and CCAPCD are shown in Table 3.2-1.

Table 3.2-1 Butte County AQMD and Colusa County APCD Ambient Air Quality Attainment Status

Pollutant	BCAQMD		CCAPCD	
	State	Federal	State	Federal
1-Hour Ozone	Nonattainment	n/a[a]	Nonattainment	n/a[a]
8-Hour Ozone	Nonattainment[a]	Nonattainment[b]	Nonattainment	Unclassified/Attainment
Carbon Monoxide	Attainment	Unclassified/Attainment	Unclassified	Unclassified/Attainment
Nitrogen Dioxide	Attainment	Unclassified/Attainment	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Unclassified	Attainment	Unclassified
PM_{10}	Nonattainment	Unclassified	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment (pending)[c]	Unclassified	Unclassified/Attainment

Source: CARB 2010, USEPA 2009

Notes:

[a]The National 1-Hour Ozone Standard was revoked in June 2005

[b]The California Air Resources Board recommended that Butte County be designated nonattainment for the new 8-hour ozone standard in March 2009. The USEPA is expected to make the final area designations in mid-2010.

[c]In late 2008, the U.S. Environmental Protection Agency (USEPA) released the final nonattainment area designations for the new PM2.5 standard. The USEPA included much of Butte County in its final determination. The final nonattainment area designations will not become effective until after USEPA publishes the action in the Federal Register.

Key:

n/a = not applicable

$PM_{2.5}$ = particulate matter with a diameter of 2.5 micrometers or less

PM_{10} = particulate matter with a diameter of 10 micrometers or less

Maximum concentrations of ozone and particulate matter are measured at air quality monitoring stations in Colusa, Chico, Willows, and Yuba City. The number of exceedances of AAQS from 2003 through 2007 is presented in Table 3.2-2. These data update similar information presented in the 2002 EIR, and are reasonably representative of current air quality for the Phase 3 Expansion study area.

As shown in the table, maximum concentrations of PM_{10} exceeded the California 24-hour standard each year from 2003 through 2007, except for the basin as a whole. Extensive agricultural activities, which typically generate PM_{10}, contribute to the region's difficulty in attaining state standards for this pollutant.

Table 3.2-2 also shows that the maximum concentrations of ozone exceeded, or came close to exceeding, the California one-hour ozone standard each year in the four-county area during the 2003 through 2007 period. The highest maximum concentrations occurred in Sutter County, to the south of the Phase 3 Expansion area, which may be primarily as a result of pollutant transport from the Sacramento metropolitan area.

Table 3.2-2 Butte County AQMD and Colusa County Criteria Pollutants Classified as Nonattainment

Pollutant (Units)	Averaging Period	Year	Air Quality Monitoring Station				Sacramento Valley Air Basin	California AAQS	Federal AAQS
			Colusa (Colusa County)	Chico (Butte County)	Willows (Glenn County)	Yuba City (Sutter County)			
			Maximum Concentrations						
Ozone	1 Hour	2003	0.089	0.092	0.090	0.177	0.140	0.09	–
(ppm)		2004	0.084	0.088	0.084	0.100	0.131		
		2005	0.085	0.083	0.077	0.096	0.134		
		2006	0.084	0.090	0.076	0.110	0.143		
		2007	0.080	0.094	0.091	0.098	0.138		
		2008	0.091	0.111	0.085	NA	0.166		
			Maximum Concentrations						
PM_{10}	24 Hours	2003	69	54	61	83	123.0	50	150
($\mu g/m^3$)		2004	81	115	138	53	171.0		
		2005	92	76	69	60	109.0		
		2006	69	81	77	66	111.0		
		2007	43	66	43	54	119.0		
		2008	90.3	140.8	120.4	NA	355.0		
			Annual Arithmetic Mean						
	Annual	2003	NA	21.6	20.4	26.4	28.8	20	–
		2004	NA	28.7	25.5	NA	35.1		
		2005	25.5	23.8	21.5	25.0	27.9		
		2006	NA	26.8	NA	NA	28.7		
		2007	22.0	21.7	20.1	NA	28.1		
		2008	30.5	27.6	NA	NA	33.4		
			Annual Arithmetic Mean						
$PM_{2.5}$	Annual	2003	NA	15.9	NA	9.3	15.9	12	15
($\mu g/m^3$)		2004	7.2	16.5	NA	10.1	16.5		
		2005	11.2	13.8	NA	10.1	13.8		
		2006	7.9	14.6	NA	11.1	15.2		
		2007	9.0	14.3	NA	NA	14.3		
		2008	NA	18.1	14.5	NA	18.9		

Source: CARB 2008a

Note:

Sacramento Valley Air Basin includes the counties of Shasta, Tehama, Glenn, Butte, Colusa, Yuba, Sutter, Yolo, Sacramento, and parts of Placer and Solano counties.

Key:

- = Federal standard revoked

NA = Not available

$PM_{2.5}$ = Particulate matter with a diameter of 2.5 micrometers or less

PM_{10} = Particulate matter with a diameter of 10 micrometers or less

ppm = parts per million

$\mu g/m^3$ = micrograms per cubic meter

3.2.1.2 Sensitive Receptors

A sensitive receptor for air quality is defined as a location where human populations, especially children, seniors, or sick persons are found, and there is reasonable expectation of continuous human exposure according to the averaging period for the AAQS (e.g., 24-hour, 8-hour, 1-hour) (BCAAQMD 2008). No sensitive receptors to air emissions are located in the immediate vicinity of the Phase 3 Expansion at the RFS. Potential sensitive receptors within an approximate 1-mile radius of the RFS include occupants of three farm residences. One residence is approximately 4,200 feet east of the RFS, one is approximately 5,800 feet northwest of the site, and the third is approximately 1 mile to the northeast. The Grey Eagle Ranch hunting club lodge is also located approximately 4,500 feet to the southwest of the RFS. An unpaved, disturbed area of approximately 3.5 acres is west of the developed portion of the RFS; this area is used by hunters and farmers for parking, camping, and equipment storage.

Sensitive receptors along both of the potential PG&E electrical distribution line reconductoring alignments include residences, farms, suppliers of farm equipment and machinery, and other agriculture-related businesses.

There are no sensitive air quality receptors in the immediate vicinity of the Delevan Site; the nearest residence is more than 1 mile to the southeast.

3.2.1.3 Existing Operational Emissions

Existing operational emissions from the Wild Goose Facility originate primarily from the RFS. Existing combustion equipment contributing to air emissions at the RFS includes the following, as described in Chapter 2, Description of Phase 3 Expansion:

1. Two 3,335 horsepower and four 3,550 horsepower gas-driven reciprocating natural gas compressors
2. Three dehydrations units (TEG / natural gas contactor towers with natural-gas-fired glycol reboilers)
3. Two thermal oxidizers for the still vapors from the dehydration units
4. Three natural-gas-fueled standby generators

The compressor engines (Caterpillar 3600 series) use clean burn combustion chamber design as best available control technology (BACT). The compressor engines also use Selective Catalytic Reduction (SCR) and oxidation catalysts for nitrogen oxides (NO_x), carbon monoxide (CO), and reactive organic gas (ROG) control, and a positive crankcase ventilation system. In addition, the reboiler burners are of low emissions design. Existing RFS estimated operations emissions are summarized in Table 3.2-3.

Vehicle trips associated with existing operations at the RFS and the Delevan Site comprise employee and visitor trips, and represent a relatively small percentage of total operational emissions.

Table 3.2-3 Existing Remote Facility Site Estimated Operations Emissions (tons/year)

	NO_x	CO	ROG	SO_2	PM_{10}
Compressor Engines	35.8	59.7	21.7	1.6	5.6
Glycol Reboiler Burners	3.0	2.4	0.2	0.1	0.2
Glycol Still Vent/Thermal Oxidizer	1.5	1.0	0.2	0	0.1
Blowdowns (ESD and routine)			1.2		
Total Emissions (tons/year)	40.3	63.1	23.3	1.7	5.9
Total Emissions (lbs/day)	220	346	128	9.4	32.3

Source: BCAQMD 2010 (from 2006 estimates)
Notes:
Lbs/day were estimated from yearly tons by converting tons to pounds and dividing by 365 days per year
Refer to table 3.2-6 for summary of BCAQMD local thresholds of significance for criteria pollutants
Key:
ESD = Emergency Shutdown
NO_x = nitrogen oxides
CO = carbon monoxide
ROG = reactive organic gases
SO_2 = sulfur dioxide
PM_{10} = particulate matter with a diameter of 10 micrometers or less

3.2.1.3 Regulatory Setting

Ambient air quality and air pollutant emissions from stationary and mobile sources are managed under a framework of federal, state, and local rules and regulations. Air quality in the vicinity of the Phase 3 Expansion is regulated and monitored by several jurisdictions, including the U.S. Environmental Protection Agency (USEPA), the CARB, and the BCAQMD and CCAPCD. A summary of the rules and regulations implemented by these agencies follows below; further detail may be found in the 2002 EIR in Section 3.3, Air Quality.

Federal

The USEPA is the principal agency administrator responsible for overseeing enforcement of federal Clean Air Act (CAA) statues and regulations. The USEPA also oversees implementation of federal programs for permitting new and modified stationary sources, controlling toxic air contaminants (TACs), and reducing emissions from motor vehicles and other mobile sources. The sections of the CAA that are most applicable to the Phase 3 Expansion include Title I (Air Pollution Prevention and Control) and Title II (Emission Standards for Mobile Sources).

State

The California CAA outlines a statewide air pollution control program in California. CARB is the primary administrator of the California CAA, while local air quality districts administer air rules and regulations at the regional level. CARB is responsible for establishing the California AAQS, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and preparing the State Implementation Plan (SIP). The SIP is a comprehensive plan that describes how an area will attain national ambient air quality standards (NAAQS).

Criteria Pollutants

Air quality is assessed by measuring ambient concentrations of criteria pollutants. Pursuant to the federal CAA, the USEPA has established the NAAQS for seven criteria air pollutants. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. The seven criteria air pollutants for which NAAQS have been promulgated are:

- Sulfur dioxide (SO_2)
- Nitrogen dioxide (NO_2)
- Particulate matter with a diameter less than or equal to 10 microns (PM_{10})
- Particulate matter with a diameter less than or equal to 2.5 microns ($PM_{2.5}$)
- Carbon Monoxide (CO)
- Ozone (O_3)
- Lead (Pb)

Under the California CAA, the state has established additional and/or more stringent ambient air quality standards for some of these criteria pollutants, as well as ambient air quality standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particulate matter. NAAQS and California Ambient Air Quality Standards (CAAQS) are summarized in Table 3.2-4.

Table 3.2-4 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
			Primary[c]	Secondary[d]
Ozone (O_3)	8 Hours	0.07 ppm[e]	0.075 ppm	0.075 ppm
	1 Hour	0.09 ppm	– [e]	– [e]
Carbon Monoxide (CO)	8 Hours	9.0 ppm	9 ppm	–
	1 Hour	20 ppm	35 ppm	–
Nitrogen Oxide (NO_2)	Annual Average	0.03 ppm	0.053 ppm	0.053 ppm
	1 Hour	0.18 ppm	–	–
Sulfur Dioxide ($S0_2$)	Annual Average	–	0.030 ppm	–
	24 Hours	0.04 ppm	0.14 ppm	–
	3 Hours	–	–	0.5 ppm
	1 Hour	0.25 ppm	–	–
Particulate Matter with diameters less than or equal to 2.5 microns ($PM_{2.5}$)	Annual Geometric Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	15 $\mu g/m^3$
	24 Hours	–	35 $\mu g/m^3$	35 $\mu g/m^3$
Particulate Matter with diameters less than or equal to 10 microns (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	– [f]	– [f]
	24 Hours	50 $\mu g/m^3$	150 $\mu g/m^3$	150 $\mu g/m^3$
Lead (Pb)	30-Day Average	1.5 $\mu g/m^3$	–	–
	Rolling 3-Month Average [g]	–	0.15 $\mu g/m^3$ [g]	0.15 $\mu g/m^3$ [g]
Sulfates	24 Hours	25 $\mu g/m^3$	–	–

Table 3.2-4 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
			Primary[c]	Secondary[d]
Hydrogen Sulfide	1 Hour	0.03 ppm	–	–
Vinyl Chloride	24 Hours	0.010 ppm	–	–

Source: CARB 2010, USEPA 2009

Notes:

[a]California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded.

[b]National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

[c]National Primary Standards represent the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d]National Secondary Standards are the levels of air quality necessary to protect the environment, including public welfare, from any known or anticipated adverse effects of a pollutant.

[e]On June 15, 2005, the 1-hour ozone standard of 0.12 parts per million (ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) areas. (Those areas do not yet have an effective date for their 8-hour designations.)

[f]he annual PM_{10} NAAQS has been repealed.

[g]Final rule signed on October 15, 2008.

ppm = parts per million (by volume)

$\mu g/m^3$ = micrograms per cubic meter

Local

Butte County

The existing Wild Goose Facility is currently operated under several permits from the BCAQMD (including permits WGS-98-01, WGS-05-09, WGS-02-03, WGS-09-10-AC, and WGS-09-12-AC) for the compressor engines, dehydration units, thermal oxidizers, and emergency generators at the RFS. The BCAQMD applies enforceable limits on total annual emissions of NO_x to below 30.15 tons per year on a rolling monthly basis, and ROG from all combustion equipment to below 25 tons per year on a rolling monthly basis. Emission limits are monitored using fuel consumption for each piece of combustion equipment. Results of annual monitoring have shown that average actual annual emissions have been greater than 30.15 tons of NO_x, triggering the requirement for offsets. An amendment to the facility's existing Permit to Operate, including the necessary offsets, was required and was obtained by the applicant.

The BCAQMD requires that certain identified new stationary sources secure a permit to construct and a permit to operate through the New Source Review (NSR) program and facility permitting program (Rule 430).

All stationary equipment, other than internal combustion engines of less than 50 horsepower, emitting air pollutants controlled under BCAQMD rules and regulations require an Authority to Construct (ATC) and Permit to Operate (PTO). In addition, mobile and portable sources and temporary activities that cause emissions of air contaminants in the county are required to adhere to the following rules:

- District Rule 200, Nuisance: Emissions must be prevented from creating a nuisance to surrounding properties as regulated under this rule.

- District Rule 201, Visible Emissions: Visible emissions from stationary diesel-powered equipment are not allowed to exceed 40 percent opacity for more than three minutes in any one-hour.
- District Rule 205, Fugitive Dust Emissions: Fugitive dust emissions must be prevented from being airborne beyond the property line.
- District Rule 230, Architectural Coatings: Architectural coatings and solvents used at the project shall be compliant with the district regulation.
- District Rule 231, Cutback and Emulsified Asphalt. Cutback and emulsified asphalt application shall be conducted in accordance with the district regulation.

Colusa County

The CCAPCD requires development projects that include emissions sources to obtain an ATC permit. Construction emissions for projects that do not include an operational emissions source are regulated by the CCAPCD through the ATC permitting process (Gomez 2010).

Toxic Air Contaminants (TACs)

TACs are air pollutants suspected or known to cause cancer, birth defects, neurological damage, or other related health issues. An example of a TAC is diesel particulate matter (DPM). Except for lead, there are no established ambient air quality standards for TACs. Instead, development projects resulting in emissions of TACs are managed on a case-by-case basis by the local air district depending on the quantity and type of emissions and proximity of potential receptors.

The state air toxics program was established through Assembly Bill (AB) 1807 (the Tanner Bill), and AB2588, the Air Toxics "Hot Spots" Information and Assessments Act (Hot Spots Act), which was passed in 1987 (ARB 1987). The Hot Spots Act established an air toxics inventory and a risk quantification program for substances that cause chronic and acute health effects. A facility is subject to the Hot Spots Act, and must report stationary sources of toxic emissions identified in the Act, if it does any of the following:

- Manufactures, formulates, uses, or releases a substance on the list of 600 toxic substances and emits 10 tons or more per year of total organic gases, particulate matter, nitrogen oxides, or sulfur oxides.
- Is listed on an air toxics survey, inventory, or report compiled by the local air district.
- Manufactures, formulates, uses, or releases a substance on the list of 600 toxic substances and emits less than 10 tons or more per year of the criteria pollutants, but is subject to the emission inventory requirements.

Facilities that are subject to the Hot Spots Act must adhere to the following requirements:

- Report emissions from a list of 600 toxic substances.
- If the local air district determines that a health risk assessment (HRA) must be conducted, the facility must conduct the HRA according to methods developed by the Office of Environmental Health Hazard Assessment (OEHHA) (CAPCOA 1990, 2009).
- The public must be notified of significant risks posed by nearby facilities.

- Facilities found to pose a significant risk must prepare and implement risk reduction audits and plans within 6 months of the determination.

Facilities that are subject to the Hot Spots Act must submit a proposed emission inventory plan to the BCAQMD showing how emissions will be measured or calculated. Once it is approved, the facility operator must implement the plan and submit an emission inventory. Emission inventories must be updated every four years. Facilities are required to install Toxic Best Available Control Technology to reduce risks to below significance.

The applicant has prepared and submitted to BCAQMD an emission inventory plan in accordance with the Hot Spots Act, with the finding that all risks related to TACs emissions from the existing facility occur below the applicable thresholds. This plan is still under review by the BCAQMD (Lusk 2010). Through the local permit to operate process, the applicant would be required to adhere to any additional restrictions placed on it by the District, once the District completes its review of the plan. The District suggested that a prioritization score be determined for the facility. See Section 3.2.3.2 for a discussion of the prioritization score analysis.

3.2.2 Environmental Setting: Greenhouse Gases

3.2.2.1 Background Information

Greenhouse gases (GHGs) are gases that have been shown to trap heat in the atmosphere. Because of this characteristic, and because GHGs can remain in the atmosphere for decades or longer, GHGs are thought to have an effect on climate change (CARB 2009b). The Intergovernmental Panel on Climate Change (IPCC) has found that there is a correlation between increased atmospheric levels of CO_2 and rising global temperatures (Figure 3.2-1).

The term “climate change” refers to any significant change in measures of climate (temperature, precipitation, or wind) that lasts for an extended period (decades or longer). Climate change may be affected by a number of factors including natural cycles, such as changes in the sun’s intensity; natural processes within the climate system, such as changes in ocean circulation; and human activities that change the atmosphere’s composition (such as the release of carbon dioxide through burning fossil fuels) or land surface (such as deforestation or urbanization) (USEPA 2010).

GHGs identified by the State in California Assembly Bill 32 (AB 32) include but are not limited to: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Global warming potential is a measure of how much a given amount of GHGs is estimated to contribute to climate change and is devised to determine potential warming effects of different gases. Global warming potential is a relative scale that compares the GHG to that of CO_2. For a given GHG, the CO_2 equivalent (CO_2e) is a quantity that describes the amount of CO_2 that would have the same global warming potential, when measured over a specified timescale (generally, 100 years). The global warming potential of CH_4 over 100 years, for example, is 25. This means that the emission of 1 million metric tons of CH_4 would be equivalent to the emission of 25 million metric tons of CO_2.

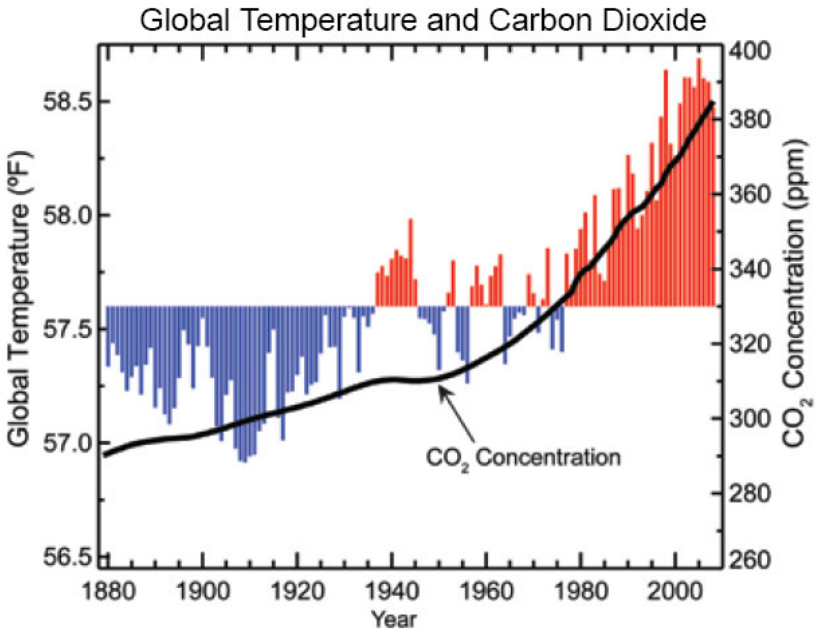

Figure 3.2-1 Relationship Between Global Temperature and Carbon Dioxide

Source: USGCRP 2009

As a result of climate change, California is expected to experience a range of adverse environmental effects. These could include declining air quality, a sharp rise in extreme heat, and increased risk of drought and flooding, with consequential effects on water supply reliability and increased occurrence and intensity of wildfires. As well as affecting the human environment, these changes could also have adverse effects on agricultural productivity over the next several decades. Statewide, annual temperatures are expected to increase by as much as 10 degrees Fahrenheit by 2100 (CEC 2006). Although the extent and magnitude of effects in the Phase 3 Expansion area and region are difficult to predict, it is likely that this area would experience similar types of effects, with resulting impacts on agriculture, public health, ecologically sensitive habitat, plant and wildlife resources, and water resources.

3.2.2.2 Regulatory Setting

California is a substantial contributor to global GHG emissions; it is the second largest contributor in the U.S. and the sixteenth largest in the world (CEC 2006). Regulations addressing the assessment and mitigation of climate change have been established on the federal and state levels. Neither BCAQMD nor CCAPCD, however, have established guidelines or CEQA significance thresholds for GHG assessment.

Federal

In 2009, the United States Environmental Protection Agency (USEPA) issued the Final Mandatory Reporting of Greenhouse Gases Rule, which requires reporting of GHG emissions from large sources and suppliers in the U.S. The intent is to collect accurate and timely emissions data to inform future policy decisions.

Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHGs are required to submit annual reports to USEPA. The gases covered by the proposed rule are CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, and other

fluorinated gases. The rule became effective December 2009. Facilities are required to collect emissions data as of January 1, 2010. The first emissions reports are due to be submitted by March 31, 2011.

State

Executive Order S-3-05 and Assembly Bill 32

California Governor Arnold Schwarzenegger issued Executive Order S-3-05 in 2005, establishing statewide GHG emission reduction targets of 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. In 2006, Governor Schwarzenegger signed the Global Warming Solutions Act, AB 32, with the requirement of reducing the State's GHG emissions to 1990 levels by 2020. With the passage of AB 32, the California Legislature officially recognized the State's vulnerability to the effects of global warming. The AB 32 program is the first statewide program in the country to mandate an economy-wide emissions cap that includes enforceable penalties. Figure 3.2-2 shows a graphic representation of emissions reduction strategies to meet the goals of AB 32.

Senate Bill 97

The California Senate passed Senate Bill 97 in 2007, requiring the Governor's Office of Planning and Research to prepare, develop, and transmit guidelines for the feasible mitigation of GHG emissions or their effects, including, but not limited to, effects associated with transportation or energy consumption.

California Air Resources Board, Climate Action Team, and Climate Change Scoping Plan

In 2007, based on its 1990 to 2004 inventories of GHG emissions in California, CARB staff approved a total of 427 million metric tons of CO_2e as the statewide GHG 1990 emissions level and 2020 emissions limit. This limit is an aggregated statewide limit, rather than sector- or facility-specific. Taking into account expected growth in population and energy use, the emissions reduction target is estimated to be equivalent to approximately 30 percent below business emissions as usual by the year 2020.

The Climate Change Scoping Plan (Scoping Plan), approved by CARB in 2008 to fulfill Section 38561 of AB 32, is the State's roadmap to reaching GHG reduction goals. The plan, developed by CARB in conjunction with the California Climate Action Team,[1] outlines a number of key strategies to reduce GHG emissions. The measures in the Scoping Plan will take effect in 2012. Discrete early action measures include a low carbon fuel standard, landfill CH_4 capture, reductions from mobile air conditioning, semiconductor reductions, SF_6 reductions, and a heavy-duty vehicles measure.

Cap and Trade Program

Appendix D of the Scoping Plan includes a cap-and-trade program proposed by the Western Climate Initiative as one of the main strategies California will employ to reduce GHG emissions. Under the cap-and-trade program, an overall limit on GHGs from capped sectors would be established, and facilities subject to the cap will trade permits (allowances) to emit GHGs. Currently, CARB is developing a California cap-and-trade program in conjunction with the western states and Canadian provinces included in the Western Climate Initiative. Consistent with AB 32, CARB would adopt the cap-and-trade regulation by January 1, 2011, with the program scheduled to begin on January 1, 2012.

[1] The California Climate Action Team was formed in 2004 to assist CARB with the Climate Change Scoping Plan. It is comprised of 14 agencies and 11 subgroups.

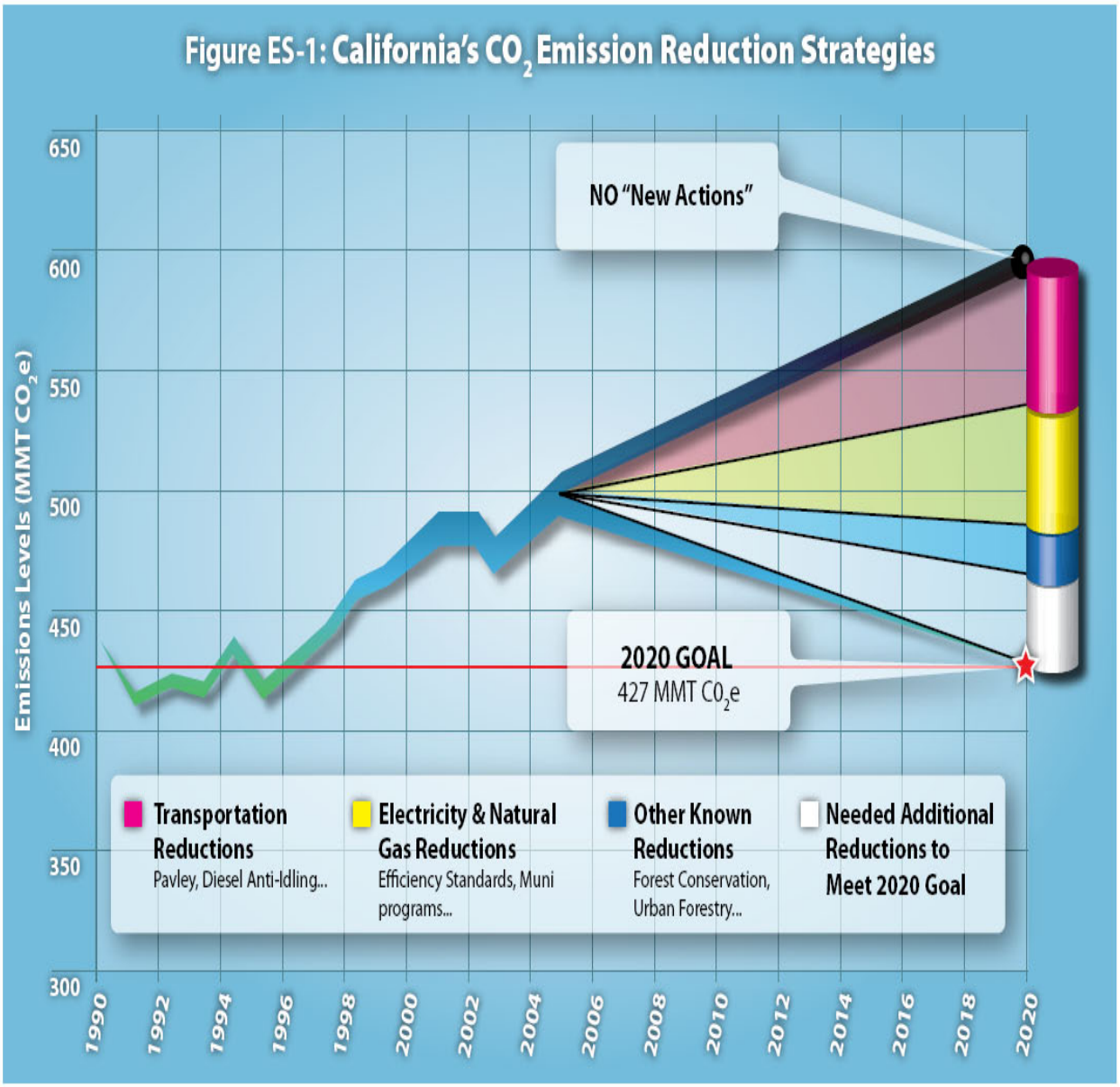

Figure 3.2-2 California's CO_2 Emission Reduction Strategies

Source: CEC 2007

CEQA Guideline Amendments

In December 2009, the Natural Resources Agency adopted CEQA Guidelines Amendments with new language for addressing the quantification and mitigation of GHG emissions. The Amendments became effective March 18, 2010. Updates to the Amendments include:

- Section 15064: Requires a lead agency make a "good-faith effort, based on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project." The agency may use a quantitative or qualitative analysis.
- Section 15126.4: Mitigation measures may include measures in an existing plan or mitigation program; implementation of project features; off-site measures, including offsets; or GHG sequestration. Mitigation in a plan may include project-specific mitigation.
- Section 15183: Projects may tier[2] from programmatic level GHG emissions analysis and mitigation.
- Appendix G: Two additional questions related to GHG impacts were added to the CEQA Appendix G Checklist (OPR 2010; discussed below under 3.2.2.1, Greenhouse Gas Impacts).

Local

In evaluating GHG impacts associated with development projects, the BCAQMD and CCAPCD follow the guidance and recommendations from the California Air Pollution Control Officers Association (CAPCOA 2008). Although the CAPCOA document has not been officially endorsed by the State, it is often used by air districts as a resource for how to treat GHG-related impacts in EIRs because there is, to date, no generally accepted approach. BCAQMD and CCAPCD have not established guidelines or significance thresholds for GHG assessment and, instead, rely on the CAPCOA document for guidance regarding appropriate analytical methodologies and mitigation.

3.2.3 Environmental Impacts and Mitigation Measures

3.2.3.1 Applicant Proposed Measures

The applicant proposes to implement the following applicant proposed measures (APMs), the full text of which is included in Table A.1-1 of Section A.1-1, as part of the Phase 3 Expansion to avoid or minimize potential impacts to air quality:

APM AIR-1: Emissions from Construction Vehicles and Equipment.

APM AIR-2: Construction Fugitive Dust.

APM AIR-3: Operational Emissions Permits.

APM AIR-4: Valves and Flanges.

APM AIR-5: No Open Burning of Vegetation.

[2] "Tiering" in CEQA refers to the coverage of general matters in broader EIRs with subsequent, project-specific EIRs incorporating by reference the general discussions in the prior document and focusing on a narrower range of project-specific impacts (CEQA Guidelines Section 15385).

The applicant proposes to implement the following APMs as part of the Phase 3 Expansion to avoid or minimize potential impacts related to GHGs:

APM AIR-6: Use of IC Engines Rather Than Gas Turbine Engines.

APM AIR-7: Use of Oxidizing Catalyst on Engine Exhaust.

APM AIR-8: Incinerate Regenerator Emissions.

APM AIR-9: Thermal Oxidizer Design.

APM AIR-10: Replace Gas-Operated Pneumatic Valve with Air-Operated Valves.

APM AIR-11: Replace Gas-Operated Pneumatic Pumps with Electric Pumps.

APM AIR-12: Fugitive GHG Emissions.

The project features included in Table 3.2-5 addressing Air Quality were adopted as part of the 2002 EIR for the Phase 2 Expansion, as either mitigation measures or applicant-proposed measures. These measures would also apply to the Phase 3 Expansion.

Table 3.2-5 Project Features Addressing Air Quality Adopted as Part of the 2002 EIR

Mitigation Measure 3.3-1. WGSI shall use adequate dust control measures that are implemented in a timely and effective manner during all phases of project development.
Mitigation Measure 3.3-2. Vehicle speeds will be limited to 15 mph on private unpaved roads and the ROW, or as required to control dust.
Mitigation Measure 3.2-3. Open haul trucks will be covered with tarps both on and off the work site.
Mitigation Measure 3.3-4. WGSI shall stabilize the construction access points with 6 inches of gravel to remove mud from construction equipment prior to entering paved roads.
Mitigation Measure 3.3-5. WGSI shall utilize non-toxic chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).
Mitigation Measure 3.3-6. Any soil or mud deposited by construction equipment on paved roads near the egress from unpaved areas will be removed on a daily basis.
Mitigation Measure 3.3-7. Land clearing, grading, earth moving or excavation activities shall be suspended when winds exceed 20 miles per hour within the project area.
Mitigation Measure 3.3-8. WGSI shall use alternatives to open burning of vegetative material on the project site unless otherwise deemed infeasible by the AQMD (Among suitable alternatives are chipping, mulching, or conversion to biomass fuel).
Mitigation Measure 3.3-9. WGSI shall cover all inactive storage piles during construction and operation of the proposed project.
Mitigation Measure 3.3-10. WGSI shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints at all major construction areas. This person shall respond and take corrective action within 24 hours. The telephone number of the Colusa County Air District and BCAQMD shall also be visible to ensure compliance with BCAQMD Rule 201 & 207 (Nuisance and Fugitive Dust Emissions).
Mitigation Measure 3.3-11. Prior to final occupancy, the applicant shall demonstrate that all ground surfaces have been covered or treated sufficiently to minimize fugitive dust emissions.
Mitigation Measure 3.3-12. WGSI shall use fleet vehicles that use cleanburning fuels as may be practical.
Mitigation Measure 3.3-13: WGSI shall use non-toxic chemical soil stabilizers on exposed areas after cut and fill operation and hydroseed areas.

Table 3.2-5 Project Features Addressing Air Quality Adopted as Part of the 2002 EIR

Mitigation Measure 3.3-14: The prime contractor shall submit to the District for approval an Off-road Construction Equipment Reduction Plan (Plan) prior to groundbreaking. The Plan should include a comprehensive inventory (i.e. make, model, engine year, emission year, emission rating, fuel consumption rate) of all the heavy-duty off-road equipment, 50 horsepower or greater, that will be used an aggregate of 40 or more hours for the construction project, and indicate how the following measures will be met:

1. At 20% of the heavy-duty offroad equipment included in the inventory should be powered by EPA/CARB certified off-road engines, as follows:

a. 175 hp-750hp 1996 and newer engines
b. 100 hp-174hp 1997 and newer engines
c. 50hp-99hp 1998 and newer engines

   Alternatively, equivalent emission reductions may be achieved by engine retrofit technology, exhaust filtration and lowsulfur diesel fuel, emulsified diesel fuels, or other CARB verified or certified technology. The District should be contacted to discuss alternative strategies.

2. Construction equipment exhaust emissions shall not exceed BCAQMD Rule 202 Visible Emission limitations.
3. The primary contractor shall be responsible to ensure all construction equipment is properly tuned and maintained.
4. Utilize existing power sources (e.g. power poles) or clean fuel generator rather than temporary power generators.
5. Minimize idling time to 10 minutes. Employ construction activity management techniques, such as: extending the construction period outside the ozone season of May through October; reducing the number of pieces used simultaneously; increasing the distance between emission sources; reducing or changing the hours of construction; and scheduling activity during off-peak hours.

3.2.3.2 Air Quality Impacts

Significance Thresholds

As discussed for the Phase 2 Expansion in the 2002 EIR, areas of potential environmental concern that may be associated with implementation of the Phase 3 Expansion include whether construction or operation would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

To determine the significance under CEQA of emissions from the Phase 3 Expansion, the proposed activities' compliance with BCAQMD and CCAPCD requirements is reviewed below. Construction activities at the RFS would be regulated by the BCAQMD. The BCAQMD CEQA Guidelines, which would apply to the Phase 3 Expansion, include both standard and discretionary measures for construction equipment. The applicant has included all of these measures, which are included in APM AIR-1, as features of the Phase 3 Expansion. In addition, the applicant would work with the BCAQMD to develop a Customized Construction Mitigation Program for the Phase 3 Expansion at the RFS.

The applicant would be required to secure a permit to construct (ATC) and a permit to operate (likely an Amended Permit to Operate) through the BCAQMD's New Source Review (NSR) program and facility

permitting program for the Phase 3 Expansion of the RFS. PG&E would not be required to secure permits from the BCAQMD for the reconductoring component.

Construction activities at the Delevan Site would be regulated by the CCAPCD. Operational activities at the Delevan Site would not result in emissions that would be required to be regulated by the CCAPCD.

BCAQMD Emissions Thresholds

The BCAQMD has established threshold criteria to determine the significance and appropriate mitigation level for long-term emissions from a project. Emissions that equal or exceed the designated threshold levels are considered potentially significant and should be mitigated. As shown in Table 3.2-6, the level of analysis and mitigation recommended follows a tiered approach based on the overall amount of emissions generated by the project.

Table 3.2-6 Butte County Air Quality Management District Thresholds of Significance for Criteria Pollutants of Concern

Pollutant	Level A	Level B	Level C
NO_x	≤25 lbs/day	>25 lbs/day	>137 lbs/day
ROG	≤ 25lbs/day	>25 lbs/day	>137 lbs/day
PM_{10}	≤ 80 lbs/day	> 80 lbs/day	>137 lbs/day
Level of Significance	Potentially Significant Impacts	Potentially Significant Impacts	Significant Impacts
Environmental Document	MND	MND or EIR	EIR
Project Mitigation Recommendations	Recommended list of standard mitigation measures.	Select as many Best Available Mitigation Measures (BAMM) with point value which may include off-site mitigations, in addition to the recommended list of standard mitigation measures. Coordinate with Planning Agencies to identify feasible mitigation measures. The emission reduction necessary is ten (10) percent of the calculated emission increase above Level B up to Level C.	Select as many BAMM with point value as necessary, in addition to the recommended list of standard mitigation measures. Off-site mitigation measures may also be required to reduce the overall air quality impacts of the project to a level of insignificance (below Level C). Coordinate with Planning Agencies to identify feasible mitigation measures. The emission reduction necessary is one hundred (100) percent of the calculated emission increase above Level C.

Source: BCAQMD 2009
Key:
BAMM = Best Available Mitigation Measures
EIR = Environmental Impact Report
MND = mitigated negative declaration
NO_x = nitrogen oxides
PM_{10} = particulate matter with a diameter of 10 micrometers or less
ROG = reactive organic gases

CCAPCD Emissions Thresholds

Under CCAPCD requirements, an applicant must apply BACT to any new emissions unit or modification of an existing emissions unit that results in (1) an emissions increase and (2) a potential to emit that equals or exceeds the amounts given in Table 3.2-7.

Table 3.2-7 Colusa County APCD Thresholds of Significance for Criteria Pollutants of Concern

Pollutant	Threshold
NO_x	≥25 lbs/day
ROG	≥ 25lbs/day
PM_{10}	≥80 lbs/day
CO	≥500 lbs/day
Level of Significance	Potentially Significant Impacts

Source: Colusa County APCD, New Source review rule 3.6

Key:

CO = carbon monoxide

NO_x = nitrogen oxides

PM_{10} = particulate matter with a diameter of 10 micrometers or less

ROG = reactive organic gases

These requirements also apply to construction emissions from development projects, which are addressed by the CCAPCD ATC permitting process.

TACs

Two significance thresholds apply to the evaluation below of the potential impacts associated with TACs from the Phase 3 Expansion. Consistent with the California Air Pollution Control Officers Association (CAPCOA) guidance for performing screening analysis and health risk assessments related to TACs (CAPCOA 2009), for acute (short-term), non-cancerous health effects and chronic (long-term) non-cancerous health effects, impacts are considered significant if the Phase 3 Expansion would result in emissions that pose an acute or chronic health risk with a Health Hazard Index (HHI) of 1 or greater. As discussed in Appendix C, the acute health hazard index is the ratio of the average short term ambient concentration of an acutely toxic substance or substances, divided by the acute reference exposure level set by the California Office of Environmental Health Hazard Assessment (OEHHA) (CAPCOA 2009). The chronic hazard index is the ratio of the average annual ambient concentration of a chronically toxic substance or substances divided by the chronic reference exposure level set by the OEHHA (CAPCOA 2009).

For potentially carcinogenic effects, impacts are considered significant if the Phase 3 Expansion would result in emissions that pose a lifetime cancer risk of greater than one in one million (CalEPA 2003).

Construction

Construction of the Phase 3 Expansion elements is estimated to take approximately 3 years to complete. During construction, air pollutants would include engine exhaust emissions from onsite construction equipment and on-road vehicles. Onsite clearing, earthmoving, grading, and paving activities, as well as vehicle travel on local and/or access roads, would also generate fugitive dust during construction activities. As part of the analysis of air quality impact, maximum daily air pollutant emissions were modeled for each construction phase using computer models accepted by the BCAQMD and CCAPCD (URBEMIS version 9.2.4; EMFAC 2007 version c 2.3).

Estimated emissions from construction of the Phase 3 Expansion elements at the RFS, the Delevan Site, and the reconductoring component area are presented in Tables 3.2-8, 3.2-9, and 3.2-10. Peak construction emissions are based on emissions projected for summer 2011, when work on the civil engineering, mechanical, and electrical components at the RFS would occur. Peak values are based on the combination of overlapping construction activities that would yield the highest potential emissions levels. Detailed calculations and assumptions are included in Appendix C.

Table 3.2-8 Estimated Construction Phase Emissions from Phase 3 Expansion at RFS

Peak Daily (lbs/day)[a]							
Emissions	NO_x	ROG	Exhaust PM_{10}	Fugitive PM_{10}	CO	SO_2	$PM_{2.5}$
Max Daily RFS Plant 4[b]	93.71	15.10	5.82	75.93	60.44	0.13	5.13
Max Daily RFS Plant 5[b]	87.22	14.04	5.41	75.93	58.06	0.13	4.76
Applicable BCAQMD Threshold	Level B: >25 lbs/day	Level A: ≤ 25lbs/day	Level B: > 80 lbs/day		NA	NA	NA
Exceeds threshold?	Yes	No	Yes		NA	NA	NA
Tons[c] per Year							
Total tons/yr 2011 (RFS Plant 4)	2.96	0.50	0.17	3.35	2.22	0.00	0.15
Total tons/yr 2012 (RFS Plant 4 + 5)	3.54	0.61	0.21	4.26	2.78	0.01	0.19
Total tons per year 2013 (RFS Plant 5)	0.99	0.17	0.06	1.30	0.80	0.00	0.05

Notes:
[a]Total lbs per phase divided by total days in phase assuming 22 work days per month
[b]Assume no overlap of construction activities at Plants 4 and 5, as described in Chapter 2, Description of Phase 3 Expansion
[c]Metric tons
Key:
BCAQMD = Butte County Air Quality Management District
CO = carbon monoxide
NA = not applicable
NO_x = nitrogen oxides
PM_{10} = particulate matter with a diameter of 10 micrometers or less
$PM_{2.5}$ = particulate matter with a diameter of 2.5 micrometers or less
RFS = Remote Facility Site
ROG = reactive organic gas
SO_2 = sulfur dioxide

Table 3.2-9 Estimated Construction Phase Emissions from Phase 3 Expansion at Delevan Site

Peak Daily (lbs/day)[a]							
Emissions	NO_x	ROG	Exhaust PM_{10}	Fugitive PM_{10}	CO	SO_2	$PM_{2.5}$
Maximum Daily Emissions[b]	38.65	4.84	2.06	12.93	16.20	0.05	1.83
Applicable CCAPCD Threshold	Level B: >25 lbs/day	Level A: ≤ 25 lbs/day	Level A: ≤ 80 lbs/day		NA	NA	NA
Exceeds threshold?	Yes	No	No		NA	NA	NA

Table 3.2-9 Estimated Construction Phase Emissions from Phase 3 Expansion at Delevan Site

Peak Daily (lbs/day)[a]							
Emissions	NO_x	ROG	Exhaust PM_{10}	Fugitive PM_{10}	CO	SO_2	$PM_{2.5}$
Tons[c] per Phase[c]							
Total tons per year 2010	0.74	0.10	0.04	0.25	0.34	0.00	0.03

Notes:
[a]Total lbs per phase divided by total days in phase assuming 22 work days per month
[b]Assume overlap of civil, foundation, structural, mechanical, piping, erection, fabrication, electrical and instrumentation in September 2010
[c]Metric tons
Key:
CCAPCD = Colusa County Air Pollution Control District
CO = carbon monoxide
NA = not applicable
NO_x = nitrogen oxides
PM_{10} = particulate matter with a diameter of 10 micrometers or less
$PM_{2.5}$ = particulate matter with a diameter of 2.5 micrometers or less
ROG = reactive organic gas
SO_2 = sulfur dioxide

Table 3.2-10 Estimated Construction Phase Emissions from PG&E Reconductoring Component

Peak (lbs/day)[a]						
Emissions	NO_x	ROG	PM_{10}	CO	SO_2	$PM_{2.5}$
Maximum Daily Emissions[b]	112.21	12.01	4.18	36.02	0.13	NA
Applicable BAAQMD Threshold	Level B: >25 lbs/day	Level A: ≤ 25 lbs/day	Level B: ≤ 80 lbs/day	NA	NA	NA
Exceeds threshold?	Yes	No	No	NA	NA	NA
Tons per Phase[b]						
Total tons per year (2010)	2.24	0.24	0.08	0.72	0.00	0.08

Notes:
[a]Total pounds per phase divided by total days in phase assuming 22 work days per month
[b]Metric tons
Key:
BCAQMD = Butte County Air Quality Management District
CO = carbon monoxide
NA = not applicable
NO_x = nitrogen oxides
PM_{10} = particulate matter with a diameter of 10 micrometers or less
$PM_{2.5}$ = particulate matter with a diameter of 2.5 micrometers or less
ROG = reactive organic gas
SO_2 = sulfur dioxide

Operation and Maintenance

Air pollutants associated with the operation of the Phase 3 Expansion would be generated by operation of the following equipment at the RFS (further description of this equipment is included in Chapter 2, Description of Phase 3 Expansion):

- Combustion equipment (four additional natural-gas-fired compressor engines, glycol dehydrator, reboilers, thermal oxidizer, and 2.5-MW diesel generator)
- Relief vent system
- Fugitive natural gas emissions from valves and flanges
- Vehicles used for deliveries, inspection, maintenance, and worker commute

Stationary combustion equipment associated with the proposed expansion of the RFS would include four additional compressor units and two additional dehydration units. These new combustion units would include BACT as determined by the BCAQMD. The compressor engines would make use of SCR and oxidation catalysts for NO_x, CO, and ROG control, and a positive crankcase ventilation system. Reboiler burners would be designed to emit low levels of emissions. The Phase 3 Expansion elements at the RFS would also require routine maintenance and emergency repair for service continuity. In addition to the RFS staff described in the 2002 EIR, an additional four workers would travel to and from the site each day. Most emissions from operation and maintenance of the Phase 3 Expansion elements would be associated with combustion of natural gas to run pumps and other process equipment at the RFS, as well as from direct fugitive release of gas to the atmosphere from leaks and designed pressure release points such as valves.

Estimated emissions from operation of the Phase 3 Expansion elements at the RFS are presented in Table 3.2-11, along with emissions from existing components at the RFS. Operational emissions assume the implementation of BACT. Because most of the expansion elements at the Delevan Site would be underground, and because there would not be any additional operational staff associated with the Delevan Site expansion, operations at the Delevan Site are not anticipated to result in more than a very minor increase in fugitive emissions as a result of the Phase 3 Expansion (less than 1 percent of operations fugitive emissions that would take place at the RFS).

TACs

To determine potential effects related to the emission of TACs from the operation of the Phase 3 Expansion elements at the RFS (Plants 4 and 5) as well as the cumulative operations of the RFS after the Phase 3 Expansion (Plants 1 though 5, or "Post-Expansion RFS"), the applicant performed a Level 1 analysis using the prioritization methodology described by CAPCOA (CAPCOA 1990). The TACs analysis assessed TAC emissions in relation to three different health measures: acute (short-term) non-cancerous health effects, chronic (long-term) non-cancerous health effects, and carcinogenic effects. A description of this analysis, including estimates of TACs emissions for the Phase 3 Expansion elements and for the facility as a whole, is presented in Appendix C. The Level 1 analysis is based on the quantity of emissions, proximity to potential sensitive receptors, and height of the emission points. The resulting prioritization score indicates whether any further analysis is required.

Table 3.2-11 Potential to Emit Criteria Pollutants Wild Goose Plants 4 and 5, RFS Phase 3 Expansion Operations

Emissions (tons/year)					
Phase 3 Expansion Elements					
	NO_x	CO	ROC	SO_2	PM_{10}
Compressor Engines	11.0	29.9	8.8	0.7	2.3
Glycol Reboiler Burners	2.2	1.8	0.01	0.0	0.1
Glycol Still Vent/Thermal Oxidizer	1.1	0.4	0.25	0.0	0.0
Blowdowns (ESD and routine)			0.83		
Vehicle Emissions	0.5	0.6	0.08	0.0	0.02
Total Phase 3 Expansion	14.8	32.7	10.0	0.7	2.4
Existing RFS Elements					
Compressor Engines	35.8	59.7	21.7	1.6	5.6
Glycol Reboiler Burners	3.0	2.4	0.2	0.1	0.2
Glycol Still Vent/Thermal Oxidizer	1.5	1.0	0.2	0	0.1
Blowdowns (ESD and routine)			1.2		
Total Existing RFS	40.3	63.1	23.3	1.7	5.9
Total Existing and Phase 3 Expansion	55.1	95.8	33.27	2.4	8.32
Current BCAQMD Permit Limits	*40.41*	*NA*	*25*	*NA*	*NA*
Emissions (lbs/day)					
	NO_X	CO	ROG	SO_2	PM_{10}
Total Phase 3 Expansion	89.4	197.5	60.4	4.2	14.5
Applicable BCAQMD Significance Threshold	Level B: >25 lbs/day	NA	Level B: >25 lbs/day	NA	Level A: <25 lbs/day
Exceeds BCAQMD threshold?	Yes	NA	Yes	NA	No
Total Existing RFS and Phase 3 Expansion	332.7	578.5	200.9	14.5	50.2
Applicable BCAQMD Significance Threshold	Level C: >137 lbs/day	NA	Level C: >137 lbs/day	NA	Level A: ≤80 lbs/day or less
Exceeds BCAQMD threshold?	Yes	NA	Yes	NA	No

Notes:
Reactive Organic Compounds (ROC) and Reactive Organic Gases (ROG) are functionally identical terms
Daily lbs/day were derived from yearly tons by converting tons to pounds (2,000 lbs/ton) and dividing by 365 days per year
Refer to Table 3.2-6 for summary of BCAQMD local thresholds of significance for criteria pollutants
Key:
BCAQMD = Butte County Air Quality Management District
CO = carbon monoxide
ESD = Emergency Shutdown
NA = not applicable (no applicable significance threshold)
NO_x = nitrogen oxides
PM_{10} = particulate matter with a diameter of 10 micrometers or less
SO_2 = sulfur dioxide

As shown in Table 3.2-12, the prioritization scores for Plants 4 and 5 were below the thresholds for acute and chronic non-carcinogenic effects, as well as below the threshold for carcinogenic effects. Table 3.2-12 also shows that the prioritization scores for the new plants plus the existing plants (Plants 1 through 5) were below the thresholds for acute and chronic non-carcinogenic effects, but above the threshold for carcinogenic effects. Therefore, further investigation was required to determine whether the post-expansion RFS could pose a health risk related to emissions of carcinogenic compounds.

Table 3.2-12 Results of Level 1 TACs Air Quality Screening Analysis, Phase 3 Expansion and Post-Expansion RFS

Prioritization Scores	Phase 3 Expansion (Plants 4 and 5)	Post-Expansion RFS (Plants 1, 2, 3, 4, 5)
Acute Non-Carcinogen (above threshold if greater than 1)	0.09	0.20
Chronic Non-Carcinogen (above threshold if greater than 1)	0.006	0.01
Cancer risk (above threshold if greater than 0.1)	0.06	0.15

Sources for prioritization score thresholds: CAPCOA 1990, 2009
Note:
Value highlighted in table (cancer risk for post-expansion RFS, Plants 1, 2, 3, 4, 5) represents an exceedence of the threshold value of 0.1.
Key:
HHI = Health Hazard Index
RFS = Remote Facility Site
TACs = toxic air contaminants

Because the screening analysis showed a potential for the post-expansion RFS to exceed the significance threshold for carcinogenic effects, a health risk assessment (HRA) was performed using the SCREEN3 model to further analyze the potential carcinogenic risk for Plants 1, 2, 3, 4 and 5. The USEPA-approved SCREEN3 model is recommended by CAPCOA when prioritization scores exceed the significance threshold. The HRA accounts for the inhalation health risks associated with fugitive emissions from the compressors, reboilers, and oxidizer that would be used to control emissions from the glycol dehydrator.

The model uses source parameters (stack temperature, exit velocity, exit temperature, stack height, stack diameter, and emission rate) to determine impacts at nearby receptors. The nearest residential and non-residential receptors to the RFS were included in the analysis. The model is conservative, so it yields a worst-case result. Cancer risk estimates are based on the maximum predicted downwind concentration of TACs emitted by all sources. Individual sources were modeled as point sources. Fugitive emissions were modeled as an area source, 60 meters on a side. Appendix C contains additional details on the calculation of health risks using the SCREEN3 model.

The results of the SCREEN3 health risk assessment are shown in Table 3.2-13. As shown in the table, the combined cancer risk of all pollutants for residential and non-residential receptors at the site is less than one-in-a-million, below the California EPA significance threshold for health risks associated with TACs (CalEPA 2003) as well as the CAPCOA level of 10 in one million. This cancer risk represents a worst case using the conservative SCREEN3 model.

Table 3.2-13 Results of SCREEN3 HRA, Post-Expansion RFS (Plants 1, 2, 3, 4, 5)

	Residential Receptor	Non-Residential Receptor
Cancer risk (significant if greater than 1.0E-06)	4.75E-07[b]	4.19E-07[c]
Significant Risk?	No	No

Notes:
[a]Represents 0.000001, or 1 in one million
[b]Represents 0.0000005, or 5 in 10 million
[c]Represents 0.0000004, or 4 in 10 million
Key:
SCREEN3 = Conservative USEPA-approved SCREEN3 model recommended by CAPCOA
HRA = Health risk assessment
RFS = Remote Facility Site
Sources for cancer risk threshold: CalEPA 2003

Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan.

Construction

As part of determining whether proposed development conflicts with or obstructs implementation of an applicable air quality plan, a development's consistency with and conformance to a local general plan should be reviewed. Construction and operation of the Phase 3 Expansion would be consistent with the existing land use designation and zoning, as discussed in Section A.7, Land Use and Planning.

The BCAQMD and CCAPCD air management plans are established according to forecasts of air pollution emissions, based on existing land uses and growth projections. The emissions associated with Phase 3 Expansion construction (Tables 3.2-8, 3.2-9, and 3.2-10) would be temporary, and would be only a small fraction of the regional emissions inventory included in the air districts affected (NSVPAD 2006).

However, as shown in Tables 3.2-8, 3.2-9, and 3.2-10, projected estimates of maximum daily emissions of NO_x and PM_{10} during construction activities at the RFS would exceed BCAQMD significance thresholds, and estimates of maximum daily emissions of NO_x during construction activities at the Delevan Site would exceed CCAPCD significance thresholds. In addition, estimates of maximum daily emissions of NO_x during reconductoring activities would also exceed BCAQMD significance thresholds. The Phase 3 Expansion is required to be consistent with the BCAQMD and CCAPCD best management practices (BMPs) during construction. However, even with application of all required and discretionary BMPs as detailed in the APMs above, emissions of NO_x and PM_{10} would exceed BCAQMD and CCAPCD screening thresholds. Therefore, the applicant would be required to reduce construction emissions to a less than significant level through implementation of appropriate mitigation measures.

For construction emissions that exceed the BCAQMD's Level B significance threshold (such as those from the Phase 3 Expansion activities at the RFS), the applicant is required to select Best Available Mitigation Measures (BAMMs) with individual mitigation point values to achieve emission reductions totaling 10 percent of the calculated emissions increase above Level B (BCAQMD CEQA Guidelines 2008). Mitigation points are equivalent to a percentage of the emission reduction associated with using a particular measure. Implementing mitigation measures totaling 15 mitigation points means the measures are expected to result in a 15 percent reduction in overall emissions. If the application of BAMMs is not sufficient to achieve the required reduction in construction emissions, offsite measures, such as the purchase of offsets through the State's Carl Moyer Program[3], may also be required by the BCAQMD. The requirement to apply BAMMs and/or offsite measures to reduce Phase 3 Expansion construction emissions at the RFS will be included in the applicant's BCAQMD air permits for the Phase 3 Expansion, and are detailed in Mitigation Measure (MM) AIR-1, below. Coordination with the BCAQMD to achieve the desired reduction in construction emissions would reduce this impact to a less than significant level.

> **PHASE 3 MM AIR-1:** To address potentially significant construction emissions at the RFS and the PG&E reconductoring component area, the applicant and PG&E will apply appropriate BCAQMD Best Available Mitigation Measures (BAMMs) and/or offsite measures such as purchase of offsets for NO_x and PM_{10} emissions, as presented in the BCAQMD CEQA Air Quality Handbook (2008), in order to reduce construction emissions to a less than significant level. This measure will apply to emissions of NO_x and PM_{10} in the years 2011 and 2012. The BCAQMD will include appropriate permit conditions on the Phase 3 Expansion ATC for the RFS to ensure that BAMMs and/or offsite measures such as purchase of offsets for NO_x and PM_{10} emissions chosen are adequate and applied.

[3] The State's Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) is a voluntary program that offers grants to owners of heavy-duty vehicles and equipment. Local Air Districts administer the Carl Moyer program in partnership with the CARB.

For NO_x construction emissions that exceed the CCAPCD's Level B significance threshold, such as those from Phase 3 Expansion activities at the Delevan Site, the applicant is required to purchase NO_x offsets sufficient to counteract the exceedance (Gomez 2010). This requirement will be enforced by the CCAPCD through the ATC permitting process, and is detailed in MM AIR-2, below. Coordination with the CCAPCD to achieve the desired reduction in construction emissions would reduce this impact to a less than significant level.

PHASE 3 MM AIR-2: To address potentially significant construction emissions at the Delevan Site, and in coordination with the Colusa County Air Pollution Control District (CCAPCD), the applicant will purchase NO_x offsets for exceedances over the CCAPCD threshold limit during the construction period. Based on calculations of NO_x pounds per day emissions for the construction phase, total NO_x emissions are anticipated to exceed the CCAPCD limit of 25 pounds per day by a total of approximately 925 pounds over the construction period. The applicant will be required to purchase NO_x offset credits for this amount as part of Authority to Construct permit conditions, and provide documentation of the offsets purchase to the CPUC and the CCAPCD prior to construction activities.

Operations

Operational emissions associated with the Phase 3 Expansion would be generated from stationary combustion, operational and emergency blowdowns, fugitive emissions, and vehicles used by workers to travel to work and inspect the site. Of these emissions, NO_x and ROG would exceed the BCAQMD thresholds and would thus require purchased offsets in order to mitigate the impacts to a less than significant level (below the Level C threshold). The BCAQMD has indicated that market-based offset credits are available within the county; in addition, the BCAQMD holds air quality offset community bank credits, based on existing projects removing emissions from the air basin, that may be available to the applicant (Lusk 2010). The community bank credits are available for lease for public services projects in the county. A rule change by the vote of the BCAQMD Governing Board would be required to allow these credits to be used for the Phase 3 Expansion. The requirement to purchase NO_x and ROG offsets will be included in the applicant's BCAQMD air permits for the Phase 3 Expansion, and is detailed below in MM AIR-3.

PHASE 3 MM AIR-3: To address potentially significant operations emissions at the RFS, the applicant will purchase offsets for NO_x and ROG emissions, either from existing market-based offsets within Butte County, or from the BCAQMD community offset bank, as available. Based on the calculations of NO_x and ROG pounds per day emissions for the construction phase, these emissions are anticipated to exceed the Level B BCAQMD 25 pounds per day limit by a total of approximately 23 tons of NO_x and 15 pounds of ROG over the entire construction period. The BCAQMD will include appropriate permit conditions in the Phase 3 Expansion Permit to Operate to ensure that offsets for NO_x and PM_{10} emissions are adequate and applied.

Operations and maintenance activities at the Delevan Site and the PG&E reconductoring component area are not anticipated to result in more than a very minor increase in emissions as a result of the Phase 3 Expansion, and would not conflict with any applicable district plans. The Phase 3 Expansion elements at the Delevan Site would include periodic vehicle inspections during operations, and emissions would consist of approximately one passenger vehicle or light truck per day. No additional maintenance along the reconductored distribution line would be required beyond existing ongoing maintenance, which requires vehicle inspections approximately once a year. Thus, the project as proposed would not cause any conflicts with BCAQMD or CCAPCD air quality plans, and no mitigation is required.

Impact AIR-2: Violate air quality standard or contribute substantially to an existing or projected air quality violation.

As discussed above, emissions from construction activities at the RFS, Delevan Site, and reconductoring component area would exceed the BCAQMD threshold limits for NO_x and PM_{10} and the CCAPCD threshold limit for NO_x. While construction-related emissions would be temporary, short-term impacts could contribute to the regional pollution load and to exceedances of air quality standards. Operations emissions at the RFS would exceed the BCAQMD threshold limits for NO_x and ROG.

Exceeding these defined emissions levels does not, in itself, represent a violation of local air quality standards. However, any emissions beyond the allowable limit must be either reduced or offset to below the defined thresholds. As discussed above, MMs AIR-1 through AIR-3 would reduce this impact to a less than significant level.

Impact AIR-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

According to the BCAQMD CEQA Air Quality Handbook (BCAQMD 2008), project emissions that are not consistent with the Air Basin's Air Quality Attainment Plan (AQAP) or State Implementation Plan (SIP), or that exceed district thresholds, will have a significant cumulative impact unless offset. Development projects are consistent with the AQAP if:

- The project does not require a change in the existing land use designation (e.g., a general plan amendment or rezone), and projected emissions of ROG and NO_x from the proposed project are equal to or less than the emissions anticipated for the site if otherwise developed under the existing land use designation;
- The project does not exceed the "project alone" significance criteria (i.e., the significance criteria for the project-specific impacts);
- The lead agency for the project requires the project to implement any applicable emission reduction measures contained in and/or derived from the AQAP; and
- The project complies with all applicable district rules and regulations (BCAQMD 2008).

As discussed in Section A.7, Land Use and Planning, the Phase 3 Expansion would be consistent with the land use designation and zoning in the area of the RFS, the Delevan Site, and the reconductoring component area, and neither a general plan amendment nor a rezoning application would be required. As discussed above, the Phase 3 Expansion would include implementation of all applicable emission reduction measures recommended and required by the BCAQMD and the CCAPCD, and would comply with all applicable district rules and regulations. After application of the mitigation measures described above, the Phase 3 Expansion would not exceed the "project alone" significance criteria.

Butte and Colusa counties are in nonattainment for the state and federal ozone and PM_{10} standards. For this reason, development that resulted in individually significant air quality impacts related to ozone and PM_{10} would also be considered to create cumulatively significant air quality impacts; however, as discussed above, the Phase 3 Expansion, with application of MMs AIR-1 through AIR-3, would have less than significant impacts as an individual project. Therefore, the Phase 3 Expansion would have a less than significant impact under this criterion. Further discussion of cumulative impacts related to Air Quality is included in Chapter 4, Cumulative and Growth-Inducing Impacts.

Impact AIR-4: Expose sensitive receptors to substantial pollutant concentrations.

Land use conflicts can arise when sensitive receptors are located next to major sources of air pollutant emissions. The nearest sensitive receptors to the RFS are one residence, approximately 4,200 feet from the RFS (the closest sensitive receptor), and the Grey Eagle Ranch hunting lodge, approximately 1 mile from the RFS. The nearest sensitive receptor to the Delevan Site is a residence located more than 1 mile from the site. The nearest sensitive receptors to the reconductoring component include numerous homes, farms, and agriculture-related businesses within 30 to 50 feet of the distribution line right-of-way and the reconductoring activities, most of which are located either along the Option A reconductoring segment between Block Road and State Route 99 or along a portion of the Option B reconductoring alignment, between Bock Road and West Biggs Gridley Road.

Because most of the expansion elements at the Delevan Site would be underground, and because there would be no additional operational staff associated with the Delevan Site expansion, operations at the Delevan Site are not anticipated to result in more than a very minor increase in fugitive emissions from the Phase 3 Expansion or to expose sensitive receptors to substantial pollutant concentrations. In addition, given that reconductoring activities would be very short-term and would impact specific locations for only limited durations, no significant impact under this criterion would result from the reconductoring component.

The results of the Level 2 SCREEN3 health risk assessment are shown in Table 3.2-13, above. Appendix C contains additional details for this analysis. The combined cancer risk for the Phase 3 Expansion is less than the California EPA limit of one in one million.

The results of the health risk screening analysis (Table 3.2-13, above) show that the Phase 3 Expansion would not pose a significant health risk to sensitive receptors; therefore, this impact is less than significant. Construction and operation of the Phase 3 Expansion would not expose sensitive receptors to substantial pollutant concentrations; therefore, there would be a less than significant impact.

Impact AIR-5: Create objectionable odors affecting a substantial number of people.

Construction

Existing population in the Phase 3 Expansion areas is sparse, and does not represent a substantial number of people. Phase 3 Expansion construction activities would include the use of diesel-fueled construction equipment, which emits a distinctive odor that may be offensive to some individuals. Odors generated by diesel exhaust would be reduced by the use of either low-sulfur to ultra-low-sulfur fuel, as required in California. Paving activities would also generate odors from hot asphalt sources; however, emissions at this level would not likely cause a perceptible odor to a substantial number of people. Another potential source of offensive odors would be operational or emergency blowdowns or unintended release of natural gas during construction activities. These events are unlikely to result in significant odor impacts because the nearest sensitive receptors are not close and methane is lighter than air so it disperses relatively quickly.

Operation

Processing of natural gas at the RFS has the potential to release odorized natural gas. Odorized gas could be emitted from piping components such as valves and flanges (fugitive emissions). Such leaks would be small and would quickly be dissipated in the atmosphere. The Wild Goose Facility operator has existing measures in place to prevent and repair such leaks. Emergency releases during blowdown events could also release odorized gas. However, these releases would occur relatively infrequently and the gas would

dissipate rapidly because it would be under pressure. For these reasons, and because the RFS is not close to the nearest sensitive receptor, these events are unlikely to result in significant odor impacts.

Therefore, construction and operation of the Phase 3 Expansion would result in a less than significant impact related to objectionable odors affecting substantial numbers of people.

3.2.2.1 Greenhouse Gas Impacts

Greenhouse Gas Significance Criteria

The Phase 3 Expansion area is within the jurisdiction of the BCAQMD (RFS) and CCAPCD (Delevan Site). Neither the state of California nor the BCAQMD or CCAPCD has officially adopted CEQA thresholds of significance for impacts related to GHG emissions. In March 18, 2010, the most recent amendments to the CEQA Guidelines became effective, including new language addressing the quantification and mitigation of GHG emissions. The CEQA Environmental Checklist (Appendix G) was amended to include two considerations to help assess the significance of impacts associated with GHG emissions. These considerations were whether the proposed project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; and
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

In the absence of an accepted or adopted significance threshold, and in order to conservatively assess potential Phase 3 Expansion impacts from GHGs, quantitative significance criteria are applied, and a limit of 10,000 metric tons of CO_2e per year is used here. This number includes construction emissions, added to yearly operational emissions. Construction emissions are amortized over the life of the Phase 3 Expansion, which is defined as 30 years.

The 10,000-metric-ton number corresponds to the lowest officially adopted GHG emissions significance threshold in the state, the interim threshold adopted by the South Coast Air Quality Management District (SCAQMD) in response to the adoption of AB 32. Using this level for the Phase 3 Expansion is consistent with the nature of impacts associated with GHG emissions, which do not produce a direct localized effect, but take place on a state-wide and global scale, as described in Section 3.2.2.1. In addition, the 10,000-metric-ton number is appropriately conservative, because it is based on a 90 percent emissions source capture rate for the SCAQMD area, and represents a scale and quantity of industrial emissions sources that is much higher than in more rural, far less developed Butte County.

Construction

Construction activities associated with the Phase 3 Expansion would result in CO_2 and CH_4 emissions generated by on-road vehicles and non-road equipment during project construction. Table 3.2-14 shows total CO_2 and CH_4 emissions generated by the Phase 3 Expansion during construction. Further details supporting these estimates are presented in Appendix C.

Table 3.2-14 Estimated Direct Emissions of GHGs for the Phase 3 Expansion During Construction

Construction Year	GHG	Total lbs/yr				GWP	CO_2e (lbs)	CO_2e (MT)
		RFS	*Delevan*	*PG&E Reconductoring*	*Total*			
2010	CO_2	0	156,000	12,892	168,892	1	168,892	77
	CH_4	0	0	93	93	21	1,953	0.89
Total Direct Emissions, 2010							170,845	454
2011	CO_2	828,000	0	0	828,000	1	828,000	376
	CH_4	22	0	0	22	21	2,415	1.1
Total Direct Emissions, 2011							999,307	454
2012	CO_2	1,050,000	0	0	1,050,000	1	1,050,000	476
	CH_4	22	0	0	22	21	460	0.2
Total Direct Emissions, 2012							1,051,000	476.02
2013	CO_2	309,000	0	0	309,000	1	309,000	140
	CH_4	0	0	0	0	21	0	0
Total Direct Emissions, 2013							309,000	140
Total lbs							2,359,307	
Total MT								1,070
Amortized (30 yr)								(MT/year) 36

Note:

Direct emissions are from compressor engines, compressor blowdowns, compressor starter vents, reboilers, thermal oxidizer stacks, and fugitive releases.

Key:

CO_2e = Carbon dioxide equivalent

GHG = Greenhouse gas

GWP = Global Warming Potential

MT = Metric tons

Operations

During operation of the Phase 3 Expansion elements, most GHG emissions would be CO_2 from combustion of fossil fuel (primarily natural gas) associated with stationary combustion of natural gas in compressor pumps and other equipment at the RFS; additional direct release of CH_4 (the primary component of natural gas) will also occur during blowdowns and as unintended fugitive release from valves, flanges, and other equipment. The Phase 3 Expansion would also result in CO_2 and CH_4 emissions generated by vehicles used during routine operational activities. A summary of these emissions is presented in Table 3.2-15. As discussed above, annual operational emissions associated with the Delevan Site would be minor, and are not included in the analysis.

Table 3.2-15 Estimated Direct and Indirect Emissions of GHGs for the Phase 3 Expansion During Operations

Source	GHG	Total (lbs)	CO_2e (MT)	GWP	CO_2e (MT)
Mobile	CO_2	50,692	23	1	23
Stationary	CO_2	73,842,816	33,504	1	33,504
Mobile	CH_4	0.03	0	21	0
Fugitive	CH_4	108,836	49	21	1,029
Indirect	CO_2e	3,954,048	1,794	n/a	1,794
				Total Emissions Annual GHG Emissions	36,350

Note:

Direct emissions are from compressor engines, compressor blowdowns, compressor starter vents, reboilers, thermal oxidizer stacks, and fugitive releases. Indirect emissions are estimates of purchased electricity for operation of equipment at the RFS; units shown are kilowatt hours (kWh) rather than pounds.

Key:

CO_2e = Carbon dioxide equivalent
GHG = Greenhouse gas
GWP = Global Warming Potential
MT = Metric tons

Impact AIR-6: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Total GHG emissions for the Phase 3 Expansion from construction and operations combined have been estimated under a worst-case scenario to be approximately 36,386 tons per year (36 tons per year of amortized construction emissions, as summarized in Table 3.2-14, and 36,350 tons per year of operations emissions, as summarized in Table 3.2-15), which assumes maximum daily emissions levels are applied to the entire year. Actual emissions can reasonably be expected to be lower than this estimate because construction would not occur every day of the year. Using the maximum daily emissions level for every day overestimates actual construction levels on most days.

Existing and proposed operations at the Wild Goose Facility include measures to reduce emissions of air pollutants, including CO_2. These measures include use of efficient internal combustion engines rather than gas turbine engines, use of flash tank separators on glycol dehydrators to reduce methane, and an aggressive maintenance and monitoring program to reduce fugitive emissions. Because the applicant already uses operations and equipment that efficiently reduce the potential for GHG emissions, only limited options are available for further reduction of GHG emissions. In addition, many of the measures recommended by CAPCOA for GHG mitigation (CAPCOA 2008), such as measures addressing parking, carpooling, and building heating and cooling, are more suited to larger land use developments, and are not applicable to an expansion of an existing facility with relatively few employees. Feasible mitigation for the GHG emissions associated with the Phase 3 Expansion includes the applicant's purchase of offsets and participation in agreements to use renewable sources of energy. The following mitigation measures would reduce impacts related to GHG emissions to a less than significant level, as shown in Table 3.2-16, below.

Table 3.2-16 GHG Emissions, GHG Threshold, and Mitigation for the Phase 3 Expansion

Emission Type	GHG Emissions[a] CO_2e (MT/year)	GHG Emissions Reductions from MM AIR-4[b] (MT/year)	GHG Emissions Reductions from MM AIR-5 (MT/year)	GHG Emissions with Mitigation, CO_2e (MT/year)
Direct[c]	34,592		25,489	9,103
Indirect (Electricity)	1,794	897		897
			Total	10,000
			CPUC Threshold	10,000
			Significance Level After Mitigation Incorporated:	Less than Significant

Notes:
[a]All emissions estimates assume worst case (maximum emissions); actual emissions are expected to be less than as listed.
[b]Emissions offset assumes 50% of total kilowatt hours (kWh) on an annual basis
Includes all construction (amortized over 30 years) and construction emissions, except electricity usage at RFS
Assumes applicant will report GHG emissions and offset to below significant on a yearly basis
Key:
CO_2 = Carbon dioxide
CO_2e = CO_2 equivalent
CPUC = California Public Utilities Commission
GHG = Greenhouse gas
MM = Mitigation measure
MT/year = Million tons per year

PHASE 3 MM AIR-4: Prior to construction of the Phase 3 Expansion, the applicant will enter into an agreement with PG&E to participate in PG&E's Climate Smart™ Program, to provide 50 percent of the electricity used at the RFS annually (approximately 900 tons CO_2e) from renewable energy sources. A copy of the agreement between the applicant and PG&E will be provided to CPUC prior to the start of operation of the expanded RFS. Annual reports on the applicant's participation in the program will also be submitted by the applicant to CPUC.

PHASE 3 MM AIR-5: Until the applicant can participate in an appropriate, verifiable, state-wide cap and trade program, the applicant will obtain and retire, by the end of each year of Phase 3 Expansion construction and operation, sufficient carbon credits to fully offset GHG emissions ("carbon offsets") below the 10,000 metric tons CO_2e level. Renewable Energy Certificates (RECs) and TRECS (Tradable RECs) do not qualify as GHG offsets. Carbon offsets will apply to Phase 3 Expansion construction GHG emissions (amortized over 30 years) as well as direct operational GHG emissions. Prior to completion of project construction, the applicant will prepare a detailed written summary of the carbon offsets, including offset type, location, calculation methodology protocol employed, and registration status. In addition, prior to completion of project construction, the applicant will provide to CPUC an independent verification opinion statement(s) for the carbon offsets, from a verification body registered with the California Climate Action Registry, ANSI, or the CARB.

Offsets purchased from a third party or developed by the applicant must meet at least one of the following requirements:

1. Offset project is located within California;
2. Offset project is located in jurisdictions that hold current, specific agreements with California (such as the Climate Action Reserve), or exist in the context of an ISO-compliant regional trading system like that being developed in the Western Climate Initiative or other regional program; and/or

3. Offset project is an internally developed reduction measure following a recognized protocol (such as the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange). Some potential offset projects of this type include:

   - Fuel switching in applicant-owned equipment;
   - Energy efficiency upgrades beyond business as usual;
   - Implementation of a quantifiable carpooling program above and beyond what is currently in place; and
   - Sequestration and/or destruction of GHG conducted in accordance with any protocol available at the time of construction from the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange.

Any carbon offset either purchased or developed by the applicant through another entity will either be registered in, or developed in accordance with a protocol for, an established Carbon Reduction/Sequestration Project. Established projects and protocols include those provided by recognized organizations, such as the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange, that can provide a reasonable level of assurance that GHG reductions are real, additional, permanent, and verifiable. If the applicant were to develop a carbon offset project without registering it with one of the above-referenced registration bodies, the applicant will demonstrate to CPUC that the offset satisfies the four additionality tests as outlined in the UNFCC Additionality Tool, and will obtain an independent evaluation by a qualified third party confirming that the offset meets additionality testing requirements.

Prior to the start of project operation, the applicant will submit a project design document describing baseline procedures and emissions levels as well as projected levels of emissions reductions/offsets to CPUC. The design document will include the requirement that the applicant submit a report annually to CPUC documenting the previous year's offset activities and purchases. The annual report will be independently verified by an ANSI-accredited GHG emissions reduction verification body.

Impact AIR-7: Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

CARB's Climate Change Scoping Plan (CARB 2008b) provides an outline for actions to reduce California's GHG emissions. The scoping plan now requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. At this time, there are no mandatory GHG regulations or finalized agency guidelines that would apply to the Phase 3 Expansion. However, it is expected that the Wild Goose Facility would be captured under the California mandatory GHG reporting program, and eventually be covered under a statewide cap-and-trade program.

Because there are no direct conflicts with any of the policies or GHG reduction measures outlined by the California Climate Action Team and mitigation will be applied as stated in PHASE 3 MM AIR-4 and PHASE 3 MM AIR-5, the Phase 3 Expansion would have a less than significant impact.

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3.3 Biological Resources

To determine whether the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion) would result in any new impacts to biological resources or increase the severity of biological impacts identified in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), this analysis considers changes to the resource area setting and changes to applicable plans, policies, and regulations of agencies with jurisdiction over the Phase 3 Expansion. Several documents were reviewed, including the California Endangered Species Act Incidental Take Permit for the Phase 2 Expansion (California Department of Fish and Game [CDFG] 2002), the U.S. Fish and Wildlife Service Biological Opinion for the Phase 2 Expansion (USFWS 2006), the applicant's Biological Assessment (BA) for Phase 3 Expansion (TRC 2009a), the applicant's Biological Assessment for Proposed PG&E Electrical Line Reconductoring (reconductoring BA; TRC 2010), and the applicant's updated wetland delineation report for the Phase 3 Expansion (TRC 2009b). Observations during a September 23, 2009, site visit also inform the following analysis.

The 2002 EIR identified potentially significant biological impacts that would result from implementation of the Phase 2 Expansion. The impacts identified as potentially significant included (1) impacts to native vegetation; (2) impacts to local populations of two special status plant species, California hibiscus (*Hibiscus lasiocarpus*) and Little mousetail (*Myosurus minimus* ssp. *apus*); (3) impacts to riparian habitat; (4) impacts to wetlands, freshwater marsh, and wet meadow wetlands; (5) impacts to habitat for special status fish species; (6) impacts to downstream fisheries and aquatic life; (7) impacts to special status wildlife species; (8) impacts to nesting birds; and (9) introduction and spread of noxious weeds. Potentially significant impacts were reduced to less than significant through the implementation of mitigation measures as identified in the 2002 EIR and as described below.

3.3.1 Environmental Setting

Section 3.4, Biological Resources, of the 2002 EIR describes the biological resources in the Phase 2 Expansion area, which includes the area of the Phase 3 Expansion. Changes to the existing setting related to the Phase 3 Expansion relate to the identification of sensitive species during surveys conducted since 2002, and changes to the regulatory process and requirements.

3.3.1.1 Habitat Types

The Phase 3 Expansion areas are in the Sacramento Valley at elevations of less than 150 feet. The Phase 3 Expansion area historically comprised an extensive wetland and marsh system sustained by the Sacramento River and its tributaries, including Butte Creek and the Colusa Drain area, both of which are major drainages located between the Remote Facility Site (RFS) and the Delevan Site. Over the last 100 years, most of this system has been converted to agricultural production, primarily rice and millet. The area now consists of natural landscapes and agricultural areas. In general, the natural landscapes are within the boundaries of the Sacramento National Wildlife Refuge, the Gray Lodge Waterfowl Management Area, the grasslands west of the Glenn-Colusa Canal, and, to a limited extent, the Butte Sink. As discussed below, valuable habitat for some species is also provided by rice fields, drainages, and canals within agricultural areas. The Phase 3 Expansion areas are adjacent to both natural and agricultural landscapes and are near the existing developed facilities at both the RFS and the Delevan Site (see Figures 2-2 and 2-8 in Chapter 2, Description of Phase 3 Expansion).

Remote Facility Site

The RFS is located adjacent to West Liberty Road (a local unpaved access road) and is surrounded to the west, north, and east by actively farmed rice fields (see Figure 2-2). For the purposes of this analysis, the Phase 3 Expansion study area for the RFS is defined as the area comprising the developed landscape

around the RFS (existing RFS buildings and hardscapes, north shoulder of West Liberty Road, and the unpaved farm equipment storage and hunter parking area), and the area of surrounding rice fields, roadside drainage, and, for raptors and nesting birds, trees and shrubs within a 1-mile radius of the RFS. Aquatic habitats in the vicinity of the RFS also include areas of freshwater marsh, which occur mainly in small, isolated patches within drainage ditches associated with rice fields. These marshes are dominated by perennial, emergent monocots that can grow up to 15 feet tall, often forming completely closed canopies. Sites typically lack significant flow and are permanently flooded by freshwater; these conditions permit accumulation of deep, peaty soils (Holland 1996). Within the study area, common tule (*Scirpus acutus*) dominates this plant community and sometimes occurs in monotypic stands (TRC 2009a). Areas of open water are mainly found in irrigation canals and drainages adjacent to the RFS, often in association with freshwater marshes.

Terrestrial habitats in the vicinity of the RFS comprise areas of isolated trees and tall shrubs to the south, west, and east, consisting primarily of Fremont's cottonwood (*Populus fremontii*), willows (*Salix* sp.), sycamore (*Platanus racemosa*), and various oak species (*Quercus* sp.; TRC 2009a).

PG&E Reconductoring Component Area

The PG&E reconductoring component area is located along Pennington Road and the Colusa Highway (Option A, or anticipated, alignment), and along Pennington Road and West Evans Reimer Road (Option B, or alternative, alignment), as described in Chapter 2, Description of Phase 3 Expansion. The general area in which reconductoring would occur also contains agricultural fields (including rice fields and orchards), agriculture-related businesses, and residences. For this analysis, the Phase 3 Expansion study area for the reconductoring component is defined as the utility pole right-of-way (ROW) and an additional 500-foot buffer area on either side of the ROW.

Within much of the utility ROW for the Option A and B alignments, there is limited vegetation, with indications that the area is periodically sprayed with herbicide. Mature trees adjacent to the existing utility lines appear to be regularly pruned as part of line maintenance activities (TRC 2010). A total of 196 utility poles are located within the reconductoring area segments. All utility line poles are within 8 to 15 feet of the edge of the pavement.

Option A Alignment

The segment of the Option A alignment along West Evans Reimer Road between State Route 99 and Block Road is along paved road, and surrounded predominantly by orchards, croplands, and rural residential land uses. A total of 36 utility poles occur within this segment. Because land in the vicinity of this segment is developed and relatively disturbed, areas directly beneath the utility lines and immediately adjacent to the poles tend to lack suitable habitats to support the occurrence of special status species (TRC 2010). An agricultural/shallow roadside drainage ditch runs along most of the length of this segment. This ditch is surrounded by areas with well-maintained vegetation that are easily accessible from West Evans Reimer Road.

The segment of the Option A alignment along West Evans Reimer Road immediately east of Pennington Road is along an unpaved (gravel and dirt) road, and is surrounded by rice fields, wetland features, and annual grasslands. A total of 20 utility poles are located within this segment, on the south side of a shallow roadside ditch. Approximately half of the poles are surrounded by dense Himalayan blackberry (*Rubus discolor)* thickets, which in some cases extend approximately 8 feet up the poles (TRC 2010). Approximately half of the segment is within the Gray Lodge Waterfowl Management Area; the rest of the segment borders this area to the north. The Gray Lodge Waterfowl Management Area contains a variety of wetland features near the utility ROW, as well as clusters of mature riparian vegetation. Although these wetland features have not yet been formally delineated, initial observations indicated that none of the

distribution line utility poles appear to be within a wetland feature in this area, and there is relatively clear access from the road and shoulder to the poles and other areas under the distribution lines (TRC 2010).

The segment of the Option A alignment along Pennington Road between West Evans Reimer Road and West Liberty Road is along paved road and is surrounded by rice fields and by wetland and annual grassland habitats within the Gray Lodge Waterfowl Management Area. Fifteen utility poles occur within this segment. Willow saplings and patches of blackberries occur within the utility ROW, and clusters of mature willows and other tree species including black walnut (*Juglans californica*) and eucalyptus (*Eucalyptus* sp.) occur along both sides of the road adjacent to the utility ROW. Most of the poles are surrounded by upland grasses or barren ground. An agricultural ditch runs along the east side of the utility ROW. Three partly inundated areas on the west side of the road appear to be fed by stormwater runoff. These areas support vegetation typical of wetland habitats, including rush species. In this segment, although wetland features have not been formally delineated, initial observations indicated that all poles are at least 30 feet from the edges of identified wetland vegetation (TRC 2010). Widespread use of herbicide to control vegetation is less apparent for this segment of the distribution line.

Option B Alignment

The segment of the Option B alignment along Pennington Road between West Liberty Road and Colusa Highway is along paved road, and surrounded by rice fields, except for one parcel that supports a mix of annual grassland and wetland habitats. Twenty poles occur within this segment. Most of the distribution line poles in this segment are surrounded by annual grasses and herbaceous species; however, five poles are adjacent to portions of a roadside ditch that supports cattails (*Typha* spp.) and tules (*Scirpus* sp.), both of which are wetland plants (TRC 2010). None of the utility poles are located within sensitive habitats, and nearly all areas along the road shoulder provide clear access to the poles and areas below the distribution lines (TRC 2010). One pole is surrounded by blackberry plants. Mature willows and eucalyptus trees are also scattered along both sides of this section.

The segment of the Option B alignment along Colusa Highway between Pennington Road and Randolph Avenue is along paved road. The western portion of the segment is surrounded predominantly by rice fields, and the eastern portion of the segment is surrounded by a mix of orchards, cropland, and residential development. A large agricultural/stormwater collection and conveyance ditch runs along the western portion of the segment; vegetation in this portion of the segment includes annual grasses and herbaceous species. In the eastern portion of the segment, some of the utility poles are in or on the southern bank of a roadside drainage ditch. Vegetation in this portion of the segment includes a variety of trees and shrubs, many of which have been pruned to keep them clear of the utility line. Along this segment, the road and road shoulder and other adjacent disturbed areas provide clear access to the utility poles and other areas below the distribution lines without impacting the ditches and vegetation.

Delevan Site

The Delevan Site is located approximately 1,400 feet west of the Glenn-Colusa Canal (see Figure 2-8). For the purposes of this analysis, the Phase 3 Expansion study area for the Delevan Site is defined as the area which includes the developed landscape at the Delevan Interconnect Site (the existing buildings and equipment within the fenced yard, the 20-foot gravel road that provides primary access to the site, and the southern shoulder of the adjacent 30-foot local access road), as well as an approximately 0.6-acre area at the location of the hot tapped pipeline connection installation west of the Delevan Interconnect Site and immediately adjacent grasslands (as described in Chapter 2, Description of Phase 3 Expansion). The study area also includes scattered shrubs within a 1-mile radius of the Delevan Site which provide habitat for raptors and nesting birds.

In the vicinity of the Delevan Site, the dominant plant community type is upland annual grassland. Annual grasslands occur on fine-textured, usually clay soils that are moist or even waterlogged during the winter rainy season and very dry during the summer and fall (Holland 1986). These grasslands are often habitat for numerous species of showy, native annual wildflowers whose germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring (Holland 1986). With few exceptions, grasslands plants are dead through the summer and fall dry season, persisting as seeds (Holland 1986). Annual grasslands in the Phase 3 Expansion area at the Delevan Site are dominated by native and non-native species including Italian ryegrass, soft chess brome (*Bromus hordeaceus*), and barley (*Hordeum* spp.; TRC 2009a). Other species in these disturbed grasslands include wild oat (*Avena barbata*), Ripgut brome (*Bromus diandrus* Roth), Bermuda grass (*Cynodon dactylon* Pers.), red brome (*Bromus rubens*), yellow star thistle (*Centaurea solstitialis*), filaree (*Erodium* sp.), bur-chervil (*Anthriscus caucalis*), and clover (*Trifolium sp*.).

Vernal pools are also present in the vicinity of the site, located approximately 1,000 feet east of the Delevan Interconnect Site, directly adjacent to the Glenn-Colusa Canal, in the grasslands bordering the 30-foot local road in this area, but are not present within the Phase 3 Expansion area. These pools are dominated by the following species: Italian ryegrass (*Lolium perenne* ssp. *multiflorum)*, Mediterranean barley (*Hordeum marinum*), toad rush (*Juncus bufonius*), and swamp timothy (*Crypsis schoenoides*; TRC 2009a). The entire grassland area, including the vernal pools, is subject to regular cattle grazing.

3.3.1.2 Sensitive Species

Literature Review

Known locations of sensitive species potentially occurring in the portion of the Western Sacramento Valley containing the RFS and the Delevan Site Phase 3 Expansion areas were obtained from the California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS), and the USFWS. A total of 57 sensitive species—25 plant and 32 wildlife species—were identified from these databases, and are listed in Table 3.3-1. Of these species, many were eliminated from further consideration upon review of surveys conducted for the study area because (1) suitable habitat is lacking in the Phase 3 Expansion area and/or (2) the Phase 3 Expansion area is outside of the species range.

Surveys Conducted

Field studies were conducted by the applicant in 2008, 2009, and 2010 to re-evaluate the habitats in the Phase 3 Expansion area. Both the RFS and the Delevan Site were surveyed, and coverage included the Phase 3 Expansion study area as described above, except that the local roads at each site were only assessed up to the road shoulder directly bordering each site.

Reconnaissance surveys to assess habitat for special status species were conducted in December 2008, and in February, March, July, and September 2009. Additionally, protocol-level surveys for rare plants were performed at both sites in February 2009, and a wetland delineation was conducted within the drainage south of the RFS in August and September 2009. Raptor and bird presence and potential nests were assessed visually during reconnaissance surveys in 2008 and 2009 for an area with a radius of 1 mile from the Phase 3 Expansion areas at the RFS and the Delevan Site, with the exception of burrowing owl assessments, which did not extend to areas across main access roads.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Plants						
Bent-flowered fiddleneck *Amsinckia lunaris**	–	–	1B	Occurs in coastal bluff scrub, cismontane woodland, and valley and foothill grassland at elevations of less than 1,640 feet. Specimens have been collected in Colusa County but are not known in Butte County. Blooming period is March to June.	No potential. No suitable habitat. Not known to occur in Butte County.	Potential. The grassland around the Delevan Site is of low quality, as it was grazed by cattle during the survey and was later disked.[1] The nearest CNDDB occurrence is approximately 5 miles west of the Delevan Site.
Ferris's milkvetch *Astragalus tener* var. *ferrisiae*	–	–	1B	Occurs in playas, mesic meadows, and alkaline or subalkaline flats in low grassland habitats including marshes, drainage fields, fallow fields, and vernally wet meadows. Typically found at elevations of less than 246 feet in Butte, Sutter, and Colusa counties. Occurs in the Sacramento NWR. Blooming period is April to May. Prefers substrates that are dry, heavy adobe clay.	No potential. No suitable habitat. A CNDDB occurrence was recorded approximately 2 miles southeast of the RFS.	Potential. Grasslands and clay soils are present in the vicinity of the Delevan Site. There is no CNDDB occurrence within 5 miles of the Delevan Site.
Heartscale *Atriplex cordulata*	–	–	1B	Occurs in sandy saline/alkaline grassland, chenopod scrub, and pastures at elevations of less than 1,230 feet. Although not found in rice fields, can occur in rice field dikes. Found in Butte, Colusa, and Glenn counties and the Sacramento NWR. Blooming period is April to October.	No potential. Rice field dikes are present at the RFS, but saline/alkaline soils are not present and this species was not found during surveys conducted prior to construction in 2009. This annual plant grows from to 1 to 5 meters tall, and would have been detected in the dikes near the RFS during the February 2009 surveys. The nearest CNDDB occurrence is approximately 2 miles south of the RFS.	No potential. Grasslands are present, but sandy saline/alkaline soils were not observed. This species would have been detected in the grazed grassland surrounding the Delevan Site during the February 2009 surveys. The nearest CNDDB occurrence is approximately 5 miles southeast of the Delevan Site.

[1] "Disking" refers to cultivation of soils in agricultural areas with an implement that turns and loosens the soil with a series of metal disks.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Brittlescale *Atriplex depressa*	–	–	1B	Occurs in alkali soils in barren areas of alkali grassland, alkali meadow, and alkali scrub at elevations of less than 1,050 feet. Known to occur in Colusa and Glenn counties, but not in Butte County. This species is occasionally found on the margins of alkali vernal pools. Blooming period is April to October.	No potential. No suitable habitat. Not known to occur in Butte County.	No potential. No alkali soils in barren areas were detected in the grazed grassland at the Delevan Site. The nearest CNDDB occurrence of brittlescale was identified approximately 2 miles south of the Delevan Site. A second occurrence was found approximately 5 miles northeast of the Delevan Site.
San Joaquin spearscale *Atriplex joaquiniana*	–	–	1B	Occurs in valley and foothill grassland, chenopod scrub; restricted to alkaline/saline soils at elevations of less than 2,740 feet. Glenn and Colusa counties. Not known to occur in Butte County. Blooming period is April to October.	No potential. No suitable habitat. Not known to occur in Butte County.	No potential. Grasslands surround the Delevan Site; however, no alkaline/saline soils have been observed. Nearest CNDDB record was 3 miles south of Delevan Site. This species has never been observed during the multiple surveys at the Delevan Site.
Lesser saltscale *Atriplex minuscule*	–	–	1B	Occurs in chenopod scrub, alkaline meadows, and low grasslands at elevations from 50 to 66 feet. Occurs in Butte County but is not known to occur in Colusa County. Blooming period is May to October.	No potential. Suitable habitat is not present near the RFS. No CNDDB occurrence has been identified within 5 miles of the RFS.	No potential. The species does not occur in Colusa County.
Vernal pool smallscale *Atriplex persistens*	–	–	1B	Occurs in large alkaline vernal pools and playas in chenopod scrub, alkaline meadows, and low grasslands at elevations from 32 to 377 feet. Occurs in Colusa County and the Sacramento NWR. Blooming period is June to October.	No potential. No suitable habitat.	No potential. No vernal pools were identified within the Phase 3 Expansion area. Vernal pools and wetlands identified approximately 1,000 feet from the Delevan Site would be avoided. Nearest CNDDB species occurrence was identified approximately 4.5 miles northeast of the Delevan Site.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Pink creamsacs *Castilleja rubicundula* ssp. *rubicundula*	–	–	1B	Occurs in openings in chaparral, cismontane woodland, meadows, and seeps, on serpentinite substrate in valley and foothill grassland occurring at elevations of from 66 to 295 feet. Known to occur in Butte and Colusa counties. Blooming period is April to June.	No potential. No suitable habitat is present at the RFS. The nearest CNDDB occurrence has been identified 2.5 miles south of the RFS.	No potential. Grasslands surround the Delevan Site but the substrate is not serpentinite and the species has never been observed during multiple surveys. No CNDDB species occurrence has been identified within 5 miles of the Delevan Site.
Hoover's spurge *Chamaesyce hooveri*	FT, CH	–	1B	Occurs in large vernal pools and vernal lakes at elevations of from 82 to 820 feet. Known to occur in Butte and Glenn counties and the Sacramento NWR. Blooming period is July to September and sometimes October.	No potential. No large vernal pools or vernal lakes present at the RFS.	No potential. No vernal pools within the Phase 3 Expansion area. Vernal pools and wetlands identified approximately 1,000 feet from the Delevan Site would be avoided.
Palmate-bracted bird's beak *Cordylanthus palmatus*	FE	SE	1B	Grows on seasonally flooded, saline-alkali soils in lowland plains and basins at elevations of less than 515 feet. Occurs in Colusa and Glenn counties but not in Butte County. Within these areas, it grows primarily along the edges of channels and drainages, with a few individuals scattered in seasonally wet depressions, alkali scalds (barren areas with a surface crust of salts), and grassy areas. Blooming period is May to October.	No potential. Only three *Cordylanthus palmatus* populations known to exist and they are not in Butte County.	No potential. Suitable habitat including seasonally flooded, saline-alkali soils are not present at the Delevan Site. Only three *Cordylanthus palmatus* populations known to exist in Colusa County, none of which are within 5 miles of the Delevan Site.
Diamond-petaled California poppy *Eschschotzia Rhombipetala*	–	–	1B	Occurs in valley and foothill grasslands; prefers clay soils at elevations of less than 3,200 feet. Occurs in Colusa County. Blooming period is March to April.	No potential. No suitable habitat.	No potential. Grasslands are present around the Delevan Site. However, there are no recorded CNDDB occurrences within 5 miles of the Delevan Site. The species was last seen in 1950 and may be extirpated in California.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Adobe lily *Fritillaria pluriflora*	–	–	1B	Occurs in low grasslands with adobe clay soils, chaparral, and cismontane woodlands at elevations of from 200 to 2,315 feet. Occurs in Butte, Glenn, and Colusa counties. Blooming period is February to April.	No potential. No suitable habitat.	Potential. Grasslands and clay soils are present in the vicinity of the Delevan Site. Species was not observed during survey in February 2009. No CNDDB occurrences have been recorded within 5 miles of the Delevan site.
Woolly rose-mallow *Hibiscus lasiocarpus* (synonym for California hibiscus)	–	–	2	This species is rhizomatous in California; inhabits standing water, tule marsh, and rice field irrigation systems at elevations of less than 390 feet. Occurs in Butte County. Common in Butte Sink, along canals, streams, marshes, and freshwater-soaked riverbanks. Blooming period is June to September.	Potential. RFS area was surveyed prior to construction in 2009 and species was not found. Species has been found several miles west of the Phase 3 Expansion area and there is suitable habitat in adjacent roadside drainage near the RFS. One CNDDB occurrence was recorded 1.25 miles northeast of the RFS. All other occurrences were recorded in the Butte Sink 4 miles to west. Plant is large enough that it would have been easily detected had it been present at the RFS.	No potential. No suitable habitat.
Ahart's rush *Juncus leiospermus* var. *ahartii*	–	–	1B	Occurs in mesic valley and foothill grasslands along margins of vernal pools at elevations of from 100 to 755 feet. Occurs in Butte County but not in Colusa County. Blooming period is March to May.	No potential. No suitable habitat is present at the RFS.	No potential. Species is not known to occur in Colusa County.
Colusa layia *Layia septentrionalis*	–	–	1B	Occurs in valley and foothill grassland in sandy and serpentinite substrate, chaparral, and cismontane woodlands in Colusa County at elevations of from 330 to 3,600 feet. Blooming period is April to May.	No potential. No suitable habitat.	No potential. Grasslands are present surrounding the Delevan Site; however, the substrate observed was not sandy or serpentinite. There is no CNDDB record within 5 miles of the Phase 3 Expansion area.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*	–	–	1B	Suitable habitat limited to mesic alkaline soils of Butte Sink area. Habitat includes low-lying valley grasslands and mesic meadows, edges of vernal pools and swales, drainages, and slow-moving waterways on alkaline and subalkaline soils at elevations of less than 650 feet. Known in Sacramento NWR. Blooming period is March to May.	No potential. Ditches and slow-moving waterways are present within the Phase 3 Expansion area, but alkaline soil was not observed. The Phase 3 Expansion area is outside of the Butte Sink area, and there have been no CNDDB records within 5 miles of the RFS.	No potential. No suitable habitat. There is no CNDDB record within 5 miles of the Delevan Site.
Butte County meadowfoam *Limnanthes floccosa ssp. californica*	FE, CH	SE	1B	Occurs in vernal pools and swales. Species is associated with volcanic soils occurring at elevations of from 164 to 3,050 feet. Occurs only in Butte County. Blooming period is March to May.	No potential. No vernal pools or swales are present at the RFS. There is no CNDDB record within 5 miles of the RFS.	No potential. No vernal pools are present within Phase 3 Expansion area. Vernal pools and wetlands identified approximately 1,000 feet east of the Delevan Site would be avoided. Not known to occur in Colusa County.
Milo Baker's lupine *Lupinus milo-bakeri*	–	ST	1B	Occurs in foothill woodlands and valley grasslands. Known to occur in two locations in the western part of Colusa County and 20 locations in Mendocino County. Plant is herbaceous annual found along some roadsides. Blooming period is June to August.	No potential. No suitable habitat. Not known to occur in Butte County.	Potential. However, during the field surveys in December 2008 and February 2009, no lupines were detected in the Phase 3 Expansion area. Even though the blooming period had passed, the 3- to 5-foot-tall lupine should have been detected had it been present. There is no CNDDB occurrence of this species within 5 miles of the Phase 3 Expansion area, and the species was not detected during previous surveys.
Little mousetail *Myosurus minimus* ssp. *apus*	–	–	3	Occurs in wetlands, vernal pools, and marshes and is very strongly associated with alkaline/saline soils occurring at elevations of from 66 to 2,100 feet. Occurs in Colusa County but not in Butte County. Blooming period is March to June.	No potential. Known to occur in a few locations between the Delevan Site and RFS in clay flat areas. No alkaline/saline soils were observed at the Phase 3 Expansion areas. There is no CNDDB	No potential. No alkaline/saline soils were observed at the Phase 3 Expansion areas. No records of CNDDB occurrence within 5 miles of the Delevan Site.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
					occurrence within 5 miles of the RFS.	
Colusa grass *Neostapfia colusana*	FT	SE	1B	Occurs in vernal pools and seasonal wetlands (often alkaline) at elevations of less than 650 feet. Not known in Butte County. Species likely extirpated in Colusa County. Blooming period is May to August.	No potential. Not known to occur in Butte County.	No potential; no vernal pools have been identified within the Phase 3 Expansion area. Vernal pools and wetlands approximately 1,000 feet from the Delevan Site would be avoided.
Hairy orcutt grass *Orcuttia pilosa*	FE, CH	SE	1B	Occurs in large vernal pools and vernal playas at elevations of 164 to 650 feet. Listed by USFWS for Butte and Glenn counties. Blooming period is May to August.	No potential. No large vernal pools or vernal playas were present in the Phase 3 Expansion area.	No potential; no vernal pools have been identified within the Phase 3 Expansion area. Vernal pools and wetlands approximately 1,000 feet from the Delevan Site would be avoided.
Slender orcutt grass *Orcuttia tenuis*	FT	SE	1B	Occurs in large vernal pools and vernal playas that occur at elevations of from 100 to 5,775 feet. Occurs in Butte County. Blooming period is May to September and sometimes October.	No potential. No large vernal pools or vernal playas were present in the Phase 3 Expansion areas.	No potential; no vernal pools have been identified within the Phase 3 Expansion area. Vernal pools and wetlands approximately 1,000 feet from the Delevan Site would be avoided.
Sanford's arrowhead *Sagittaria sanfordii*	–	–	1B	Occurs in freshwater marshes and seasonal wetlands at elevations of from 100 to 5,775 feet. Occurs in Butte County. Blooming period is May to September and sometimes October.	Potential. Suitable habitat is present in the drainage south of the RFS. The nearest CNDDB occurrence is, however, 5 miles northeast of the RFS. Species was not observed during the wetland delineation. Surveys have been conducted in the area during the previous expansions and the species has never been detected.	No potential. No suitable habitat. Not known to occur in Colusa County.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Greene's tuctoria *Tuctoria greenei*	FE, CH	SR	1B	Occurs in large vernal pools and vernal lakes that occur at elevations of from 100 to 3,500 feet. Occurs in Butte and Colusa counties. Blooming period is May to July and sometimes September.	No potential. No large vernal pools or vernal lakes are present in the Phase 3 Expansion area.	No potential; no vernal pools have been identified within the Phase 3 Expansion area. Vernal pools and wetlands approximately 1,000 feet from the Delevan Site would be avoided.
Brazilian watermeal *Wolffia brasiliensis*	–	–	2	Occurs in freshwater marsh. Known to occur in the Gray Lodge Waterfowl Management Area.	Potential to occur in the drainage south of the RFS. The nearest known occurrence is found in a canal near the visitor's center of the Grey Lodge Waterfowl Area in Butte County.	No potential. No suitable habitat.
Invertebrates						
Conservancy fairy shrimp *Branchinecta Conservation*	FE, CH	–	–	Endemic to vernal pools and swales in the Central Valley. Dependent on seasonal water fluctuations and water quality. Occurs in Butte, Glenn, Sutter, Colusa counties.	No potential. Vernal pool and related swale habitats are not found in the Phase 3 Expansion area.	No potential; no vernal pools or swales have been identified within the Phase 3 Expansion area. Vernal pools and wetlands approximately 1,000 feet from the Delevan Site would be avoided.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT, CH	–	–	Endemic to vernal pools and swales in the Central Valley. Dependent on seasonal water fluctuations and water quality. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	No potential. Vernal pool and related swale habitats are not found in the Phase 3 Expansion area.	No potential; no vernal pools or swales have been identified within the Phase 3 Expansion area. Vernal pools and wetlands approximately 1,000 feet from the Delevan Site would be avoided.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	–	–	Dependent on elderberry shrubs as a host plant. Potential habitat is shrubs with stems 1 inch in diameter or greater. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	No potential. No suitable habitat.	No potential. No suitable habitat.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE, CH	–	–	Endemic to vernal pools and swales in the Central Valley. Dependent on seasonal water fluctuations and water quality. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	No potential. Vernal pool and related swale habitats are not found in the Phase 3 Expansion area.	No potential; no vernal pools or swales have been identified within the Phase 3 Expansion area. Vernal pools and wetlands approximately 1,000 feet from the Delevan Site would be avoided.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Fish						
Green sturgeon *Acipenser medirostris*	FT	CSC	–	Occurs in Sacramento River. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	No potential. The Phase 3 Expansion would not impact the Sacramento River.	No potential. No suitable habitat.
Delta smelt *Hypomesus transpacificus*	FT	ST	–	Occurs in the Upper San Joaquin-Sacramento estuary. Not known to occur in Butte Creek.	No potential. The Phase 3 Expansion area is not within the Upper San Joaquin-Sacramento estuary.	No potential. No suitable habitat.
Central Valley steelhead *Oncorhynchus mykiss irideus*	FT, CH	–	–	Occurs in upper Sacramento River and tributaries; Mill, Deer, and Butte creeks, and the Feather, Yuba, Mokelumne, Calaveras, and Stanislaus rivers. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	No potential to occur in the Phase 3 Expansion area. Critical habitat for this species is not within the Phase 3 Expansion area. The Phase 3 Expansion would not impact Butte Creek or the Sacramento River.	No potential. No suitable habitat.
Central Valley Chinook salmon (spring run) *Oncorhynchus tshawytscha*	FT, CH	ST	–	Occurs in Butte Creek. Dependent on well aerated gravel beds and cool water for spawning. Large ponds 3 to 9 feet deep with moderate velocities for summer holding areas. Listed as occurring in Butte, Glenn, and Sutter counties.	No potential. Critical habitat for this species is not located within the Phase 3 Expansion area. The Phase 3 Expansion would not impact the Sacramento River or Butte Creek.	No potential. No suitable habitat.
Sacramento River Chinook salmon (winter run) *Oncorhynchus tshawytscha*	FE, CH	SE	–	Occurs in the Sacramento River. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	No potential. Critical habitat for this species does not occur within the Phase 3 Expansion area, and the Phase 3 Expansion would not impact the Sacramento River or Butte Creek.	No potential. No suitable habitat.
Amphibians						
California tiger salamander – central population *Ambystoma californiense*	FT	CSC	–	Species restricted to grasslands and lowlands; dependent on low elevation vernal ponds and their associated grasslands, oak savannas and coastal scrub plant communities. Due to habitat	No potential. Gray Lodge Waterfowl Management Area (Butte County) does not appear to support the salamanders, although it did	No potential. Outside of known range.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
				loss, this species will also use manufactured, ephemeral, or permanent pools. Rarely seen due to primarily subterranean behaviors; inhabits ground squirrel and pocket gopher burrows within 1 mile of breeding pool. Relies on barrier-free uplands adjacent to ponds and on the presence of burrowing rodents. Not known to occur north of Yolo County.	historically.	
California red-legged frog *Rana aurora draytonii*	FT, CH	CSC	–	Requires permanent or nearly permanent pools. Prefers shorelines with extensive vegetation and deeper pools. Highly susceptible to predation by fish and bullfrogs. Listed as occurring in Butte, Glenn, Sutter, and Colusa Counties.	No potential. Not expected to occur in the Phase 3 Expansion area due to current distribution and presence of bullfrogs. There are no CNDDB records within 5 miles of the RFS.	No potential. Not expected to occur in the Phase 3 Expansion area due to current distribution and presence of bullfrogs. There are no CNDDB records within 5 miles of the Delevan Site.
Mountain yellowlegged frog *Rana muscosa*	FC	CSC	–	Ponds, lakes, and streams at montane elevations of 4,500 to 12,000 feet. Listed as occurring in Butte County.	No potential. Not expected to occur in the Phase 3 Expansion area because the Phase 3 Expansion is out of the elevation range of the species.	No potential. Not expected to occur in the Phase 3 Expansion area because the Phase 3 Expansion is out of the elevation range of the species.
Western spadefoot toad *Spea hammondii*	–	CSC	–	Occurs in valley and foothill grasslands, river floodplains, marshes, and alluvial fans, typically below elevations of 3,000 feet. Requires loose, sandy, or gravely soil a minimum of 3 feet deep, with sparse vegetation. Breeding pools must have standing water for at least three weeks. Terrestrial and breeding habitats must be in close proximity. Susceptible to predation by red swamp crayfish and bullfrogs; low frequency noise and/or vibrations near this species may result in mortality or reduce productivity. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	Potential. Site has adjacent drainage areas and marshes, as well as a gravely access road that may provide both suitable breeding and terrestrial habitats.	Potential. Suitable habitat west of the Glenn-Colusa Canal and vernal pool complex (1,000 feet from the Delevan Site).

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Reptiles						
Northwestern pond turtle *Clemmys marmorata marmorata*	–	CSC	–	Species forages in wetlands, ponds, marshes, lakes, streams, and irrigation drainages. Well-vegetated banks and basking logs required. Typically locate nests on unshaded slopes. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	Occurs. Has been observed in Phase 3 Expansion area.	No potential. No suitable habitat.
Giant garter snake *Thamnophis gigas*	FT	ST	–	Species forages in permanent or seasonal slow-moving water with emergent vegetation, mud bottoms, and dirt banks. Occurs in irrigation drainages year-round, rice fields during growing season. Absent from waters with predatory fish. Species requires upland sites or elevated features above floodwaters for winter refugia. Butte, Glenn, Sutter, Colusa counties.	Occurs. Has been observed in Phase 3 Expansion area.	No potential. No suitable habitat.
Birds						
Tricolored blackbird *Agelaius tricolor*	–	CSC	–	Favors mature stands of cattails and scrub near water, blackberries, hay fields, wheat fields. Nesting synchronous. Colonies have been reported outside the Phase 3 Expansion area. Butte and Glenn counties.	Potential. Nesting habitat within 0.5 miles. Not observed during surveys in 2009.	No potential. No suitable habitat.
Western burrowing owl *Athene cunicularia*	–	CSC	–	Occurs primarily in grassland; also occasionally in levees and irrigation dikes, if there is enough soil for a burrow. Dependent on ground squirrels for burrows. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	No potential. No suitable habitat.	Potential; suitable habitat in the Phase 3 Expansion vicinity. No ground squirrels or suitable burrows observed during surveys.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Swainson's hawk *Buteo swainsoni*	–	ST	–	Occurs in riparian floodplain forest for nesting, foraging over any open land within 10 miles of nest site.	Potential; suitable foraging and nesting habitat. Potential nest trees within 0.5 miles. Not observed during surveys conducted in 2009.	Potential. Suitable foraging habitat. No nesting trees within 1 mile. Potential nest trees within 5miles.
Black tern *Chlidonias niger*	–	CSC	–	Occurs primarily in shallow inland marshes and sloughs with dense vegetation cover and adequate pockets of open water. Some nesting in rice fields. Nests somewhat communally in small groups just over or on water at least 4 inches deep. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	Occurs. Observed foraging in Phase 3 Expansion area in 2001. Not observed during surveys conducted in 2009.	No potential. No suitable habitat.
Northern harrier *Circus cyaneus*	–	CSC	–	Prefers undisturbed, open habitats with dense, low vegetation; also occurs in agricultural and riparian zones. Is most abundant in upland habitats, though avoids forested and mountainous areas. Breeding is communal and occurs from April through September; nests are built on raised mounds of dirt or vegetation on the ground. Spends a large amount of time walking, hopping, and roosting on the ground.	Potential; foraging habitat in the vicinity of the Phase 3 Expansion area. Observed foraging during surveys conducted in 2009.	Potential. Suitable foraging habitat.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FC	SE	–	Riparian, floodplain forest, shrubs. Prefers large woodlands with unbroken canopy and trees with vertical branches for nesting.	No potential. No suitable habitat.	No potential. No suitable habitat.
White-tailed kite *Elanus leucurus*	–	FP	–	Habitats range from grassland to densely vegetated oak woodlands; are selected based on structure and security instead of vegetation type, and can vary widely. Habitat usually includes agricultural lands, wetlands, grasslands, and other areas where meadow voles are prevalent. Breeding season is from January to October; nests are built high up in heavily	Occurs. Year-round resident. Potential nesting or roosting within 0.5 miles. Not observed during surveys conducted in 2009.	Potential. Suitable foraging habitat.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
				vegetated trees. Often nests in close association with other raptors, including Swainson's hawk. Perches and nests in trees and shrubs in riparian areas. Occurs in Glenn, Sutter, Butte, and Colusa counties.		
Merlin *Falco columbarius*	–	WL	–	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms, and ranches. Occurs in Butte County.	No potential. No suitable habitat.	No potential. No suitable habitat.
Greater sandhill crane *Grus canadensis tabida*	–	ST, FP	–	Nests in wetland habitats in northeastern California and winters in the Central Valley. Prefers grain fields within 4 miles of a shallow body of water used as a communal roost site.	Potential; suitable forage habitat. No suitable nesting habitat. CNDDB occurrences: about 35 adults observed within 1.5 miles northeast of RFS and 50 within 0.7 miles southeast of RFS.	Potential. No suitable nesting habitat.
Loggerhead shrike *Lanius ludovicianus*	–	CSC	–	Common resident and winter visitor throughout the lowlands and foothills of California. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties. Aside from nesting, spends time almost exclusively hunting in open areas; preferred habitat supports this behavior and generally consists of open fields bordered by trees and brush. Breeding occurs from March to July; well concealed nests are built high in trees.	Occurs. Has been observed in the Phase 3 Expansion area and confirmed in the Grey Lodge Waterfowl Area, but was not observed during surveys in 2009.	Potential. Suitable foraging habitat.
California black rail *Laterallus jamaicensis coturniculus*	–	ST	–	Inhabits saltwater, brackish, and freshwater marshes; salt marshes in which this species occurs usually have dense canopy, while freshwater marshes are dominated by cattails. Has a narrow range of conditions that encourage successful breeding. Needs dense vegetation and water depths of about 1 inch that does not fluctuate during the year for nesting habitat. Generally does	Potential within roadside drainage. Has been recorded 3.5 miles northwest of Phase 3 Expansion area in semi-permanent wetlands.	No potential. No suitable habitat.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
				not migrate throughout the year; breeding occurs from February to August. Highly secretive and rarely leaves its wetland habitat.		
Osprey *Pandion haliaetus*	–	CSC	–	Able to live and breed successfully in a wide range of terrain; suitable habitat has safe nest sites and shallow water with abundant fish. Nests are generally very bulky, and can be found anywhere that keeps them safe from ground-based predators, including over-water and artificial nest sites. This species travels far from the nest during the day, and can be gone for long periods of time. Does not necessarily migrate, and may over-winter in selected habitat. Therefore, breeding can occur anytime in the winter or summer.	Potential; suitable habitat for foraging and nesting. Observed approximately 4 miles from RFS area.	Potential. Suitable foraging habitat. No suitable nesting habitat.
White-faced ibis *Plegadis chihi*	–	WL	–	Occurs in any water area or rice field or other harvested grain fields. Nests in aquatic vegetation, shrubs, and low trees in large colonies. Listed as occurring in Butte, Glenn, Sutter, and Colusa counties.	Occurs. Suitable foraging habitat in the Phase 3 Expansion area. Observed foraging in area during surveys in 2009.	No potential. No suitable nesting habitat.
Bank swallow *Riparia riparia*	–	ST	–	Colonial nesters in riparian and other lowland habitats where they dig neat holes in vertical banks and cliffs with fine-textured or sandy soils.	No potential. No suitable habitat.	No potential. No suitable habitat.
Northern spotted owl *Strix occidentalis caurina*	FT, CH	CSC	–	Uses dense, multi-layered conifer forests. Listed as occurring in Glenn and Colusa counties.	No potential. No suitable nesting or foraging habitat exists in the Phase 3 Expansion area.	No potential. No suitable nesting or foraging habitat exists in the Phase 3 Expansion area.

Table 3.3-1 Special Status Species with Potential to Occur in the Phase 3 Expansion Area

Common Name Scientific Name	Legal Status			Plant Community/Habitat Association	Potential in the Phase 3 Expansion Area	
	Federal	State	CNPS		Remote Facility Site	Delevan Site
Mammals						
Pacific fisher *Martes pennanti* (*pacifica*) DPS	FC	Candidate for ST, CSC	–	Occurs in intermediate to large tree stages of coniferous forests and deciduous riparian woodlands. Listed as occurring in Butte, Glenn, and Colusa counties. The specie's range surrounds the Sacramento Valley, but is not within the Sacramento Valley.	No potential. Phase 3 Expansion area is not within range of species.	No potential. Phase 3 Expansion area is not within range of species.

Sources: CDFG 2009, CNPS 2009, Hickman 1993, Kirschbaum and Watkins 2000, Limas 2001, Null 1999, Porter 2000, Redding 2000, SAIC 2007, USFWS 2009, TRC 2009a

Notes:
* * Special status species highlighted in gray have been known to occur within the Phase 3 Expansion area and/or have suitable habitat within the known range which may be affected by various Phase 3 Expansion components.

Key:
CNDDB = California Natural Diversity Database
NWR = National Wildlife Refuge
RFS = Remote Facility Site
Status Codes

U.S. Fish and Wildlife Service
FC = Listed as candidate by the federal government
FE = Listed as endangered by the federal government
FT = Listed as threatened by the federal government
CH = Critical habitat in Butte County and/or Colusa County

California Natural Plant Society
1B = Rare, threatened, or endangered in California
2 = Rare, threatened, or endangered in California, but more common elsewhere
3 = Need more information about this plant (Review List)

California Department of Fish and Game
CSC = Listed as California species of special concern
FP = Fully protected
SE = Listed as endangered by the state government
SR = Listed as rare by the state government
ST = Listed as threatened by the state government
WL = Watch List

These surveys were supplemented by additional surveys conducted by biological monitors from July through September 2009 during construction of Phase 2 Expansion components at the RFS. Preconstruction surveys targeted nesting birds and raptors and rare plants, and included scans for any other special status species that might occur within the Phase 2 work area. Reconnaissance and protocol-level surveys for various species listed in Table 3.3-1 were conducted in 2001 as part of the biological assessment for the 2002 EIR. A biological assessment of the reconductoring component area was also completed in 2010, and did not identify any special status species that had not already been identified for the RFS area.

Evaluation of the literature (as discussed above) and results of the 2001, 2008/2009, and 2010 field surveys indicated that seven sensitive plant and 18 sensitive wildlife species are either known to occur in the Phase 3 Expansion areas at the RFS, reconductoring area, or Delevan site, or use habitat that could be affected by the proposed Phase 3 Expansion components. These species are shaded in gray in Table 3.3.1, and are described below as relevant for the Phase 3 Expansion study area. Where no reference is given for the description of these species below, information has been taken from the applicant's BA (TRC 2009a).

Although there are no vernal pools within the Phase 3 Expansion study area, special status plant and wildlife that may be associated with vernal pool systems may occur in the adjacent grassland habitat. Special status plants associated with vernal pools require specific microhabitat conditions, and would only occur within or bordering the pools; however, special status wildlife may occur both in the pools and adjacent to them, depending on their lifecycle requirements. For instance, some amphibians require both wetlands for breeding habitat and upland habitats for aestivation (a state of dormancy during summer or hot weather) and foraging habitat.

Special Status Plants

Several special status plants have the potential to occur within the Phase 3 Expansion area at the RFS and Delevan Site. Suitable habitat for the following plants occurs within the adjacent roadside drainage at the RFS site: woolly rose-mallow (also known as California hibiscus), Sanford's arrowhead *(Sagittaria sanfordii)*, and Brazilian watermeal *(Wolffia brasiliensis*). None of these species was observed during the 2009 rare plant surveys.

Suitable habitat for the following plants occurs within the annual grasslands surrounding the Delevan Site: bent-flowered fiddleneck *(Amsinckia lunaris*), Ferris' milkvetch *(Astragalus tener var. ferrisae*), adobe lily *(Fritillaria pluriflora*), and Milo Baker's lupine *(Lupinus milo-bakeri*). None of these species was observed during the February 2009 rare plant surveys, and no occurrences have been reported by the CNDDB within 5 miles of the Delevan Site. The absence of these plants is likely due to the fact that the grasslands at the site are of low quality due to regular disturbance from agricultural disking.[2]

No special status plants were identified in the area of the reconductoring component.

Special Status Wildlife

Remote Facility Site

Suitable habitat for the following special status wildlife occurs at the RFS site: northwestern pond turtle (*Clemmys marmorata marmorata*), giant garter snake *(Thamnophis gigas*), tri-colored blackbird *(Agelaius tricolor*), black tern *(Chlidonias niger)*, greater sandhill crane *(Grus canadensis tabida)*, California black rail *(Laterallus jamaicensis coturniculus*), and white-faced ibis *(Plegadis chihi)*.

[2] "Disking" refers to cultivation of soils in agricultural areas with an implement that turns and loosens the soil with a series of metal disks.

Northwestern pond turtles forage in ponds, marshes, irrigation drainages, and other wetland areas; additionally, most nesting sites are within 200 yards of the aquatic foraging site (Jennings and Hayes 1994). This species has been observed in drainages associated with the roadside and the rice fields in the RFS area.

Giant garter snake is endemic to the valley floor wetlands of the Sacramento and San Joaquin valleys of Central California (USFWS 2009). Giant garter snakes are active from mid-March until October, breed in March and April, and are dormant from November to mid-March, during which months they retreat to winter hibernation areas (hibernacula). This species is primarily associated with wetlands, marshes and sloughs, low gradient streams, agricultural wetlands, and irrigation and drainage canals. Once common, giant garter snake has been affected by the elimination and degradation of its preferred aquatic habitat as a result of urban development, resulting in substantial population reduction. In addition, contaminants from agricultural runoff and predation from introduced species such as bullfrogs (*Rana catesbeiana*) threaten this species' future success and viability (CDFG 2009). Giant garter snakes could forage in the rice fields and drainages surrounding the RFS, and could use the unpaved farm equipment storage and hunter parking area and the berms around the RFS as upland hibernacula.

Tricolored blackbird nesting colonies are generally found in thickets of riparian scrub, blackberries, or wild roses, or in wheat fields or freshwater marshes near water. Colonies forage in pastures, grasslands, or croplands up to 4 miles from breeding sites (CDFG 2009). Though the tricolored blackbird was not observed during 2009 field surveys, CNDB records include a report of this species outside of the RFS area in the vicinity of the site, and this species could forage and nest within 0.5 miles of the RFS. The general bird breeding season (which would include the blackbird) for this region is late February to early July. Preconstruction surveys for Phase 2 construction activities did not detect nesting colonies within the immediate area. There is potential for this species to occur at the RFS.

Black terns inhabit shallow inland marshes and sloughs with dense vegetation and pockets of open water, but will also nest in rice fields. As these types of habitats have historically declined, rice fields have become a more common habitat for this species (CDFG 2009). Black terns occur at the RFS and also are found frequently in Butte County. Black terns were also observed foraging in the area of the RFS during surveys conducted in 2001.

Greater sandhill cranes prefer to forage in grain fields within 4 miles of a shallow water body, which is also used as a communal roosting site (CDFG 2009). These habitats exist in the rice fields and adjacent wetlands at the RFS; additionally, CNDDB records include a report of greater sandhill crane observations within 2 miles of the RFS. This species could occur at the RFS.

California black rail only inhabits marshes and wetlands with dense vegetation and specific water depth requirements (CDFG 2009). This species is highly secretive and difficult to observe. The California black rail is known to occur 3.5 miles from the RFS, according to CNDDB records. The roadside drainage areas adjacent to the RFS could provide adequate habitat for this species, and there is potential for this species to occur in the wetland areas surrounding the RFS.

White-faced ibis are colony-nesting birds that form rookeries in aquatic vegetation, shrubs, or low trees near water or wetlands. This species feeds in emergent wetland vegetation, wet meadows, shallow waters, pastures, and flooded rice fields. Breeding colonies in California have become rare, likely due to destruction of marsh systems (CDFG 2009). This species was observed foraging in the RFS area during surveys conducted in 2009. Suitable foraging habitat is abundant at the RFS, and could support nesting habitat.

Reconductoring Component Area

Suitable habitat for a number of special status wildlife species including giant garter snake, western burrowing owl, and Swainson's hawk occurs in proximity to the work areas in the reconductoring component area, though these species were not identified during the biological assessment (TRC 2010). However, since all of the utility line sections are along maintained edges of established roadways, and the vegetation beneath the utility lines is periodically pruned, cleared, and treated with herbicides, the potential for the areas immediately below the utility lines to support special status species and sensitive habitats is generally low. Common bird species such as scrub jay (*Aphelocoma californica*) were most often observed along the reconductoring segments; however, the vegetation in the area of the segments provides suitable nesting habitat for bird species such as tricolored blackbird and loggerhead shrike. Northern harrier and red-tailed hawk were also observed along the segment of the Option A reconductoring alignment along West Evans Reimer Road immediately east of Pennington Road.

Delevan Site

Western burrowing owls *(Athene cunicularia)* are mostly year-round residents of open, dry grasslands and other dry habitats, but some northern range individuals may winter in the south (CDFG 2009). Though grasslands are their primary habitat, these animals can also be found in levees and irrigation dikes where ground squirrel burrows provide suitable roosting and nesting cover. The annual nesting period for this species is between February 1 and August 31. Potential nesting habitat occurs in the grasslands around the Delevan Site. Though no ground squirrels or occupied owl burrows were found during surveys, suitable habitat occurs at the Delevan Site, and this species could occur at the site.

Overall Phase 3 Expansion Area

Suitable habitat for the following species occurs at both the RFS and Delevan Site: western spadefoot toad (*Spea hammondii*), Swainson's hawk *(Buteo swainsoni)*, northern harrier *(Circus cyaneus*), white-tailed kite *(Elanus caeruleus*), loggerhead shrike *(Lanius ludovicianus*), and osprey *(Pandion haliaetus*). Suitable habitat for Swainson's hawk, northern harrier, and loggerhead shrike also occurs in the area of the reconductoring component. Preconstruction surveys conducted in 2009 for the Phase 2 Expansion found five raptor nests within 0.6 miles of the RFS area. Of these nests, two were inactive, one was active, and two could potentially be either active or inactive. Insufficient field evidence prevented the determination of activity status, or the species of raptor using the nests.

Western spadefoot toads require wetland areas for breeding habitats and adjacent terrestrial habitats composed of loose, sandy, or gravely soil during upland aestivation (CDFG 2009). The RFS may provide suitable habitat for Western spadefoot toad; drainage areas and marshes adjacent to the gravely access road may support this species, and it could occur at the RFS. In the area of the Delevan Site, this species could use vernal pools outside the immediate Phase 3 Expansion area (approximately 1,000 feet to the east of the Delevan Site). Though these pools would be avoided during Phase 3 Expansion construction activities, this species could occur in the vernal pools and use the adjacent grasslands as upland aestivation habitat.

Swainson's hawks breed primarily in the Central Valley, and then migrate to South America for the winter. Potential nesting habitat for this species includes riparian woodlands, isolated trees, oak groves, and roadside trees. This habitat is often adjacent or in close proximity to agricultural fields, where Swainson's hawks forage on voles (*Microtus* spp.), pocket gophers (*Thomomys bottae*), mice (*Peromyscus* spp.), ground squirrels (*Spermophilus beecheyi*), and various birds and insects (CDFG 2009). This species has experienced a decline in nesting pairs, which has been attributed to loss of native nesting and foraging habitat, along with conversion of agricultural areas to urban land uses. Much of the riparian habitat in the Central Valley has been lost to agricultural practices and flood control activities. In addition, herbicide use, shooting, and disturbances at hawk wintering sites have negatively impacted this

species. Swainson's hawks generally forage within 10 miles of a nesting site, and could nest in trees within 0.5 miles of the RFS and within 0.5 miles of the Delevan Site. Additionally, suitable foraging habitat exists at both sites, and Swainson's hawk could occur at both the RFS and the Delevan Site.

Northern harriers nest on the ground in freshwater marsh, grasslands, or grain fields, and prefer open habitats with low vegetation for foraging (CDFG 2009). This species hunts by making low flights over open ground, or they hover and dive on prey. Northern harriers feed primarily on small mammals, birds, frogs, reptiles, and insects. Although harriers can be locally abundant where suitable habitat remains intact, loss of wetland habitat and disturbance of breeding areas during the breeding cycle have been cited as reasons for the decline of this species (CDFG 2009). This species was observed foraging during site surveys at the RFS conducted in 2009 (TRC 2009a), and suitable nesting and foraging habitat was found in drainages and grain fields adjacent to the RFS. Suitable foraging habitat also exists in the grasslands of the Delevan Site. Northern harriers could occur at both the RFS and the Delevan Site.

White-tailed kite can be a common year-round resident in valley lowlands near agricultural areas (CDFG 2009). Suitable habitats for this species range from grassland to densely vegetated woodlands. White-tailed kites mostly prey on small mammals in open grasslands, farmlands, and emergent wetlands. Nests for this species are found near the top of oak, willow, or other dense tree stands near open foraging areas. Potential nesting trees are present within 0.5 miles of the RFS, and suitable foraging habitat exists at both the RFS and the Delevan Site. Although white-tailed kites were not observed during the 2009 field surveys, this species is known to occur in Butte and Colusa counties, and has historically been reported at the RFS, as recorded in the CNDDB. This species is likely to occur at the RFS and has potential to occur at the Delevan Site.

Loggerhead shrike may be found in a variety of plant communities with open canopies and scattered shrubs, trees, or other perches, such as posts or fences. This species searches for prey, primarily large insects, from low perches, and often from dense foliage in trees or shrubs (CDFG 2009). Loggerhead shrikes are known to occur near the RFS, and have been observed in the Phase 3 Expansion area during previous surveys in 2001. Suitable foraging and nesting habitat for this species exists at the RFS and the Delevan Site. This species is likely to occur at the RFS, and has potential to occur in the grasslands of the Delevan Site.

Osprey has the ability to live and breed successfully in a wide range of terrain; suitable habitat consists of any safe nesting tree or large shrub near shallow water with abundant fish. Ospreys may range far from their nesting area during foraging, leaving the nest for long periods of time. Suitable foraging habitat for this species occurs at both the RFS and the Delevan Site. Suitable nesting habitat also occurs in the vicinity of the RFS. This species has been observed within 4 miles of the RFS, according to the CNDDB. Osprey has potential to occur at both the RFS and the Delevan Site.

3.3.2 Regulatory Setting

The regulatory setting as described in the 2002 EIR accurately describes regulating authorities, jurisdictions, and permitting requirements for activities potentially affecting sensitive plant and wildlife species in the Phase 3 Expansion area. Permits and authorizations for the Phase 3 Expansion are required at the federal, state, and local levels; however, the applicant may be able to obtain amendments to the authorizations for the Phase 2 Expansion, and may not be required to obtain new permit approvals.

3.3.2.1 Federal

An individual permit under Section 404 of the Clean Water Act was obtained by the applicant from the U.S. Army Corps of Engineers (USACE), Sacramento District, for the Phase 2 Expansion in December 2002. This permit allowed for the fill and/or modification of approximately 340 acres of wetlands and rice

fields. The acreage of wetland fill that would result from the Phase 3 Expansion would be a significantly smaller amount. Temporary and permanent wetland and drainage impacts, including impacts to rice fields, of approximately 6.15 and 4.51 acres, respectively, would result from the Phase 3 Expansion of the RFS, as shown in Table 3.3-2. The ditches in the area of the reconductoring component may not be wetlands subject to the USACE's jurisdiction, because the purpose of these ditches appears to be collection and conveyance of storm water runoff from the adjacent roadway (TRC 2010). However, the status of these ditches will not be determined until a formal wetland delineation is undertaken. Reconductoring activities would be planned to avoid delineated wetlands, as described below.

Table 3.3-2 Temporary and Permanent Impacts to Wetlands in the Phase 3 Expansion Area (RFS)

Impact Type	Rice Fields, Including Isolation Berms (Rice Checks)	RFS Roadside Drainage	Total*
Temporary acreage	6.13	0.02	6.15
Permanent acreage	4.5	0.01	4.51

*Estimate has been rounded

For the Phase 3 Expansion, the USACE may issue a modification to the existing Section 404 permit. This will require an associated National Environmental Policy Act assessment that will correspond to this California Environmental Quality Act (CEQA) assessment, if it is determined that the Phase 3 Expansion is a substantially similar undertaking to the Phase 2 Expansion. This determination would be made by USACE and the applicant would need to obtain such authorization from the USACE prior to Phase 3 Expansion construction activities.

As part of the Phase 2 Expansion authorization process, the applicant prepared a BA, and the USACE completed endangered species consultation under Section 7 of the Endangered Species Act (Section 7 consultation) with the USFWS, resulting in the issuance of a Biological Opinion (BO) for the Phase 2 Expansion activities. For the Phase 3 Expansion, the USACE would re-initiate Section 7 consultation with the USFWS; upon re-initiation of Section 7 consultation, the USACE and the USFWS may decide that the current BO issued in 1997 can be amended to incorporate the Phase 3 Expansion activities. The current BO has undergone five amendments between 2002 and 2006 to account for modifications related to the Phase 2 Expansion. The BO specifically addresses impacts to the giant garter snake and Sacramento splittail. For the Phase 3 Expansion activities, coverage under a revised BO would be sought for giant garter snake, but the Sacramento splittail is not expected to occur within the Phase 3 Expansion area.

State Level

CDFG maintains jurisdictional authority under Section 2080 et.seq. California Endangered Species Act and Fish and Game Code Section 1600 et.seq. (Streambed Alteration Agreements), and is both a Responsible Agency and a Trustee Agency for CEQA review. The CDFG issued a 2081 (Incidental Take) permit in 2002 for the Phase 2 Expansion. The permit covered impacts to several species, including two species, Swainson's hawk and giant garter snake, which may be affected by Phase 3 Expansion activities. Minor amendments for this permit were also issued in 2003 and 2007 to cover modified Phase 2 Expansion activities. The applicant may be able to apply for an amendment to the 2081 permit, or a new permit may be required for the Phase 3 Expansion, pending CDFG review of the applicant's permit request and this CEQA assessment. A Streambed Alteration Agreement would also be required for effects to wetlands and drainages that may result from the Phase 3 Expansion. Other laws enforced by CDFG, as a trustee agency, include the California Native Plant Protection Act, which requires protection of rare,

threatened, and endangered plants in the state, and the Migratory Bird Treaty Act, which prohibits the taking of migratory bird species.

The Central Valley Regional Water Quality Board (RWQCB) would need to review the Phase 3 Expansion activities to confirm that they would not violate state water quality standards, through review of the proposed activities and issuance of a Clean Water Act Section 401 Water Quality Certification or Waiver. This determination can occur once the USACE permit/permit modification application is sent to the RWQCB for review.

Local Level

The Butte County General Plan includes goals and policies associated with conservation of sensitive habitats and special status species (Butte County 2000). The Land Use Element (Butte County 2000) identifies special wildlife habitats of significance, including riparian habitat, water bird winter habitat, and fisheries habitat. Policies addressing biological habitat and natural areas include general language addressing (1) protecting marshes and significant riparian habitats, (2) limiting development that would increase sediment loads in prime fishing waters, (3) protecting rare or endangered plants and animals, and (4) encouraging the creation and expansion of natural and wilderness areas. The Conservation Element of the General Plan (1973) identifies portions of the Butte Sink that are classified as "of premium quality in permanent marshland" and that should be protected for the preservation of wildlife. The Conservation Element also identifies riparian lands and fisheries as important resources to be protected.

The Colusa County General Plan (Colusa County 1989) includes general language addressing the conservation and preservation of locally important species and sensitive wildlife habitats. Policies within the plan do not state specific requirements for species protection.

3.3.3 Environmental Impacts and Mitigation Measures

3.3.3.1 Applicant Proposed Measures

The Applicant proposes to implement the following Applicant Proposed Measures (APMs) as part of the Phase 3 Expansion to avoid or minimize potential biological impacts:

APM BIO-1: Giant Garter Snake Measures.

APM BIO-2: Wetlands Measures.

APM BIO-3: Pre-Construction Surveys.

APM BIO-4: On-Site Environmental Training Program.

APM BIO-5: Vehicle Measures.

APM BIO-6: Refueling and Hazardous Materials Storage Measures.

APM BIO-7: Clear Construction Area Boundaries.

APM BIO-8: Equipment Washing.

APM BIO-9: Trench Backfilling.

APM BIO-10: Trench Ramping.

APM BIO-11: Water Withdrawal for Hydrostatic Testing.

APM BIO-12: Restoration of Grasslands Over Pipeline (Delevan Site).

APM BIO-13: The Comprehensive Landscape Restoration Plan.

APM BIO-14: Avoidance of Vernal Pools and Swales.

APM BIO-15: Protection of Sensitive Plants.

APM BIO-16: Invertebrate Species Protection Measures.

APM BIO-17: Reptile Species Protection Measures.

The project features included in Table 3.3-3 addressing biological resources were adopted as part of the 2002 EIR for the Phase 2 Expansion, as either mitigation measures (MMs) or APMs. These measures would also apply to the Phase 3 Expansion.

Table 3.3-3 Project Features Addressing Biological Resources Adopted as Part of the 2002 EIR

Mitigation 3.4-1. WGSI shall develop and implement an Integrated Vegetation Management Plan.
Mitigation 3.4-4. WSGI shall compensate the loss of 1.4 acres of wetlands by wetlands creation, restoration, or securing mitigation at an appropriate mitigation bank.
Mitigation 3.4-5. WSGI shall compensate the conversion of 23 acres of wetlands by wetlands creation, restoration, or securing mitigation at an appropriate mitigation bank.
Mitigation 3.4-7. Water Withdrawal for Hydrostatic Testing will be Timed and Conducted in a Manner to Avoid Adverse Effects to Fish and Aquatic Life.
Mitigation 3.4-8(a). Preconstruction surveys shall be conducted and construction shall be scheduled in giant garter snake habitat to avoid impacts to snakes or their habitat.
Mitigation 3.4-8(b). Preconstruction surveys shall be conducted for giant garter snake and protective actions (such as snake removal) shall be initiated prior to implementation of the Habitat Enhancement Plan.
Mitigation 3.4-8(c). Preconstruction surveys for northwestern pond turtle shall be conducted and impact avoidance and species protection procedures shall be implemented.
Mitigation 3.4-8 (d). Preconstruction surveys for Swainson's hawk shall be conducted and construction activities shall be scheduled to avoid impacts to nest sites.
Mitigation 3.4-8(e). Preconstruction surveys for Northern harrier shall be conducted and construction activities shall be scheduled to avoid impacts to nest sites.
Mitigation 3.4-8(g). Preconstruction surveys for Loggerhead shrike shall be conducted and construction activities shall be scheduled to avoid impacts to nest sites.
Mitigation 3.4-8(i). Preconstruction surveys for White-faced ibis shall be conducted and if present, nest sites shall be protected by appropriate buffers during construction.
Mitigation 3.4-8(j). Preconstruction surveys for Black tern shall be conducted and if present, nest sites shall be protected by appropriate buffers during construction.
Mitigation 3.4-8(k). Preconstruction surveys for Tricolored blackbird shall be conducted and if present, nest sites shall be protected by appropriate buffers during construction.
Mitigation 3.4-8(l). Preconstruction surveys for Western burrowing owl shall be conducted and if required, species protection, or species relocation plans shall be implemented.
Mitigation 3.4-10(b). Operations blowdowns and emergency shutdown valve blowdowns shall be routed into silencers (see WSGI Measure 3.10-2).
Mitigation 3.4-10(c). WGSI will reduce the gas/volume in the pipeline to a minimum prior to a planned maintenance blowdown (see WSGI Measure 3.10-3).
Mitigation 3.4-11(a). WGSI will implement an equipment-washing program to control the introduction and potential spread of noxious weeds. Washing of construction equipment before such equipment is delivered to the project site will be implemented to control the introduction of potentially noxious weeds to the project area. In addition, only weed-free materials will be used to for erosion control materials.

Table 3.3-3 Project Features Addressing Biological Resources Adopted as Part of the 2002 EIR

Mitigation 3.4-11(b). WSGI shall implement a weed eradication program if weeds are introduced to construction areas. All construction areas revegetated by the project will be monitored to ensure that noxious weeds are not present. If noxious weeds do occur on the pipeline ROW in numbers exceeding those in populations adjacent to the ROW, in areas not disturbed by construction, a noxious weed control program will be implemented. This program would be a component of the Integrated Vegetation Management Plan (see Mitigation 3.4-9) and would involve eradication of weeds by a combination of grubbing or chemical spraying pursuant to the IVM goals of environmentally sound vegetation management.

3.3.3.2 Potential Impacts to Biological Resources

The Phase 3 Expansion would have some of the same impacts as identified in the 2002 EIR for the Phase 2 Expansion, but the Phase 3 impacts would be less intensive and extensive. As discussed below, the Phase 3 Expansion could result in the following: (1) impacts to native vegetation; (2) impacts to wetlands, freshwater marsh, and drainages; (3) impacts to downstream fisheries and aquatic life; (4) impacts to special status wildlife species; (5) impacts to nesting birds; and (6) introduction and spread of noxious weeds.

As discussed for the Phase 2 Expansion in the 2002 EIR, the following topics are areas of potential environmental concern that may be associated with implementation of the Phase 3 Expansion:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS-;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Impact BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Construction and operation of the Phase 3 Expansion components could result in impacts to special status wildlife species through the loss of suitable habitat for these species at the RFS and Delevan Site.

Sensitive Wildlife Species

Western Spadefoot Toad

Large rain-pool complexes used by Western spadefoot toads for breeding and small mammal burrows that provide aestivation habitat for this species are likely to be present at the vernal pool sites east of the Delevan Site. Disruption of breeding or aestivation habitat would be considered a potentially significant impact. No work is expected to occur in the vicinity of these potential breeding pools; however, work would occur in the grasslands within the Phase 3 Expansion area approximately 1,000 feet from these pools. Disturbance of such habitat could also occur in wetlands habitat at the RFS drainages during construction. While this species was not observed during the 2008 or 2009 reconnaissance surveys, impacts to suitable breeding and aestivation habitat may occur. Impacts related to temporary disturbance of such habitats during construction activities would be short term and temporary. Permanent impacts to such habitats would result in the loss or modification of a relatively small area (4.51 acres of breeding habitat at the RFS, and approximately 1 acre of grasslands at the Delevan Site). Implementation of MM BIO-1 and MM BIO-2, below, would reduce potentially significant impacts to this species to a less than significant level.

Giant Garter Snake

Suitable foraging and hibernacula habitat for the giant garter snake occurs in and near canals, streams, agricultural drainages, marshes, and flooded portions of rice fields. There are known occurrences of giant garter snake near the RFS and near portions of the reconductoring component area. If construction activities resulted in the temporary or permanent conversion of suitable foraging habitat during the snake's active period, direct impacts to the species could occur and would be considered potentially significant. The destruction of suitable hibernacula during the snake's inactive period would also be considered a potentially significant impact.

As discussed in Chapter 2, Description of Phase 3 Expansion, species exclusion fencing would be installed at the RFS site during construction to prevent giant garter snake from moving onto the site during construction activities. Fencing would be installed within the site perimeter and outside of perimeter access routes such that access to the site would not be obstructed; after the installation of the temporary berms, the fencing would be relocated to within the berms and perimeter access routes. Wild Goose or its construction contractors would coordinate and confirm appropriate fencing materials, installation techniques, and maintenance with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) staff.

Mitigation as presented in the 2002 EIR and in the discussion above would be implemented consistent with the requirements of the USFWS BO and the CDFG Take Permit for the giant garter snake. With the additional implementation of the APMs presented above as well as MMs BIO-1 and BIO-2, below, these impacts would be mitigated to a less than significant level.

Northwestern Pond Turtle

Suitable foraging and basking habitat for the northwestern pond turtle occurs in canals, streams, agricultural drainages, marshes, and flooded portions of rice fields. Northwestern pond turtle is expected to occur in any aquatic habitat in the Phase 3 Expansion area. Potential impacts to this species from Phase 3 Expansion construction and operations activities would be similar to those that may affect the giant garter snake. As discussed above for the Western spadefoot toad, impacts to potential suitable northwestern pond turtle habitat at the RFS would occur, and construction activities might result in stress and mortality for this species. Similar to the impacts that could affect the Western spadefoot toad, impacts related to temporary disturbance of northwestern pond turtle habitats during Phase 3 Expansion construction activities would be short term and temporary, and permanent impacts to such habitats would

result in the loss or modification of a relatively small area (4.51 acres of breeding habitat at the RFS). Implementation of MMs BIO-1 and BIO-2, below, would reduce potentially significant impacts to this species to a less than significant level.

Western Burrowing Owl

Burrowing owls live and nest in ground burrows; thus, individual owls, their young, or eggs could be destroyed by construction vehicles if they were present in the Phase 3 Expansion areas at the RFS, reconductoring component area, or Delevan Site prior to or during construction. As for the Phase 2 Expansion, and according to the APMs adopted by the applicant for the Phase 3 Expansion, preconstruction surveys of suitable Western burrowing owl habitat would be conducted during the nesting season. Based on the results of these surveys, the construction schedule or activities would be modified during the nesting period (February 1 through August 31) to preclude impacts. If it is not possible to adjust the construction activity or schedule, impacts to nesting burrowing owls would be considered potentially significant; however, implementation of Phase 3 MMs BIO-1, BIO-2, and BIO-3 would reduce these impacts to less than significant. The mitigation measures are as follows:

PHASE 3 MM BIO-1: The following general measures will reduce impacts to all sensitive wildlife species during Phase 3 Expansion construction activities:

1. Preconstruction surveys will be conducted in suitable habitat in and adjacent to the Phase 3 Expansion areas at the RFS and the Delevan Site during the appropriate survey windows. Preconstruction surveys will be conducted in suitable habitat no more than 30 days in advance of construction. These surveys shall be conducted using standard approved methods, including the California Burrowing Owl Consortium Survey Protocol and Mitigation Guidelines (1993), the Swainson's Hawk Technical Advisory Committee Methodology for Nesting Surveys in California's Central Valley (TAC 2000), and the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Species (1996).
2. Construction employees shall strictly limit activities, including movement of vehicles, equipment, and construction materials, to the Phase 3 Expansion footprint and designated staging areas and routes of travel within the Phase 3 Expansion footprint.
3. The applicant shall not stockpile brush, loose soils, excavation spoils, or other similar debris material within sensitive habitats.
4. Sensitive plant surveys will be conducted prior to construction within suitable habitat in and adjacent to Phase 3 Expansion work areas and during the appropriate survey window.
5. Where sensitive plants occur within the construction area, the work area will be adjusted in order to minimize impacts.
6. Exclusion fencing will be provided to protect sensitive plants that occur within 50 feet of construction work areas.
7. A qualified biologist will monitor construction to ensure that no sensitive wildlife species inadvertently enter the work area. Should a sensitive species be found, the appropriate resource agencies will be notified within 24 hours (USFWS and CDFG). Animals will be allowed to passively exit the work areas, and construction will be halted as needed to accomplish this.

PHASE 3 MM BIO-2: The following specific measures will reduce impacts to the wildlife species described below during Phase 3 Expansion construction activities:

1. *Reptiles and Amphibians*. The following measures will be supplemented with measures prescribed in the Phase 2 Expansion USFWS Biological Opinion and CDFG Take Permit for the giant garter snake:

- Preconstruction surveys for giant garter snake (RFS, reconductoring area, and Delevan Site), northwestern pond turtle (RFS and Delevan Site), and western spadefoot toad (RFS and Delevan Site) will be performed within 24 hours prior to construction. If a giant garter snake or any other sensitive species is found, it will be allowed to escape on its own, or will be removed by an authorized biologist and relocated to suitable habitat. USFWS and CDFG will be notified whenever a sensitive reptile or amphibian is handled by an authorized biologist.
- Onsite monitoring biologists will obtain authorization from the USFWS and CDFG to handle the giant garter snake for the purposes of removing individuals during construction and operation of the Phase 3 Expansion components.
- A qualified biologist will monitor construction to ensure that no sensitive reptile or amphibian species inadvertently enter the work area.
- Other than isolation dike construction and irrigation flow culvert installation, earthwork adjacent to flooded rice fields and other potential habitat will be confined to May through September unless otherwise authorized by the USFWS and CDFG.

2. *Raptors and Other Sensitive Nesting Species.* Preconstruction surveys will be conducted in suitable habitat at the RFS and the Delevan Site to determine whether raptors or other sensitive bird species are nesting within or near the Phase 3 Expansion construction areas. The construction schedule or activities will be modified during nesting periods to preclude impacts. The general bird breeding season for this area is late February to early July. If it is not possible to adjust the schedule or construction activity, the following measures will be implemented:

   - Construction within 0.5 miles of active Swainson's hawk nests will be avoided between April 15 and August 1, if feasible. If not feasible, nesting hawks within 0.5 miles will be monitored, construction activities will be halted if signs of disturbance (i.e., birds show signs of upset, repeatedly leaving the nest as a result of construction) are noted as determined by a qualified biologist, and CDFG will be consulted to determine possible options.
   - A minimum 500-foot buffer will be maintained for other tree-nesting species such as white-tailed kites and the loggerhead shrike until after the young have fledged.
   - A minimum 250-foot buffer will be maintained for ground-nesting or shrub-nesting species (northern harriers, tricolored blackbird, black tern, white-faced ibis, burrowing owl, and loggerhead shrikes) until after nesting is complete.
   - Operations blowdowns and emergency shutdown valve blowdowns shall be routed into silencers.
   - The applicant will reduce the gas/volume in the pipeline to a minimum prior to a planned maintenance blowdown.

3. *Burrowing Owls.* Detailed preconstruction surveys will be conducted at the RFS and the Delevan Site within 30 days prior to construction by a qualified biologist for burrowing owl within suitable habitat prior to the breeding season (February 1 through August 31). All areas within 250 feet of the Phase 3 Expansion areas at the RFS and the Delevan Site, including road shoulders, will be surveyed. Where Phase 3 Expansion ground-disturbing activities will occur prior to the burrowing owl breeding season, all burrows, holes, crevices, or other cavities in suitable habitat in the Phase 3 Expansion areas at the RFS and the Delevan Site, within the limits of proposed ground disturbance, will be thoroughly inspected by a qualified biologist before being collapsed. This will discourage owls from breeding on the construction site. Other species using burrows will be relocated prior to collapsing burrows.

To the extent feasible, Phase 3 Expansion construction activities at the RFS and the Delevan Site will avoid active burrows. If it is not possible to avoid burrowing owls, the following measures will be implemented:

- If burrowing owls occur within the proposed construction area, a 250-foot exclusion zone will be maintained around the burrows until relocation is complete or until chicks have fledged. Passive relocation will be used during the non-breeding season (September 1 through January 31) if it is determined that construction activities would disturb owls. Passive relocation will include installing one-way doors on the entrances of burrows located within the Phase 3 Expansion area.
- The occurrence and location of any burrowing owl will be documented by the authorized biologist, who will report all incidents of disturbance or harm to burrowing owls within 24 hours to the appropriate resource agencies (USFWS and CDFG)**.**
- Under the supervision of a qualified biologist, burrows within the proposed construction area will be excavated using hand tools and then refilled to prevent reoccupation. If any owls are found during the excavation, the excavation will cease and the owls will be allowed to escape.
- For each burrow excavated, one natural or artificial burrow will be provided in the adjacent habitat outside the 250-foot buffer zone.

PHASE 3 MM BIO-3: For the reconductoring component area, if any vegetation removal occurs during the typical avian nesting season (February 1 to August 31), a pre-disturbance survey for common and special status bird species protected under the MBTA and California Fish and Game Codes will be conducted, using standard approved methods, including the California Burrowing Owl Consortium Survey Protocol and Mitigation Guidelines (1993) and the Swainson's Hawk Technical Advisory Committee Methodology for Nesting Surveys in California's Central Valley (TAC 2000). The survey will be conducted by a qualified biologist no more than two weeks prior to the onset of vegetation removal. If active nests are found within or adjacent to proposed work areas during the avian nesting season, disturbance or removal of the nest will be avoided until the young have fledged and the nest is no longer active. The project biologist will determine the appropriate buffer distance between work areas and active nests in coordination with the CDFG and depending on the species, site conditions, and proposed work activities near the active nest.

Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Phase 3 Expansion construction activities could result in the loss of riparian vegetation at the RFS site, loss of native annual grasslands at the Delevan Site, and the potential degradation of these habitats through the introduction of invasive plant species (noxious weeds).

Potential Loss of Native Annual Grasslands at Delevan Site

Up to 0.6 acres of annual grassland could be temporarily disturbed during construction activities at the Delevan Site, at the location of the hot tapped pipeline connection installation, as described in Chapter 2, Description of Phase 3 Expansion. Temporary impacts to annual grasslands would not be considered significant given the abundance of this habitat type in the immediate area and the capacity for this habitat for rapid re-establishment with routine restoration (TRC 2009a). Although annual grasslands in this region provide suitable habitat for special status plants, no special status plants were found during surveys and thus no special status plants would be impacted by construction of the Phase 3 Expansion components at the Delevan Site. Additionally, these grasslands are continuously disked for agricultural

purposes, and thus it is not expected that special status plants would occur within this area, as long as this practice takes place.

Grasslands also provide potential upland aestivation habitat for Western spadefoot toad, and foraging and/or nesting habitat for sensitive bird species including burrowing owl, Swainson's hawks, northern harrier, white-tailed kite, loggerhead shrike, and osprey. Impact analysis and associated mitigation for these species is discussed above.

The applicant proposes specific restoration measures for temporary disturbance to annual grassland to ensure impacts remain less than significant. Where work extends outside of fenced areas at the hot tapped pipeline connection location, a minimum of 1 foot of topsoil would be segregated from the grasslands disturbed by trenching, and replaced after construction activities are complete. The hot tapped pipeline connection location would be seeded with a native seed mix, as noted in the APMs above, and a straw or wood slurry mulch would be applied. Revegetation activities would commence at the hot tapped pipeline connection location as soon as construction was completed. In addition, the Landscape Restoration Plan developed for the Phase 2 Expansion would be implemented for the Phase 3 Expansion. With the implementation of these measures, impacts to native vegetation communities would be less than significant.

Potential Loss of Riparian Habitat on RFS Isolation Berms

To isolate the rice fields surrounding the RFS from the Phase 3 Expansion area, temporary isolation berms would be built large enough to prevent water from entering the Phase 3 Expansion construction area. The size of the berms would be approximately 3.5 feet wide and up to 3 feet high. The berms would be constructed on the west and north perimeter of the Phase 3 Expansion area. After construction, the berms would be removed, the rice field restored, and the land within the rice field leveled in accordance with the landowner's requirements. After site development and building erection, as part of the final stage of construction at the RFS, permanent berms would be installed at the site and the entire site (including berms) would be landscaped.

Prior to Phase 3 Expansion construction at the RFS, berms that were built to isolate the rice fields from the Phase 2 Expansion construction would be removed. Sparse riparian vegetation such as willows and blackberry bushes has colonized the existing dirt berms. This vegetation anchors the soil and reduces erosion. Although this vegetation is not located in a native riparian corridor, it may provide forage and shelter habitat for wildlife species. Removal of established isolation berms would require removal of the riparian vegetation. As part of APM BIO-13 (Comprehensive Landscape Restoration Plan), the applicant will transplant viable vegetation to the new, permanent berms and other locations at the RFS. Impacts to riparian habitat would be less than significant.

Potential Introduction of Noxious Weeds at RFS and Delevan Site from Phase 3 Construction Activities

Introduction of noxious weeds into the Phase 3 Expansion area could occur during construction, from grading and earth-moving activities, as well as during installation and removal of the temporary isolation berms. The spread of noxious weeds would potentially displace native and sensitive vegetation, and thus reduce the quality of foraging habitat for native and sensitive wildlife. Disturbance of annual grasslands at the Delevan Site would be less than significant because the grasslands have previously been highly disturbed, less than 1 acre of grassland would be affected, and proposed APMs would reduce the potential for introduction and spread of noxious species. Likewise at the RFS, vegetation in and around the drainages and rice fields is relatively disturbed, and APMs would prevent further disturbances from noxious weed proliferation. Impacts related to the spread of noxious weeds would be less than significant.

Impact BIO-3: Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Phase 3 Expansion construction activities would not result in impacts to vernal pools in the vicinity of the Delevan Site, but would result in the loss of wetlands (rice fields and freshwater marsh) at the RFS. Reconductoring activities have the potential to affect wetland areas identified along West Evans Reimer Road (Option A alignment) and Pennington Road (Options A and B alignments).

Vernal Pools (Delevan Site)

Three highly disturbed vernal pools were identified in the grassland between the Delevan Interconnect Site and the Glenn-Colusa Canal, approximately 1,000 feet east of the Delevan Interconnect Site. These vernal pools are located along Dirks Road directly paralleling the Glenn-Colusa Canal, and are outside the direct influence of the Phase 3 Expansion area. The vernal pools would be avoided during construction, and thus no significant impacts are expected.

Rice Fields (RFS)

Rice fields are considered by the USACE to be farmed wetlands, providing important functional habitat for sensitive species. Approximately 6.13 acres of rice field would be temporarily impacted, while 4.5 acres of rice field would be permanently filled as a result of Phase 3 Expansion activities at the RFS. A permanent loss of foraging habitat for giant garter snake would result from expansion of the RFS into the adjacent rice field. Although both temporary and permanent impacts would be considered potentially significant, mitigation implemented consistent with the requirements in the USFWS BO dated September 13, 2002 (File No. 1-1-02-F-0060) and the CDFG Take Permit dated September 26, 2002, (File No. 2081-2002-017-02) for the giant garter snake would address these impacts. The implementation of MM BIO-3 would reduce potentially significant impacts to jurisdictional rice fields (and all other wetlands discussed below) to a less than significant level.

Freshwater Marsh (RFS)

At the RFS, freshwater marshes occur mainly in small, isolated patches within drainage ditches associated with rice fields. The drainage along West Liberty Road contains freshwater marsh vegetation and open water. Approximately 0.01 acres would be permanently impacted by removal of an existing culvert and installation of a new culvert for access into the RFS work area. At the approximate location of the new driveway, the vegetation includes an approximately 15-foot strip of salt grass from West Liberty Road to the top of the drainage. The banks are sparsely vegetated with species such as cattail (*Typha* sp.), tules (*Scirpus* sp.), blackberry (*Rubus sp*.), willow seedlings/saplings, and various grasses. The culvert under the existing driveway through which the drainage flows would be removed and the banks would be restored to freshwater marsh, which was the plant community that existed before this access driveway was built. This vegetation community is currently found on either side of the existing driveway. Approximately 0.01 acres of this vegetation would be displaced from installation of the driveway. The drainage provides potential suitable habitat for the Western spadefoot toad and the northwestern pond turtle, and suitable nesting and/or forage habitat for the tricolored blackbird, Swainson's hawk, black tern, northern harrier, greater sandhill crane, loggerhead shrike, California black rail, and osprey. Impact analysis and associated mitigation for these species is discussed below.

Impacts associated with installation of the new culvert would be offset by removal of the existing culvert and restoration of the drainage, consistent with the USACE Section 404 permit dated December 17, 2002 (File No. 200100383). Additionally, topsoil would be salvaged from the culvert banks and the driveway approach from West Liberty Road during installation of the new driveway. This topsoil, which contains

onsite native seed and plant roots, would be used on the banks to help restore the location where the existing culvert and driveway would be removed. Topsoil with salt grass would be spread on both sides of the ditch. The banks and approach would be mulched with straw and if necessary, erosion control fabric would be installed. All wetland fill would be a natural material from a local source free of contamination and foreign substances. General fill to build up any perimeter berms and landscaped areas would be onsite soils deemed unsuitable for foundation bearing or roadway areas. Some imported topsoil may be required for landscaping.

Reconductoring Component Area

Reconductoring activities have the potential to affect wetland areas identified along the segments of the Option A alignment on West Evans Reimer Road, where drainage ditches have been identified adjacent to the utility ROW. Wetland features were also identified in the vicinity of the Option A alignment utility ROW along the portion of West Evans Reimer Road that passes through the Gray Lodge Waterfowl Management Area. Reconductoring activities also have the potential to affect wetland areas identified along Pennington Road, for both the Option A and the Option B alignments. Although this potential exists, the placement of the reconductoring pull and tension sites is flexible, and wetland areas can be avoided by ensuring that all reconductoring activities are undertaken from existing paved surfaces or other maintained areas where wetlands are not present. The implementation of MM BIO-5 will further reduce potential impacts to wetlands from Phase 3 Expansion activities in the reconductoring component area.

As designed, the Phase 3 Expansion could impact the wetland types described above. Implementation of APM BIO-13, which would require that the Comprehensive Landscape Restoration Plan prepared during the Phase 2 Expansion be implemented to ensure that vegetation is restored and noxious weeds are controlled, would reduce these impacts. The implementation of MMs BIO-4 and BIO-5 would reduce impacts to less than significant.

PHASE 3 MM BIO-4: The following measures will reduce impacts related to wetland fill at the RFS during Phase 3 Expansion construction activities:

1. Erosion and sediment control measures (e.g., silt fencing, erosion control fabric or other measures) will be implemented at all locations where construction occurs within or directly adjacent to aquatic features.
2. Sediment stockpiling will be a minimum of 50 feet from wetland/drainage systems.
3. Loss of wetland habitat will be compensated at an appropriate ratio. This ratio will likely be 2:1, but will be determined by resource and permitting agencies (USACE, USFWS, and CDFG) during consultation.

PHASE 3 MM BIO-5: For the reconductoring component area, work will take place from existing paved surfaces or other maintained areas that lack wetland habitats. For the wetland areas that have been identified in the reconductoring Biological Assessment (TRC 2010) along West Evans Reimer Road and Pennington Road, the following measure will be taken:

1. A wetlands biologist will delineate the edges of each wetland area using USACE delineation methodology (USACE 1987). Once wetland boundaries have been accurately identified, a 100-foot buffer area will be established around each wetland area. Buffer areas will be demarcated with lath and flagging, and no construction materials, equipment, or vehicles will be permitted in these areas.
2. Erosion and sediment control measures described under MM BIO-4 will be implemented to protect wetland habitats.

Impact BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Phase 3 Expansion construction activities could result in impacts to downstream fisheries and aquatic habitat in the vicinity of the RFS, and could result in impacts to and loss of suitable habitat for nesting sensitive bird species at the RFS and Delevan Site.

Potential Impacts to Downstream Fisheries and Aquatic Habitat in the Vicinity of the RFS

Increased erosion and sedimentation from construction activities at the RFS area could enter drainages during culverting of the new access road, removal of the old culvert, and removal of existing and Phase 3 isolation berms. Increased sedimentation could negatively affect downstream aquatic organisms by reducing oxygen in the water column and coating sensitive life stages (eggs) and/or respiratory organs and suffocating the organisms. This impact would be temporary in nature during construction, but potentially significant. The implementation of MM BIO-4 would reduce this impact to a less than significant level.

Water withdrawal from surface water sources (identified by the applicant as the Belding Lateral Canal and the 833 Canal) would be required to supply the Phase 3 Expansion construction activities (with the exception of hydrostatic testing, which would use water withdrawn from a well located in the Grey Lodge Waterfowl Management Area). This could negatively impact downstream fisheries and aquatic organisms by entrainment and inadvertent take of adult and juvenile organisms. No special status fish species occur within the Phase 3 Expansion area; however, potential habitat for sensitive amphibian and reptile species is present in the drainages surrounding the Phase 3 Expansion area. Water withdrawal would occur over a short-term period and would be a temporary, but potentially significant, impact. The implementation of MM BIO-4 would reduce this impact to a less than significant level.

PHASE 3 MM BIO-6: The following measures will reduce impacts to downstream fisheries and aquatic habitat at the RFS during Phase 3 Expansion construction activities:

1. The applicant will participate in ongoing consultations with CDFG and USFWS to establish a rate of withdrawal such that unacceptable impacts to downstream fisheries do not occur. To this end, the applicant will adhere to the water withdrawal rate, volume, and timing established through the agency consultation process. The applicant will also submit documented evidence that the stipulated conditions of water withdrawal have been met to both CDFG and USFWS.
2. In coordination with CDFG and USFWS, the applicant shall conduct downstream monitoring to verify that withdrawal volume does not adversely impact fisheries or the aquatic life components that support special status aquatic species.

Potential Impacts to Nesting Sensitive Bird Species

Noise from construction activities could disturb the following sensitive birds that may nest in the area:

- Swainson's hawks
- northern harriers
- white-tailed kites
- greater sandhill cranes
- California black rail
- burrowing owls
- tricolored blackbirds
- white-faced ibis

- loggerhead shrikes
- black terns
- ospreys

Noise from Phase 3 Expansion construction activities, including human presence, at the RFS, reconductoring component area, or Delevan Site, may cause birds to abandon or avoid nests, resulting in a failure to lay eggs or mortality of the chicks from neglect. These birds could also be impacted by removal of trees and shrubs that provide nesting or roosting sites. Permanent loss of grasslands could remove foraging habitat for birds that may nest within 1 mile of the Delevan Site. This would be considered a less than significant impact due to the small amount of habitat that would be lost and the large quantity of available foraging habitat in the vicinity. Noise from operational activities, such as blow-down venting, may cause nesting birds to temporarily leave nests, which would be considered potentially significant. Implementation of the measures adopted for the Phase 2 Expansion, the APMs listed above, and MMs BIO-1, BIO-2, and BIO-3 (as pertinent to nesting raptors) would reduce impacts to less than significant levels.

Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

As discussed above, policies, plans, and regulations at the local level are general in nature. Specific policies from the Butte County General Plan require common measures employed to protect biological resources at the local level. These measures are already a part of the APMs and MMs stated for this project; therefore, there would be no conflict with local policies and no impact would occur.

Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The Phase 3 Expansion would not conflict with any applicable habitat conservation plan or natural community conservation plans. No habitat conservation plans or natural community conservation plans have been adopted for Butte County or Colusa County. The Butte County Association of Governments is leading the planning efforts for preparation of the Butte County HCP/NCCP, as described in Section A.7, Land Use and Planning. BCAG is in the process of developing conservation strategies for sensitive species and habitats; however, the Butte County HCP/NCCP is still in the draft stages and is not anticipated to be adopted by local jurisdictions and the wildlife agencies (USFWS and CDFG) until 2011 (CDFG 2009, BCAG 2010). Construction and operation of the Phase 3 Expansion would not conflict with a habitat conservation plan or natural community conservation plan, and no impact would occur.

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4. Cumulative and Growth-Inducing Impacts

4.1 Cumulative Introduction

This chapter discusses the potential cumulative impacts associated with the Wild Goose Phase 3 Gas Storage Expansion beyond those identified in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR). Cumulative impacts are defined as two or more individual effects that, when considered together, are considerable, or that compound or increase other environmental effects. Section 15130(a) of the California Environmental Quality Act (CEQA) Guidelines states that:

> An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable … Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

The cumulative analysis presented in this chapter is based on a cumulative scenario comprising past (since the Phase 2 Expansion EIR), current, and foreseeable future projects within 5 miles of the Phase 3 Expansion sites, as discussed below. Impacts to air quality and biological resources are discussed below. Cumulative impacts to other resource areas, which would ordinarily be addressed in Appendix A, Focusing Initial Study, are also discussed, to identify any less than significant impacts associated with these resource areas that could have the potential to be cumulatively considerable, and to present a more complete analysis.

4.2 Cumulative Scenario

To supplement the 2002 EIR, this cumulative impact analysis considers impacts of the Phase 3 Expansion together with potential impacts of other past (since the publication of the 2002 EIR), present, and reasonably foreseeable future projects. For this analysis, planned or ongoing development in an area with a radius of approximately 5 miles of the Remote Facility Site (RFS) or the Delevan Site was also reviewed. The cumulative scenario was developed using information provided by Butte and Colusa counties; the California Office of Planning and Research (OPR; CEQANet Database); and the U.S. Environmental Protection Agency (USEPA). Cumulative projects were included in this analysis based on their potential to collectively contribute to significant cumulative impacts. The projects considered in the cumulative scenario were limited to those currently under construction or pending construction based on development applications on file at the applicable agencies, and/or those that had CEQA Initial Studies or EIRs on file with OPR or a recently submitted Environmental Impact Statement (EIS) to the USEPA. Projects considered in the cumulative analysis include those that would be constructed concurrently and those that would be in operation at the same time as the Phase 3 Expansion.

During the development of the cumulative scenario, two projects were identified that are particularly likely to result in cumulative impacts. These two projects, the Central Valley Gas Storage project and the Colusa Generating Station, are discussed in more detail below.

4.2.1 Central Valley Gas Storage Project

In July, 2009, Central Valley Gas Storage, LLC, (Central Valley) submitted an application to the California Public Utilities Commission (CPUC) for a Certificate of Public Convenience and Necessity (CPCN), along with a Proponent's Environmental Assessment (PEA; Central Valley 2009). The application requests authorization to develop, construct, and operate an underground natural gas storage facility near the unincorporated town of Princeton in Colusa County, California, approximately 12 miles east of the RFS. The Central Valley project area is situated along the west side of the Sacramento Valley, immediately west of the Sacramento River. The proposed project involves the conversion of the depleted Princeton Gas Field into a natural gas storage field. The field will ultimately be developed to 8 billion cubic feet (Bcf) of working gas capacity and will be designed to achieve a maximum withdrawal and injection capability of up to 300 million standard cubic feet per day. As part of this conversion, Central Valley would construct a facility that would allow storage of gas in the Princeton Gas Field and provide a connection to Pacific Gas and Electric's (PG&E's) Line 400/401 transmission system via a 14.7-mile-long, 24-inch-diameter gas pipeline from the new Central Valley facility's compressor station. A pipeline interconnect facility proposed as part of the project may be located within a few hundred feet of the Delevan Interconnect Site.

Project construction is projected to begin in late 2010, and to be completed in 2012, although typical delays in permitting and construction may result in an extension of the construction period to 2013 or later.

4.2.2 Colusa Generating Station

On November 6, 2006, E&L Westcoast, LLC, a subsidiary of Competitive Power Ventures, filed an Application for Certification seeking approval from the California Energy Commission (CEC) to develop the Colusa Generating Station (CGS project). The CGS project was approved in April 2008 by the CEC, and is currently under construction. The CGS project will be a 660-megawatt (MW), natural gas-fired, dry-cooled, combined-cycle electric generating facility, and will employ a zero-liquid discharge system.

The CGS project includes two General Electric Power Systems Frame 7FA combustion turbine generators equipped with dry, low nitrogen oxides (NO_x) combustors designed for natural gas and two multi-pressure heat recovery steam generators. The CGS project also includes two pipelines: a 4-inch, 2,700-foot pipeline providing water to the project from the Tehama-Colusa Canal, and an 8-inch, 1,500-foot natural gas pipeline from PG&E's Delevan Compressor Station. The CGS project would be accessed by two new roads: a 12-foot-wide permanent gravel access road that would parallel the 4-inch pipeline, and a 2,500-foot paved access road from the existing PG&E natural gas compressor station to the facility site. The project also includes upgrades to the Teresa Creek Bridge, the Glenn-Colusa Canal Bridge, and Delevan and McDermott roads.

The CGS project is in unincorporated Colusa County approximately 0.3 miles west of the Delevan Interconnect Site, 6 miles north of the community of Maxwell, and 14 miles north of the community of Williams. It is generally bounded by the Tehama-Colusa Canal to the east and Dirks Road to the southeast. The CGS project and the Delevan Interconnect Site are both accessed via the same access road. Grazing land surrounds the 100-acre leased area immediately to the west, north, and south.

Project construction is ongoing and will continue through 2011 and 2012. The CGS project is predicted to be operational by 2012 (Johans 2010).

4.2.3 Other Projects

Other development in Butte, Colusa, Glenn, and Sutter counties within the cumulative area that has taken place or has been planned since 2002 is very similar to that described in the 2002 EIR. Butte County planning agency staff indicated that growth in the area within 5 miles of the RFS has been mainly confined to agricultural development and small-scale residential development (Joliffe 2010). Colusa County planning agency staff confirmed that, other than the development of the Colusa Generating Station, no significant development is underway or planned for the area of the Delevan Site (Johanns 2010). Planning agency staff at Glenn County also confirmed that no major projects were underway or proposed within the cumulative area for the RFS and the Delevan Site (Popper 2010). Sutter County planning agency staff indicated that development in that county within the area of cumulative impact for the Phase 3 Expansion likewise is and has been confined to smaller projects involving agricultural or residential development, such as agricultural land subdivisions and single family homes (Yount 2010). The California Department of Fish and Game (CDFG) is also planning restoration projects for Willits Creek in Colusa County and the Sacramento River in Sutter County. Butte, Colusa, Glenn, and Sutter counties are all also undergoing updates to their general plans, and the City of Gridley adopted a general plan update in February 2010. On a larger scale, the U.S. Department of Interior's Bureau of Land Management (BLM) is proposing to revise grazing regulations for public lands in the area.

4.2.4 Construction Overlap

Although the construction schedules and timing for the Phase 3 Expansion, the Central Valley project, and the CGS project cannot be precisely determined, it is anticipated that the schedules would overlap in 2010, 2011, 2012, and possibly 2013.

4.3 Cumulative Impacts

4.3.1 Aesthetics

Scope and Geographic Extent

The scope for considering cumulative impacts to aesthetics includes any project that would create impacts similar to those associated with the Phase 3 Expansion, that is, any project that would degrade existing visual character or quality or create a new source of light or glare that could adversely affect daytime and nighttime views in the vicinity of the expansion area. The geographic extent for considering cumulative impacts to aesthetics includes all projects within 2 miles of the RFS. This geographic extent has been selected because potential visual impacts from the Phase 3 Expansion activities are primarily related to installation of new structures and equipment at the RFS, within an area that already includes similar structures. The new RFS buildings and equipment would not be visually discernable beyond a 2-mile radius of the RFS.

Reconductoring activities would be limited in duration and would not result in any permanent impacts; the appearance of the utility line would not change after the completion of the reconductoring activities, and no visual or aesthetic impacts would result. Likewise, activities at the Delevan Site would not add structures or features that would create a new distinguishable permanent aesthetic impact in the area, because construction at the site is limited to the addition of an aboveground gas pipe in an area that currently contains several aboveground gas pipes of similar appearance. Therefore, aesthetic impacts at the area of the reconductoring component and the Delevan Site are not likely, and these sites are not evaluated further in the cumulative impacts analysis for aesthetics.

Existing Cumulative Conditions

The aesthetic character of the area around the RFS in Butte County and the Delevan Site in Colusa County has changed relatively little since 2002, because the area has been, and continues to be, used primarily for agricultural, conservation, and natural gas exploration, storage, and transmission. Structures common to the area include farm houses, grain silos, and distribution-level transmission lines.

Reasonably Foreseeable Future Projects

There are no reasonably foreseeable future projects within the cumulative scenario that are within the geographic extent for cumulative impacts to aesthetics at the RFS.

Cumulative Impact Analysis

As discussed in Section A.1, Aesthetics, the Phase 3 Expansion has the potential to impact the existing visual character or quality of the RFS and its surroundings. It could also create a new source of substantial light or glare that could adversely affect daytime and nighttime views in the area, which could result from daytime welding activities and occasional use of emergency night lighting. With the application of applicant proposed measures (APMs) and mitigation measures approved for the Phase 2 Expansion, and because there are no reasonably foreseeable future projects in the cumulative scenario within the geographic extent of the cumulative impacts area of the RFS, the Phase 3 Expansion would not contribute to cumulative impacts to aesthetics.

4.3.2 Agriculture

Scope and Geographic Extent

The scope for considering cumulative impacts to agriculture includes any project that would result in conversion of state-designated farmland (Prime Farmland and/or Farmland of Statewide Importance) at the location of the RFS to non-agricultural use, because the Phase 3 Expansion's agriculture-related effects are limited to these types of impacts. The geographic extent for cumulative impacts to agriculture is Butte County, because cumulative impacts to Prime Farmland and Farmland of Statewide Importance are recorded at the county level. No impacts to agricultural resources in the area of the reconductoring component are anticipated. In addition, impacts to designated agricultural lands in the area of the Delevan Site would be temporary, and would not result in any permanent cumulative impacts.

Existing Cumulative Conditions

Much of the Butte County economy relies on agricultural production, and preservation of agricultural lands is a high priority for local land use planning agencies. Butte County began surveying and monitoring Prime Farmland and Farmland of Statewide Importance acreage in 2004. Between 2004 and 2008, there was a net loss of 2,860 acres of Prime Farmland (from 197,557 to 194,690 acres, or 1.5 percent). In the same time period, there was a net increase of 473 acres of Farmland of Statewide Importance (from 22,323 to 22,794 acres, or 2 percent), although there has been some conversion of this farmland to non-agricultural uses.

Cumulative Impact Analysis

Prime Farmland

As discussed in Section A.2, Agriculture and Forest Resources, the Phase 3 Expansion would convert 2.6 acres of Prime Farmland in Butte County to non-agricultural use. Of the future foreseeable projects identified in Butte County in the cumulative project scenario, none were identified as contributing to the

conversion of Prime Farmland to other uses. However, it is reasonable to assume the loss of Prime Farmland in Butte County, similar to what the county experienced between 2004 and 2008, will continue into the future. While the Phase 3 Expansion would contribute to this potentially significant cumulative impact, the acreage of farmland conversion that would occur is relatively small, and mitigation measures as described in Section A.2, including compensation for the loss of agricultural lands, would reduce this impact to a less than significant level on a project-specific basis. For these reasons, the Phase 3 Expansion would not result in a considerable contribution to cumulative impacts on Prime Farmland in Butte County.

Farmland of Statewide Importance

As discussed in Section A.2, the Phase 3 Expansion would result in the conversion of 1.9 acres of Farmland of Statewide Importance in Butte County to non-agricultural use. Of the future foreseeable projects identified in Butte County, none were identified as projects that would involve the conversion of Farmland of Statewide Importance.

Based on the trend from 2004 to 2008, it would be reasonable to assume that Farmland of Statewide Importance in Butte County will maintain its current acreage or increase. Given this trend, the Phase 3 Expansion would not result in a significant contribution to cumulative impacts on Farmland of Statewide Importance in Butte County.

4.3.3 Air Quality and Greenhouse Gases

Scope and Geographic Extent

Following guidelines in the Butte County Air Quality Management District (BCAQMD) CEQA Air Quality Handbook (BCAQMD 2008), the analysis of cumulative air quality and greenhouse gases impacts for the RFS and the reconductoring component was geographically limited to existing and reasonably foreseeable projects within 1 mile of the RFS. The same 1-mile limit was used for the Delevan Site.

Existing Cumulative Conditions

For the RFS, there are no reasonably foreseeable projects within the cumulative analysis area that would substantially contribute to air quality or greenhouse gases impacts. However, the CGS project, currently under construction, is within the cumulative area for the Delevan Site.

Cumulative Impact Analysis

Air Quality

Cumulative impacts on air quality can occur when one or more projects contribute to the exceedance of a pollutant or other air quality threshold. As discussed in Section 3.2, Air Quality, the Phase 3 Expansion's individual contribution to air quality impacts is less than significant with mitigation incorporated. According to the BCAQMD CEQA Air Quality Handbook (2008) and as discussed in Section 3.2, individual project emissions related to the expansion of the RFS and the reconductoring component that are not consistent with the Air Basin's Air Quality Attainment Plan (AQAP) or State Implementation Plan (SIP), or that exceed district thresholds, will have a significant cumulative impact unless appropriately mitigated by emission offsets.

The Phase 3 Expansion is considered consistent with the AQAP because it does not require a zoning change, does not exceed project-level significance criteria after incorporation of mitigation, and complies with all applicable plans, district rules, and regulations. Similar to the RFS and the reconductoring

component, construction emissions from expansion of the Delevan Site would exceed the levels of significance set by the Colusa County Air Pollution Control District (CCAPCD), but would likewise be mitigated to a less than significant level.

A limited number of bridges cross the Glenn-Colusa Canal near the CGS project, the potential pipeline interconnect site for the Central Valley project, and the Delevan Site for the Phase 3 Expansion. With concurrent construction, access to these projects on public and private roads could therefore be restricted. Cumulative road dust impacts may occur from this overlap in construction schedules. (The dust would create particulate matter with a dimension of 10 micrometers or less [PM_{10}].) To minimize these impacts, and as part of compliance with Authority to Construct permits from the CCAPCD, Wild Goose Storage, LLC, (Wild Goose, or the applicant), PG&E, and Central Valley will coordinate to ensure road dust from vehicles is appropriately mitigated through regular water applications. Resulting cumulative PM_{10} emissions would therefore be mitigated to a less than significant level. In addition, the Central Valley and CGS projects, as well as the Phase 3 Expansion of the Delevan Site, would comply with all applicable laws, ordinances, regulations, and standards, including the requirements of permits and conditions enforced by the CCAPCD (such as requirements for NO_x offsets), and therefore would not result in significant air quality impacts after these conditions were applied.

Greenhouse Gases

As discussed in Section 3.2, greenhouse gases (GHGs) generated by the Phase 3 Expansion would be mitigated to a less than significant level according to significance criteria that conservatively estimate impacts from GHGs. The amended CEQA Guidelines (adopted in 2010) include revised provisions for assessing the cumulative impacts of projects with GHG emissions. According to these amendments, the lead agency "may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, … plans or regulations for the reduction of GHG emissions) which provides specific requirements that will avoid or substantially lessen the cumulative problem" (Section 15064(h)(3).

According to this section, if there is an adopted plan or program that adequately addresses cumulative GHG emissions that would apply to proposed development, the determination may be made that the development would not result in a cumulatively considerable impact, as long as the plan or mitigation program being relied upon imposes requirements that adequately address cumulative GHG emissions. In addition, in order to appropriately determine and mitigate GHG impacts, the plan or mitigation program must provide specific requirements that will avoid or substantially lessen the cumulative impact, must be specified in law or adopted through a public review process, and must be enforceable.

No local or regional GHG plans or mitigation programs have been adopted for the area of the Phase 3 Expansion; however, the BCAQMD includes general methodology for the assessment and mitigation of air quality impacts in its CEQA Air Quality Handbook (2008), indicating that projects that are not consistent with the Air Basin's AQAP or the SIP, or that exceed district thresholds, will have a significant cumulative impact unless offset. As discussed above, the Phase 3 Expansion would not result in a cumulative impact on air quality under these criteria; likewise, the GHG emissions associated with the Phase 3 Expansion are also not inconsistent with the AQAP or the SIP and would not exceed project-level significance criteria after incorporation of mitigation. However, the AQAP and the SIP do not include specific measures addressing GHGs that would be applicable to the Phase 3 Expansion.

Further analysis of the Phase 3 Expansion's consistency with an applicable state plan and/or policy addressing GHG emissions from development helps determine whether the Phase 3 Expansion might result in cumulatively considerable GHG emissions. CARB's Climate Change Scoping Plan of 2008

(CARB Scoping Plan), which includes industry goals and criteria for meeting the goals of Assembly Bill (AB) 32, is the applicable plan in this case. As described in the CARB Scoping Plan, GHG sources in the state collectively result in emissions that are higher than the targets established by AB 32, which indicates that GHG emissions in the state continue to contribute to a total significant, state-wide cumulative impact. The Phase 3 Expansion, however, would incorporate measures consistent with the CARB Scoping Plan, such as use of efficient internal combustion engines rather than gas turbine engines, use of flash tank separators on glycol dehydrators to reduce methane, and an aggressive maintenance and monitoring program to reduce leaks of fugitive emissions. With these measures, as well as the mitigation measures specified in Section 3.2 that will reduce GHG emissions from the Phase 3 Expansion by more than 70 percent, the Phase 3 Expansion would be consistent with the goals of the CARB Scoping Plan and AB 32. Although the overall cumulative context for GHG emissions in the state indicates a significant total cumulative impact, the Phase 3 Expansion's contribution to this overall condition would be less than considerable.

With the inclusion of all APMs, air quality and local agency permit conditions, and mitigation measures, and because the Phase 3 Expansion would meet the requirements discussed above, the Phase 3 Expansion would have a less than considerable individual impact to cumulative air quality and GHG conditions in the area.

4.3.4 Biological Resources

Scope and Geographic Extent

The scope for considering cumulative impacts on biological resources includes cumulative projects that could have a substantial adverse effect on candidate, sensitive, or special status species, as discussed in Section 3.3 (Western spadefoot toad, giant garter snake, Northwestern pond turtle, or Western burrowing owl). The scope also includes cumulative projects that could have a substantial adverse effect on wetlands or riparian habitat or result in significant impacts to fisheries or aquatic habitat. Projects with these impacts are included because these are the potential biological impacts associated with the Phase 3 Expansion. The geographic extent for considering cumulative impacts to biological resources is a 5-mile radius from the RFS, reconductoring component area, and Delevan Site. This was selected as a reasonable representative range for populations of the sensitive species identified in the individual impact analysis for the Phase 3 Expansion.

Existing Cumulative Conditions

The areas surrounding the RFS and the Delevan Site are, and have been in the past, used for agricultural production (rice) and resource protection and enhancement. Areas surrounding the reconductoring component area have also been used for agricultural production (rice, orchards, and cropland), resource protection and enhancement, and low-density residential development. Rice farming in the area can result in disturbance impacts on sensitive species and aquatic habitats, but also provides habitat for sensitive waterfowl species and giant garter snake. Residential development in the area can result in disturbance impacts on sensitive species, aquatic habitats, wetlands, and riparian areas, and is mainly confined to areas already developed with residential uses, in the vicinity of the City of Gridley. The area surrounding the project components also includes several designated wildlife conservation areas, including the Gray Lodge Waterfowl Management area and the Sacramento National Wildlife Refuge, which also provide protected habitat for sensitive species.

Construction currently underway at the CGS project, located approximately 0.3 miles east of the Delevan Site, could affect sensitive species in the area, including Western burrowing owl. However, the agency

approvals for this project include measures addressing such impacts. The potential impacts would therefore be mitigated to less than significant as part of project permit conditions.

Cumulative Impact Analysis

As discussed in Section 3.3, Biological Resources, impacts to biological resources from the Phase 3 Expansion would be mitigated through measures such as avoidance and sensitive construction techniques. Loss of giant garter snake habitat (flooded rice fields) at the RFS would be compensated for by offsite habitat preservation. With the implementation of APMs and mitigation measures, project-level impacts on biological resources would be less than significant.

Rice production is extensive throughout both Colusa and Butte counties, and continues to be a dominant land use in this area. As a result, and given the relatively low rate of agricultural land conversion in the cumulative area (Section 4.3.2, Agriculture, above), significant cumulative loss of giant garter snake habitat provided by rice fields is not likely to occur as a result of development in the area. Development pressure in the cumulative area in general is also not likely to result in significant conversion of sensitive habitat to other land uses, or result in significant cumulative impacts to sensitive habitat or species. Additional protection for these habitats and species is also provided within designated natural resources areas, such as the Gray Lodge Waterfowl Management Area and the Sacramento National Wildlife Refuge.

The Central Valley and CGS projects could disturb annual grasslands common in the area as well as sensitive species such as the Western burrowing owl that could use these grasslands for habitat. Agency conditions of approvals for these species include measures addressing sensitive species; these measures would reduce impacts to these species to less than significant levels.

After the implementation of APMs and mitigation measures, including continued consultation with the CDFG and the U.S. Fish and Wildlife Service, the Phase 3 Expansion's potential to contribute to cumulative impacts on biological resources would be less than considerable.

4.3.5 Cultural Resources

Scope and Geographic Extent

The scope for considering cumulative impacts to cultural resources includes projects that would potentially disturb unknown subsurface human remains or historic, archaeological, or paleontological resources through excavation, as these were the potential impacts identified for the Phase 3 Expansion. One prehistoric site was identified in the area of the reconductoring component, but would be avoided during reconductoring activities; otherwise, there are no known cultural resources that would be impacted by the Phase 3 Expansion. As a result, potential cumulative impacts on cultural resources are limited to construction impacts on unknown cultural resources that could occur as a result of the Phase 3 Expansion, and where the same unknown resources could also be affected by construction of other projects (i.e., within the footprint of the Phase 3 Expansion and within approximately 100 feet of this footprint).

Existing Cumulative Conditions

The areas surrounding the RFS, reconductoring component, and Delevan Site are used, and have been used in the past, mainly for agricultural production, as well as for plant and wildlife resource protection and enhancement and residential development. Current and past agricultural activities have rarely involved excavation activities, except for digging foundations for farm houses and rice silos, and digging drainage canals for rice fields and other irrigation activities. Although residential development in the area of the reconductoring component is limited, and in large part confined to areas within the City of Gridley

and its immediate vicinity, such development usually involves excavation activities and can result in disturbance of otherwise unknown cultural resources.

The Central Valley and CGS projects, located within the cumulative area for the Delevan Site, involve excavation activities that could disturb unknown subsurface human remains or historic, archaeological, or paleontological resources.

Cumulative Impact Analysis

As discussed in Section A.3, Cultural Resources, the Phase 3 Expansion could disturb unknown subsurface human remains or historic, archaeological, or paleontological resources through excavation for the hot tapped pipeline connections at the Delevan Site and excavation at the RFS prior to placing fill. Unknown resources may also be disturbed by installation of utility line poles during reconductoring activities. Similar to the Phase 3 Expansion at the Delevan Site, the construction of the CGS project could disturb unknown subsurface human remains or historical, archaeological, or paleontological resources through excavation. However, because the Phase 3 Expansion and the CGS projects are not proposed for construction in the same location or within 100 feet of each other, there is an extremely low potential that both projects could affect the same unknown resource or result in cumulatively significant impacts on unknown resources or subsurface human remains. It is also reasonable to assume that, similar to the Phase 3 Expansion, potential impacts to unknown cultural resources associated with the CGS, as well as with other development projects in the area, would be appropriately mitigated by construction monitoring and other standard mitigation measures (including recordation, avoidance, and relocation), as appropriate. Therefore, the Phase 3 Expansion would result in less than significant cumulative impacts on cultural resources.

4.3.6 Geology, Soils, and Mineral Resources

Scope and Geographic Extent

The scope for considering cumulative impacts to geology, soils, and mineral resources includes projects that have the potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction; projects that would result in substantial soil erosion or the loss of topsoil; projects that would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Phase 3 Expansion, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse; or projects that would be located on expansive soil, as defined in Table 18-1 of the Uniform Building Code (1994), creating substantial risks to life or property. The geographic extent for considering cumulative impacts to geology, soils, and minerals is a 1-mile radius from the Phase 3 Expansion footprint because areas more than 1 mile away would not be affected by the Phase 3 Expansion.

Existing Cumulative Conditions

The Phase 3 Expansion is near faults that are active, potentially active, conditionally active, and potentially inactive. The historically active Cleveland Hill fault produced the Richter magnitude (m) 5.7 Oroville earthquake in 1975, and the Holocene ground rupture has occurred on the Dunnigan Hill Fault. Most of the Sacramento Valley soils are alluvial silt loams, clays, and sands. Shallow soil at the RFS and the reconductoring component area consists of clay, silty clay, loam, and sandy loam. The soils are characteristically fine-textured and poorly drained, with erosion potential rated as little to none (Butte County 2009). Shallow soil at the Delevan Site consists of silty clay, clay, clay loam, and interbedded decomposed to highly weathered sandstone and siltstone bedrock. Based on testing, the clay has a high potential for expansion (Kleinfelder 2002b). The soils have a low erosion potential (Colusa County 1989).

Mineral resources in the region include natural gas and construction aggregate. Natural gas fields are located in the western part of Butte County and throughout the eastern portion of Colusa County, concentrated mainly along the Sacramento River.

The Central Valley and CGS projects are included within the geographic extent for potential cumulative impacts to geology, soils, and minerals in the area of the Delevan Site.

Cumulative Impact Analysis

As discussed in Section A.4, Geology, Soils, and Mineral Resources, the Phase 3 Expansion has the potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction; result in substantial soil erosion or the loss of topsoil; be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Phase 3 Expansion, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse; and to be located on expansive soil, as defined in Table 18-1 of the Uniform Building Code (1994), creating substantial risks to life or property. With the application of APMs as discussed in Section A.4, these impacts would be less than significant on a project level. The Central Valley and CGS projects incorporate similar measures, and would likewise reduce such impacts to a less than significant level. Therefore, the Phase 3 Expansion would not result in a cumulatively considerable contribution to impacts on geology, soils, or minerals in the area.

4.3.7 Hazards and Hazardous Materials

Scope and Geographic Extent

The scope for considering cumulative impacts related to hazards and hazardous materials includes projects that would have the potential to cause an accidental release to the pubic or environment during transport, use, or disposal of hazardous materials, and any project that would potentially expose sensitive receptors to an accidental release of hazardous materials. The geographic extent for considering Phase 3 Expansion-related cumulative impacts related to hazards and hazardous materials would be limited to the Phase 3 Expansion sites and land directly adjacent to the Phase 3 Expansion sites for liquid hazards, because impacts resulting from incidents associated with hazardous materials during construction, operation, and maintenance of the Phase 3 Expansion would remain on or near the sites, due to the types and quantities of liquid materials involved. For natural gas release hazards, the geographic extent would be projects within 2,000 feet of the RFS or Delevan Site, because the Phase 3 Expansion area of potential risk is confined primarily to within 2,000 feet of the Phase 3 Expansion sites, as described in Section A.5, Hazards and Hazardous Materials.

Existing Cumulative Conditions

A search of relevant hazardous materials databases for potential sites in the Phase 3 expansion vicinity concluded that there are no hazardous materials or waste sites within 1 mile of either the RFS or the Delevan Site. One RCRA site, the Shade Tree Garage, is within 500 feet of the reconductoring component, but would not be disturbed by reconductoring activities. The Central Valley and CGS projects are located within the scope and geographic extent for cumulative impacts related to natural gas release hazards for the Delevan Site.

Cumulative Impact Analysis

As stated in Section A.5, Hazards and Hazardous Materials, there is a low potential for accidental release to the public or environment during transport, use, or disposal of hazardous materials, as well as potential

for exposure of sensitive receptors to a natural gas release hazard. Although the proposed projects in the cumulative area for the Delevan Site would pose some of the same or similar natural gas release hazards as the Phase 3 Expansion, the nearest receptor for such risks is a residence at least a mile from the Delevan Site as well as the Central Valley and CGS projects; therefore, the overall risk of such a hazard for this area is very low, and the Phase 3 Expansion would not contribute to a considerable hazards or hazardous materials cumulative impact.

4.3.8 Hydrology

Scope and Geographic Extent

The scope for considering cumulative impacts to hydrology is any project that would have the same or similar impacts as the Phase 3 Expansion, which includes effects related to water quality, drainage patterns, or flooding. Therefore, the geographic extent for considering Phase 3 Expansion-related cumulative impacts to hydrology and water quality is the area containing water resources that would be directly affected by construction activities, and is therefore limited to an area up to 500 feet from the RFS, reconductoring component area, and Delevan Site.

Existing Cumulative Conditions

Surface water and groundwater in the area are generally of high quality. A network of farmed (rice fields) and natural wetlands surrounds the RFS and the reconductoring component area; FEMA 100- and 500-year flood zones occur within the cumulative area, although not within the footprint for the RFS or the Delevan Site. A small (less than 1 acre) portion of the Option A anticipated route for the reconductoring component area, at the intersection of Pennington Road and Colusa Highway, has been mapped as a FEMA 100-year flood zone.

The interconnect site for the Central Valley project may be constructed within the cumulative area for the Delevan Site.

Cumulative Impact Analysis

As discussed in Section A.6, Hydrology, project-level impacts to Hydrology associated with the Phase 3 Expansion would be less than significant after application of APMs and mitigation measures. Activities related to the Central Valley project would likewise be less than significant, because the project developer would be required to implement similar measures; therefore, the Phase 3 Expansion's potential contribution to cumulative hydrology impacts would be less than considerable.

4.3.9 Land Use and Planning

Scope and Geographic Extent

The scope and geographic extent for considering cumulative land use impacts includes any project within Butte or Colusa counties that would conflict with either county's General Plan.

Existing Cumulative Conditions

Currently, and in the recent past, the area surrounding the RFS has been used for rice farming and natural resources conservation. The area surrounding the reconductoring component area has been used for farming (rice, orchards, and cropland), plant and wildlife resource protection and enhancement, and residential development. The area surrounding the Delevan Site has been used for agriculture and livestock grazing.

Cumulative Impact Analysis

As discussed in Section A.7, Land Use and Planning, the Phase 3 Expansion of the RFS and the Delevan Site, as well as the reconductoring component, would be consistent with Butte and Colusa counties' general plan and zoning designations, although the conversion of the agricultural use to the expanded RFS use does not supported General Plan goals to preserve agriculture and maintain buffers between agricultural and other uses. No reasonably foreseeable future projects were identified that would conflict with the Butte County General Plan; however, it is reasonable to assume that some future projects in Butte County may present such conflicts with the General Plan, such as General Plan policies intended to prevent conversion of land from agricultural to other uses (even if other such uses are allowable according to the General Plan and zoning designations). Such impacts would not necessarily be determined to be significant, depending on the circumstances of the development. In addition, it is reasonable to assume that other projects' conflicts with applicable land use plans and policies would be addressed via the local agency planning and approval process, such that cumulative impacts related to conflicts with land use plans and policies would be less than significant. The Phase 3 Expansion would therefore not result in a cumulatively considerable impact in relation to consistency with land use plans and policies in the area.

4.3.10 Noise

Scope and Geographic Extent

The scope for considering cumulative noise impacts includes any project that would result in an increase in ambient and daytime noise levels. The geographic extent for considering cumulative noise impacts is any project within 2 miles of the nearest sensitive noise receptor to the RFS (the closest residence is the Waterbury Residence, 4,000 feet from the RFS), the reconductoring component area (numerous residences are 30 to 50 feet from the reconductoring location), and the Delevan Site (a residence is located more than 1 mile to the east of the site), as any project operating within the noise standards established by Butte and Colusa counties and the City of Gridley at this distance would not contribute to increases in ambient noise levels at these receptors.

Existing Cumulative Conditions

Noise generated in the Phase 3 Expansion area is mostly from farming equipment such as tractors, trucks hauling agricultural products, and airplanes for crop dusting. The 2008 ambient noise survey for the Phase 3 Expansion at the closest sensitive residential receptor to the RFS found ambient noise levels between 41 and 45 dBA L_{eq} (BAC 2009). Short-term noise surveys conducted in the vicinity of the Delevan Site area in December 2008 indicated a daytime average noise level of 40 dBA (L_{eq}; BAC 2009). Nighttime conditions were estimated to be approximately 5 dB lower than daytime levels.

The Central Valley and CGS projects are both located within the cumulative area for the Delevan Site.

Cumulative Impact Analysis

As discussed in Section A.8, Noise, the Phase 3 Expansion would result in construction vibration from use of heavy-duty construction equipment such as trucks, backhoes, excavators, loaders, and cranes (vibration effects would typically only be detectable within 100 feet of the equipment being used); temporary increase in ambient noise levels at the RFS and the Delevan Site of 10 to 15 dB at the nearest sensitive receptor due to construction activities; temporary and transient increases in ambient noise levels in the area of the reconductoring component; and permanent increase of existing ambient noise levels at the Delevan Site of 3 dB over the existing noise level. Emergency blowdowns at both the RFS and the Delevan Site would result in rare, short-term, high-decibel noise events within the area, but are not likely to occur with any frequency and would not be significantly different from existing blowdowns at the RFS

and Delevan Site. The Central Valley and CGS projects would temporarily increase ambient noise levels and permanently increase existing ambient noise levels in the cumulative area of the Delevan Site, but such increases would take place in compliance with Colusa County requirements for noise from such sources. Because the contribution of the Phase 3 Expansion to ambient noise levels at the nearest sensitive receptor would be less than significant, and because all such noise impacts from the Central Valley and CGS projects would be in compliance with Colusa County requirements, the Phase 3 Expansion would contribute a less than significant noise impact to the cumulative scenario.

4.3.11 Population and Housing

As discussed in Section A.9, Population and Housing, the Phase 3 Expansion would not induce population growth in the area, either directly or indirectly. It would also not displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere, and it would not disrupt the balance between employment opportunities and available housing in the area. Therefore, the Phase 3 Expansion would not result in cumulative impacts to population and housing.

4.3.12 Public Services and Socioeconomics

As discussed in Section A.10, Public Services and Socioeconomics, the Phase 3 Expansion is not expected to result in additional use of public services in Butte and Colusa counties that would result in substantial adverse physical impacts associated with provision of new or physically altered governmental facilities. The expansion would not result in the need for new or physically altered governmental facilities the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services. Therefore, the Phase 3 Expansion would not contribute to cumulative impacts on public services or socioeconomics.

4.3.13 Recreation

As discussed in Section A.11, Recreation, the Phase 3 Expansion is not expected to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of such facilities would occur or be accelerated; nor does the Phase 3 Expansion include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment; therefore, the Phase 3 Expansion would not contribute to cumulative impacts on recreation.

4.3.14 Transportation and Traffic

Scope and Geographic Extent

The scope and geographic extent for cumulative impacts to transportation and traffic includes any project that would result in increased use of the roads around the RFS in Butte County or the roads accessing the Delevan Site in Colusa County and any projects that would involve temporary lane and road closures on West Evans Reimer Road, the Colusa Highway, or Pennington Road, between the RFS and the City of Gridley.

Existing Cumulative Conditions

In Butte County, Gridley Road and Pennington Road have level of service (LOS) ratings of C, representing a level of traffic with stable flow, moderate volumes, and some restriction to freedom to maneuver. Other roads in the area of the Phase 3 Expansion in Butte County have relatively low traffic volumes. As described in the 2002 EIR, principal users of West Liberty Road are workers and delivery

vehicles driving to the RFS, farmers accessing their fields, hunting lodge personnel, and fishermen using the road to access the 833 Canal.

In Colusa County, Noel Evans Road and the road to the Delevan Site and the CGS project site are currently used by farmers and construction workers driving to the CGS site and trucks that provide supplies to the CGS construction. Roads accessing the Delevan Site currently have Level A LOS ratings.

In Sutter County, North Butte Road and West Butte Road are primarily used by farmers. Traffic information for roadways in this area of Sutter County indicates that most roads have an LOS of A or B (Sutter County 2008).

The Central Valley and CGS projects are located within the cumulative impact area for the Delevan Site.

Cumulative Impact Analysis

As discussed in Section A.12, Transportation and Traffic, the construction and operation of the Phase 3 Expansion would increase the use of roads in Butte County that would be used by construction vehicles to access the RFS, and would increase the use of roads accessing the Delevan Site in Colusa County. The Phase 3 Expansion would also involve temporary, transient, and partial obstruction of roads during reconductoring activities, including along Pennington Road, West Evans Reimer Road, and the Colusa Highway. The LOS standard for rural roads in Butte County is LOS Level D or above; it is reasonable to assume that a similar standard applies for the roads accessing the Delevan Site in Colusa County.

Because a limited number of bridges cross the Glenn-Colusa Canal in the immediate area, construction traffic for the Delevan, CGS, and Central Valley sites may be concentrated, and congestion could occur on area public and private roads. The applicant would work closely with PG&E, Central Valley, and the CGS developer, as well as with Colusa County, to develop a construction access plan addressing timing and routes that would minimize traffic impacts on local roads and ensure that road surfaces are returned to pre-construction conditions. Potential impacts to traffic and transportation as a result of the Phase 3 Expansion would be less than significant, as described in Section A.12. Although the CGS and Central Valley projects would also increase traffic, in the area of the Delevan Site, the Phase 3 Expansion would only temporarily add a minor amount of construction traffic (maximum of 20 round-trip worker trips per day) on roads surrounding the Delevan Site, and therefore Phase 3 Expansion construction activities would result in a less than significant cumulative impact on transportation and traffic in this area.

4.3.15 Utilities

Scope and Geographic Extent

The scope for analyzing cumulative impacts to utilities includes any project that would result in potential impacts to stormwater drainage systems, area water supply, or wastewater treatment. The geographic extent for considering Phase 3 Expansion-related cumulative impacts to utilities is a 5-mile radius from the RFS, the reconductoring area, or the Delevan Site.

Existing Cumulative Conditions

In general, stormwater drainage facilities, area water supply, and wastewater treatment facilities in the cumulative area and Butte and Colusa counties are adequate to serve the limited number of development projects in the area. Construction and implementation of the Phase 3 Expansion, Central Valley, and CGS projects would include measures to address stormwater drainage systems, area water supply, and wastewater treatment in the area.

Cumulative Impact Analysis

With implementation by the Phase 3 Expansion, the Central Valley, and the CGS projects of measures to address impacts to stormwater drainage systems, area water supply, and wastewater treatment, the Phase 3 Expansion would not contribute to cumulative impacts on utilities.

4.4 Growth-Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines requires preparers of an EIR to consider the growth-inducing impacts of a proposed project. Section 15126.2(d) states that the EIR should:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects that would remove obstacles to population growth.

In general, the Phase 3 Expansion would serve the same purpose as the Phase 2 expansion of the Wild Goose Facility—it would supply gas to statewide natural gas markets and would not provide a substantial increase in the local retail availability of natural gas supplies, and therefore would not foster growth or remove obstacles to growth in the area.

4.4.1 Potential to Induce Population Growth

The Phase 3 Expansion would result in expansion of an existing natural gas storage facility, similar in scope and size to the Phase 2 Expansion of the facility. As discussed in Section A.9, Population and Housing, population influxes during construction activities would be temporary. Project operations would only result in the addition of up to three additional permanent employees. It is not anticipated that the Phase 3 Expansion would have growth-inducing impacts in the area.

4.4.2 Potential to Induce Economic Growth

Because construction expenditures associated with the Phase 3 Expansion would be short-term, they would not be expected to induce economic growth in the area. Expenditures for supplies and services during project operations would be very small compared with the size of the local economy. For these reasons, the Phase 3 Expansion would not remove obstacles to or induce economic growth in the area.

References

Butte County Air Quality Management District (BCAQMD). 2008. CEQA Air Quality Handbook. Guidelines for Assessing Air Quality Impacts for Projects Subject to CEQA Review. January.

California Air Resources Board (CARB). 2008. Climate Change Scoping Plan: A Framework for Change. December.

Central Valley Gas Storage, LLC (Central Valley). 2009. Proponent's Environmental Assessment. Application of Central Valley Gas Storage, LLC for a Certificate of Public Convenience and Necessity for Construction and Operation of the Central Valley Natural Gas Storage Facility, Colusa County. July.

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5. Mitigation, Monitoring, and Reporting Program

5.1 Introduction

This Mitigation, Monitoring, and Reporting Program (MMRP) summarizes the mitigation, monitoring, and reporting process for the Phase 3 Expansion of the Wild Goose Gas Storage Facility (Wild Goose Facility), and the role and responsibilities of the CPUC in ensuring the effective implementation of mitigation for potential adverse effects. This revised MMRP supplements the MMRP adopted for the Phase 3 Expansion as part of the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR).

This MMRP is a draft program, and will be finalized if the CPUC approves the revised project, including the Phase 3 Expansion. At that time final mitigation measures will be incorporated into the program and the roles and responsibilities for their implementation refined.

5.2 Roles and Responsibilities

As the lead agency under CEQA, the CPUC is required to monitor the Wild Goose Facility expansion to ensure that mitigation is undertaken and that it accomplishes the required levels of mitigation or compensation.

Wild Goose Storage, LLC (Wild Goose, or applicant) will have the responsibility for initiating implementation of all of the mitigation measures. Oversight of their implementation will be divided among a variety of agencies including:

- CPUC
- Butte County Agricultural Commissioner
- Colusa County Agricultural Commissioner
- California Department of Fish and Game (CDFG)
- U.S. Army Corps of Engineers (USACE)
- Central Valley Regional Water Quality Control Board (CVRWQCB)
- US Fish and Wildlife Service (USFWS)
- Division of Oil, Gas, and Geothermal Resources (DOGGR)
- Butte County Planning Department
- Department of Water Resources (DWR)
- Department of Toxic Substance Control (DTSC)
- Butte County Public Works Department
- Colusa County Public Works Department
- Butte County Air Quality Management District (BCAQMD)
- Colusa County Air Pollution Control District (CCAPCD)
- Sutter County Public Works Department
- Local Fire Departments
- Local Sheriff's Departments
- California Highway Patrol

For overall coordination and responsibility, the CPUC and its representatives would coordinate with Wild Goose to ensure implementation and adequate monitoring of all mitigation measures through construction and operation.

5.3 Environmental Sectors and Mitigation

Construction, operation, and maintenance of the proposed Phase 3 Expansion could result in potentially significant environmental impacts. Mitigation measures identified in this Supplemental EIR have been developed to reduce those potential impacts to a less than significant level. Mitigation measures addressing the Phase 2 Expansion have been amended and supplemented as necessary to address potential impacts from the Phase 3 Expansion.

The numbers of the mitigation measures summarized in Table 5.3-1 correspond with the mitigation measure numbers outlined in Chapter 3. Mitigation measures for resource areas discussed in Appendix A, Focusing Initial Study, have been included in the table; discussion of impacts associated with these resource areas is included in the appendix.

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
Aesthetics		*No new impacts or mitigation measures*		
Agriculture and Forest Resources	Potential to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and monitoring Program of the California Resources Agency, to non-agricultural use.	PHASE 3 MM AG-1. The applicant will purchase or obtain compensatory mitigation for the conversion of Prime Farmland and Farmland of Statewide Importance at a ratio of one unit of mitigation to one unit of agricultural land converted. Compensatory mitigation options for the conversion of FMMP designated farmland include one or more of the following: 1. Purchase of mitigation credits from an agricultural mitigation bank located within Butte County; 2. Placement of an easement or other restrictions to non-agricultural uses on existing agricultural land in Butte County; and/or 3. Purchase of wetlands mitigation credits from an appropriate wetlands mitigation bank at a ratio of two units of mitigation to one unit of agricultural land converted.	Less Than Significant	CPUC, Wild Goose, Butte County Planning Division, Butte County Agricultural Commissioner
Air Quality and Greenhouse Gases	Potential to conflict with or obstruct implementation of the applicable air quality plan.	PHASE 3 MM AIR-1: To address potentially significant construction emissions at the RFS and the PG&E reconductoring component area, the applicant and PG&E will apply appropriate BCAQMD Best Available Mitigation Measures (BAMMs) and/or offsite measures such as purchase of offsets for NO_x and PM_{10} emissions, as presented in the BCAQMD CEQA Air Quality Handbook (2008), in order to reduce construction emissions to a less than significant level. This measure will apply to emissions of NO_x and PM_{10} in the years 2011 and 2012. The BCAQMD will include appropriate permit conditions on the Phase 3 Expansion ATC for the RFS to ensure that BAMMs and/or offsite measures such as purchase of offsets for NO_x and PM_{10} emissions chosen are adequate and applied.	Less Than Significant	CPUC, Wild Goose, Butte County Air Quality Management District

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Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		PHASE 3 MM AIR-2: To address potentially significant construction emissions at the Delevan Site, and in coordination with the Colusa County Air Pollution Control District (CCAPCD), the applicant will purchase NO_x offsets for exceedances over the CCAPCD threshold limit during the construction period. Based on calculations of NO_x pounds per day emissions for the construction phase, total NO_x emissions are anticipated to exceed the CCAPCD limit of 25 pounds per day by a total of approximately 925 pounds over the construction period. The applicant will be required to purchase NO_x offset credits for this amount as part of Authority to Construct permit conditions, and provide documentation of the offsets purchase to the CPUC and the CCAPCD prior to construction activities.	Less Than Significant	CPUC, Wild Goose, Colusa County Air Pollution Control District
		PHASE 3 MM AIR-3: To address potentially significant operations emissions at the RFS, the applicant will purchase offsets for NO_x and ROG emissions, either from existing market-based offsets within Butte County, or from the BCAQMD community offset bank, as available. Based on the calculations of NO_x and ROG pounds per day emissions for the construction phase, these emissions are anticipated to exceed the Level B BCAQMD 25 pounds per day limit by a total of approximately 23 tons of NO_x and 15 pounds of ROG over the entire construction period. The BCAQMD will include appropriate permit conditions in the Phase 3 Expansion Permit to Operate to ensure that offsets for NO_x and PM_{10} emissions are adequate and applied.	Less Than Significant	CPUC, Wild Goose, Butte County Air Quality Management District
	Potential to generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	PHASE 3 MM AIR-4: Prior to construction of the Phase 3 Expansion, the applicant will enter into an agreement with PG&E to participate in PG&E's Climate Smart™ Program, to provide 50 percent of the electricity used at the RFS annually (approximately 900 tons CO_2e) from renewable energy sources. A copy of the agreement between the applicant and PG&E will be provided to CPUC prior to the start of operation of the expanded RFS. Annual reports on the applicant's participation in the program will also be submitted by the applicant to CPUC.	Less Than Significant	CPUC, Wild Goose, PG&E

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Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		PHASE 3 MM AIR-5: Until the applicant can participate in an appropriate, verifiable, state-wide cap and trade program, the applicant will obtain and retire, by the end of each year of Phase 3 Expansion construction and operation, sufficient carbon credits to fully offset GHG emissions ("carbon offsets") below the 10,000 metric tons CO_2e level. Renewable Energy Certificates (RECs) and TRECS (Tradable RECs) do not qualify as GHG offsets. Carbon offsets will apply to Phase 3 Expansion construction GHG emissions (amortized over 30 years) as well as direct operational GHG emissions. Prior to completion of project construction, the applicant will prepare a detailed written summary of the carbon offsets, including offset type, location, calculation methodology protocol employed, and registration status. In addition, prior to completion of project construction, the applicant will provide to CPUC an independent verification opinion statement(s) for the carbon offsets, from a verification body registered with the California Climate Action Registry, ANSI, or the CARB. Offsets purchased from a third party or developed by the applicant must meet at least one of the following requirements: 1. Offset project is located within California; 2. Offset project is located in jurisdictions that hold current, specific agreements with California (such as the Climate Action Reserve), or exist in the context of an ISO-compliant regional trading system like that being developed in the Western Climate Initiative or other regional program; and/or 3. Offset project is an internally developed reduction measure following a recognized protocol (such as the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange). Some potential offset projects of this type include: • Fuel switching in applicant-owned equipment; • Energy efficiency upgrades beyond business as usual; • Implementation of a quantifiable carpooling program above and beyond what is currently in place; and	Less Than Significant	CPUC, Wild Goose, Independent GHG Verification Body

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		• Sequestration and/or destruction of GHG conducted in accordance with any protocol available at the time of construction from the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange. Any carbon offset either purchased or developed by the applicant through another entity will either be registered in, or developed in accordance with a protocol for, an established Carbon Reduction/Sequestration Project. Established projects and protocols include those provided by recognized organizations, such as the Climate Action Reserve, the Voluntary Carbon Standard, or the Chicago Climate Exchange, that can provide a reasonable level of assurance that GHG reductions are real, additional, permanent, and verifiable. If the applicant were to develop a carbon offset project without registering it with one of the above-referenced registration bodies, the applicant will demonstrate to CPUC that the offset satisfies the four additionality tests as outlined in the UNFCC Additionality Tool, and will obtain an independent evaluation by a qualified third party confirming that the offset meets additionality testing requirements. Prior to the start of project operation, the applicant will submit a project design document describing baseline procedures and emissions levels as well as projected levels of emissions reductions/offsets to CPUC. The design document will include the requirement that the applicant submit a report annually to CPUC documenting the previous year's offset activities and purchases. The annual report will be independently verified by an ANSI-accredited GHG emissions reduction verification body.		
Biological Resources	Potential to have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, polices, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	PHASE 3 MM BIO-1: The following general measures will reduce impacts to all sensitive wildlife species during Phase 3 Expansion construction activities: 1. Preconstruction surveys will be conducted in suitable habitat in and adjacent to the Phase 3 Expansion areas at the RFS and the Delevan Site during the appropriate survey windows. Preconstruction surveys will be conducted in suitable habitat no more than 30 days in advance of construction. These surveys shall be conducted using standard approved methods, including the California Burrowing Owl Consortium Survey Protocol and Mitigation Guidelines (1993), the	Less Than Significant	CPUC, Wild Goose, USFWS, CDFG

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Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		Swainson's Hawk Technical Advisory Committee Methodology for Nesting Surveys in California's Central Valley (TAC 2000), and the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Species (1996). 2. Construction employees shall strictly limit activities, including movement of vehicles, equipment, and construction materials, to the Phase 3 Expansion footprint and designated staging areas and routes of travel within the Phase 3 Expansion footprint. 3. The applicant shall not stockpile brush, loose soils, excavation spoils, or other similar debris material within sensitive habitats. 4. Sensitive plant surveys will be conducted prior to construction within suitable habitat in and adjacent to Phase 3 Expansion work areas and during the appropriate survey window. 5. Where sensitive plants occur within the construction area, the work area will be adjusted in order to minimize impacts. 6. Exclusion fencing will be provided to protect sensitive plants that occur within 50 feet of construction work areas. 7. A qualified biologist will monitor construction to ensure that no sensitive wildlife species inadvertently enter the work area. Should a sensitive species be found, the appropriate resource agencies will be notified within 24 hours (USFWS and CDFG). Animals will be allowed to passively exit the work areas, and construction will be halted as needed to accomplish this.		

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Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		PHASE 3 MM BIO-2: The following specific measures will reduce impacts to the wildlife species described below during Phase 3 Expansion construction activities: 1. *Reptiles and Amphibians*. The following measures will be supplemented with measures prescribed in the Phase 2 Expansion USFWS Biological Opinion and CDFG Take Permit for the giant garter snake: • Preconstruction surveys for giant garter snake (RFS, reconductoring area, and Delevan Site), northwestern pond turtle (RFS and Delevan Site), and western spadefoot toad (RFS and Delevan Site) will be performed within 24 hours prior to construction. If a giant garter snake or any other sensitive species is found, it will be allowed to escape on its own, or will be removed by an authorized biologist and relocated to suitable habitat. USFWS and CDFG will be notified whenever a sensitive reptile or amphibian is handled by an authorized biologist. • Onsite monitoring biologists will obtain authorization from the USFWS and CDFG to handle the giant garter snake for the purposes of removing individuals during construction and operation of the Phase 3 Expansion components. • A qualified biologist will monitor construction to ensure that no sensitive reptile or amphibian species inadvertently enter the work area. • Other than isolation dike construction and irrigation flow culvert installation, earthwork adjacent to flooded rice fields and other potential habitat will be confined to May through September unless otherwise authorized by the USFWS and CDFG.	Less Than Significant	CPUC, Wild Goose, USFWS, CDFG

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		2. *Raptors and Other Sensitive Nesting Species.* Preconstruction surveys will be conducted in suitable habitat at the RFS and Delevan Site to determine whether raptors or other sensitive bird species are nesting within or near the Phase 3 Expansion construction areas. The construction schedule or activities will be modified during nesting periods to preclude impacts. The general bird breeding season for this area is late February to early July. If it is not possible to adjust the schedule or construction activity, the following measures will be implemented: • Construction within 0.5 miles of active Swainson's hawk nests will be avoided between April 15 and August 1, if feasible. If not feasible, nesting hawks within 0.5 miles will be monitored, construction activities will be halted if signs of disturbance (i.e., birds show signs of upset, repeatedly leaving the nest as a result of construction) are noted as determined by a qualified biologist, and CDFG will be consulted to determine possible options. • A minimum 500-foot buffer will be maintained for other tree-nesting species such as white-tailed kites and the loggerhead shrike until after the young have fledged. • A minimum 250-foot buffer will be maintained for ground-nesting or shrub-nesting species (northern harriers, tricolored blackbird, black tern, white-faced ibis, burrowing owl, and loggerhead shrikes) until after nesting is complete. • Operations blowdowns and emergency shutdown valve blowdowns shall be routed into silencers. • The applicant will reduce the gas/volume in the pipeline to a minimum prior to a planned maintenance blowdown. 3. *Burrowing Owls.* Detailed preconstruction surveys will be conducted at the RFS and Delevan Site within 30 days prior to construction by a qualified biologist for burrowing owl within suitable habitat prior to the breeding season (February 1 through August 31). All areas within 250 feet of the Phase 3 Expansion areas at the RFS and Delevan		

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Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		Site, including road shoulders, will be surveyed. Where Phase 3 Expansion ground-disturbing activities will occur prior to the burrowing owl breeding season, all burrows, holes, crevices, or other cavities in suitable habitat in the Phase 3 Expansion areas at the RFS and Delevan Site, within the limits of proposed ground disturbance, will be thoroughly inspected by a qualified biologist before being collapsed. This will discourage owls from breeding on the construction site. Other species using burrows will be relocated prior to collapsing burrows. To the extent feasible, Phase 3 Expansion construction at the RFS and Delevan Site will avoid active burrows. If it is not possible to avoid burrowing owls, the following measures will be implemented: • If burrowing owls occur within the proposed construction area, a 250-foot exclusion zone will be maintained around the burrows until relocation is complete or until chicks have fledged. Passive relocation will be used during the non-breeding season (September 1 through January 31) if it is determined that construction activities would disturb owls. Passive relocation will include installing one-way doors on the entrances of burrows located within the Phase 3 Expansion area. • The occurrence and location of any burrowing owl will be documented by the authorized biologist, who will report all incidents of disturbance or harm to burrowing owls within 24 hours to the appropriate resource agencies (USFWS and CDFG).		

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Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		• Under the supervision of a qualified biologist, burrows within the proposed construction area will be excavated using hand tools and then refilled to prevent reoccupation. If any owls are found during the excavation, the excavation will cease and the owls will be allowed to escape. • For each burrow excavated, one natural or artificial burrow will be provided in the adjacent habitat outside the 250-foot buffer zone.		
		PHASE 3 MM BIO-3: For the reconductoring component area, if any vegetation removal occurs during the typical avian nesting season (February 1 – August 31), a pre-disturbance survey for common and special-status bird species protected under the MBTA and California Fish and Game Codes will be conducted, using standard approved methods, including the California Burrowing Owl Consortium Survey Protocol and Mitigation Guidelines (1993) and the Swainson's Hawk Technical Advisory Committee Methodology for Nesting Surveys in California's Central Valley (TAC 2000). The survey will be conducted by a qualified biologist no more than two weeks prior to the onset of vegetation removal. If active nests are found within or adjacent to proposed work areas during the avian nesting season, disturbance or removal of the next will be avoided until the young have fledged and the nest is no longer active. The project biologist will determine the appropriate buffer distance between work areas and active nests in coordination with the CDFG and depending on the species, site conditions, and proposed work activities near the active nest.	Less Than Significant	CPUC, Wild Goose, USFWS, CDFG
	Potential to have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	PHASE 3 MM BIO-4: The following measures will reduce impacts related to wetland fill during Phase 3 Expansion construction activities: 1. Erosion and sediment control measures (e.g., silt fencing, erosion control fabric or other measures) will be implemented at all locations where construction occurs within or directly adjacent to aquatic features. 2. Sediment stockpiling will be a minimum of 50 feet from wetland/drainage systems.	Less Than Significant	CPUC, Wild Goose, USACE, USFWS, CVRWQCB

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		3. Loss of wetland habitat will be compensated at an appropriate ratio. This ratio will likely be 2:1, but will be determined by resource and permitting agencies (USACE, USFWS, and CDFG) during consultation.		
		PHASE 3 MM BIO-5: For the reconductoring component area, work will take place from existing paved surfaces or other maintained areas that lack wetland habitats. For the wetland areas that have been identified in the reconductoring Biological Assessment (TRC 2010) along West Evans Reimer Road and Pennington Road, the following measures will be taken: 1. A wetlands biologist will delineate the edges of each wetland area using USACE delineation methodology (USACE, 1987). Once wetland boundaries have been accurately identified, a 100-foot buffer area will be established around each wetland area. Buffer areas will be demarcated with lath and flagging, and no construction materials, equipment or vehicles will be permitted in this area. 2. Erosion and sediment control measures described under MM BIO-4 will be implemented to protect wetland habitats.	Less Than Significant	CPUC, Wild Goose, USACE, USFWS, CVRWQCB
	Potential to interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	PHASE 3 MM BIO-6: The following measures will reduce impacts to downstream fisheries and aquatic habitat at the RFS during Phase 3 Expansion construction activities: 1. The applicant will participate in ongoing consultations with CDFG and USFWS to establish a rate of withdrawal such that unacceptable impacts to downstream fisheries do not occur. To this end, the applicant will adhere to the water withdrawal rate, volume, and timing established through the agency consultation process. The applicant will also submit documented evidence that the stipulated conditions of water withdrawal have been met to both CDFG and USFWS. 2. In coordination with CDFG and USFWS, the applicant shall conduct downstream monitoring to verify that withdrawal volume does not adversely impact fisheries or the aquatic life components that support special status aquatic species.	Less Than Significant	CPUC, Wild Goose, USACE, USFWS, CVRWQCB

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
Cultural Resources	Potential to cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.	PHASE 3 MM CULT-1: To avoid impacts to unknown historical resources in the area of the reconductoring component, PG&E or its contractor will, prior to and during reconductoring activities: 1. Retain a qualified archeologist to conduct a cultural resources survey to identify all potentially eligible historic resources present on the surface of the reconductoring site. The survey will be conducted at 10 meter intervals and any cultural resources that are identified will be subsequently avoided during construction. All cultural resources identified will be recorded on Department of Parks and Recreation (DPR) 523 series forms and evaluated for their eligibility for inclusion in the NRHP and CRHR. The archaeologist will clearly mark the boundaries of any identified resources, including an additional 50-foot buffer area, around all identified sites, both on the ground and on construction maps. These boundaries will serve as construction exclusion zones where no reconductoring activities will be undertaken. 2. Retain an independent qualified archeologist for the duration of the reconductoring, to serve as a periodic site monitor during ground-disturbing and other activities that may affect historic resources at the site. The timing and frequency of monitoring will be at the discretion of the archeologist. 3. Notify construction supervisory personnel of the existence of all marked historical resources sites, and instruct supervisory personnel to keep personnel and equipment away from these areas.	Less Than Significant	CPUC, Wild Goose, USACE
	Potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	PHASE 3 MM CULT-2: To avoid impacts to known and unknown archeological resources in the area of the reconductoring component, PG&E or its contractor will, prior to and during reconductoring activities: 1. Retain a qualified archeologist to conduct an archaeological resources survey to identify all potentially eligible archaeological resources present on the surface of the reconductoring site. The survey will be conducted at 10 meter intervals and any archaeological resources that are identified will be subsequently avoided during construction. All archaeological resources identified will be recorded on DPR 523 series forms and evaluated for their	Less Than Significant	CPUC, Wild Goose, USACE

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		eligibility for inclusion in the NRHP and CRHR. The archaeologist will clearly mark the boundaries of any identified resources, including an additional 50-foot buffer area, around all identified sites, both on the ground and on construction maps. These boundaries will serve as construction exclusion zones where no reconductoring activities will be undertaken. 2. Retain an independent, qualified archeologist for the duration of the reconductoring, to serve as a periodic site monitor during ground-disturbing and other activities that may affect archaeological resources at the site. The timing and frequency of monitoring will be at the discretion of the archeologist. 3. Notify construction supervisory personnel of the existence of all the indentified and marked prehistoric site, as well as other marked archaeological sites, and instruct supervisory personnel to keep personnel and equipment away from these areas.		
Geology, Soils, and Mineral Resources		*No new impacts or mitigation measures*		
Hazards and Hazardous Materials	Potential to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Mitigation Measure 3.7-3. ~~At the end of each injection cycle~~ In the fall of each year, WGSI shall conduct surface gas monitoring and vegetation inspections at each abandoned well within the original productive area. If gas is detected, samples will be collected, if possible, and analyzed to determine its source or origin. If a leak is indicated by the data, the necessary remedial actions will be implemented consistent with DOGGR procedures outlined in California Code of Regulations § 1723 et. seq. All monitoring and sampling results will be submitted to the DOGGR. Any surface disturbance associated with implementing remedial actions shall be conducted consistent with the wetland impact minimization and mitigation measures specified under Impact 3.4- 4 on page 3.4-27.	Less Than Significant	CPUC, Wild Goose, DOGGR
		PHASE 3 MM HAZ-1: Prior to Phase 3 Expansion construction activities, the applicant will ensure the Wild Goose Purging of Natural Gas Pipeline Systems Practice incorporates and includes measures for implementing all recommendations addressing pipeline purging procedures issued by the U.S. Chemical Safety and Hazard Investigation Board and adopted into the National Fuel Gas Code, and submit the revised practice to CPUC for review and confirmation.	Less Than Significant	CPUC, Wild Goose

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		PHASE 3 MM HAZ-2: PG&E shall follow all applicable local, state, federal, and industry-specific regulations and procedures during hot tapped pipeline connection installation, and shall ensure that the following measures are taken: 1. Ensure that all appropriate local (Colusa County) permits and approvals have been obtained for welding and hot tapping; 2. Ensure that construction personnel working on the hot tapped pipeline connection installation are competent and have been properly trained and qualified in the use of the hot tap equipment; 3. Ensure that construction personnel working on the hot tapped pipeline connection installation review detailed, written, job-specific hot tapping procedures prior to starting construction activities; 4. Communicate safety procedures clearly to all construction personnel prior to hot tap activities, including fire protection, emergency response, and other appropriate procedures and instructions; 5. Ensure that at least one worker has been designated as a dedicated fire watch, trained for fire detection and prevention, equipped with a suitable fire extinguisher, and equipped with appropriate equipment to communicate with personnel working in the area; 6. Ensure equipment is in good working condition; 7. Install appropriate barricades and warning signs prior to hot tapping activities; 8. Establish procedures for isolation of the work area in the event of an emergency; 9. Ensure provisions are made for an easily accessible means of egress from the work area; 10. Inspect the hot tapping location prior to hot tapping activities and confirm pipeline diameter, wall thickness, evidence of corrosion, and general soundness; 11. Use combustible gas and oxygen detectors during hot tapping procedures as necessary to ensure that hot tapping activities do not take place if vapor/air or vapor/oxygen mixtures in piping or	Less Than Significant	CPUC, Wild Goose, Colusa County Planning Department

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		equipment are near or within the flammable explosive range; 12. Follow manufacturer's instructions and directions for operating the hot tapping equipment; and 13. Ensure provisions are made to assure that adequate containment is available to control liquids and vapors trapped within the hot tapping equipment which could be released upon removal of the machine after work is completed.		
Hydrology and Water Quality	Potential to expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	PHASE 3 MM HYDRO-1: Phase 3 Expansion components at the RFS, reconductoring component area, and Delevan Site would be engineered to withstand stresses associated with their proximity to waterways, and would be designed to withstand flooding associated with high ground water, agricultural activities, or overflow of canals during heavy rainstorms. Structures shall be constructed in compliance with the 2007 Uniform Building Code any other federal, state and local construction regulations.	Less Than Significant	CPUC, Wild Goose, Butte County Planning and Building Departments, Colusa County Planning and Building Departments
Land Use and Planning		*No new impacts or mitigation measures*		
Noise	Potential to expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	PHASE 3 MM NOI-1: The applicant will employ the following noise reduction and control practices during construction: • Unnecessary engine idling from construction equipment will be limited during construction hours. • Construction equipment specifically designed for low noise emissions (i.e., equipment that is powered by electric or natural gas engines as opposed to those powered by diesel or gasoline reciprocating engines) will be used as much as feasible. • Temporary enclosures or noise barriers (i.e. noise blankets) will be used around loudest pieces of equipment, as feasible. • Construction traffic will be routed away from residences and other sensitive receptors, as feasible. • Noise from back-up alarms (alarms that signal vehicle travel in reverse) in construction vehicles and equipment will be reduced by providing a layout of construction sites that minimizes the need for	Less Than Significant	CPUC, Wild Goose, Butte County Planning and Building Departments, Colusa County Planning and Building Departments, City of Gridley Planning and Building Departments

Table 5.3-1 Draft Mitigation, Monitoring, and Reporting Program

Topic Area	Impact	Mitigation Measure	Level of Significance w/Mitigation	Responsible Party
		back-up alarms and using flagmen to minimize time needed to back up vehicles. As feasible, and in compliance with the applicant's safety practices and public and worker safety provisions required in the Occupational Safety and Health Standards for the Construction Industry (29 CFR Part 1926), the applicant may also use self-adjusting, manually adjustable, or broadband back-up alarms to reduce construction noise.		
Population and Housing		*No new impacts or mitigation measures*		
Public Services		*No new impacts or mitigation measures*		
Recreation		*No new impacts or mitigation measures*		
Transportation and Traffic		*No new impacts or mitigation measures*		
Utilities and Services Systems		*No new impacts or mitigation measures*		

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6. List of Preparers and Agencies Consulted

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Notice of Preparation

On October 7, 2009, a Notice of Preparation (NOP) of a Supplemental EIR for the proposed Wild Goose Phase 3 Gas Storage Expansion Project was mailed out to agencies and other entities listed in Appendix B. A copy of the NOP and cover letter is also presented in Appendix B.

One agency comment letter to the NOP was received from the California Regional Water Quality Control Board, Central Valley Region. A copy of this comment letter is presented in Appendix B.

Environmental Analysis

The persons/agencies listed below were consulted by the report authors during preparation of the environmental analysis for the following EIR sections.

Air Quality

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Biological Resources

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Cumulative Impacts

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Appendix A: Focusing Initial Study

Aesthetics

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8. Acronyms and Abbreviations

AAQS	Ambient Air Quality Standard
ACHP	Advisory Council on Historic Preservation
ALJ	Administrative Law Judge
AQMD	Air Quality Management District
APM	Applicant Proposed Measure
BACT	Best Available Control Technologies
BCAG	Butte County Association of Governments
BCAQMD	Butte County Air Quality Management District
Bcf	Billion cubic feet
BMP	Best management practices
CAAA	Federal Clean Air Act Amendments
CAH&SC	California Health and Safety Code Section
CalEPA	California Environmental Protection Agency
CAL/OSHA	California Department of Industrial Relations, Occupational Safety and Health Regulations
Caltrans	California Department of Transportation
CCAPCD	Colusa County Air Pollution Control District
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CIWMB	California Integrated Waste Management Board
CO	Carbon monoxide
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRSBBZ	Coast Ranges-Sierran Block Boundary Zone
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CWC	California Water Code
DEIR	Draft Environmental Impact Report
DOGGR	California Department of Conservation, Division of Oil, Gas and Geothermal Resources
DOT	U.S. Department of Transportation
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
ERP	Emergency Response Plan
ESD	Emergency shutdown
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act

GO	General Order
gpm	Gallons per minute
GPS	Global positioning system
HCP	Habitat Conservation Plans
HHI	Health Hazard Index
HMRP	Hazardous Materials Release Plan
HPMP	Historic Properties Management Plan
LOS	Level of Service
mgd	Million gallons per day
MMcfd	Million cubic feet per day
MMRP	Mitigation, Monitoring & Reporting Plan
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plans
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	Nitrous oxide
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSVAB	Northern Sacramento Valley Air Basin
NWIC	Northwest Information Center
OES	County Office of Emergency Services
OPS	Office of Pipeline Safety
PEA	Proponent's Environmental Assessment
PG&E	Pacific Gas and Electric Company
PHGA	Peak horizontal ground acceleration
PM	Particulate matter
PRC	California Public Resources Code
psi	Pounds per square inch
psia	Pounds per square inch relative to atmospheric pressure
psig	Pounds per square inch gauge
RCRA	Resource Conservation and Recovery Act
RFS	Remote Facility Site
RMP	Risk Management Plan
ROC	Reactive organic compounds
ROG	Reactive organic gases
ROW	Right of way
SACOG	Sacramento Area Council of Governments
SHPO	State Historic Preservation Office
SLC	California State Lands Commission
SMARA	State Mining and Reclamation Act
SMUD	Sacramento Municipal Utility District
SO_2	Sulfur dioxide
SPCC	Spill prevention, control, and countermeasure
SR	State Routes
SWPPP	Storm Water Pollution Prevention Plan
SWQCB	State Water Quality Control Board
TACs	Toxic air contaminants

TDSs	Total dissolved solids
UBC	Uniform Building Code
USACE	United States Army Corp of Engineers
USBR	US Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
WDRs	Waste Discharge Requirements

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