Appendix A
Focusing Initial Study

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APPENDIX A
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A. Focusing Initial Study

A.1 Introduction to and Purpose of the Focusing Initial Study

This Focusing Initial Study supports analysis and conclusions provided in the body of the Wild Goose Phase 3 Gas Storage Expansion Supplemental EIR (Phase 3 Expansion SEIR). The Focusing Initial Study itself is supported by information in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR or Phase 2 Expansion EIR), issued in 2002.

The initial step in the environmental review of the Wild Goose Phase 3 Gas Storage Expansion (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 topics, 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 resource topics are included and discussed in the main body of the Phase 3 Expansion SEIR.

For all other resources, as described below, the Phase 3 Expansion was determined to involve substantially similar environmental setting and impact information as that included in the 2002 EIR; no new, potentially significant impacts were identified for any resource topics other than Air Quality and Biological Resources. Therefore, the Focusing Initial Study was prepared only for resource topics other than Air Quality and Biological Resources, as listed below under A.1.2. The Focusing Initial Study discusses changes in the overall project, as described in the SEIR, Chapter 2, Description of Phase 3 Expansion; changes in the circumstances under which the Phase 3 Expansion would be undertaken relative to the Phase 2 Expansion circumstances; and new information of substantial importance that was not known at the time the 2002 EIR was completed. Specifically, the analysis of resource topics in the Focusing Initial Study considers changes that have occurred since the adoption of the 2002 EIR to the resource area setting and any changes to applicable plans, policies, and regulations of agencies with jurisdiction over the Phase 3 Expansion. Measures addressing potential impacts to resources 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.

Each environmental resource covered in the Focusing Initial Study is analyzed based on significance criteria established in the CEQA Guidelines. Professional judgment was also used to develop appropriate significance thresholds as necessary. Significance criteria are defined at the beginning of each impact analysis section, following the discussion of the environmental and regulatory setting.

Mitigation measures from the 2002 EIR that apply to each resource 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 also identified additional mitigation measures to reduce the level of impact to less than significant.

A.1.2 Areas of Environmental Concern Covered

The areas of environmental concern discussed in the Focusing Initial Study are:

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

Air Quality (including greenhouse gases) and Biological Resources are discussed in the main body of the Phase 3 Expansion SEIR.

A.1.3 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 2-4 regardless of whether potentially significant impacts were identified during the CEQA environmental analysis.

Table A.1-1 Applicant Proposed Measures

Aesthetics
APM AES-1: Delevan Site Restoration. The surface at the Delevan Interconnect Site and hot tapped pipeline location will be restored to pre-existing conditions.
APM AES-2: Painting and Design of Aboveground Facilities. To reduce impacts, all buildings and aboveground features at the RFS and the Delevan Site will be painted a similar neutral color as existing buildings. Building design will emulate the existing facility.
APM AES-3: Site Lighting. Site lighting will be hooded and directed toward the interior of the site.
APM AES-4: Welding Activities. Light glare from welding activities at night will be reduced by using smaller grinding wheels and using welding tents or other shielding.
APM AES-5: Visual Screening (RFS). The landscaped buffer strip and berm will be extended around the sides of the expanded RFS. Annual surveys of the landscaping will be performed for five years in the fall of each year. During these surveys, an evaluation of the survivorship of each species and the effectiveness of the visual screening will be completed. Success of the screening will be based on how much of the physical site can be seen from West Liberty Road. The visual screening goal after five years is to view only a broken line of the site rather than an image of unbroken lines.
Agriculture and Forest Resources
APM AG-1: Cattle Exclusion at Delevan Site. To reduce any conflicts with the adjacent grazing operations, PG&E will coordinate with the rancher to exclude cattle from construction areas as needed either through temporary fencing or by moving the cattle to another grazing area during construction.
APM AG-2: Topsoil Replacement at Delevan Site. Topsoil removed during construction activities will be separated and stockpiled in appropriate locations along the edge of ROW. All soil will be replaced during backfilling and recontouring at the

Table A.1-1 Applicant Proposed Measures

end of construction with topsoil being replaced last.
APM AG-3: Agricultural Landowner Coordination at RFS. To reduce any conflicts with the adjacent agricultural operations, WGS will coordinate with the landowner to ensure that construction activities do not disrupt agricultural production. Work at the RFS will not begin before May, after the period of normal field preparation activities. This period will also coincide with the necessary window supplied for mitigation to the giant garter snake.
APM AG-4: Sediment and Dust Control at RFS. Sediment and dust control will be implemented as necessary to prevent indirect impacts to crops.
APM AG-5: Agricultural Landowner Compensation at RFS. Farmers will be compensated for the loss of crops from expansion and during construction of the proposed facilities.
Cultural Resources
APM CUL-1: Historic Properties Management Plan Amendment. The applicant would amend the existing MOA to incorporate the proposed Phase 3 Expansion components and implement relevant components of the HPMP to reduce general cultural resource potential impacts to a less than significant level. Discussion between the applicant and Ms. Patti Johnson, Archaeologist, Planning Division, U.S. Army Corps of Engineers, Sacramento District, indicates that this may be appropriate although subject to regulatory review and approval.
APM CUL-2: Stop Construction Operations. If any unanticipated significant cultural materials are exposed, construction operations should stop within 100 feet of the find and a qualified archeologist should be contacted for further recommendations regarding the integrity of the cultural deposits, potential of the deposits to provide information, and cultural site setting of the discovery.
APM CUL-3: Worker Training. The applicant would include language in the construction specifications and worker training regarding trespass on and restricting public access to known or potential cultural resources, and the procedures to be followed by the contractor during an unexpected discovery situation.
Geology, Soils, and Mineral Resources
APM GEO-1. Implementation of Standard Practices and Recommendations from Geotechnical Report. Standard engineering and construction practices would be followed during all phases of work, including decompaction of the ROW if necessary, along with recommendations from the geotechnical reports prepared by Kleinfelder for the Phase 2 Expansion Project. Construction of all phases of the Project would be in accordance with all applicable state and county building and construction codes and ordinances. Applicable structural design and construction requirements prescribed in the California Building Code (2001) Seismic Zone Criteria would be used to compensate for liquefaction and potential subsidence. The hot-tapped pipeline connections would be constructed to DOT pipeline safety standards and the recommendations of Pacific Gas and Electric's geotechnical consultant.
Hazards and Hazardous Materials
APM HAZ-1: Best Management Practices. During construction, hazardous materials and wastes will be handled in accordance with the best management practices prescribed in the SWPPP (refer to APMs HYDRO-1 and HYDRO-2). Hazardous waste will be handled in accordance with all applicable manufacturers' specifications for storage and handling, and in compliance with local, state, and federal requirements. Wastes, consisting of used oil, glycol, and lubricants, will be stored at the site in enclosed, secured areas for a maximum of 90 days, until removed by licensed hazardous waste transporters. Where appropriate, wastes will be recycled by a licensed facility. If the wastes are disposed of, this will be done using approved treatment, storage, and disposal facilities.
APM HAZ-2: Hazardous Materials Release Response Plan Update. A HMRRP, consistent with the requirements of Section 25500 of the California Health and Safety Code, was prepared during Base Project development and will be amended as needed to include any new materials or quantities associated with the operation of the Phase 3 Expansion facilities.
APM HAZ-3: Worker Environmental Awareness Program Update. A WEAP was prepared during Base Project development and will be amended as needed to include any new materials or quantities associated with the operation of the Phase 3 Expansion facilities. WGS shall conduct WEAP training for construction crews (primarily crew and construction foremen) before construction activities begin. The WEAP shall include a brief review of sensitive resources that could occur in the proposed Phase 3 Expansion area. The program shall also cover all mitigation measures, environmental permits, and proposed plans, such as SWPPP, BMPs, erosion control and sediment plan, reclamation plan, and any other required plans. The program shall also present the locations of sensitive resources on construction drawings. WEAP training

Table A.1-1 Applicant Proposed Measures

sessions shall be conducted as needed for new personnel brought onto the job during the construction period. A list of all personnel who have attended the WEAP training shall be kept at the office trailer and shall be available for CPUC review in the field at all times, and a copy shall be submitted to the CPUC. During WEAP training, construction personnel shall be informed of the importance of avoiding ground disturbance outside of the designated work area.
APM HAZ-4: Construction Fire Prevention and Safety Plan. A Fire Prevention Plan in compliance with California fire laws and local fire prevention requirements will be followed during construction of the Phase 3 Expansion components, as was done during Base Project development and the Phase 2 Expansion. At a minimum, the Plan will include the following measures: 1. Procurement of the appropriate burning or welding permits from local agencies when required; 2. Measures for prohibiting smoking except in designated areas; 3. Measures for fire prevention, including spark arresters on equipment, minimum clearances around facilities, procedures for grinding and welding, and fire suppression equipment to be maintained on the job sites; 4. Training on fire awareness and suppression techniques; 5. Methods and equipment to control any fire started by construction activities; and 6. Methods for reporting any fires observed in or near the Phase 3 Expansion area.
APM HAZ-5: Facility Security. Access to aboveground Phase 3 Expansion facilities will be controlled to the greatest extent feasible. At the RFS, the perimeter 6-foot-high chain link fence has a barbed-wire outrigger to discourage intruders. The single entrance gate is open while staff is present, and is closed and locked when the station is unmanned. Motion sensors in the office building notify the Butte County Sheriff's Department and the on-call operator when activated. The Delevan Interconnect Site will be enclosed by 6-foot-high chain link fences and locked gates with barbed wire or razor wire on outriggers.
Hydrology
APM HYDRO-1: Stormwater Design Measures. Following construction, all temporarily disturbed surfaces will be returned to their preconstruction elevation and slope. Aboveground facilities will be covered with gravel to allow storm water infiltration and any runoff will flow to existing drainage ways. The culvert that would be installed below the access driveway to the RFS as part of the Phase 3 Expansion will be designed to convey the maximum flow rate of the roadside ditch, and the inlet and outlet would be protected against erosion and scour.
APM HYDRO-2: Storm Water Pollution Prevention Plan. The applicant would comply with the statewide Construction Storm Water General Permit by filing a Notice of Intent with the CVRWQCB, including the preparation of a SWPPP. Management of storm water during the construction phase will use standard best management practices (BMPs) and conform to conditions established in the General Permit. The SWPPP prepared for Base Project development will be revised to include the proposed Phase 3 Expansion components.
Noise
Construction
APM NOISE-1: Welding Noise. The following measures will be implemented to minimize noise impacts during the night welding shift: 1. The existing site electrical power was used in lieu of internal-combustion-engine-driven generators for the arc welders' power source. 2. A strobe light system was used in lieu of the back-up safety beeper on some mobile equipment. 3. Heavy canvas portable enclosures were placed over work locations to limit grinding noise. 4. Four-inch grinders were used in lieu of the standard seven-inch grinders to reduce noise.
APM NOISE-2: Limit Noise-Producing Construction Activities During Hunting Season. The applicant would limit outside noise-producing construction activities during the hunting season, which typically runs from mid-October through late January, in order to avoid impacts on waterfowl management and hunting activities in the area. Limited indoor activities or quiet outdoor construction activities might occur during the hunting season.

Table A.1-1 Applicant Proposed Measures

APM NOISE-3: Limit Ambient Noise During Construction. To address potential impacts from temporary increase of ambient noise levels during construction, the applicant will implement adjustments to the construction schedule, close coordination with local authorities and adjacent property owners, and programming of low-noise-producing activities during nighttime construction and/or seasonal hunting periods.
APM NOISE-4: Public Notification During Construction. The applicant would provide the potentially affected public with notification of planned construction activities at least one week prior to the start of construction activities. In addition, the applicant would install a sign at the facility that would be readable from West Liberty Road with contact information to receive any questions or concerns from the public.
APM NOISE-5: Minimize Nighttime Construction Noise. In the event nighttime construction would be required, the applicant would make provisions to minimize noise by saving low-noise-producing tasks for the evening shift, and ensuring that the workers understood the noise sensitivity of the area.
Operation
APM NOISE-6: Noise Control Features. The Phase 3 Expansion components would incorporate similar noise attenuation features as those currently used at the facility. Noise control measures that have been successfully used to reduce noise at the existing facility to levels of 75 dB for the day-night average sound level (Ldn) or less include, but are not limited to: 1. Routing normal operations blowdowns and emergency shutdown (ESD) blowdowns into silencers. Venting blowdown silencers on all 18-inch and 30-inch pipelines; 2. Location of facility generators and compressors within acoustically enclosed buildings lined with sound absorbing panels; 3. Ventilation air inlet and exhaust duct silencers at the generator/compressor buildings; 4. Acoustical isolation of heavy equipment within the generator and compressor buildings; and 5. Special consideration given to the potential effects of the RFS cumulative operational noise on the Gray Lodge Wildlife Management Area, as an identified noise sensitive area in Butte County.
APM NOISE-7: Acoustic Silencers and Acoustically Lined Plenums. The compressor building cooling air inlet and exhaust ports will include acoustic silencers and acoustically lined plenums. The interior surface of the entire compressor building will be lined with acoustically absorbent materials, and the compressor engine exhaust gas will be routed through appropriately sized acoustic mufflers.
APM NOISE-8: Noise Attenuation Design Features. The applicant would implement noise attenuation (i.e., gradual loss in intensity) measures as part of the Phase 3 Expansion design, such as the use of insulation materials and techniques along compressor buildings and other major noise-producing areas, housing the compressors and engine drivers in a metal-framed and sided building with sound insulation designed into the wall thickness, installing opening and vents at the proposed facilities, routing ESD valves blowndowns to silencers, and maintaining safety conditions to reduce the number of unsilenced safety valves releases.
APM NOISE-9: Maintenance Blowdown Notification. Pipeline operators will notify nearby residents when a maintenance blowdown is planned, so they will not be alarmed by the noise and/or can make plans to be elsewhere while the blowdown will take place.
Recreation
APM REC-1: Compensation for Missed Hunting Opportunities During Construction. Every effort will be made to avoid outside noise-producing construction activities at the RFS during the waterfowl hunting season. However, as occurred during Base Project and Expansion development, unforeseen variables may require the need to encroach on the waterfowl hunting season to ensure that the Project operation date is met. Should this occur with construction of the proposed facilities, compensation for missed hunting opportunities will be negotiated with the affected hunting clubs and the Gray Lodge manager so that this potential impact will be mitigated to a less-than-significant level.

Table A.1-1 Applicant Proposed Measures

APM REC-2: Construction Scheduling. The Plant Manager at the RFS has, to the extent possible, developed a schedule where major outside noise-producing routine operations and maintenance activities avoid the hunting season. However, should non-routine operations and maintenance activities be required during the hunting season, the Plant Manager will coordinate these activities with the adjacent property owner(s) and the Gray Lodge manager to minimize any adverse effects on hunting. This may include scheduling activities for non-hunting days or avoiding the morning hours when noise will have the greatest effect on hunting success. Through close coordination with the adjacent property owner(s) and the Gray Lodge manager, potential operation impacts to recreational hunting will be mitigated to a less than significant level.
Transportation and Traffic
APM TRANS-1: Transportation Management Plan. Implement relevant measures from the Transportation Management Plan prepared for the Expansion Project.
APM TRANS-2: Heavy Equipment and Truck Traffic Coordination. Coordinate the timing and route selection for movement of heavy equipment and truck traffic on county roads with the Butte, Sutter, and Colusa County Road Departments to minimize traffic and physical road impacts.
APM TRANS-3: Preconstruction Assessment of Access Roads and Postconstruction Repair. Conduct a preconstruction assessment of access roads and repair any damage to county roads and bridges or private roads caused by Project construction activities and traffic.
APM TRANS-4: Coordinate Local Construction Activities. Coordinate construction activities with county officials, landowners, and lessees to minimize disruption to local traffic, farming activities, and movement of agricultural equipment.
APM TRANS-5: Relocate Existing Hunter Parking. The removal of the parking facility to the west of the RFS will be mitigated by moving the available parking site 540 feet west of its current location.
Utilities and Service Systems
APM UTIL-1: Identify Utilities Prior to Construction. The applicant is a member of the Utility Service Alert network, and existing utilities in all construction areas will be identified by the owner of the utility prior to construction.
APM UTIL-2: Gravel Surfacing. Aboveground facilities would be covered with gravel.

A.1 Aesthetics

Table A.1-1 Aesthetics Checklist

Would the project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a.	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d.	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

In order to supplement information presented in Section 3.1, Aesthetics, of the 2002 Environmental Impact Report (EIR), several planning documents and resources were reviewed for the Phase 3 Expansion, including the Butte County General Plan Open Space and Scenic Highway Elements (Butte County 1973, 1977); the Colusa County General Plan Open Space and Circulation Elements (Colusa County 1989a, 1989b); California Department of Transportation (Caltrans) information on state scenic highways (updated since 2002); and Phase 3 Expansion component drawings, renderings, and elevations, provided by the applicant. In addition, views of and from the site were observed and photographed during a September 23, 2009, site visit to confirm any changes in conditions since the 2002 EIR.

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) did not identify any significant impacts associated with aesthetics that required the implementation of mitigation measures. The 2002 EIR included project features that reduced potential impacts to aesthetics, as described further below.

A.1.1 Environmental Setting

As described in Chapter 2, Description of Phase 3 Expansion, the Phase 3 Expansion comprises three main components: modification to the existing Wild Goose Remote Facility Site (RFS), located in southwest Butte County; PG&E's reconductoring of up to 6 miles of electrical distribution line directly east of the RFS; and modifications to the Delevan Site, located approximately 25 miles west of the RFS in northeastern Colusa County.

Views in the area are expansive and characterized by agricultural uses. Foreground and middleground views typically include large, open expanses of cropland (predominately rice fields and orchards) with dispersed single family residences and agricultural infrastructure. Background views are of the Sierra Nevada or Coastal Mountain ranges to the east and west, respectively. The most distinctive geological feature is the Sutter Buttes, rising 1,700 feet above the valley floor, approximately four miles southeast of the RFS. Additional information regarding the visual setting of the RFS and Delevan Site can be found in Section 3.1, Aesthetics, of the 2002 EIR.

Expansion of the RFS would require approximately 4.5 acres of land immediately adjacent to the existing 12.2-acre site. The RFS is located approximately 1.1 miles west of the intersection of West Liberty Road and Pennington Road (see Figure 2.1, Project Location Map, in the main text of the Supplemental EIR).

As described in Chapter 2, Description of Phase 3 Expansion, the existing RFS comprises gas metering, processing, and compressing facilities constructed for the Base Project and Phase 2 Expansion. The existing RFS is surrounded by a berm and native and indigenous plants that visually screen the site. Figure A.1-1 shows views of the existing RFS. Figure A.1-2 shows views of the vegetative screening surrounding the existing RFS. Figures A.1-3 and A.1-4 show a conceptual elevation and rendering of the proposed Phase 3 Expansion at the RFS.

The RFS is visible to motorists along West Liberty Road and Pennington Road, neither of which is a heavily traveled transportation route (as discussed in Section A.12, Transportation and Traffic). The RFS is also visible from three residences—a farmhouse approximately 1.1 miles northwest of the site, a farmhouse approximately one mile northeast of the site, and a farmhouse approximately 4,000 feet east of the site. The Colusa Highway is located approximately one mile north of the RFS.

The Delevan Site, including the hot tapped pipeline connection location, is situated at the base of the Coast Range foothills and is surrounded by agricultural fields and grazing land. The expansion of the Delevan Interconnect Site would occur within the existing 0.6-acre footprint of the site. The hot tapped pipeline connection installation would be located approximately 700 feet to the west of the Delevan Interconnect Site, adjacent to existing pipeline components. Views in the area are dominated by Pacific Gas and Electric's (PG&E's) existing Delevan Compressor Station, a visually prominent structure without vegetative screening as shown in Figure A.1-5; and PG&E's Colusa Generating Station, a natural gas-fueled power plant currently under construction as shown in Figure A.1-6. Two PG&E overhead 230-kV transmission lines with lattice-style towers run between the Delevan Site and the hot tap connection location. Figure A.1-7 shows views of the existing Delevan Site and the hot tapped pipeline connection location. Figure A.1-8 shows the locations from which the photos in Figures A.1-1 through A.1-3, and A.1-5 through A.1-7 were taken.

The Delevan Interconnect Site and hot tapped pipeline connection location are visible to motorists along Noel Evan Road and Delevan Road. Interstate 5 is located approximately 3.8 miles west of the Delevan Site. The nearest residence is approximately 2,500 feet south of the site.

The existing electrical distribution lines to the east of the RFS are supported by wooden poles, and extend along Pennington Road, West Evans Reimer Road, and Colusa Highway, through an area developed with agricultural (rice, orchards, and croplands) uses, as well as the Gray Lodge Waterfowl Management Area and areas developed with low-density residential uses. The distribution line is visible to motorists on these roads. Photos of the distribution lines are shown in Figures A.1-9a and A.1-9b.

No homes or other potential viewers have been added in the vicinity of the RFS or the Delevan Site since the preparation of the 2002 EIR. Some residential development has occurred in the area of the electrical distribution lines since the preparation of the 2002 EIR, most noticeably along Colusa Highway between Ban Drive and Jay Drive (the area of the Eagle Meadows residential subdivision). A discussion of policies addressing scenic vistas, scenic highways, and protected visual resources in the Butte County General Plan and Colusa County General Plan, applicable to the visual setting for the Phase 3 Expansion, is included in Section 3.1, Aesthetics, of the 2002 EIR.

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Figure A.1-1

Existing Remote Facility Site

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Figure A.1-2

Existing Vegetative Screening – Foreground Views

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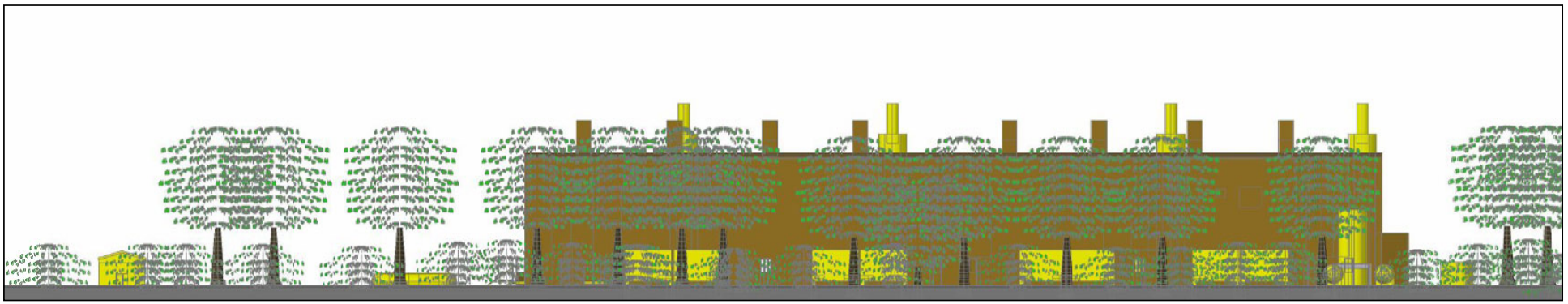
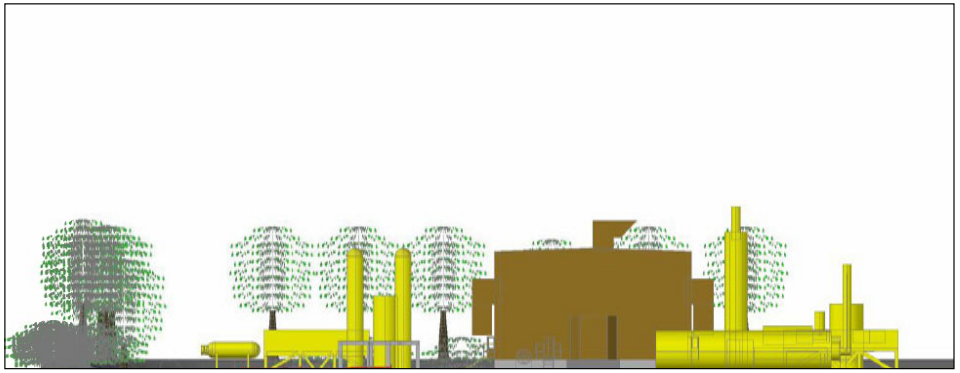
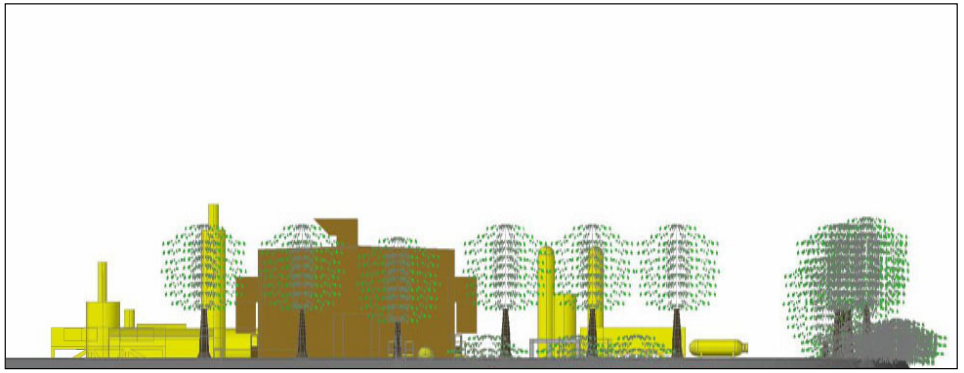
Source: Niska Gas Storage/Swift Engineering, September 2002



View North to Facility from West Liberty Road



View West to Facility



View East to Facility

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Figure A.1-3

Conceptual Elevation Views of Phase 3 Expansion Elements at the RFS Site

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Source: Niska Gas Storage/Swift Engineering, September 2002

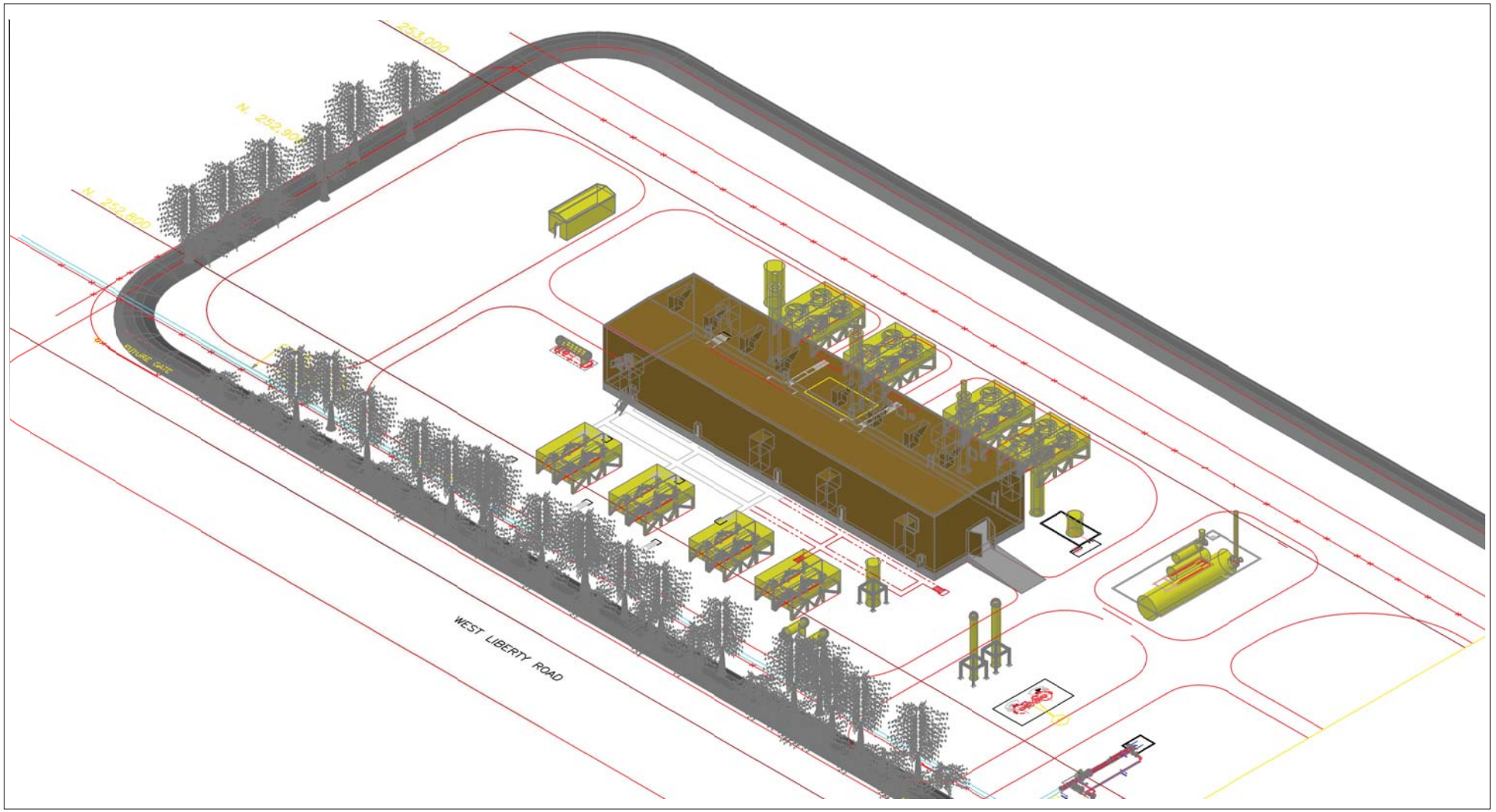

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Figure A.1-4

Conceptual Rendering of Phase 3 Expansion Elements at the RFS Site

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Figure A.1-5 **View of Delevan Compressor Station and PG&E's Colusa Generating Station**

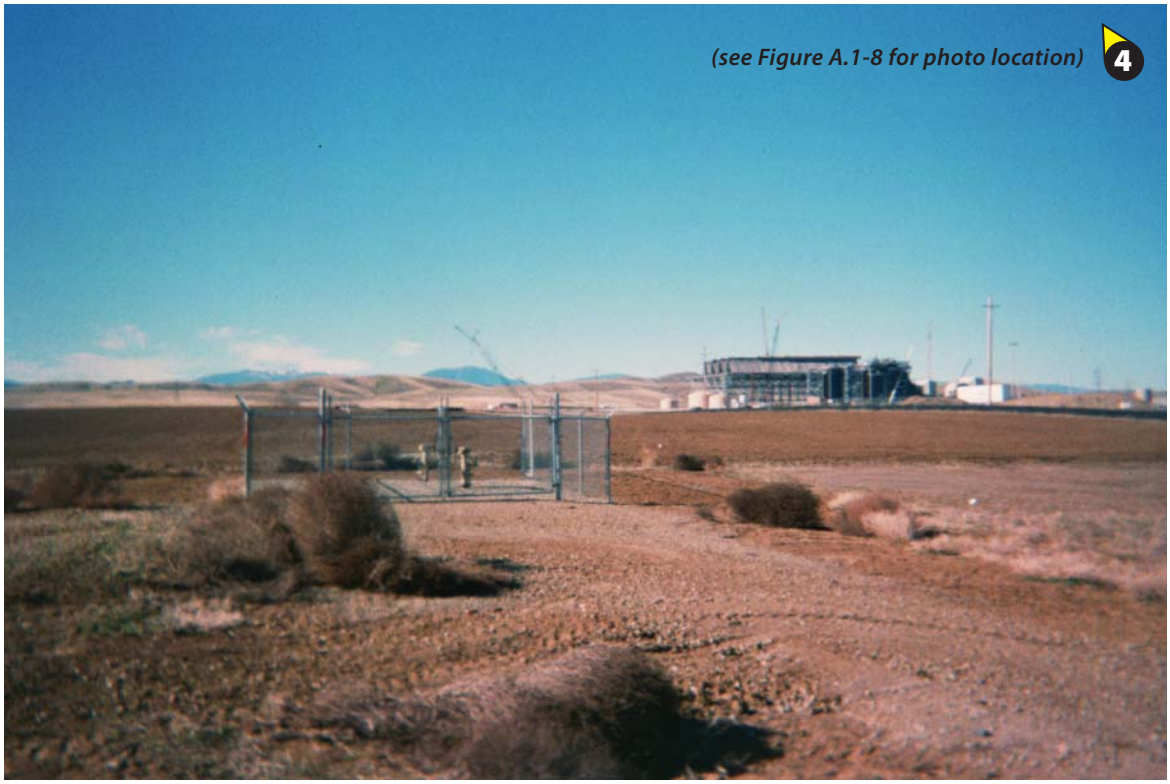

Figure A.1-6 **View of PG&E's Colusa Generating Station** *(PG&E Line 400/401 valves in foreground)*

Figures A.1-5 and A.1-6

Views of the Existing Delevan Compressor Station and PG&E's Colusa Generating Station

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Figure A.1-7a **Delevan Interconnect Site**

Figure A.1-7b **Hot Tap Location**

Figure A.1-7

Existing Delevan Interconnect Site and Hot Tap Location

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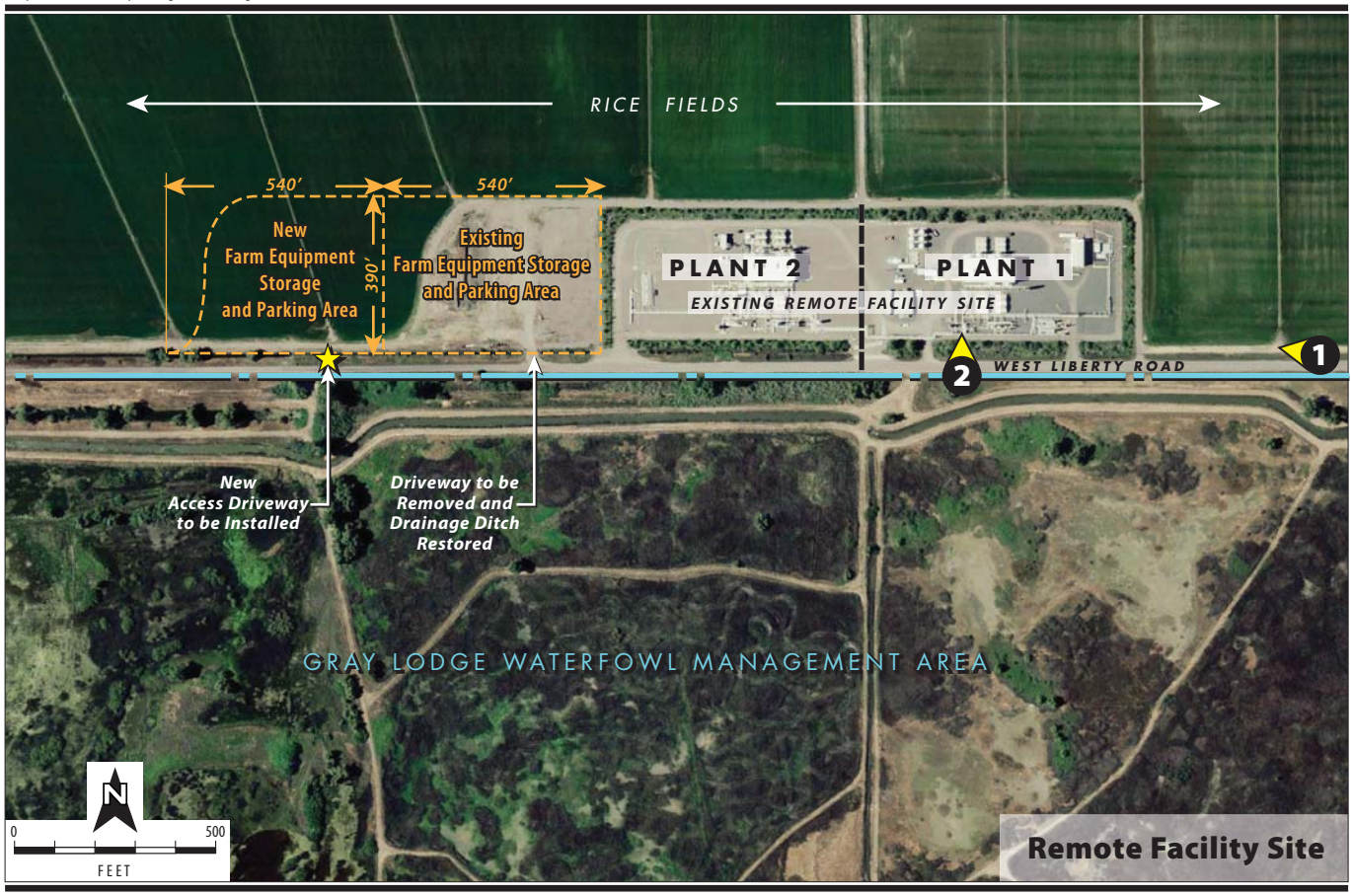
Air photo source: maps.Google.com, Google ©2010



1 Photo locations for Figures A.1-1, -2, -4, -6 and -7

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

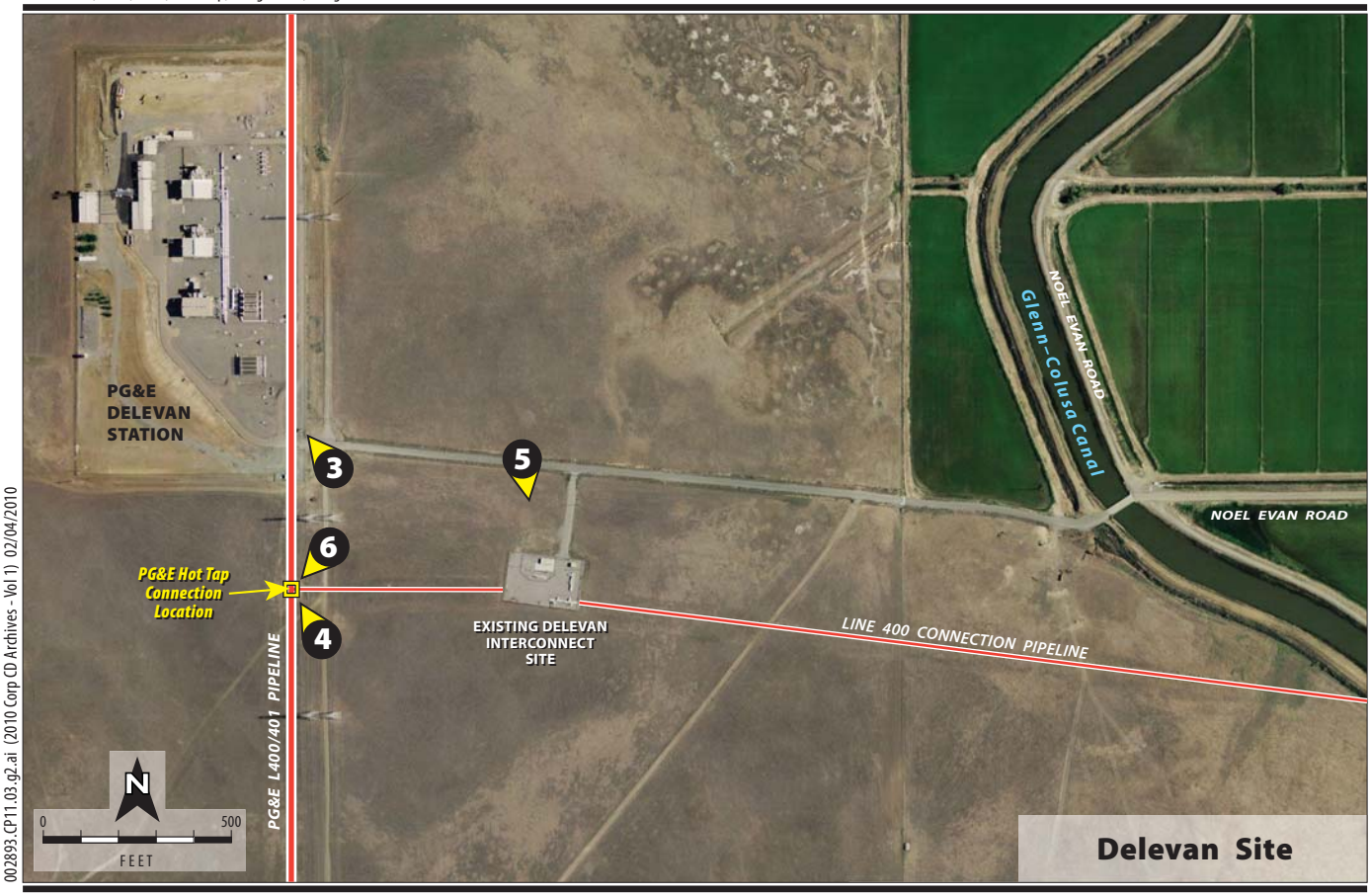


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Figure A.1-8 **Locations of RFS and Delevan Site Photos**

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Looking west along West Evans Reimer Road, west of Township Road

Looking west along West Evans Reimer Road, West of Township Road

Figure A.1-9a Representative Photographs, PG&E Distribution Line
(SOURCE: TRC 2010)

Looking north along Pennington Road, south of West Liberty Road

Looking east along Colusa Highway, east of Pennington Road

Figure A.1-9b Representative Photographs, PG&E Distribution Line
(SOURCE: TRC 2010)

A.1.2 Environmental Impacts and Mitigation Measures

Applicant Proposed Measures

The applicant has proposed the following measures to minimize potential impacts to aesthetic resources, the full text of which is included in Table A.1-1 of Section A.1. Nine similar measures addressing aesthetic resources were also adopted as part of the 2002 EIR. All of these measures are considered a part of the Phase 3 Expansion project.

APM AES-1: Delevan Site Restoration.

APM AES-2: Painting and Design of Aboveground Facilities.

APM AES-3: Site Lighting.

APM AES-4: Welding Activities.

APM AES-5: Visual Screening (RFS).

The project features listed in Table A.1-2 addressing aesthetics were adopted as part of the 2002 EIR for the Phase 2 Expansion, as applicant proposed measures ("WGSI Measures"). These measures would also apply to the Phase 3 Expansion.

Table A.1-2 Project Features Addressing Aesthetics Adopted as Part of the 2002 EIR

WGSI Measure 3.1-1. Visual screening would accompany the proposed expansion of the Remote Facility Site. Annual surveys of the landscaping would be performed for five years in the fall of each year. During these surveys, an evaluation of the survivorship of each species and the effectiveness of the visual screening would be completed. Success of the screening would be based on how much of the physical site could be seen from West Liberty Road.
WGSI Measure 3.1-2. In wetlands and riparian areas, relatively rapid re-growth of riparian vegetation would ensure that visual evidence of pipeline construction would occur during only one or two growing seasons. The rapid re-vegetation in these areas may be attributed to replacement of topsoil (containing the seed base) following construction, the ample water in the wetlands, and the vigorous growth typical of wetland and riparian vegetation. On farmed lands, row crops may be planted following land clearing as soon as ROW is restored.
WGSI Measure 3.1-4. All above ground features would be painted to blend in with the natural surroundings. Visual impacts due to clearing of vegetation and grading are considered to be less than significant with implementation of replanting measures included as part of the project.
WGSI Measure 3.1-6. All buildings and aboveground features would be painted the same neutral color as the existing buildings.
WGSI Measure 3.1-7. Site lighting would be hooded and directed toward the interior of the facility.
WGSI Measure 3.1-8. Building design of the expanded Remote Facility Site would emulate the existing facility.
WGSI Measure 3.1-12. Site lighting would be low-profile and shrouded to direct light down and inside the valve lot.
WGSI Measure 3.1-13. Light glare from night construction at the Remote Facility Site would be mitigated by using smaller grinding wheels which produce smaller spark showers.
WGSI Measure 3.1-14. Directing all lighting down toward the work area.
WGSI Measure 3.1-15. Installing shielding on the sides of the light fixtures to direct the light to the work area and limit off-site illumination.
WGSI Measure 3.1-16. Using light blocking material on the ends of the welding tents, and keeping lighting as near to the ground as practicable.
WGSI Measure 3.1-17. Installation of shielding on all light fixtures to direct light downward.

A.1.3 Visual Impact Analysis

Assessment Methodology

This aesthetics and visual resource analysis generally follows the methodology described in the Federal Highway Administration's (FHWA) Visual Impact Assessment for Highway Projects (FHWA 1988).

Visual impact is a function of the projected visual resource change and anticipated viewer response. Visual impact determination takes into account both the existing landscape and potential viewers. Representative views of the proposed locations for Phase 3 Expansion components at the RFS and Delevan Site support the textual description of the existing landscape; the locations from which these photos were taken are indicated in Figure A.1-8.

This aesthetics and visual resource analysis assesses the degree of visual contrast that would be introduced by the Phase 3 Expansion in terms of alteration to the existing visual character and visual quality. Visual character is described in terms of the four visual pattern elements: form, line, color, and texture. Visual quality is assessed based on the vividness, intactness, and unity of views.

This analysis considers potentially affected viewers in terms of viewer exposure to Phase 3 Expansion elements and levels of viewer sensitivity. Viewer exposure considers the distance of the viewer to the Phase 3 Expansion elements, the position of the viewer in terms of relative elevation, the direction of the view, approximate numbers of viewers, and the duration or frequency of views. Viewer sensitivity describes the viewer's expectation of a view based on viewer activity and awareness and any local or cultural significance of the site. Viewer expectation takes into account viewer activity and considers any federal, state, or local regulations that protect visual resources in the area. The results of this analysis are discussed in the impact discussions, below.

a. Would the project have a substantial adverse effect on a scenic vista?

NO IMPACT. The 2002 EIR includes a description of the construction and operation of the Phase 2 Expansion of the RFS and the Delevan Site as occurring in rural areas with few potential viewers; and, because the aboveground facilities would be similar in appearance to structures already present in the area, viewer sensitivity would be considered low. With the implementation of measures addressing aesthetic resources as adopted in the 2002 EIR, overall impacts to the existing visual character of the site were considered less than significant.

Implementation of the Phase 3 Expansion would not result in a change to the level of visual impact to scenic vistas. As confirmed on a 2009 site visit, the existing quality of scenic resources within the area has not changed substantially since the Phase 2 Expansion, and the Phase 3 Expansion components, including the reconductoring component and hot tapped pipeline connection, would be consistent in appearance with existing structures and facilities. There are no designated scenic vistas or areas with protected visual resources within viewshed of the RFS, the reconductoring component area, the Delevan Interconnect Site, or the hot tapped pipeline connection location. Therefore, the Phase 3 Expansion would result in no impact under this criterion.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

NO IMPACT. There are no designated or eligible state scenic highways within the viewshed of the RFS, the reconductoring component area, the Delevan Interconnect Site, or the hot tapped pipeline connection location. As described in the 2002 EIR, the nearest eligible state scenic highway to the RFS, as well as the

nearest local scenic highway, is a segment of Highway 70 located approximately 19 miles northeast of the RFS (Caltrans 2009a).

There are no designated state scenic highways in Colusa County. The nearest eligible state scenic highways, Highway 20 and Highway 16, are located approximately 25 miles southwest of the Delevan Interconnect Site and hot tapped pipeline connection location (Caltrans 2009b). The Colusa County General Plan lists a number of local scenic highways; however, the closest county-designated scenic highway to the Delevan Site and hot tapped pipeline connection location is the Maxwell-Stonyford Road, approximately six miles south of the site.

Because the Phase 3 Expansion components would not be located within the viewshed of any designated or eligible state scenic highways or any local scenic highways, no impact would result under this criterion.

c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

LESS THAN SIGNIFICANT IMPACT. The analysis presented in the 2002 EIR resulted in the conclusion that potential visual impacts from the Phase 2 Expansion under this criterion would be less than significant with the adoption of measures addressing aesthetic resources. The 2002 EIR analysis concludes that the Phase 2 Expansion (construction and operation) of the RFS and Delevan Site would be consistent with existing development in the area. Additionally, the 2002 EIR included a measure requiring the installation of landscaping to screen the aboveground facilities at the RFS to further blend those facilities with the surrounding landscape.

Expansion of the RFS would require development of a portion of the existing rice fields to the west of the site, which would expand the current 12.2 acre site to approximately 16.7 acres. The tallest individual Phase 3 Expansion component that would be added would be an additional 30-foot-high compressor building. All facilities would be very similar in terms of height, shape, massing, color, and appearance to the existing RFS facility and would therefore be visually consistent with the facility. As part of the Phase 3 Expansion, APMs AES-1 through AES-5 would be implemented, ensuring that the Phase 3 Expansion would not degrade existing views through introduction of light pollution and that all aboveground structures would be painted and screened to blend with existing facilities.

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.

Phase 3 Expansion activities at the Delevan Interconnect Site and hot tapped pipeline connection location would have low visibility due to their location. The Delevan Site is not located in the foreground or middleground of any existing roads or residences. Additionally, the aboveground features of the Phase 3 Expansion would consist of pipeline and meter equipment and materials similar in scale and appearance to, and therefore visually consistent with, existing equipment. Any excavated or disturbed soil would be restored to its pre-existing conditions. No additional visual screening is proposed at these locations.

The number of viewers of the RFS and Delevan Site would be low and expectations of a view in the area would likewise be low due to existing conditions. For this reason, and because the Phase 3 Expansion elements would be consistent with existing development in the area, with the additional implementation of APMs AES-1 through AES-5, construction and operation of the Phase 3 Expansion components would result in a less than significant impact under this criterion.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

LESS THAN SIGNIFICANT IMPACT. Welding activities during construction and operation at the RFS and Delevan Site could potentially introduce a temporary new source of light and glare. To reduce impacts due to welding activities, the applicant would use smaller grinding wheels and welding tents or other shielding (APM AES-4).

Night lighting would be installed at the RFS for maintenance and security purposes. Lighting would be shielded and directed downward (APM AES-3) and would be used only for emergency repairs. Because there would be few viewers in the area and because lighting would be shielded, directed downward, and limited in use for emergency repairs, the impact under this criterion for the RFS would be less than significant.

The Delevan Interconnect Site and hot tapped pipeline connection location already have shielded and directed lighting installed for maintenance and security purposes. The Phase 3 Expansion elements would not require the installation of new or additional lighting at these locations, and therefore, there would not be any impact under this criterion at the Delevan Site and hot tapped pipeline connection location.

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A.2 Agriculture and Forestry Resources

Table A.2-1 Agriculture and Forestry Resources Checklist

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a. 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?	☐	☒	☐	☐
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Note: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

To supplement information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), several planning documents and resources that have been updated since 2002 have been reviewed for the following discussion of potential impacts to agriculture and forest resources related to the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion). Documents reviewed include the Land Use, Agricultural, and other elements of the Butte County General Plan, as discussed below, and local agricultural crop reports.

The 2002 EIR identified one significant and unavoidable impact due to the direct conversion of farmland to non-agricultural use that would result from implementation of the Phase 2 Expansion, as well as ten impacts to agricultural resources that were determined to be less than significant after the implementation of mitigation measures.

A.2.1 Environmental Setting

Conservation of agricultural land in California is monitored on the state level through the Department of Conservation's (DOC's) Division of Land Resource Protection (DLRP), and specifically through the Farmland Mapping and Monitoring Program (FMMP) and the California Land Conservation Act of 1965 (commonly referred to as the Williamson Act). Additional description of these regulations is provided in Section A.2.2, below.

For the FMMP, U.S. Department of Agriculture soils surveys and existing land use observations recorded during even-numbered years are used to determine the nature and quality of farmland in 10-acre minimum units across the state. FMMP mapping categories for the most important statewide farmland include Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Prime Farmland and Farmland of Statewide Importance are defined as lands that have been used for irrigated agricultural production at some time during the four years prior to the map date, and that include soils that meet the physical and chemical criteria for Prime Farmland or Farmland of Statewide Importance as determined by the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) (DOC 2010). Other classifications include Farmland of Local Importance and Grazing Land. FMMP data are used in elements of some county and city general plans and associated environmental documents as a way of assessing the impacts of development on farmland, and in regional studies for assessing impacts due to agricultural land conversion.

The components of the Phase 3 Expansion include the Remote Facility Site (RFS) in Butte County, PG&E's reconductoring of an existing electrical distribution line in Butte County and the City of Gridley (reconductoring component), and the Delevan Site in Colusa County. As of 2006, Butte County had 21,604 acres of land designated as Farmland of Statewide Importance, 24,235 acres of Unique Farmland and 196,219 acres of land designated as Prime Farmland (DOC 2006a), as described below in Table A.2-2. Agriculture is estimated to currently account for the majority of total economic output for Butte County. In 2008, the estimated gross value of agricultural production in Butte County totaled $579,928,000 (Butte County 2009a), as shown in Table A.2-3. The largest contributor to agricultural production in Butte County during this year was rice, which accounted for 43 percent ($247,878,000); followed by almond production, which accounted for 15 percent (86,312,000); and walnut production, which accounted for 13 percent ($75,629,000) of total production (Butte County 2009a). Plant crops, consisting of field crops, seed crops, vegetable crops, and fruit and nut crops, totaled 468,094 acres in Butte County in 2008 (Butte County 2009a).

Table A.2-2 Acreage for Special Farmland Designations, Butte and Colusa Counties

Farmland Classification	Acreage
Butte County	
County Total	1,070,000[c]
Farmland of Statewide Importance[a]	21,604
Unique Farmland[a]	24,235
Prime Farmland[a]	196,219
Total Farmland	*242,048*
Colusa County	
County Total	738,000[d]
Farmland of Statewide Importance[b]	2,170
Unique Farmland[b]	123,318
Prime Farmland[b]	200,182
Total Farmland	*325,670*

Source: a DOC 2006a
b DOC 2006b
c Butte County 2000
d Colusa County 1989

Table A.2-3 Agricultural Product Information for Butte and Colusa Counties

Agricultural Sector	Gross Income of Agricultural Producer	Percentage of Agricultural Production
Butte County		
Gross Value of Agricultural Production 2008[a]	*$579,928,000*	*100%*
Rice Production[a]	$247,878,000	43%
Almond Production[a]	$86,312,000	15%
Walnut Production[a]	$75,629,000	13%
Colusa County		
Gross Value of Agricultural Production 2008[b]	*$661,644,000*	*100%*
Rice Production[b]	$337,499,000	51%
Almond Production[b]	$132,255,000	20%
Tomato Processing[b]	$43,922,000	7%

Source: a Butte County 2009a
b Colusa County 2008

As of 2006, Colusa County had 2,170 acres of Farmland of Statewide Importance, 200,182 acres of Prime Farmland, and 123,318 acres of Unique Farmland (DOC 2006b), as described below in Table A.2-2. Agricultural production is estimated to account for more than 95 percent of total economic output for Colusa County (Reynolds 2010). In 2008, the gross value of agricultural production in this county totaled $662,644,000, as shown below in Table A.2-3. The largest contributor to agricultural production was rice, which accounted for 51 percent ($337,499,000) of the gross value of agriculture in Colusa County; followed by almond production, which accounted for 20 percent ($132,255,000); and tomato processing, which accounted for 7 percent ($43,922,000) of total production (Colusa County 2008).

Further information regarding the local setting for the RFS and Delevan Site, including typical rice cultural practices and agricultural uses in the vicinity of each site, is presented in Chapter 2, Description of Phase 3 Expansion; and in Section 3.2, Agriculture, of the 2002 EIR.

A.2.2 Regulatory Setting

State of California

As discussed above, conservation of agricultural land in California is monitored on the state level through the DLRP, and specifically through the FMMP and the Williamson Act. The FMMP was established in 1982 as a non-regulatory program, for the purpose of providing an analysis of agricultural land use and land use changes throughout the state (DOC 2010). The legislation requiring the DOC to collect FMMP mapping data falls under Article 10.5, Open Space Lands, of California Government Code (Sections 65560 through 65570). Under this article, agricultural lands are classified as a form of open space land, and the article includes findings that the preservation of open space land is necessary "not only for the maintenance of the economy of the state, but also for the assurance of the continued availability of land for the production of food and fiber, for the enjoyment of scenic beauty, for recreation and for the use of natural resources" (California Government Code Section 65561).

The Williamson Act enables local governments to enter into rolling,[1] 10-year contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, restricted parcels are assessed for property tax purposes at a rate consistent with actual, farming, and open space uses, as opposed to potential market value.

[1] "Rolling" refers to the automatic renewal of a parcel under a Williamson Act contract for an additional year if the contract holder does not file a notice of nonrenewal at the end of the contract term.

The DOC acts in an advisory capacity to local land use planning agencies pertaining to the impact of the permanent conversion of FMMP designated lands. In order to mitigate the impacts from the permanent conversion of farmlands, the DOC recommends that developers purchase adequate credits in an appropriate local agricultural mitigation bank, or apply agricultural easements or other terms restricting all but agricultural uses to other local land, at a compensatory ratio. For impacts to designated farmlands, the DOC recommends a compensatory mitigation ratio of from 1 to 1 or 2 to 1, depending on the severity of the impact (Meraz 2010).

General Plans and Policies, and Codes

RFS and Reconductoring Component Area

The Butte County General Plan land use designation for the RFS is Orchard and Field Crops, and the zoning designation is Agriculture, 40-acre Minimum (A-40) (Butte County 2000). The Butte County Municipal Code (Section 24-90, A-5 through A-160 "Agricultural" Zones) allows oil and gas wells (including reinjection wells for natural gas) and the alteration of gas transmission facilities as permitted uses in the A-40 zone (Butte County 2009b).

Butte County's Right to Farm Ordinance (1981, as amended) protects the rights of commercial farming operations while promoting a "good neighbor" policy between agricultural and other uses in the County. The intent of the ordinance is to protect agricultural land from conflicting uses that may encroach on agricultural operations and to advise non-agricultural developers in the County of certain aspects of agricultural activities (such as generation of noise and odors) that could affect the use of their own property (Butte County 2007).

The authority for determining the significance of impacts to designated farmland, especially impacts related to agricultural conversion, lies with the Butte County local government, as does the authority to require mitigation for such impacts (Breedon 2010, Price 2010). Farmland conversion is an issue of concern for Butte County, and the preservation of agricultural lands is regarded as a high priority for local land use planning agencies, especially in light of encroaching urban development (Thistlethwaite 2009, Hill 2009). In order to mitigate the impacts from the permanent conversion of Prime and other designated farmlands, Butte County recommends appropriate compensatory mitigation, which could include the purchase of adequate credits in an appropriate local agricultural mitigation bank, or the application of agricultural easements or other terms restricting all but agricultural uses to other local land at a compensatory ratio. Purchase of habitat mitigation, such as wetland mitigation bank credits,[2] may also be an acceptable option for such compensatory mitigation (Thistlethwaite 2009, Hill 2009).

The reconductoring component would be undertaken adjacent to lands with Butte County General Plan designations of Orchard and Field Crops (OFC) and Agricultural Residential (AR), and with zoning designations of A-40 and Agriculture, 5-acre Minimum (A-5); as well as adjacent lands with City of Gridley General Plan and zoning designations of Residential Suburban (R-S, 3 units/acre maximum). The reconductoring component, however, is exempt from discretionary permits issued by local jurisdictions, under CPUC General Order Number 131-D Section XIVB. This general order clarifies that local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the California Public Utilities Commission's jurisdiction.

[2] A wetland mitigation bank is an aquatic resource that has been restored or preserved in order to offer "third-party" compensatory mitigation credits for effects on streams or wetlands permitted under Section 404 or similar regulations. The holder of the Section 404 permit essentially transfers liability to a third-party who restores or enhances an aquatic resource on their behalf (USEPA 2009).

Delevan Site

The Colusa County General Plan land use designation for the Delevan Site is General Agriculture (A-G), and the zoning designation is Exclusive Agriculture (E-A). As described in the 2002 EIR, the Colusa County General Plan allows oil and natural gas facilities as a compatible and acceptable use in the A-G zone as long as the use does not interfere with the viability of agriculture or create environmental hazards.

Further information regarding General Plan and zoning designations, and local policies applicable to the RFS and Delevan Interconnect sites, is presented in Section 3.2, Agriculture, of the 2002 EIR.

A.2.3 Environmental Impacts and Mitigation Measures

Expansion of the RFS and relocation of the hunters' parking lot (as described in Chapter 2, Description of Phase 3 Expansion) would result in a conversion of approximately 1.9 acres of Farmland of Statewide Importance (0.009 percent of Farmland of Statewide Importance in Butte County) and approximately 2.6 acres of Prime Farmland (0.001 percent of Prime Farmland in Butte County) to permanent non-agricultural use, as shown in Figure A.2-1. As seen in Figure A.2-2, the components of the Phase 3 Expansion that would take place at the Delevan Site would result in a temporary impact to farmland designated by the FMMP as Farmland of Local Importance. The area of this temporary impact would be in the location of the hot tapped pipeline connection location, and would total approximately 0.6 acres. As shown in Figure A.2-1, the closest Williamson Act lands to the RFS site are approximately 0.25 miles from the site; as shown in Figure A.2-2, the closest Williamson Act lands to the Delevan Site are more than 600 feet from the site. No Williamson Act contract lands would be affected by the Phase 3 Expansion.

Both the Option A and the Option B alignments of the reconductoring component would be undertaken adjacent to lands designated Prime Farmland and under active Williamson Act contracts, as shown in Figure A.2-3. Reconductoring activities would be undertaken within a limited time period (one to two weeks) and primarily within the road, road shoulder, and utility right-of-way, and would not require grading or other significant earth disturbance.

Applicant Proposed Measures

The applicant has proposed the following measures to minimize potential impacts to agriculture, the full text of which is included in Table A.1-1 of Section A.1. Several similar measures addressing agriculture were also adopted as part of the 2002 EIR and are also listed below. All of these measures are considered a part of the Phase 3 Expansion.

APM AG-1: Cattle Exclusion at Delevan Site.

APM AG-2: Topsoil Replacement at Delevan Site.

APM AG-3: Agricultural Landowner Coordination at RFS.

APM AG-4: Sediment and Dust Control at RFS.

APM AG-5: Agricultural Landowner Compensation at RFS.

The features listed below in Table A.2-2 addressing agriculture were adopted as part of the 2002 EIR for the Phase 2 Expansion, as either mitigation measures or applicant proposed measures ("WGSI Measures"). These measures would also apply to the Phase 3 Expansion.

Table A.2-2 Measures Applicable to Phase 3 Expansion

WGSI 3.2-1. Farmers shall be compensated for the loss of crops during construction of the proposed facilities.
WGSI Measure 3.2-2. Following construction, agricultural fields shall be surveyed and regraded to their original elevation where needed and all rice field dikes and check boxes will be repaired and/or replaced. Although the trench backfill in agricultural areas will be compacted to the original density to minimize settling (see Section 3.6 Geology), followup elevation surveys and finish grading will be provided, if necessary, to ensure that the field grading and irrigation flows are not adversely affected. Fences and irrigation facilities will be replaced or repaired to their original condition following construction.
WGSI Measure 3.2-3. Where required, farmers will be provided breaks in spoil piles, trenches, or pipe strings to accommodate their need for field access during construction.
WGSI Measure 3.2-4. Cattle grazing in the annual grasslands west of the Glenn-Colusa Canal will be excluded from the construction work area. This will be accomplished by a temporary solar-powered electric fence or other temporary fence along the ROW and minimizing open pipeline trench, or the rancher may elect to move the cattle to another grazing area during construction.
Mitigation Measure 3.2-1. WGSI shall provide for drainage and irrigation water flow to continue by installing necessary pipes, valves, check dams, berms and dikes in strategic places in cooperation with landowners, farmers and ranchers.
Mitigation Measure 3.2-2. To mitigate restriction of access to Farmlands, WGSI shall, with proper construction practices, provide notice to affected farmers and/or ranchers, and access for the farmers to communicate with the applicant's construction team on a 24-hour basis. Phone numbers shall be provided on a "hot-line" basis to remedy any such problems before they create losses.
Mitigation Measure 3.2-3. All restricted pesticide permit requirements as issued by the Butte County and Colusa County Agricultural Commissioner's offices shall be followed. WGSI shall coordinate with the landowner and both counties to assure that all permit requirements are met without unduly affecting or restricting the agricultural operations. These operations depend on timing of crop treatment to successfully bring crops to harvest. Construction workers may be required to work in other locations during pesticide application periods if the farmer is unable to apply pesticides outside of normal construction hours. The construction manager shall coordinate construction scheduling with the pesticide applicator to ensure compatibility.
Mitigation Measure 3.2-5. Topsoil and subsoil removed during construction activities shall be separated and stockpiled in appropriate locations along the edge of ROW. All soil shall be replaced during backfilling and recontouring at the end of construction with topsoil being replaced last. On-site monitoring shall be conducted to ensure that stockpiling does occur, that topsoil and subsoil are stockpiled separately, that stockpiling is done so that there are no resulting adverse impacts to other farming activities (particularly in orchard areas), and that both subsoil and then topsoil is properly replaced. All construction trench and bore pit spoils shall be placed outside the driplines of all orchard trees and other trees shall be removed within 72 hours of placement.
Mitigation Measure 3.2-6. WGSI shall submit payment of fair market value for crops removed from production by construction or operation of the project.
Mitigation Measure 3.2-7. Silt fencing and/or straw bale barriers shall be placed as necessary along the edge of ROW where it abuts or bisects agricultural fields to prevent silt-laden runoff and wet soil sloughing from occurring outside the ROW area. The WGSI construction managers(s) shall coordinate closely with farmers and property owners to ensure that construction crews have sufficient advance notice of scheduled pesticide spraying days to allow workers to be relocated to an unaffected part of the project on those days.
Mitigation Measure 3.2-8. On-site monitoring during these activities and sufficient use of water trucks for spraying dust-generating areas (ROW, access roads, pads, staging areas, etc.) shall be performed to mitigate this potential impact to less than significant levels. Pre-planning for water truck scheduling shall be required during construction activities, and training and monitoring of construction and water truck crews shall also be required.

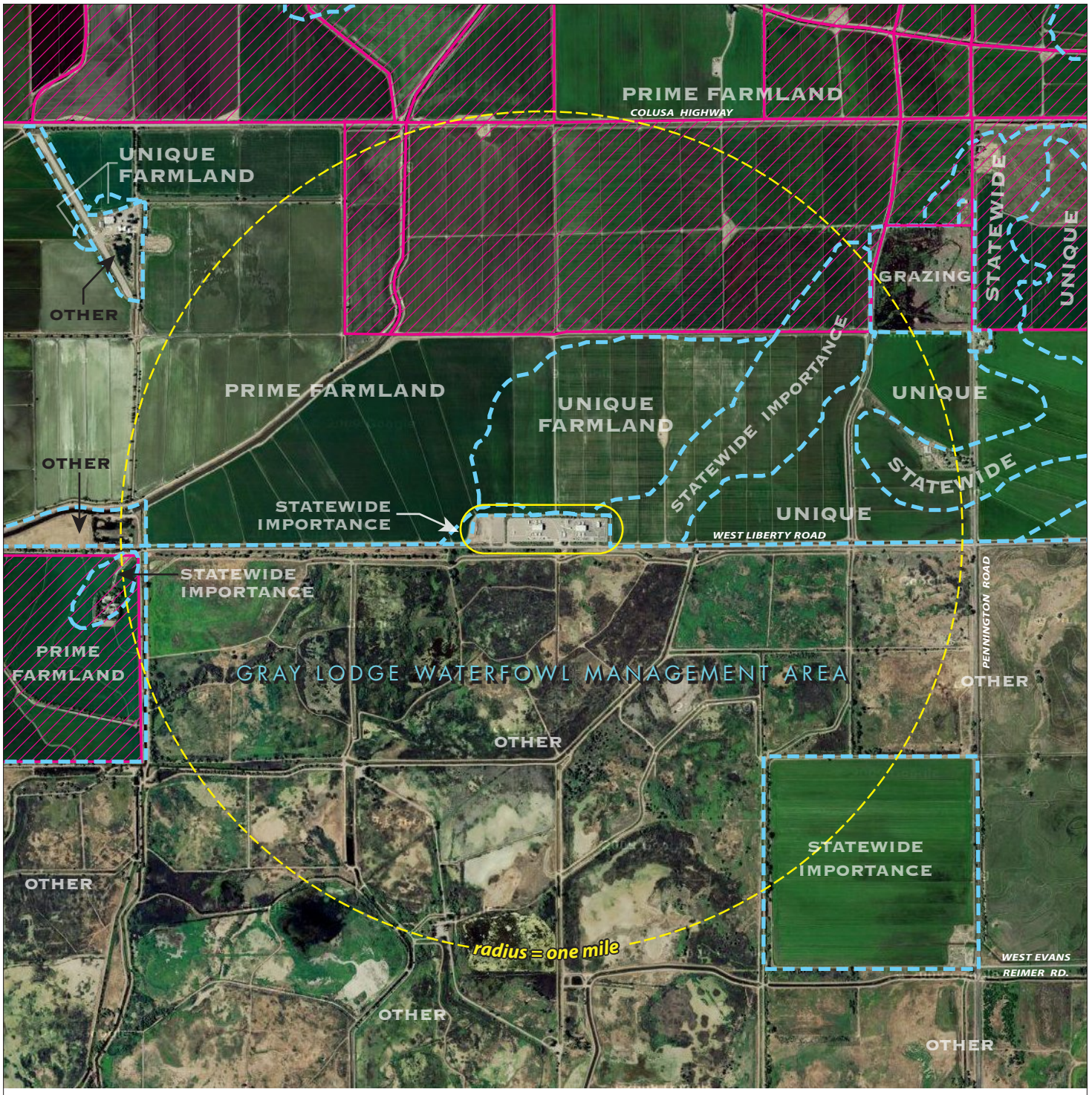

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Figure A.2-1

State Classified (FMMP) and Williamson Act Contract Lands in the Vicinity of the Remote Facility Site

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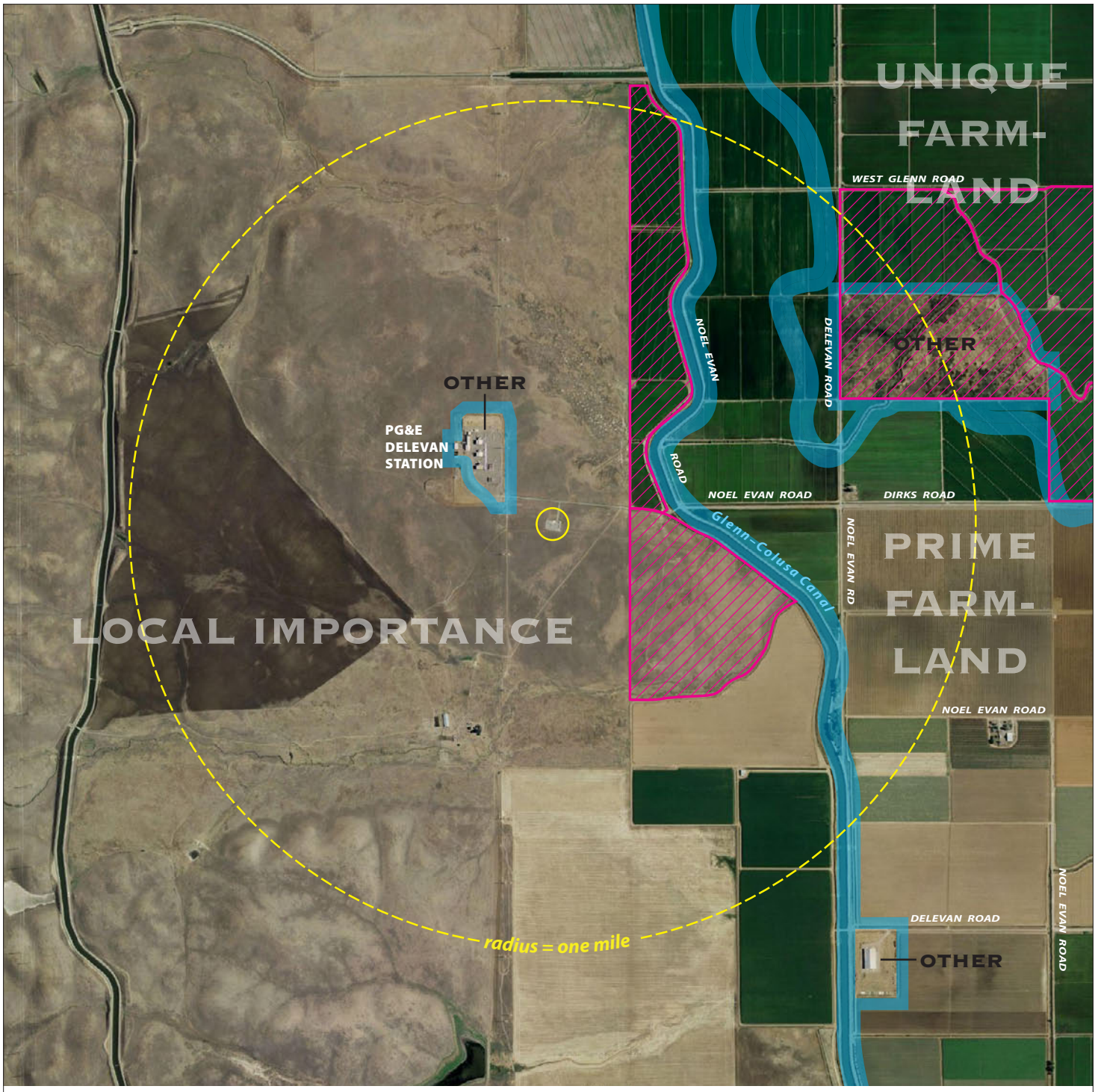

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Figure A.2-2

State Classified (FMMP) and Williamson Act Contract Lands in the Vicinity of the Delevan Interconnect Site

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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

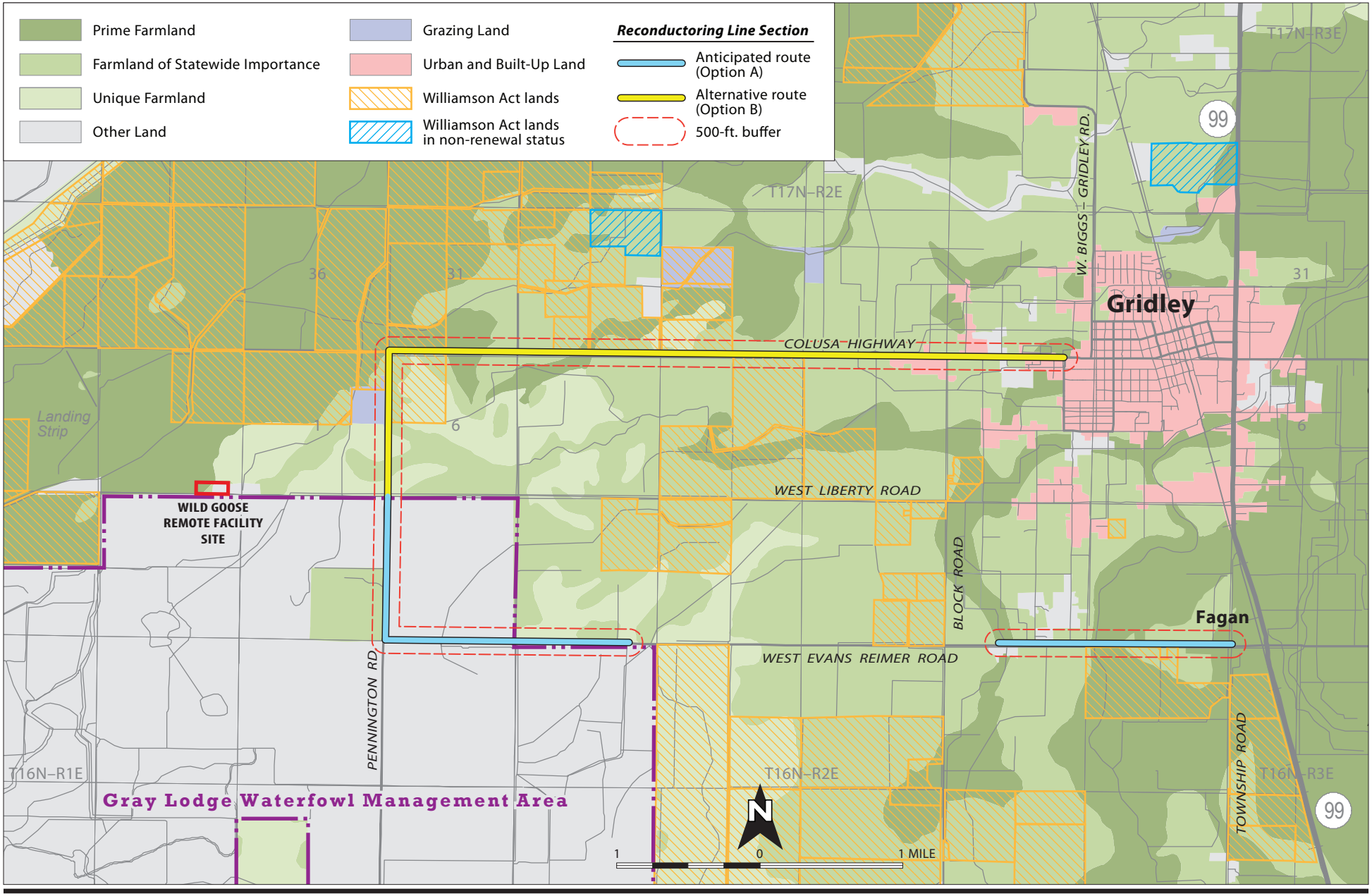

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Figure A.2-3

FMMP Designated Farmland and Williamson Act Contract Land in the Vicinity of the PG&E Reconductoring Component

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a. Would the project 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?

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION. In Butte County, the Phase 3 Expansion would impact land at the RFS, which is zoned for agriculture with a 40-acre minimum lot size, and with FMMP designations of Prime Farmland and Farmland of Statewide Importance. The reconductoring component would take place adjacent to lands that are zoned for Agriculture with a 40-acre minimum lot size and Agriculture with a 5-acre minimum lot size, and with FMMP designations of Prime Farmland. The Butte County municipal code permits development of natural gas-related facilities in areas zoned for agriculture (Butte County 2009b). CPUC General Order Number 131-D Section XIVB preempts Butte County and the City of Gridley from regulating the reconductoring component. In Colusa County, the Phase 3 Expansion would temporarily impact land zoned for grazing and land currently in agricultural production, and would impact land with an FMMP designation of Farmland of Local Importance.

Butte County is the local agency with the authority to determine the significance of impacts related to the conversion of agricultural lands in the county as well as enforce mitigation of such impacts. Although the 2002 EIR identified the conversion of farmland to non-agricultural use from the Phase 2 Expansion as a significant and unavoidable impact, Butte County Planning Division staff have indicated that the acreage of agricultural conversion represented by the Phase 3 Expansion (2.6 acres of Prime Farmland and 1.9 acres of Farmland of Statewide Importance at the RFS) would result in a relatively minor impact (Breedon 2010, Price 2010). Appropriate compensatory mitigation would reduce this potential impact. Because the FMMP program falls under State legislation for the protection of open space lands, appropriate compensatory mitigation includes forms of open space preservation and conservation, including compensatory wetlands mitigation.

Although the 2002 EIR identified the conversion of farmland to non-agricultural uses as a significant and unavoidable impact, the amount of farmland that would be converted as part of the Phase 3 Expansion is much smaller than that included in the analysis for the Phase 2 Expansion, and appropriate compensatory mitigation may be applied to reduce this impact to a less than significant level. Implementation of the following Mitigation Measure (MM) AG-1 would address potential impacts to Prime Farmland and Farmland of Statewide Importance:

> **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.

The selection of the mitigation bank and/or agricultural land use restriction documentation, and the purchase or completion of the compensatory mitigation, will be approved by CPUC Energy Division staff and Butte County Planning Division staff prior to the construction of the Phase 3 Expansion.

As described in Section 3.3, Biological Resources, the Phase 3 Expansion would also result in the removal of several trees at the RFS. Tree re-planting and monitoring for successful restoration of trees

and other lands at the RFS following construction activities would be accomplished through the implementation of APM BIO-13.

Impacts to Prime Farmland and Farmland of Statewide Importance at the RFS would be mitigated by the implementation of the APMs and project features adopted as part of the 2002 EIR and applicable to the Phase 3 Expansion described above, as well as the implementation of MM AG-1 and APM BIO-13.

The Phase 3 Expansion components proposed for the Delevan Site would result in a temporary (approximately 3 months) impact to FMMP designated Farmland of Local Importance, during construction of the Phase 3 Expansion components. This impact would affect a relatively small area of land (approximately 0.6 acres), and would be temporary, because affected land would be restored after construction. In addition, no impacts to agricultural lands from reconductoring activities are anticipated. For these reasons, mitigation would not be required for these two components, and Phase 3 Expansion activities in the area of the hot tapped pipeline connections and the reconductoring would result in a less than significant impact.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

NO IMPACT. The Phase 3 Expansion would not conflict with existing zoning for agricultural use. Per the Butte County zoning ordinance, development of natural gas-related facilities is a permitted use in areas zoned for agriculture (Butte County 2009b). The reconductoring component of the Phase 3 Expansion would not conflict with existing zoning for agricultural use, because reconductoring activities are exempt from local planning regulations, as discussed above.

The Colusa County General Plan allows oil and natural gas facilities as a compatible and acceptable use in the A-G zone as long as the use does not interfere with the viability of agriculture or create environmental hazards (Colusa County 1989). The Phase 3 Expansion components proposed at the Delevan Interconnect Site would take place within the existing footprint of the site and would not permanently affect agricultural production activities in the area. The hot tapped pipeline connection installation would temporarily affect a small (approximately 0.6 acres) area of land in agricultural use, which would be restored after the construction period, and agricultural production activities in this area would not be permanently affected.

Section A.5 of this document addresses potential hazards that may be posed by the Phase 3 Expansion; as described in this section, the proposed expansion elements would not result in environmental hazards. Additionally, the Phase 3 Expansion components do not cross or border any Williamson Act parcels; therefore, there would be no impact under this criterion.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

NO IMPACT. The RFS, reconductoring component area and Delevan Site are not within forest lands. The nearest forest land to the RFS and the reconductoring component area is the Plumas National Forest, which is approximately 27 miles to the east. The nearest forest land to the Delevan Site is the Mendocino National Forest, which is approximately 15 miles to the west (USFS 2009). The Phase 3 Expansion would not affect forest land, timberland, or timberland zoned Timberland Production, and would not conflict with existing zoning for such uses.

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

NO IMPACT. As discussed above under c., the Phase 3 Expansion would not affect forest land and would not result in the loss of forest land or the conversion of forest land to non-forest use.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

LESS THAN SIGNIFICANT IMPACT. The Phase 3 Expansion would result in the confined expansion of the RFS and the Delevan Interconnect Site, the construction of a new hot tapped pipeline connection in the area of the Delevan Site, and reconductoring of existing distribution power lines to meet the electrical needs of the RFS expansion. No further expansion of the Wild Goose Facility is anticipated that may result in further conversion of farmland to non-agricultural uses in the immediate area. Expansion of the gas storage facility would not stimulate the development of other uses in the area that could result in further conversion of farmland to non-agricultural uses.

The presence of the Wild Goose facility and its expansion may result in benefits to the developers of other proposed gas storage projects in the area. Such benefits could include, for example, additional baseline information regarding the characteristics of subsurface reservoirs in a local geologic formation. Although it may be true that other natural gas storage development projects in the region may benefit from the Wild Goose facility development process, such development in the region is expected to be limited by physical restraints – i.e., because the capacity of viable gas storage reservoirs in the area is limited. In addition, typical of such development, additional gas storage facilities would not consume a large area of land. For these reasons, the Phase 3 Expansion is not likely to result in the indirect and wide-ranging conversion of farmland to non-agricultural use, and related impacts would be less than significant. Further discussion of cumulative impacts related to the Phase 3 Expansion and other gas storage projects in the area and in California are discussed in Chapter 4, Cumulative and Growth-Inducing Impacts.

The Phase 3 Expansion would not involve other changes in the existing environment that could result in conversion of farmland to non-agricultural use as impacts to farmland are not anticipated to induce impacts to farmland outside of the project boundary; therefore, there would be no impact under this criterion.

As discussed above under c. and d., the Phase 3 Expansion would not affect forest land and would not result in a change to the existing environment that could result in conversion of forest land to non-forest use.

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A.3 Cultural Resources

Table A.3-1 Cultural Resources Checklist

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

To supplement information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), Section 3.5, Cultural Resources, several planning documents and resources were reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion), including the Butte County General Plan; the Butte County 2030 General Plan Update (for informational purposes); the Colusa County General Plan Conservation Element; a report on a survey of cultural resources in the area conducted in 2009 for the Phase 3 Expansion elements; the results of a records search for a buffered area around the utility right-of-way for the reconductoring component; and other information updated since 2002 pertinent to cultural resources in the vicinity of the Phase 3 Expansion.

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) identified no significant impacts to cultural resources as a result of implementation of the Phase 2 Expansion, as well as 11 potential impacts to cultural resources that were determined to be less than significant after the implementation of applicant proposed measures and mitigation measures, as described further below.

A.3.1 Environmental Setting

The existing Wild Goose Facility and reconductoring component are located within the Sacramento Valley between the Southern Cascade Range and the Sierra Nevada, approximately 50 miles north of the City of Sacramento in Butte and Colusa counties. This region includes various topography including valley floor, wetlands, riverine settings, and foothill areas. The Sutter Buttes, a notable geological and geographical landmark that rises from the Sacramento Valley floor, are located about four miles south of the Remote Facility Site (RFS). The following description of the environmental setting in terms of the prehistoric, ethnographic, and historical context is summarized from the 2002 EIR and the Cultural Resources Report Wild Goose Phase 3 Expansion Project, Butte County, California, Colusa County, California (TRC 2009). The "Phase 3 Expansion study area" mentioned below refers to an area around and including the RFS, the reconductoring component, and the Delevan Site. Further information regarding the existing setting for cultural resources is provided in Section 3.5, Cultural Resources, of the 2002 EIR.

Prehistoric Context

The Phase 3 Expansion study area is part of the northern Sacramento Valley, an area with a long history of human occupation from 12,000 years ago to the present. The ecological zones of the Phase 3 Expansion study area provided a favorable environment during the prehistoric period with both riverine

and upland resources available for human use. Lifestyles of early dwellers in these areas were focused on hunting and the collection of food and other resources from local habitats.

As climatic conditions in the area became more arid approximately 8,000 years ago, local people transitioned to subsistence more dependent on plants and seeds. Around the same time, it is believed Hokan-speaking Native Americans also began to migrate into the region. Between 5,000 and 3,000 years ago, a Penutian-speaking Native American group entered the area and focused on salmon and acorns as primary food staples, as evidenced by archaeological remains. A cooler climate approximately 3,000 to 1,500 years ago resulted in human occupation moving from the uplands to the river and foothill areas. The time from 1,500 to 200 years ago saw the entry of the ethnographic identified Wintu and Nomlaki in the northern Sacramento Valley along with the development of a sedentary, storage-based economy and a village based social construct. Around this time other groups of native people began to settle in the foothills and more mountainous areas.

Ethnographic Context

The Phase 3 Expansion study area is situated in an area claimed by the Patwin and an "unclaimed" area between the Patwin, Valley Maidu, and Konkow (also known as the Valley or Northwestern Maidu).The Patwin occupied the southern part of the Sacramento Valley to the west of the river from the town of Princeton, south to San Pablo and Suisun bays. The main Valley Maidu settlement of Pinhuk, located near Butte City (about four miles north of the Phase 3 Expansion study area), was the nearest Native American settlement on the east side of the Sacramento River. A number of Patwin settlements were located on the west side of the Sacramento River near Colusa.

Historical Context

The historical context for the Phase 3 Expansion area may be described in terms of the Hispanic and other periods, as well as other events and activities that have taken place in Butte and Colusa counties historically, such as rice production, as described below.

Hispanic Period (1769-1840s)

After an initial period of exploration, local Spanish settlers concentrated on the founding of presidios, missions, and secular towns with the land held by the Crown. Ranchos were established in 1844–47 at the end of the Mexican period for raising cattle. These vast land grants were located for the most part along the Sacramento and Feather rivers to the east and north of the Phase 3 Expansion study area. Following the Mexican War of 1846–48, California was ceded to the United States.

Gold Rush (1848 through 1860s)

In 1848, gold mining camps began being established along the Feather River and its tributaries, eventually developing into permanent towns such as Oroville and Chico. By 1860, hydraulic mining companies dominated gold mining along the Feather River.

Agriculture

Early agricultural settlers in the Phase 3 Expansion study area established farms and ranches for cultivating grain (primarily wheat and barley) and raising livestock (primarily cattle and sheep). Dry farming (an agricultural technique for cultivating land which receives little rainfall) of grain and the ranging of livestock remained predominant in the region through the first decade of the 20th century.

Railroad

The first permanent towns in the Phase 3 Expansion study area region, Gridley and Biggs, were laid out around stations on the California and Oregon Railroad lines in 1870. The railroad had a key role in the development of the region by carrying out agricultural products and bringing in materials and supplies needed to build up the area.

Irrigation and Drainage Systems

Irrigation and drainage systems had a fundamental role in the development of the region by transforming farming practices. Greater availability of water meant that large holdings could be subdivided into smaller parcels, a process that began at the turn of the century and accelerated in the 1910s and 1920s.

Rice

California's rice industry originated in southwest Butte County in the early 1900s. Because water was used for flood irrigation of rice fields, rice farming had a significant impact on the region's wetlands as a result of the release of irrigation water from the rice fields during the dry summer season. The proliferation of wetlands and rice cultivation increased waterfowl populations throughout the region, particularly in the vicinity of the Butte Sink (a swampy, low-elevation area located between the Sacramento and Feather rivers). Bird populations attracted sport hunters, and a number of gun clubs were established in the area around Butte Sink and in other wetland areas of the Sacramento Valley during the 1910s and 1920s.

Since the 1920s, land use and development in the Phase 3 Expansion study area has been characterized by large-scale land reclamation systems, hunting, wildlife and habitat management, and rice farming. Natural gas production and storage represents a major new development in the area. The Wild Goose Gas Field was discovered in 1951 and ultimately developed with nine primary wells. Production ceased in 1988 when the field was depleted.

Cultural Resources Study for Phase 3 Expansion: RFS and Delevan Site

TRC Companies, Inc. ([TRC] 2009) conducted a cultural resources study (including paleontological resources) in April 2009 to identify the presence or absence of cultural resources listed or eligible for listing on the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR) within the boundaries of the Phase 3 Expansion study area (RFS and Delevan Site), in compliance with the counties of Butte and Colusa and California Environmental Quality Act guidelines. The study provided the results of a cultural resource literature review, records search, Sacred Lands File (SLF) search, and pedestrian field surveys that took place in 2008 and 2009 for the RFS and the Delevan Site in Butte and Colusa counties, California. The study is on file with the California Historical Resources Information System (CHRIS) at the Northeast Information Center (NEIC); California State University, Chico; and the Northwest Information Center (NWIC), Rohnert Park.

Records Search and Literature Review

A records search and literature review of an area within a 0.5-mile radius from the Phase 3 Expansion components at the RFS and Delevan Site was conducted with the CHRIS at the NEIC and the NWIC. The results of the records searches revealed that twelve previous cultural resource studies have been conducted within a 0.5-mile radius of the RFS and the Delevan Site. Early U.S. Geological Survey (USGS) maps were reviewed for early historic structures. Known cultural resources identified in Butte County within the Phase 3 Expansion study area for the RFS include two contributing elements of Reclamation District 833, a potential NRHP/CRHR eligible historic district/landscape. In Colusa County, the Glenn-Colusa Canal is identified as a cultural resource (contributing element to a potential historic

district/landscape in the Glenn-Colusa Irrigation District) within the Phase 3 Expansion study area for the Delevan Site.

Native American Consultation

Research conducted for the Phase 3 Expansion has not identified any known sites within or adjacent to the RFS and the Delevan Site study areas that would qualify for listing on the NRHP or the CRHR as historic properties or as traditional and/or cultural properties, respectively. An SLF search was requested and consultations were initiated with the California Native American Heritage Commission (NAHC) in November 2008 in order to acquire information regarding any recognized sacred lands and/or sensitive cultural resources in or near the Phase 3 Expansion study area. In their response, the NAHC stated that the results of the SLF search did not indicate the presence of Native American cultural resources in the immediate vicinity of the RFS or Delevan Site study areas. In their transmittal, the NAHC also enclosed a list of Native American individuals and/or organizations that might have knowledge of cultural resources in the Phase 3 Expansion study area and suggested that all on the list be contacted. TRC notified all those listed, via letter, in December 2008. The list of Native American individuals and organizations contacted, along with copies of the letters sent to these entities, is presented Appendix D. As of the date of this document, TRC has received no responses from any of the parties contacted.

Pedestrian Field Survey

Both the RFS and Delevan Site and the surrounding areas are part of areas previously reviewed and surveyed for cultural resources during initial and subsequent Wild Goose Facility (Base Project and Phase 2 Expansion) development, as described in Section 3.5, Cultural Resources, of the 2002 EIR. In general, the Phase 3 Expansion study area is considered to be sensitive for cultural resources, primarily unrecorded historic resources, based on historic cartographic information and local topographic features. However, the area of proposed expansion for the RFS is previously farmed, highly disturbed land that has been partially graded and cleared. Existing vegetation is predominantly native grasses, as described in Section 3.3, Biological Resources. The RFS expansion area includes a portion of a rice field that was flooded at the time of the pedestrian survey.

The area of proposed expansion for the Delevan Site is disturbed rangeland exhibiting rolling hills of tall, wild grasses that obstruct views of the ground surface. No cultural resources were observed during the pedestrian surveys conducted by TRC of the RFS or Delevan Site.

Records Search and Literature Review: Reconductoring Component

A records search and literature review of an area within a 1-mile radius from the Option A (anticipated) and Option B (alternative) reconductoring alignments were conducted with the CHRIS at the NEIC. The results of the records search revealed that one previous cultural resource study has been conducted within a 1-mile radius of the reconductoring component. Early U.S. Geological Survey (USGS) maps were reviewed for the potential presence of early historic structures. The study is on file at the NEIC. The results of this study showed that one prehistoric site, consisting of a lithic scatter (potentially a former mound/village site) with other artifacts indicative of prehistoric occupation of the site has been recorded within the 1-mile study area. No other cultural resources sites have been recorded within the reconductoring component study area, but because majority of the reconductoring study area has not been surveyed for cultural resources, it was concluded that other cultural resources could potentially be present.

Paleontological Context

Paleontological resources are generally defined as fossil remains, fossil localities, and formations that have produced fossil material in other nearby areas. The paleontological resource of a rock unit encompasses any preserved evidence of once living organisms. As recognized here, this pertains to fossils preserved either as impressions of soft or hard parts; mineralized remains of hard parts; tracks, burrows, or other trace fossils, coprolites, seeds, or pollen; and other microfossils.

Two recognized depositional units of Pleistocene age, the Modesto Formation and the older Riverbank Formation, underlie the RFS and reconductoring study areas. Both formations have the potential to yield significant vertebrate fossils. The Delevan Site study area is underlain by the Tehama Formation and surface-exposure areas of both the Modesto and Riverbank Formations. Localized exposures of the still older Red Bluff Formation cap some of the lower foothills at the western end of the Delevan Site study area. The Modesto and Riverbank formations have produced significant Pleistocene fossils near the Delevan Site study area. The Delevan Site study area also includes exposures of Late Cretaceous marine sedimentary rocks. Invertebrate fossils are known to be locally abundant in some of these older units; however, new invertebrate fossil finds would probably not be significant. Because of a history of yielding significant fossils, the Modesto and Tehama Formations have a high potential to contain paleontological resources and therefore are considered to have high paleontological sensitivity.

Paleontological Resources Discovered During Phase 2 Expansion

On June 13, 2003, during Phase 2 Expansion construction activities, fossil bones were discovered by the applicant's paleontological monitor (Hanson 2009) on private property. Bone fragments were initially found on the spoils pile created from excavation of the Wild Goose Line 400/401 Connection Pipeline, approximately 2,000 feet west of I-5. Further investigation revealed bones in place at a depth of nine feet below ground surface in the trench wall. All accessible bone fragments were collected; however, safety concerns precluded further excavation into the trench wall. The fossils included parts or all of three large vertebrae, rib fragments, several probable limb bone fragments, and a possible skull fragment, and are not consistent with mammoth or mastodon fossils. The bones probably represent a large extinct bison (Giant Bison, *Bison bison occidentalis*), a subspecies of the modern bison.

One June 14, 2003, the applicant's paleontological monitor discovered a tooth fragment of a medium- to large-sized mammal (Hanson 2009). This specimen was found in two pieces on the trench spoils pile, at a location approximately 50 feet east of the electrical transmission line, east of I-5, on private property. The tooth fragment was difficult to identify, and may have been from a bear.

Both fossil discoveries occurred in the Lower Riverbank Formation. The geologic map of Helley and Harwood (1985) shows a thin edge of younger (Holocene) basin deposits at the surface at the locality of the June 13 discovery, but the bones were recovered from a depth of nine feet below the surface and undoubtedly within the closely underlying Lower Riverbank Formation. The same geologic map indicates the presence of Lower Riverbank Formation at the surface in the locality of the June 14 discovery.

Because the fossils from both localities were found on private land, the fossils were initially considered the property of the landowners. Both landowners have indicated that the fossils will be donated to the University of California, Museum of Paleontology after cleaning and stabilization.

Paleontological Study for Phase 3 Expansion Study Area: RFS and Delevan Site

An online records search was conducted at the Museum of Paleontology, University of California, Berkeley, for all sites within the Tehama and Modesto Formations in Butte and Colusa Counties (UC Berkeley 2009) and all late Pleistocene paleontological sites in California. A detailed literature search on

the geology of the Phase 3 Expansion study areas at the RFS and the Delevan Site was also conducted, followed by a site walkover of the RFS and Delevan Site by a California state-licensed geologist.

The records search did not identify any previously recorded paleontological resources in the area of the RFS or the Delevan Site, and no paleontological resources were observed during the site walkover.

A.3.2 Regulatory Setting

Federal Setting

If a development project requires a permit from a federal agency, such as the U.S. Army Corps of Engineers, the National Historic Preservation Act of 1966 (as amended) (NRHP) and its implementing regulations (36 Code of Federal Regulations 800) would apply to the project, requiring the federal agency to consider whether the project would affect historic properties listed or eligible for listing in the NRHP.

The implementing regulations for compliance with Section 106 of the NHPA require federal agencies to identify all historic properties on land under its control or jurisdiction that meet the criteria for inclusion in the NRHP and to afford the Advisory Council on Historic Preservation an opportunity to comment on those actions that may affect them.

Paleontological resources are not regulated under Section 106 of the NHPA unless those resources have been determined a historic property.

During the initial Base Project development, historic properties were identified, and the development of the Wild Goose Facility was determined to have a potential adverse effect on these historic properties. A Memorandum of Agreement (MOA) developed and signed by the U.S. Army Corps of Engineers Sacramento District in July 1997, identifying measures that would be taken to mitigate this finding of adverse effects on these historic properties. A Historic Properties Management Plan (HPMP) was completed as part of the 1997 MOA; the HPMP and MOA were subsequently updated during the Phase 2 Expansion in September 2002. These documents stipulate the compliance measures to be followed for any additional work or expansion associated with the Project. The historic properties identified in the HPMP were located outside of the area of the Phase 3 Expansion.

State Setting

California regulations addressing cultural and paleontological resources are found in the California Public Resources Code (PRC Sections 5020 through 5029.5 and Section 21177) and in the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations Sections 15000 through 15387). Under CEQA, a significant impact to a paleontological resource would occur in the event of disturbance to or destruction of a unique paleontological resource, site, or geologic feature. Any unauthorized removal of paleontological resources is a misdemeanor under Section 5097.5 of the California Public Resources Code, and penalties for damage or removal of paleontological resources is outlined under California Penal Code Section 622.5. Further information on CEQA standards for the protection of cultural resources, including the criteria for the determination of the significance of impacts to historical, archeological, Native American, and paleontological resources are found in Section 3.5, Cultural Resources, of the 2002 EIR.

Local Setting

Protection of cultural resources is addressed in the general plans and land use regulations of Butte and Colusa Counties (Colusa County 1989; Butte County 2000). The Butte County General Plan Land Use Element includes three policies addressing archeological and historical sites (Butte County 2000):

6.7.a. Identify and evaluate all cultural resources [that may be] impacted [by] proposed projects before approval and development.

6.7.b. Preserve significant sites or require their detailed investigation by competent archeologists.

6.8.a. Encourage preservation of significant historical sites.

Although the Butte County 2030 General Plan is still in draft form and has not yet been adopted, policies and procedures included in the draft plan help to describe the community's values with regard to cultural and paleontological resources. Specifically, the Butte County 2030 General Plan (Butte County 2009) Draft Conservation and Open Space Element includes goals, policies, and actions addressing the preservation and protection of cultural resources and Native American culture.

Applicant Proposed Measures

The following applicant proposed measures (APMs), the full text of which is included in Table A.1-1 of Section A.1, are included as part of the Phase 3 Expansion to minimize or avoid impacts on cultural resources.

APM CUL-1: Historic Properties Management Plan Amendment.

APM CUL-2: Stop Construction Operations.

APM CUL-3: Worker Training.

The project features listed below in Table A.3-2 addressing cultural resources were adopted as part of the 2002 EIR for the Phase 2 Expansion, as applicant proposed measures and mitigation measures. These measures would also apply to the Phase 3 Expansion.

Table A.3-2 Project Features Addressing Cultural Resources Adopted as Part of the 2002 EIR

WGSI Measure 3.5-3. Language would be included in the General Specifications section of any subsurface construction contracts regarding trespass on known or potential cultural resources.
Mitigation Measure 3.5-2. The project proponent shall retain a qualified archaeologist to conduct the appropriate studies as required by the HPMP. Qualifications for the archaeologist would be consistent with those found in the HPMP.
Mitigation Measure 3.5-3. Prior to the initiation of construction or ground disturbing activities, all construction personnel shall be alerted to the possibility of buried cultural remains, including prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural materials, work in the immediate area of the find shall be immediately halted and the WGSI project manager shall be notified. Once the find has been identified by a qualified archaeologist, then archaeologist, in conjunction with the WGSI project manager, shall make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts consistent with Section 7.3, Discoveries During Construction of HPMP. If the resource is found to be eligible for the NRHP or CRHP, then WGSI Mitigation Measures 3.5-1 through 3.5-5 would apply.
Mitigation Measure 3.5-4. If buried human remains are encountered during construction, work shall be immediately halted, and the appropriate state or county agency and county coroner shall be immediately notified. If the remains are determined to be Native American, then the Native American Heritage Commission (NAHC) would be notified within 24 hours as required by Public Resources Code 5097. The NAHC shall designate a Most Likely Descendants that would provide recommendations for the treatment of the remains within 24 hours. Protection procedures would follow those found in Section 7.4, Discovery of Native American Skeletal Remains and Appendix 1, Native American Burial Plan of the HPMP.

Table A.3-2 Project Features Addressing Cultural Resources Adopted as Part of the 2002 EIR

WGSI Measure 3.5-7. Prearranged agreements would be made to ensure that any significant fossils discovered during the project would be incorporated into established paleontological collections in a public research or educational institution supporting such collections.

A.3.3 Environmental Impacts and Mitigation Measures

Ground-disturbing construction and maintenance activities have the potential to impact unknown cultural and paleontological resources in the Phase 3 Expansion area as a result of disturbance of surface and subsurface soils.

Two prehistoric/historic archaeological resources potentially eligible for inclusion on the NRHP/CRHR, Reclamation District 833 and the Glenn-Colusa Canal, were documented during planning for the Phase 2 Expansion. Two potential contributing elements of Reclamation District 833, the 833 Canal and Cherokee Canal, are crossed by elements of the Phase 2 Expansion (the Wild Goose Line 400/401 Connection Pipeline and the Storage Pipeline Loop)—neither of these pipelines, however, are components of the Phase 3 Expansion. Neither potential contributing element of Reclamation District 833 is within 0.5 miles of the Phase 3 Expansion study area.

The Glenn-Colusa Canal is a contributing element to a potential historic district/landscape in the Glenn-Colusa Irrigation District. The canal is located approximately 2,300 feet east of the Delevan Interconnect Site, as shown on Figure 2.8 of Chapter 2, Project Description. Construction activities at the Delevan Site would take place nearly half a mile from the canal, and no ground-disturbing or construction staging activities would take place in the vicinity of this potential resource.

In the area of the reconductoring component, one prehistoric site was discovered during a previous cultural resources survey. Reconductoring component activities have the potential to affect both this site and unknown cultural resources.

For simplicity, references to potential construction impacts in the following paragraphs also apply to operations and maintenance activities that involve similar earth disturbance.

a. Would the Project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

LESS THAN SIGNIFICANT IMPACT. As discussed above, additional surveys and research indicate that no previously identified historical resources or historic properties listed in, or eligible for listing in, the NRHP or the CRHR would be affected by the Phase 3 Expansion. However, construction activities such as excavation for the hot tapped pipeline connections (Delevan Site), excavation for installation of wooden utility poles (reconductoring component), and excavation prior to placing fill (RFS) have the potential to disturb unknown subsurface historical resources. Such disturbance could result in loss of integrity of cultural deposits, loss of information, and alteration of a site setting. Implementation of the APMs and project features adopted as part of the 2002 EIR and applicable to the Phase 3 Expansion described above would address potential impacts in the area of the RFS and the Delevan Site.

The area of the reconductoring component has not been fully surveyed for archeological resources, and reconductoring activities could therefore affect unknown cultural resources. Implementation of the following mitigation measure will address potential impacts to known and unknown historical resources in the area of the reconductoring component.

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 historical 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.

With implementation of MM CULT-1 as well as the APMs and project features adopted as part of the 2002 EIR and applicable to the Phase 3 Expansion described above, impacts to cultural resources resulting from construction and operation of the Phase 3 Expansion would be less than significant.

b. Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

LESS THAN SIGNIFICANT IMPACT. As discussed above, additional surveys and research showed that no archeological resources listed in, or eligible for listing in the NRHP or the CRHR have been identified within 0.5 miles of the RFS and the Delevan Site study areas. However, one prehistoric site was discovered during a previous cultural resources study at the area of the reconductoring component. In addition, the area of the reconductoring component is largely unsurveyed for archeological resources. Implementation of the following mitigation measure will address potential impacts to known and unknown archeological resources in the area of the reconductoring component.

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 archeological 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 the identified and marked prehistoric site, as well as other marked archaeological sites, and instruct supervisory personnel to keep personnel and equipment away from these areas.

Ground-disturbing activities such as excavation for the hot tapped pipeline connections (Delevan Site), excavation for installation of wooden utility poles, and excavation prior to placing fill (RFS) also have the potential to disturb unknown subsurface archaeological resources. Such disturbance could result in loss of integrity of cultural deposits, loss of information, and alteration of a site setting. The implementation of the APMs and project features adopted as part of the 2002 EIR and applicable to the Phase 3 Expansion described above would address such impacts.

With implementation of MM CULT-2 as well as the APMs and project features adopted as part of the 2002 EIR and applicable to the Phase 3 Expansion described above, impacts to cultural resources resulting from construction and operation of the Phase 3 Expansion would be less than significant.

c. Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

LESS THAN SIGNIFICANT IMPACT. Results of the paleontological study determined that portions of the Phase 3 Expansion study area are underlain by units of the Quaternary Modesto Formation and the Upper Pliocene-Pleistocene Tehama Formations, both of which have a high sensitivity for containing paleontological resources. Ground-disturbing activities, such as excavation for the hot tapped pipeline connections (Delevan Site), excavation for installation of wooden utility poles, and excavation prior to placing fill (RFS), may have the potential to impact unknown paleontological resources.

With implementation of the APMs and project features adopted as part of the 2002 EIR and applicable to the Phase 3 Expansion described above, impacts to paleontological resources and geologic features resulting from construction and operation of the Phase 3 Expansion would be less than significant.

d. Would the Project disturb any human remains, including those interred outside of formal cemeteries?

LESS THAN SIGNIFICANT IMPACT. Ground-disturbing activities such as excavation for the hot-tapped pipeline connections (Delevan Site), excavation for installation of wooden utility poles (reconductoring component), and excavation prior to placing fill (RFS) have the potential to disturb previously unidentified and unknown human remains, if any are located within these areas. With implementation of the APMs and project features adopted as part of the 2002 EIR and applicable to the Phase 3 Expansion described above, impacts to unknown human remains resulting from construction and operation of the Phase 3 Expansion would be less than significant.

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A.4 Geology, Soils and Mineral Resources

Table A.4 Geology, Soils and Mineral Resources Checklist

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
GEOLOGY AND SOILS				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
MINERAL RESOURCES				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

To supplement information presented in Section 3.6, Geology, Soils, and Mineral Resources, of the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), several documents were reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion). Documents reviewed included resources obtained from various publicly available sources including the California Geological Survey (CGS, formerly the California Division of Mines and Geology), Southern California Earthquake Center, and the United States Geological Survey (USGS). Updated information on landslide and liquefaction hazards was also evaluated, primarily through the review of published geologic quadrangle maps available from the CGS Seismic Hazards Mapping Program. The potential for fault rupture hazards and ground shaking hazards was evaluated by reviewing fault mapping, catalogs, and interactive maps, primarily available from the CGS or USGS. Updated soils information was obtained from the United

States Department of Agriculture (USDA) Natural Resources Conservation Service Web Soil Survey database (USDA 2006a, 2006b).

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) identified four less than significant impacts to geology, soils, and mineral resources.

A.4.1 Environmental Setting

Section 3.6 of the 2002 EIR describes the existing environmental setting for geology, soils, and mineral resources. Additional information specific to the Remote Facility Site (RFS), reconductoring component area, and Delevan Site is provided below. The Phase 3 Expansion includes the westward expansion of the RFS and the reconductoring of up to 6 miles of electrical distribution line in Butte County, and new construction at the Delevan Site in Colusa County. Because the majority of excavation and ground-disturbing activities that would take place as part of the Phase 3 Expansion would occur at the RFS and Delevan Site, the following discussion focuses particularly on those two components.

Regional Geology

The Phase 3 Expansion components are situated within the Sacramento Valley portion of the Great Valley Geomorphic Province of California. The Coast Ranges-Sierran block boundary zone trends roughly north to south and passes beneath the Phase 3 Expansion area west of the Sacramento River and appears to coincide with portions of the Willows fault south of the Phase 3 Expansion area and the active Chico Monocline fault to the north. Further information on the Willows fault is presented below. The Sutter Buttes, an inactive volcanic structure, is located about 4 miles south of the RFS and about 22 miles southeast of the Delevan Site.

Aside from the Sutter Buttes, there are no unique geologic or physical features in the Phase 3 Expansion area. The geologic history of the RFS and surrounding area includes the deposition of ancient marine and alluvial sediments, uplifting of the Coast Ranges, and volcanic activity. The geologic unit exposed at the RFS and the area of the reconductoring component is the Pleistocene-age Modesto Formation. The Modesto Formation is characterized by unconsolidated and slightly weathered gravel, sand, silt, and clay (Helley and Harwood 1895). The Delevan Site has a geologic history similar to the history of the RFS in Butte County, including a mixture of ancient marine and alluvial deposits, uplifting of the Coast Ranges along clearly defined faults, and volcanic activity. The geologic unit exposed at the Delevan Site is the Pliocene Age Tehama Formation. The Tehama Formation is comprised of upper Pliocene nonmarine sedimentary rocks consisting of sandstone and siltstone with lenses of crossbedded pebble and cobble conglomerate derived from the Coast Ranges to the west (Helley and Harwood 1985). Other geologic units mapped near the Phase 3 Expansion area include the Red Bluff Formation (weathered bright red gravels), Basin Deposits (fine grained silt and clay), Alluvium (unweathered gravel, sand, and silt) and River Bank Formation (red semi-consolidated gravel, sand, and silt).

A summary of the geologic units underlying the RFS, the reconductoring component area, and the Delevan Site is presented in Table A.4-2. Additional information on the Modesto Formation and other units and on geologic units outside the Phase 3 Expansion area is provided in Section 3.6 (Geology, Soils, and Mineral Resources) of the 2002 EIR, and in Helley and Harwood's Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California (1985). Additional information on the subsurface geology of the Sacramento Valley fill and the existing gas storage zones of the Wild Goose Field is provided in Section 3.6 and Appendix I of the 2002 EIR.

Table A.4-2 Geologic Conditions – Phase 3 Expansion

Geologic Unit/Structure	Formation Name	Description/Comments
Remote Facility Site		
Qml (Qm)	Modesto Formation (lower member)	Pleistocene alluvial terraces and fans, and abandoned channel ridges; alluvial deposits of gravel, sand, silt, and clay
Sources: Helley and Harwood 1985, CDMG 1992, 2002 EIR (Figure 3.6-4, Appendix I)		
Reconductoring Component		
Qa, Qb, Qm	Modesto Formation (Lower member)	Pleistocene alluvium deposits, Holocene alluvium and natural levee and channel deposits of gravel, sand, silt, and clay.
Delevan Interconnect Site		
Tte (Puc)	Tehama Formation	Pliocene (Upper) nonmarine sedimentary rocks consisting of silt, sand, gravel and clay.

Sources: CDMG 1960, 1992; Helley and Harwood 1985; Saucede and Wagner 1992.

Gas Storage Field Information

Sacramento Valley fill includes Cretaceous formations, which are predominantly well-consolidated marine sandstones and shales, as well as Tertiary and Quaternary formations. The Wild Goose gas field is a structural dome that contains a series of stacked sandstones of the Upper Cretaceous Kione Formation, comprising the gas storage zones. Tertiary and Quaternary formations form a cap over the gas storage zones and contain groundwater used for agricultural, commercial, and drinking purposes.

The top of the Kione Formation sits at 2,480 feet below ground surface (bgs) in the Wild Goose gas field. The total thickness of the Kione interval is 950 feet, with individual sandstones up to 100 feet thick. The Kione Formation is overlain by approximately 50 feet of Sacramento Formation shale, forming the top seal for the reservoir. An additional 300 to 350 feet of Capay shale overlies the Sacramento Formation either directly or separated by a thin (less than 10-foot) intervening-zone called the Hangtown. Select isopach variations within the Kione Formation suggest there is likely some faulting in the overall structure.

The gas field consists of 12 distinct underground porous sandstone reservoirs located at depths ranging from 2,550 to 3,450 feet bgs, as shown in Figure 2-4 of Chapter 2, Description of Phase 3 Expansion. The individual reservoirs or pools are separated from each other by impervious rock (shale) formations. The impervious, dome-shaped cap rock, which varies in thickness from 10 to 75 feet, serves as the top of the reservoir and traps the natural gas within the top portion of the dome. The reservoir body is composed of highly porous and permeable sandstone rock within which the gas is contained. The flanks of the reservoir are saturated with water and are in contact with large, deep saline aquifers that provide pressure support, or "water drive," during natural gas withdrawal. As part of the expansion of the Wild Goose Facility, the applicant would further utilize the existing gas storage capacity of the L-1, L-4, U-1, and U-2 reservoirs, as described in Section 2, Description of Phase 3 Expansion.

Faulting and Seismicity

No known active fault or potentially active fault crosses the RFS, reconductoring component area, or Delevan Site; however, there are faults near the Phase 3 Expansion area that are classified as active, potentially active, conditionally active (potential activity unknown), or inactive. Earthquakes ranging from minor to major could occur during the operation of the project. The historically active Cleveland Hill fault (part of the Foothills Fault System) produced the Richter magnitude (M) 5.7 Oroville earthquake in 1975, and Holocene ground rupture has occurred on the Dunnigan Hills fault (Great Valley

Fault 3). The Great Valley Fault 4 was a general source region of the 1892 earthquake in the Winters-Vacaville area. Other active faults within 100 miles of the Phase 3 Expansion area include Coast Ranges faults, the Midland-Sweitzer Fault (Great Valley Fault 3), and the San Andreas Fault zone (Butte County 2009).

A list of active or potentially active faults within approximately 100 miles of the Phase 3 Expansion area is presented below in Table A.4-3. A regional fault and epicenter map showing the approximate location of the Phase 3 Expansion area relative to seismic sources and past earthquakes is also provided in Figure 3.6-1, Section 3.6 (Geology, Soils, and Mineral Resources) of the 2002 EIR. Additional information on faulting and seismicity in the Phase 3 Expansion area is also provided in the 2002 EIR.

Table A.4-3 Seismic Source Characteristics of the Phase 3 Expansion Area

Fault Name	Approximate Distance (miles) [Delevan][a]	[RFS]	Fault Segment Length (miles)	Fault Type	Slip Rate (mm/year)	Maximum Earthquake Magnitude (Mw)
Willows	[12]	[13]	18	Reverse (high angle)	0.04	7.3
Sites-Paskenta	[27]	[53]	12	Thrust	0.05-0.08	6.5
Coast Range Sierra Block Boundary Zone (CRSB)	[14.5]	[38]	21	Fold and thrust	1-10[b]	6.75
Great Valley 1[c]	[1.5]	[27.5]	27	Reverse	0.1	6.7
Great Valley 2[c]	[5.8]	[28]	14	Reverse	0.1	6.4
Great Valley 3[c]	[17]	[31]	34	Reverse	1.5	6.8
Corning	[15]	[27]	18	Reverse	0.02-0.04	6.75
Bartlett Springs[d]	[27]	[48]	52	RL SS	6	7.1
Chico Monocline	[39]	[22]	35	—	—	7.5
Hunting Creek-Berryessa[d]	[33]	[46]	37	RL SS	6	6.5
Rumsey Hills	[16]	[42]	12	Thrust	0.9-2.6	6.25
Cleveland Hill (Foothills Fault System)	[46]	[20]	5	Normal	0.05	6.5
Great Valley 4[c]	[50]	[62]	26	Reverse	1.5	6.6
Maacama	[50]	[77]	49	RL SS	9	7.1
Collayomi	[41]	[51]	18	RL SS	0.6	6.5
Cedar Roughs (2)	[50]	[53]	8	RL SS	6	6.5
Healdsburg	[59]	[74]	25	RL SS	9	7.0
Cordelia (2)	[70]	[72]	13	SS	6	6.5

Table A.4-3 Seismic Source Characteristics of the Phase 3 Expansion Area

Fault Name	Approximate Distance (miles) [Delevan][a]	[RFS]	Fault Segment Length (miles)	Fault Type	Slip Rate (mm/year)	Maximum Earthquake Magnitude (Mw)
Concord-Green Valley	[70]	[72]	33	RL SS	6	6.9
San Andreas	[78]	[100]	280	RL SS	24	7.9

Sources:
URS 2006, Kleinfelder 2002a, CGS 2009, USGS 2009a, Jennings 1994, Butte County 1977, 2002 EIR

Notes:
[a]Delevan Site
[b]Slip rate for CRSB obtained from Wakabayashi and Smith (1994)
[C]Great Valley Fault 1 source centered on Sites anticline near Willows; Great Valley Fault 2 centered on the Cortina Thrust; Great Valley Fault 3 geomorphic expression of Sweitzer and Dunnigan Hills faults suggests Holocene activity; Great Valley Fault 4 probable general source region of 1892 earthquake in Winters-Vacaville area
[d]These faults were described as part of the Concord-Green Valley Fault Zone

Key:
— = not available; data for the Bartlett Springs fault indicate it is a northwest-striking zone of discontinuous faults and sheers
mm/year = millimeters per year
RL = right lateral
SS = strike-slip

Soils

The soils in the Phase 3 Expansion area reflect the alluvial parent material and the underlying rock type, extent of weathering, degree of slope, and degree of modification by humans. Soils data for the Phase 3 Expansion area were obtained from the Web Soil Survey database for Butte and Colusa counties (USDA 2006a,b). These soils are a byproduct of alluvial deposits formed by the ongoing uplifting of the Coast and Sierra Nevada mountain ranges. 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 at 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. The clay has a high potential for expansion based on testing (Kleinfelder 2002b). The soils have a low erosion potential (Colusa County 1989).

Characteristics of major soil units underlying the RFS, reconductoring component area, and Delevan Site, including soil texture, erosion hazard, and shrink-swell potential of the major soil units, are presented in Table A.4-4.

Table A.4-4 Major Soil Unit Types and Characteristics

Soil Name	Description/Soil Texture (USDA)	Hazard of Erosion	Shrink-Swell Potential
Delevan Site (Colusa County, CA)			
Capay Clay	Clay	Low	High to very high
Altamont Silty Clay	Silty clay, clay, clay loam	Low	High
Reconductoring Component Area			
Gridley Taxadjunct Clay	Clay, loam	Low	Moderate to high
Gridley Taxadjunct Loam	Loam, clay	Low	Moderate
Remote Facility Site (Butte County, CA)			
Gridley taxadjunct – Calcic Haploxerolis complex	Loam, clay loam, clay, sandy loam	Low	Moderate
Subaco taxadjunct Clay	Clay, silty clay, sandy loam	Low	High

Table A.4-4 Major Soil Unit Types and Characteristics

Soil Name	Description/Soil Texture (USDA)	Hazard of Erosion	Shrink-Swell Potential
Calcic Haploxerolls	Sandy loam	Low	Low
Esquon – Neerdobe Complex	Clay, silty clay, clay, loam	Low	High

Sources: USDA 2006a,b; Butte County 2009; Colusa County 1989
Notes:
Erosion hazard descriptors:
Slight = little or no erosion is anticipated
Moderate = some erosion anticipated
High = significant erosion potential exists
NR = not rated
Shrink-Swell Potential Descriptors:
Low = linear extensibility less than 3%
Moderate = linear extensibility 3 to 6%
High = linear extensibility 6 to 9%
Very High = linear extensibility greater than 9%

Based on previous geotechnical investigations (Kleinfelder 2002b,c), the Phase 3 Expansion construction activities could be performed using conventional grading and foundation construction techniques. Geotechnical aspects of design and construction, as well as specific recommendations for reducing the potential adverse effects of near-surface expansive soils and loose, potentially compressible near-surface soil, were discussed in reports of the previous geotechnical investigations (Kleinfelder 2002b,c). These recommendations included replacement of these near-surface soils with compacted structural fill.

Mineral Resources

Mineral resources consist of oil and gas and deposits of rock, sand, and gravel. Published publicly available literature, maps, and online sources were used to evaluate potential impacts on mineral resources present at the Phase 3 Expansion area. A detailed assessment of the mineral resources associated with the Phase 3 Expansion area is provided in Section 3.6, Geology, Soils, and Mineral Resources, of the 2002 EIR. 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, as discussed in the 2002 EIR.

No mineral resources have been identified at or in the immediate vicinity of the RFS or reconductoring component area (Butte County 2009) or Delevan Site (Colusa County 1989). Additionally, a review of the USGS Mineral Resource Data System indicates there are no mines at or near either the RFS or the Delevan Site (USGS 2009b).

Groundwater

Groundwater tends to be shallow throughout the study area, particularly in the areas between the Sacramento River and the low hills (such as those to the west of the Delevan Site) and alluvial fans. Section A.6, Hydrology, and Section 3.6, Geology, Soils, and Mineral Resources, of the 2002 EIR include further information related to groundwater.

Geologic Hazards

Liquefaction

Liquefaction occurs primarily in saturated, loose, and fine- to medium-grained soils in areas where the groundwater table is within approximately 50 feet of the ground surface. Shaking causes the soils to lose strength and behave as a liquid. The RFS and reconductoring components of the Phase 3 Expansion area are underlain by alluvium with varying stability and with moderate to high liquefaction potential (Butte County 2009, Butte Creek Watershed Conservancy 2005). The Delevan Site is underlain by nonmarine

sedimentary rocks consisting of silt, sand, gravel, and clay; liquefaction potential in this area is not well documented but may be considered low (Colusa County 1989).

Landslides

Landslides, rockfalls, and debris flows may occur continuously on all slopes; some processes act very slowly, while others occur very suddenly, with potentially disastrous results. Events and actions that trigger landslides include seismic ground shaking, over-weighting the slope with either naturally deposited colluviums or artificial fill, decreasing soil cohesiveness by adding water to the materials on the slope, or undercutting a slope through erosive action or human disturbance. The RFS, reconductoring component, and Delevan Site areas have low to no susceptibility to landslides and rockfalls induced by any of these means (Butte County 2009, Colusa County 1989).

Subsidence

Subsidence is the settling of the ground surface due to compaction of underlying unconsolidated sediments. Subsidence in the Sacramento Valley has occurred in areas of agricultural development, areas of over-pumped artesian basins, and places compacted through the wetting of moisture-deficient soils by irrigation. As discussed in Section 3.6 of the 2002 EIR, areas in the western portion of Butte County and the eastern portion of Colusa County (including the Phase 3 Expansion area) have been cited as areas of greatest concern for subsidence. Although gas extraction in extreme cases can cause subsidence, subsidence related to gas withdrawal alone does not reach magnitudes comparable to oil or groundwater withdrawal. No subsidence in the RFS or reconductoring component areas has been documented (Butte County 2009). In contrast, medium land subsidence may be expected in the area of the Delevan Site (Colusa County 1989).

Expansive Soils

Expansive soils shrink or swell with changes in moisture content. This characteristic is typically associated with high clay content soils, such as those found at the RFS, reconductoring component, and Delevan Site. The soils at the RFS and reconductoring component area are classified as having a moderate to high potential for expansion (Butte County 2009), and those at the Delevan Site are classified as having a medium potential for expansion (Colusa County 1989). Expansive soils could affect the stability of building and equipment foundations at the RFS and the Delevan Site, causing them to settle and/or crack. Previous geotechnical investigation data (Kleinfelder 2002b,c) indicate that construction activities at the RFS and the Delevan Site will need to adhere to the requirements and standards of the California Building Code (CBC) and Colusa and Butte counties' building departments.

Collapsible Soils

Collapsible soils are soils that experience a decrease in volume and associated settlement as a result of a change in soil structure associated with wetting of partially saturated subsoil. Typically, collapsible soils occur predominantly at the base of mountains, where Holocene-age alluvial fan and wash sediments have been deposited during rapid runoff events. The RFS, reconductoring component area, and Delevan Site are not located at the base of a mountain and such soils are unlikely to be present on these sites.

Section A.5, Hazards and Hazardous Materials, and Section 3.7, Hazards and Hazardous Materials of the 2002 EIR, include further information addressing storage field issues related to natural gas migration through faults, wells, or other means.

A.4.2 Regulatory Setting

State

State of California

Appendix G of the CEQA Guidelines identifies the criteria that must be considered when analyzing a project's potential to result in temporary and permanent impacts on mineral resources. The State of California regulatory requirements applicable to geology, soils, and mineral resources include the following:

- The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (amended 1994) which prohibits development within 50 feet of an active fault zone;
- The 2001 CBC (founded on the 1997 Uniform Building Code), which requires more extensive structural seismic provisions and acceptable design criteria for structures with respect to seismic design and load bearing capacity; and
- Government Code Sections 65302(f) and 65302.1, which require a city to take seismic and other natural hazards into account in their planning programs and to outline them in their general plan.

California Surface Mining and Reclamation Act

The California State Legislature enacted the Surface Mining and Reclamation Act (SMARA) in 1975 to limit new development in areas containing significant mineral deposits. SMARA also allows the State Mining and Geology Board, after receiving classification information from the State Geologist, to designate lands containing mineral deposits of regional or statewide significance. The classification system is intended to ensure that through appropriate lead agency policies and procedures, mineral deposits of statewide or regional significance are considered in agency decisions.

California Division of Oil, Gas, and Geothermal Resources

Public Resources Code Section 3106 mandates the supervision of drilling, operation, maintenance, and abandonment of oil wells for the purpose of preventing damage to life, health, property, and natural resources; damage to underground and surface waters suitable for irrigation or domestic use; loss of oil, gas, or reservoir energy; and damage to oil and gas deposits by infiltrating water and other causes. In addition, the California Division of Oil, Gas, and Geothermal Resources regulates drilling, production, injection, and gas storage operations in accordance with California Code of Regulations (CCR) Title 14, Chapter 4, Subchapter 1.

Local

Regulations governing the Phase 3 Expansion for both Butte County and Colusa County are reviewed in Section 3.6, Geology, Soils, and Mineral Resources, of the 2002 EIR.

A.4.3 Environmental Impacts and Mitigation Measures

Applicant Proposed Measure

The following applicant proposed measure (APM), the full text of which is included in Table A.1-1 of Section A.1, is included as part of the Phase 3 Expansion to minimize or avoid impacts on geology, soils, and mineral resources.

APM GEO-1. Implementation of Standard Practices and Recommendations from Geotechnical Report.

Geology and Soils

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

LESS THAN SIGNIFICANT. The Phase 3 Expansion does not lie within an Alquist-Priolo Earthquake Fault Zone. The closest mapped fault, the Willows Fault, is considered a potentially active fault (Wong et al. 1988) and is not delineated on the most-recent Alquist-Priolo Fault Zoning Map (CGS 2007). The potential impacts caused by the rupture of a known earthquake fault during construction and operation of the Phase 3 Expansion would be less than significant.

ii) Strong seismic ground shaking?

LESS THAN SIGNIFICANT. The project would be located in an area considered to be seismically active, given the proximity and number of potential seismic sources. The closest mapped fault, the Willows Fault, is not considered an active fault (Wong et al. 1988) and is not delineated on the most-recent Alquist-Priolo Fault Zoning Map (CGS 2007); however, the fault is considered potentially active. Based on the number and proximity of several active faults (see Table A.4-3), there is the potential for an earthquake to occur during the life of the Phase 3 Expansion components. Seismic shaking experienced at a specific location depends on a number of factors such as distance from the epicenter of the earthquake, the response of the underlying soils, and the characteristics of the structures being shaken. Structures located on thick, poorly consolidated materials commonly experience higher levels of shaking and subsequent damage than structures built on more stable and consolidated bedrock.

The degree of seismic shaking, in the form of ground acceleration, is measured as a percent of gravity (g). The anticipated acceleration in the Phase 3 Expansion area that has a 10 percent probability of being exceeded in 50 years is approximately 0.15 g for the RFS and reconductoring component area and 0.20 g for the Delevan Site (USGS 2008). Previous geotechnical evaluations were prepared (Kleinfelder 2002a,b,c) for the Phase 2 expansion, which determined conservative levels of ground shaking, the result of which will be incorporated into final design and engineering. Similarly, the specific seismic design requirements for the Phase 3 Expansion would include those recommended in the previous geotechnical evaluations (Kleinfelder 2002a,b,c), those required by the CBC, and those in accordance with the appropriate industry standards, including established engineering and construction practices and methods, which would minimize the potential for failure in the event of an earthquake (as described above in APM GEO-1). With implementation of the design recommendations, the potential impacts caused by strong seismic shaking during construction and operation of the Phase 3 Expansion would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

LESS THAN SIGNIFICANT. Severe ground shaking can trigger landslides, cause fissures and cracks to open in the ground, and cause unconsolidated, saturated materials to liquefy. Liquefaction susceptibility reflects the relative resistance of soils to loss of strength when subjected to ground shaking and occurs primarily in saturated, loose, and fine- to medium-grained soils in areas where the groundwater table is within approximately 50 feet of the ground surface. Shaking causes the soils to lose strength and behave as a liquid. The RFS and reconductoring component areas are underlain by alluvium with varying stability and moderate to high liquefaction potential (Butte County 2009, Butte Creek Watershed

Conservancy 2005). The liquefaction potential at the Delevan Site, underlain by nonmarine sedimentary rocks consisting of silt, sand, gravel and clay, is not well documented but may be considered low (Colusa County 1989).

Previous geotechnical evaluations (Kleinfelder 2002a,b,c) prepared for the Phase 2 Expansion determined conservative levels of ground shaking, which resulted in the incorporation of final design and engineering geotechnical considerations. The specific seismic design requirements for the Phase 3 Expansion components would include those in the previous geotechnical evaluations (Kleinfelder 2002a,b,c) and in accordance with the appropriate industry standards, including established engineering and construction practices and methods, which would minimize the potential for seismic-related ground failure in the event of an earthquake. Based on previous geotechnical investigation data, construction activities at both the RFS and the Delevan Site would need to follow the requirements of the CBC and Colusa and Butte counties' building departments (as also described above in APM GEO-1). With implementation of the design recommendations, the potential impacts caused by seismic-related ground failure during construction and operation of the Phase 3 Expansion Project would be less than significant.

iv) Landslides?

NO IMPACT. Both the Butte County General Plan (Butte County 2009) and Colusa County General Plan (Colusa County 1989) indicate that the RFS, reconductoring component area, and Delevan Site have low to no susceptibility to seismically induced landslides and rockfalls. No change to the existing soil stability conditions would occur during construction and operation of the Phase 3 Expansion components; therefore, no impact would occur under this criterion.

b. Would the project result in substantial soil erosion or the loss of topsoil?

LESS THAN SIGNIFICANT. The potential for soil erosion within the Phase 3 Expansion area is rated as little to none at the RFS and the reconductoring component area (Butte County 2009), and low for the Delevan Site (Colusa County 1989). No change to existing conditions would result from the construction and operation of the Phase 3 Expansion components. Any potential impacts would be managed and monitored by the upgrading and implementing the facility's Stormwater Pollution Prevention Plan that would address erosion and sediment control (as described in Section A.6, Hydrology); therefore, the Phase 3 Expansion would result in a less than significant impact with successful implementation of these measures.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

LESS THAN SIGNIFICANT. The Phase 3 Expansion components would be located on land with low relief and slope gradients. The previous geotechnical study (Kleinfelder 2002b,c) identified site-specific geologic conditions and potential geologic hazards. The report provided design and construction recommendations to reduce potential impacts from geologic hazards or soil conditions. The results of the geotechnical studies would be incorporated into the Phase 3 Expansion final design and engineering (as described above under APM GEO-1). No change to the existing soil stability conditions, including potential for onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse, due to implementation of the Phase 3 Expansion would occur during construction or operation activities. Therefore, the Phase 3 Expansion would result in a less than significant impact.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

LESS THAN SIGNIFICANT. Expansive soils shrink or swell with changes in moisture content and are typically associated with high clay content soils, such as those found at the RFS, reconductoring component area, and Delevan Site. The soils at the RFS and reconductoring component area are classified as having a moderate to high potential for expansion (Butte County 2009), and those at the Delevan Site are classified as having a medium potential for expansion (Colusa County 1989). Expansive soils could affect the stability of building and equipment foundations, causing them to settle or crack. Previous geotechnical studies (Kleinfelder 2002b,c) identified site-specific geologic conditions and potential geologic hazards. The report provided design and construction recommendations to reduce potential impacts from expansive soil conditions, consisting primarily of replacing the excavated soils for foundations with compacted structural fill.

Construction activities at the RFS and the Delevan Site would also need to follow the requirements and standards of the CBC and Butte and Colusa counties' building departments, as described above under APM GEO-1. The Phase 3 Expansion construction and operation activities would not result in a change to existing soil stability conditions, including expansive soil; therefore, the Phase 3 Expansion would result in a less than significant impact.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?

NO IMPACT. The Phase 3 Expansion would not involve the construction of septic tanks. Currently, 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 the Waste Management Company. There are no septic tanks at the reconductoring component area or the Delevan Site. There would be no change in the use of existing septic tanks during construction or operation; therefore, there would be no impact under this criterion.

Mineral Resources

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

NO IMPACT. No mineral resources have been identified at or in the immediate vicinity of the RFS or reconductoring component area (Butte County 2009) or the Delevan Site (Colusa County 1989). Additionally, a review of the USGS Mineral Resource Data System indicates there are no mines located at or near the RFS, reconductoring component area, or Delevan Site (USGS 2009b). Therefore, there would be no impact under this criterion.

b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

NO IMPACT. No mineral resources have been identified at or in the immediate vicinity of the RFS or reconductoring component area (Butte County 2009) or the Delevan Site (Colusa County 1989). Additionally, a review of the USGS Mineral Resource Data System indicates there are no mines located at or near the RFS, reconductoring component area, or Delevan Site (USGS 2009b). Therefore, there would be no impact under this criterion.

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A.5 Hazards and Hazardous Materials

Table A.5-1 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. 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?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, public use airport or private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

To supplement information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), Section 3.7, Hazards and Hazardous Materials, several planning documents and resources that have been updated since 2002 were reviewed for the Wild Goose Phase 3 Gas Storage Expansion, including the draft Safety Element of the Butte County General Plan and state wildfire hazard maps, as discussed below. An updated California Department of Toxic Substances Control (DTSC) Envirostor database search was conducted for the Remote Facility Site (RFS) and the Delevan Site to determine the location and release of any hazardous materials or waste. An Environmental Data Resource (EDR) database search was also performed for the area within 5 miles vicinity of the reconductoring component to make the same determination along the anticipated and alternative reconductoring alignments. The 2002 EIR included a qualitative assessment of risk to existing residences from a natural gas release, which also applies to the Phase 3 Expansion and is discussed below. The 2002 EIR did not identify any significant impacts but did identify six less than significant impacts relating to Hazards or Hazardous Materials from the implementation of the Phase 2 expansion.

Section A.6, Hydrology, also addresses potential changes to water quality that may occur as a result of a hazardous or contaminated materials release.

A.5.1 Environmental Setting

Local Setting

The Phase 3 Expansion area consists of the RFS and the reconductoring component area in Butte County, and the Delevan Site in Colusa County. Both sites are located in sparsely populated areas, as shown in Figures 2.2 and 2.3 of Chapter 2, Description of Phase 3 Expansion. The reconductoring component comprises the reconductoring of an existing PG&E 13-kilovolt (kV) electrical distribution line to increase electrical load capacity and reliability to accommodate the expansion of the RFS. The reconductoring component would be completed along one of two potential alignments, Option A and Option B, which both would begin along the intersection of West Liberty and Pennington roads in unincorporated Butte County. The Option A route extends south along Pennington Road for approximately 5,300 feet, then eastward along West Evans Reimer Road for approximately 9,000 feet, discontinues for 14,000 feet, and continues along West Evans Reimer Road for another 8,700 feet, terminating at State Route 99, as shown in Figure 2-10. All of Option A would take place in sparsely populated, unincorporated Butte County. Option B extends north along Pennington Road for approximately 5,400 feet to Colusa Highway, then extends eastward for approximately 25,000 feet along Colusa Highway. Most of Option B would take place in unincorporated Butte County, with approximately 2,000 feet of the reconductored line located in a part of the City of Gridley that is developed with residential uses. The work area for the reconductoring component would include the road shoulder, part of the road, and the utility right-of-way (ROW).

Sensitive Receptors in the Phase 3 Expansion Vicinity

Sensitive receptors in the vicinity of the Phase 3 Expansion include both human and ecological receptors. For this analysis, and based in part on distances for relative risk based on Federal Office of Pipeline Safety location classes (49 Code of Federal Regulations [CFR] 192.903, High Consequence Areas) and the 2002 EIR, a distance of 2,000 feet from either the RFS or the Delevan Site was determined a conservative distance to use to determine the area of potential risk from hazards and hazardous materials (study area). A larger area, contained within a 1-mile radius of either the RFS or the Delevan Site, was used to investigate the possible existence of potential hazardous materials sites in the vicinity of the Phase 3 Expansion elements. The study area for the reconductoring component alignments extended 5 miles from the mid-point of both the Option A and Option B alignments. An area contained within a 2-mile radius of either the Option A or the Option B reconductoring routes was used to investigate potential hazards and hazardous material sites in the vicinity of the reconductoring component.

Human Receptors

There are no sensitive human receptors in the immediate vicinity of the RFS or the Delevan Site (that is, there are no residences within 2,000 feet of the pipeline components of the RFS or the Delevan Site). Sensitive human receptors within 1 mile of the RFS and the Delevan Site include the Waterbury residence, approximately 4,000 feet to the east of the RFS, and the Grey Eagle Ranch hunting club lodge, approximately 4,500 feet to the west of the RFS. Two other residences, one associated with the private airstrip to the northwest of the RFS and another located northeast of the RFS, are at or slightly beyond the limit of a 1-mile radius of the RFS. Sensitive receptors near the RFS also include seasonal hunters in the Butte Sink area to the northwest of the site, the Gray Lodge Waterfowl Management Area to the south of the site, and rice fields adjacent to the RFS. The period of potential impact to hunters would be between October and mid-January, during the overlap between the duck, goose, and pheasant hunting seasons and the Phase 3 Expansion construction period.

No sensitive receptors are located within 2,000 feet of the Delevan Site.

Approximately 20 residences are within 30 to 50 feet of the Option A reconductoring alignment, and approximately 50 residences and farms or other agricultural uses are within 30 to 50 feet of the Option B reconductoring alignment. Sensitive receptors along or in the vicinity of either of the reconductoring component routes include two nearby schools (approximately 0.5 miles from the distribution line) and residential populations. All reconductoring activities would take place within the existing electrical utility ROW, along the road shoulder or partially within existing roadways near residences and farms along the roadways. The Option A reconductoring alignment would be in a sparsely populated, primarily agricultural area, and the Option B reconductoring alignment would be in a more populated, agricultural area. The eastern portion of the Option B alignment would extend to within 0.5 miles of the Sycamore Middle School and the McKinley Primary School, which are adjacent to one another.

Ecological Receptors

Sensitive ecological receptors are present within 2,000 feet of both the RFS and the Delevan Site. The Sacramento Valley Goose Special Management Area, managed by the California Department of Fish and Game (CDFG), includes the Grey Lodge Waterfowl Management Area adjacent to the RFS to the south. Activities in this area managed or overseen by the CDFG include wildlife viewing, hunting, and waterfowl and habitat management. As described in Section 3.3, Biological Resources, vernal pools have been identified approximately 1,000 feet to the east of the Delevan Site. Local wetland areas and sensitive species indigenous to the area are identified in Section 3.3. Sensitive ecological receptors are also present within 2,000 feet of the Option A reconductoring component alignment. The Gray Lodge Waterfowl Management Area is adjacent (to the south of) the portion of the Option A reconductoring alignment that extends along West Evans Reimer Road, and also lies on either side of the portion of the Option A reconductoring alignment that extends along Pennington Road.

Hazardous Materials and Waste

A hazardous material is defined by DTSC as a material that poses a significant present or potential hazard to human health and safety or the environment if released, because of its quantity, concentration, or physical or chemical characteristics (26 CCR 25501). Hazardous materials could include raw materials or products that pose a hazard, and hazardous wastes could include materials remaining on site as a result of past activities.

Hazardous materials that are currently handled, stored, and transported at the Wild Goose Facility are listed in Table A.5-2.

No hazardous materials are currently in use, stored, or transported along either the Option A or the Option B reconductoring component alignments.

Potential Hazardous Materials Sites in the Phase 3 Expansion Vicinity

Butte and Colusa counties are rural communities with economic bases that include agriculture and light industry. A number of industries in the counties may use or be associated with hazardous materials, including bulk storage facilities and agriculture-related operations, and a variety of hazardous materials associated with agricultural and industrial activities are handled and stored within the vicinity of the Phase 3 Expansion areas. Examples of such substances include pesticides which are regularly applied on the agricultural lands that surround the Phase 3 Expansion components, and petroleum and fuel products (including aviation gas and jet fuel used by farms engaged in crop dusting operations) stored in a number of underground storage tanks in the area.

Table A.5-2 Hazardous Materials In Use at the Wild Goose Facility

Substance	Use	Storage at RFS or Delevan Site
Methanol	Prevention of the formation of hydrates in pipelines and other equipment. Injected downstream of inlet separation on an as-needed basis to prevent freezing across the pressure let-down valves.	Approximately 1,000 gallons stored in structures that provide 110% of tank capacity.
Corrosion Inhibitor	Bactericide used to protect integrity of pipelines, valves, and well components. Currently stored at the Well Pad Site, and injected into the pipeline system. Corrosion inhibitor is circulated through the pipeline system at the end of the withdrawal season to remove any residual formation water, and coat/inhibit the system.	None (stored at Well Pad Site)
Engine Coolant	Used to cool moving engine parts	Stored at RFS
Aqueous Urea	Reactant used, with SCR catalyst, to reduce NOx in compressor engine exhaust	Stored at RFS
Mercaptan	Odorant added to gas prior to entering pipelines.	Approximately 1,000 gallons in a bulk tank at the RFS site (for Line 167); approximately 2,000 gallons in a bulk tank at the Delevan Interconnect Site
Tri-ethylene Glycol	Additive for dehydrating natural gas. TEG is heated and used in the condensation process to remove water.	Approximately 2,500 gallons of clean and 2,500 gallons of used glycol are stored onsite in storage tanks.
Selective Catalytic Reduction (SCR) Catalyst (Metallic Substrate)	Catalyst used with urea to reduce NOx in compressor engine exhaust	Stored at RFS in storage tank.
Lubricants and Solvents	Materials include engine oil, grease and petroleum-based solvents. Lubricants are used for compressor engines and other engines at the RFS.	Approximately 1,000 gallons each of engine oil and compressor oil are located at RFS in storage tanks.
Vehicle Fuels	Gasoline and diesel used to fuel construction equipment.	Stored at RFS

Environmental databases were reviewed to identify sites known to be associated with releases of hazardous materials or wastes in the vicinity of the RFS and the Delevan Site (DTSC 2009 and DTSC 2010). The area researched was the RFS and the Delevan Site and areas within a 1-mile radius of either site.

The DTSC Envirostor database was reviewed, including the following resources:

1. Federal Superfund Sites: Indicates whether the site is listed on the federal "Superfund" National Priorities List (NPL). The list of sites is developed and maintained by the U.S. Environmental Protection Agency (USEPA), which typically has primary regulatory oversight for the sites listed on the NPL. USEPA delists a site from the NPL when all cleanup activities have been certified as complete.
2. State Response Sites: Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.
3. Voluntary Cleanup Sites: Identifies sites in a DTSC program that allows motivated parties who are able to fund the evaluation, investigation, cleanup, and DTSC's oversight to move ahead at their own pace to investigate and remediate their sites.

4. School Sites: Identifies proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination.
5. Evaluation Sites: Identifies suspected, but unconfirmed, contaminated sites that need or have gone through a limited investigation and assessment process.
6. Military Evaluation: Identifies closed military facilities with confirmed or unconfirmed releases where DTSC is involved in investigation and/or remediation. Sites may be classified as closed bases, open bases, or Formerly Used Defense Sites (FUDS).
7. Corrective Action/Hazardous Waste Permit: Includes investigation and cleanup activities at hazardous waste facilities (either Resource Conservation and Recovery Act [RCRA] or state-only) that were eligible for a permit or received a permit. These facilities historically treated, stored, disposed, and/or transferred hazardous waste.
8. GeoTracker LUFT/SLIC: Sites in the GeoTracker database include those identified as leaking underground fuel tank (LUFT) sites or Spills-Leaks-Investigations-Cleanups (SLIC) sites.

In addition, the DTSC's online Cortese List, a planning document used to comply with CEQA in providing information about the location of hazardous materials release sites, was reviewed. No hazardous materials or waste sites were listed within 1 mile of either the RFS or the Delevan Site.

For the reconductoring component, the EDR analysis was reviewed to identify sites known to be associated with releases of hazardous materials or wastes along or in the vicinity of either the anticipated or the alternative alignments (EDR 2010). The area analyzed focused on the reconductoring component alignments and areas within a 2-mile radius of either route. In addition to agricultural uses that regularly apply pesticides, other businesses handling hazardous materials in the vicinity of the reconductoring component area include automotive service stations; a vehicle garage, repair, and dismantling company; a fruit processing plant; a hospital; a county landfill; and convenience stores. The EDR analysis for the area of the reconductoring component confirmed that there are no NPL sites within 2 miles of the reconductoring alignments. The EDR analysis showed the presence of one RCRA site within the 2-mile radius, the Shade Tree Garage, which is within 500 feet of the reconductoring component area, and is a source of hazardous waste generation, storage and disposal, as defined under RCRA. The nearest solid waste disposal site is approximately 3.6 miles from the reconductoring component alignments. The Leaking Underground Storage Tank (LUST) Information System database revealed 36 LUST sites within a 5-mile radius of the reconductoring component alignments; none of the LUST sites are located within 1 mile of the reconductoring alignments. The Mines Master Index File confirmed the presence of two sites in the vicinity of the reconductoring component area. These sites, which are associated with ongoing aggregate operations, are the Copper Ready Mix site (located approximately 2.2 miles from the reconductoring component area) and the McFarlands Ready Mix site (approximately 2.7 miles from the reconductoring component area).

Natural Gas Field Conditions

Information on the conditions of the Wild Goose natural gas field is presented in the 2002 EIR, and in Chapter 2, Description of Phase 3 Expansion and Section A.4, Geology, Soils and Mineral Resources, of this supplementary document. In letters presented in Appendix E dated August 5, 1997, July 23, 2002, and August 3, 2007, the California Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR) granted Wild Goose approval to operate the L-1, L-4, U1, and U2 formations at gas storage levels up to 0.7 pounds per square inch (psi) per foot of depth. As described in the 2002 EIR, reservoir and core studies confirmed the integrity of the cap rock for these zones, as well as the ability of each zone to sustain pressure beyond DOGGR's 0.7-psi/foot maximum pressure gradient limit, and the storage zones are operated well below this limit (WGS 2009). Reservoir pressure monitoring and annual

mechanical integrity inspection exercises conducted since the Phase 2 Expansion have indicated no evidence of gas migration.

Facility and Industry Safety Records

A summary of safety incidents that occurred at natural gas storage facilities in California from 1970 to the present was prepared for the proposed Sacramento Natural Gas Storage Project in 2007 (SERA 2007). This summary concluded that underground natural gas storage facilities generally have very low numbers of incidents affecting the safety of employees and the general public. Five storage failures or accidents were reported at natural gas storage facilities in California between 1976 and 2006, none of which were reported to have caused injuries or loss of life. The migration of storage gas beyond the reservoir at some locations has resulted in problems such as contamination of groundwater, but such gas migration typically remains in the subsurface and poses no threat to the public or structures on the surface. The report included recommendations for minimizing safety and environmental problems at gas storage reservoirs, including implementation of specific measures addressing reservoir integrity, casing integrity, wellhead design and maintenance, surface facility operation and maintenance, and pipeline maintenance and monitoring.

Approximately 2.2 million miles of natural gas transmission and distribution pipelines are in operation in the U.S. (GAO 2004). Serious accidents (those resulting in a fatality, an injury, or property damage of $50,000 or more) on interstate natural gas pipelines average upwards of 65 per year[1] (GAO 2004). In 2008, 874 serious accidents associated with natural gas transmission and distribution took place (AGA 2008). Between 1989 and 2008, annual average property damage (private and public) costs resulting from significant onshore gas transmission incidents was over $37 million (PMHSA 2009).

Natural Gas Pipeline Purging

Natural gas pipelines are purged by displacing one gas by another while taking the pipelines in or out of service. The U.S. Chemical Safety and Hazard Investigation Board (CSB) has identified natural gas pipeline purging activities as an area of serious safety concern because of damage caused by these activities (CSB 2010a). Two recent incidents—an explosion at a ConAgra Slim Jim plant in Garner, North Carolina, on June 9, 2009, and the February 7, 2010, explosion at the Kleen Energy plant in Middletown, Connecticut[2]—related to pipeline purging have resulted in nine fatalities within eight months.

Just before the 2010 Kleen Energy incident, the CSB issued a series of Gas Purging Urgent Recommendations detailing the findings from the June 9, 2009, incident and three other similar incidents and addressing measures that should be taken during pipeline purging procedures (CSB 2010b). The CSB found that the primary cause of the gas explosions was gas purging activities resulting in a gas release that exceeded the lower explosive limit (LEL, or the concentration of a combustible material in air below which ignition will not occur). The CSB also found that workers relying on their sense of smell to detect natural gas and avoid harm may become subject to odor fatigue from prolonged exposure, which could result in workers placing themselves in dangerous situations unknowingly. Potential ignition sources that are close to gas purging activities, and the proximity of nonessential personnel in the area during these activities, were also determined to contribute to the severity of the incidents studied.

[1] This estimate includes consideration of liquefied natural gas facilities and of gas pipeline activities such as gas gathering and transmission and distribution.

[2] Although the investigation into the Kleen Energy Middletown incident is ongoing and CSB investigators have yet to determine its exact cause, the explosion occurred during pipeline purging procedures, which has been reported to likely have at least contributed to the incident.

In February 2010, the CSB issued urgent safety recommendations to the National Fire Protection Association (NFPA), the AGA, and the Chair of the NFPA National Fuel Gas Code (NFPA 54/ANSI Z223.1) Committee to enact a tentative interim amendment and permanent changes to the code. The changes would require the following actions related to purging of fuel gas piping at industrial, commercial, and public facilities:

a. Purged fuel gases shall be directly vented to a safe location outdoors, away from personnel and ignition sources

b. If it is not possible to vet purged gases outdoors, purging gas to the inside of a building shall be allowed only upon approval by the authority having jurisdiction[3] of a documented risk evaluation and hazard control plan. The evaluation and plan shall establish that indoor purging is necessary and that adequate safeguards are in place such as:

   - Evacuating non-essential personnel from the vicinity of the purging;
   - Providing adequate ventilation to maintain the gas concentration at an established safe level, substantially below the lower explosive limit; and
   - Controlling or eliminating potential ignition sources

c. Combustible gas detectors are used to continuously monitor the gas concentration at appropriate locations in the vicinity where purged gases are released

d. Personnel are trained about the problems of odor fade and odor fatigue and warned against relying on odor alone for detecting releases of fuel gases

The CSB also recommended to the International Code Council (ICC) and the Chair of the International Fuel Gas Code Committee that the revised gas purging provisions of the National Fuel Gas Code, consistent
with CSB recommendation 2009-12-I-NC-R1, be incorporated into the International Fuel Gas Code.

Fire Hazards

The California Department of Forestry and Fire Protection (CAL FIRE) is the state agency responsible for fire protection in State Responsibility Areas of California, and also identifies and maps fire risks in Federal Responsibility Areas (FRAs), State Responsibility Areas (SRAs), and Local Responsibility Areas (LRAs; CAL FIRE 2009). CAL FIRE identifies three types of fire hazard severity (very high, high, and moderate), and makes recommendations for "very high fire hazard severity zones" (VHFHSZs).

The RFS and the reconductoring component area are in a portion of Butte County that CAL FIRE has classified as a Local Responsibility Area (LRA) and a "non-very high fire hazard severity zone (non-VHFHSZ; CAL FIRE 2010a). Fire protection for the unincorporated areas of Butte County is provided by local, state, and federal fire protection districts, including the Butte County Fire Department, CAL FIRE, and U.S. Forest Service. The Delevan Site is in an area of Colusa County that CAL FIRE has classified as a moderate fire hazard severity zone in a local responsibility area (CAL FIRE 2010b). Wildland fires are a potential hazard to development in the foothill and mountain areas of Colusa County (Colusa County

[3] The NFPA defines the Authority Having Jurisdiction (AHJ) as an "organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure" such as a local fire marshal or building official (NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, 2006 Edition, 654-6). Where it is not possible to implement safety controls, NFPA standards can grant decision-making authority over exceptions to safety requirements to the authority having jurisdiction.

1989). For more information on fire protection services for the RFS and the Delevan Site, see Section A.10, Public Services and Socioeconomics.

Airports

A private airstrip is located approximately 1 mile northwest of the RFS; no other airstrips or airports are in the vicinity of the RFS, the Delevan Site, or the reconductoring component area.

Wild Goose Facility Emergency Service, Health and Safety, and Hazardous Materials Programs and Plans

The primary component of natural gas is methane, a flammable substance with explosive potential within a confined space and in the presence of an ignition source. The transport and storage safety of natural gas are regulated by the federal Department of Transportation (DOT), as described below and in the 2002 EIR, as well as through California Health and Safety Code (H&SC) and CPUC General Order 112-E, which require written operating, maintenance, and emergency response plans for natural gas facilities.

The following programs and plans addressing emergency service, health and safety, and hazardous materials are currently in place at the Wild Goose Facility.

Operating and Maintenance Plan

The Operating and Maintenance Plan for the Wild Goose Facility includes requirements and procedures for annual leak testing of pipelines; annual inspection, servicing, and operation of block, relief, and pressure regulating valves; annual testing of cathodically protected pipeline; and testing of the cathodic protection system rectifiers six times per year.

Damage Prevention Program

This program includes a “one call” system (Utility Service Alert). The applicant has established a toll-free number for the public to call to get information on the location of its facilities. This number is posted on pipeline marker signs as well as on aboveground structures at the facility.

Emergency Response Plan (ERP) and Hazardous Materials Release Plan (HMRP)

An Emergency Response Plan (ERP) compliant with the requirements of CFR Title 49 and the California Code of Regulations (CCR) Titles 8, 19, and 22 was prepared during the 1997 Base Project. The ERP describes procedures to coordinate emergency response with responsible service agencies and contact information for emergency response personnel. Wild Goose maintains a current ERP available on request from the CPUC. The ERP covers pipelines and compressor facilities and includes specific procedures for coordination with local public safety officials. A Hazardous Materials Release Plan (HMRP) consistent with the requirements of Section 25500 of the California H&SC, prepared during the development of the 1997 Base Project, is activated along with the ERP when a hazardous materials release occurs that requires emergency response. The HMRRP also provides a detailed list and map of hazardous materials and wastes at the Wild Goose Facility.

WGS Safety Program

Programs to maintain safe and healthy working conditions and pipeline safety procedures have been established by Niska Gas Storage (Niska), the parent company of Wild Goose Storage, LLC, (Wild Goose or the applicant), in compliance with applicable federal, state, and local requirements. Protection survey testing, leak patrolling, and internal inspection activities are designed to monitor, identify, and minimize conditions that would increase potential for emergency incidents. Pipeline safety standards addressed in the safety program include the following:

- Cathodic Protection Surveys – The applicant conducts surveys on the cathodic protection system twice a year; operational staff conduct monthly readings between surveys.
- Leak Surveys – The applicant conducts leak surveys for anomalies and/or damaged pipeline markers annually.
- Leak Patrol – The applicant conducts monthly visual, aerial inspections of the pipeline easement.
- Pipeline Internal Inspection – The applicant maintains a program to conduct an internal integrity inspection of its pipeline every five years using a "smart pig."[4] The applicant inspected the storage and interconnect pipelines in fall 2007. The applicant also cleans the storage pipeline regularly prior to the start of the injection season with a pig, injecting a corrosion inhibitor and removing sand or debris that collects in the pipeline during the withdrawal cycle.

Niska's quality control process is designed to ensure appropriate safety equipment and systems are incorporated during pipeline installation and facility design and installation. Safety measures in place at the Wild Goose Facility include:

- RFS inspections – The RFS and all equipment are inspected daily. At the start of each shift, the facility operator walks the site and records the condition of fencing, drainage facilities, tanks and containment, piping, valves, instrumentation and control systems, equipment, site lighting, and buildings. These records are also summarized in a monthly report. Operating conditions at the RFS are also monitored through the Supervisory Control and Data Acquisition (SCADA) system, which is connected to electrical devices within the gas process train and provides a means for operations staff to monitor operating conditions, as well as an early detection system for any abnormal conditions that may warrant maintenance or repairs. If further inspection or repairs are warranted, the process flow may be re-adjusted, or a shutdown of all or portions of operations may be implemented, until the problem can be corrected. In addition, operational blowdown valves and the emergency shutdown valves are inspected and tested twice a year.
- Pressure relief valves and pipeline blowdowns – Pressure relief from compressor station piping is necessary for safe operation of the Wild Goose Facility. Regular, routine blowdowns (rapid depressurization events) take place whenever a compressor unit shuts down. Blowdowns occur during rare emergencies or infrequent maintenance, when large volumes of natural gas are vented from the pipeline. Fire and gas readings of 40 percent or higher also trigger activation of emergency shutdown valves, which blowdown the entire facility. Immediate emergency depressurization takes place at the facility via pressure safety valves, activated only when pressure exceeds the safe operating parameters of piping or vessels. Under these circumstances, pressure is relieved directly to the atmosphere, rather than with a controlled release through a silencer. Safety records for the Wild Goose Facility from 2005 to 2008 indicate that there have been no emergency blowdowns during this period.

[4] For a definition of the pig (pipeline cleaning and inspection device), see Section 2, Description of Phase 3 Expansion.

- The facility alarm/shutdown system – This conservatively designed system would be triggered if an incident occurred; the system would keep the gas volume released to a minimum. As part of this system, gas pressure, fire, gas vapor, and vibration detection devices monitor facility equipment (through the SCADA system) and shut down equipment automatically if irregular operating conditions occur. Sensors in the separator and produced water tanks are also triggered if liquid within them reaches a certain volume. Emergency personnel would be automatically contacted through the system if the alarm/shutdown system were triggered. For example, the gas detection system alarm is triggered if the air in the compressor building reaches 20 percent of the LEL. At 40 percent of the LEL, compressors are automatically shut down, and gas piping is vented. If the "fire eye" detects a potential source of ignition, such as sparks or a flash from a piece of welding equipment, the system will shut down all compressors and block and vent all gas piping in the compressor building. Valves controlling the flow of gas in and out of the compressor station are also shut down automatically if there is an emergency shutdown.
- A detailed well integrity management program – The integrity management program includes monitoring activities that take place daily to annually, minimizing the chance for a gas release. Well integrity is monitored annually according to the requirements of DOGGR through mechanical integrity tests performed for each injection well.
- Subsurface safety valves installed in the upper portion of each gas storage production/injector well at the Well Pad Site – These valves provide emergency closure of the producing conduits if an emergency occurs, blocking gas flow from the reservoir when triggered to close by the detection of any system failure or damage to the surface production/injection facilities. The safety-valve system is designed so that the well is isolated if any such emergency occurs, reducing the risk of a well gas release.
- Fire prevention measures and response – Measures addressing the risk of fire at the facility include smoking restrictions and presence of firefighting equipment and fire detection equipment. If a fire occurs, the most effective means of control is to block in and vent the gas from the facility or affected area safely. In addition, Wild Goose coordinates with local emergency service providers, conducting facility tours and reviewing the facility's emergency response plan so that these service providers have a working understanding of the facility and operations system. Wild Goose continues to conduct orientation and familiarization sessions as requested by emergency services providers (e.g., for new staff or refreshers for existing staff), or when facility or operations changes warrant.
- Pipeline inspections – Ground inspections and leak surveys of existing pipeline rights-of-way (ROWs) are performed annually at the facility. Ground inspections include checking for encroachments and reduced cover, as well as assessing the condition of vegetation, warning signs, cathodic protection test stations, and piping. The results of these inspections are summarized and maintained on site at the RFS.
- Purging of Natural Gas Pipeline Systems Practice – Wild Goose has developed a site-specific natural gas pipeline systems practice to address purging new piping systems containing air, and existing systems containing natural gas, with the objective of providing guidance to all onsite workers when purging pipelines and associated systems (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 the following:
    - Procedures for adding a slug of nitrogen into a pipeline during purging if a hazardous mixture may occur, to prevent the formation of an explosive mixture;
    - 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;

- Minimizing the volume of natural gas purged from an in-service pipeline;
- The use of combustible gas indicators during purging;
- Identifying a procedure for each purging event, including the proper sequence of opening and closing valves and operating purge connections;
- Eliminating sparks and other potential ignition sources from the area of purging; and
- Appropriate notification of local emergency service providers and nearby property owners during purging activities.

Worker Environmental Awareness Program

A Worker Environmental Awareness Program (WEAP) was prepared during the development of the Base Project. The WEAP includes a personnel training procedure that includes an overview of mitigation measures, environmental permitting, sensitive resources, and applicable proposed project plans such as erosion control, reclamation plans, BMPs, and the facility Stormwater Pollution Prevention Plan (SWPPP).

Further information on programs and plans addressing emergency service, health and safety, and hazardous materials at the Wild Goose Facility, including the facility construction fire prevention and safety plan, the abandoned well inspection program, and facility security, is presented in the 2002 EIR.

A.5.2 Regulatory Setting

The 2002 EIR discusses the regulatory framework relevant to hazards and hazardous materials used or produced at the Wild Goose Facility. This discussion includes descriptions of relevant federal, state, and local regulations such as the Clean Water Act; U.S. DOT Office of Pipeline Safety Rules; California Water Code; California H&SC Section 25534; Division of Oil, Gas, and Geothermal Resource Guidelines; CPUC General Order 112-E; California Department of Education Code; and applicable storage tank regulations.

The following federal, state, and local regulations and policies that are relevant to the Phase 3 Expansion but were not addressed in the 2002 EIR are summarized below.

Federal

Resource Conservation and Recovery Act

The RCRA enables the USEPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thus regulating the generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

Hazardous Materials Transportation Act

The primary object of the Hazardous Materials Transportation Act (HMTA) of 1975 is to provide adequate protection against risks to life and property inherent in the transportation of hazardous materials in commerce. HMTA empowers the DOT to regulate the transportation of hazardous materials by rail, aircraft, vessel, and public highway. Amendments of 1976 and 1990 substantially revise existing provisions and add new requirements for chemicals that the U.S. DOT has determined pose unreasonable risks to health, safety, and property during transport activities. Hazardous materials regulations are subdivided by function into four areas:

- Procedures and/or Policies – 49 CFR Parts 101, 106, and 107

- Material Designations – 49 CFR Part 172
- Packaging Requirements – 49 CFR Parts 173, 178, 179, and 180
- Operational Rules – 49 CFR Parts 171, 173, 174, 175, 176, and 177

Office of Pipeline Safety: Tapping

The Office of Pipeline Safety (OPS) is responsible at the federal level for natural gas pipeline regulations and standards. Chapter 49 CFR Part 192 prescribes federal safety standards for transportation of natural gas by pipeline. Section 192.151 addresses hot tapping, as defined in Chapter 2, Description of Phase 3 Expansion, and includes requirements such as ensuring that each mechanical fitting used to make a hot tap must be designed for at least the operating pressure of the pipeline.

Federal Pipeline Safety Improvement Act

In 2002, Congress passed the Pipeline Safety Improvement Act (PSIA), HR 3609, to strengthen the nation's pipeline safety laws. Under the PSIA, gas transmission operators are required to develop and follow a written integrity management program containing all the elements described in Part 192.911 of the U.S. DOT regulations to address the risk on all transmission pipeline segments of HCAs. Specifically, the law establishes an integrity management program that applies to all HCAs.

USEPA Risk Management Program

The USEPA's Risk Management Program requires companies of all sizes that use certain substances to develop a company-specific Risk Management Program that includes detailed safety precautions and maintenance plans; an adequate emergency response program is also required. The information in the Risk Management Program assists local emergency response personnel in case of an accident or exposure. The Risk Management Program is part of the Clean Air Act (42 USC 7401 et seq.).

U.S. OSHA 29 Code of Federal Regulations, Parts 1910 and 1926

The U.S. Occupational Health and Safety Administration (OSHA) regulates worker safety during pipeline construction activities. Chapter 29 CFR Parts 1910 and 1926 prescribe federal safety standards for such activities, including process safety management of highly hazardous chemicals (1910.119) and gas welding and cutting (1926.350).

National Fire Protection Association (NFPA) 780, National Electrical Code (NEC)

To avoid electrical hazards, a thorough knowledge by electrical contractors of the National Electric Code (NEC) is required to install any electrical power system. The NEC covers the installation of electrical conductors, equipment, and raceways; signaling and communications conductors and equipment and optical fiber cables for public and private premises. The components of the Phase 3 Expansion may require special permission from the Butte County authority having jurisdiction for the enforcement of this code.

State

California regulations on hazardous materials and wastes are equal to or more stringent than federal regulations, so the USEPA has granted the state primary oversight responsibility to administer and enforce hazardous materials and waste management programs. State regulations require planning and management to ensure that hazardous materials and wastes are handled, stored, and disposed of properly to reduce risk to human health and the environment. The following key laws and agencies pertain to hazardous materials and wastes.

California Code of Regulations, Title 22, Chapter 11

Title 22 of the CCR, Division 4.5, Chapter 11, contains regulations for the identification and classification of hazardous wastes. The code defines a waste as hazardous if it has ignitability, corrosivity, reactivity, or toxicity characteristics. Article 3 provides detailed definitions of each characteristic. Articles 4 and 5 provide lists of RCRA hazardous wastes, non-RCRA hazardous wastes, hazardous wastes from specific sources, extremely hazardous wastes, and hazardous wastes of concern and special wastes.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those pertaining to hazardous waste.

California H&SC Article 1 requires emergency response plans for facilities that store hazardous materials in excess of 55 gallons, 500 pounds, or 200 cubic feet. Facilities that handle more than these indicated quantities of hazardous materials must submit a Hazardous Materials Business Plan to the Certified Uniform Program Agency (CUPA). The CUPA for Colusa County is the Department of Environmental Health and Office of Emergency Services.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to, but more stringent than, RCRA program requirements. The act is implemented by regulations contained in Title 26 of the CCR, which describes the requirements pertaining to the following aspects of proper management of hazardous waste:

- Identification and classification.
- Generation and transportation.
- Design and permitting of recycling, treatment, storage and disposal facilities.
- Treatment standards
- Operation of facilities and staff training.
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for the identification, packaging, and disposal of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest, which accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

DTSC operates programs to protect California from exposures to hazardous wastes through management of the following:

- Handling of the aftermath of improper hazardous waste management by overseeing site clean-up;
- Prevention of the release of hazardous waste by ensuring those who generate, handle, transport, store, or dispose of wastes do so properly;
- Enforcement against those who fail to appropriately manage hazardous wastes;
- Exploration and promotion of measures to prevent pollution and encourage reuse and recycling;

- Evaluation of site-specific soil, water and air samples and the development of new analytical methods;
- Practice in other environmental sciences, including toxicology, risk assessment and technology development; and
- Involvement of the public in DTSC's decision-making.

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous material or hazardous waste is an important segment of the plan administered by the California Emergency Management Agency (CEMA). CEMA coordinates the response of agencies that include the California Environmental Protection Agency (CalEPA), the California Department of Transportation (CalTrans), California Highway Patrol, regional water quality control boards, air quality management districts, and county disaster response offices.

California Occupational Health and Safety Administration

The California Occupational Health and Safety Administration (Cal/OSHA) is responsible for the development and enforcement of workplace safety standards and ensuring worker safety in the handling and use of hazardous materials. In addition, Cal/OSHA enforces regulations for worker safety during grading and trenching activities. Cal/OSHA obligates businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Hazards Communication Standard requires that workers be informed of the hazards associated with the materials being handled. Manufacturers are required to label containers, provide Material Safety Data Sheets (MSDSs) in the workplace, and provide worker training.

Under Title 8 of the CCR, Cal/OSHA establishes requirements for safe working conditions and safety-related reporting in California, and also regulates electrical safety (Electrical Safety Orders). The primary intent of the Title 8 requirement is to protect workers, but compliance with these regulations also reduces potential hazards for non-construction workers and project vicinity occupants through the implementation of required controls relating to site monitoring, reporting and other activities..

Under Title 8 of the CCR, Cal/OSHA also enforces regulations that would apply to the hot tapped pipeline connection installation, including Subchapter 15, Article 5, Section 6777 (Fire and Explosions, Hot Work Permits); Subchapter 7, Group 16, Article 108, Section 5157 (Permit-Required Confined Spaces); Subchapter 7, Group 16, Article 109, Section 5189 (Process Safety Management of Acutely Hazardous Materials); Subchapter 7, Group 10, Article 88, Section 4848 (Fire Prevention and Suppression Procedure); and Subchapter 7, Group 11, Article 90, Section 4851 (Arc Welding and Cutting).

Division of Oil, Gas and Geothermal Resources

DOGGR regulates the production of oil, gas, and geothermal resources within California. Physical hazards, storage field maintenance, and operations within natural gas storage fields are under DOGGR's jurisdiction. Before a permit is issued, DOGGR engineers review all aspects of a proposed natural gas storage project to ensure no gas migration from the intended injection zone will take place and that there will be no contamination of any freshwater aquifers. In addition, all operators must report monthly injection or withdrawal volumes and well pressures to DOGGR.

Other Applicable State Regulations

Relevant to the Phase 3 Expansion, various sections of the California Public Resources Code address fire safety regulations restricting the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that has an internal combustion engine; specify the requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided on site for various types of work in fire-prone areas.

Local

The Butte County Public Health Department Environmental Health Division and the Colusa County Office of Emergency Services regulate the storage, handling, and disposal of hazardous materials in the area of the Phase 3 Expansion. Businesses are required to report the types and amounts of hazardous materials they use to these agencies, and must also coordinate emergency response plans with these agencies and with local emergency service providers.

The Butte County General Plan Safety Element and Circulation Element and the Colusa County General Plan Safety Element include policies addressing fire protection, hazards, and transportation of hazardous wastes in these counties. Goals and policies in these general plan elements relevant to the Phase 3 Expansion were included and discussed in the 2002 EIR in Section 3.7, Hazards and Hazardous Materials.

Discussions addressing local emergency response plans and routes are included in Section A.10, Public Services and Socioeconomics, and Section A.12, Transportation and Traffic, respectively.

A.5.3. Applicant-Proposed Measures and Applicable Phase 2 Expansion Features

Applicant proposed measures (APMs) addressing Hazards and Hazardous Materials for the Phase 3 Expansion, the full text of which is included in Table A.1-1 of Section A.1-1, include the following:

APM HAZ-1: Best Management Practices.

APM HAZ-2: Hazardous Materials Release Response Plan Update.

APM HAZ-3: Worker Environmental Awareness Program Update.

APM HAZ-4: Construction Fire Prevention and Safety Plan.

APM HAZ-5: Facility Security.

The project features shown in Table A.5-3 addressing Hazards and Hazardous Materials 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. Mitigation Measure 3.7-3 has been revised for this phase of expansion activities, as shown in the table in underline and strikeout text.

Table A.5-3 Project Features Addressing Hazards and Hazardous Materials Adopted as Part of the 2002 EIR

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.

Mitigation Measure 3.7-4. If routine surface gas monitoring indicates that a well may be leaking (gas bubbles, distressed vegetation), WGSI report it immediately to the DOGGR and Butte County and implement the appropriate remedial actions consistent with DOGGR procedures outlined in California Code of Regulations §1723 et. seq. in consultation with the DOGGR. WGSI shall submit all well remediation and repair records to DOGGR and Butte County. 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.

Mitigation Measure 3.7-6. The Applicant shall update the existing Emergency Response Plan to reflect the new project components and operations. The updated plan shall also include specific dates and frequencies with regard to the retraining of existing employees, and the contact with Emergency Services Providers and property owners about the Plan. The update shall indicate the nature and extent of the proper training and indoctrination to ensure effective interaction of all responsible parties in the Plan if an accident were to occur.

A.5.4 Environmental Impacts and Mitigation Measures

Components of the Phase 3 Expansion that present a potential risk or hazard are those that would be related to the storage, use, and handling of hazardous materials and waste, and the risks associated with use of high pressure gas pipelines and natural gas storage field equipment and operations.

Volumes of potentially hazardous materials that would be used at the RFS in association with operation of the Phase 3 Expansion components include those listed in Table A.5-4. The new equipment installed at the RFS would require some additional storage of materials, such as engine oil and urea. This additional volume of material that would be used would account for approximately 40 percent of the total volume of hazardous materials used at the Wild Goose Facility, after the Phase 3 Expansion was completed.

In addition to materials used during construction activities, there would be a minor increase in hazardous material use during operations at the Delevan Site as a result of the Phase 3 Expansion.

Phase 3 Expansion operations would generate approximately 4,000 additional gallons of liquid hazardous waste from maintenance of the compressors and emergency generator each year. Small quantities of wastes such as oily rags, glycol filters, and oil filters would also be generated during Phase 3 Expansion construction and operation activities. Wastes would be temporarily stored in storage tanks in the compressor building, pending shipment to permitted offsite treatment, storage, or disposal facilities by a licensed hauler. Containment of the storage tank would provide 110 percent of the storage tank's capacity.

Table A.5.4 Additional Volumes of Materials to be Used for the Phase 3 Expansion Components (RFS)

Material	Volume
Engine Coolant	7,400 gallons
Selective Catalytic Reduction (SCR) Catalyst (Metallic Substrate)	36 panels
Aqueous Urea	8,000 gallons
Tri-ethylene Glycol	10,000 gallons
Lubricants and Solvents Engine Oil Compressor Oil	 1,090 gallons 1,120 gallons

Source: WGS 2009

A confidential reservoir modeling study on the impact of increasing the working gas capacity of the L1, L4, U1 and U2 storage zones to 50 billion cubic feet (Bcf) was completed by the applicant for the Phase 3 Expansion, with the conclusion that the resulting pressure gradient would be contained within DOGGR's acceptable limits. No indications of leaks from the reservoir formation have been detected during Wild Goose's annual inspections of all abandoned wells within the original gas producing area (WGS 2009). The Phase 3 Expansion would not result in an increase in withdrawal or injection pressure in the wells accessing the storage reservoirs.

There have been no safety incidents at the Wild Goose Facility that have resulted in injuries or loss of life since the facility started operations (Theberge 2010). On February 28, 1999, during or shortly after the start of storage activities at the Wild Goose Facility, a natural gas leak developed in the gathering system pipeline, at an above-ground mechanical joint (SERA 2007). The leak was the result of a failed gasket, which was replaced. On November 6, 2001, a natural gas release from the RFS, resulting from another failed gasket, was recorded in the California Hazardous Materials Incident Report System. No contamination, injuries, or fatalities were recorded as a result of these releases, and the leaks were repaired. In addition, Wild Goose has adopted a site-specific, conservative pipeline purging procedure to address potential risks related to this activity, as described above.

For the Phase 2 Expansion, the applicant prepared a Qualitative Assessment of Risk to Existing Residences from a Natural Gas Release, included as part of the 2002 EIR, in Section 3.7, Hazards and Hazardous Materials, and in Appendix K. Three relative risk zones—zero to 660 feet from the natural gas facility component (most risk), 660 to 2,000 feet (intermediate risk), and >2,000 feet (least risk)—were evaluated for the Phase 2 Expansion. Based on other consequences analyses results, it was determined that in the zone of least risk, the chance of severe impacts to people and structures was very small. A potential gas ignition event resulting in impacts to nearby sensitive receptors (primarily residences) was evaluated and determined to have a very low probability of occurrence. As previously discussed, all identified sensitive residential or hunting lodge receptors are at least 4,200 feet from facility components, which is well beyond the boundary where the zone of least risk begins.

Escape through manufactured wellbores or alongside these wellbores is the main avenue for potential gas migration from the Wild Goose storage field. Monitoring of reservoir pressure and annual well inspections have shown no indication of natural gas migration from the gas storage reservoir to neighboring formations, or to the surface, through manufactured or natural pathways (WGS 2009).

Potentially hazardous materials used during reconductoring activities include fuel, oil and other vehicle maintenance fluids. Leaks from improperly maintained equipment and spills during reconductoring activities could result in soil contamination. During reconductoring activities, trained PG&E personnel will implement safety policies and measures that will reduce the potential for spills and leaks of hazardous materials and reduce the severity of the impact in the event of an inadvertent leak or spill. In addition, PG&E's safety measures will address the installation of the 1,500 kilovolt-ampere transformer, and no impacts related to hazardous materials contained in the transformer coming in contact with sensitive receptors would result. No hazardous materials would be used during maintenance of the reconductored utility line.

Impact Discussion

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

LESS THAN SIGNIFICANT IMPACT. During both construction and operations at the Phase 3 Expansion components at the RFS and the Delevan Site, hazardous materials including oils, lubricants, fuels, and other substances as listed in Table A.5.4 would be transported, used, and disposed as waste, as discussed above.

Hazardous materials and wastes would be handled, stored, recycled, and disposed of according to applicable manufacturer specifications as well as local, state, and federal regulations. During construction at both the RFS and the Delevan Site, hazardous materials and wastes would be handled in accordance with the BMPs listed in the SWPPP, described above in APM HAZ-1 and in Section A.6, Hydrology. Wastes generated at the RFS and the Delevan Site would be stored in secure, enclosed areas. The applicant maintains service contracts with a licensed hauler, Ramos Oil Company, to ensure the removal of all hazardous wastes within the maximum 90-day period. A subsidiary of Ramos Oil Company, Ramos Environmental, also provides waste recycling services.

The volumes of hazardous materials and wastes that would be stored at the Phase 3 Expansion areas would be limited, and stored in structures with adequate containment provided. Because materials would be handled, stored, and transported in accordance with applicable regulations, the probability of accidental release to the public or environment during transport, use, or disposal of hazardous materials is very low. In addition, with the implementation of the Facility's Emergency Response Plan, any spill that occurred would be cleaned up immediately, therefore limiting the potential for a hazard to the public or the environment. With the implementation of the existing plans and programs at the Wild Goose Facility as well as the APMs and other measures listed above, any impact would be less than significant, and no mitigation measures would be required.

As discussed previously, trained PG&E personnel will implement safety policies and measures that would ensure compliance with applicable local, state and federal policies and regulations, and would prevent impacts to sensitive receptors in the area of the reconductoring component during reconductoring activities.

b) 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?

LESS THAN SIGNIFICANT IMPACT. An accidental release of hazardous materials or wastes has the potential to create hazards for sensitive receptors. Gas migration from natural gas storage fields has the potential to result in a hazard to sensitive human receptors, through exposure to either natural gas or a gas ignition explosion or fire, or through contamination of freshwater aquifers. Operating procedures at the Wild Goose Facility, including the APMs discussed above, are designed to ensure compliance with local, state, and federal regulations for the response to and containment of large releases, and to minimize the potential of release to environmental and sensitive receptors.

Reservoir pressure monitoring and annual mechanical integrity inspection exercises have validated Wild Goose's reservoir model as a fully contained inventory, and provide no evidence of gas migration (WGS 2009). As discussed in the 2002 EIR, the possibility of gas migration through natural geologic pathways at the Wild Goose formation was considered to be remote. A comment letter submitted by DOGGR for the 2002 EIR confirmed that abandoned wells and dry holes were not likely to be potential vertical

conduits for gas migration from the Wild Goose storage field, and, further, that gas was unlikely to migrate to the surface through existing faults. This comment letter is included in Appendix F.

As described above, Wild Goose has adopted a site-specific pipeline purging procedure to address potential risks related to this activity. The implementation of Phase 3 Mitigation Measure (MM) HAZ-1 would address any risks associated with pipeline purging, reducing these risks to a less than significant level.

> **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.

PG&E's installation of up to four pipeline connections at the Delevan Site would use a hot tap procedure. Tapping into natural gas pipelines under pressure poses an explosion and injury risk if safety procedures are not followed. PG&E would conduct hot tapping activities according to industry practices and procedures, as well as PG&E's internal safety procedures, and would follow all applicable local, state, and federal regulations for such procedures. Implementation of Phase 3 MM HAZ-2 would further reduce risks associated with the hot tapped pipeline connection installation.

> **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 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.

As discussed in Section A.4, Geology, Soils, and Mineral Resources, no fault lines are present near the Delevan Site, and no earthquake monitoring equipment would be required to be installed to safeguard the new connections to PG&E Lines 400 and 401.

Hazardous materials and wastes would be contained and handled according to local, state, and federal regulations and industry practices, as well as the applicant's and PG&E's operational safety procedures. No sensitive receptors are located within one-quarter mile of the RFS or the Delevan Site, and the risk of exposure of sensitive receptors to an accidental release is low.

In addition, as part of permit approvals for the Phase 3 Expansion, the applicant would be required to obtain an updated gas storage project permit; as part of this permit process, DOGGR engineers would review all aspects of the Phase 3 Expansion to ensure that no gas migration from the intended injection zone would take place and that there would be no contamination of any freshwater aquifers; this review would further safeguard against the potential for natural gas releases to affect sensitive receptors.

Hot tapped pipeline connection installation would take place according to local, federal, and state regulations, as well as PG&E's own safety procedures and industry standards and practices. The implementation of MM HAZ-1 would further reduce any risks of hazard associated with the hot tapped pipeline connection installation. With the implementation of the measures discussed above and MM HAZ-1, potential impacts from accidental releases would be less than significant.

As discussed previously, trained PG&E personnel will implement safety policies and measures that would ensure compliance with applicable local, state and federal policies and regulations, and would prevent impacts to sensitive receptors in the vicinity of the reconductoring alignments, during reconductoring activities.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

NO IMPACT. No public or private schools are located within 1 mile of the RFS or the Delevan Site, and no impact would occur. Two schools are located approximately 0.5 miles from the Option B reconductoring component alignment. The distance from these schools to the reconductoring construction location, coupled with the implementation of appropriate safety measures by PG&E personnel, as previously discussed, would ensure that reconductoring activities would not result in leaks or spills or hazardous of potentially hazardous materials and no impacts to schools would result.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

NO IMPACT. The Envirostor database search conducted for this assessment and the Environmental Data Resource Report discussed in the 2002 EIR both indicate that no hazardous materials sites are located within a 1-mile radius of the Phase 3 Expansion areas at the RFS or the Delevan Site. Current and previous uses of the Phase 3 Expansion areas at the RFS and the Delevan Site include agricultural and parking/equipment storage; no underground storage or hazardous materials storage has taken place in these areas. Phase 3 Expansion construction and operations activities would not take place on sites included on a list of hazardous materials sites compiled pursuant to Governmental Code Section 65962.5,

and the Phase 3 Expansion would not impact the public or the environment through siting on a listed hazardous materials site.

The reconductoring component work area is also not located on a hazardous materials site. As described in Section A.5.1, Environmental Setting, one RCRA site was recorded as potentially adjacent to (within 500 feet of) the reconductoring component work area, but reconductoring activities (including pole removal and installation) would not affect or be affected by this RCRA site, and reconductoring activities are unlikely to encounter hazardous materials or pose a significant hazard to the public or the environment.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, public use airport or private airstrip, would the project result in a safety hazard for people residing or working in the project area?

LESS THAN SIGNIFICANT IMPACT. A private airstrip is located approximately 1 mile to the northwest of the RFS; no other airports or airstrips are within 2 miles of the RFS, Delevan Site or reconductoring component. According to the applicant's standard operating procedures as described in the 2002 EIR, construction safety programs and coordination of construction activities with the owners/users of this airstrip would be undertaken to ensure that Phase 3 Expansion construction activities do not present a hazard to the use of the airstrip.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

NO IMPACT. The applicant maintains an ERP, including an HMRRP, which includes coordination with local public safety agencies and emergency service providers. According to the measure described above from the 2002 EIR, the ERP would be updated to include the Phase 3 Expansion components. According to the ERP, emergency road access would be coordinated with local emergency service providers, and the facility Transportation Management Plan (see APM TRANS-1 in Section A.12, Transportation and Traffic), would be updated prior to Phase 3 Expansion construction activities to include any updated procedures for coordination with emergency service providers such as fire departments, sheriff departments, paramedics, and the California Highway Patrol, as required. The applicant would also continue to conduct orientation and familiarization sessions for emergency service providers (e.g., for new staff or refreshers for existing staff) for the Phase 3 Expansion components. Provision of emergency services is described further in Section A.10, Public Services and Socioeconomics, and the potential effect of Phase 3 Expansion-related construction and operations traffic on emergency response in the area is discussed in Section A.12, Transportation and Traffic.

The Phase 3 Expansion would not impair the implementation of or physically interfere with adopted emergency response or evacuation plans; therefore, no impacts would occur.

Construction of the reconductoring component would be undertaken from the road shoulder and partly within the road. For work in the roads, the PG&E construction crew or contractor would perform traffic control, obtain any necessary approvals for encroachment, and ensure that access to emergency response and evacuation routes was maintained, as described in Section A.12, Transportation and Traffic. Reconductoring would involve installation of new poles adjacent to existing poles, and would not affect existing emergency access routes. Therefore, there would be no impact from the reconductoring component under this criterion.

g) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

LESS THAN SIGNIFICANT IMPACT. The Phase 3 Expansion components would be located within areas where existing land uses may expose people to risk of fire, wildland fire, or explosion. As discussed above, the RFS and reconductoring component area are located in parts of Butte County that have been classified by CAL FIRE as a non-very high fire hazard severity zone. The Delevan Site is in an area of Colusa County that has been classified by CAL FIRE as a moderate fire hazard severity zone. Wildland fires are also a potential hazard to development in the foothill and mountain areas of Colusa County (Colusa County 1989).

The 2002 EIR addressed the potential for the risk of fire and explosions from natural gas storage facilities, with the conclusion that fires at such facilities are very rare, given typical safety and fire prevention programs that are in place. There have been no accidents resulting in injuries or death at California natural gas storage facilities since 1970, as discussed above.

Also as discussed above, the applicant prepared a Qualitative Assessment of Risk to Existing Residences from a Natural Gas Release for the Phase 2 Expansion, included in the 2002 EIR and reviewed by Butte and Colusa counties planning agency staff and DOGGR staff. All identified sensitive residential or hunting lodge receptors would be located within the zone of least risk to be affected by a gas ignition event from a natural gas release. As discussed in the 2002 EIR, the possibility of gas migration through natural geologic pathways, abandoned wells and dry holes, or existing faults at the Wild Goose formation was considered to be unlikely. The risk of fire at the Wild Goose storage field is also unlikely because of the depth of the field below the surface (approximately 2,500 feet). Continued reservoir pressure monitoring and annual mechanical integrity inspection exercises have provided no evidence of gas migration, and will continue at the facility after the Phase 3 Expansion (WGS 2009).

The Construction Fire Prevention and Safety Plan (APM HAZ-4) would address potential fire hazards associated with construction of the Phase 3 Expansion components at the RFS or the Delevan Site. Should a fire occur within the Phase 3 Expansion construction area, a shutdown of operational activity within the existing facility would be triggered (WGS 2009), and evacuation would take place as necessary. Once construction was completed, the Phase 3 Expansion components would be covered by the Wild Goose Facility's fire prevention measures and response procedures. With the implementation of Wild Goose's existing safety procedures, as well as the APMs listed above, the risk of wildland fires would be reduced to less than significant.

Reconductoring activities would be undertaken in accordance with PG&E safety practices and measures, which would include prohibition of smoking in the reconductoring work area outside of designated smoking/break areas and maintenance of appropriate fire-fighting equipment on the site. Consequently, the potential risk from fire during reconductoring activities would be low. In addition, the distribution line reconductoring would not result in an increase in the fire risk potential in the area, because the new components would not have a higher fire risk than the existing components have. Impacts resulting from the reconductoring component would therefore be considered less than significant under this criterion.

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A.6 Hydrology

Table A.6-1 Hydrology Checklist

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i. 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?	☐	☒	☐	☐
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

To supplement information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), Section 3.8, Hydrology, several documents and resources were reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion), including the Butte County and Colusa County general plans and other information updated since 2002 pertinent to hydrology and water quality in the vicinity of the Phase 3 Expansion. Other information and documentation regarding the surface and groundwater located within the Phase 3 Expansion Project area was obtained from various publicly available sources including the U.S. Environmental Protection Agency (USEPA) list of impaired water bodies (USEPA 2006), the Central Valley Region Basin Plans for the Sacramento River and the San Joaquin River (CVRWQCB 2007), Federal

Emergency Management Agency (FEMA) flood maps, dam inundation maps, and lists of contaminants in water bodies.

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) identified no significant impacts related to hydrology as a result of implementation of the Phase 2 Expansion, but did identify three potential impacts that were determined to be less than significant with implementation of mitigation measures.

A.6.1 Environmental Setting

The 2002 EIR describes the existing regional setting for water and hydrologic resources, including climate and precipitation, surface water and flooding, and groundwater characteristics, in Section 3.8, Hydrology. The section below includes a discussion of surface water, groundwater, and other hydrologic resources specific to the area of the RFS, reconductoring component, and Delevan Site. Characteristics of vegetation or species associated with wetlands and aquatic environments are discussed in Section 3.3, Biological Resources, and characteristics of geology and soils in the area are discussed in Section A.4, Geology, Soils, and Mineral Resources.

Remote Facility Site and Reconductoring Component Area

The RFS and the reconductoring component area are located in the southwestern part of Butte County. The RFS is approximately 9 miles west of the Feather River, 10 miles east of the Sacramento River, and 10 miles southwest of the Oroville Dam. As part of the Phase 3 Expansion, the existing RFS lease area would be extended approximately 540 feet to the west to occupy an area currently used for farm equipment and parking during the hunting season. In addition, approximately 4.5 acres of agricultural wetlands (rice fields) would be converted to upland area and added to the operational area of the RFS. The reconductoring component would not result in the fill or conversion of wetlands, as discussed in Section 3.3, Biological Resources.

Surface Water

As discussed in the 2002 EIR, surface water quality in the area is generally good. Canals and ditches in the Phase 3 Expansion area serve both irrigation and drainage functions. As discussed in the 2002 EIR, the Cherokee Canal is the primary agricultural field drainage in this part of Butte County. The Belding Lateral Drain, a major local drainage, crosses West Liberty Road approximately 0.5 miles east of the RFS. A branch off the Belding Lateral Drain flows through a culvert under the existing RFS, entering a drainage ditch along West Liberty Road and then flowing west to the 833 Canal at the west end of West Liberty Road. Agricultural and stormwater drainage ditches extend along much of the anticipated and alternative reconductoring alignments, next to the road shoulder. The majority of the county's surface water supply, which originates in the Feather River watershed and accumulates in Lake Oroville, is used for agricultural irrigation (Butte County 2009).

Wetlands

A network of farmed, managed, and natural wetlands surrounds the RFS and reconductoring component areas. The RFS and much of the anticipated and alternative reconductoring routes are adjacent to actively farmed rice fields. Flooded rice fields provide wetland and wildlife habitat during parts of the year.

The Gray Lodge Waterfowl Management Area and Upper Butte Basin Wildlife Management Area and local waterfowl hunting clubs manage and maintain their wetland areas by conducting seasonal flooding programs that allow seed-producing plants to grow and flower during spring. In the fall, the areas are re-flooded to provide resting and feeding grounds for migratory waterfowl.

Freshwater Marsh

At the RFS and along the anticipated and alternative reconductoring alignments, freshwater marsh occurs mainly in small, isolated patches within drainage ditches associated with rice fields. The drainage ditches along West Liberty Road, Pennington Road, West Evans Reimer Road, and Colusa Highway contain some freshwater marsh vegetation and open water. As part of the Phase 3 Expansion, an existing culvert beneath the driveway accessing the parking and storage area to the west of the RFS from West Liberty Road would be removed, and a new driveway and culvert would be installed, as described in Chapter 2, Description of Phase 3 Expansion, and in Section 3.3, Biological Resources.

Flood Zones

The Cherokee Canal runs along the eastern edge of the primary Butte Sink flood channel. Expansion of the RFS will not involve work within the 100-year flood zone of the Butte Sink flood channel. The RFS is outside of the 500-year flood zone as designated by FEMA. 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 2002 EIR includes a map (Figure 3.8-1) in Section 3.8, Hydrology, showing FEMA-designated flood zones in the area of the Phase 3 Expansion.

Groundwater

The RFS and the reconductoring component area lie within the East Butte Subbasin, a Sacramento Valley groundwater basin (Butte County 2009). The soils at the RFS and in the reconductoring component area tend to be dominated by clay, and are poorly drained, as described in Section A.4, Geology, Soils, and Mineral Resources. Depth to groundwater can be as shallow as 3 feet below ground surface (bgs; Butte County 2009). However, the majority of the residential water supply in Butte County is obtained from groundwater wells at depths averaging at least 30 feet bgs (DWR 2004). Volumes of water produced (yields) for groundwater wells in the East Butte Subbasin have been measured as ranging from approximately 65 gallons per minute (gpm) to 5,500 gpm, with an average yield of approximately 1,600 gpm (DWR 2004). The nearest water supply for the RFS is approximately 200 feet to the south of the facility.

The Butte County Department of Water and Resource Conservation monitors groundwater quality regularly; records since 2002 have indicated that groundwater in Butte County is generally of high quality and free of saline intrusion (Butte County 2009). In 2006, an investigation conducted by the United States Geological Survey under the California Groundwater Ambient Monitoring and Assessment of several wells in Middle Sacramento Valley, including wells in Butte and Colusa counties, discovered the presence of volatile organic compounds (VOCs), pesticides, and other constituents in the groundwater, but also showed that levels of these chemicals were below health-based thresholds (Butte County 2009). The California Department of Water Resources (DWR) indicates that groundwater in the East Butte Subbasin has localized high concentrations of manganese, iron, magnesium, and total dissolved solids, with well sampling showing levels of inorganic constituents and nitrates above maximum contaminant levels (DWR 2004).

Additional information on surface water and groundwater resources within the vicinity of the Phase 3 Expansion area is provided in Section 3.8, Hydrology, of the 2002 EIR.

Delevan Site

The Delevan Site is located approximately 0.7 miles west of the Dirks Road and Delevan Road intersection in Colusa County, approximately 10 miles west of the Sacramento River.

Surface Water

The Glenn-Colusa Canal, which is mainly used for agricultural irrigation, is 0.25 miles west of the Delevan Site. Several other small drainages lie to the north and south of the site.

Wetlands

Vernal pools were identified in the vicinity of the Delevan Site, approximately 1,000 feet east of the Delevan Interconnect Site, directly adjacent to the Glenn-Colusa Canal. Section 3.3, Biological Resources, includes additional information about these vernal pools.

Flood Zones

Although FEMA flood maps were updated in 2003, after the 2002 EIR was published, the flood designation for the Delevan Site has not changed since the 2002 EIR. The Delevan Site is within the 100- to 500-year flood zone, as shown in Figure 3.8-1 of the 2002 EIR.

Groundwater

The Delevan Site lies within the Colusa Subbasin, a Sacramento Valley groundwater basin (DWR 2006). Domestic and municipal systems in Colusa County are typically supplied by groundwater. Although groundwater quality in the Sacramento Valley as a whole is generally considered good and the water is suitable for irrigation and domestic uses, the DWR indicates that groundwater in the Colusa Subbasin has localized high concentrations of manganese, fluoride, magnesium, sodium, and iron, among other constituents, with well sampling showing levels of inorganic constituents and nitrates above maximum contaminant levels (DWR 2006).

Additional information on surface water and groundwater resources in the vicinity of the Phase 3 Expansion area is provided in Section 3.8, Hydrology, of the 2002 EIR.

A.6.2 Regulatory Setting

The regulatory setting for the Phase 3 Expansion as described in the 2002 EIR remains largely the same in terms of regulating authorities and jurisdictions, although the Sacramento River Basin and San Joaquin Basin Plan (CVRWQCB 2007) has been updated since 2002. The permits and authorizations that were required for the Phase 2 Expansion at the federal, state, and local levels are the same as those required for the Phase 3 Expansion; however, the applicant may be able to obtain amendments to the original authorizations rather than apply for new permits specific to the Phase 3 Expansion, as discussed below.

Federal

A Clean Water Act (CWA) Section 404 individual permit was obtained by the applicant from the U.S. Army Corps of Engineers (USACE) for wetland fill activities associated with the Phase 2 Expansion. The Phase 3 Expansion at the RFS would impact 4.5 acres of rice fields; these fields are considered jurisdictional wetlands, and the applicant would be required to either obtain a new Section 404 permit from the USACE or an amendment of the existing permit prior to construction of the Phase 3 Expansion.

State

The California Water Code (Section 13260) requires that any entity discharging waste or proposing to discharge waste (other than into a community sewer system) that could affect the quality of state waters submit a report to the applicable Regional Water Quality Control Board (RWQCB). The Phase 3 Expansion study area falls within the jurisdiction of the Redding Branch Office of the Central Valley

RWQCB (CVRWQCB, Region 5). Under the National Pollutant Discharge Elimination System (NPDES), RWQCBs require a Construction Activities Storm Water General Permit (Order 99-08-DWQ) for stormwater discharges associated with any construction activity including clearing, grading, excavation reconstruction, and dredge and fill activities that would result in the disturbance of at least 1 acre of total land area. Because the Phase 3 Expansion would disturb more than 1 acre, the applicant would comply with the Construction Storm Water General Permit by filing a Notice of Intent (NOI) with the CVRWQCB, including a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP prepared for Base Project development and revised for the Phase 2 Expansion would be further revised to include the proposed Phase 3 Expansion components, and submitted along with the NOI.

In addition to the NPDES Construction Storm Water General Permit, the applicant would be required to apply for a new or updated NPDES Industrial Storm Water General Permit, General Permit for Discharges From Utility Vaults and Other Underground Structures, and General Permit covering Dewatering and Other Low Threat Discharges to Surface Water.

Other approvals from the CVRWQCB would be required for the Phase 3 Expansion, including a CWA Section 401 permit (Water Quality Certification) covering wetland fill activities, and Waste Discharge Requirements and/or a Low Threat Discharge Permit covering Phase 3 Expansion construction activities related to discharges from hydrostatic pipeline testing and construction dewatering.

Local

Butte County General Plan

The Butte County General Plan is currently being updated; however, many of the draft general plan update documents, including the general plan EIR, are not available to the public. The Water Resources Element of the Draft 2030 Butte County General Plan (Butte County 2009) includes goals and policies addressing the protection of water quality and water resources that would be relevant to the Phase 3 Expansion, such as the protection of water quality from the negative effects of agricultural activities, ensuring a sustainable water and groundwater supply (including requiring applicants to demonstrate that adequate water supply exists to meet the needs of development projects), the preservation of wetland areas, and the promotion of water conservation.

Colusa County

The Colusa County General Plan is currently being updated; however, the draft general plan update documents are not anticipated to be to be available for public review until late 2010. Therefore, the same goals and policies that were discussed for Colusa County in the 2002 EIR would apply to the Phase 3 expansion project.

A.6.3 Applicant Proposed Measures and Applicable Phase 2 Expansion Features

The applicant has incorporated the following Applicant Proposed Measures (APMs), the full text of which is included in Table A.1-1 of Section A.1-1, into the Phase 3 Expansion to minimize or avoid impacts to hydrology and water quality.

APM HYDRO-1: Stormwater Design Measures.

APM BIO-2: Wetlands Mitigation Consistent with CWA Section 404 Permit.

APM HYDRO-2: Storm Water Pollution Prevention Plan.

APM HAZ-1: Best Management Practices.

APM HAZ-2: Hazardous Materials Release Response Plan Update.

The project feature in Table A.6-2 addressing hydrology was adopted as part of the 2002 EIR for the Phase 2 Expansion as a mitigation measure. This measure would also apply to the Phase 3 Expansion.

Table A.6-2 Project Features Addressing Hydrology Adopted as Part of the 2002 EIR

Mitigation Measure 3.8-6. Locate all water supply wells in the project vicinity. After identifying the approved pipeline route and developing initial pipeline construction design plans, and prior to initiating construction, delineate wells in the immediate vicinity of the selected route. Conduct a hydrogeological investigation to determine de-water effects on the nearby area wells. Based on results of the hydrogeological investigation, modify construction plans or dewatering methods, if necessary, to protect local groundwater supplies. The hydrogeological investigation shall be conducted by a California Certified Hydrogeologist or Certified Engineering Geologist with an appropriate background in evaluating impacts to water wells associated with surface de-watering activities. The revised plans or de-watering methods must be reviewed and approved by the CPUC prior to implementing those operations.

A.6.4 Environmental Impacts and Mitigation Measures

Construction

Water sources for the Phase 3 Expansion construction activities at the RFS and the Delevan Site would include the Belding Lateral Canal (or the 833 Canal if the Belding Canal were not available) and a water production well approximately 200 feet to the south of the existing RFS in the Gray Lodge Waterfowl Management Area, which is estimated to have a yield of at least 60 gpm. Construction water used primarily for dust suppression (approximately 2,000 gallons per day of construction, or a total of approximately 1.6 million gallons) would be drawn from the Belding Lateral Canal or 833 Canal; hydrostatic testing water (approximately 51,000 gallons total) would be trucked from the nearby Gray Lodge well. Water from the Gray Lodge well has been obtained with the permission and approval of the facility manager for use during the Phase 2 Expansion construction; the applicant would obtain new approvals for the use of this well for the Phase 3 Expansion. Except for drinking water brought onto the site by PG&E personnel, reconductoring activities would not require the use of water.

Prior to operation, the applicant would perform hydrostatic testing and flushing of the pipeline at the Delevan Site, consisting of filling the pipeline with water to identify any leaks. Dirt and water from the testing would be discharged into an energy dissipation basin consisting of hay or straw bales, located on an upland site adjacent to the Phase 3 Expansion facilities, and/or, as appropriate, back into the Belding Lateral Canal or other local canals. During the excavation of foundations at the RFS, dewatering may need to be performed to remove water from the excavations. As appropriate under the NPDES General Permit Covering Dewatering and Other Low Threat Discharges to Surface Water, the applicant would discharge hydrostatic testing water and excavation dewatering volumes subject to a determination of suitable quality consistent with the General Permit, and discharges to waterways would be conducted in compliance with all NPDES- and other CVRWQCB-required approvals.

Operation

Water for daily operations at the RFS would be provided by an existing domestic well on the site with an average yield of 60 gpm. Daily operational water usage is expected to increase by 200 gallons per day, for a total usage of 600 gallons per day, to accommodate the incremental staff addition, additional berm vegetation watering, and water injection for the Selective Catalytic Reduction emissions systems for four additional compressors (as described in Chapter 2, Description of Phase 3 Expansion). No increase in water use for operations would take place at the Delevan Site, and no water would be required for the maintenance of the reconductored electrical distribution line.

As discussed in Chapter 2, Description of Phase 3 Expansion, the withdrawal of natural gas from the Wild Goose Gas Field generates produced water from adjacent aquifers. Produced water is returned to the reservoir through a water injection well at the RFS. Some residual water is also trucked off site during tank cleaning or if volumes are low. As discussed in Chapter 2, the existing produced water tank capacity is sufficient to manage the expected increase in water production volume from the Phase 3 Expansion.

Phase 3 Expansion construction activities at the RFS would result in the addition of up to 1 acre of impervious surface at the site. The applicant estimates that this additional surface area would result in an increase of the runoff coefficient for the site of from 0.70 to 0.83 (WGS 2010). Assuming a 25-year, 6-hour storm (1.85-minute source, NOAA Atlas 2), stormwater runoff from the site into the drainage along West Liberty Road would be expected to increase from approximately 4.68 cubic feet per second (cfs) to approximately 5.55 cfs. This would result in an increase of approximately 3 and 5 inches of water surface rise at the downstream culvert inlet and outlet, respectively. The current freeboard (clearance) is approximately 3 feet at the culvert inlet and approximately 2.5 feet at the culvert outlet (WGS 2010). The existing drainage ditch has previously proved adequate to handle high volumes (up to approximately 12 million gallons) of water from the 75 acres of rice fields regularly drained by the agricultural landowner. Phase 3 Expansion construction activities at the Delevan Site and reconductoring activities are not anticipated to result in an increase in impervious surface at the site.

Stormwater runoff from the RFS has not previously resulted in flooding of the facility site or surrounding areas from stormwater exceeding the capacity of the ditch. One recorded flooding event occurred at the RFS during the past 10 years, in December 2000, when a portion of the RFS facility on the northeastern part of the facility experienced minor flooding, due to seasonal rains and a faulty drain on the eastern portion of the facility (WGS 2010). This flooding did not cause any significant damage.

The Delevan Site component of the Phase 3 Expansion would not require water to be withdrawn from the Glenn-Colusa canal, and construction activities would be sufficiently distant so that there would be no physical impacts to the canal.

a. Would the project violate any water quality standards or waste discharge requirements?

LESS THAN SIGNIFICANT IMPACT. Phase 3 Expansion Project construction and operation activities have the potential to affect surface water and groundwater quality in the area. Construction activities would include grading, foundation excavation (during which de-watering would be required), electrical utility pole removal and installation, trenching for pipeline installation, and installation of a new culvert below the access driveway from West Liberty Road to the RFS. In addition, water would be used for hydrostatic testing of the pipeline at the Delevan Site.

Construction dewatering and pipeline hydrostatic testing would take place according to the requirements of the NPDES permits. Construction dewatering and pipeline testing discharge water may contain small amounts of residue and materials (metals, oil and grease) remaining from the manufactured equipment or construction activities. Prior to any discharge, the water would be tested to ensure it met NPDES permit requirements. If the water exceeded NPDES permit requirements, treatment would be necessary to reduce potential contaminants below regulatory levels prior to discharge; therefore, no impacts are anticipated to result from discharging water used for hydrostatic testing.

During construction, the existing culvert below the driveway accessing the hunter parking and equipment storage area to the west of the existing RFS would be removed, and a new driveway and culvert would be installed in the drainage along West Liberty Road. This drainage will likely be considered jurisdictional by the USACE because it has a defined bed and bank and flows to Butte

Creek via the 833 Canal and Cherokee Canal. Impacts to this wetland would be offset by the implementation of APM BIO-2, as further described in Section 3.3, Biological Resources.

During reconductoring activities, wooden electrical utility poles may be removed and replaced, resulting in ground disturbance. As described in Section 3.3, Biological Resources, reconductoring activities would be planned to avoid wetland areas. In addition, because groundwater in the area of the reconductoring component is likely to be relatively deep, installation of the utility poles would not be likely to disturb or affect groundwater.

Other construction impacts to water quality would be related to the use of equipment and vehicles, and the potential for local waters to be affected by materials such as grease and oil. Compliance with state and local laws and regulations addressing such construction practices would reduce this impact; in addition, all construction activities would take place according to the SWPPP that would be prepared specifically for the Phase 3 Expansion, as described above (APM HYDRO-2). Following construction, all temporarily disturbed surfaces would be returned to their pre-construction elevation and slope. Aboveground facilities would be maintained in gravel cover to allow stormwater infiltration and any runoff would flow to existing drainageways by way of the stormwater drainage system (APM HYDRO-1).

With the implementation of APMs and compliance with NPDES and other water quality permit requirements, impacts from the Phase 3 Expansion activities to water quality would be less than significant.

b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

LESS THAN SIGNIFICANT IMPACT. Construction dewatering that would take place at the RFS as part of the Phase 3 Expansion would not affect an area or a volume of water as great as the area affected by the Phase 2 Expansion. Dewatering activities are not expected to affect groundwater levels in local wells because the construction activities would take place over a short period (3 months), and because the average depth of local wells is deeper than the Phase 3 Expansion excavation at the RFS. The implementation of the Phase 2 Expansion project feature referenced above, including compliance with the General Statewide Construction Storm Water General Permit and revised SWPPP, should ensure that construction dewatering activities have a less than significant impact on local groundwater supplies.

Operations associated with the Phase 3 Expansion of the RFS are estimated to require an additional 200 gallons of water per day, as described above, which would be provided by the onsite domestic well. This additional water requirement for operations represents a small volume of water that is easily within the production capacity of the well. No additional water would be used for operations at the Delevan Site, and reconductoring activities are not anticipated to affect groundwater. Impacts related to operational use of groundwater would be less than significant under this criterion.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

LESS THAN SIGNIFICAN IMPACT. Phase 3 Expansion construction and operation activities could result in erosion and sedimentation. For the construction phase, the applicant would prepare a SWPPP and implement BMPs (APM HYDRO-2). Following construction, the applicant would restore disturbed surfaces to their pre-construction elevation and slope. Aboveground facilities would be surfaced with gravel to allow stormwater infiltration, and runoff would flow to existing drainageways through the stormwater drainage system (APM HYDRO-1). The applicant would also design the culvert below the new access driveway from West Liberty Road to the RFS to convey the maximum flow rate of the roadside ditch, and the inlet and outlet would be protected against erosion and scour. No streams or rivers cross any of the Phase 3 Expansion areas, nor would the course of any stream or river be altered through implementation of the Phase 3 Expansion (TRC 2009, TRC 2010). The applicant estimates that stormwater runoff from the RFS into the drainage along West Liberty Road would be expected to increase such that water surface rise at the downstream culvert inlet and outlet would be approximately 3 and 5 inches, respectively, which would result in a water flow well below the existing freeboard for the culvert. As described above, the existing drainage ditch has proven to be adequate to handle high volumes (up to approximately 12 million gallons) of water from the 75 acres of rice fields regularly drained by the agricultural landowner. Phase 3 Expansion construction activities at the Delevan Site are not anticipated to result in an increase in impervious surface at the site and therefore are not anticipated to result in an increase in stormwater runoff. Because the reconductoring component represents the replacement of existing electrical distribution lines and poles only, reconductoring activities would likewise not result in an increase in impervious surface in the area; in addition, reconductoring activities would avoid wetland areas and drainage ditches, and would not not substantially alter existing agricultural and stormwater drainage ditches in the area.

During operation, the applicant would conduct routine maintenance of the site and drainage facilities including access roads, drainage facilities, fencing, site lighting, landscaping, and painting of equipment and aboveground piping. Site access roads and surfaced areas would be re-graded and resurfaced as often as necessary to maintain a smooth surface and promote drainage. Regular mowing and periodic clean-out of ditches and culverts would assure that the drainage systems operated at their design capacities.

With the implementation of the APMs mentioned above, construction and operation of the Phase 3 Expansion would result in a less than significant impact under this criterion.

d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

LESS THAN SIGNIFICANT IMPACT. As described under item "c" above, Phase 3 Expansion construction and operations would not contribute to runoff that would exceed stormwater drainage systems, and would not contribute to flooding on or off site. Existing stormwater drainage at the RFS has not previously resulted in flooding of the facility site or surrounding areas from stormwater exceeding the capacity of the drainage ditch along West Liberty Road. Only one recorded flooding event occurred at the RFS during the past 10 years; caused by a faulty drain, this flooding event was minor and did not result in any significant property damage (WGS 2010). With implementation of drainage control features (APM HYDRO-1), the site-specific SWPPP measures and BMPs (APM HYDRO-2), and with routine maintenance of the RFS including regular mowing and periodic clean-out of ditches and culverts assuring that the drainage systems operate at their design capacities, impacts during construction and operation would be less than significant under this criterion.

e. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

LESS THAN SIGNIFICANT IMPACT. As described under item "c" above, Phase 3 Expansion construction and operations would not contribute to runoff that would exceed stormwater drainage systems or provide substantial additional sources of polluted runoff. With the implementation of drainage control features (APM HYDRO-1) and site-specific SWPPP measures and BMPs (APM HYDRO-2 and AMP HAZ-1), and with routine maintenance of the RFS including regular mowing and periodic clean-out of ditches and culverts assuring that the drainage systems operate at their design capacities, impacts during construction and operation would be less than significant under this criterion.

f. Would the project otherwise substantially degrade water quality?

LESS THAN SIGNIFICANT IMPACT. As described above under item "a", implementation of Phase 2 Expansion project features as well as the APMs listed above would reduce potential impacts to water quality at the RFS and the Delevan Site. During construction and operation, leaks or spills could occur if construction equipment and vehicles at the RFS, reconductoring component area, or Delevan Site were damaged from a seismic event, or other unforeseen incident. The implementation of the site-specific SWPPP and BMPs (APM HYDRO-2, APM HAZ-1, and APM HAZ-2), as well as PG&E's standard safety practices and procedures, would identify and address potential pollutant sources that may affect the quality of discharges associated with construction and operations activity. Site grading design would also incorporate SWPPP requirements to help contain spills.

Water quality impacts during construction and operation would be less than significant under this criterion.

g. Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

NO IMPACT. Housing would not be constructed as part of the Phase 3 Expansion; therefore, construction and operation would result in no impact under this criterion.

h. Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

LESS THAN SIGNIFICANT IMPACT. The RFS and the Delevan Site are outside any 100-year flood zones as designated by FEMA, and structures associated with the Phase 3 Expansion would not be placed within a 100-year flood hazard area in these areas. 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. Reconductoring activities could result in the installation of several wooden utility poles within this area; however, new poles would replace existing poles, and no new structures would be placed within the flood zone that would impede or redirect flood flows. The implementation of Mitigation Measure (MM) HYDRO-1 would address the potential for the replacement utility poles to affect flood flows, and would ensure that the poles would be engineered to withstand stresses associated with their proximity to waterways:

> **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 will be constructed in

compliance with the 2007 Uniform Building Code and any other federal, state, and local construction regulations.

With the implementation of this mitigation measure, construction of the Phase 3 Expansion components would not result in a significant impact under this criterion.

i. Would the project 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?

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION. Although the RFS and the Delevan Site are not within 100-year flood hazard zones, both sites, as well as the reconductoring component area, are adjacent to levees constructed to prevent seasonal flooding from waterways (such as Butte Creek), canals that are used for drainage and irrigation for surrounding agricultural uses, and waterways with upstream dams (such as Butte Creek). Although the risk of failure of local levees is likely to be very low, construction of the Phase 3 Expansion components could expose Wild Goose and PG&E personnel or structures to a minor risk of loss, injury, or death from floods resulting from the failure of a levee.

Prior to construction, the applicant would be required to obtain approvals, including grading permits, from Butte and Colusa counties for the Phase 3 Expansion components. The applicant would thus be subject to Butte and Colusa counties' standards of construction, including standards addressing hydrology and stormwater drainage design on and surrounding the construction sites, and potential risks associated with flooding from offsite sources would be addressed through this process.

Implementation of the APMs listed above would reduce the risk of onsite flooding. The applicant's existing emergency services and health and safety programs (including the facility Emergency Response Plan), as described in Section A.5, Hazards and Hazardous Materials, facilitate appropriate and swift emergency response in the event of an unforeseen flooding event. Implementation of MM HYDRO-1 would further address the risk of loss from flooding as the result of the failure of a levee or dam. With the implementation of the above-referenced APMs, facility emergency services and health and safety programs, and MM HYDRO-1, construction and operation of the Phase 3 Expansion elements would result in a less than significant impact under this criterion.

j. Inundation by seiche, tsunami, or mudflow?

NO IMPACT. Construction and operation of the Phase 3 Expansion is expected to present no significant risk of exposure of people or structures to a seiche, tsunami, or mudflow. The Phase 3 Expansion of the RFS and the reconductoring component would be located on level ground, and the Phase 3 Expansion of the Delevan Site would be on slightly sloping ground near the Coast Range foothills. The large water features nearest to the RFS and reconductoring component area, the Feather River and Oroville Dam, are approximately 9 miles to the east and 10 miles to the northeast, respectively, of the RFS, and at least 3 miles from the reconductoring component area. The large water feature nearest to the Delevan Site is the Sacramento River, approximately 13 miles to the east. These water features are not likely to be affected by tsunamis, given their distance from the Pacific Ocean approximately 100 miles to the west. Likewise, any seiche events that might take place in these water features would be localized, and would not affect the RFS, reconductoring component area, or Delevan Site.

As described in Section A.4, Geology, Soils, and Mineral Resources, both the background documents for the Draft 2030 Butte County General Plan (Butte County 2009) and Colusa County General Plan (Colusa County 1989) indicate that the RFS, reconductoring component area, and Delevan Site have low to no susceptibility to seismically induced downhill landslides and rockfalls, including mudflows.

No change to existing soil stability conditions would occur during construction and operation of the Phase 3 Expansion components. Risk of inundation from a mudflow at the Phase 3 Expansion component sites would therefore be extremely low.

With implementation of the applicant's facility emergency services and health and safety programs, impacts related seiche, tsunami, or mudflow on or from the construction of the Phase 3 Expansion components would be less than significant.

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A.7 Land Use and Planning

Table A.7-1 Land Use and Planning Checklist

Would the project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

To supplement information presented in Section 3.9, Land Use and Planning, of the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), several planning documents and resources were reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion), including the Butte County General Plan, the Butte County 2030 General Plan Update (for informational purposes), the Butte County Zoning Ordinance, the Colusa County General Plan, the City of Gridley General Plan and Zoning Ordinance, and other information updated since 2002 pertinent to land use and planning in the vicinity of the Phase 3 Expansion components. In addition, land uses surrounding the Phase 3 Expansion areas were observed and photographed during a September 23, 2009, site visit, and local (Butte and Colusa counties) planning agency staff were consulted to confirm any changes in conditions since the 2002 EIR, and to discuss any planning agency concerns about the Phase 3 Expansion.

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) did not identify any significant or less than significant impacts to land use and planning as a result of implementation of the Phase 2 Expansion.

A.7.1 Environmental Setting

The Phase 3 Expansion consists of the expansion of two existing developed facilities—the Remote Facility Site (RFS) in Butte County and the Delevan Site in Colusa County (see Figure 2-1 in Chapter 2, Description of Phase 3 Expansion), as well as the reconductoring of up to 6 miles of electrical distribution line. The Phase 3 Expansion components would be located near the center of the Sacramento Valley, approximately 60 miles northwest of Sacramento. Neither Butte County nor Colusa County has experienced significant development since 2002; consequently, land uses and conditions have not changed significantly since the Phase 2 Expansion.

Remote Facility Site

The RFS is approximately 1.1 miles west of the West Liberty Road and Pennington Road intersection in Butte County (see Figures 2-2 and 2-6 in Chapter 2, Description of Phase 3 Expansion), and approximately 7 miles west of the town of Gridley. The RFS is surrounded by agricultural land that is cultivated for rice to the west, north, and east. The Gray Lodge Waterfowl Management Area, managed by the California Department of Fish and Game (DFG), is south of West Liberty Road and the RFS.

Existing Land Uses

The area around the 12.5-acre RFS is currently used for agriculture and resource management. Three residences (farmhouses) are located in the vicinity of the RFS. One farmhouse (including a private airstrip) is approximately 5,800 feet northwest of the RFS, one is approximately 1 mile northeast, and a third is approximately 4,000 feet east of the RFS. 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 site; this area is used by hunters and farmers for parking, camping, and equipment storage. To the west of the unpaved area are rice farmlands, including FMMP designated Farmland of Statewide Importance. Lands designated as Farmland of Statewide Importance and Prime Farmland flank the site to the west, Farmland of Statewide Importance flanks the site to the east, and Unique Farmland flanks the site to the north. Rice fields in the vicinity of the RFS have been leveled, allowing large tracts to be farmed more efficiently, resulting in higher production rates.

The Gray Lodge Waterfowl Management Area located south of the RFS, and the Upper Butte Basin Wildlife Management Area northwest of the site in the Butte Sink are managed by the DFG (see Figure 2-1, Project Location Map). These areas provide wildlife viewing opportunities and hunting as part of their primary function of waterfowl and habitat management. Private-governmental cooperative programs provide recreational hunting for waterfowl and upland game birds (pheasant) on some of the private lands in the project vicinity, and many property owners lease their rice fields to hunters during the fallow fall and winter months. The rice fields surrounding the RFS are also used for waterfowl hunting.

Delevan Site

The Delevan Site is approximately 0.7 miles west of the Dirks Road and Delevan Road intersection in Colusa County, at the end of a short unpaved road that branches off of an unnamed, two-lane paved road (see Figures 2-3 and 2-8 in Chapter 2, Description of Phase 3 Expansion). The site is situated at the base of the Coast Range foothills adjacent to annual grassland, and is approximately 0.25 miles west of the Glenn Colusa Canal.

Existing Land Uses

There are no residences in the immediate vicinity of the Delevan Site; the nearest residence is more than one mile southeast of the site. The grassland area surrounding the Delevan Site is designated by the FMMP as Farmland of Local Importance and is currently used for cattle grazing and some food crop agriculture. Lands designated by the FMMP as Prime and Unique Farmland are located approximately 0.2 miles to the east of the site. Two national wildlife refuges managed by the U.S. Fish and Wildlife Service (USFWS), the Delevan National Wildlife Refuge and the Sacramento National Wildlife Refuge, are located approximately 3 miles east and 7.5 miles southeast, respectively, of the Delevan Site. These areas provide wildlife viewing opportunities and hunting as part of their primary function of waterfowl and habitat management. Private-governmental cooperative programs provide recreational hunting for waterfowl and upland game birds (pheasant) on some of the private lands in the vicinity of the Delevan Site, and some property owners lease rice fields to hunters during the fallow fall and winter months.

Reconductoring Component Area

The reconductoring component would be completed along one of two potential alignments, Option A (the anticipated route), or Option B (the alternative route), which both begin along the intersection of West Liberty and Pennington roads in unincorporated Butte County. The Option A route extends south

along Pennington Road for approximately 5,300 feet, then runs eastward along West Evans Reimer Road for approximately 9,000 feet, discontinues for 14,000 feet, and continues along West Evans Reimer Road for another 8,700 feet, terminating at State Route (SR) 99, as shown in Figure 2-10. The Option B route extends north along Pennington Road for approximately 5,400 feet to Colusa Highway, then extends eastward for approximately 25,000 feet along Colusa Highway.

The reconductoring component would take place adjacent to lands with Butte County General Plan designations of Orchard and Field Crops (OFC) and Agricultural Residential (AR) and with zoning designations of A-40 and Agriculture, 5-acre Minimum (A-5), as well as adjacent to lands with City of Gridley General Plan and zoning designations of Residential Suburban (R-S, 3 units/acre maximum).

Existing Land Uses

All of the Option A alignment would be constructed within sparsely populated areas of unincorporated Butte County. The segment of the Option A alignment along Pennington Road is bordered on both the east and the west by the Gray Lodge Waterfowl Management Area. The segment of the Option A alignment along West Evans Reimer Road extending from Pennington Road is partly surrounded by the Gray Lodge Waterfowl Management Area; part of this segment is also bordered by agricultural areas. The segment of the Option A alignment between Block Road and SR 99 is bordered by agricultural and rural residential areas.

Most of the Option B alignment would take place in unincorporated Butte County, with approximately 2,000 feet of the reconductored line located in a part of the City of Gridley developed with residential uses. The segment of the Option B alignment along Pennington Road is primarily surrounded by agricultural lands (primarily rice fields). The segment of the Option B alignment that extends along Colusa Highway is surrounded by agricultural (rice, orchards, and croplands), and rural/low-density residential areas. The portion of this segment that extends into the City of Gridley is also surrounded primarily by low-density residential areas.

A.7.2 Regulatory Setting

The reconductoring component is exempt from discretionary permits and planning regulations issued by local jurisdictions, under California Public Utilities Commission (CPUC) General Order Number 131-D Section XIVB. This general order clarifies that local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. For this reason, only the local planning regulatory setting for the RFS and the Delevan Site are discussed below.

Butte County Plans and Policies

The Agricultural and Land Use Elements of the Butte County General Plan encourage the protection and enhancement of agriculture and agricultural lands (Butte County 1995, 2000). The lands affected by the expansion of the RFS have a General Plan designation of OFC, and are zoned for agriculture with a 40-acre minimum parcel size (A-40). The OFC designation allows cultivation, harvest, storage, processing, sale, and distribution of plant crops as a primary use. Hunting, water-related recreation, environmental preservation activities, and resource extraction and processing (such as the use represented by the Wild Goose Facility) are several of the secondary uses allowed for this designation. The Agricultural Element recommends the establishment of land use transitions, setbacks, and buffers between agricultural and non-agricultural uses on land with this General Plan designation (Butte County 1995). The Butte County zoning ordinance allows gas wells, including reinjection wells, and the erection, construction, alteration, or maintenance of gas transmission facilities, as a permitted use in the A-40 zone.

Because natural gas facilities are an allowed use in the A-40 zone, the expansion of the RFS would not require the approval of a use permit from Butte County. The County may require a lot line adjustment, which would result in the addition of approximately 4.5 acres to the west of the RFS parcel and the removal of the same amount of land from the parcel to the west of the RFS. An LLA would require the discretionary approval of the County's Director of Development Services, although Planning Commission approval would not be required. Other permits and approvals that would be required by the County include ministerial approvals such as building and electrical permits, and are listed along with other local agency requirements in Table 2-4 of Chapter 2, Description of Phase 3 Expansion.

Butte County is also in the process of updating the General Plan; the Draft Butte County General Plan 2030 was released for public review on September 2009 (Butte County 2009). The Zoning Ordinance and associated maps will also be updated to be consistent with the updated General Plan. The Draft General Plan goals and policies are similar to the existing General Plan, and include goals for the protection and preservation of agricultural and grazing lands; preservation of habitat areas; and the mitigation of impacts to habitat areas affected by development.

The Butte County Association of Governments (BCAG) is leading the preparation of a Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) for Butte County and several cities in the region. The Butte County HCP/NCCP will be a comprehensive, multi-jurisdictional habitat conservation plan that would focus on conservation of species and their associated habitats in Butte County, with the overall goal of maintaining biological and ecological diversity within the Butte County region (BCAG 2010). Butte County and the Cities of of Biggs, Chico, Gridley, and Oroville are all parties to the planning agreement for the HCP/NCCP, as are the USFWS and the DFG (DFG 2009). The Butte County HCP/NCCP would cover the RFS Phase 3 Expansion area, and is not anticipated to be adopted until 2011.

Colusa County Plans and Policies

The Colusa County General Plan land use designation for the Delevan Site is Agriculture (A-G; Colusa County 1989). Land within this designation is generally used for orchard and crop production. Secondary uses in A-G areas include oil and natural gas drilling, non-intensive recreation, agricultural industry (processing), and agricultural support uses, provided that these uses do not interfere with the viability of agriculture or create environmental hazards (Colusa County 1989).

The Delevan Site has a Colusa County zoning designation of Exclusive Agriculture (E-A; Colusa County 1989). The three other zoning districts in the area of the Delevan Site are Agricultural Preserve (A-P), Rural Service Center, and Designated Floodway (DF). The agricultural areas along the Sacramento River and the Colusa Drain have a zoning overlay classification of DF, which has been designated by the State Reclamation Board of the Department of Water Resources.

The Colusa County zoning ordinance provides a general allowance for pipelines and associated facilities in all zoning districts, following Colusa County Planning Commission review and approval of site, route, and facility plans as part of a land use permit (Colusa County 1989). The Phase 3 Expansion components at the Delevan Site, including Pacific Gas and Electric's (PG&E's) expansion of its facilities at the Delevan Interconnect Site and hot tapped pipeline connection installation, would require the approval of a use permit from Colusa County, along with other local agency requirements, as listed in Table 2-4 of Chapter 2, Description of Phase 3 Expansion.

Colusa County is in the preliminary stages of a General Plan update; the Draft General Plan is anticipated to be released for public review in late 2010. The draft goals and policies for the General Plan have not yet been developed or released for public review (Colusa 2009).

No habitat conservation plans or natural community conservation plans have been adopted for Colusa County.

A.7.3 Environmental Impacts and Mitigation Measures

RFS Construction and Operation

As part of the Phase 3 Expansion, the RFS would be extended approximately 540 feet to the west to occupy the unpaved area used for parking and storage. The total RFS area would increase by an additional 4.5 acres, for a total of 17 acres; the fenced operations area would increase by 3.7 acres, for a total of 12.4 acres. A driveway from West Liberty Road into the existing farm equipment storage and hunter parking area would be removed, and a new driveway providing access from West Liberty Road to the west edge of the expanded RFS area would be added.

The RFS expansion would result in the conversion of approximately 4.5 acres of rice fields to the west of the existing site. Rice field drainage systems would be modified as required so that irrigation of surrounding rice fields would not be affected by the RFS expansion, and the existing unpaved parking and storage area would be relocated approximately 540 feet west.

An existing driveway, currently used to access the parking and storage area from West Liberty Road, would be relocated to the west to connect with the new parking and storage area at the start of construction. This would ensure the landowner and construction personnel have immediate access to the new parking and storage area. The stormwater culvert below the existing driveway would be likewise relocated, as described in Chapter 2, Description of Phase 3 Expansion. The temporary and permanent disturbance areas that would result from the Phase 3 Expansion of the RFS facilities are shown in Table A.7-2, below.

Table A.7-2 Temporary and Permanent Disturbance for Phase 3 Expansion of the RFS Lease Area

Phase 3 Expansion Component	Area of Temporary Disturbance	Area of Permanent Disturbance
Conversion of existing parking area for hunters into the RFS Phase 3 Expansion area	4.5 acres (3.7 acres of new area would be fenced)	4.5 acres (3.7 acres of new area would be fenced)
Conversion of rice fields into a new parking area west of RFS expansion area	4.5 acres	4.5 acres (permanent removal of rice fields)
Staging area for construction equipment	None (onsite at existing RFS)	—

Construction staging, materials laydown and vehicle parking would take place on the existing RFS during Phase 3 Expansion activities. Construction activities would not occur during the duck and goose hunting season, which typically starts in early- to mid-October and concludes by the end of January; or pheasant season, which is usually one month long, beginning in early- to mid- November.

Operation of the expanded RFS would take place within the new fence and berm surrounding the facility. During the hunting season, outside noise-producing routine operations and maintenance activities at the RFS may adversely affect waterfowl hunting success on the adjacent rice fields and across West Liberty Road at the Gray Lodge Waterfowl Management Area. Operation impacts to resource management are described in further detail in Section 3.3, Biological Resources; and operation impacts to recreation are described in further detail in Section A.11, Recreation.

Delevan Site Construction and Operation

Construction activities for the Delevan Interconnect Site Phase 3 Expansion components, including materials laydown and staging and vehicle parking, would take place at the Delevan Interconnect Site

within the existing fenced area, which is approximately 0.6 acres in size. Another approximately 0.6 acres would be temporarily impacted by hot tapped pipeline construction activities, including construction staging, materials laydown, and vehicle parking, at the location of the interconnect for PG&E Lines 400 and 401. The land area requirements for the Phase 3 Expansion activities at the Delevan Interconnect Site and hot tapped pipeline connection location are described in Table A.7-3.

Table A.7-3 Temporary and Permanent Disturbance for Phase 3 Expansion of Delevan Site

Phase 3 Expansion Component	Approximate Area of Temporary Disturbance	Approximate Area of Permanent Disturbance
Delevan Interconnect Site improvements	0.6 acres (within the fenced area of the facility)	None outside the fenced area of the facility
PG&E Lines 400 and 401 hot tapped pipeline connections	0.6 acres (0. 3 acres within the existing PG&E easement and 0.3 acres outside of the easement)	None

Operation of the Delevan Interconnect Site after the Phase 3 Expansion is completed would be similar to existing operations, and would be confined within the existing fenced facility area. The area of the hot tap pipeline connection installation would be restored to previous conditions after construction.

Reconductoring Component

Reconductoring activities would be undertaken in the road shoulder and the utility right-of-way (ROW), as well as part of the road as necessary. Construction laydown areas would be located in the road shoulder and ROW.

In areas where the road shoulder is too narrow to accommodate vehicles and equipment, partial lane closures may be required. In addition, short (less than one hour) road closures would be required during reconductoring activities where the line crosses the road. For work in the roads in the area of the reconductoring component, the PG&E construction crew or contractor would implement the Phase 2 Expansion Traffic Management Plan (APM TRANS-1, the full text of which is presented in Chapter 2, Description of Phase 3 Expansion), perform traffic control, obtain any necessary approvals for encroachment, and ensure that access to emergency response and evacuation routes is maintained.

Applicant Proposed Measures (APMs)

Compliance with laws and regulations relevant to land use plans and policies would serve to reduce or avoid potential land use impacts that might otherwise occur with the construction and operation of the Phase 3 Expansion. The following applicant proposed measures (APMs), the full text of which is included in Table A.1-1 of Section A.1.1, are included as part of the Phase 3 Expansion to minimize or avoid land use impacts.

APM AG-1: Cattle Exclusion at Delevan Site.

APM AG-3: Agricultural Landowner Coordination at RFS.

APM NOISE-2: Limit Noise-Producing Construction Activities During Hunting Season.

APM NOISE-4: Public Notification During Construction.

APM TRANS-1. Transportation Management Plan.

a. Would the project physically divide an established community?

NO IMPACT. The Phase 3 Expansion would not physically divide an established community. The RFS is surrounded primarily by rice fields; three residences are within 1 mile of the facility. The expanded RFS would be confined within a fenced area, and would not result in a new barrier to existing residential, farming, or recreational (hunting) communities. The Delevan Site is surrounded by existing grazing and agricultural lands and there are no residences near the site; after Phase 3 Expansion construction, activities at the Delevan Interconnect Site would take place within the existing fence for the facility, and the location of the hot tapped pipeline connection installation would be restored to previous conditions. The reconductoring component would involve the replacement of existing electrical distribution line components, and reconductoring activities would take place over a short time period (4 to 8 weeks); reconductoring activities would not physically divide an established community.

The Phase 3 Expansion would not result in a new barrier to existing communities; therefore, construction and operation would have no impact under the above-listed criterion.

b. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

LESS THAN SIGNIFICANT. According to the Butte County General Plan and zoning ordinance, development of natural gas–related facilities is an allowable use in areas zoned for agriculture (Butte County 2009), and the Phase 3 Expansion of the RFS would not conflict with existing land use designations or zoning for agricultural use. The Colusa County General Plan allows oil and natural gas facilities as a compatible and acceptable use in the A-G zone as long as the use does not interfere with the viability of agriculture or create environmental hazards (Colusa County 1989). The Phase 3 Expansion components proposed at the Delevan Interconnect Site would take place within the existing footprint of the site, and would not permanently affect agricultural production activities in the area. The hot tapped pipeline connection installation would temporarily affect a small (less than 1 acre) area of land in agricultural use, which would be restored after the construction period, and agricultural production activities in this area would not be permanently affected. Section A.5 of this document addresses potential hazards that may be posed by the Phase 3 Expansion; as described in this section, the proposed expansion elements would not result in environmental hazards. In addition, the applicant would comply with all local planning agency regulations and requirements applicable to the Phase 3 Expansion. Per CPUC General Order Number 131-D Section XIVB, the reconductoring component is exempt from discretionary permits and planning regulations issued by local jurisdictions; the reconductoring component would therefore not fall under the planning jurisdiction of Butte County or the City of Gridley.

The Phase 3 Expansion would be consistent with all applicable land use plans, policies, and regulations; therefore, construction and operation would not have any impact under this criterion.

c. Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

NO IMPACT. 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 or Colusa counties or for the City of Gridley. The BCAG is leading the planning efforts for the preparation of the Butte County HCP/NCCP, as described above. 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 DFG) until 2011 (DFG 2009, BCAG 2010). Negotiations between Butte County governments and state and federal agencies regarding the content, priorities, and requirements of the Butte County HCP/NCCP are ongoing.

An existing biological opinion from the USFWS (which will be revised and amended for the Phase 3 Expansion, as described in Section 3.3, Biological Resources) provides protection for sensitive local species in the area of the RFS and the Delevan Site. Construction and operation of the Phase 3 Expansion would not conflict with a habitat conservation plan or natural community conservation plan; therefore, the Phase 3 Expansion would have no impact under the above-listed criterion.

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A.8 Noise

Table A.8-1 Noise Checklist

Would the Project :	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

To supplement information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), Section 3.10, Noise, several documents and resources were reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion), including the Butte County General Plan Noise Element; the Colusa County General Plan Safety Element; the City of Gridley General Plan Noise Element; information on potential noise impacts from the Phase 3 Expansion provided by Bollard Acoustical Consultants, Inc. (included as Appendix F); and other information updated since 2002 pertinent to noise in the vicinity of the Phase 3 Expansion.

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) identified no significant noise impacts as a result of implementation of the Phase 2 Expansion, as well as 12 potential less than significant noise impacts. Impacts were primarily related to noise from the compressors, pressure relief venting (blowdowns), and construction activities (in large part construction along the interconnect pipeline route). These impacts were determined to be less than significant after the implementation of mitigation measures.

A.8.1 Environmental Setting

The Phase 3 Expansion would primarily be located within agricultural and low-density residential areas in Butte County (Remote Facility Site [RFS] and reconductoring component) and Colusa County (Delevan Site).

No public airports are located within 2 miles of the Phase 3 Expansion area. The airport nearest to the RFS is the private Bowles Airport, which is approximately 7 miles from the RFS in the City of Live Oak,

Sutter County. The airport nearest to the Delevan Site is the Willows-Glenn County Airport, a public municipal airport, approximately 11 miles away. The Colusa County Airport in Colusa County and the Chico Municipal Airport in Butte County are approximately 12 and 30 miles from the RFS, respectively. Private airstrips in the vicinity of the Phase 3 Expansion, including an airstrip approximately 1.1 miles northwest of the RFS, are associated with agricultural activities.

Noise and Vibration Fundamentals

Sound is a pressure wave transmitted through the air and is measured by decibels (dB), frequency of pitch, and duration. Since the range of intensities that the human ear can detect is large, the dB scale is based on multiples of 10, according to the logarithmic scale. Each interval of 10 dB indicates a sound energy 10 times greater and is perceived by the human ear as being roughly twice as loud. Noise is defined as objectionable or unwanted sound.

To account for the fact that human hearing does not process all frequencies equally, an A-weighting (dBA) scale was developed. The dBA scale deviates from the "linear" dB weighting curve appropriately for specific frequency values.

Noise level descriptors are commonly used to characterize the average ambient noise environment in a given area. The Sound Equivalent Level, or L_{eq}, is generally used to characterize the average sound energy that occurs during a relatively short period of time, such as an hour. Two other descriptors, the Day-Night Level (L_{dn}) and Community Noise Equivalent Level (CNEL), are used for an entire 24-hour period. The value of the L_{dn} and CNEL are generally within 1 dB of each other and therefore are often used interchangeably in noise analysis. Both the L_{dn} and CNEL noise level descriptors are used to place a stronger emphasis on noise that occurs during nighttime hours (10 p.m. to 7 a.m.) by applying a 10-dB "penalty" to those hours, but the CNEL also applies a 5-dB "penalty" to the evening hours of 7 p.m. to 10 p.m.

Vibration is also a potential source of noise-related adverse impact to humans, and can also affect structures. Vibration can be felt outside, but the perceived intensity of vibration impacts is much greater inside buildings as a result of shaking of the structure. Some of the most common sources of vibration come from construction equipment, airplanes, and large vehicles.

Further information on noise and vibration fundamentals can be found in Section 3.10, Noise, of the 2002 EIR.

Sensitive Receptors

Noise-sensitive receptors can be defined as locations where people reside or where the presence of unwanted sound or vibration could adversely affect existing land uses. Typically, sensitive receptors include residences, hospitals, places of worship, libraries, schools, nature and wildlife preserves, and parks (23 Code of Federal Regulations Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise).

Sensitive receptors in the vicinity of the Phase 3 Expansion area are primarily farms, hunting areas, residences, and wildlife management areas within approximately 1 mile of the RFS, reconductoring component, and Delevan Site. The Gray Lodge Wildlife Management Area was identified as a noise-sensitive area in the Butte County General Plan Noise Element (Butte County 1977). Noise-sensitive receptors and land uses and relative location within the Phase 3 Expansion area are listed in Table A.8-2.

Table A.8-2 Noise-Sensitive Receptors in the Phase 3 Expansion Vicinity

Phase 3 Expansion Component	Nearest Receptor	Type	Approximate Distance to Phase 3 Expansion Area (feet)
RFS	Farming residence - NE from RFS (Waterbury)	Residential	4,000
	Residence - NE from RFS	Residential	5,280
	Residence with private airstrip - NW from RFS	Residential	5,800
	Gray Eagle Hunting Club Lodge	Recreational	4,500
	Hunting areas at Butte Sink	Recreational	5,000
	Gray Lodge Wildlife Management Area	Wildlife refuge	Adjacent (south)
Reconductoring Component Area	Option A Alignment: Approximately 30 residences	Residential	Within 30 to 50 feet
	Option B Alignment: Approximately 50 residences, farms and other agricultural uses	Residential, Agricultural	
Delevan Interconnect Site	Farming residence SW from site	Residential	2,500

Source: BAC 2009 (Confirmed during a September 23, 2009, site visit and supplemented with a review of aerial photographs.)

Existing Noise Levels

Existing ambient sound levels in the Phase 3 Expansion area are characteristic of a rural environment, where sound levels typically range from 40 to 60 dBA during the day and 20 to 45 dBA at night (USEPA 1978). Major noise sources in the area include traffic along I-5 and other roads, agricultural and hunting activities, wildlife, and construction activities taking place at Pacific Gas and Electric's (PG&E's) Colusa Generating Station site (west of the Delevan Site, in Colusa County). Noise surveys conducted by the applicant for the 2002 EIR indicated that ambient noise levels at the closest sensitive residential receptor to the RFS (the Waterbury residence) during operation of the existing equipment were in the range of 38 to 40 dBA L_{eq} during the day and about 36 dBA L_{eq} at night. The ambient noise surveys were repeated in 2008 for the Phase 3 Expansion and showed ambient conditions to those documented previously, with noise levels ranging from 41 to 45 dBA L_{eq} (BAC 2009).

Short-term noise surveys conducted in the vicinity of the Delevan Interconnect Site area on 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, consistent with survey results near the RFS.

Further information on existing noise levels in the area can be found in Section 3.10, Noise, of the 2002 EIR.

A.8.2 Regulatory Setting

The following regulations apply to the Phase 3 Expansion.

Federal

No federal regulations directly apply to impacts from noise for the Phase 3 Expansion. Cumulative noise exposure criteria published by the Federal Transit Administration (FTA) and the U.S. Environmental Protection Agency (USEPA) provide general information related to the assessment of community noise impacts. These criteria indicate that a 2 percent increase over existing outdoor noise levels is the minimum measurable change in community reaction; therefore, such an increase is considered to be a threshold for community noise impacts (FTA 2006). The FTA has published a cumulative noise curve, based on general community reactions to noise at various levels, as discussed below.

State of California

No state regulations apply to impacts from noise for the Phase 3 Expansion; however, the Governor's Office of Planning and Research (OPR) has issued suggested community noise exposure standards per land use designation. The standards are discussed in Section 3.10 of the 2002 EIR; updated standard levels are presented below in Table A.8-3.

Butte County

As of the date of this document, Butte County has not adopted a noise ordinance, and noise due to construction activity is not specifically addressed in the current local regulations. Preparation of a noise ordinance will likely take place after the adoption of the updated Butte County General Plan (Butte County 2009).

The Noise Element of the existing Butte County General Plan identifies maximum acceptable community noise levels for low-density residential land uses and recommends the use of state land use compatibility guidelines for community noise environments during environmental review of proposed new stationary sources. According to these guidelines, the normally acceptable maximum noise level in agricultural areas is 75 dBA, and the maximum acceptable community noise level for low-density residential land uses is 60 dBA L_{dn} (Butte County 1977). The Noise Element also identifies a 40-dBA maximum for wildlife refuges in rural areas. A comprehensive update of the General Plan and zoning code is being developed and is likely to be adopted in 2010, prior to construction of the Phase 3 Expansion. The revised plan establishes maximum allowable noise exposure standards for non-transportation (stationary) sources. For rural areas, these standards must be applied at a point 100 feet away from a noise-sensitive receptor. The following draft policies applicable to the Phase 3 Expansion are included in the updated General Plan.

HS-P1.1 New development projects proposed in areas that exceed the land use compatibility standards (Table 3.11-4) shall require mitigation of noise impacts.

HS-P1.7 Applicants for discretionary permits shall be required to limit noise-generating construction activities located within 1,000 feet of residential uses to daytime hours between 7 a.m. and 6 p.m.

HS-P1.9 The following standard construction noise control measures shall be required at construction sites in order to minimize construction noise impacts:

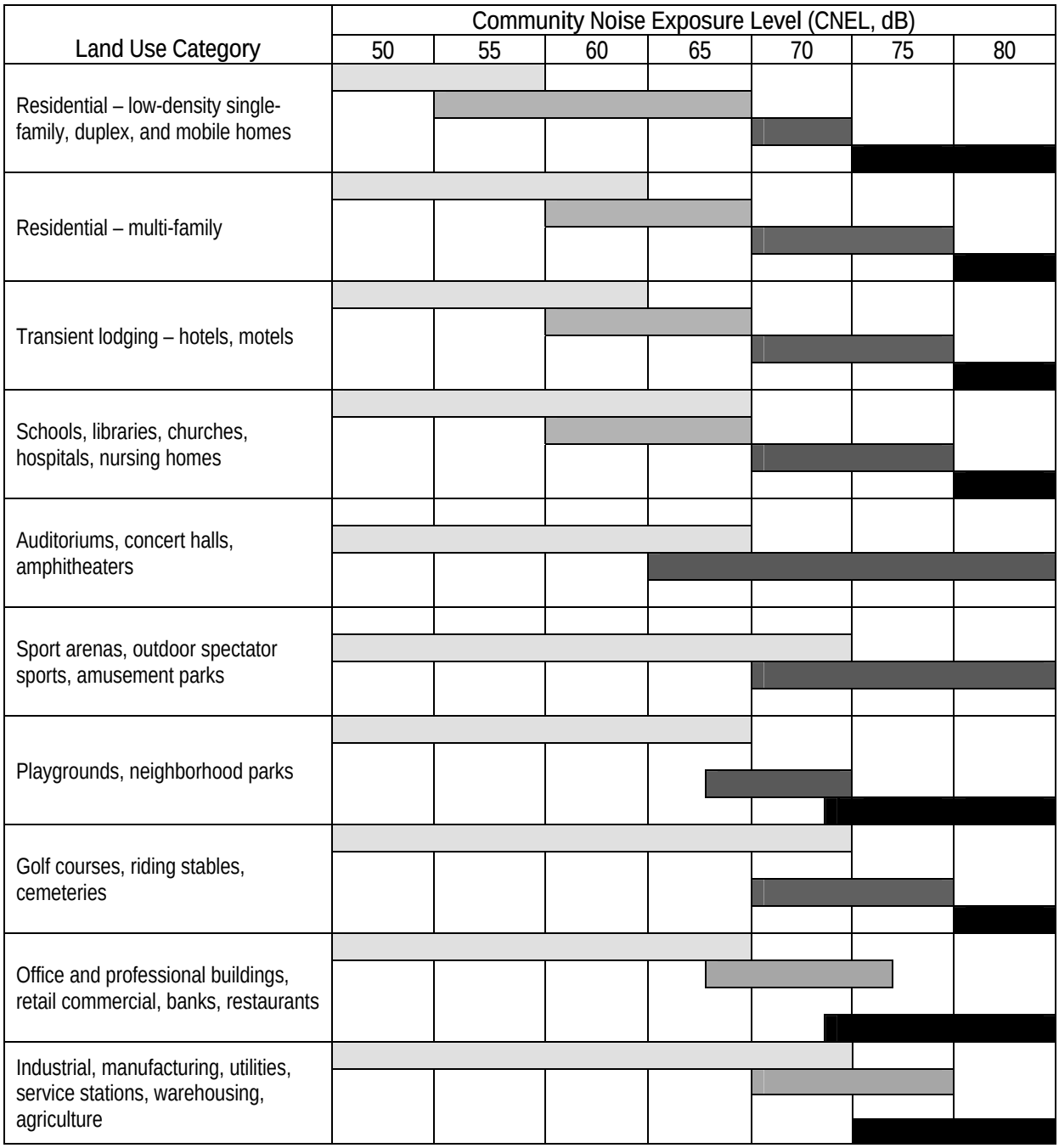
a. Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

b. Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.

c. Utilize quiet air compressors and other stationary noise-generating equipment where appropriate technology exists and is feasible.

Although these policies have not yet been formally adopted, they provide general information related to the local land use regulations to which construction and operation of the Phase 3 Expansion would be subject.

Table A.8-3 Noise/Land Use Compatibility Matrix for Community Noise Environments



Source: OPR 2003

Normally acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Conditionally acceptable: New construction or development should be undertaken only after a detailed analysis of the noise requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air systems or air conditioning, normally suffices.

Normally unacceptable: New construction or development should generally be discouraged. If it does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly unacceptable: New construction or development should generally not be undertaken.

Colusa County

The Safety Element of the Colusa County General Plan, adopted in 1989, includes information related to regulation of noise in the county. According to the Safety Element, noise in rural areas of the county is perceived as a relatively minor issue due to the presence of few noise-producing land uses compared with large urban centers, major airports, large industrial facilities, or congested highways (Colusa County 1989). A draft update to the Colusa County General Plan is expected to be published in late 2010, along with a Background Report that identifies existing conditions in the county (Colusa County 2009). New information in these documents may be applicable to Phase 3 Expansion activities.

Colusa County maintains a Noise Abatement Program which recommends that new land uses and activities should be compatible with the standards published by the California Department of Health Services (superseded by the revised OPR standards shown in Table A.8-3).

The Colusa County Municipal Code establishes minimum development standards that apply to all buildings and uses. Noise generated by a new proposed use as measured at the nearest residential zoned property must not exceed an L_{dn} of 60 dBA, or a median hourly noise level of 50 dBA in daytime (7 a.m. to 10 p.m.) and 45 dBA in the nighttime (10 p.m. to 7 a.m.), whichever is more restrictive.

Further information on the regulatory environment for noise impacts is presented in Section 3.10, Noise, of the 2002 EIR.

Applicant Proposed Measures

The following applicant proposed measures (APMs), the full text of which is included in Table A.1-1 of Section A.1-1, are included as part of the Phase 3 Expansion to minimize or avoid impacts from noise.

Construction

APM NOISE-1: Welding Noise.

APM NOISE-2: Limit Noise-Producing Construction Activities During Hunting Season.

APM NOISE-3: Limit Ambient Noise During Construction.

APM NOISE-4: Public Notification During Construction.

APM NOISE-5: Minimize Nighttime Construction Noise.

Operation

APM NOISE-6: Noise Control Features.

APM NOISE-7: Acoustic Silencers and Acoustically Lined Plenums.

APM NOISE-8: Noise Attenuation Design Features.

APM NOISE-9: Maintenance Blowdown Notification.

The project features shown in Table A.8-4 addressing potential noise impacts were adopted as part of the 2002 EIR for the Phase 2 Expansion as APMs or mitigation measures. These measures would also apply to the Phase 3 Expansion.

Table A.8-4 Mitigation of Impacts to Noise Adopted as Part of the 2002 EIR

WGSI Measure 3.10-2. During the design of the additional compressor building, noise modeling would be conducted to determine the noise attenuation design criteria needed to meet the maximum noise level. WGSI shall house the compressors and engine drivers in a metal-framed and sided building with sound insulation designed into the wall thickness, openings, and vents and shall route normal operations blowdowns and ESD blowdowns into silencers.
WGSI Measure 3.10-3. WGSI will reduce the gas pressure/volume in the pipeline to a minimum prior to a planned maintenance blowdown.
WGSI Measure 3.10-4. Pipeline operators will notify nearby residents when a maintenance blowdown is planned, so they will not be alarmed by the noise or can make plans to be elsewhere while it is occurring. If the valve lot(s) are located adjacent to the Sacramento River with its significant stand of riparian vegetation, blowdowns at these locations will not be planned between April 15 and August 1, unless absolutely necessary, to preclude impacts to Swainson's hawk or other sensitive bird species that may be nesting in the area.
WGSI Measure 3.10-5. Limiting construction activities to daylight hours, except within 1,000 feet of any residence within 200 feet of the pipeline ROW, where the limitation will be from 7:00 a.m. to 6:00 p.m., unless otherwise requested by the residents.
WGSI Measure 3.10-7. Ensuring all construction equipment have mufflers no less effective than original equipment and maintained to minimize noise generation.
WGSI Measure 3.10-8. Changing the location of stationary construction equipment to minimize noise impacts to sensitive receptors where feasible.
WGSI Measure 3.10-9. Rescheduling construction activities to accommodate specific situations where feasible.
WGSI Measure 3.10-10. Construction work hours and the adjustment during the hunting season will be similar to that described above. While the normal workday will be between 6:00 a.m. and 7:00 p.m., weather or construction schedule variables may require noise-producing work outside this 13-hour window. Similar coordination with waterfowl management facilities and noise mitigation will be implemented for the construction of the proposed facilities, as was implemented during initial project development.

A.8.3 Environmental Impacts and Mitigation Measures

Environmental Impacts

Construction

The Phase 3 Expansion construction would be undertaken over 23 months. The development of the RFS expansion would occur in two phases (RFS Plant 4 and RFS Plant 5, as described in Chapter 2, Description of Phase 3 Expansion) while the Delevan Site construction activities would take place over three months. Reconductoring activities would take place over a short period, from 4 to 8 weeks. Construction activities would generally occur in daytime hours between 6 a.m. and 7 p.m.; however, this schedule may be adjusted according to work needs and in accordance with negotiations and consultations with local landowners and jurisdictions, as described in Chapter 2, Description of Phase 3 Expansion (APM NOISE-3).

For example, during hot summer periods, the applicant may choose to begin construction activities before 6 a.m. to avoid high mid-day temperatures and allow concrete foundations to be poured under lower temperatures. Special nighttime construction schedules may also be proposed. As noted above, changes to the proposed construction schedule would take place after negotiation with landowners and local jurisdictions.

Major noise sources during Phase 3 Expansion construction would be associated with the use of heavy-duty equipment and vehicles. Existing equipment and safety valves operation at the RFS would also contribute to composite noise levels during construction. Construction activities at the Delevan Site and

for the reconductoring component would require less equipment and take place over a shorter time than those proposed at the RFS. Typical noise levels and maximum levels of the loudest pieces of construction equipment are presented in Tables A.8-5 and A.8-6.

Table A.8-5 Typical Noise Levels from Proposed Construction Equipment

Proposed Project construction equipment	Noise emission reference levels at 50 feet from the source (dBA)
Truck (including reconductoring line truck)	84
Bus service[a]	55
Crane	85
Backhoe or bucket excavator	80
Diesel tractor	84
Forklift	85
Grading equipment – Dozer – Water truck – Motor grader	 85 88 85
Sideboom	n/a
Man lift (including reconductoring lift)	85
Air compressor	81
Welding truck[b]	88
Hydrovac[c]	77
Vacuum truck	85
Radiographic truck[b]	88
Mobile office	n/a
Portable generator	81
Tractor trailer	84
Two-ton truck[b]	88

Source: FHWA 2006, FTA 2006

Notes:

[a]Estimated as similar to as the pickup truck level per FHWA (2006)

[b]Estimated as truck per FTA (2006)

[c]Estimated as pump per FHWA (2006)

Key:

dBA = Decibels measured with the A-weighting curve. The A-weighting curve is commonly used for the measurement of environmental noise.

Table A.8-6 Maximum Project Construction Equipment Noise Levels at Various Distances from Source (L_{max}, dBA)

Equipment	50 feet	100 feet	200 feet	2,500 feet	5,000 feet
Scrapers	89	83	77	55	49
Bulldozers	85	79	73	51	45
Heavy trucks	88	82	76	54	48
Backhoe	80	74	68	46	40
Pneumatic tools	85	79	73	51	45
Concrete pumps	82	76	70	48	42

Source: BAC 2009 (Based on FTA 2006)

Key:

dBA = Decibels measured with the A-weighting curve. The A-weighting curve is commonly used for the measurement of environmental noise.

L_{max} = The highest A-weighted sound level occurring during a noise event.

During a typical day, construction equipment would not be operated continuously at peak levels. As shown in Tables A.8-5 and A.8-6, construction equipment would be expected to generate noise levels ranging from 80 to 90 dBA L_{max}[1] at a distance of 50 feet. A maximum composite noise level of 75 dBA L_{dn} is anticipated at a distance of 200 feet from the RFS, reconductoring, and Delevan Site construction areas. These predicted noise levels would be decreased by distance and the presence of structures and vegetation, at a rate of 6 dB per doubling of the distance. At the receptors closest to the RFS (the Waterbury residence) and the Delevan Site (a farming residence approximately 2,500 feet southwest of the Delevan Site), it is estimated that maximum construction noise levels would be in the range of 40 to 55 dBA L_{max}. At the receptors closest to the reconductoring alignments (30 to 50 feet), it is estimated that the maximum construction noise levels would range from approximately 80 to 90 dBA L_{max}; this exposure would be temporary and transient, given the short work period (4 to 8 weeks) for the completion of the reconductoring component.

The level of groundborne vibration from construction activities that could reach sensitive receptors depends on the distance to the receptor, the type of equipment creating vibration, and the soil conditions surrounding the construction site.

Operation

Remote Facility Site

Operational noise sources at the expanded RFS would primarily consist of the existing and proposed new facility compressors and pressure relief safety systems (normal venting and safety valves). Section 3.10, Noise, of the 2002 DEIR includes further information related to the kind of equipment that would be installed as part of the Phase 3 Expansion.

The existing RFS currently includes six compressors housed in two large compressor buildings. The Phase 3 Expansion at the RFS would add four additional Caterpillar Model G3612 compressors that would be installed in a new similar compressor building, producing up to an additional 14,200 horsepower.

The new Phase 3 Expansion design would include noise attenuation design features similar to those currently operating at the existing facility. The existing noise control measures at the RFS limit sound from compressor operations by the use of acoustic silencers and acoustically lined plenums (also known as acoustical return air chambers) in the building cooling air inlet and exhaust ports. In addition, the interior surface of the existing compressor building is lined with acoustically absorbent materials, and the compressor engine exhaust gas is routed through appropriately sized acoustic mufflers. Similar noise control products, which have been proven effective at the existing facility, would be put in place for the Phase 3 Expansion components, and as a result, new noise levels are not expected to exceed 75 dBA L_{dn} at the RFS property line (BAC 2009). Table A.8-7 presents predicted noise levels at the noise-sensitive receptors located within 1 mile of the RFS (also refer to Table A.8-2 for more information on these sensitive receptors).

[1] L_{max} = The highest A-weighted sound level occurring during a noise event. The A-weighting curve is commonly used for the measurement of environmental noise.

Table A.8-7 Predicted Operational Noise Levels at Nearest Receptors

Facility	Reference Noise Level at 50 feet (dBA L_{dn})	Nearest noise-sensitive receptors	Distance (feet)	Predicted noise level at sensitive receptor L_{dn} (dBA)
RFS	75	Waterbury Residence	4,000	36
RFS	75	Gray Eagle Hunting Club Lodge	4,500	36
Delevan Site	55	Residence	2,700	20

Source: BAC 2009

Note: Noise measurements taken at the RFS for the 2002 EIR showed that the maximum noise level at the property line was 72 dBA; however, a theoretical maximum value of 75 dBA L_{dn} is used here to provide a conservative assessment of RFS noise levels at the nearest receptors.

dBA = Decibels measured with the A-weighting curve. The A-weighting curve is commonly used for the measurement of environmental noise.

L_{dn} = Day-night equivalent noise levels

Similar to current operations, the greatest source of noise generation from operation of the expanded RFS would come from pressure relief valves and pipeline blowdowns at the RFS. Pressure relief from compressor station piping is necessary for safe operation of the Wild Goose Facility. Regular, routine blowdowns (i.e., rapid depressurization events) take place whenever a compressor unit shuts down, can produce an audible sound over 120 dBA, and are routed through silencers for noise attenuation. Blowdowns occur during rare emergencies or infrequent maintenance, when large volumes of natural gas are vented from the pipeline. Fire and gas readings of 40 percent and higher also trigger activation of emergency shutdown valves, which blowdown the entire facility. Silenced blowdown vents are a part of the current facility; additional silenced blowdown vents would be installed as appropriate for the Phase 3 Expansion at both the RFS and the Delevan Site.

Immediate, emergency depressurization takes place at the facility via pressure safety valves, activated only when pressure exceeds the safe operating parameters of piping or vessels. Under these circumstances, pressure is relieved directly to the atmosphere, rather than with a controlled release through a silencer. Consequently, these emergency blowdowns are extremely loud—up to170 dB (Fluid Kinetics 2010). An unsilenced pressure safety valve release event could generate noise levels of approximately 74 dBA L_{max} at a distance of 4,000 feet for a period of 5 to 10 seconds during the discharge (BAC 2009).

Safety records for the Wild Goose Facility from 2005 to 2008 indicate that there have been no emergency blowdowns during this period. These safety reports also indicate that normal venting occurred through silencers designed to limit maximum noise levels to 75 dBA at any of the facility property lines (BAC 2009).

Similar to groundborne vibration from construction activities, the level of groundborne vibration from operations activities at the RFS and the Delevan Site that could reach sensitive receptors depends on the distance to the receptor, the type of equipment creating vibration, and the soil conditions surrounding the construction site.

Delevan Site

Operational noise sources at the Delevan Site associated with the Phase 3 Expansion components would consist of the continuous sound of gas passing through control valves and infrequent noise generated by blowdowns. Facility operations noise measurements conducted for the Phase 3 Expansion indicate that gas passing through the valves generates noise levels of approximately 52 dBA L_{dn} at the property line

(BAC 2009). At the nearest residence to the Delevan Site, estimated operational noise levels after completion of the Phase 3 Expansion would be below 20 dBA L_{dn}.

Although noise from blowdown activities could exceed 75 dBA L_{dn} at the property line, potential noise impacts from blowdowns at the Delevan Site would occur on an infrequent basis after construction of the Phase 3 Expansion components had been completed.

a. Would the project 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?

LESS THAN SIGNIFICANT. Construction of the Phase 3 Expansion components would cause noise, primarily from heavy-duty vehicles and on-road and off-road equipment needed at the construction sites. In addition, haul trucks would be required to bring and remove materials to and from the RFS and Delevan Site construction areas. Estimated peak noise levels from the construction equipment would range from 80 to 90 dBA at 50 feet from the source at the proposed construction sites; a maximum composite noise level of 75 dBA L_{dn} would be anticipated at a distance of 200 feet from both sites.

To address potential impacts from construction noise, the applicant would adjust the construction schedule such that noise-producing activities would be confined to daytime hours and periods of the year that are not critical for sensitive species and hunting activities. Additionally, the applicant would coordinate closely with nearby property owners and local authorities to address concerns about construction activities.

Current Butte and Colusa county local ordinances and general plans do not include specific standards for construction noise. However, the Butte County General Plan Noise Element includes a maximum acceptable community noise level of 60 dBA L_{dn}. The Noise Element also establishes a normally acceptable maximum noise level in agricultural areas of 75 dBA. The Colusa County General Plan Safety Element identifies normally acceptable exterior noise levels up to 70 dBA in open spaces and identifies levels between 70 to 80 dBA as conditionally acceptable for standard construction activities.

Noise estimates prepared for the Phase 3 Expansion indicate that maximum construction noise levels would be audible to the closest receptors in a range from 40 to 55 dBA during peak construction activities. Construction noise would be temporary and intermittent in terms of equipment usage. These estimated levels would be acceptable under the Butte and Colusa county community noise and land use compatibility criteria for both residential (60 dBA) and agricultural areas (75 dBA) during daytime operations. Implementation of the construction period APMs described above would reduce potential impacts from construction noise to a less than significant level.

Potential sources of operational noise associated with Phase 3 Expansion activities include noise from compressor operations, blowdowns from the pressure relief system, and gas passing through the pipelines at the Delevan Site. Routine maintenance activities would also produce additional sources of noise during operations.

As indicated in the APMs listed above, the applicant would implement noise attenuation measures as part of the design of the Phase 3 Expansion components. These design features would ensure that operational noise levels would not exceed 75 dBA at the RFS property line and 55 dBA at the Delevan Site boundary; it is estimated that this would result in noise levels of 36 dBA and 20 dBA, respectively, at the identified closest sensitive receptors. These levels would be acceptable under the Butte and Colusa county community noise and land use compatibility criteria for both residential (60 dBA) and agricultural areas (75 dBA).

Reconductoring activities could produce noise above 80 dBA L_{max} at residential and agricultural property boundaries, resulting in a potential impact on these receptors. Given the short duration of construction activity at the reconductoring location (4 to 8 weeks), this impact would be less significant after compliance with the proposed policies of the Butte County General Plan Noise Element, implementation of the APMs listed above, and implementation of PHASE 3MM NOI-1.

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 instead of those powered by diesel or gasoline reciprocating engines) will be used as much as feasible.
- Temporary enclosures or noise barriers (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.

Compliance with the noise policies of Butte and Colusa counties, implementation of the APMs listed above, and implementation of MM NOI-1 would reduce potential impacts during operation of the Phase 3 Expansion components to a less than significant level.

b. Would the project expose persons to or generate excessive groundborne vibration or groundborne noise levels?

LESS THAN SIGNIFICANT. Construction vibration would occur mainly from the use of heavy-duty construction equipment, e.g., trucks, backhoes, excavators, loaders, and cranes. Groundborne vibration and groundborne noise generated from operation would primarily be generated by the compression equipment and maintenance vehicles. Groundborne vibration and noise from construction activities would be intermittent or continuous with a short duration and would occur during daytime hours.

Ground vibration from construction equipment, such as the tamping of ground surfaces, the passing of heavy trucks on uneven surfaces, and the excavation of trenches, could create perceptible vibration in the immediate vicinity (within approximately 100 feet) of the activity. As described in the 2002 EIR, groundborne vibration related to the processes and equipment at the RFS and the Delevan Site occurs within the same, approximately 100-foot vicinity of the site. No sensitive receptors are located within this area of influence for Phase 3 Expansion activities at the RFS and the Delevan Site. Groundborne vibration from equipment used at the reconductoring component area could also create perceptible vibration within approximately 100 feet of the activity; however, the reconductoring activities would be transient and take place over a short period. Therefore, construction and operation of the Phase 3 Expansion components would result in a less than significant impact under this criterion.

c. Would the project cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

LESS THAN SIGNIFICANT. Construction noise from Phase 3 Expansion activities would not contribute to a permanent increase in ambient noise levels in the vicinity. Operation of new compressor units at the RFS is not anticipated to result in noise levels above existing conditions (75 dBA at the property line), while operations at the Delevan Site are estimated to result in an additional 3 dB over the existing noise level (52 dBA).

Short-term noise surveys conducted by the applicant for the Phase 3 Expansion indicated a daytime average ambient noise level ranging from 41 to 45 dBA (L_{eq}) in the vicinity of the RFS and 40 dBA (L_{eq}) daytime levels in the vicinity of the Delevan Site, with nighttime conditions estimated to be approximately 5 dB lower than daytime levels.

To address potential operational noise impacts from operations after construction of the Phase 3 Expansion components, the applicant would implement noise attenuation design features currently in place at the existing facility and as described in the APMs above. With implementation of these noise control measures, it is anticipated that noise levels would not cause a substantial permanent increase over the existing ambient noise levels at either the RFS or the Delevan Site. Reconductoring would involve the replacement of an existing electrical distribution line, would not result in noise-generating activities after the construction period, and would not result in an increase in ambient noise levels in the area. Thus, noise impacts from operations would be less than significant under this criterion.

d. Would the project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

LESS THAN SIGNIFICANT. Noise from construction equipment and vehicles associated with the Phase 3 Expansion would result in temporary contributions to the ambient noise levels in the vicinity of the RFS and the Delevan Site during the construction periods. As shown in Tables A.8-5 and A.8-6, peak construction noise levels would range from 80 to 90 dBA (L_{max}) at 50 feet from the source and from 40 to 55 dBA at the closest sensitive receptors. These predicted noise levels at the closest receptors would be an increase of 10 to 15 dB over existing ambient noise levels.

Cumulative noise exposure criteria published by the FTA and the USEPA establish that a 2 percent increment over existing outdoor noise levels is the minimum measurable change in community reaction, and therefore, it is considered to be a threshold for community noise impacts (FTA 2006). Based on general community reactions to noise at varying levels, the FTA has published a cumulative noise level curve (Figure A.8-1), which shows that for ambient noise levels such as those existing at the RFS and the Delevan Site locations (40 dBA L_{dn}), a noise exposure increase from 10 to 15 dB would result in a moderate impact.

To address potential impacts from temporary increase of ambient noise levels during construction, the applicant would implement adjustments to the construction schedule, coordinate closely with local authorities and adjacent property owners, and program low-noise-producing activities during nighttime construction and/or seasonal hunting periods, as described in the APMs above. In addition, implementation of the measures listed in Butte County Noise Policy HS-P1.9 and MM NOI-1 would mitigate the effects of a temporary increase of ambient noise levels within the vicinity of the RFS, reconductoring component, and Delevan Site, resulting in a less than significant impact related to construction noise under this criterion.

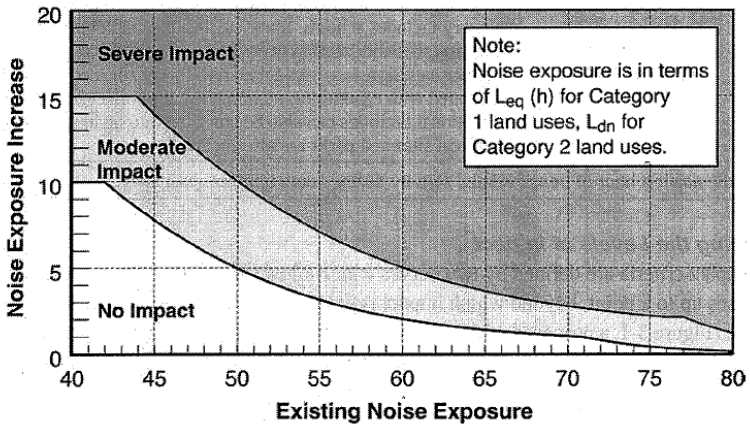


Figure A.8-1 Increase in Cumulative Noise Levels Allowed by Criteria (dBA)
(Source: FTA 2006)

Operational noise from the new compressor building along with the existing facilities at the RFS would produce a composite noise level of 75 dBA at the property line, which would attenuate over distance to 36 dBA at the closest sensitive receptors. In addition, anticipated operational noise levels at the Delevan Site would be 55 dBA at the property line and 20 dBA at the closest receptor. These contributions to ambient noise levels would be generally constant and would not be expected to fluctuate during operation. Noise from sudden, impulsive, unsilenced pressure releases would create a higher level of annoyance than the steady background noise associated with operations; however, these events would take place for safety purposes only, on an infrequent basis.

To address potential impacts from operational noise that could result after construction of the Phase 3 Expansion components, the applicant would implement noise attenuation design features, as described in the APMs above. With implementation of these noise control measures into the design of the Phase 3 Expansion components, it is anticipated that a substantial permanent increase over the existing ambient noise levels at both the RFS and the Delevan Site would not occur; thus, noise impacts from operations would be less than significant under this criterion.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

NO IMPACT. No public or public use airports are located within 2 miles of the Phase 3 Expansion areas. Construction and operation of the Phase 3 Expansion would not result in any impacts under this criterion.

f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

LESS THAN SIGNIFICANT. The RFS is located approximately 1 mile from a private airstrip associated with a residential facility. Previous ambient noise measurements within a 1-mile radius of the RFS have shown that existing levels typically range from 41 to 45 dBA (L_{eq}). The airstrip is expected to be primarily related to agricultural activities and transportation and is not large enough to accommodate large volumes of air traffic. Additionally, construction personnel associated with the proposed Phase 3 Expansion would only be present at the RFS on a short-term basis; therefore, impacts to residents and personnel from exposure to excessive noise levels from aircraft operations would be less than significant.

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A.9 Population and Housing

Table A.9-1 Population and Housing Checklist

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
d. Cause a disruption in the balance between employment opportunities and available housing in the area?	☐	☐	☐	☒

To supplement information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), Section 3.11, Population and Housing, several planning documents and resources were reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion). These included the Butte County General Plan, the Draft Butte County 2030 General Plan Update, the Colusa County General Plan; and other information updated since 2002 pertinent to population and housing in the vicinity of the Phase 3 Expansion components.

Review of the 2002 EIR identified no impacts related to population and housing as a result of implementation of the Phase 2 Expansion.

A.9.1 Environmental Setting

The Phase 3 Expansion components include the Remote Facility Site (RFS), in southwestern Butte County, and the Delevan Site, in northeastern Colusa County. Both counties are predominantly rural, but have experienced increased growth over the past 10 years, as shown below in Table A.9-2. The Phase 3 Expansion also includes reconductoring an existing 13-kilovolt (kV) electrical distribution line to accommodate capacity and reliability needs. Two routes for the reconductoring have been proposed, Option A and Option B. Both potential routes would take place in unincorporated Butte County, and the Option B route would also extend approximately 2,000 feet into the City of Gridley.

The year 2000 populations for Butte and Colusa counties were 204,065 and 18,804, respectively (U.S. Census 2000). Projections from the U.S. Census American Community Survey and California Department of Finance forecast current growth to continue at an increasing rate based on national and state data, as shown in Table A.9-2. Tables A.9-3 and A.9-4 present U.S. Census information on housing units, vacancy, total employment, and construction trade employment in the Phase 3 Expansion area for the two counties.

Table A.9-2 Regional Population Trends

	2000 Census	2010 Projection	2000–2010 Projected Growth		2020 Projection	2010–2020 Growth
			Number	Percent		
Regional Population and Growth Projections						
Butte County	204,065	230,116	26,051	13	281,442	51,326
City of Gridley	5,382	7,231	1,849	26	10,804	3,573
Colusa County	9,732	23,787	14,055	144	29,588	15,533
Household Projections						
Butte County	85,523	99,655	14,132	17	118,271	18,616
Colusa County	3,251	N/A	N/A	N/A	N/A	N/A

Sources: BCAG 2006; CDF 2007; U.S. Census 2000, 2007

Table A.9-3 Phase 3 Expansion Area Housing

Location	Housing Units, 2007 (U.S. Census)	
	Total Units	Vacancy Rates (%)
Butte County	93,573	9.6
City of Gridley	2,331[a]	6.2[a]
Colusa County	7,358	8.9

Sources: U.S. Census 2007, [a]CDF 2007

Table A.9-4 Phase 3 Expansion Area Employment

Location	Labor Force and Employment			
	Total Employed (2009)*	In Construction Trades (total [%])	In Agricultural Trades (total [%])	2009 Unemployment Rate (%)*
Butte County	104,800	8,791 ([9.4]	1,565 [1.7]	12.5
City of Gridley	2,900	126 [6.8]	235 [12.7]	27.9
Colusa County	11,470	663 [7.5]	2,125 [24.0]	18.4[a]

Source: U.S. Census 2007

Notes:

*Indicates data from EDD 2009

[a]Due to fluctuations in the agricultural economic base, the highest unemployment occurs during the winter months, with an unemployment rate range of 9.5 in June to 25.8 in March.

A.9.2 Regulatory Setting

As described in the 2002 EIR, the general plans of Butte and Colusa counties both include policies that address housing, employment and growth management, and provision of adequate facilities and services. Additionally, these plans acknowledge increased urbanization of rural areas and population growth increases as a result of both natural increase and migration into the area. Regulatory setting information for the City of Gridley is provided in Section A.7, Land Use and Planning.

A.9.3 Environmental Impacts and Mitigation Measures

Population in the area of the Phase 3 Expansion at the RFS and the Delevan Site is very sparse. One home and the Gray Eagle Ranch hunting club lodge are within 1 mile of the RFS. One home is within slightly more than 1 mile of the Delevan Site. Neither site lies within an existing community. The Option A reconductoring alignment would extend along Pennington Road and West Evans Reimer Road in a sparsely populated agricultural area, with approximately 20 residential and farming-related structures

within 30 to 50 feet of the route. The Option B reconductoring alignment would extend along Pennington Road and Colusa Highway in a somewhat more densely populated agricultural area, with approximately 50 residential, farming, or business-related structures within 30 to 50 feet of the route. The Option B reconductoring alignment extends approximately 2,000 feet into the City of Gridley along Colusa Highway/Sycamore Street in an area developed primarily with low-density residential uses. No people, homes, or businesses would be physically displaced by the Phase 3 Expansion.

During the 23-month construction period, the applicant estimates that peak numbers of 150 and 20 workers would be required at the RFS and the Delevan Site, respectively. The applicant would primarily hire construction workers from the local and regional labor pool. During the 4- to 8-week construction period for the reconductoring component, the applicant anticipates four to six personnel would be required (most likely supplied by existing PG&E personnel). A need for worker relocation and associated additional permanent housing is not anticipated. For construction workers with specialized trades, the applicant anticipates use of workers who would use temporary local accommodations. Most of the available housing (including temporary lodging such as hotels and motels) in Butte County is in the nearby towns of Biggs or Gridley, which are approximately 7 and 12 miles from the RFS, respectively. Most of the available housing in Colusa County is in the town of Williams and Colusa City, which are approximately 20 and 30 miles from the Delevan Site, respectively.

During operation, up to three additional staff would be required at the RFS. It is expected that these staff would be hired from the local or regional labor pool, and would not relocate to the area. Maintenance activities along the reconductored distribution line would not require staff beyond the existing PG&E staff that already conduct periodic inspections and assessments of the distribution system.

a. Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

*LESS THAN SIGNIFICANT***.** The Phase 3 Expansion is an expansion of existing infrastructure, intended to increase the gas storage capacity of the Wild Goose Facility.

As discussed above, construction activities for the RFS and the Delevan Site would require approximately 170 construction workers over the 23-month construction period. Between four and six PG&E personnel would be required for the reconductoring component during the 4- to 8-week construction period. As shown in Table A.9-4, an existing construction workforce is available within the region of the Phase 3 Expansion, and construction workers would be expected to originate from the local and/or regional labor pool. The Phase 3 Expansion would not generate a permanent increase in population level or result in a decrease in permanent housing availability. During the construction phase, some workers may require temporary accommodations, but these would be met by currently available resources in the Phase 3 Expansion area. Up to three additional employees would be required for operation of the expanded facility and would be expected to originate from the local or regional area. Therefore, construction and operation of the Phase 3 Expansion is not anticipated to directly induce substantial population growth in the area.

Factors that may induce indirect growth include economic conditions, population trends, and availability of employment opportunities, housing, and public services such as water and sewage treatment. The Phase 3 Expansion would serve natural gas infrastructure, but would do so beyond the limits of Butte and Colusa counties rather than for the immediate area, and the proposed expansion itself is not anticipated to permanently indirectly induce population growth in the immediate area or region.

Implementation of the Phase 3 Expansion is not expected to result in substantial direct or indirect population growth, and effects under this criterion would be less than significant.

b. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

NO IMPACT. The Phase 3 Expansion elements would be constructed on agricultural and recreational hunting lands adjacent to the RFS, on a small area of agricultural lands surrounding the Delevan Site, and along existing roadways (reconductoring component). Construction would take place entirely within a rural or suburban setting, and no existing housing would be displaced at the construction staging areas or at any locations along construction haul routes. Implementation of the Phase 3 Expansion would not result in the displacement of housing nor would it necessitate the construction of any replacement housing; therefore, no impacts would result under this criterion.

c. Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

NO IMPACT. As discussed above, the Phase 3 Expansion would not result in the physical displacement of any housing or businesses because no housing or businesses are currently located within the area of the RFS or the Delevan Site. Residential, farming, and business structures along the roadways of the reconductoring component routes would not be affected by reconductoring activities, and no people would be displaced. Construction of the Phase 3 Expansion elements would require the temporary employment of a relatively small workforce (up to 176 construction personnel over a 23-month period), which would not be large enough to result in the displacement of a substantial number of people. Implementation of the Phase 3 Expansion would not result in the displacement of people, nor would it necessitate the construction of replacement housing elsewhere; therefore, no impact would result.

d. Would the project cause a disruption in the balance between employment opportunities and available housing in the area?

NO IMPACT. As discussed above, the Phase 3 Expansion would result in the temporary employment of up to 170 employees during construction activities at the RFS and the Delevan Site, and the permanent employment of up to three additional employees for operations at the expanded facility. PG&E personnel engaged in reconductoring activities arriving from non-commutable distances would use available lodging and accommodations in the area, if needed. None of these employees are anticipated to relocate from outside the local or regional area and require permanent housing, and the Phase 3 Expansion would not necessitate the construction of any additional housing.

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A.10 Public Services and Socioeconomics

Table A.10-1 Public Services and Socioeconomics Checklist

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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:				
Public Services				
a. Fire protection?	☐	☐	☐	☒
b. Police protection?	☐	☐	☐	☒
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒
Socioeconomics				
f. Substantially impact the economies of those communities affected by the proposed project?	☐	☐	☐	☒

To supplement information presented in Section 3.12, Public Services and Socioeconomics, of the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), several planning documents and resources were reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion). Documents reviewed included the Butte County General Plan, the Butte County 2030 General Plan Update (for informational purposes), the Colusa County General Plan, and other information updated since 2002 pertinent to public services and socioeconomics in the vicinity of the Phase 3 Expansion components. In addition, local (Butte County and Colusa County) public services agency staff were consulted to confirm any changes in conditions since the 2002 EIR.

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) identified one less than significant impact to public services and socioeconomics as a result of implementation of the Phase 3 Expansion, as discussed below.

Information related to the effect of the Phase 3 Expansion on the jobs-housing balance in the area is discussed in Section A.9, Population and Housing.

A.10.1 Environmental Setting

The need for public services in a given jurisdiction is largely affected by that jurisdiction's population and rate of growth. The demand for public services such as fire and police protection, schools, and libraries is directly correlated with population size.

Construction contractors for the Phase 3 Expansion would likely originate from Butte, Colusa, Sutter, Glenn, and Yuba counties. Consequently, the socioeconomics of those counties are examined in this section.

Regional Setting

The Phase 3 Expansion area is located in the rural communities of Butte and Colusa counties in the Northern Sacramento Valley. The Remote Facility Site (RFS) and reconductoring component are in Butte County, and the Delevan Site is in Colusa County.

Annual unemployment rates have increased in California and the region in recent years, and the annual unemployment rate for the Northern Sacramento Valley ranges from 9 to 12 percent on average, consistently higher than the California average. In addition, real per capita income in the region has decreased in recent years. From 2000 to 2007, per capita income in the Northern Sacramento Valley consistently lagged behind California as a whole (Great Valley Center 2009).

Local Setting

Public Services

Police/Sheriff. Police and sheriff services for Butte County and the RFS are discussed in the 2002 EIR in Section 3.12, Public Services and Socioeconomics. Butte County Sheriff and Constables currently has 96 deputies, three of which are stationed in Gridley, approximately 6 miles from the RFS. Unincorporated areas of Butte County receive general safety and law enforcement services from the County Sheriff's Department.

The Colusa County sheriff's office is staffed by nine deputies and is located in the City of Colusa, approximately 23 miles from the Delevan Site. Unincorporated areas of Colusa County receive general safety and law enforcement services from the County Sheriff's Department. The department also serves as the Coroner's Office and the County Emergency Services Center.

Fire Protection and Emergency Response. Information on fire protection services for Butte County and the RFS is presented in the 2002 EIR in Section 3.12, Public Services and Socioeconomics. The fire station nearest to the RFS, Station 77, is approximately 2 miles from the facility, on Rutherford Road. Local response times for Butte County fire protection and emergency response (first apparatus to arrive on scene) average approximately 7 minutes per incident, with over 90 percent of incident responses taking place under 15 minutes (Citygate Associates LLC 2007). Ambulance and emergency medical services for Butte County are provided by private companies, which contract with local agencies (Butte County Public Health 2010).

Information on fire protection services for Colusa County and the Delevan Site is provided in the 2002 EIR in Section 3.12, Public Services and Socioeconomics. The Phase 3 Expansion components would be located in the Glenn-Colusa, Colusa Rural, and Maxwell Rural fire districts. The Maxwell Fire Department is the station closest to the Delevan Site, approximately 13 miles from the site. Ambulance and emergency medical services are provided by private companies, which contract with local agencies (Colusa Regional Medical Center 2010).

Schools. Information on school districts serving the Phase 3 Expansion area is presented in the 2002 EIR in Section 3.12, Public Services and Socioeconomics. The Phase 3 Expansion and reconductoring components would be located in the Gridley Unified School District and Colusa Unified School District (United States Department of Commerce 2009). These school districts may require school impact fees for new development, as required by by California Education Code Section 17620; subsection (a)(1) states, "The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement against any construction within the boundaries of the district, for the purpose of funding the construction or reconstruction of school facilities, subject to any limitations set forth in Chapter 4.9 (commencing with Section 65995) of Division 1 of Title 7 of the Government Code." There are no

schools located within 0.5 miles of the Phase 3 Expansion. Two schools (Sycamore Middle School and McKinley Elementary School) are adjacent to one another and within 0.5 miles of the Option B alignment of the reconductoring component, along a portion of the segment that extends 2,000 feet into the City of Gridley.

Information on parks in the area of the Phase 3 Expansion is presented in Section A.11, Recreation.

Socioeconomics

Table A.10-2 summarizes population, income, and employment-related characteristics for the five counties from which workers for the Phase 3 Expansion may be drawn.

Table A.10-2 Population, Employment, and Income in the Phase 3 Expansion Area

Characteristic	County				
	Butte	*Colusa*	*Glenn*	*Sutter*	*Yuba*
Population	216,961	21,766	28,767	93,142	71,938
Employment	94,800	8,600	10,800	37,400	24,200
County Unemployment Rate (%)	6.2	12.6	8.0	8.9	8.8
Per Capita Income ($)	27,136	25,559	22,561	27,548	23,022

Source: California Department of Finance (CDF) 2006

A review of civilian labor force characteristics in the Phase 3 Expansion area in 2006 indicates that 50 percent of all employment is in non-agricultural positions for Butte, Colusa, and Glenn Counties (Table A.10-3). In Butte County, the largest class of employment was in state and local government, followed by trade, transportation and utilities, and educational and health services (CDF 2006). In Colusa County, most positions were in state and local governments, followed by trade, transportation, and manufacturing (CDF 2006). In Glenn County, most positions were in state and local governments, followed by trade, transportation and utilities, and leisure and hospitality (CDF 2006).

Table A.10-3 Civilian Labor Force Characteristics in the Phase 3 Expansion Area

Characteristic	County				
	Butte	*Colusa*	*Glenn*	*Sutter*	*Yuba*
Civilian Labor Force	101,100	9,800	11,700	41,100	26,500
Employed in non-agricultural positions	75,000	5,454	6,379	N/A	N/A
Employed by the state or local governments	16,967	1,983	2,216	N/A	N/A

Source: CDF 2006

A.10.2 Regulatory Setting

No federal or state regulations establish requirements for a minimum level of local fire response services. For substantially volunteer fire departments, the National Fire Protection Association (NFPA Standard 1720) recommends a response time of approximately 14 minutes for a rural zone with fewer than 500 people per square mile (Citygate Associates LLC 2007).

The Butte County General Plan includes policies addressing the provision of public services, including protection from fire hazards. The Colusa County General Plan also includes policies addressing the provision of public and community services, as well as guidelines for development of public services in response to new development, with the intent of channeling development into areas where community services can either accommodate growth or be expanded most efficiently.

Applicant Proposed Measures

Compliance with laws and regulations relevant to the provision of public services and emergency access would reduce or avoid potential impacts that might otherwise occur with the construction and operation of the Phase 3 Expansion. The following applicant proposed measures (APMs), the full text of which is included in Table A.1-1 of Section A.1-1, are included as part of the Phase 3 Expansion to minimize or avoid impacts related to public services or socioeconomics.

APM HAZ-4: Construction Fire Prevention and Safety Plan.

APM HAZ-5: Facility Security.

APM REC-2: Construction Scheduling.

The project features shown in Table A.10-4, applicable to public services and socioeconomics, were adopted as APMs and mitigation measures for the 2002 EIR for the Phase 2 Expansion. These measures would also apply to the Phase 3 Expansion.

Table A.10-4 Project Features Addressing Public Services and Socioeconomics Adopted as Part of the 2002 EIR

Mitigation Measure 3.7-6. The Applicant shall update the existing Emergency Response Plan to reflect the new project components and operations. The updated plan shall also include specific dates and frequencies with regard to the retraining of existing employees, and the contact with Emergency Services Providers and property owners about the Plan. The update shall indicate the nature and extent of the proper training and indoctrination to ensure effective interaction of all responsible parties in the Plan if an accident were to occur.
WGSI Measure 3.14-2. Develop and Implement a Transportation Management Plan (TMP). The TMP would be updated if needed to include procedures for coordination with the local Emergency Service Providers, including the county fire departments, county public works departments, paramedics, sheriff departments, Caltrans, and California Highway Patrol, if necessary. In addition, implementation of WGSI Measure 3.14-1, as described above, would reduce the potential for interference with emergency response and access routes to a less than significant level.

A.10.3 Environmental Impacts and Mitigation Measures

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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:

a. Fire protection?

NO IMPACT. Impacts to fire and emergency services are discussed in the 2002 EIR in Section 3.12, Public Services and Socioeconomics. Project features addressing public services that were adopted as part of the 2002 EIR for the Phase 2 Expansion as APMs and mitigation measures would also apply to the Phase 3 Expansion. Similar to the Phase 2 Expansion, the Phase 3 Expansion is not anticipated to result in significantly increased demand for local fire protection services. Local fire protection services are currently adequate to serve the existing Wild Goose Facility, including the Delevan Site; therefore, there would be no impact on fire protection under this criterion.

b. Police protection?

NO IMPACT. Impacts to police protection are discussed in the 2002 EIR in Section 3.12, Public Services and Socioeconomics. Project features addressing public services adopted as part of the 2002 EIR for the Phase 2 Expansion as APMs and mitigation measures would also apply to the Phase 3 Expansion. Similar

to the Phase 2 Expansion, the Phase 3 Expansion is not anticipated to result in significantly increased demand for local police protection services. Existing security measures implemented by the Wild Goose Facility, in addition to security measures that would be implemented as part of Phase 3 Expansion construction activities, would reduce the need for police protection services. The reconductoring component would not result in significant changes to the existing distribution lines, and additional police services would not be required. In addition, traffic control measures during reconductoring activities would be coordinated with the Butte County Public Works department. Local police protection services are currently adequate to serve the existing Wild Goose Facility, including the Delevan Site; therefore, there would be no impact to police protection under this criterion.

c. Schools?

NO IMPACT. Impacts to schools are discussed in the 2002 EIR in Section 3.12, Public Services and Socioeconomics. The Phase 3 Expansion areas are more than 0.5 miles from the nearest school and construction would not result in any direct impacts on schools. The Option B alignment of the reconductoring component would be located within 0.5 miles of two schools; reconductoring activities would not result in any impacts to these schools. No components of the Phase 3 Expansion (including the reconductoring component) would affect school enrollment, since construction workers would be temporary and are likely to already be based in the area, and the number of additional operations staff would be minimal relative to the local population. No new schools would be required as a result of the Phase 3 Expansion; therefore, there would be no impact on schools under this criterion.

d. Parks?

NO IMPACT. Impacts to parks are discussed in the 2002 EIR in Section 3.13, Recreation. With implementation of applicable project features, there would be no impact on parks under this criterion.

e. Other public facilities?

NO IMPACT. Impacts to schools are further discussed in the 2002 EIR in Section 3.12, Public Services and Socioeconomics. The Phase 3 Expansion would not result in an increase in local population during or after construction and, therefore, would not affect the provision of other government services or public facilities such as libraries and hospitals.

f. Substantially impact the economies of those communities affected by the proposed project?

NO IMPACT. Impacts to the economies of local communities (primarily Butte and Colusa counties) from the Phase 2 Expansion are discussed in the 2002 EIR in Section 3.12, Public Services and Socioeconomics, and would be similar to the effects on local economies that would be expected to result from the Phase 3 Expansion. Construction of the Phase 3 Expansion components would result in increased construction-related employment of up to 176 workers, as well as increased income and sales, which would have a beneficial impact on the economy of the local communities, especially given high unemployment rates in Butte, Colusa, and adjacent counties. Following construction, additional fiscal benefits to the area would be associated with increased employment and income for operational staff at the RFS. Secondary local employment opportunities would also result from the Phase 3 Expansion, for services such as landscape maintenance, water haulers, equipment inspectors, and vehicle maintenance. Increased property tax revenues for Butte and Colusa counties would also result from the Phase 3 Expansion. Increased costs borne by the counties for public services provided for the Phase 3 Expansion would be minimal, if any. Consequently, a positive fiscal impact from construction and operation is anticipated, and no adverse impact would result.

References

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A.11 Recreation

Table A.11-1 Recreation Checklist

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a.	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b.	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

To supplement information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), Section 3.13, Recreation, several planning documents and resources that have been updated since 2002 have been reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion). In addition, recreational land uses around the Remote Facility Site (RFS) and Delevan Site were observed during a September 23, 2009, site visit.

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) did not identify any significant impacts to recreation that required the implementation of mitigation measures.

A.11.1 Environmental Setting

Within the RFS, including the Phase 3 Expansion area, recreational activities predominately include waterfowl and upland game bird hunting, which occur on private lands and at the Gray Lodge Wildlife Area. The nearest developed recreation area to the RFS is the Lake Oroville State Recreation Area, where boating, camping, and other outdoor recreation opportunities are provided.

As discussed in the 2002 EIR, there are no recreational facilities or areas within close proximity to the Delevan Site. The nearest recreational area to the Delevan Site is the Willow Creek-Lurline Wildlife Management Area, which consists of privately-owned wetlands located approximately 3.7 miles to the east. Approximately 6,000 acres of this wildlife management area are under active conservation easements, acquired for the purpose of protecting waterfowl habitat, and approximately 12,000 acres are privately owned and provide waterfowl hunting during the late fall and winter months (USFWS 2009).

Additional information regarding the regional and local setting in and around the RFS and Delevan Site for recreational resources, primarily seasonal waterfowl viewing and hunting, is presented in Section 3.13, Recreation, of the 2002 EIR.

The reconductoring component of the Phase 3 Expansion would occur approximately 0.6 miles to the east of the RFS along Pennington Road, and West Evans Reimer Road or the Colusa Highway, near the Gray Lodge Waterfowl Management Area, where the predominant recreational activities are waterfowl and upland game bird hunting. The nearest developed recreation area to the reconductoring component is the Lake Oroville State Recreation Area, where boating, camping, and other outdoor recreation opportunities are provided.

Local Plans and Policies

Butte County General Plan

The RFS and reconductoring element would be located in Butte County. Issues related to recreational resources in Butte County are addressed within the Butte County General Plan Recreation Element, which is discussed in the 2002 EIR. Along with specific goals for the creation, preservation, and maintenance of recreation areas and facilities, the Recreation Element states that "the primary function of County Government in the field of parks and recreation should be the conservation of large natural open spaces suited for park and recreation development and to encourage the various recreation districts to develop recreational facilities that will be used and enjoyed by County residents, tourists and other visitors to the County" (Butte County 1971).

Colusa County General Plan

The Delevan Interconnect Site is location in Colusa County. Issues related to recreational resources in Colusa County are addressed within the Colusa County General Plan Open Space Element, which is discussed in the 2002 EIR. The Open Space Element contains general policies pertaining to outdoor recreation, including those addressing the acquisition of public land when possible to satisfy the recreational needs of current and future residents, discouraging conversion of existing privately operated outdoor recreational facilities and encouraging private land owners to continue to offer hunters access to their land during hunting season (Colusa County 1989).

A.11.2 Environmental Impacts and Mitigation Measures

Applicant Proposed Measures

Applicant proposed measures (APMs) addressing Recreation for the Phase 3 Expansion, the full text of which is included in Table A.1-1 of Section A.1-1, include the following:

APM REC-1: Compensation for Missed Hunting Opportunities During Construction.

APM REC-2: Construction Scheduling.

Relocation of the existing parking area used by hunters in the west portion of the RFS would take place outside of the hunting season and would not affect recreational hunting activities.

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

NO IMPACT. Temporary and permanent population growth in a given area can increase use of recreational facilities, which can cause facilities to deteriorate. Construction associated with the Phase 3 Expansion would involve up to 176 workers (170 workers for the RFS and Delevan Site components, and 6 for the reconductoring component), some of whom could potentially temporarily relocate to Butte and Colusa counties for duration of the 23-month construction period. During construction, the use of existing neighborhood and regional parks in the area could temporarily increase due to the presence of these workers. Such increased use would be expected to be limited to short periods (such as for work breaks), and associated impacts would be temporary and not likely to result in deterioration of facilities in the area or region.

Upon completion of construction, up to three full-time technical staff may be required at the RFS, in addition to existing staff. Even in the event that these personnel were to relocate from another area to Butte or Colusa counties, any additional use of recreational facilities in the area or region associated with

this increase in staff would be negligible. As such, the Phase 3 Expansion would not lead to increased deterioration of any recreational facilities; therefore, there would be no impact under this criterion.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

NO IMPACT. The Phase 3 Expansion does not include recreational facilities or require the construction or expansion of recreational facilities. No adverse physical effects related to recreational facilities would occur as a result of the Phase 3 Expansion; therefore, there would be no impact under this criterion.

References

Butte County. 1971. Butte County General Plan, Recreation Element.

Colusa County. 1989. Colusa County General Plan, Open Space Element.

U.S. Fish and Wildlife Service (USFWS). 2009. Willow Creek-Lurline Waterfowl Management Area. Overview. http://fws.gov/Refuges/profiles/index.cfm?id=83570. Accessed November 30.

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A.12 Transportation and Traffic

Table A.12-1 Transportation and Traffic

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e. Result in inadequate emergency access?	☐	☐	☒	☐
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☒	☐

To supplement information presented in the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), Section 3.14, Transportation and Traffic, several documents were reviewed. These documents included the Draft Butte County 2030 General Plan Update (Land Use, Circulation, Health and Safety, and Public Services elements), which is currently in the process of public review (Butte County 2009), as well as regional transportation plans and levels of service for traffic for Butte, Colusa, and Sutter counties.

The 2002 EIR did not identify any significant impacts related to transportation and traffic as a result of implementation of the Phase 2 Expansion, but did identify three potential impacts determined to be less than significant with mitigation.

Impacts related to public services such as emergency services provided by police and fire are discussed in Section A.10, Public Services and Socioeconomics.

A.12.1 Environmental Setting

The Phase 3 Expansion areas are near the center of the Sacramento Valley approximately 62 miles northwest of Sacramento. The Phase 3 Expansion components include the expansion of two existing developed facilities in two counties: the Delevan Site, in Colusa County, and the Remote Facility Site (RFS), in Butte County (see Figures 2-1, 2.2, and 2.3 in Chapter 2, Description of Phase 3 Expansion). Additionally, to satisfy the electricity needs of expansion at the RFS, the Phase 3 Expansion would require reconductoring of up to 32,400 feet (6 miles) of electrical distribution line in Butte County, east of the RFS.

As discussed in the 2002 EIR, several state highways and local roads provide access to the RFS and the Delevan Site. Access to the RFS is generally from either Sutter or Butte county, off State Route (SR) 99 at Live Oak or Gridley, along Pennington Road, the Colusa Highway (or Gridley Road), West Butte Road, or West Liberty Road. These roads provide access to the reconductoring alignment, as do West Evans Reimer Road and Block Road. Access to the Delevan Site is generally from Interstate (I)-5 at Delevan, and Delevan Road.

The operating conditions for roads in the area that could be affected by the Phase 3 Expansion have been evaluated according to local circulation element guidelines that assign a Level of Service (LOS) rating based on factors such as speed, travel time, ability to maneuver, traffic interruptions, and safety. LOS A designates the best operating conditions and LOS F the worst. Because the majority of roads in the vicinity of the Phase 3 Expansion are located in rural areas, traffic volumes are generally low as compared to more urban locations.

Butte County

In Butte County, Gridley Road, Pennington Road, and Colusa Highway have LOS C ratings. Other roads in the area of the Phase 3 Expansion in Butte County have relatively low traffic volumes; not all of these roads have received LOS ratings. As described in the 2002 EIR, principal users of West Liberty Road are commuters and delivery vehicles driving to the RFS, farmers accessing agricultural fields, hunting lodge personnel, and fishing recreationists using the road to access the 833 Canal. Recent traffic counts and LOSs for local roads in Butte County are presented below in Table A.12-2 (Butte County 2009, BCAG 2006).

Sutter County

Materials are delivered to the RFS from Sutter County using West Butte Road, North Butte Road, and Pennington Road. North Butte Road is gravel west of its intersection with West Butte Road, and paved east of this intersection. West Butte Road is paved along its entire length. Traffic information for roadways in this area of Sutter County indicates that most roads have an LOS of A or B (Sutter County 2008).

Colusa County

Access to the Delevan Site in Colusa County would be from the Colusa Highway and/or I-5, via existing paved, gravel, and dirt private and public roads. The Delevan Site is located on the existing, unnamed paved road approximately 0.7 miles west of the Dirks Road and Delevan Road intersection in Colusa County. Access to this road is via Delevan Road, connecting the Delevan Site from Glenn County to the north, or from the east via the end of Dirks Road in Colusa County. Existing farm roads in the area are generally sufficiently wide to serve construction traffic, since they currently accommodate large farm tractors and harvesters. The Phase 3 Expansion area roadways within Colusa County are LOS A, as shown below in Table A.12-2.

Table A.12-2 Butte and Colusa County Area Roads Peak Hour Volume and LOS

Roadway	Segment	Peak Hour Volume	LOS
Butte County			
Colusa Highway (Gridley Road)	Colusa County line to Pennington Rd.	50[a]	C[a]
	Pennington Rd. to Biggs Gridley Rd.	100[a]	C[a]
	Biggs Gridley Rd. to SR 99	750[a]	C[a]
West Liberty Road	–	12[b]	–
Pennington Road	South of West Evans Reimer Road	24[c]	–
Colusa County			
Delevan Road	–	37[d]	A
Dirks Road	–	–	A

Sources:
[a]2006 traffic counts from Butte County 2009
[b]2002 traffic counts from Butte County 2006
[c]2006 traffic counts from BCAG 2006
[d]CEC 2007
Key:
– = Not available

Phase 3 Expansion Area

As part of the Phase 3 Expansion at the RFS, a new access driveway off West Liberty Road would be added to the western edge of the lease area. The staging area for worker parking and equipment and material storage at the RFS would be located at the existing facility and in the area of the Phase 3 Expansion.

The staging areas for the reconductoring component would be located along the road shoulder or within the distribution line right-of-way (ROW). The staging area at the Delevan Site would be within the confines of the existing fenced area.

Additional information on transportation routes in the vicinity of the Phase 3 Expansion is provided in the 2002 EIR in Section 3.14, Traffic and Transportation (EIR 2002).

A.12.2 Regulatory Setting

The current regulatory setting for traffic and transportation is the same as that described in the 2002 EIR in terms of federal and state authorities and jurisdictions that regulate roads and traffic levels.

Regional Transportation Authorities

The Butte County Association of Governments (BCAG) is the designated organization responsible for preparation of all state and federally required transportation planning and programming documents for Butte County (BCAG 2009).

The Sacramento Area Council of Governments (SACOG) is the Transportation Planning Agency designated by the Director of the Department of Transportation for the Sacramento Region, providing regional transportation planning and funding for six counties including Sutter County (SACOG 2009). This area is designated a “federal nonattainment area for ozone,” meaning that for the region to be eligible to receive federal transportation funds, the region’s transportation system must meet particular air quality standards. On March 20, 2008, SACOG's Board of Directors approved the Metropolitan Transportation Plan (MTP) for 2035. The MTP is a long-range transportation plan for the SACOG. City and county plans and programs must be consistent with the MTP in order to obtain funding for transportation projects (SACOG 2009).

Level of Service

According to the Butte County General Plan 2030 Draft Circulation Element, the concept LOS Caltrans has set for state facilities in Butte County (i.e., the minimum standard for service) is generally LOS D in rural areas and LOS E in urban areas (Butte County 2009). Most of the local access roadways in Butte, Colusa, and Sutter counties that would be used during construction are operating at LOS C or above.

Local

The 2002 EIR includes a discussion of the goals and policies addressing traffic levels and transportation systems in the area of the Phase 3 Expansion from the general plans of both Butte County and Colusa County.

A.12.3 Applicant Proposed Measures (APMs)

There is a potential for traffic impacts from the use and movement of construction equipment and vehicles during construction and operation of the Phase 3 Expansion. However, compliance with laws and regulations relevant to traffic and transportation would reduce or avoid certain impacts that might otherwise occur. The applicant has also incorporated the following Applicant Proposed Measures (APMs), the full text of which is included in Table A.1-1 of Section A.1-1, into the Phase 3 Expansion to minimize or avoid impacts on transportation and traffic.

APM TRANS-1: Transportation Management Plan.

APM TRANS-2: Heavy Equipment and Truck Traffic Coordination.

APM TRANS-3: Pre-construction Assessment of Access Roads and Post-Construction Repair.

APM TRANS-4: Coordinate Local Construction Activities.

APM TRANS-5: Relocate Existing Hunter Parking.

The project features shown in Table A.5-3 addressing transportation and traffic were adopted as part of the 2002 EIR for the Phase 2 Expansion as either mitigation measures or APMs. These measures would also apply to the Phase 3 Expansion.

Table A.5-3 Project Features Addressing Transportation and Traffic Adopted as Part of the 2002 EIR

WGSI Measure 3.14-1. Develop and Implement a Transportation Management Plan. WGSI will prepare and implement a comprehensive Transportation Management Plan. The Plan objectives are to minimize transportation-related effects and inconveniences to local residents and farm operations, and to establish a procedure to restore and/or maintain existing access roads to at least preconstruction conditions. The Plan will identify applicable agency requirements, prescribe responsibilities and coordination by and between the agencies, WGSI and the construction contractor, and outline performance requirements for the use of public and private construction access roads and for traffic management. Key implementation measures of the plan include:

- Coordinate the timing and route selection for movement of heavy equipment and truck traffic on county roads with the Butte, Sutter, and Colusa County Road Departments (Public Works) to minimize traffic and physical road impacts.
- Conduct a preconstruction assessment of access roads and repair any damage to county roads and bridges or private roads caused by project construction activities and traffic.
- Coordinate construction activities with county officials, landowners, and lessees to minimize disruption to local traffic, farming activities and movement of agricultural equipment.
- Obtain encroachment permits from Butte and Colusa Counties for the pipeline construction activities in or crossing county-maintained roads and restore the sub-base, base, and surface at trenched crossings to pre-project conditions or better.
- Provide traffic control at trenched county road crossings as required by encroachment permits.

Table A.5-3 Project Features Addressing Transportation and Traffic Adopted as Part of the 2002 EIR

• Provide breaks in spoil piles, trench, or pipe strings to accommodate agricultural field access during construction. • Obtain an encroachment permit from Caltrans for crossings of the State Route 45 and Interstate 5 which will address specific boring techniques and pipeline design requirements.
WGSI Measure 3.14-2. Develop and Implement a Transportation Management Plan (TMP). The TMP would be updated if needed to include procedures for coordination with the local Emergency Service Providers, including the county fire departments, county public works departments, paramedics, sheriff departments, Caltrans, and California Highway Patrol, if necessary. In addition, implementation of WGSI Measure 3.14-1, as described above, would reduce the potential for interference with emergency response and access routes to a less than significant level.
Mitigation Measures 3.14-1. Develop an Operations Road Maintenance Plan. WGSI shall prepare and implement a Road Maintenance Plan for use during operations and maintenance activities. The Plan objectives are to minimize road impacts due to project operation, and to establish a procedure to maintain existing access roads to a specified condition. The Plan will outline performance requirements for the road condition, prescribe responsibilities and coordination with adjacent property owners/tenants, identify a road maintenance schedule, and determine types of repairs necessary on an ongoing basis.

A.12.4 Environmental Impacts and Mitigation Measures

Construction

The construction of the Phase 3 Expansion components is anticipated to be completed as follows; 23 months for the construction of RFS, 4 to 8 weeks for the reconductoring component, and 3 months for construction at the Delevan Site. During peak construction periods, up to 150 workers would be present at the RFS, up to 6 workers would be present at the reconductoring component location, and up to 20 workers would be present at the Delevan Site. Workers would either travel to the sites in private vehicles or arrive via public transportation (bus). Construction vehicles in use at the three sites that could result in traffic impacts would include water trucks, backhoes, line trucks, and tractor trailers, as described in Chapter 2, Description of Phase 3 Expansion. The main source of construction traffic would be associated with daily construction worker commute trips to the RFS and the Delevan Site. Additional traffic flow would also be generated by trucks delivering equipment and supplies. The applicant estimates that as many as 25 total daily truck round trips (50 total vehicle trips) are anticipated at the RFS and the Delevan Site. Assuming that the share of construction activity at the Delevan Site would be approximately 10 percent of the overall activity (based on the scale of the work at the Delevan Site compared to the RFS), approximately three of these trips would be to and from the Delevan Site, and 22 would be to and from the RFS. These truck trips would deliver materials and equipment to and from the sites and would also be used by site staff for non-worker (on-site) commute trips. An additional 66 daily round trips (132 total vehicle trips) by dump trucks would also occur during the delivery of fill materials for pad construction at the RFS. The applicant estimates that construction-related truck traffic would cause a 54 percent increase in traffic volumes on West Butte Road during the construction period.

Heavy equipment for the construction at the RFS would access the site from West Liberty Road via Gridley and Pennington roads. The existing bridge on West Liberty Road was previously upgraded to handle standard maximum weight loads. The applicant would coordinate with county road departments as necessary on the timing and route selection for movement of heavy equipment and haul trucks to limit effects on access to nearby residential areas. Reconductoring activities would result in temporary, partial lane closures along the utility line alignment, and short (less than 1-hour) road closures during reconductoring activities where the line crosses the road, during the 4- to 8-week construction period.

Light grading and graveling may be required to prepare unpaved county roads for construction usage related to the Phase 3 Expansion components. Heavy traffic on these roads may result in the creation of an uneven road or other surface impacts. Paved roads in rural areas typically do not have sufficient road base and asphalt to sustain heavy construction traffic, and potholes may result. The condition of these roads would be reviewed with staff from the Public Works departments of Butte, Colusa, and Sutter

counties prior to and following construction, and these counties would be reimbursed for road repairs necessitated by damage from construction traffic and hauling, as described above under APM TRANS-3.

Operation

During operation of the Phase 3 Expansion elements, vehicular traffic would include an additional 12 round trips per year to/from the Delevan Site for PG&E maintenance purposes, and an additional 725 round trips per year to/from the RFS due to regular work day travel for up to three new employees and callouts (during the evening) that required operator response to emergencies (i.e., equipment failure; WGS 2009). No additional trips to the reconductored distribution line above existing maintenance trips would take place once construction is complete.

a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

LESS THAN SIGNIFICANT IMPACT. The Phase 3 Expansion would not result in a substantial permanent increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections. As discussed above, the concept LOS Caltrans has set for state facilities in Butte County is generally LOS D in rural areas and LOS E in urban areas (Butte County 2009). Most of the local access roadways in Butte, Colusa, and Sutter counties that would be used during construction are operating at LOS C or above, and the volume of traffic during the temporary construction period would not be high enough to result in a significant adverse impact to this rating. Operational traffic volumes would be even lower, and would likewise not result in a significant impact.

Construction is anticipated to occur over a 23-month period. During construction there would be a temporary increase in truck traffic on regional and local roadways in the vicinity of the RFS, the reconductoring component, and the Delevan Site associated with materials delivery. Reconductoring activities would also result in temporary, partial lane closures along the utility line alignment, and short (less than 1-hour) road closures during reconductoring activities where the line crosses the road, during the 4 to 8-week construction period. Implementation of the Traffic Management Plan (APM TRANS-1) would limit potential traffic impacts in the RFS, reconductoring component area, and Delevan Site. The Traffic Management Plan would facilitate an adequate flow of traffic in both directions by providing sufficient signage to alert drivers of construction zones. In addition, the applicant would (1) coordinate the timing and routes for heavy equipment and truck traffic (APM TRANS-2), (2) repair any damage to roads and bridges (APM TRANS-3), and (3) minimize disruption to local traffic and farming activities, and coordinate with the road departments of Butte, Sutter, and Colusa counties (APM TRANS-4). During operations, vehicular traffic would include an additional 12 round trips per year to/from the Delevan Interconnect Site for PG&E maintenance purposes, an additional 725 round trips per year to/from the RFS due to regular work day travel for up to three new employees, and callouts (during evening) that required operator response to emergencies (e.g., equipment failure).

Therefore, the Phase 3 Expansion would not cause a substantial increase in traffic in relation to the existing traffic load and capacity of the street system, and there would be a less than significant impact under this criterion.

b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

LESS THAN SIGNIFICANT. The Phase 3 Expansion would not cause traffic to exceed an LOS standard established by a county congestion management agency. As discussed above, the LOS standard in rural areas of Butte and Colusa counties is LOS D. During the peak period of construction there would be 170 workers at the RFS, as well as 66 daily round trips from dump truck deliveries at the RFS; this would result in an approximately 50 percent increase in traffic on roads that would be used for transportation of construction materials. During the peak period of construction at the Delevan Site there would be 20 workers and an estimated four daily round-trip truck trips. No road closures would be required at either the RFS or the Delevan Site. Reconductoring activities would require four to six workers over a 4- to 8-week period, resulting in minimal additional traffic on area roads.

For the reconductoring component, in areas where the road shoulder is too narrow to accommodate vehicles and equipment, partial lane closures may be required. In addition, short (less than 1-hour) road closures would be required during reconductoring activities where the line crosses the road. For work in the roads in the vicinity of the reconductoring component, the PG&E construction crew or contractor would implement the Phase 2 Expansion Traffic Management Plan (APM TRANS-1), perform traffic control, obtain any necessary approvals for encroachment, and ensure that access to emergency response and evacuation routes was maintained.

Operation and maintenance activities at the Delevan Site would be monitored remotely, and Wild Goose and PG&E personnel would only need to visit the site intermittently for equipment repairs. Operation and maintenance at the RFS would require three additional full-time employees, resulting in three additional round trips from the surrounding area to the RFS, which would likely involve the use of West Gridley Road. Maintenance of the reconductored utility line would be accommodated within these trips and would not result in any additional trip generation.

As discussed above, the LOS standard in rural areas of Butte County is LOS D, and roads around the RFS and reconductoring component are estimated to have an LOS of C or greater. Roads around the Delevan Site generally have an LOS of A or B. The addition of Phase 3 Expansion construction trips to these roads, as well as three round trips from the surrounding area to the RFS with the use of Gridley Road for operations at the RFS, would be a minor increase, given existing traffic and LOS levels of these roads, and would not result in a decrease of the county road LOS below the current level.

Because construction and operation of the Phase 3 Expansion would not result in an LOS decrease for the roads used for delivery of construction equipment and construction workers to LOS D or lower, the Phase 3 Expansion would have a less than significant impact under this criterion.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

NO IMPACT. No aircraft, airports, or airstrips would be used during construction or operation of the Phase 3 Expansion. The nearest air facility to the Phase 3 Expansion areas is a private airstrip approximately 5,800 feet northwest of the RFS. No aircraft would be used during the construction or operation of the project. Therefore, the proposed project would have no impact under this criterion.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

LESS THAN SIGNIFICANT IMPACT. The Phase 3 Expansion would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Construction of the Phase 3 Expansion would involve relocating the driveway at the hunter parking and storage lot currently west of the existing RFS; this driveway would be relocated approximately 540 feet to the west. As described in Chapter 2, Description of Phase 3 Expansion, this driveway would be very similar to the existing driveway, would be designed to code, and would not include features that could result in hazards. During construction, maneuvering construction-related vehicles and equipment among the general-purpose traffic on local roads has the potential to cause safety hazards. Implementation of a Traffic Management Plan (APM TRANS-1) would minimize the potential for safety hazards. In addition, the applicant would coordinate the timing and routes for heavy equipment and truck traffic (APM TRANS–2), repair any damage to roads and bridges (APM TRANS-3), and minimize disruption to local traffic and farming activities, and coordinate with the road departments of Butte, Sutter, and Colusa counties (APM TRANS-4).

With the implementation of these measures, construction and operation of the Phase 3 Expansion would result in a less than significant impact.

e) Would the project result in inadequate emergency access?

LESS THAN SIGNIFICANT IMPACT. Construction activities at the RFS are anticipated to increase traffic along West Liberty Road. This increase in traffic could affect the response times of emergency responders traveling to emergencies in the area. Implementation of the Traffic Management Plan (APM TRANS-1) would protect workers and prevent impacts to emergency service response during construction activities; therefore, the Phase 3 Expansion would have a less than significant impact under this criterion.

During reconductoring activities, in areas where the road shoulder is too narrow to accommodate vehicles and equipment, partial lane closures may be required. In addition, short (less than 1-hour) road closures would be required during reconductoring activities where the line crosses the road. For work in the roads in the area of the reconductoring component, the PG&E construction crew or contractor would implement the Traffic Management Plan (APM TRANS-1), perform traffic control, obtain any necessary approvals for encroachment, and ensure that access to emergency response and evacuation routes is maintained. With the implementation of these measures, the Phase 3 Expansion activities would not result in inadequate emergency access, and there would be a less than significant impact under this criterion.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

NO IMPACT. Construction and operation of the Phase 3 Expansion would take place in rural agricultural and residential areas of Butte and Colusa counties. Both counties have a regional public transportation system; however, the systems do not service the RFS, reconductoring component area, or Delevan site, nor do they provide public transportation service in the area (BCAG 2010, Colusa County 2010). Additionally, the RFS, reconductoring component, and Delevan Site are not near any city or county bicycle or pedestrian facilities; therefore, the Phase 3 Expansion would have no impact under this criterion.

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A.13 Utilities and Service Systems

Table A.13-1 Utilities and Service Systems Checklist

Would the project:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c.	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e.	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

To supplement information presented in Section 3.15, Utilities and Service Systems, of the Wild Goose Storage, Inc. Expansion Project Environmental Impact Report (2002 EIR), several planning documents and resources were reviewed for the Wild Goose Phase 3 Gas Storage Expansion (Phase 3 Expansion). Reviewed documents included the Butte County General Plan, the Draft Butte County 2030 General Plan Update (for informational purposes), the Butte County Zoning Ordinance, the Colusa County General Plan Update; and other information updated since 2002 pertinent to utilities and service systems in the vicinity of the Phase 3 Expansion components.

Environmental review of the Phase 2 Expansion of the Wild Goose Facility (2002 EIR) did not identify any significant impacts, and identified only one less than significant impact to utilities and service systems as a result of implementation of the Phase 2 Expansion.

A.13.1 Environmental Setting

The Phase 3 Expansion involves the expansion of two existing developed facilities, the RFS and the Delevan Site, and the reconductoring of an existing PG&E 13-kilovolt (kV) electrical distribution line along Pennington Road and either West Evans Reimer Road or Colusa Highway in Butte County. The RFS, located in Butte County, would be expanded to allow additional gas storage. The Delevan Site, located in Colusa County, would comprise the Delevan Interconnect Site (which provides an

interconnection with PG&E's Line 400, as described in Chapter 2, Description of Phase 3 Expansion), and up to four new hot tapped pipeline connections to PG&E's Line 400/401.

The Phase 3 Expansion components would be located near the center of the Sacramento Valley, about 60 miles northwest of Sacramento and west of the town of Gridley. Neither Butte County nor Colusa County has experienced significant development since 2002; consequently, utilities and service systems conditions have not changed significantly since the Phase 2 Expansion.

Remote Facility Site and Reconductoring Component Area*:* Existing Utilities and Service Systems

The RFS is approximately 1 mile west of the West Liberty Road and Pennington Road intersection in Butte County (see Figures 2-2 and 2-7 in Chapter 2, Description of Phase 3 Expansion).

Gas and Electricity

PG&E currently serves the Phase 3 Expansion study area within Butte County with electricity and natural gas. An electric distribution line runs adjacent to the RFS, along West Liberty Road; this line is connected to the distribution lines that would need to be updated to accommodate the increase in electricity demand after the expansion of the RFS. The 12-inch PG&E Line 167 gas pipeline runs through and serves the RFS, and an 8-inch lateral of Line 167 extends to the west along the north side of West Liberty Road, terminating with a service tap to the Gray Eagle Hunting Club at the end of the road. A second lateral of Line 167 runs east along West Liberty Road.

Telephone

Telephone service was extended to the RFS during the development of the Base Project.

Water Supply and Wastewater/Sewage Systems

Surface water is the primary water source for Butte County, serving 69 percent of the county's water needs (Butte County 2009). The majority of the county's surface water is used for local agriculture. Most of the surface water supply used in Butte County originates in the Feather River watershed and accumulates in Lake Oroville as part of the State Water Project (Butte County 2009).

Water supplies for agriculture are drawn from canals in the area surrounding the RFS. Domestic water supplies are drawn exclusively from private wells. Operational water usage at the RFS is approximately 400 gallons per day (gpd), drawn from an existing well at the RFS that produces 60 gallons per minute (gpm; WGS 2010).

There are no wastewater treatment facilities in the Butte County portion of the Phase 3 Expansion; individual septic systems handle wastewater produced in the area. A septic system serves operations at the RFS, and generally operates at below capacity. Further information describing water and wastewater systems in Butte County is presented in the 2002 EIR.

Storm Drainage Systems

Urban areas and irrigated croplands in Butte County are protected from flooding by a complex network of gutters, ditches, and overflow channels. The existing drainage ditch along West Liberty Road at the RFS receives stormwater from the RFS. The ditch was designed to accommodate the drainage of the adjacent rice fields (approximately 75 acres, with drainage of approximately 18.9 cubic feet per second [cfs]) prior to harvesting, which occurs in August and/or September. Drainage at the RFS has not resulted in flooding due to stormwater exceeding the capacity of the ditch. In December 2000, a portion of the northeastern part of the RFS experienced a minor flooding event due to seasonal rains and a faulty drain on the eastern portion of the facility. This flooding did not cause significant damage. Drainage ditches also extend along portions of both the Option A and Option B reconductoring alignments.

Solid Waste Disposal Services

The disposal of solid waste in Butte County is regulated by the Butte County Public Health Department, Environmental Health Division. The Neal Road Recycling and Waste Facility (Neal Road Facility) is the central solid waste collection and disposal site for the county. Current projections indicate that the Neal Road Facility has capacity to last through 2034, based on current waste volumes (Butte County 2009). Hazardous wastes are not accepted at the Neal Road Facility, and must be transported to a Class I landfill permitted to receive hazardous waste (for more information on hazardous waste disposal, refer to Section A.5, Hazards and Hazardous Materials).

Other information on utilities and service systems in Butte County is presented in the 2002 EIR.

Delevan Site: Existing Utilities and Service Systems

The Delevan Site is about 0.7 miles west of the Dirks Road and Delevan Road intersection in Colusa County, at the end of a short dirt road that branches off of an unnamed, two-lane paved road (see Figures 2-3 and 2-8 in Chapter 2, Description of Phase 3 Expansion).

Gas and Electricity

PG&E currently serves the Phase 3 Expansion area within Colusa County with electricity and natural gas. The Delevan Compressor Station provides compression for PG&E's 36-inch and 42-inch Line 400/401 pipeline, which serve as the backbone (primary) natural gas pipeline system for transporting gas from Canada to the California markets.

Two 230-kV electric transmission tower lines follow a north–south alignment on the east side of the Delevan Site. Electricity for lighting and air conditioning operations at the Delevan Site is provided from the existing 12-kV electric distribution line located along the road to the Delevan Compressor Station.

Telephone

Telephone service would not be required at the Delevan Site.

Water Supply and Wastewater/Sewage Systems

There are no water supply or wastewater treatment facilities in the Colusa County portion of the Phase 3 Expansion area. Water supplies for agriculture are drawn from the Sacramento River or from canals crossing through the Phase 3 Expansion area. All domestic water systems in Colusa County are supplied with groundwater from wells generally 100 to 500 feet deep, while most irrigation systems are supplied with surface water from the Tehama-Colusa or Glenn-Colusa Canals, the Colusa Drain, or the Sacramento River. Individual septic systems in the area handle wastewater.

Stormwater Drainage

There are no stormwater drainage facilities in the Colusa County portion of the Phase 3 Expansion, with the exception of flood control and management channels and levee systems. Flooding can be a problem for the low-lying areas of the county. Stormwater at the Delevan Site generally infiltrates the gravel surface of the site, or runs off the site in a northerly direction toward a drainage ditch at the site periphery or in an easterly direction.

Solid Waste Disposal Services

The Stonyford Disposal Site, approximately 35 miles west of the Delevan Site, is the primary solid waste facility in Colusa County (CalRecycle 2010a). As of 2000, the Stonyford Disposal Site had a remaining estimated capacity of approximately 37 percent.

A.13.2 Regulatory Setting

State/Regional Setting

The Phase 3 Expansion area is within the jurisdiction of the California Integrated Waste Management Board (CIWMB), and the Central Valley Regional Water Quality Control Board (RWQCB). The CIWMB formulates policies and regulations pertaining to solid waste, while the RWQCB conducts permitting and enforcement activities related to water discharges.

Butte County Plans and Policies

The Butte County General Plan contains policies related to utilities and service systems that are required for new development. In compliance with these policies, Butte County requires proof of adequate water supply for all new development.

Colusa County Plans and Policies

The Colusa County General Plan contains a policy applicable to utilities and service systems that requires new development to mitigate its drainage impact through appropriate measures.

A.13.3Environmental Impacts and Mitigation Measures

Applicant Proposed Measures

The following applicant proposed measures (APMs) are included as part of the Phase 3 Expansion to minimize or avoid impacts on utilities and service systems.

APM UTIL-1: Identify Utilities Prior to Construction.

APM UTIL-2: Gravel Surfacing.

Project feature Mitigation Measure 3.15-1, applicable to utilities and service systems, was adopted as part of the 2002 EIR for the Phase 2 Expansion, and would also apply to the Phase 3 Expansion (Table A.13-2).

Table A.13-2 Project Features Addressing Biological Resources Adopted as Part of the 2002 EIR

Mitigation Measure 3.15-1. WGSI shall coordinate with local (within Butte and Colusa County) wastewater treatment facilities to ensure adequate treatment capacity would be provided for the project if necessary. This would occur if the water produced from hydrostatic testing does not meet RWQCB General Permit standards for Dewatering and Other Low Threat Discharge to Surface Water.

Construction

Construction of the Phase 3 Expansion is anticipated to occur over a 23-month period, according to the schedule described in Chapter 2, Project Description. Construction activities may occur up to 13 hours a day, five to seven days a week, depending on the particular task and overall construction progress. Reconductoring activities are anticipated to take place over 4 to 8 weeks, and may overlap the construction period for the RFS expansion.

Utilities in the Phase 3 Expansion area include underground and overhead telephone cables, overhead electric distribution and transmission lines, and underground gas distribution and transmission pipelines. Project construction could inadvertently disrupt these facilities, resulting in temporary service interruptions. As stated in APM UTIL-1, existing utilities in all construction areas would be identified by the owner of the utility prior to construction. PG&E is responsible for both electrical service delivery and the completion of the reconductoring component, and will ensure continuity of service during reconductoring activities.

Total water usage during construction at the RFS and the Delevan Site is estimated to be 1.6 million gallons, most of which would be used to control dust on roads. Construction water would be withdrawn from the well at the Gray Lodge Waterfowl Management Area, adjacent to the RFS, under an agreement with the manager of this site, as described in Section A.6, Hydrology. Wells in the area of the RFS have a typical yield of at least 60 gpm (DWR 2004a).

No water, wastewater treatment, or septic systems would be constructed or expanded as part of the Phase 3 Expansion. Construction workers would use temporary portable toilets, and sewage would be collected and disposed of by a local pumper service. Wastewater would be produced from construction dewatering at the RFS and from hydrostatic testing of the pipeline at the Delevan Site (approximately 51,000 gallons). If not suitable for discharge into local canals or wetlands, wastewater would be pumped into tanker trucks and transported off site to an appropriate disposal/treatment facility, in accordance with the NPDES General Permit covering Dewatering and Other Low Threat Discharges to Surface Water. The Phase 3 Expansion would not result in construction or expansion of storm drainage facilities at the RFS or the Delevan Site.

Approximately 200 pounds of nonhazardous waste (approximately 180 pounds at the RFS and 20 pounds at the Delevan Site) would be generated each week during Phase 3 Expansion construction activities. Depending on the condition of existing wooden poles along the reconductoring alignment, new poles would be installed and the removed poles would be disposed of properly and in accordance with local, state, and federal regulations as required. Solid waste from construction activities would be collected and transported to either the Neal Road Facility in Butte County or the Stonyford Disposal Site in Colusa County.

Operations

A total of six operations and maintenance staff currently work at the RFS. After the completion of Phase 3 Expansion construction, an additional three operations and maintenance staff would be added at the RFS. PG&E will be responsible for inspections and assessments of the integrity, vegetation conditions, and deterioration of the electrical distribution line system as needed and according to its present practice in the area of the reconductoring component; no additional staff would be required for maintenance after reconductoring activities were completed.

As described in Chapter 2, Description of the Phase 3 Expansion, upgrades to the existing 13-kV electric distribution line serving the RFS would be required. At the Delevan Site, additional electrical load would

be served by the existing 12-kV electric distribution line along the access road to the Delevan Compressor Station.

The expansion of the Wild Goose Facility under Phase 3 would not require additional telephone service to the facility.

Water usage at the RFS during operations is expected to increase by 200 gpd, to a total of 600 gpd, to serve additional operations and maintenance staff, additional berm vegetation, and four additional compressor SCR emissions systems that would require water injection. The existing domestic well at the RFS has an estimated yield of 60 gpm (WGS 2010), and would be adequate to serve the expanded operations at the facility. A septic system at the RFS, consisting of a holding tank with a capacity of 2,000 gallons, is pumped once each month by a local sanitary waste hauler, and has excess capacity. The Delevan Site would not require domestic water for operations.

Up to six produced water storage tanks with a total capacity of 200,000 gallons would be added at the RFS to accommodate additional produced water. Produced water would be temporarily stored at the RFS, and either re-injected into the reservoir or trucked off site as needed.

The Phase 3 Expansion area at the RFS would be covered with gravel, and the additional area would result in a minor increase in runoff into the existing drainage canal and ditch system. Construction of the Phase 3 Expansion components at the Delevan Site would not result in an increase in runoff at the site; likewise, the reconductoring component would not result in an increase in impervious surface in the area and would not affect drainage systems after this component was complete.

The Phase 3 Expansion would result in a small increase in the amount of solid waste generated at the RFS during operation. North Valley Disposal and Recycling currently provides solid waste collection at the RFS. Current operations at the RFS result in a maximum annual production of approximately 60 cubic yards of solid waste. Operation of the unstaffed Delevan Site after Phase 3 Expansion activities would generate minor additional amounts of solid waste. 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.

a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

LESS THAN SIGNIFICANT IMPACT. Portable toilets would be provided for construction workers at the RFS and the Delevan Site. Current septic tank capacity at the RFS would be sufficient for operational activities after Phase 3 Expansion construction was completed. Water from hydrostatic testing would be discharged in accordance with the NPDES permit. The Phase 3 Expansion would not exceed wastewater treatment requirements of the Central Valley RWQCB.

b. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

NO IMPACT. No water, wastewater treatment, or septic systems would be constructed or expanded as part of the Phase 3 Expansion.

c. Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

LESS THAN SIGNIFICANT IMPACT. The Phase 3 Expansion of the RFS would affect two existing rice fields, and rice field drainage systems would be relocated as required during construction in these areas. A new driveway and culvert would be installed to provide access to the new hunter parking and storage area, as described in Chapter 2, Description of Phase 3 Expansion.

The applicant estimates that stormwater runoff from the RFS into the drainage along West Liberty Road would be expected to increase such that water surface rise at the downstream culvert inlet and outlet would be approximately 3 and 5 inches, respectively, which would result in a water flow well below the existing freeboard for the culvert. As discussed in Section A.6, Hydrology, the existing drainage ditch has proven adequate to handle high volumes of water from the 75 acres of rice fields adjacent to the RFS that are regularly drained by the owner of the agricultural property. Stormwater flow rate at the RFS after the Phase 3 Expansion is estimated to be up to 5.5 cfs, well below the stormwater flow that results from drainage of the adjacent rice fields (up to 18.9 cfs), and within the capacity of the drainage (WGS 2010). Operations at the RFS would therefore not require the additional construction or expansion of storm drainage facilities, and impacts related to storm drainage would be less than significant at the RFS.

Phase 3 Expansion construction activities at the Delevan Site are not anticipated to result in an increase in impervious surface at the site and therefore are not anticipated to result in an increase in stormwater runoff. Impacts would be less than significant at the Delevan Site.

No new stormwater drainage facilities or expansion of existing facilities would be required for the reconductoring component.

d. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

LESS THAN SIGNIFICANT IMPACT. Water used during construction activities at the RFS and the Delevan Site would be supplied by the existing well at the Gray Lodge Waterfowl Management Area, which has existing capacity to supply this construction water usage. Operations at the RFS after the Phase 3 Expansion would be served by the existing well at the RFS, which also has capacity to serve the expanded facility. Operations at the Delevan Site would not result in additional water usage. The reconductoring component activities would not require any water usage other than drinking water for construction crews, which would be carried to the site by PG&E personnel. Impacts related to water supply at the RFS, the Delevan Site, and the reconductoring component would be less than significant.

e. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

LESS THAN SIGNIFICANT IMPACT. Portable toilets would be provided for construction crews during Phase 3 Expansion construction activities at the RFS, Delevan Site, and reconductoring component area. Septic system capacity would be adequate for expanded operations at the RFS. The Phase 3 Expansion would not result in any impacts to septic systems and services at the RFS.

Approximately 2 million gallons of wastewater may be produced during hydrostatic testing of the pipeline at the Delevan Site. If not suitable for discharge into local canals or wetlands, this water would be pumped into tanker trucks and transported off site to an appropriate disposal/treatment facility,

following the requirements of the NPDES permit. Wastewater treatment facilities in Butte and Colusa counties would be adequate to accommodate this produced wastewater.

The Phase 3 Expansion would result in less than significant impacts on wastewater treatment capacity.

f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

NO IMPACT. Small additional amounts of solid waste would be generated during construction and operation at the RFS and the Delevan Site. 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. Landfill solid waste disposal facilities in Butte and Colusa counties have sufficient permitted landfill capacity for the foreseeable future; consequently, no impacts would result from construction or operations at the Phase 3 Expansion component areas.

g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?

NO IMPACT. The Phase 3 Expansion would comply with the California Integrated Waste Management Act of 1989 (AB 939), which requires each city and county in California to prepare, adopt, and implement a Source Reduction and Recycling Element (SRRE). The California Department of Resources Recycling and Recovery (CalRecycle) confirms that in 2006, Butte County diverted approximately 56 percent of its solid waste from landfill disposal (CalRecycle 2010b), and that Colusa County diverted approximately 58 percent of its solid waste from landfill disposal (CalRecycle 2010c).

The Phase 3 Expansion would comply with state and local statutes and regulations related to solid waste. Solid waste disposal needs would not cause the permitted capacity at local landfills to be exceeded substantially earlier than anticipated. No mitigation is required.

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Wild Goose Storage (WGS). 2010. Response to data gap request.

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Appendix B
NOP, NOP Comment Letter, NOP Agency Mailing List

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STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION

Arnold Schwarzenegger, *Governor*

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

NOTICE OF PREPARATION
SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT
FOR THE
WILD GOOSE PHASE 3 EXPANSION PROJECT
FOR THE WILD GOOSE NATURAL GAS STORAGE FACILITY
PROPOSED BY WILD GOOSE STORAGE, LLC

Application No. 09-04-021

To: All Interested Parties

A. Subject

Wild Goose Storage, LLC (Wild Goose) has filed an application with the California Public Utilities Commission (CPUC) to amend its Certificate of Public Convenience and Necessity (CPCN) Decision 97-06-091, as amended by Decision 02-07-036. Wild Goose is requesting the CPCN amendment for the expansion of its existing Wild Goose Natural Gas Storage Facility beyond its currently certificated capabilities to more fully use the injection, withdrawal, and storage capacity of the natural gas storage reservoirs in the Wild Goose Gas Field, located in Butte County, California. The Wild Goose Phase 3 Expansion Project (Phase 3 Expansion Project) would follow the first development of the gas field (Phase 1 Project), which took place from 1997 to 1999, and a later expansion (Phase 2 Project), which took place starting in 2002. The CPUC will prepare a Supplemental Environmental Impact Report (Supplemental EIR), based on the EIR prepared in 2002 for the Phase 2 Project, to evaluate the project in accordance with the criteria, standards and procedures of the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000 et. seq.) and the State CEQA Guidelines (California Administrative Code Sections 15000 et. seq.).

B. Summary of the Proposed Project

Background

The Phase 1 and Phase 2 Projects, which involved the development of a depleted and abandoned underground natural gas field for use in natural gas storage, consisted of the initial development between April 1997 and April 1999, and a later expansion. The Phase 1 and Phase 2 Projects per the CPCN Decision 97-06-091, as amended by Decision 02-07-036, included development of the underground natural gas storage reservoir; an 8.5-acre well pad site with 24 injection/withdrawal and observation wells located on the property of the Wild Goose Club; compressors, gas-fueled engines, and associated equipment and facilities

stationed at a 12.2-acre Remote Facility Site (RFS); buried 18-inch-diameter and buried 24-inch-diameter bi-directional interconnection natural gas pipelines (Storage Pipeline Loop) between the well pad site and RFS (each 4.5 miles long); a buried, 3-inch-diameter produced water pipeline and two fiber optic communication cables between the well pad site and the RFS; an interconnect to the existing 12-inch diameter Line 167 of Pacific Gas and Electric Company's (PG&E's) Sacramento Valley Local Transmission System (SVLTS); a 25.5-mile, buried 30-inch-diameter bi-directional pipeline (Line 400 Connection Pipeline) interconnected with PG&E's Line 400 (L400) backbone natural gas pipeline system at the Delevan Compressor Station; a mid-valve station located approximately 11.5 miles west of the RFS; a 0.6-acre interconnect facility with valves, metering and pressure monitoring equipment (Delevan Interconnect Site); and associated fiber optic communication cables, valves, and metering facilities between the RFS and the Delevan Interconnect Site. Figure 1 shows a map of the location of the Phase 1 and Phase 2 Projects.

The Phase 1 Project is completed. Construction of the Phase 2 Project began in January 2003 and is expected to be complete in December 2009. When the Phase 2 Project is completed, the facility will have up to 450 million cubic feet per day (MMcfd) of injection capability, 700 MMcfd of withdrawal capacity, and approximately 29 billion cubic feet (Bcf) of storage capacity.

Proposed Project

For the proposed Phase 3 Expansion Project, Wild Goose is proposing to expand the existing natural gas storage facility to a cumulative total of approximately 650 MMcfd of injection, approximately 1,200 MMcfd of withdrawal, and approximately 50 Bcf of storage capacity. The proposed components associated with the Phase 3 Expansion Project are illustrated in Figures 2 and 3, and are described below.

Project Components

Remote Facility Site

The existing RFS would be expanded westward by approximately 540 feet, resulting in an increase in the facility footprint from approximately 12.2 acres to approximately 16.7 acres. The expansion would occupy an area currently used for farm equipment and parking during the hunting season. The westward expansion would also result in the filling and conversion of approximately 4.5 acres of agricultural wetland (rice fields) to industrial use. Rice field drainage systems would be relocated as required, and the farm equipment and parking area would be shifted approximately 540 feet west of its existing location to the west side of the RFS. The fenced operations area at the RFS would increase by 3.7 acres to a total of 12.4 acres. The perimeter landscaped berm would be extended, and another access driveway off West Liberty Road may be added to the western edge of the RFS area. Four new gas compressor units in a new building would be installed as part of the Phase 3 Expansion Project, increasing total compression from approximately 20,700 Horsepower (HP) (six compressor units) to approximately 35,000 HP (10 compressor units). Two new process trains (for a total of five trains) and two new dehydration units and associated equipment would be installed to provide the proposed injection and withdrawal capabilities. Construction staging and material laydown areas would be located on the existing RFS and the farm equipment storage and parking area. Phase 3 Expansion Project components are shown on Figure 2.

Delevan Interconnect Site

To accommodate the increased withdrawal and injection flow at the RFS site, PG&E would need to expand some operations, and Wild Goose would be required to add a second meter line at the Delevan Interconnect Site. The modifications at the Delevan Interconnect Site would be made entirely within the 0.6-acre facility. An approximately 0.3-acre area adjacent to the facility is proposed to be used for temporary construction equipment staging. Within the Delevan Interconnect Site, Wild Goose equipment and operations are currently separated by a fence from PG&E's equipment. The changes to the Delevan Interconnect Site would expand the size of the fenced area for PG&E's equipment, involving 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. The changes to the Wild Goose facilities at the Delevan Interconnect Site would also include the installation of additional piping, valves, and instrumentation. The new station piping improvements would tie in to the Line 400 Connection Pipeline before the pipeline enters the ground departing east towards the RFS.

In addition to the improvements at the Delevan Interconnect Site, Wild Goose would install a new hot-tap connection pipeline, approximately 30 feet in length, from the existing Line 400 Connection Pipeline to PG&E's Line 401 transmission pipeline, located approximately 700 feet to the west of the Delevan Interconnect Site. The temporary work area for the hot-tap installation would total less than 0.1 acres.

Table 1 summarizes the area of total permanent impact that may be associated with each Phase 3 Expansion Project component.

Table 1: Phase 3 Expansion Project Components and Impacts

Project Components	Area Temporary Impact	Area Permanent Impact
Remote Facility Site	--	4.5 acres
Delevan Interconnect Site	Up to 0.9 acres	Up to 0.6 acres
Line 401 Hot Tap Connection	Up to 0.1 acres	--

Project Location

The Phase 3 Expansion Project would be located near the center of the Sacramento Valley, approximately 60 miles northwest of Sacramento in Butte and Colusa Counties (See Figure 1).

The RFS lies north of West Liberty Road, approximately 1.1 miles west of its intersection with Pennington Road in Butte County. The RFS lies within a predominantly agricultural area dedicated mainly to rice production, and is bordered to the north, east, and west by active rice fields. The Gray Lodge Wildlife Area, managed by the California Department of Fish and Game, lies south of the site across West Liberty Road. The Delevan Interconnect Site is located within annual grasslands at the base of the Coast Range foothills, approximately 25 miles west of the RFS. The Glenn Colusa Canal lies 0.25 miles east of the Delevan Interconnect Site. Both facilities are located within the relatively flat terrain of the Sacramento Valley floor.

Project Construction

Construction at the RFS site is estimated to take 23 months. The Phase 3 expansion area would be graded and filled and the site developed to support the increased natural gas storage equipment.

Modifications at the Delevan Interconnect Site are estimated to take 3 months, including installation of the new metering equipment and the new hot-tap connection pipeline.

Operations and Maintenance

The proposed facilities would be integrated into Wild Goose's existing safety measures, operational controls, and maintenance and monitoring procedures. Operations and maintenance would be performed by Wild Goose operations and maintenance personnel.

C. Project Alternatives

Because a Supplemental EIR will be prepared for the Phase 3 Expansion Project, the alternatives included in the 2002 EIR for the Phase 2 expansion are expected to apply to the Phase 3 Expansion Project, and no project alternatives are proposed.

D. Scope of Supplemental EIR and Discussion of Potential Impacts

CEQA requires agencies to consider environmental impacts that may result from a proposed project, to inform the public of potential impacts and alternatives, and to facilitate public involvement in the assessment process. The Supplemental EIR for the Phase 3 Expansion Project will describe in detail the nature and extent of the environmental impacts of the proposed action, and will discuss appropriate mitigation measures for any adverse impacts. The Supplemental EIR will include, among other matters, discussions of the purpose and need for the proposed project, a description of the affected environment, an evaluation of the environmental impacts of the proposed project, and explanations of proposed mitigation.

The Proponent's Environmental Assessment for the Phase 3 Expansion Project has identified the following potential environmental impacts. The Supplemental EIR may identify additional impacts.

Table 2: Phase 3 Expansion Project Potential Issues or Impacts

Environmental Issue Area	Potential Issues or Impacts
Aesthetics	• Expansion of the RFS would increase the size of an industrial-appearing facility on an agrarian landscape and would add additional night lighting
Agricultural Resources	• Conversion of 4.5 acres of active agricultural farmland (rice field)
Air Quality	• Emissions from combustion equipment during project operations • Emissions of nitrous oxides (NOx) and reactive organic gases (ROG) during project construction • Emissions of Greenhouse Gases (GHGs) during project construction and operation • The project could result in fugitive natural gas emissions and odors from valves and flanges
Biological Resources	• General impacts on biological resources in the project area. • Temporary disturbance of annual grasslands during construction of the PG&E hot-tap connection and Delevan Interconnect Site • An area of freshwater marsh/open water ditch approximately 100 feet long could be impacted by access into the expanded facility and relocated parking area • Adverse effects on sensitive plants from construction activities

Environmental Issue Area	Potential Issues or Impacts
	• Direct impacts on giant garter snake from construction activity, and the temporary and permanent loss of foraging habitat and hibernacula • Adverse effects on suitable breeding and basking habitat for northwestern pond turtle by construction activity • Disturbance of sensitive birds during nesting periods by construction activity • Burrowing owl nest could be destroyed by construction vehicles if they move into project work areas during construction • Temporary disturbance of San Joaquin pocket mouse breeding and nesting activities and direct mortality from construction vehicles
Cultural Resources	• Disturbance of unknown archaeological or historical resources during construction • Disturbance of significant paleontological resources during excavation
Geology and Soils	• No anticipated impacts/issues
Hazards and Hazardous Materials	• No anticipated impacts/issues
Hydrology and Water Quality	• No anticipated impacts/issues
Land Use and Planning	• No anticipated impacts/issues
Mineral Resources	• No anticipated impacts/issues
Noise	• No anticipated impacts/issues
Population and Housing	• No anticipated impacts/issues
Public Services and Utilities	• No anticipated impacts/issues
Recreation	• Should schedule variables necessitate any outdoor or noise-producing construction activities during the hunting season, hunting opportunities may be temporarily lost due to waterfowl or other game species avoiding the area • Outside noise-producing routine operations and maintenance activities at the RFS during the hunting season may adversely affect waterfowl hunting success on the adjacent rice fields and across the road on the Gray Lodge Wildlife Area
Transportation and Traffic	• No anticipated impacts/issues

E. Project Scoping Process and Scoping Meetings

Because the Phase 3 Expansion Project will be reviewed under a Supplemental EIR relying on the analysis and process presented in the 2002 EIR for the Phase 2 Project, no public scoping meetings are currently planned for the project area.

Comments on the scope and content of the Supplemental EIR will be accepted for a period of 30 days from the date of this NOP as required by CEQA. Comments may be mailed, faxed, or emailed to the CPUC during the 30-day comment period. Comments may be mailed to the following address:

Public Scoping Comments
RE: Wild Goose Gas Storage Facility Phase 3 Expansion Project
130 Battery Street, Suite #400
San Francisco, CA 94111

Emailed comments may be sent to the following address: wildgoose3@ene.com. Faxed comments can be sent to the following number: (415) 981-0801. Voice messages may be left at (877) 551-3669. Please include your name and mailing address at the bottom of the comment for mailed, faxed, and emailed comments and note the "Wild Goose Phase 3 Expansion Project."

Comments the scope and content of the Supplemental EIR must be received or postmarked by *Monday, November 9, 2009,* to be accepted. No comments will be accepted after the scoping comment period is closed. Interested parties will have an additional opportunity to comment on the Wild Goose Phase 3 Expansion Project during the 45-day public review period to be held for the Draft Supplemental EIR.

F. Agency Comments

This NOP has been sent to responsible and trustee agencies, cooperating federal agencies, and the State Clearinghouse. We need to know the views of your agency as to the scope and content of the environmental information, which reflects your agency's statutory responsibilities in connection with the Phase 3 Expansion Project. Once again, responses should identify the issues to be considered in the Draft Supplemental EIR, including significant environmental issues, alternatives, mitigation measures, and whether the responding agency will be a responsible agency or a trustee agency. Due to the time limits mandated by State laws, your response must be sent at the earliest possible date but no later than 30 days (November 9, 2009) after receipt of this notice. Please send your response to:

Public Scoping Comments
RE: Wild Goose Gas Storage Facility Phase 3 Expansion Project
130 Battery Street, Suite #400
San Francisco, CA 94111

G. Additional Information

Information about the Phase 3 Expansion Project and the CEQA compliance process is available at the following website:

http://www.cpuc.ca.gov/PUC/energy/Environment/Current+Projects/

The website will be used to post all public documents related to the Supplemental EIR. No public comments will be accepted on this website; however, the website will provide a sign-up option for interested parties to be placed on the project mailing list, and a printable comment form.

The CEQA Guidelines are available at the following website:

http://www.ceres.ca.gov/topic/env_law/ceqa/guidelines/

Appendix G of the CEQA Guidelines, which serves as an environmental checklist for all CEQA documents is available here:

http://www.ceres.ca.gov/ceqa/guidelines/pdf/appendix_g-3.pdf

The California Public Utilities Commission hereby issues this Notice of Preparation of a Supplemental Environmental Impact Report.

Eric Chiang, Project Manager
California Public Utilities Commission

October 7, 2009

Attachments:
Figure 1 – Project Location Map, Wild Goose Phase 3 Expansion Project
Figure 2 – Wild Goose Phase 3 Expansion Project: Remote Facility Site
Figure 2 – Phase 3 Expansion Project: Delevan Interconnect Site

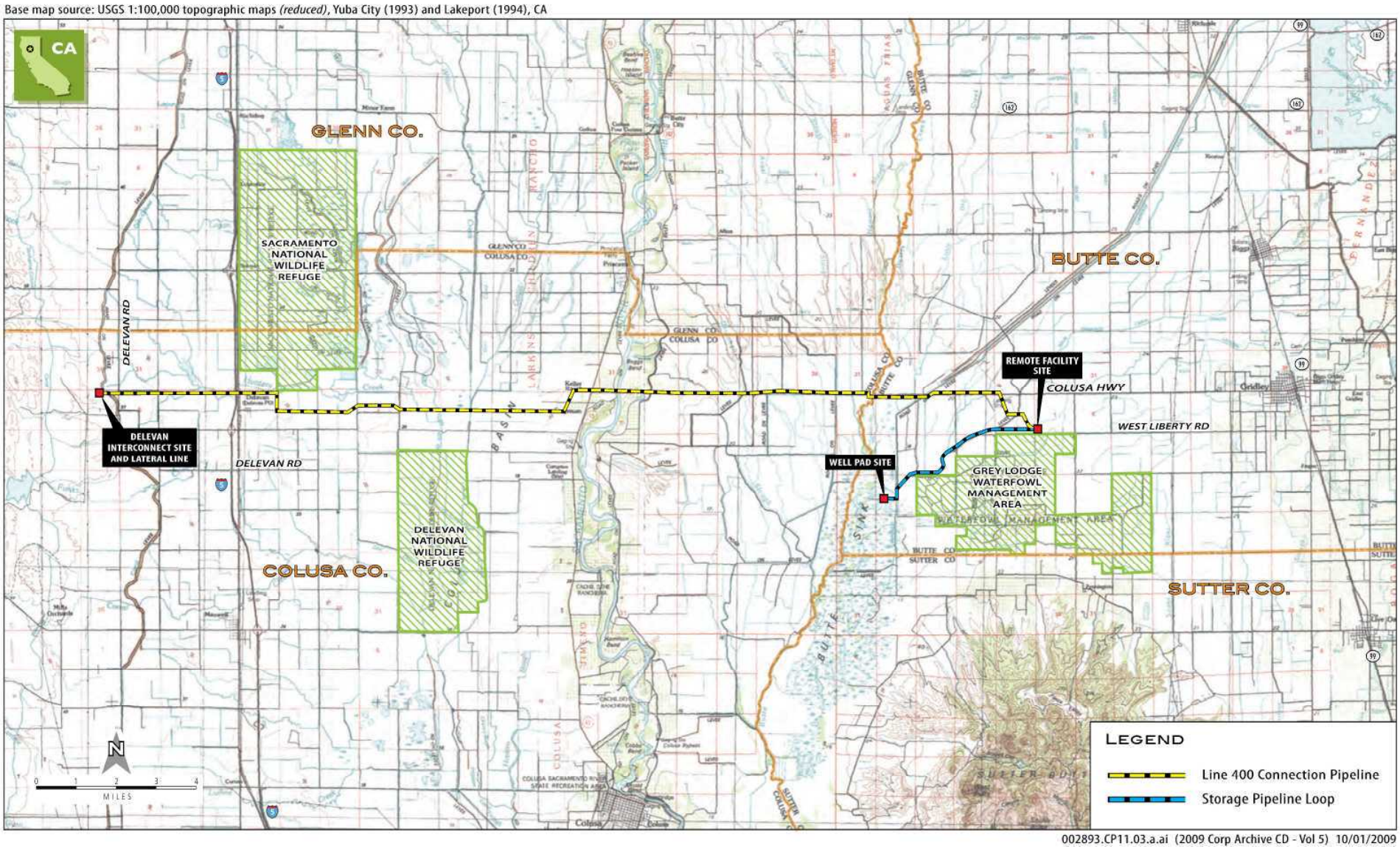

Figure 1. Project Location Map, Wild Goose Phase 3 Expansion Project

Air photo source: Wild Goose Gas Storage, LLC

Figure 2. Wild Goose Phase 3 Expansion Project, Remote Facility Site (Includes Phase 2B)

Air photo source: Wild Goose Gas Storage, LLC

Figure 3. Wild Goose Phase 3 Expansion Project, Delevan Interconnect Site

Linda S. Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
Central Valley Region
Karl E. Longley, ScD, P.E., Chair

415 Knollcrest Drive, Suite 100, Redding, California 96002
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http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

28 October 2009

California Public Utilities Commission
Public Scoping Comments
RE: Wild Goose Phase 3 Expansion Project
130 Battery Street, Suite #400
San Francisco, CA 94111

COMMENTS ON THE NOTICE OF PREPARATION SUPPLEMENTAL IMPACT REPORT FOR THE PROPOSED WILD GOOSE PHASE 3 EXPANSION PROJECT, WILD GOOSE NATURAL GAS STORAGE FACILITY, SACRAMENTO VALLEY, BUTTE & COLUSA COUNTIES

The Central Valley Regional Water Quality Control Board (Regional Water Board) is a responsible agency for this project, as defined by the California Environmental Quality Act (CEQA). On 13 October 2009, our office received a Notice of Intent to Adopt A Mitigated Negative Declaration, Environmental Initial Study, and Request for Comments Letter from your office regarding the proposed development referenced above.

For the proposed Phase 3 Expansion Project, Wild Goose is proposing to expand the existing natural gas storage facility to a cumulative total of approximately 650 MMcfd of injection, approximately 1,200 MMcfd of withdrawal, and approximately 50 Bcf of storage capacity. The expansion will increase by 540 feet westward, resulting in an increase in the facility footprint to 16.7 acres. The westward expansion would also result in the filing and conversion of approximately 4.5 acres if agricultural wetland to industrial use.

The Phase 3 expansion project would be located near the center of the Sacramento Valley, approximately 60 miles northwest of Sacramento in Butte and Colusa Counties.

The following comments are provided to help outline the potential permitting which may be required by the Regional Water Board, policy issues concerning the project, and suggestions for mitigation measures. Our present comments focus primarily on discharges regulated under our CWA §401 and storm water programs.

Water Board entitlements include:

• Fill or dredged material discharges	Clean Water Act (CWA) §401 water quality certification for federal waters; or Waste Discharge Requirements for non-federal waters
• Storm water and other wastewater discharges	CWA §402 NPDES permit; Storm Water Discharges Associated with Construction Activity
• Other	Waste Discharge Requirements or other permits for discharges that may affect ground water such as from proposed solid waste transfer facilities.

The following summarizes project permits that may be required by our agency depending upon potential impacts to water quality:

Water Quality Certification (401 Certification)
Certifications are issued for activities resulting in dredge or fill within waters of the United States. All projects must be evaluated for the presence of jurisdictional waters, including wetlands and other waters of the state. Impacts to these waters should be avoided, minimized, and/or mitigated. Impacts to Water of the United States requires an Army Corps of Engineers (Corps) Clean Water Act (CWA) Section 404 Permit and a CWA Section 401 Water Quality Certification from the Central Valley Water Board. The Section 404 and 401 permits are required for activities involving a discharge (such as fill or dredged material) to Waters of the United States. "Waters" include wetlands, riparian zones, streambeds, rivers, lakes, and oceans. Typical activities include any modifications to these waters, such as stream crossings, stream bank modifications, filling of wetlands, etc. If required, the Section 404 Permit and Section 401 Certification must be obtained prior to site disturbance.

Isolated wetlands not covered by the federal Clean Water Act
Wetlands not covered by the Clean Water Act are known as "isolated wetlands." Should the U.S. Army Corps of Engineers determine that isolated wetlands exist within the project scope, and should the project impact or have potential to impact the isolated wetlands, a Report of Waste Discharge and filing fee must be submitted prior to commencing the construction activity. The Central Valley Board will consider the provided information and either issue or waive Waste Discharge Requirements. Failure to obtain waste discharge requirements or a waiver thereof, when required, may result in enforcement action.

Waste Discharge Requirements (WDRs) or a Conditional Waiver of WDRs
Under authority of the California Water Code, the Central Valley Water Board may issue WDRs for any project, which discharges or threatens to discharge waste to waters of the state. As outlined in the California Water Code, "Waste" includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, including sediment, associated with human activities. Prior to the discharge of waste, the project proponent must obtain waste discharge requirements (WDRs) from the Central Valley Board. To obtain WDRs, the proponent must submit an application called a Report of Waste Discharge (ROWD) to our office. Please note that the discharge of wastewater to the surface shall not occur until WDRs are adopted, and statutorily the Central Valley Board has 140 days to issue WDRs once a ROWD, deemed complete by the Central Valley Board, is received.

General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) – Land disturbances on projects of 1 acre or more requires the landowner to obtain coverage under the General Permit. As the land disturbance for the Wild Goose Phase 3 Expansion Project appears to be in excess of 1 acre, the project proponent and/or representatives will need to file a Notice of Intent (NOI), along with a vicinity map, a Storm Water Pollution Prevention Plan (SWPPP), and appropriate fees to the State Water Resources Control Board (SWRCB), prior to the commencement of activities on site. The owner may call our office to receive a permit package or download it off the Internet at http://www.waterboards.ca.gov/water_issues/programs/stormwater/

If you have any questions or comments regarding this matter please contact me at: (530) 224-4784 or by email at szaitz@waterboards.ca.gov.

Scott A. Zaitz

Scott A. Zaitz, R.E.H.S.
Environmental Scientist
Storm Water & Water Quality Certification Unit

SAZ: als/sae

cc: Mr. Brian Vierria, U.S. Army Corp of Engineers, Sacramento
Department of Fish and Game, Region 2, Rancho Cordova
Butte County Development Services Department, Oroville

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WILD GOOSE PHASE 3 GAS STORAGE EXPANSION NOP MAILING LIST

October 7, 2009

Last Name	First Name	Organization	Address				Phone No.
Theberge	Gary	Wild Goose Gas Storage	400-607 8th Ave SW	Calgary	AB	T2P 0A7	403-513-8631
Dupere	Simon	Wild Goose Gas Storage	400-607 8th Ave SW	Calgary	AB	T2P 0A7	403-513-8709
Cassady	Mark	TRC Solutions	975 Osos St.	San Luis Obispo	CA	93401	805-528-7099
Chiang	Eric	CPUC	505 Van Ness Avenue	San Francisco	CA	94102	415-703-1956
Hanni	Jason	U.S. Fish & Wildlife Service	2800 Cottage Way, Rm W2605	Sacramento,	CA	95825-1846	916-414-6645
Morey	Sandy	CA Dept of Fish and Game, Reg. 2	1701 Nimbus Road, Ste A	Rancho Cordova	CA	95670	916-358-2899
Marr	Jenny	CA Dept of Fish and Game	P.O. Box 300	Chico	CA	95927	530-895-4342
Vierria	Brian	U.S. Army Corps of Engineers, Regulatory	1325 J Street, Room 1480	Sacramento	CA	95814-2922	916-557-7728
Ceccarelli	Pam	Division of Oil, Gas and Geothermal Resources	801 K. Street, MS 20-20	Sacramento	CA	95814-3530	916-322-1097
Bopp	Hal	Division of Oil, Gas and Geothermal Resources	801 K. Street, MS 20-20	Sacramento	CA	95814-3530	916-322-1110
Williams	Gail	Butte County Air Quality Management District	2525 Dominic Drive #5	Chico	CA	95928	530-891-2882
Lusk	David	Butte County Air Quality Management District	2525 Dominic Drive #5	Chico	CA	95928	530-891-2882
Kitamura	Don	Colusa County Air Pollution Control District	100 Sunrise Blvd. #F	Colusa	CA	95932-3246	530-458-0590
Johanns	Kent	Colusa County Department of Planning and Building	220 12th Street	Colusa	CA	95932-2116	530-458-0480
Popper	Andy	Glenn County Resource Planning and Development	777 N. Colusa Street	Willows	CA	95988	530-934-6540
Thistlethwaite	Chuck	Butte Co. Dept. Development Services, Planning Div.	7 County Center Drive	Oroville	CA	95965	530-538-6572
Review	Environmental	Butte County Fire Department	176 Nelson Ave.	Oroville	CA	95965	530-538-7111
Yount	Kevin	Sutter Co. Community Services Dept., Planning Div.	1130 Civic Center Blvd.	Yuba City	CA	95993	530-822-7400
Peters	Karen	Biggs-West Gridley Water District	1713 West Biggs-Gridley Road	Gridley	CA	95948	530-846-3317
Gosselin	Paul	Butte County Dept. Water & Resource Conservation	308 Nelson Ave,	Oroville	CA	95965	530-538-4343
Hill	Rob	Butte County Agriculture Commission	316 Nelson Avenue	Oroville	CA	95965-3318	530-538-7381
Clark	Jon	Butte County Association of Governments	2580 Sierra Sunrise Terrace, #100	Chico	CA	95928	530-879-2468
Hightower	Scott	Butte County Department of Public Works	7 County Center Drive	Oroville	CA	95965	530-538-7681
Crump	Mike	Butte County Department of Public Works	7 County Center Drive	Oroville	CA	95965	530-538-7681
Cecil	Colleen	Butte County Farm Bureau	2580 Feather River Blvd.,	Oroville	CA	95965	530-533-1473
Snellings	Tim	Butte County Planning Department	7 County Center Drive	Oroville	CA	95965	530-538-7601
Pencovic	Terry	California Department of Transportation	PO Box 942874, MS #32	Sacramento	CA	94274-0001	916-653-1067
Jones	Jody	Caltrans District 3	703 B Street / PO Box 911	Marysville	CA	95901	530-741-4232
Newton	Gail	California State Lands Commission	100 Howe Ave. #100 South	Sacramento	CA	95825-8202	916-574-1880
Vaughn	Greg	Central Valley Regional Water Quality Control Board	11020 Sun Center Drive, Suite 200	Rancho Cordova	CA	95670-6114	916-464-4742
Massa Jr.	Gene	Colusa Basin Drainage District	P.O. Box 390	Willows	CA	95988	530-934-9678
Krug	Harry	Colusa County Agriculture Commission	100 Sunrise Blvd., Suite F	Colusa	CA	95932-3246	530-458-0580
Kitamura	Don	Colusa County Air Pollution Control District	100 Sunrise Blvd., Suite F	Colusa	CA	95932-3246	530-458-0590
Wrysinski	Jon	Colusa County Department of Public Works	1215 Market Street	Colusa	CA	95932	530-458-0466
Tibbits	George	Colusa County Farm Bureau	520 Market Street	Colusa	CA	95932-2464	530-458-5130
Review	Environmental	Colusa County Office of Emergency Services	929 Bridge Street	Colusa	CA	95932	530-458-0230

Last Name	First Name	Organization	Address				Phone No.
Review	Environmental	Butte County Office of Emergency Services	25 County Center Drive	Oroville	CA	95965	530-538-7373
Webb	Sadie	Dept. Conservation / Ofc of Gov & Env Relations	801 K Street, MS 24-02	Sacramento	CA	95814	916-445-8734
Landis	Tony	Department of Toxic Substances Control	8800 Cal Center Drive	Sacramento	CA	95826-3200	916-255-3732
Farris	Paul	Department of Water Resources	1416 9th Street, Room 425	Sacramento	CA	95814	916-653-5791
Yoshii	Laura	US EPA Region 9	75 Hawthorne St., Mail Code ORA-1	San Francisco	CA	94105	415-947-8702
Mosebar	Doug	Farm Bureau Federation	2300 River Plaza Drive	Sacramento	CA	95833	916-561-5500
Pennock	Ben	Glenn-Colusa Irrigation District	P.O. Box 150	Willows	CA	95988-3114	530-934-8881
Treadway	Debbie	Native American Heritage Commission	915 Capitol Mall, Room 364	Sacramento	CA	95814	916-653-4082
Chrisman	Mike	California Natural Resources Agency	1416 Ninth Street, Suite 1311	Sacramento	CA	95814	916-653-5656
Cecile	Rollinson-Pinto	Cal EMA Coastal Region	1300 Clay Street, #400	Oakland	CA	94612	510-286-0895
Stratton	Susan	Office of Historic Preservation	P.O. Box 942896	Sacramento	CA	94296-0001	916-631-0304
Nuchols	Charles	Reclamation District 833	PO Box 247	Gridley	CA	95948	530-846-3303
Pedri	James	RWQCB Region 5	415 Knollcrest Drive	Redding	CA	96002	530-224-4849
Donohue	Susan S.	UCCE Butte County	2279-B Del Oro Avenue	Oroville	CA	95965	530-538-7201
Review	Environmental	UCCE Central Valley Region	9240 So. Riverbend Ave.	Parlier	CA	93648	559-646-6543
Murray	Mike	UCCE Colusa County	100 Sunrise Blvd., Suite E	Colusa	CA	95932	530-458-0570
Hossein	Monfared	US DOT Office of Pipeline Safety	3401 Centrelake Drive, Suite 550B	Ontario,	CA	91761	909-937-3279
Review	Environmental	US DOT Office of Pipeline Safety	12300 W. Dakota Ave., Suite 110	Lakewood	CO	90228	720-963-3160
Azimi-Gaylon	Shakoora	Water Resources Control Board	PO Box 100	Sacramento	CA	95812-0100	916-341-5508
Waterbury	Eric		PO Box 193	Gridley,	CA	95948	530-846-5411
Vanderford	Birdie C.		PO Box 1048	Gridley	CA	95948	530-846-5730
Thelma	Jensen Mills		PO Box 1048	Gridley	CA	95948	530-846-5730
Azevedo	Allen E. & Mary A.		PO Box 629	Maxwell	CA	95955	530-438-2454
Holthouse	Leo M & Diane M.		25039 Hwy 395 South	Canyon City	OR	97820	541-575-0126
Public Affairs	Natural Gas	Pacific Gas & Electric Company	1 Market, Spear Tower	San Francisco	CA	94105	415-973-7000
CEQA Review		California Department of Fish and Game	1416 Ninth Street	Sacramento	CA	95814	916-653-7664

Appendix C
Additional Air Quality Information

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WGS Phase 3 Expansion
Estimate of Yearly Operational Emissions: Criteria Pollutants

Yearly Operational Mobile Emissions						
	CO	NOx	ROG	SOx	PM10	PM2.5
lbs/day	3.337203073	1.4853743	0.402151388	0.00453	0.068557	0.053331
tons/year	0.182563801	0.054064	0.02152432	0.000247	0.002957	0.002167

Yearly Operational Facility Emissions					
	CO	NOx	ROG	SOx	PM10
tons/year	32.7	14.8	10.0	0.7	2.4

WGS Phase 3 Expansion
Estimate of Yearly Operational Emissions: GHGs

Greenhouse Gas Annual Emissions (metric tons/year)					
Source	GHG	lbs	Metric tons	GWP	CO2e
Mobile	CO2	50,692	23	1	23
Stationary	CO2	73,842,816	33,504	1	33,504
Fugitive	CH4	108,836	49	21	1,029
Mobile	CH4	0.03	0	21	0.0003
Indirect*	CO2e	3954048*	1,794	n/a	1,794
Total Annual GHG emissions					36,350
Note: *Indirect emissions are associated with purchased electricity; units shown are kWh rather than pounds					

Indirect Emissions associated with Purchased Electricity				
Source	kWh	Emissions Factor	lbs./year	CO2e/tpy
Purchased Electricity	6,178,200	0.64	3,954,048	1,794

Yearly Operational Mobile Emissions (tons/yr)			
	VMT/Yr.	CO2	CH4
On Site vehicle use	29,040	7.16	0.0005
Worker Commute	7,260	11.19	0.0008
Delivery Trucks	36,300	4.46	0.0002
	Convert to CO2e	22.81	0.03295455
total annual mobile GHG emissions (tpy)		22.84	

WGS Phase 3 Expansion
Summary of Construction Phase Emissions

Emissions	NO_x	ROG	Exhaust PM_{10}	Fugitive PM_{10}	CO	SO_2	$PM_{2.5}$	CO_2[1]	CH_4[2]
Peak Daily (lb/day)									
Max Daily Delevan[3]	38.65	4.84	2.06	12.93	16.20	0.05	1.83	3,881.24	0.03
Max Daily RFS Plant 4[4]	93.71	15.10	5.82	75.93	60.44	0.13	5.13	11,380.64	0.19
Max Daily RFS Plant 5[4]	87.22	14.04	5.41	75.93	58.06	0.13	4.76	11,377.53	0.18
Tons per Phase									
Total tons per year 2010 (Delevan)	0.74	0.10	0.04	0.25	0.34	0.00	0.03	70.82	0.00
Total tons per year 2011 (RFS Plant 4)	2.96	0.50	0.17	3.35	2.22	0.00	0.15	375.45	0.01
Total tons per year 2012 (RFS Plant 4 + RFS Plant 5)	3.54	0.61	0.21	4.26	2.78	0.01	0.19	474.74	0.01
Total tons per year 2013 (RFS Plant 5)	0.99	0.17	0.06	1.30	0.80	0.00	0.05	140.03	0.00
1. Metric tons									
2. Methane emissions from truck use only (metric tons).									
3. Assume overlap of civil, foundation, structural, mechanical, piping, erection, fabrication, electrical and instrumentation in September 2010.									
4. Assume overlap of civil, foundation, structural, mechanical, piping, erection, fabrication, electrical and instrumentation August through October 2011 and 2012.									
5. Total lbs per phase divided by total days in phase assuming 22 work days per month.									
Greenhouse Gas emissions from construction (metric tonnes CO2e)									
Delevan year 2010	71								
RFS year 2011	376								
RFS year 2012	475								
RFS year 2013	140								
	1062								

WGS Phase 3 Expansion
Emissions calculations for on-site and commute truck miles
Equipment lists and usage percents supplied by Niska Gas and PG&E, January 19, 2010.

					Emissions Factors (lb/mile)[2]							
Truck	**Fuel**	**Number**	**Days Operating**	**Total VMT per phase**	**CO**	**NOx**	**ROG**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
Delevan - Site Preparation, August 2010												
Pickup	Gasoline	2	22	1320	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
Flatbed Truck	Diesel	1	3	60	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
Dirt Hauling Truck	Diesel	1	22	440	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
Total												
Delevan - Civil, foundation and structural, August - September 2010												
Pickup	Gasoline	4	66	7920	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
Flatbed Truck	Diesel	1	7	140	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
X-ray Truck	Diesel	1	10	200	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
Total												
Delevan - Mechanical piping/hot tap installation, Electrical and instrumentation, September - October 2010												
Pickup	Gasoline	5	44	6600	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
Flatbed Truck	Diesel	1	5	100	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
Total												
Remote Facility Plant 4- Site preparation and berm installation, May - July 2011												
Inspector Pickup	Gasoline	3	66	9900	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Safety Pickup	Gasoline	1	66	3300	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Niska Car	Gasoline	1	10	500	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Van	Gasoline	2	22	2200	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Contractor Pickup	Gasoline	5	66	16500	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Dump/Cement Truck	Diesel	2	22	880	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Fuel Truck	Diesel	1	22	440	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Semi Truck	Diesel	1	4	200	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Flatbed Truck	Diesel	2	33	1320	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Total												

					Emissions Factors (lb/mile)[2]							
Truck	**Fuel**	**Number**	**Days Operating**	**Total VMT per phase**	**CO**	**NOx**	**ROG**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
Remote Facility Plant 4- Civil, foundation and structural, July - October 2011												
Inspector Pickup	Gasoline	2	66	6600	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Safety Pickup	Gasoline	1	66	3300	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Niska Car	Gasoline	1	10	500	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Van	Gasoline	1	22	1100	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Contractor Pickup	Gasoline	5	66	16500	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Dump/Cement Truck	Diesel	2	22	880	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Boom Truck	Diesel	1	22	440	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Fuel Truck	Diesel	1	22	440	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
X-ray Truck	Diesel	2	10	400	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Semi Truck	Diesel	1	4	200	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Flatbed Truck	Diesel	1	33	660	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Total												
Remote Facility Plant 4- Mechanical piping, Building fabrication/erection, electrical and instrumentation, July 2011 - March 2012												
Inspector Pickup	Gasoline	4	176	35200	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Safety Pickup	Gasoline	2	176	17600	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Niska Car	Gasoline	1	26	1300	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Electrician Pickup	Gasoline	10	176	88000	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Erector Pickup	Gasoline	4	176	35200	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Van	Gasoline	2	58	5800	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Contractor Pickup	Gasoline	7	176	61600	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Boom Truck	Diesel	1	58	1160	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Fuel Truck	Diesel	1	58	1160	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Semi Truck	Diesel	1	9	450	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Flatbed Truck	Diesel	2	88	3520	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Total												
Remote Facility Plant 4 - Landscaping, cleanup, restoration, May 2012												
Inspector Pickup	Gasoline	3	22	3300	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Safety Pickup	Gasoline	1	22	1100	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Niska Car	Gasoline	1	4	200	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Van	Gasoline	2	7	700	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Contractor Pickup	Gasoline	5	22	5500	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Fuel Truck	Diesel	1	7	140	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Semi Truck	Diesel	1	2	100	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Flatbed Truck	Diesel	1	11	220	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012

					Emissions Factors (lb/mile)[2]							
Truck	**Fuel**	**Number**	**Days Operating**	**Total VMT per phase**	**CO**	**NOx**	**ROG**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
Total												
Remote Facility Plant 5 - Site preparation, June 2012												
Inspector Pickup	Gasoline	3	22	3300	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Safety Pickup	Gasoline	1	22	1100	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Niska Car	Gasoline	1	4	200	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Van	Gasoline	2	7	700	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Contractor Pickup	Gasoline	5	22	5500	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Dump/Cement Truck	Diesel	2	7	280	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Fuel Truck	Diesel	1	7	140	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Semi Truck	Diesel	1	2	100	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Flatbed Truck	Diesel	2	11	440	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Total												
Remote Facility Plant 5- Civil, foundation and structural, July - October 2012												
Inspector Pickup	Gasoline	2	66	6600	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Safety Pickup	Gasoline	1	66	3300	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Niska Car	Gasoline	1	10	500	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Van	Gasoline	1	22	1100	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Contractor Pickup	Gasoline	5	66	16500	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Dump/Cement Truck	Diesel	2	22	880	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Boom Truck	Diesel	1	22	440	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Fuel Truck	Diesel	1	22	440	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
X-ray Truck	Diesel	2	10	400	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Semi Truck	Diesel	1	4	200	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Flatbed Truck	Diesel	1	33	660	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Total												
Remote Facility Plant 5 - Mechanical piping, Building fabrication/erection, electrical and instrumentation, July 2012 - March 2013												
Inspector Pickup	Gasoline	4	176	35200	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Safety Pickup	Gasoline	2	176	17600	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Niska Car	Gasoline	1	26	1300	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Electrician Pickup	Gasoline	10	176	88000	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Erector Pickup	Gasoline	4	176	35200	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Van	Gasoline	2	58	5800	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Contractor Pickup	Gasoline	7	176	61600	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Boom Truck	Diesel	1	58	1160	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Fuel Truck	Diesel	1	58	1160	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Semi Truck	Diesel	1	9	450	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012

					Emissions Factors (lb/mile)[2]							
Truck	**Fuel**	**Number**	**Days Operating**	**Total VMT per phase**	**CO**	**NOx**	**ROG**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
Flatbed Truck	Diesel	2	88	3520	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Total												
Remote Facility Plant 5 - Cleanup, April 2013												
Inspector Pickup	Gasoline	3	22	3300	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Safety Pickup	Gasoline	1	22	1100	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Niska Car	Gasoline	1	4	200	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Van	Gasoline	2	7	700	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Contractor Pickup	Gasoline	5	22	5500	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Flatbed Truck	Diesel	2	11	440	0.00932	0.02743	0.00226	0.00004	0.00134	0.00115	4.21519	0.00010
Total												

1: Calculated based on the URBEMIS default of 22 days per month.

2: Most conservative emissions factors from EMFAC2007 v.2.3 for the SCAQMD.

3: With 55% emissions reduction due to 2x daily watering (URBEMIS default).

See fugitive worksheet for calculation of emissions factors and paved/unpaved assumptions.

4: Calculated in metric tons.

WGS Phase 3 Expansion
Fugitive Dust Emissions

Fugitive Dust from Construction Grading
Acreage supplied by Niska Gas

Phase	Acres Graded	Emission Factor[1] (lb PM10 / acre)	Emissions[3] (lb/phase)	Emissions (tons/phase)	Emissions (lb/day)
Delevan - Site Preparation	**0.4**	**20**	**3.6**	**0.0018**	**0.72**
Total (tons)[2]					
Remote Facility Plant 4 and 5- Site preparation and berm installation					
Total [2]	**7.5**	**20**	**67.5**	**0.03375**	**3.97**
Plant 4 (75% of total)[4]				0.0253125	2.98
Plant 5 (25% of total)[4]				0.0084375	0.99

1: Emissions factor from URBEMIS2007, Version 9.2.4.

2: Delevan assume 5 day grading. Remote Facility assume 17 days.

3: With 55% emissions reduction due to 2x daily watering (URBEMIS default).

4: Based on 3 months site prep at RFS Plant 4, and 1 month site prep RFS Plant 5.

Fugitive Dust from Roads

Calculation of Emissions Factors	$E=[k(sL/2)^{0.65}*(W/3)^{1.5}]-C$		From USEPA AP-42, Chapter 13 Part 2.1
Paved Surfaces	E	= 0.001	Emissions PM10 (lb/vehicle mile traveled)
Eq 1:	k	= 0.016	Particle size multiplier (lb/vehicle mile traveled)
Where:	sL	= 0.03	Silt loading (g/m^2)
	W	= 3	Weight (tons)
	C	= 0.00047	Brake and tire wear (lb/vehicle mile traveled)
	$E=[k(s/12)^{a}*(W/3)^{b}]$		From USEPA AP-42, Chapter 13 Part 2.2
Unpaved Surfaces	E	= 1.1	Emissions PM10 (lb/vehicle mile traveled)
Eq 1a:	k	= 1.5	Particle size multiplier (lb/vehicle mile traveled)
Where:	s	= 8.5	Silt content (%)
	a	= 0.9	Empirical constant
	W	= 3	Weight (tons)
	b	= 0.45	Empirical constant

Emissions for Fugitive PM10 are calculated on the Trucks worksheet using the Emission Factors calculated above.
Vehicle miles were estimated for pickups and semis to consist of 95% paved surfaces and 5% unpaved.
Vehicle miles were estimated for other vehicles to consist of 80% paved surfaces and 20% unpaved.

WGS Phase 3 Expansion
Emissions calculations for Construction equipment
Emissions factors, approximate HP ratings, and load defaults are from URBEMIS 2007, Ver 9.2.4.
Equipment lists and construction schedule supplied by Niska Gas and PG&E, January 19 and February 2, 2010.

Delevan - Site Preparation, August 2010													
			Days				**Emissions Factor, g/hp/hr**						
Equipment	**Fuel**	**Number**	**Operating****	**HP**	**Load**	**Hr/day**	**ROG**	**NOx**	**PM**	**PM2.5*****	**CO**	**SO2**	**CO2**
Water Truck	Diesel	1	17	250	0.5	8	0.319	3.144	0.112	0.100	0.837	0.004	324.222
Backhoe	Diesel	1	17	175	0.55	8	0.423	3.22	0.192	0.171	1.936	0.004	324.222
Total													
Delevan - Civil, foundation and structural, August - September 2010													
			Days				**Emissions Factor, g/hp/hr**						
Equipment	**Fuel**	**Number**	**Operating****	**HP**	**Load**	**Hr/day**	**ROG**	**NOx**	**PM**	**PM2.5*****	**CO**	**SO2**	**CO2**
Water Truck	Diesel	1	34	250	0.5	8	0.319	3.144	0.112	0.100	0.837	0.004	324.222
Welder	Diesel	2	34	120	0.45	8	0.518	3.152	0.275	0.245	1.77	0.003	255.965
Crane	Diesel	1	34	250	0.43	8	0.271	2.698	0.102	0.091	0.755	0.003	244.589
Total													
Delevan - Mechanical piping/hot tap installation, Electrical and instrumentation September - October 2010													
			Days				**Emissions Factor, g/hp/hr**						
Equipment	**Fuel**	**Number**	**Operating****	**HP**	**Load**	**Hr/day**	**ROG**	**NOx**	**PM**	**PM2.5*****	**CO**	**SO2**	**CO2**
Water Truck	Diesel	1	34	250	0.5	8	0.319	3.144	0.112	0.100	0.837	0.004	324.222
Welder	Diesel	2	34	120	0.45	8	0.518	3.152	0.275	0.245	1.77	0.003	255.965
Crane	Diesel	1	34	250	0.43	8	0.271	2.698	0.102	0.091	0.755	0.003	244.589
Total													
Remote Facility Plant 4- Site preparation and berm installation, May - July 2011													
			Days				**Emissions Factor, g/hp/hr**						
Equipment	**Fuel**	**Number**	**Operating****	**HP**	**Load**	**Hr/day**	**ROG**	**NOx**	**PM**	**PM2.5*****	**CO**	**SO2**	**CO2**
Water Truck	Diesel	2	51	250	0.5	8	0.302	2.876	0.100	0.089	0.798	0.004	324.222
Motor Grader	Diesel	1	17	175	0.61	8	0.461	3.562	0.209	0.186	2.067	0.004	346.974
Backhoe	Diesel	1	26	175	0.55	8	0.397	2.994	0.181	0.161	1.932	0.004	324.222
Bobcat Loader	Diesel	1	17	50	0.59	8	1.416	3.24	0.335	0.298	3.824	0.004	307.158
Total													

Remote Facility Plant 4- Civil, foundation and structural, July - October 2011													
			Days				Emissions Factor, g/hp/hr						
Equipment	**Fuel**	**Number**	**Operating****	**HP**	**Load**	**Hr/day**	**ROG**	**NOx**	**PM**	**PM2.5*****	**CO**	**SO2**	**CO2**
Water Truck	Diesel	1	51	250	0.5	8	0.302	2.876	0.100	0.089	0.798	0.004	324.222
Welder	Diesel	2	34	120	0.45	8	0.485	2.987	0.263	0.234	1.753	0.003	255.965
Crane	Diesel	1	26	250	0.43	8	0.255	2.513	0.093	0.083	0.714	0.003	244.589
Manlift	Diesel	1	38	120	0.46	8	0.444	2.907	0.235	0.209	1.697	0.003	261.653
Generators	Diesel	1	41	50	0.3	8	1.409	4.137	0.367	0.327	3.851	0.005	420.92
Bobcat Loader	Diesel	1	17	50	0.59	8	1.416	3.24	0.335	0.298	3.824	0.004	307.158
Air Compressor	Diesel	1	34	175	0.48	8	0.368	2.914	0.167	0.149	1.568	0.003	273.029
Total													
Remote Facility Plant 4- Mechanical piping, Building fabrication/erection, electrical and instrumentation, July 2011 - March 2012													
			Days				Emissions Factor, g/hp/hr						
Equipment	**Fuel**	**Number**	**Operating****	**HP**	**Load**	**Hr/day**	**ROG**	**NOx**	**PM**	**PM2.5*****	**CO**	**SO2**	**CO2**
Water Truck	Diesel	2	136	250	0.5	8	0.302	2.876	0.100	0.089	0.798	0.004	324.222
Welder	Diesel	6	90	120	0.45	8	0.485	2.987	0.263	0.234	1.753	0.003	255.965
Crane	Diesel	2	68	250	0.43	8	0.255	2.513	0.093	0.083	0.714	0.003	244.589
Manlift	Diesel	2	102	120	0.46	8	0.444	2.907	0.235	0.209	1.697	0.003	261.653
Generators	Diesel	3	109	50	0.3	8	1.409	4.137	0.367	0.327	3.851	0.005	420.92
Bobcat Loader	Diesel	1	45	50	0.59	8	1.416	3.24	0.335	0.298	3.824	0.004	307.158
Air Compressor	Diesel	1	90	175	0.48	8	0.368	2.914	0.167	0.149	1.568	0.003	273.029
Total													
Remote Facility Plant 4 - Landscaping, cleanup, restoration, May 2012													
			Days				Emissions Factor, g/hp/hr						
Equipment	**Fuel**	**Number**	**Operating****	**HP**	**Load**	**Hr/day**	**ROG**	**NOx**	**PM**	**PM2.5*****	**CO**	**SO2**	**CO2**
Water Truck	Diesel	2	17	250	0.5	8	0.286	2.631	0.090	0.080	0.768	0.004	324.222
Motor Grader	Diesel	1	6	175	0.61	8	0.435	3.341	0.193	0.172	2.062	0.004	346.974
Backhoe	Diesel	1	9	175	0.55	8	0.372	2.777	0.164	0.146	1.929	0.004	324.222
Bobcat Loader	Diesel	1	6	50	0.59	8	1.297	3.197	0.314	0.279	3.704	0.004	307.158
Total													

Remote Facility Plant 5 - Site preparation, June 2012													
			Days				Emissions Factor, g/hp/hr						
Equipment	Fuel	Number	Operating**	HP	Load	Hr/day	ROG	NOx	PM	PM2.5***	CO	SO2	CO2
Water Truck	Diesel	2	17	250	0.5	8	0.286	2.631	0.090	0.080	0.768	0.004	324.222
Motor Grader	Diesel	1	6	175	0.61	8	0.435	3.341	0.193	0.172	2.062	0.004	346.974
Backhoe	Diesel	1	9	175	0.55	8	0.372	2.777	0.164	0.146	1.929	0.004	324.222
Bobcat Loader	Diesel	1	6	50	0.59	8	1.297	3.197	0.314	0.279	3.704	0.004	307.158
Total													
Remote Facility Plant 5- Civil, foundation and structural, July - October 2012													
			Days				Emissions Factor, g/hp/hr						
Equipment	Fuel	Number	Operating**	HP	Load	Hr/day	ROG	NOx	PM	PM2.5***	CO	SO2	CO2
Water Truck	Diesel	1	51	250	0.5	8	0.286	2.631	0.090	0.080	0.768	0.004	324.222
Welder	Diesel	2	34	120	0.45	8	0.451	2.807	0.247	0.220	1.735	0.003	255.965
Crane	Diesel	1	26	250	0.43	8	0.241	2.336	0.085	0.076	0.677	0.003	244.589
Manlift	Diesel	1	38	120	0.46	8	0.41	2.728	0.219	0.195	1.679	0.003	261.653
Generators	Diesel	1	41	50	0.3	8	1.293	4.063	0.346	0.308	3.726	0.005	420.92
Bobcat Loader	Diesel	1	17	50	0.59	8	1.297	3.197	0.314	0.279	3.704	0.004	307.158
Air Compressor	Diesel	1	34	175	0.48	8	0.345	2.731	0.156	0.139	1.562	0.003	273.029
Total													
Remote Facility Plant 5 - Mechanical piping, Building fabrication/erection, electrical and instrumentation, July 2012 - March 2013													
			Days				Emissions Factor, g/hp/hr						
Equipment	Fuel	Number	Operating**	HP	Load	Hr/day	ROG	NOx	PM	PM2.5***	CO	SO2	CO2
Water Truck	Diesel	2	136	250	0.5	8	0.286	2.631	0.090	0.080	0.768	0.004	324.222
Welder	Diesel	6	90	120	0.45	8	0.451	2.807	0.247	0.220	1.735	0.003	255.965
Crane	Diesel	2	68	250	0.43	8	0.241	2.336	0.085	0.076	0.677	0.003	244.589
Manlift	Diesel	2	102	120	0.46	8	0.41	2.728	0.219	0.195	1.679	0.003	261.653
Generators	Diesel	3	109	50	0.3	8	1.293	4.063	0.346	0.308	3.726	0.005	420.92
Bobcat Loader	Diesel	1	45	50	0.59	8	1.297	3.197	0.314	0.279	3.704	0.004	307.158
Air Compressor	Diesel	1	90	175	0.48	8	0.345	2.731	0.156	0.139	1.562	0.003	273.029
Total													
Remote Facility - Cleanup, April 2013													
			Days				Emissions Factor, g/hp/hr						
Equipment	Fuel	Number	Operating**	HP	Load	Hr/day	ROG	NOx	PM	PM2.5***	CO	SO2	CO2
Water Truck	Diesel	2	17	250	0.5	8	0.272	2.409	0.080	0.071	0.747	0.004	324.222
Bobcat Loader	Diesel	1	6	50	0.59	8	1.183	3.075	0.288	0.256	3.591	0.004	307.158
Total													

* metric tons.

** Calculated based on the URBEMIS default of 17 days per month.

*** For offroad combustion sources, it was assumed that 89% of PM10 would be PM2.5. This follows the SCAQMD calculation methodology, 2006.

WGS Phase 3 Expansion
Emissions calculations for Construction on-site and commute truck miles
Equipment lists and usage percents supplied by Niska Gas and PG&E, January 19, 2010.

Truck	Fuel	Number	Days Operating	Average VMT per day	Total VMT per day	Total VMT per phase	Emissions Factors (lb/mile)[2]							
							CO	NOx	ROG	SOx	PM10	PM2.5	CO2	CH4
Delevan - Site Preparation, August 2010														
Pickup	Gasoline	2	22	30	60	1320	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
Flatbed Truck	Diesel	1	3	20	20	60	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
Dirt Hauling Truck	Diesel	1	22	20	20	440	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
Total														
Delevan - Civil, foundation and structural, August - September 2010														
Pickup	Gasoline	4	66	30	120	7920	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
Flatbed Truck	Diesel	1	7	20	20	140	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
X-ray Truck	Diesel	1	10	20	20	200	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
Total														
Delevan - Mechanical piping/hot tap installation, Electrical and instrumentation, September - October 2010														
Pickup	Gasoline	5	44	30	150	6600	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
Flatbed Truck	Diesel	1	5	20	20	100	0.01120	0.03822	0.00304	0.00004	0.00183	0.00160	4.21121	0.00014
Total														
Remote Facility Plant 4- Site preparation and berm installation, May - July 2011														
Inspector Pickup	Gasoline	3	66	50	150	9900	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Safety Pickup	Gasoline	1	66	50	50	3300	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Niska Car	Gasoline	1	10	50	50	500	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Van	Gasoline	2	22	50	100	2200	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Contractor Pickup	Gasoline	5	66	50	250	16500	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Dump/Cement Truck	Diesel	2	22	20	40	880	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Fuel Truck	Diesel	1	22	20	20	440	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Semi Truck	Diesel	1	4	50	50	200	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Flatbed Truck	Diesel	2	33	20	40	1320	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Total														

Truck	Fuel	Number	Days Operating	Average VMT per day	Total VMT per day	Total VMT per phase	Emissions Factors (lb/mile)[2]							
							CO	NOx	ROG	SOx	PM10	PM2.5	CO2	CH4
Remote Facility Plant 4- Civil, foundation and structural, July - October 2011														
Inspector Pickup	Gasoline	2	66	50	100	6600	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Safety Pickup	Gasoline	1	66	50	50	3300	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Niska Car	Gasoline	1	10	50	50	500	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Van	Gasoline	1	22	50	50	1100	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Contractor Pickup	Gasoline	5	66	50	250	16500	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Dump/Cement Truck	Diesel	2	22	20	40	880	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Boom Truck	Diesel	1	22	20	20	440	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Fuel Truck	Diesel	1	22	20	20	440	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
X-ray Truck	Diesel	2	10	20	40	400	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Semi Truck	Diesel	1	4	50	50	200	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Flatbed Truck	Diesel	1	33	20	20	660	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Total														
Remote Facility Plant 4- Mechanical piping, Building fabrication/erection, electrical and instrumentation, July 2011 - March 2012														
Inspector Pickup	Gasoline	4	176	50	200	35200	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Safety Pickup	Gasoline	2	176	50	100	17600	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Niska Car	Gasoline	1	26	50	50	1300	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Electrician Pickup	Gasoline	10	176	50	500	88000	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Erector Pickup	Gasoline	4	176	50	200	35200	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Van	Gasoline	2	58	50	100	5800	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Contractor Pickup	Gasoline	7	176	50	350	61600	0.00826	0.00084	0.00085	0.00001	0.00009	0.00006	1.10235	0.00008
Boom Truck	Diesel	1	58	20	20	1160	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Fuel Truck	Diesel	1	58	20	20	1160	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Semi Truck	Diesel	1	9	50	50	450	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Flatbed Truck	Diesel	2	88	20	40	3520	0.01112	0.03456	0.00280	0.00004	0.00166	0.00144	4.22046	0.00013
Total														

Truck	Fuel	Number	Days Operating	Average VMT per day	Total VMT per day	Total VMT per phase	Emissions Factors (lb/mile)[2]							
							CO	NOx	ROG	SOx	PM10	PM2.5	CO2	CH4
Remote Facility Plant 4 - Landscaping, cleanup, restoration, May 2012														
Inspector Pickup	Gasoline	3	22	50	150	3300	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Safety Pickup	Gasoline	1	22	50	50	1100	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Niska Car	Gasoline	1	4	50	50	200	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Van	Gasoline	2	7	50	100	700	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Contractor Pickup	Gasoline	5	22	50	250	5500	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Fuel Truck	Diesel	1	7	20	20	140	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Semi Truck	Diesel	1	2	50	50	100	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Flatbed Truck	Diesel	1	11	20	20	220	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Total														
Remote Facility Plant 5 - Site preparation, June 2012														
Inspector Pickup	Gasoline	3	22	50	150	3300	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Safety Pickup	Gasoline	1	22	50	50	1100	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Niska Car	Gasoline	1	4	50	50	200	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Van	Gasoline	2	7	50	100	700	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Contractor Pickup	Gasoline	5	22	50	250	5500	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Dump/Cement Truck	Diesel	2	7	20	40	280	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Fuel Truck	Diesel	1	7	20	20	140	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Semi Truck	Diesel	1	2	50	50	100	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Flatbed Truck	Diesel	2	11	20	40	440	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Total														
Remote Facility Plant 5- Civil, foundation and structural, July - October 2012														
Inspector Pickup	Gasoline	2	66	50	100	6600	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Safety Pickup	Gasoline	1	66	50	50	3300	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Niska Car	Gasoline	1	10	50	50	500	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Van	Gasoline	1	22	50	50	1100	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Contractor Pickup	Gasoline	5	66	50	250	16500	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Dump/Cement Truck	Diesel	2	22	20	40	880	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Boom Truck	Diesel	1	22	20	20	440	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Fuel Truck	Diesel	1	22	20	20	440	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012

Truck	Fuel	Number	Days Operating	Average VMT per day	Total VMT per day	Total VMT per phase	Emissions Factors (lb/mile)[2]							
							CO	NOx	ROG	SOx	PM10	PM2.5	CO2	CH4
X-ray Truck	Diesel	2	10	20	40	400	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Semi Truck	Diesel	1	4	50	50	200	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Flatbed Truck	Diesel	1	33	20	20	660	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Total														
Remote Facility Plant 5 - Mechanical piping, Building fabrication/erection, electrical and instrumentation, July 2012 - March 2013														
Inspector Pickup	Gasoline	4	176	50	200	35200	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Safety Pickup	Gasoline	2	176	50	100	17600	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Niska Car	Gasoline	1	26	50	50	1300	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Electrician Pickup	Gasoline	10	176	50	500	88000	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Erector Pickup	Gasoline	4	176	50	200	35200	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Van	Gasoline	2	58	50	100	5800	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Contractor Pickup	Gasoline	7	176	50	350	61600	0.00765	0.00078	0.00080	0.00001	0.00009	0.00006	1.10153	0.00007
Boom Truck	Diesel	1	58	20	20	1160	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Fuel Truck	Diesel	1	58	20	20	1160	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Semi Truck	Diesel	1	9	50	50	450	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Flatbed Truck	Diesel	2	88	20	40	3520	0.01022	0.03092	0.00253	0.00004	0.00150	0.00129	4.21591	0.00012
Total														
Remote Facility Plant 5 - Cleanup, April 2013														
Inspector Pickup	Gasoline	3	22	50	150	3300	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Safety Pickup	Gasoline	1	22	50	50	1100	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Niska Car	Gasoline	1	4	50	50	200	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Van	Gasoline	2	7	50	100	700	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Contractor Pickup	Gasoline	5	22	50	250	5500	0.00709	0.00071	0.00075	0.00001	0.00009	0.00006	1.10087	0.00007
Flatbed Truck	Diesel	2	11	20	40	440	0.00932	0.02743	0.00226	0.00004	0.00134	0.00115	4.21519	0.00010
Total														

1: Calculated based on the URBEMIS default of 22 days per month.
2: Most conservative emissions factors from EMFAC2007 v.2.3 for the SCAQMD.
3: With 55% emissions reduction due to 2x daily watering (URBEMIS default).
See fugitive worksheet for calculation of emissions factors and paved/unpaved assumptions.
4: Calculated in metric tons.

Proposed Expansion Plants 4 and 5:					
	ESTIMATED EMISSIONS, TONS/YEAR				
	NOx	**CO**	**ROC**	**SO2**	**PM10**
Facility Emissions	14.3	32.1	9.89	0.7	2.4
Vehicle Emissions	0.5	0.6	0.8	0.00	0.02
TOTAL	**14.8**	**32.7**	**10.7**	**0.88**	**2.4**

Source: Lusk, 2010 (BCAQMD) and Wild Goose Storage, LLC

Vehicle Operations

Truck	Fuel	Number	Number	Average VMT Per day	Total VMT per day	Days per year[1]	Total VMT per year	Emissions Factors (lb/mile)[2]							
								CO	**NOx**	**ROG**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
Pickup	Gasoline	3	3	60	180	242	43,560	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
Delivery	Gasoline	1	1	60	60	104	6,240	0.01844	0.02062	0.00259	0.00003	0.00075	0.00064	2.73222	0.00013
						TOTAL	**49,800**	0.02670	0.02154	0.00350	0.00004	0.00084	0.00070	3.82790	0.00021
								TOTAL OPERATIONAL VEHICLE EMISSIONS							
								CO	**NOx**	**ROG**	**SOx**	**PM10**	**PM2.5**	**CO2**	**CH4**
								lbs/year							
					TOTAL VMT/year		**49,800**	1329.68	1072.83	174.48	1.88	41.74	34.72	190629.6	10.32
								tons/year							
								0.6	0.54	0.08	0.00	0.02	0.02	95.31	0.01
								lbs/day							
					Days per Year:		**264**	5.04	4.06	0.66	0.01	0.16	0.13	722.08	0.04

1: Trips per year estimated by WGS personnel.

2: Most conservative emissions factors from EMFAC2007 v.2.3 for the SCAQMD. Scenario year 2010 used (most conservative).

3: Assumed 90 percent paved road travel, 10 percent unpaved travel.

Calculation of Fugitive Emissions, Proposed Plants 4&5.
Based on "Greenhouse Gas Emission Estimation Guidelines for Natural Gas Transmission and Storage - Volume 1- GHG Emission estimation Methodologies and Procedures", Interstate Natural Gas Association of America (INGAA), September 2005.

Niska uses a Screening Value of 4,000 ppm of methane

The following table is based on Equation 4-2 and Table 4-8.

			log (SV)	B0+B1*log(SV)	Emission Rate (kg/h/source)
Source	**B0**	**B1**	**4000**	**4000**	**4,000**
Connector	-5.9147	0.75	3.60205999	-3.213155	**0.0006121**
Valves	-6.0399	0.83	3.60205999	-3.0501902	**0.0008909**
Open-ended lines	-6.9586	1.28	3.60205999	-2.3479632	**0.0044878**
Pressure relief device	-5.1479	0.91	3.60205999	-1.8700254	**0.0134888**
Pressure regulators	-6.4821	0.91	3.60205999	-3.2042254	**0.0006248**

The following table is the Component Count and calculation of emission rates.

Component	Count	Component (Table 4-8)	Leak Rate kg/hr/ component	Total kg/hr	Rationale for Selected Component Category	
Equipment and Piping flanges and connectors	2000	Connector	0.000612	1.2243		
Sight glass	12	Connector	0.000612	0.0073		
Sample connections	20	Connector	0.000612	0.0122		
Unions	600	Connector	0.000612	0.3673		
Block Valves	566	Valves	0.000891	0.5042		
Control Valves	100	Valves	0.000891	0.0891		
Diaphragm pressure regulators	150	Valves	0.000891	0.1336	See Footnote A.	
Drains	6	Valves	0.000891	0.0053	See Footnote B.	
Atmospheric organic liquid storage tank hatches	6	Open ended lines	0.004488	0.0269	See Footnote C.	
Open ended lines	0	Open ended lines	0.004488	0.0000		
Instrument Seals and Packing	130	Pressure regulators	0.000625	0.0812	See Footnote F.	
Pump seals	966	Pressure regulators	0.000625	0.6036	See Footnote F.	
Compressor seals	24	Pressure regulators	0.000625	0.0150	See Footnote F.	
Pressure Relief Valves to Atm.	98	Pressure Relief Device	0.013489	1.3219	See Footnote D.	
Pressure Relief Vents	137	Pressure Relief Device	0.013489	1.8480	See Footnote E.	
Underground pipelines (resulting from corrosion, faulty connection, etc)	0	(Not applicable)	(Not applicable)	0.0000		
				6.2401	**kg/hr - NG**	
				5.6381	kg/hr, CH4	(Eq. 4-1)
				8,760	hours/year	
				49,390	kg/yr, CH4	
				49.390	tonne/yr, CH4	
				21		
			Total	**1,037.18**	**tonne/yr, eCO2**	

A - The industry sometimes uses natural gas-powered motors to actuate pressure regulators. Niska uses compressed air. The structure of this device is similar to a valve.

B- Drains at Niska are liquid seal drains. This device is most similar to a valve.

C- Tank hatches are similar to open ended lines.

D- Pressure relief valves that open to the atmosphere are a type of pressure relief device.

E- Pressure relief vents (Pressure system vents-PSVs) are a type of pressure relief device.

F- Like a pressure regulator, these devices include a stem in a packing gland.

Operational Emission – WGS Phase 3 Expansion

Operations Vehicles														
Vehicle Type	Fuel	Number	Average VMT Per day	Total VMT per day	Days per year[1]	Total VMT per year	Emissions Factors (lb/mile)[2]							
							CO	NOx	ROG	Sox	PM10	PM2.5	CO2	CH4
On Site Vehicles	Gasoline	3	40	120	242	29040	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
Delivery	Gasoline	1	60	60	121	7260	0.01844	0.02062	0.00259	0.00003	0.00075	0.00064	2.73222	0.00013
Commute	Gasoline	3	50	150	242	36300	0.00826	0.00092	0.00091	0.00001	0.00009	0.00005	1.09568	0.00008
1: Trips per year estimated by WGS personnel.														
2: Most conservative emissions factors from eMRAC2007 v.2.3 for the SCAQMD. Scenario year 2010 (most conservative).														

Yearly Operational Mobile Emissions (avg. lbs/day)									
	VMT/day	CO	NOx	ROG	SOx	PM10	PM2.5	CO2	CH4
On Site vehicle use	120	0.991531	0.110177	0.109679	0.001292968	0.010437	0.006574	131.4819	0.009775
Worker Commute	150	1.239414	0.137721	0.137098	0.001616211	0.013047	0.008217	164.3524	0.012219
Delivery Trucks	60	1.106259	1.237476	0.155375	0.001620595	0.045073	0.03854	163.9333	0.007546
	total (lbs/day)	3.337203	1.485374	0.402151	0.004529774	0.068557	0.053331	459.7676	0.02954
									0.620347

Yearly Operational Mobile Emission (tons/yr)									
	Days/yr	CO	NOx	ROG	SOx	PM10	PM2.5	CO2	CH4
On Site vehicle use	120	0.059492	0.006611	0.006581	7.75781E-05	0.000626	0.000394	7.158723	0.000532
Worker Commute	150	0.092956	0.010329	0.010282	0.000121216	0.000979	0.000616	11.1855	0.000832
Delivery Trucks	60	0.030116	0.037124	0.004661	4.86179E-05	0.001352	0.001156	4.462795	0.000205
						0			
	total tpy	0.183	0.054	0.022	0.000	0.003	0.002	22.807	0.002
									0.032955

Scenario Year: **2010**

Source: EMFAC2007 v2.3

Passenger Vehicles (pounds/mile)			**Delivery Trucks (pounds/mile)**	
CO	**0.00826276**		CO	**0.01843765**
NOx	**0.00091814**		NOx	**0.02062460**
ROG	**0.00091399**		ROG	**0.00258958**
SOx	**0.00001077**		SOx	**0.00002701**
PM10	**0.00008698**		PM10	**0.00075121**
PM2.5	**0.00005478**		**PM2.5**	**0.00064233**
CO2	**1.09568235**		CO2	**2.73222199**
CH4	**0.00008146**		CH4	**0.00012576**

ROG Emissions resulting from Compressor Blowdown and Compressor Engine Starter Vent

Constituent	Formula	Concentration (percent, by volume)	Natural Gas Flow Rate (cubic feet per year)	Molecular Weight	Density of Air lb/scf	Molecular Weight of Air	Mass Flow	
							(lb/year)	(ton/year)
propane	C3H8	0.091	10,427,580	44	0.075	28.95	1,081.66	0.54
butane	C4H10	0.025	10,427,580	58	0.075	28.95	391.71	0.20
pentane	C5H12	0.0055	10,427,580	72	0.075	28.95	106.98	0.05
hexane+	C5H14	0.0034	10,427,580	86	0.075	28.95	78.99	0.04
Total ROG emissions from Blowdown and Starter Vent in 2007								**0.83**

Data Sources:

Column C came form a table provided by PG&E for gas tested in Line 400.

Column D Total Annual natural gas from compressor blowdowns and starter vents as reported to CARB in the Oil &Gas Survey conducted for AB 32.

Explanation of Source

Compressor Blowdown - When a compressor is shut down, the compressor casing will be under pressure, commonly about 400 psi. This pressure must be relieved for a variety of reasons, to prevent seal leakage, and because the compressor can not be started under pressure. This results in the venting to atmosphere of about 400 psi. This pressure must be relieved for a variety of reasons, to prevent seal leakage, and primarily because the compressors can not be started under pressure. This results in the venting of about 10,000,000 standard cubic feet of natural gas a year (in 2007, the four existing units at WG were 9,897,593 SCF).

Starter Vent - The starter motors for the compressor engines expand natural gas to provide the power to start the engine.

This gas is vented to the atmosphere. This results in the venting of about 500,000 SCF of natural gas a year (in 2007, the four existing units at WG were 529,987 SCF).

Potential to Emit Emissions for Criteria Pollutants for Plants 4 and 5

		NOx	ROG	CO
Engines (2 each for Plant 4 and 5)				
Annual Fuel Limit (MMBtu/Yr) (1)	305,093			
Permit Requirement (2)				
ppmvd @ 15% O2		9	21	40
g/Bhp-Hr (@ 38% eff.)		0.11	0.90	0.30
Calculated				
lb/MMBtu		0.036	0.029	0.098
Annual Emissions (Tons/Year)		**11.0**	**8.8**	**29.9**
DeHy (2 reboilers and one TO total for Pl 4&5)				
Reboiler				
Annual Fuel Limit (MMBtu/Yr) (3)	19.8			
lb/MMBtu (4)		0.109	0.0006	0.092
Annual Emissions (Tons/Year)		**2.15**	**0.01**	**1.82**
Thermal Oxidizer				
Annual Fuel Limit (MMBtu/Yr) (3)	11.2			
lb/MMBtu (4)		0.1004	0.0223	0.0378
Annual Emissions (Tons/Year)		**1.13**	**0.25**	**0.42**
Total Annual for Plant 4 & 5		**25.25**	**17.96**	**62.04**

Notes:

(1) From permit for Plant 3 ATC: **WGS-09-10-AC** for Plant 3, Compressor A Condition 30
"The total volume of natural gas combusted in the subject internal combustion engine shall not exceed 166.90 MM standard cubic feet (scf) per year based on 914 Btu/scf LHV".

(2) From permit for Plant 3 ATC: **WGS-09-10-AC** for Plant 3, Compressor A Condition 27

(3) Based on the permit for Plant 3 ATC: **WGS-09-12-AC** for Plant 3, DeHy Sytstem

(4) From "Plant 3 WG Lusk .xls"

Wild Goose Phase 3 Gas Storage Expansion
Reconductoring Component
Estimates of Air Quality Emissions and GHGs Emissions

Pounds Per Day[1]							
ROG	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**	**CO2e**
12.01	36.02	112.21	0.13	4.18	12,892	93	14,847

Tons Per Year								
ROG	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**[3,4]	**CO2**[2]	**CH4**[2]	**CO2e**[2]
0.24	0.72	2.24	0.003	0.08	0.08	260	0.02	260

Notes:
1 = Emissions factors applied are from SCAQMD, scenario year 2010 (derived from EMFAC)
2 = GHG are reported in units of metric tons
3 = Emissions of Particulate Matter is based on PM10 emissions rates, except for commute vehicles (which are based on specific PM2.5 emissions factors
4 = Emissions of PM2.5 were only available for commute vehicles; off-road equipment PM10 emissions were used as a proxy for PM2.5

Wild Goose Phase 3 Gas Storage Expansion
Reconductoring Component
Estimates of Air Quality Emissions and GHGs Emissions

Pole and Conductor Installation (includes old pole removal)

Equipment		Horsepower[1]	Max hours/day[2]	Days of Operation	total hours
Quantity	Equipment				
2	crew-cab truck	250	6	40	480
1	line truck with worker-lift attachment	500	8	40	320
1	line truck with auger attachment	500	8	40	320
1	wire reel attached to line truck	500	8	40	320
1	puller attached to line truck	500	8	40	320
1	tensioner attached to line truck	500	8	40	320

Worker Commute					
Quantity	Equipment	Miles/Roundtrip	Days	Daily Vehicle Miles Travelled (VMT)	Total VMT
6	Worker Commute[3]	14	40	84	3360

Notes:
1 = Horsepower assumed based on comparible equipment types
2 = Equipment hours per day assumes 8 hours of daily operation
3 = For worker commute, a round trip distance of 14 miles was used based on maximum travel distance from the town of Gridley

Wild Goose Phase 3 Gas Storage Expansion
Reconductoring Component
Estimates of Air Quality Emissions and GHGs Emissions

		Pounds Per Day						
Daily Operation	**Equip Type**	**ROG**	**CO**	**NOX**	**SOX**	**PM[3]**	**CO2**	**CH4**
12	Crew Cab Truck	1.97	5.16	19.38	0.02	0.69	1998.54	0.18
40	Line Trucks	9.97	30.17	92.75	0.11	3.49	10893.36	0.90
84	Worker Commute	0.08	0.69	0.08	0.001	0.01	0.00	92.04
	TOTAL	**12.01**	**36.02**	**112.21**	**0.13**	**4.18**	**12891.90**	**93.11**

		Tons Per Year							
Yearly Operation	**Equip Type**	**ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5[4]**	**CO2[2]**	**CH4[2]**
480	Crew Cab Truck	0.04	0.10	0.39	0.00	0.01	0.01	39.97	0.003
1600	Line Trucks	0.20	0.60	1.86	0.00	0.07	0.07	217.87	0.02
3360	Worker Commute	0.00	0.01	0.002	0.000	0.000	0.0001	1.67	0.00
	TOTAL	**0.24**	**0.72**	**2.24**	**0.00**	**0.08**	**0.08**	**259.51**	**0.02**

Applied Emissions Factors (EF)[1]

		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
Crew Cab Truck	250	0.1639	0.4301	1.6150	0.0019	0.0574	167	0.0148
Line Truck	500	0.2492	0.7542	2.3188	0.0027	0.0872	272	0.0225

Worker Commute	**ROG**	**CO**	**NOX**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**
Passenger Vehicles	**0.00091399**	**0.00826276**	**0.00091814**	**0.00001077**	**0.00008698**	**0.00005478**	**1.09568235**	**0.00008146**

Notes:
1 = Emissions factors applied are from SCAQMD, scenario year 2010 (derived from EMFAC)
2 = GHG are reported in units of metric tons
3 = Emissions of Particulate Matter is based on PM10 emissions rates
4 = Emissions of PM2.5 were only available for commute vehicles; off-road equipment PM10 emissions were used as a proxy for PM2.5

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WILD GOOSE PHASE 3 GAS STORAGE EXPANSION SUPPLEMENTAL EIR

Summary of Toxic Air Contaminants Analysis

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants suspected or known to cause cancer, birth defects, neurological damage, or other related health issues. 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 depending on the quantity and type of emissions and proximity of potential receptors. Statewide and local programs identify industrial and commercial emitters of TACs and require reduction in these emissions.

Diesel engines emit a complex mix of pollutants, the most visible of which are very small carbon particles, or "soot," known as diesel particulate matter (DPM). California Air Resources Board (CARB) has identified DPM as a TAC (CARB 1998).

The Toxic Air Contaminant Identification and Control Act (AB 1807) created a program to reduce exposure to TACs. AB 1807 defines a "toxic air contaminant" as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health. AB 1807 requires that the CARB prioritize the identification and control of TACs, considering the following criteria:

- The risk of harm to public health,
- The amount or potential amount of emissions,
- Manner of usage of the substance,
- Exposure to the substance,
- Persistence in the atmosphere, and
- Ambient concentrations in the community.

AB 1807 established a two-step process of risk identification and risk management to address the potential health effects from air toxic substances and protect public health. The first step (identification) requires the CARB and the Office of Environmental Health Hazard Assessment (OEHHA) to determine whether a substance should be formally identified TAC.

In the second step (risk management), the CARB reviews the emission sources of an identified TAC and determines whether any regulatory action is necessary to reduce the risk. The analysis includes a review of available technologies, controls that are already in place, the associated costs of reducing emissions, and the associated risk. Public outreach is an important part in the development of a control plan. The risk management step must balance public health protection and economic growth.

The California Air Toxics "Hot Spots" Information and Assessments Act (Hot Spots Act) was passed in 1987. The Hot Spots Act established an air toxics inventory and a risk quantification program for substances that cause chronic and acute health effects. The Hot Spots program is administered by the local air districts in California.

A facility is subject to the Hot Spots 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; or
- 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 are required to do the following:

- Facilities must report emissions from a list of 600 toxic substances.
- If an Air Quality Management District (AQMD) determines that a health risk assessment (HRA) must be conducted, the facility must conduct the HRA according to methods developed by the OEHHA.
- 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 six months of the determination.
- Facilities that are subject to the Hot Spots Act must prepare an air toxics emission inventory, plans, and emission inventory reports. Facilities must submit a proposed emission inventory plan to the local air district showing how emissions will be measured or calculated. The local air district must approve, modify, or return the inventory plan to the operator for revisions within 120 days.

Once it is approved, the facility operator must implement the plan and submit an emission inventory within 180 days. Emission inventories must be updated every four years. After reviewing an emission inventory, the air district will rank a facility as high, intermediate, or low priority. High priority facilities must prepare an HRA and notify the surrounding community of its emissions if the risk assessment shows that the emissions are a significant risk. If the facility poses a significant risk, it must prepare an emissions reduction plan that will reduce the risk below the significant risk level within five years. Low and medium priority facilities must prepare an emissions inventory update every four years or prepare a risk assessment that shows the facility does not pose a significant risk. A facility's rank may change if the annual inventory shows any significant changes.

In ranking a facility, the air district considers potency, toxicity, quantity, the volume of hazardous materials released, and a facility's proximity to potential receptors. Within 150 days of being designated as a high priority facility, a facility must prepare and submit an HRA. The HRA must include:

- A comprehensive dispersion analysis of the hazardous substances,
- The potential for human exposure, and
- A quantitative assessment of both individual and population-wide health risks using OEHHA's Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.

After the HRA is reviewed by the OEHHA and approved by the AQMD, the facility must notify everyone listed in the risk assessment as an exposed person, if it has been determined that there is a potentially significant health risk.

According to the Butte County AQMD (BCAQMD) California Environmental Quality Act (CEQA) guide, when evaluating potential impacts related to TACs, lead agencies should consider whether a new or modified source of TACs is proposed for a location near a sensitive receptor. Facilities and equipment that require permits from the BCAQMD are screened for risks from toxic emissions and are required to install Toxic Best Available Control Technology to reduce the risks to below significant.

The applicant has prepared a plan in accordance with the Hot Spots program (finding a less than significant impact, with all risks below the applicable thresholds) and submitted it to the BCAQMD. This plan is still under review so it is unclear what, if any, issues may be raised by the BCAQMD. However, through the local permit to operate process, the applicant would be required to adhere to any additional restrictions placed on it by the BCAQMD, regardless of the results, once the BCAQMD completes its review of the plan.

The BCAQMD also suggested that prioritization scores be determined for the facility, and accordingly, a Level 1 TAC air quality (screening) analysis was performed.

Level I TAC Air Quality Analysis

A Level 1 analysis using the California Air Pollution Control Officers Association (CAPCOA) prioritization methodology (CAPCOA 2009) was performed for the new Plants 4 and 5 alone, and for the existing and new plants together (Plants 1, 2, 3, 4, and 5). Table 1 shows emissions for TACs for Plants 4 and 5. Table 2 shows emissions for the existing plants and the new plants. Emissions are associated with operation of the compressors, dehydration and regeneration, blowdown, fugitives, the methanol (MeOH) tank, and the produced water (PW) tank. The Level 1 analysis is based on the quantity of emissions, proximity to receptor, and release height of the source. The resulting prioritization score indicates whether any further analysis is required. The nearest residential structures or offsite worksites represent the receptors used as inputs. Emissions are expected “worst case” emissions. Worst case cancer risk is based on exposure for a period of 70 years. Worst case for acute adverse health effects is based on the highest hourly emissions. Worst case for chronic adverse health effects is based on the annual average emissions.

TABLE 1 TAC Emissions for Plants 4 and 5

Substance	Annual Emissions (lb/yr)						
	Compressors	Dehydration & Regeneration	Blow-down	Fugitives	MeOH Tank	PW Tank	TOTAL
1,3-Butadiene	55.52						55.52
Acetaldehyde	5.76						5.76
Acrolein	5.76						5.76
Anthracene	0.02						0.02
Benzene	31.14	0.51	1.61	0.26		32.24	65.76
Benzo(a)pyrene	0.00						0.00
Benzo(b)fluoranthene	0.01						0.01
Benzo(k)fluoranthene	0.00						0.00
Chrysene	0.00						0.00
Dibenz(a,h)anthracene	0.00						0.00
Ethylbenzene	10.28	0.05	0.27	0.04		5.48	16.13
Formaldehyde	53.61						53.61
Naphthalene	3.44						3.44
Propylene	624.21						624.21
Toluene	38.04	0.26	0.95	0.15		19.01	58.41
Xylene (total)	100.61	0.06	0.27	0.04		5.48	106.46
Ammonia	17333.00						17333.00
Methanol			30.64		13.07		43.71
Hydrogen sulfide			0.02				0.02
Carbonyl sulfide			0.28				0.28
Hexane			48.97				48.97
Cyclohexane			8.70				8.70

Key:
MeOh = methanol
PW = produced water

TABLE 2 TAC Emissions for Plants 1, 2, 3, 4, and 5

Substance	Annual Emissions (lb/yr)						
	Compressors	Dehydration & Regeneration	Blow-down	Fugitives	MeOH Tank	PW Tank	TOTAL
1,3-Butadiene	146.54						146.54
Acetaldehyde	15.20						15.20
Acrolein	15.20						15.20
Anthracene	0.04						0.04
Benzene	82.19	1.27	4.04	0.65		10.77	98.91
Benzo(a)pyrene	0.001						0.001
Benzo(b)fluoranthene	0.01						0.01
Benzo(k)fluoranthene	0.003						0.003
Chrysene	0.01						0.01
Dibenz(a,h)anthracene	0.00						0.001
Ethylbenzene	27.14	0.13	0.69	0.11		13.69	41.76
Formaldehyde	141.50						141.50
Naphthalene	9.07						9.07
Propylene	1647.66						1647.66
Toluene	100.41	0.64	2.38	0.38		47.53	151.35
Xylene (total)	265.56	0.14	0.69	0.11		13.69	280.19
Ammonia	34667.00						34,667
Methanol			76.61		13.07		89.68
Hydrogen sulfide			0.04				0.04
Carbonyl sulfide			0.70				0.70
Hexane			122.42				122.42
Cyclohexane			21.74				21.74

Key:
MeOh = methanol
PW = produced water

Hourly and annual emission rates and prioritization scores for Plants 4 and 5 are shown in Table 3. Hourly and annual emission rates and prioritization scores for Plants 1, 2, 3, 4, and 5 are shown in Table 4. Prioritization scores for carcinogens are obtained by multiplying the cancer potency factor (unit risk) by the facility-wide hourly emissions (lb/hr), and then multiplying the resultant total emissions by the receptor adjustment factor and the normalization factor (1,700). Prioritization scores for acute non-carcinogens are obtained by dividing the hourly emission rate by the acceptable exposure level, and then multiplying the resultant total emissions by the receptor adjustment factor and the acute normalization factor (1,500). Prioritization scores for chronic non-carcinogens are obtained by dividing the annual average hourly emission rate by the acceptable exposure level and then multiplying total emissions by the receptor adjustment factor and the chronic normalization factor (150). The prioritization scores for Plants 4 and 5 are below the thresholds, as shown in Table 3. As shown in Table 4, prioritization scores for the new and existing plants are below the thresholds for acute and chronic non-carcinogenic effects, but above the threshold for carcinogenic effects. Therefore, a Level II analysis was performed to further define the potential carcinogenic effects from the operation of all five plants.

TABLE 3 Prioritization Scores for Plants 4 and 5

Substance	Applicant's Degree of Accuracy	Toxics Potency Factors			Prioritization Scores		
		Cancer Potency Value $(\mu g/m^3)^{-1}$	Acute REL $(\mu g/m^3)$	Chronic REL $(\mu g/m^3)$	Carcinogen	Acute Non-Carcinogen	Chronic Non-Carcinogen
1,3-Butadiene	0.1	1.7E-04		20	9.44E-03		3.17E-04
Acetaldehyde	20	2.7E-06	470	140	1.55E-05	1.94E-06	4.69E-06
Acrolein	0.05		2.5	0.35		3.64E-04	1.88E-03
Anthracene	50						
Benzene	2	2.9E-05	1,300	60	1.91E-03	1.13E-04	1.25E-04
Benzo(a)pyrene	0.05	1.1E-03			4.07E-07		
Benzo(b)fluoranthene	0.5	1.1E-04			5.64E-07		
Benzo(k)fluoranthene	0.5	1.1E-04			1.38E-07		
Chrysene	5	1.1E-05			2.55E-08		
Dibenz(a,h)anthracene	0.1	1.2E-03			4.44E-07		
Ethylbenzene	200			2,000			9.21E-07
Formaldehyde	5	6.0E-06	55	9	3.22E-04	1.54E-04	6.80E-04
Naphthalene	50	3.4E-05		9	1.17E-04		4.36E-05
Propylene	200			3,000			2.38E-05
Toluene	200		37,000	300		1.95E-06	2.22E-05
Xylene (total)	200		22,000	700		1.82E-06	1.74E-05
Ammonia	200		3,200	200		8.11E-04	9.89E-03
Methanol	200		28,000	4,000		8.23E-05	1.25E-06
Hydrogen sulfide	5		42	10		2.91E-05	2.01E-07
Carbonyl sulfide	100						
Hexane	200			7,000			7.99E-07
Cyclohexane	200						
	Sum				0.012	0.002	0.013
	Normalization Factor				1,700	1,500	150
	Receptor Proximity (RP) Adjustment Factor				0.003	0.04	0.003
	Prioritization Score				0.0602	0.0935	0.0059
	Significance Threshold				0.1	1.0	1.0
	Significant Toxics Risk				No	No	No

Key:
REL = Reference Exposure Level
$\mu g/m^3$ = micrograms per cubic meter

TABLE 4 Prioritization Scores for Plants 1, 2, 3, 4, and 5

Substance	Applicant's Degree of Accuracy	Toxics Potency Factors			Prioritization Scores		
		Cancer Potency Value ($\mu g/m^3)^{-1}$	Acute REL ($\mu g/m^3$)	Chronic REL ($\mu g/m^3$)	Carcinogen	Acute Non-Carcinogen	Chronic Non-Carcinogen
1,3-Butadiene	0.1	1.7E-04		20	2.49E-02		8.36E-04
Acetaldehyde	20	2.7E-06	470	140	4.10E-05	4.84E-06	1.24E-05
Acrolein	0.05		2.5	0.35		9.10E-04	4.96E-03
Anthracene	50						
Benzene	2	2.9E-05	1,300	60	2.87E-03	2.33E-04	1.88E-04
Benzo(a)pyrene	0.05	1.1E-03			1.07E-06		
Benzo(b)fluoranthene	0.5	1.1E-04			1.49E-06		
Benzo(k)fluoranthene	0.5	1.1E-04			3.64E-07		
Chrysene	5	1.1E-05			6.74E-08		
Dibenz(a,h)anthracene	0.1	1.2E-03			1.17E-06		
Ethylbenzene	200			2,000			2.38E-06
Formaldehyde	5	6.0E-06	55	9	8.49E-04	3.85E-04	1.79E-03
Naphthalene	50	3.4E-05		9	3.08E-04		1.15E-04
Propylene	200			3,000			6.27E-05
Toluene	200		37,000	300		4.88E-06	5.76E-05
Xylene (total)	200		22,000	700		4.54E-06	4.57E-05
Ammonia	200		3,200	200		1.62E-03	1.98E-02
Methanol	200		28,000	4,000		1.61E-05	2.56E-06
Hydrogen sulfide	5		42	10		7.27E-05	5.02E-07
Carbonyl sulfide	100						
Hexane	200			7,000			2.00E-06
Cyclohexane	200						
	Sum				0.03	0.003	0.03
	Normalization Factor				1,700	1,500	150
	Receptor Proximity (RP) Adjustment Factor				0.003	0.04	0.003
	Prioritization Score				0.1478	0.1951	0.0125
	Significance Threshold				0.10	1.00	1.00
	Significant Toxics Risk				Potential	No	No

Key:
REL = Reference Exposure Level
$\mu g/m^3$ = micrograms per cubic meter

Screening Health Risk Assessment

An HRA was performed with the SCREEN3 model for carcinogenic risk for Plants 1, 2, 3, 4, and 5, since there is a potential of exceeding the significance threshold. The SCREEN3 model is an EPA-approved model recommended by CAPCOA when prioritization scores exceed the significance threshold. SCREEN3 uses source parameters (stack temperature, exit velocity, exit temperature stack height, stack diameter, and emission rate) to determine impacts at nearby receptors. The nearest residence (1,500 meters from source) was used for the carcinogenic analysis and chronic health hazard analysis. The scenario for acute (1-hour) exposures is for a worker in the nearby field at an average distance of 400 meters. Individual sources were modeled as point sources. Fugitive emissions were modeled as an area

source, 60 meters on a side. Unitized impacts for point sources (micrograms per cubic meter per grams per second) and the area source (micrograms per cubic meter per grams per second per square meter) are shown in Table 5. Impacts for individual pollutants are found by multiplying the unitized impact by the individual pollutant emission rate. A scaling factor of 0.1 was used to convert maximum hourly concentrations to maximum annual concentrations. The cancer risk estimates are based on the maximum predicted downwind concentration of TACs emitted by all sources and conservatively assume that all emission sources are co-located. The results of the SCREEN3 health risk assessment are shown in Table 6.

Appendix D contains additional details on the calculation of health risks using the SCREEN3 model. The HRA accounts for the inhalation health risks associated with fugitive emissions, the compressors, reboilers, and oxidizer that would be used to control emissions from the glycol dehydrator. The combined cancer risk of all pollutants is less than 1 X 10^{-6}. This cancer risk represents a worst case using the extremely conservative SCREEN3 model.

TABLE 5 Unitized Impacts for Plants 1, 2, 3, 4, and 5

	Emission Sources				
	Compressors ($\mu g/m^3$)/g/s	**DeHydration ($\mu g/m^3$)/g/s**	**Blowdown ($\mu g/m^3$)/g/s**	**Fugitives ($\mu g/m^3$)/g/s-m^2**	**Produced Water ($\mu g/m^3$)/g/s**
Dispersion to Residential Receptor	7.008	156.3	68.06	338.9	353.5
Dispersion to Non-Residential Receptor	12.22	404.6	163.7	1,941.7	2,737

Key:
($\mu g/m^3$)/g/s = micrograms per cubic meter per gram per second
($\mu g/m^3$)/g/s-m^2 = micrograms per cubic meter per gram per second per meter squared

TABLE 6 Risk Screening Analysis for Plants 1, 2, 3, 4, and 5

	Cancer Potency Value	**Emission Rate**					**Residential Receptor**	**Non-Residential Receptor**
	(ug/m^3)$^{-1}$	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**	**(lb/yr)**	**(Risk)**	**(Risk)**
Substance								
1,3-Butadiene	1.7E-04	146.54					2.51E-07	1.00E-07
Acetaldehyde	2.7E-06	15.20					4.14E-10	1.65E-10
Benzene	2.9E-05	82.19	1.27	4.04	0.65	10.77	2.12E-07	3.14E-07
Benzo(a)pyrene	1.1E-03	0.001					1.08E-11	4.32E-12
Benzo(b)fluoranthene	1.1E-04	0.01					1.50E-11	5.98E-12
Benzo(k)fluoranthene	1.1E-04	0.003					3.67E-12	1.46E-12
Chrysene	1.1E-05	0.01					6.80E-13	2.71E-13
Dibenz(a,h)anthracene	1.2E-03	0.00					1.18E-11	4.71E-12
Formaldehyde	6.0E-06	141.50					8.57E-09	3.41E-09
Naphthalene	3.4E-05	9.07					3.11E-09	1.24E-09
						Sum	4.75E-07	4.19E-07
						Significance Threshold	1.0E-06	1.0E-06
						Significant Toxics Risk?	No	No

Key:
lb/yr = pounds per year
(ug/m^3)$^{-1}$ = micrograms per cubic meter times 1/10

References

California Air Pollution Control Officers Association (CAPCOA). 2009. Health Risk Assessments for Proposed Land Use Projects. CAPCOA Guidance Document. Prepared by CAPCOA Planning Managers. July.

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TACs Analysis Backup Calculations and Model Outputs

Introduction

This document includes the calculations of the Prioritization Score, Health Risk, and determines the "Significance"-level of Toxic Air Contaminants.
This document calculates the Potential to Emit of emissions from Plants 1,2,3,4,&5.
Other similar documents will make similar calculations based on:
-- The Potential to Emit of proposed Plants 4 & 5.

Of the two required analyses listed above, this document which calculates Potential to Emit from Plants 1,2,3,4 & 5 will represent the greatest calculated health risk value, and the greatest Prioritization Score. The results of this spreadsheet (see Tables 9 and 10) indicate that all health risks are less than significant. The analysis of the Plant 4&5 scenario is, therefore, expected to also demonstrate less-than-significant health risks.

This document includes the following tabs:
Table 1 - Compressor Engine emissions.
Table 2 - DeHy emissions
Table 3 - Blowdown emissions
Table 4 - Fugitive emissions
Table 5 - Methanol Tank emissions
Table 6 - Produced Water Tank emissions
Table 7 - Total Hourly Emissions
Table 8 - Total Annual Emissions
Table 9 - Prioritization Score and Significance Level.
Table 10 - Calculation of Risk and Determination of Significance Level

Table 1 - Engine emissions are calculated with the use of emission factors specified for the engines (expressed in units of "pounds of contaminant per million standard cubic foot of natural gas consumed". The Butte County AQMD air permits for the engines limit the volume of gas consumed per year, which is the basis of the Potential-to-Emit calculation. The hourly gas consumed is based on the 100% load specification for the engines..
Table 2 - DeHy emissions (from the flash tank and from the afterburner) are estimated for the existing Plants 1 and 2 operation. These are calculated with the use of the Gas Research Institute's GRI-GLY model. After the emissions from Plant 1 and 2 were calculated, emissions from Plants 3, 4 and 5 were calculated by proportion. This proportional calculation approach is used in all subsequent emission source calculations.
Table 3 - Blowdown emissions were calculated based on blowdown frequency and volume data in Plants 1 and 2.
Table 4 - Fugitive emissions were quantified by counting the number of components in and using the Tier 3-Plus methodology outlined in INGAA's GHG Emission Estimation Guidelines. Analysis of the natural gas was used to calculate the mass of each chemical species.
Table 5 - Emissions from the methanol tank were estimated with the use of EPA's TANKS model.
Table 6 - Emissions from the Produced Water tanks were estimated with the use of EPA's TANKs model.
Tables 7 and 8 use the data calculated in Tables 1 through 6.
Table 9 calculates the Prioritization Score according to methodology outlined in the CA Air Pollution Control Officers Association's "Air Toxics Hot Spots Facility Prioritization Guidelines". This includes the calculation of three scores - one for carcinogenic compounds, a second for contaminants that cause health effects due to long-term, chronic exposures, and a third score for contaminants that cause health effects due to short-term, or acute exposures.

In Tables 9 and 10, the major contributors to the Prioritization Score and to Risk are indicated in bold. These major contributors are 1,3, butadiene for carcinogenic exposures and ammonia for chronic and acute exposures. These major emission contributions are from the compressors.
In Table 9, the calculation of Prioritization score use a "Proximity Factor", which recognizes that the nearest receptors are 1500 meters from the emission source for concerns with long-term (annual) exposures. For short-term (one hour) exposures, the nearest receptor is 400 meters from the source. This table indicates that less-than-significant risk results due to both chronic and acute toxic substances. The prioritization score approach did not conclude that arcinogenic health risk was less than significant. Therefore, a screening level risk assessment was used (Table 10).
Table 10 presents the calculation of health risks due to carcinogenic toxic substances. Exposures were determined with the use of the SCREEN3 dispersion model. Results indicate that carcinogenic health risk are less-than-significant.

Table 1 Potential to Emit - Plants 1,2,3,4&5

Calculation of Compressor Engine Emissions

			Emission Rate (lb/hour)						Emission Rate (lb/yr)					
			Plant 1	Plant 2	Plant 3	Plant 4	Plant 5	Total	Plant 1	Plant 2	Plant 3	Plant 4	Plant 5	Total
	Emission Factor	Control Efficiency	0.0528 MMcf/hr	0.0528 MMcf/hr	0.0528 MMcf/hr	0.0528 MMcf/hr	0.0528 MMcf/hr		299 MMcf/yr	462 MMcf/yr	334 MMcf/yr	334 MMcf/yr	334 MMcf/yr	
SUBSTANCE	(lbs/MMcf)	(%)												
1,3-Butadiene	3.78E-01	78	4.39E-03	4.39E-03	4.39E-03	4.39E-03	4.39E-03	**2.19E-02**	2.48E+01	3.84E+01	2.78E+01	2.78E+01	2.78E+01	**1.47E+02**
Acetaldehyde	3.92E-02	78	4.55E-04	4.55E-04	4.55E-04	4.55E-04	4.55E-04	**2.27E-03**	2.57E+00	3.99E+00	2.88E+00	2.88E+00	2.88E+00	**1.52E+01**
Acrolein	3.92E-02	78	4.55E-04	4.55E-04	4.55E-04	4.55E-04	4.55E-04	**2.27E-03**	2.57E+00	3.99E+00	2.88E+00	2.88E+00	2.88E+00	**1.52E+01**
Anthracene	1.13E-04	78	1.31E-06	1.31E-06	1.31E-06	1.31E-06	1.31E-06	**6.56E-06**	7.42E-03	1.15E-02	8.30E-03	8.30E-03	8.30E-03	**4.38E-02**
Benzene	2.12E-01	78	2.46E-03	2.46E-03	2.46E-03	2.46E-03	2.46E-03	**1.23E-02**	1.39E+01	2.16E+01	1.56E+01	1.56E+01	1.56E+01	**8.22E+01**
Benzo(a)pyrene	2.52E-06	78	2.92E-08	2.92E-08	2.92E-08	2.92E-08	2.92E-08	**1.46E-07**	1.65E-04	2.56E-04	1.85E-04	1.85E-04	1.85E-04	**9.77E-04**
Benzo(b)fluoranthene	3.49E-05	78	4.05E-07	4.05E-07	4.05E-07	4.05E-07	4.05E-07	**2.03E-06**	2.29E-03	3.55E-03	2.56E-03	2.56E-03	2.56E-03	**1.35E-02**
Benzo(k)fluoranthene	8.54E-06	78	9.91E-08	9.91E-08	9.91E-08	9.91E-08	9.91E-08	**4.96E-07**	5.61E-04	8.69E-04	6.27E-04	6.27E-04	6.27E-04	**3.31E-03**
Chrysene	1.58E-05	78	1.83E-07	1.83E-07	1.83E-07	1.83E-07	1.83E-07	**9.17E-07**	1.04E-03	1.61E-03	1.16E-03	1.16E-03	1.16E-03	**6.13E-03**
Dibenz(a,h)anthracene	2.52E-06	78	2.92E-08	2.92E-08	2.92E-08	2.92E-08	2.92E-08	**1.46E-07**	1.65E-04	2.56E-04	1.85E-04	1.85E-04	1.85E-04	**9.77E-04**
Ethylbenzene	7.00E-02	78	8.12E-04	8.12E-04	8.12E-04	8.12E-04	8.12E-04	**4.06E-03**	4.60E+00	7.12E+00	5.14E+00	5.14E+00	5.14E+00	**2.71E+01**
Formaldehyde	3.65E-01	78	4.24E-03	4.24E-03	4.24E-03	4.24E-03	4.24E-03	**2.12E-02**	2.40E+01	3.71E+01	2.68E+01	2.68E+01	2.68E+01	**1.42E+02**
Naphthalene	2.34E-02	78	2.72E-04	2.72E-04	2.72E-04	2.72E-04	2.72E-04	**1.36E-03**	1.54E+00	2.38E+00	1.72E+00	1.72E+00	1.72E+00	**9.07E+00**
Propylene	4.25E+00	78	4.93E-02	4.93E-02	4.93E-02	4.93E-02	4.93E-02	**2.47E-01**	2.79E+02	4.32E+02	3.12E+02	3.12E+02	3.12E+02	**1.65E+03**
Toluene	2.59E-01	78	3.01E-03	3.01E-03	3.01E-03	3.01E-03	3.01E-03	**1.50E-02**	1.70E+01	2.63E+01	1.90E+01	1.90E+01	1.90E+01	**1.00E+02**
Xylene (Total)	6.85E-01	78	7.95E-03	7.95E-03	7.95E-03	7.95E-03	7.95E-03	**3.97E-02**	4.50E+01	6.97E+01	5.03E+01	5.03E+01	5.03E+01	**2.66E+02**

Ammonia:

Compressor	SCR	Limit	Ex Flow	NH3 Flow	NH3 Flow	NH3 Flow
	-Y/N-	(ppm)	(SCFM)	SCFM	(lb/Hr)	(lb/yr)
P1A	N	None	22,605			
P1B	N	None	22,605			
P2A	Y	10	24,107	0.24107	0.65	4,333
P2B	Y	10	24,107	0.24107	0.65	4,333
Plant 3	Y	10	48,214	0.48214	1.30	8,667
Plant 4	Y	10	48,214	0.48214	1.30	8,667
Plant 5	Y	10	48,214	0.48214	1.30	8,667
Total (lb/Hr)					**5.19**	**34,667**

Potential-to-Emit is based on Butte County AQMD permit conditions that limit annual natural gas usage.
The efficiency of the oxidation catalyst units were guaranteed by the supplier to be 90 percent efficient at reducing VOC emissions. Testing of the Plant 1B engine emissions in early 2007 indicated that emissions after installation of the system were reduced by 78 percent compared with testing prior to installation.

Hourly Potential-to-Emit is based on 100 percent load specifications for the engines.

Emission factors are from the CA Air Resources Board's California Air Toxics Emission Factors (CATEF) database.

The Potential-to-Emit ammonia is based on air permit conditions that limit emissions to 10 ppm.

Hourly ammonia flow is based on all engines operating at capacity for one hour.

Annual ammonia emissions are based on permit condition limits that effectively limit operating hours.

Table 2
Potential to Emit - Plants 1,2,3,4&5
Calculation of DeHy emissions

The following calculates the emissions from operation of Plants 1 & 2.
Input to GRI-Gly-calc Model

	Concentration, by volume	
	PPM	**%**
Carbon Dioxide		0.44
Hydrogen Sulfide		
Nitrogen		1.02
Methane		96.6
Ethane		1.78
Propane		0.091
Isobutane		0.012
n-butane		0.013
Isopentane		0.0052
N-Pentane		0.0034
Cyclopentane	2	0.0002
n-Hexane		
Cyclohexane		
Other Hexanes	22	0.0022
Heptane	14	0.0014
Methyl cyclohexane	2.8	0.00028
2,2,4-trimethylpentane		
C8+		0.0052
Benzene	0.8	0.00008
Toluene	0.4	0.00004
Ethylbenzene	0.1	0.00001
Xylenes	0.1	0.00001
Total, dry gas		**99.97402**

Gas Produced	18.49	Bcf/year	
Gas Produced	18,490	MMcf/year	
Operation-Regen A	2,268	hours/year	
Operation-Regen B	2,671	hours/year	
Average Operation	2,470	hours/year	This is equivalent to both Regens running.
Average Operation	102.9	days/year	
Modeled operation	179.70	MMcf/day	Note: Maximum value input to model is 2000 MMcf/day.
Water produced	2,653,297	Gal/yr	
Density of Water	8.3	lb/gal	
Water produced	22,022,365	lb/yr	
Water content removed	1191.04192	lb H20/MMcf	Note: Minimum value input to model is 0.01 lb H20/MMcf.

Output from GRI-Gly-calc Model

Regenerator Afterburner Stack

Temperature				
Flow Rate				
Benzene	1.85E-04	lb/hr	0.456858	lb/yr
Toluene	9.35E-05	lb/hr	0.230898	lb/yr
Ethylbenzene	1.96E-05	lb/hr	0.048402	lb/yr
Xylene	2.12E-05	lb/hr	0.052353	lb/yr

Flash Gas Emissions

Temperature				
Flow Rate		SCFH		
Benzene	2.00E-05	lb/hr	0.04939	lb/yr
Toluene	1.05E-05	lb/hr	0.02593	lb/yr
Ethylbenzene	2.13E-06	lb/hr	0.00526	lb/yr
Xylene	1.96E-06	lb/hr	0.00484	lb/yr

Flash Gas Emissions from Each Regenerator (half of total Flash Gas Emissions

Temperature				
Flow Rate		SCFH		
Benzene	1.00E-05	lb/hr	0.024695	lb/yr
Toluene	5.25E-06	lb/hr	0.012965	lb/yr
Ethylbenzene	1.07E-06	lb/hr	0.00263	lb/yr
Xylene	9.80E-07	lb/hr	0.00242	lb/yr

Regenerator and Flash Gas - total of Plants 1 and 2

Benzene	2.05E-04	lb/hr	5.06E-01	lb/yr
Toluene	1.04E-04	lb/hr	2.57E-01	lb/yr
Ethylbenzene	2.17E-05	lb/hr	5.37E-02	lb/yr
Xylene	2.32E-05	lb/hr	5.72E-02	lb/yr

The following calculates emissions from other plants, by proporation:

Regenerator and Flash Gas - Plant 3

Benzene	1.03E-04	lb/hr	2.53E-01	lb/yr
Toluene	5.20E-05	lb/hr	1.28E-01	lb/yr
Ethylbenzene	1.09E-05	lb/hr	2.68E-02	lb/yr
Xylene	1.16E-05	lb/hr	2.86E-02	lb/yr

Regenerator and Flash Gas - total of Plants 4 and 5

Benzene	2.05E-04	lb/hr	5.06E-01	lb/yr
Toluene	1.04E-04	lb/hr	2.57E-01	lb/yr
Ethylbenzene	2.17E-05	lb/hr	5.37E-02	lb/yr
Xylene	2.32E-05	lb/hr	5.72E-02	lb/yr

Regenerator and Flash Gas - total of Plants 1, 2, 3, 4&5

Benzene	5.13E-04	lb/hr	1.27E+00	lb/yr
Toluene	2.60E-04	lb/hr	6.42E-01	lb/yr
Ethylbenzene	5.43E-05	lb/hr	1.34E-01	lb/yr
Xylene	5.79E-05	lb/hr	1.43E-01	lb/yr

Table 3 Potential to Emit, Plants 1,2,3,4,&5
Calculation of Blowdown Emissions

The following are calculations for Plants 1&2. Calculations for the other plants are at the end of this sheet.

TACs	Concentration, by volume			MW
	PPM	Percent		
Hydrogen Sulfide	0.02	0.000002		34
Carbonyl sulfide	0.24	0.000024		45
Methanol	37	0.0037		32
Cyclohexane	4	0.0004		84
Hexanes	22	0.0022		86
Benzene	0.8	0.00008		78
Toluene	0.4	0.00004	Less than	92
Ethylbenzene	0.1	0.00001	Less than	106
Xylenes	0.1	0.00001	Less than	106

Blowdown Volumes		Plant 1	Plant 2
Annual	MMcu ft/yr	3.51	6.48
Max Hourly	MMcu ft/hr	0.249632	0.443286

Annual

Hydrogen Sulfide	MMcu ft/yr	7.02E-08	1.296E-07
Carbonyl sulfide	MMcu ft/yr	8.424E-07	1.5552E-06
Methanol	MMcu ft/yr	0.00012987	0.00023976
Cyclohexane	MMcu ft/yr	0.00001404	0.00002592
Hexanes	MMcu ft/yr	0.00007722	0.00014256
Benzene	MMcu ft/yr	0.000002808	0.000005184
Toluene	MMcu ft/yr	0.000001404	0.000002592
Ethylbenzene	MMcu ft/yr	0.000000351	0.000000648
Xylenes	MMcu ft/yr	0.000000351	0.000000648

Hydrogen Sulfide	lb/yr	0.00618342	0.011415544
Carbonyl sulfide	lb/yr	0.098207254	0.181305699
Methanol	lb/yr	10.76642487	19.87647668
Cyclohexane	lb/yr	3.055336788	5.640621762
Hexanes	lb/yr	17.20445596	31.76207254
Benzene	lb/yr	0.567419689	1.047544041
Toluene	lb/yr	0.334632124	0.617782383
Ethylbenzene	lb/yr	0.096388601	0.177948187
Xylenes	lb/yr	0.096388601	0.177948187

Hourly

Hydrogen Sulfide	MMcu ft/hr	4.99264E-09	8.86572E-09
Carbonyl sulfide	MMcu ft/hr	5.99117E-08	1.06389E-07
Methanol	MMcu ft/hr	9.23638E-06	1.64016E-05
Cyclohexane	MMcu ft/hr	9.98528E-07	1.77314E-06
Hexanes	MMcu ft/hr	5.4919E-06	9.75229E-06
Benzene	MMcu ft/hr	1.99706E-07	3.54629E-07
Toluene	MMcu ft/hr	9.98528E-08	1.77314E-07
Ethylbenzene	MMcu ft/hr	2.49632E-08	4.43286E-08

Xylenes	MMcu ft/hr	2.49632E-08	4.43286E-08

Hydrogen Sulfide	lb/hr	0.000439766	0.000780918
Carbonyl sulfide	lb/hr	0.006984522	0.012402821
Methanol	lb/hr	0.765710591	1.359716642
Cyclohexane	lb/hr	0.217296249	0.385865534
Hexanes	lb/hr	1.223584829	2.172790446
Benzene	lb/hr	0.040355018	0.071660742
Toluene	lb/hr	0.023799113	0.042261463
Ethylbenzene	lb/hr	0.006855179	0.012173139
Xylenes	lb/hr	0.006855179	0.012173139

Following are calculated by proportion:

Plant 3	Plants 4&5	Total
0.008799482	0.017598964	0.043997409
0.139756477	0.279512953	0.698782383
15.32145078	30.64290155	76.60725389
4.347979275	8.695958549	21.73989637
24.48326425	48.9665285	122.4163212
0.807481865	1.614963731	**4.037409326**
0.476207254	0.952414508	2.381036269
0.137168394	0.274336788	0.685841969
0.137168394	0.274336788	0.685841969

0.000610342	0.001220685	0.003051711
0.009693672	0.019387343	0.048468358
1.062713617	2.125427233	5.313568083
0.301580891	0.603161782	1.507904456
1.698187637	3.396375275	8.490938187
0.05600788	0.11201576	0.280039399
0.033030288	0.066060576	0.16515144
0.009514159	0.019028318	0.047570795
0.009514159	0.019028318	0.047570795

Table 4 Potential to Emit - Plants 1,2,3,4&5

Calculation of Fugitives Emissions

Based on "Greenhouse Gas Emission Estimation Guidelines for Natural Gas Transmission and Storage - Volume 1- GHG Emission estimation Methodologies and Procedures", Interstate Natural Gas Association of America (INGAA), September 2005.

Niska uses a Screening Value of 4,000 ppm of methane

The following table is based on Equation 4-2 and Table 4-8.

Plants 1 and 2			log (SV)	B0+B1*log(SV)	Emission Rate (kg/h/source)
Source	**B0**	**B1**	**4000**	**4000**	**4,000**
Connector	-5.9147	0.75	3.602059991	-3.213155007	**0.0006121**
Valves	-6.0399	0.83	3.602059991	-3.050190207	**0.0008909**
Open-ended lines	-6.9586	1.28	3.602059991	-2.347963211	**0.0044878**
Pressure relief device	-5.1479	0.91	3.602059991	-1.870025408	**0.0134888**
Pressure regulators	-6.4821	0.91	3.602059991	-3.204225408	**0.0006248**

The following table is the Component Count and calculation of emission rates.

			Leak Rate	Total	
Component	**Count**	**Component (Table 4-8)**	**kg/hr/component**	**kg/hr**	**Rationale for Selected Component Category**
Equipment and Piping flanges and connectors	2000	Connector	0.000612	1.2243	
Sight glass	12	Connector	0.000612	0.0073	
Sample connections	20	Connector	0.000612	0.0122	
Unions	600	Connector	0.000612	0.3673	
Block Valves	566	Valves	0.000891	0.5042	
Control Valves	100	Valves	0.000891	0.0891	
Diaphragm presure regulators	150	Valves	0.000891	0.1336	See Footnote A.
Drains	6	Valves	0.000891	0.0053	See Footnote B.
Atmospheric organic liquid storage tank hatches	6	Open ended lines	0.004488	0.0269	See Footnote C.
Open ended lines	0	Open ended lines	0.004488	0.0000	
Instrument Seals and Packing	130	Pressure regulators	0.000625	0.0812	See Footnote F.
Pump seals	966	Pressure regulators	0.000625	0.6036	See Footnote F.
Compressor seals	24	Pressure regulators	0.000625	0.0150	See Footnote F.
Pressure Relief Valves to Atm.	98	Pressure Relief Device	0.013489	1.3219	See Footnote D.
Pressure Relief Vents	137	Pressure Relief Device	0.013489	1.8480	See Footnote E.
Underground pipelines (resulting from corrosion, faulty connection, etc)	0	(Not applicable)	(Not applicable)	0.0000	
Total				**6.2401**	**kg/hr - NG**
				13.7281	lb/hr - NG
				8,760	hours/yr
				120,258	lb/yr - NG

A - The industry sometimes uses natural gas-powered motors to actuate pressure regulators. Niska uses compressed air. The structure of this device is similar to a valve.

B- Drains at Niska are liquid seal drains. This device is most similar to a valve.

C- Tank hatches are similar to open ended lines.

D- Pressure relief valves that open to the atmosphere are a type of pressure relief device.

E- Pressure relief vents (Pressure system vents-PSVs) are a type of pressure relief device.

F- Like a pressure regulator, these devices include a stem in a packing gland.

	Concentration, by volume		TAC ?	Molecular Weight		
	PPM	%			lb/hr	lb/yr
Carbon Dioxide		0.44	No			
Hydrogen Sulfide			No			
Nitrogen		1.02	No			
Methane		96.6	No			
Ethane		1.78	No			
Propane		0.091	No			
Isobutane		0.012	No			
n-butane		0.013	No			
Isopentane		0.0052	No			
N-Pentane		0.0034	No			
Cyclopentane	2	0.0002	No			
n-Hexane			No			
Cyclohexane			No			
Other Hexanes	22	0.0022	No			
Heptane	14	0.0014	No			
Methyl cyclohexane	2.8	0.00028	No			
2,2,4-trimethylpentane			No			
C8+		0.0052	No			
Benzene	0.8	0.00008	Yes	78	2.96E-05	2.59E-01
Toluene	0.4	0.00004	Yes	92	1.75E-05	1.53E-01
Ethylbenzene	0.1	0.00001	Yes	106	5.03E-06	4.40E-02
Xylenes	0.1	0.00001	Yes	106	5.03E-06	4.40E-02

Plant 3	**Benzene**	1.48E-05	1.30E-01
	Toluene	8.73E-06	7.64E-02
	Ethylbenzene	2.51E-06	2.20E-02
	Xylenes	2.51E-06	2.20E-02

Plant 4&5	**Benzene**	2.96E-05	2.59E-01
	Toluene	1.75E-05	1.53E-01
	Ethylbenzene	5.03E-06	4.40E-02
	Xylenes	5.03E-06	4.40E-02

Total	**Benzene**	7.40E-05	6.48E-01
	Toluene	4.36E-05	3.82E-01
	Ethylbenzene	1.26E-05	1.10E-01
	Xylenes	1.26E-05	1.10E-01

Table 5
Potential to Emit - Plants 1,2,3,4&5
Calculation of Methanol Emissions

Methanol Emissions from Methanol Tank, using EPA TANKS model

Model Input			
Capacity	500	gallons	
Volume added	150	gal/yr	
Diameter	46	inches	
Height	5.7	feet	Effective height considering cone shape.
Flapper weight	4	oz	
Vent diameter	2	inches	
Color	white		
Diameter	3.833	feet	
Volume	65.750	cu ft	
Conversion	7.48	gal/cu ft	
Volume	491.812	gallons	OK
Area of vent	3.14	sq in	
pressure of valve	0.080	psi	
Output from Model			
Working Loss	0.18	lb/yr	
Breathing Loss	12.89	lb/yr	
Total	13.07	lb/yr	
Annual emissions	13.07	lb/yr	
Max daily emission	0.323	lb/day	Assumes working loss occurs during summer; and breathing loss occurs during 90 days.
App Deg Accuracy	200	lb/yr	(Applicable Degree of Accuracy for methanol is similar to a de minimis value, according to 2588 guidance.)

The following are calculated by proportion

	Emission Rate	
	(lb/hr)	**(lb/yr)**
Plants 1&2	0.18	13.07
Plant 3	0.09	6.54
Plants 4 & 5	0.18	13.07
Total	0.45	13.07

Table 6 Potential to Emit - Plants 1,2,3,4&5
Calculation of Produced Water Tank Emissions (with use of Tanks model)

The following is the calculation from the existing Plants 1 and 2 operation. Plants 3, 4 and 5 are calculated at the bottom of this sheet, by proportion.

Emissions from Produced Water Tanks

Number of Tanks	6		
Outside capacity	400	barrel	
Actual capacity	375	barrel	
2005 throughput	19,560	barrel	
Units conversion	42	gal/barrel	
Outside capacity	16,800	gallons	
Actual capacity	15,750	gallons	
2005 throughput	821,520	gallons	
Diameter	12	feet	
Height	20	feet	Effective height considering cone shape.
Color	light beige		
Volume	2,261	cu ft	
Conversion	7.48	gal/cu ft	
Volume	16,911	gallons	OK

Henry's Law Partial Pressure of benzene = Hpx * mole fraction in liquid		**Benzene**		**Ethylbenzene**	**Toluene**	**Xylene**
		300	Hpx at 25 deg C (atmospheres)	300	300	300
		0.8	ppm of benzene in air	0.1	0.4	0.1
		800	Total Pressure in water separator (psi)	800	800	800
		14.7	One atmosphere (psi)	14.7	14.7	14.7
		4.35374E-05	Partial pressure of benzene in air (atm)	5.44E-06	2.18E-05	5.44E-06
		1.45125E-07	Mole fraction in liquid	1.81E-08	7.26E-08	1.81E-08
		1.45125E-07	Moles of benzene in 18 grams of water	1.81E-08	7.26E-08	1.81E-08
		78	MW of benzene	106	92	106
		1.13197E-05	Grams of benzene in 18 grams of water	1.92E-06	6.68E-06	1.92E-06
		1.13197E-05	Pounds of benzene in 18 pounds of water	1.92E-06	6.68E-06	1.92E-06
		8.34	density of water (lb/gal)	62.4	62.4	62.4
		5.24481E-06	Pounds of benzene per gallon of water	6.67E-06	2.31E-05	6.67E-06
		4.308714057	Pounds of benzene per year	5.476303	19.01207	5.476303
		1095	Hours/year (Water to Tanks)	1095	1095	1095
		0.003934899	Max hourly emissions	0.005001	0.017363	0.005001

Pounds per hour	
	Benzene
Plant 1&2	0.0039
Plant 3	0.0020
Plant 4&5	0.0039
Total	**0.0098**

Pounds per hour		
Ethyl- benzene	**Toluene**	**Xylene**
0.0050	0.0174	0.0050
0.0025	0.0087	0.0025
0.0050	0.0174	0.0050
0.0125	**0.0434**	**0.0125**

Pounds per year	
	Benzene
Plant 1&2	4.31
Plant 3	2.15
Plant 4&5	4.31
Total	**10.77**

Pounds per year		
Ethyl- benzene	**Toluene**	**Xylene**
5.48	19.01	5.48
2.74	9.51	2.74
5.48	19.01	5.48
13.69	**47.53**	**13.69**

Table 7 Potential to Emit - Plants 1,2,3,4&5
Calculation of Maximum Hourly Emissions

Substance	Max Hourly Emissions (lb/hr)						
	Compres-sors	Dehy & Regen	Blow-down	Fugitives	MeOH Tank	PW Tank	TOTAL
1,3-Butadiene	2.19E-02						2.19E-02
Acetaldehyde	2.27E-03						2.27E-03
Acrolein	**2.27E-03**						2.27E-03
Anthracene	6.56E-06						6.56E-06
Benzene	1.23E-02	5.13E-04	2.80E-01	7.40E-05		9.84E-03	3.03E-01
Benzo(a)pyrene	1.46E-07						1.46E-07
Benzo(b)fluoranthene	2.03E-06						2.03E-06
Benzo(k)fluoranthene	4.96E-07						4.96E-07
Chrysene	9.17E-07						9.17E-07
Dibenz(a,h)anthracene	1.46E-07						1.46E-07
Ethylbenzene	4.06E-03	5.43E-05	4.76E-02	1.26E-05		1.25E-02	6.42E-02
Formaldehyde	2.12E-02						2.12E-02
Naphthalene	1.36E-03						1.36E-03
Propylene	2.47E-01						2.47E-01
Toluene	1.50E-02	2.60E-04	1.65E-01	4.36E-05		4.34E-02	1.80E-01
Xylene (Total)	3.97E-02	5.79E-05	4.76E-02	1.26E-05		1.25E-02	9.99E-02
Ammonia	5.19E+00						5.19E+00
Methanol			0.00E+00		4.50E-01		4.50E-01
Hydrogen sulfide			3.05E-03				3.05E-03
Carbonyl sulfide			4.85E-02				4.85E-02
Hexane			8.49E+00				8.49E+00
Cyclohexane			1.51E+00				1.51E+00

Table 8
Potential to Emit - Plants 1,2,3,4&5
Calculation of Annual Emissions

Substance	Annual Emissions (lb/yr)						
	Compres-sors	Dehy& Regen	Blow-down	Fugitives	MeOH Tank	PW Tank	TOTAL
1,3-Butadiene	1.47E+02						1.47E+02
Acetaldehyde	1.52E+01						1.52E+01
Acrolein	1.52E+01						1.52E+01
Anthracene	4.38E-02						4.38E-02
Benzene	8.22E+01	1.27E+00	4.04E+00	6.48E-01		1.08E+01	9.89E+01
Benzo(a)pyrene	9.77E-04						9.77E-04
Benzo(b)fluoranthene	1.35E-02						1.35E-02
Benzo(k)fluoranthene	3.31E-03						3.31E-03
Chrysene	6.13E-03						6.13E-03
Dibenz(a,h)anthracene	9.77E-04						9.77E-04
Ethylbenzene	2.71E+01	1.34E-01	6.86E-01	1.10E-01		1.37E+01	4.18E+01
Formaldehyde	1.42E+02						1.42E+02
Naphthalene	9.07E+00						9.07E+00
Propylene	1.65E+03						1.65E+03
Toluene	1.00E+02	6.42E-01	2.38E+00	3.82E-01		4.75E+01	1.51E+02
Xylene (Total)	2.66E+02	1.43E-01	6.86E-01	1.10E-01		1.37E+01	2.80E+02
Ammonia	3.47E+04						3.47E+04
Methanol			7.66E+01		13.07		8.97E+01
Hydrogen sulfide			4.40E-02				4.40E-02
Carbonyl sulfide			6.99E-01				6.99E-01
Hexane			1.22E+02				1.22E+02
Cyclohexane			2.17E+01				2.17E+01

Table 9 Potential-to-Emit - Plants 1,2,3,4&5
Calculation of Prioritization Scores

Substance	Facility-wide total	Facility-wide total	Applicable Degree Of Accuracy	Toxics Potency Factors			Calc of Prioritization Scores		
				Cancer Potency Value	Acute REL	Chronic REL	Carcinogen	Acute Non-Carcinogen	Chronic Non-Carcinogen
	(lb/hr)	(lb/yr)		$(ug/m^3)^{-1}$	(ug/m^3)	(ug/m^3)			
1,3-Butadiene	2.19E-02	1.47E+02	0.1	1.7E-04		20	2.49E-02		8.36E-04
Acetaldehyde	2.27E-03	1.52E+01	20	2.7E-06	470	140	4.10E-05	4.84E-06	1.24E-05
Acrolein	2.27E-03	1.52E+01	0.05		2.5	0.35		9.10E-04	4.96E-03
Anthracene	6.56E-06	4.38E-02	50						
Benzene	3.03E-01	9.89E+01	2	2.9E-05	1300	60	2.87E-03	2.33E-04	1.88E-04
Benzo(a)pyrene	1.46E-07	9.77E-04	0.05	1.1E-03			1.07E-06		
Benzo(b)fluoranthene	2.03E-06	1.35E-02	0.5	1.1E-04			1.49E-06		
Benzo(k)fluoranthene	4.96E-07	3.31E-03	0.5	1.1E-04			3.64E-07		
Chrysene	9.17E-07	6.13E-03	5	1.1E-05			6.74E-08		
Dibenz(a,h)anthracene	1.46E-07	9.77E-04	0.1	1.2E-03			1.17E-06		
Ethylbenzene	6.42E-02	4.18E+01	200			2000			2.38E-06
Formaldehyde	2.12E-02	1.42E+02	5	6.0E-06	55	9	8.49E-04	3.85E-04	1.79E-03
Naphthalene	1.36E-03	9.07E+00	50	3.4E-05		9	3.08E-04		1.15E-04
Propylene	2.47E-01	1.65E+03	200			3000			6.27E-05
Toluene	1.80E-01	1.51E+02	200		37000	300		4.88E-06	5.76E-05
Xylene (Total)	9.99E-02	2.80E+02	200		22000	700		4.54E-06	4.57E-05
Ammonia	5.19E+00	3.47E+04	200		3200	200		1.62E-03	1.98E-02
Methanol	4.50E-01	8.97E+01	200		28000	4000		1.61E-05	2.56E-06
Hydrogen sulfide	3.05E-03	4.40E-02	5		42	10		7.27E-05	5.02E-07
Carbonyl sulfide	4.85E-02	6.99E-01	100						
Hexane	8.49E+00	1.22E+02	200			7000			2.00E-06
Cyclohexane	1.51E+00	2.17E+01	200						
						Sum	2.9E-02	3.3E-03	2.8E-02
						Normalization Factor	1700	1500	150
						Receptor Proximity (RP) Adjustment Factor	0.003	0.04	0.003
						Prioritization Score	0.1478	0.1951	0.0125
						Significance Threshold	0.10	1.00	1.00
						Significant Toxics Risk ?	**Maybe**	**No**	**No**

Note that the indicated Prioritization Score, 0.16, would indicate that carcinogenic risk would be 1.6 per million. This is greater than one per million. Therefore risks may not be less-than-significant.

Table 10 Potential-to-Emit - Plants 1,2,3,4&5
Calculation of Health Risks and Determination of Significance

		Emission Sources						
		Compressors	DeHy	Blowdown	Fugitives	Produced Water		
Dispersion to Residential Receptor (ug/m3 per gram/sec)		7.008	156.3	68.06	338.9	353.5		
Dispersion to Non-Residential Receptor (ug/m3 per gram/sec)		12.22	404.6	163.7	1,941.7	2737		
							Calc of Risk	
Substance	Cancer Potency Value $(ug/m^3)^{-1}$	Emission Rate					Residential Receptor	Non-Residential Receptor
		(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(lb/yr)	(Risk)	(Risk)
1,3-Butadiene	1.7E-04	1.47E+02					2.51E-07	1.00E-07
Acetaldehyde	2.7E-06	1.52E+01					4.14E-10	1.65E-10
Benzene	2.9E-05	8.22E+01	1.27E+00	4.04E+00	6.48E-01	1.08E+01	2.12E-07	3.14E-07
Benzo(a)pyrene	1.1E-03	9.77E-04					1.08E-11	4.32E-12
Benzo(b)fluoranthene	1.1E-04	1.35E-02					1.50E-11	5.98E-12
Benzo(k)fluoranthene	1.1E-04	3.31E-03					3.67E-12	1.46E-12
Chrysene	1.1E-05	6.13E-03					6.80E-13	2.71E-13
Dibenz(a,h)anthracene	1.2E-03	9.77E-04					1.18E-11	4.71E-12
Formaldehyde	6.0E-06	1.42E+02					8.57E-09	3.41E-09
Naphthalene	3.4E-05	9.07E+00					3.11E-09	1.24E-09
					Sum		4.75E-07	4.19E-07
					Significance Threshold		1.0E-06	1.0E-06
					Significant Toxics Risk ?		No	No

Cancer Potency Factors are current levels from the CA Office of Health Hazard Environmental Assessment (OHHEA).
Exposures are calculated with the use of the SCREEN3 model.
Emissions from each source are modeled from that source's stack characteristics..

The nearest residence (1500 meters from source) is used for the residential receptor analysis.

The nearest non-residential receptor wascalculated for the exposure of a worker in the nearby field at an average distance of 400 meters. It was assumed (worst-case) that he was at that location for 2000 hours per year.

A scaling factor of 0.1 was used to convert maximum hourly concentrations to maximum annual concentrations.
Carcinogenic risk is less than one per million; therefore, risk is not significant.

03/20/10
11:31:55

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

WildGoose, Blowdown Scenario 4

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      1.00000
   STACK HEIGHT (M)       =      12.8000
   STK INSIDE DIAM (M)    =       1.7500
   STK EXIT VELOCITY (M/S)=        .7360
   STK GAS EXIT TEMP (K)  =     352.0000
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =        .0000
   URBAN/RURAL OPTION     =        RURAL
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =     .926 M**4/S**3;  MOM. FLUX =     .345 M**4/S**2.

*** FULL METEOROLOGY ***

*********************************
*** SCREEN DISCRETE DISTANCES ***
*********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   400.   163.7        4     2.0    2.1   640.0   18.54   29.59   15.52    NO
  1500.   68.06        6     1.0    1.1 10000.0   32.78   49.47   19.19    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

     ************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      163.7          400.        0.
```

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

02/02/10
13:11:22

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Wild Goose, 2/2/10

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	1.00000
STACK HEIGHT (M)	=	13.5000
STK INSIDE DIAM (M)	=	.7100
STK EXIT VELOCITY (M/S)	=	26.3000
STK GAS EXIT TEMP (K)	=	725.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 19.367 M**4/S**3; MOM. FLUX = 35.229 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	.7286E-03	6	1.0	1.2	10000.0	76.19	14.29	14.19	NO
100.	.1474	5	1.0	1.1	10000.0	90.57	22.86	22.30	NO
200.	7.209	3	10.0	10.3	3200.0	32.69	23.97	14.61	NO
300.	12.63	3	10.0	10.3	3200.0	32.69	34.70	21.02	NO
400.	12.22	3	10.0	10.3	3200.0	32.69	44.98	27.01	NO
500.	11.24	4	15.0	15.7	4800.0	26.11	36.33	18.65	NO
600.	10.79	4	10.0	10.5	3200.0	32.41	43.06	21.89	NO
700.	10.51	4	10.0	10.5	3200.0	32.41	49.48	24.63	NO
800.	9.963	4	8.0	8.4	2560.0	37.14	55.98	27.62	NO
900.	9.505	4	8.0	8.4	2560.0	37.14	62.25	30.23	NO
1000.	8.923	4	8.0	8.4	2560.0	37.14	68.46	32.80	NO
1100.	8.289	4	8.0	8.4	2560.0	37.14	74.62	34.79	NO
1200.	7.871	4	5.0	5.2	1600.0	51.32	81.16	37.67	NO
1300.	7.600	4	5.0	5.2	1600.0	51.32	87.19	39.51	NO
1400.	7.308	4	5.0	5.2	1600.0	51.32	93.18	41.30	NO
1500.	7.008	4	5.0	5.2	1600.0	51.32	99.13	43.05	NO
1600.	6.708	4	5.0	5.2	1600.0	51.32	105.05	44.76	NO
1700.	6.434	4	4.5	4.7	1440.0	55.52	111.06	46.74	NO
1800.	6.189	4	4.5	4.7	1440.0	55.52	116.90	48.37	NO

1900.	5.949	4	4.5	4.7	1440.0	55.52	122.72	49.98	NO
2000.	5.742	4	4.0	4.2	1280.0	60.77	128.65	51.94	NO
2100.	5.877	5	1.0	1.1	10000.0	90.57	102.42	40.87	NO
2200.	6.070	5	1.0	1.1	10000.0	90.57	106.63	41.66	NO
2300.	6.246	5	1.0	1.1	10000.0	90.57	110.83	42.43	NO
2400.	6.404	5	1.0	1.1	10000.0	90.57	115.02	43.20	NO
2500.	6.547	5	1.0	1.1	10000.0	90.57	119.19	43.96	NO
2600.	6.674	5	1.0	1.1	10000.0	90.57	123.35	44.71	NO
2700.	6.788	5	1.0	1.1	10000.0	90.57	127.50	45.45	NO
2800.	6.887	5	1.0	1.1	10000.0	90.57	131.64	46.18	NO
2900.	6.974	5	1.0	1.1	10000.0	90.57	135.76	46.90	NO
3000.	7.049	5	1.0	1.1	10000.0	90.57	139.88	47.62	NO
3500.	7.273	5	1.0	1.1	10000.0	90.57	160.27	51.10	NO
4000.	7.307	5	1.0	1.1	10000.0	90.57	180.41	54.42	NO
4500.	7.145	5	1.0	1.1	10000.0	90.57	200.30	57.23	NO
5000.	6.934	5	1.0	1.1	10000.0	90.57	219.97	59.90	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 50. M:

331.	12.84	3	10.0	10.3	3200.0	32.69	38.03	22.97	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
400.	12.22	3	10.0	10.3	3200.0	32.69	44.98	27.01	NO
1500.	7.008	4	5.0	5.2	1600.0	51.32	99.13	43.05	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	12.84	331.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

03/24/10
16:51:14

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 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Wild Goose, DeHy Stack

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      1.00000
   STACK HEIGHT (M)       =       7.9200
   STK INSIDE DIAM (M)    =        .9144
   STK EXIT VELOCITY (M/S)=        .2370
   STK GAS EXIT TEMP (K)  =    1423.0000
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =        .0000
   URBAN/RURAL OPTION     =        RURAL
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =     .386 M**4/S**3;  MOM. FLUX =     .002 M**4/S**2.

*** FULL METEOROLOGY ***

*********************************
*** SCREEN DISCRETE DISTANCES ***
*********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   400.   404.6        4     1.0    1.0   320.0   16.10   29.61   15.56    NO
  1500.   156.3        6     1.0    1.0 10000.0   23.57   49.30   18.75    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

     ************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      404.6          400.        0.
```

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

03/20/10
11:40:08

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 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Wild Goose, Fugitive Emissions

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE                =         AREA
   EMISSION RATE (G/(S-M**2))  =      1.00000
   SOURCE HEIGHT (M)          =        .0000
   LENGTH OF LARGER SIDE (M)   =      60.0000
   LENGTH OF SMALLER SIDE (M)  =      60.0000
   RECEPTOR HEIGHT (M)        =        .0000
   URBAN/RURAL OPTION         =        RURAL
THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

   MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION


BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC             U10M   USTK  MIX HT   PLUME  MAX DIR
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   (DEG)
-------  ----------  ----  -----  -----  ------  ------  -------
   400.   .6988E+07    6     1.0    1.0 10000.0     .00     45.
  1500.   .1220E+07    6     1.0    1.0 10000.0     .00     37.

     ************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      .6988E+07      400.        0.


************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
************************************************
```

03/20/10
11:35:07

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Wild Goose, Produced Water Tank

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      1.00000
   STACK HEIGHT (M)       =       6.4000
   STK INSIDE DIAM (M)    =       1.0000
   STK EXIT VELOCITY (M/S)=        .0100
   STK GAS EXIT TEMP (K)  =     293.0000
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =        .0000
   URBAN/RURAL OPTION     =        RURAL
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

*** FULL METEOROLOGY ***

*********************************
*** SCREEN DISCRETE DISTANCES ***
*********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   400.   2737.        6     1.0    1.0 10000.0    3.45   14.64    7.05    NO
  1500.   353.5        6     1.0    1.0 10000.0    3.45   49.03   18.03    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

     ************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      2737.          400.        0.
```

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

Appendix D
Native American Consultation Information

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10 December, 2008

Attn: Cultural Resources Representative
Berry Creek Rancheria of Maidu Indians
#5 Tyme Way
Oroville, CA 95966

Dear Cultural Resources Representative,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Additional wells will be drilled at a Well Pad Site, but these were approved in a previous Certificate of Public Convenience and Necessity (CPCN) and will not be part of our consultation.

Pursuant to Section 101 of the National Historic Preservation Act, TRC is notifying concerned Native American parties about our project and inquiring about any cultural sensitivity concerns you may have.

I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Jim Edwards, Chairperson
Berry Creek Rancheria of Maidu Indians
#5 Tyme Way
Oroville, CA 95966

Dear Mr. Edwards,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Ren Reynolds
Butte Tribal Council
1693 Mt. Ida Road
Oroville, CA 95966

Dear Ren Reynolds,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Shannon Morganson, Tribal Administrator
Colusa Indian Community Council
3730 Hiway 45
Colusa, CA 95932

Dear Shannon Morganson,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Tammy Fullerton, Environmental Coordinator
Colusa Indian Community Council
3730 Hiway 45
Colusa, CA 95932

Dear Ms. Fullerton,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Wayne Mitchem, Chairperson
Colusa Indian Community Council
3730 Hiway 45
Colusa, CA 95932

Dear Mr. Mitchem,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Elaine Patterson, Chariperson
Cortina Band of Indians
P.O. Box 1630
Williams, CA 95987

Dear Ms. Patterson,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Karen Flores, Vice Chairperson
Cortina Band of Indians
P.O. Box 1630
Williams, CA 95987

Dear Ms. Florez,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Thelma Brafford, Tribal Administrator
Cortina Band of Indians
P.O. Box 1630
Williams, CA 95987

Dear Ms. Brafford,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Frank Watson, Vice Chairperson
Enterprise Rancheria of Maidu Indians
1940 Feather River Blvd., Suite B
Oroville, CA 95965

Dear Mr. Watson,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Glenda Nelson, Chairperson
Enterprise Rancheria of Maidu Indians
1940 Feather River Blvd., Suite B
Oroville, CA 95965

Dear Ms. Nelson,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Regina Dock
Grindstone Rancheria of Wintun-Wailaki
P.O. Box 63
Elk Creek, CA 95939

Dear Ms. Dock,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Ronald Kirk, Chairperson
Grindstone Rancheria of Wintun-Wailaki
P.O. Box 63
Elk Creek, CA 95939

Dear Mr. Kirk,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Kesner Flores
P.O. Box 1047
Wheatland, CA 95692

Dear Kesner Flores,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Patsy Seek, Chairperson
KonKow Valley Band of Maidu
1706 Sweem Street
Oroville, CA 95965

Dear Patsy Seek,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Projeet in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Dennis Ramirez, Chairperson
Mechoopda Indian Tribe of Chico Rancheria
125 Mission Ranch Blvd.
Chico, CA 95926

Dear Mr. Ramirez,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Paula Cuddeford, Tribal Administrator
Mechoopda Indian Tribe of Chico Rancheria
125 Mission Ranch Blvd.
Chico, CA 95926

Dear Ms. Cuddeford,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

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I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Gary Archuleta, Chairperson
Mooretown Rancheria of Maidu Indians
#1 Alverda Drive
Oroville, CA 95966

Dear Mr. Archuleta,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

- Expand the Remote Facility Site to allow for installation of further process and compression equipment.
- Increase the compression from approximately 20,700 HP (six compressor units) to a total of approximately 35,000 HP (approximately 10 compressor units).
- Install two new process trains (for a total of five trains).
- Expand the meter station at the Delevan Interconnect Site to accommodate increased flow.

Additional wells will be drilled at a Well Pad Site, but these were approved in a previous Certificate of Public Convenience and Necessity (CPCN) and will not be part of our consultation.

Pursuant to Section 101 of the National Historic Preservation Act, TRC is notifying concerned Native American parties about our project and inquiring about any cultural sensitivity concerns you may have.

I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

James Sanders, Tribal Administrator
Mooretown Rancheria of Maidu Indians
#1 Alverda Drive
Oroville, CA 95966

Dear Mr. Sanders,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

- Expand the Remote Facility Site to allow for installation of further process and compression equipment.
- Increase the compression from approximately 20,700 HP (six compressor units) to a total of approximately 35,000 HP (approximately 10 compressor units).
- Install two new process trains (for a total of five trains).
- Expand the meter station at the Delevan Interconnect Site to accommodate increased flow.

Additional wells will be drilled at a Well Pad Site, but these were approved in a previous Certificate of Public Convenience and Necessity (CPCN) and will not be part of our consultation.

Pursuant to Section 101 of the National Historic Preservation Act, TRC is notifying concerned Native American parties about our project and inquiring about any cultural sensitivity concerns you may have.

I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Everitt Freeman, Chairperson
Paskenta Band of Nomlaki Indians
P.O. Box 398
Orland, CA 95963

Dear Everitt Freeman,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

- Expand the Remote Facility Site to allow for installation of further process and compression equipment.
- Increase the compression from approximately 20,700 HP (six compressor units) to a total of approximately 35,000 HP (approximately 10 compressor units).
- Install two new process trains (for a total of five trains).
- Expand the meter station at the Delevan Interconnect Site to accommodate increased flow.

Additional wells will be drilled at a Well Pad Site, but these were approved in a previous Certificate of Public Convenience and Necessity (CPCN) and will not be part of our consultation.

Pursuant to Section 101 of the National Historic Preservation Act, TRC is notifying concerned Native American parties about our project and inquiring about any cultural sensitivity concerns you may have.

I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Cynthia Clarke, Native Cultural Renewal Committee
Rumsey Indian Rancheria of Wintun
P.O. Box 18
Brooks, CA 95606

Dear Ms. Clarke,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

- Expand the Remote Facility Site to allow for installation of further process and compression equipment.
- Increase the compression from approximately 20,700 HP (six compressor units) to a total of approximately 35,000 HP (approximately 10 compressor units).
- Install two new process trains (for a total of five trains).
- Expand the meter station at the Delevan Interconnect Site to accommodate increased flow.

Additional wells will be drilled at a Well Pad Site, but these were approved in a previous Certificate of Public Convenience and Necessity (CPCN) and will not be part of our consultation.

Pursuant to Section 101 of the National Historic Preservation Act, TRC is notifying concerned Native American parties about our project and inquiring about any cultural sensitivity concerns you may have.

I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Leland Kinter, Native Cultural Renewal Committee
Rumsey Indian Rancheria of Wintun
P.O. Box 18
Brooks, CA 95606

Dear Leland Kinter,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

- Expand the Remote Facility Site to allow for installation of further process and compression equipment.
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Additional wells will be drilled at a Well Pad Site, but these were approved in a previous Certificate of Public Convenience and Necessity (CPCN) and will not be part of our consultation.

Pursuant to Section 101 of the National Historic Preservation Act, TRC is notifying concerned Native American parties about our project and inquiring about any cultural sensitivity concerns you may have.

I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Marshall McKay, Chairperson
Rumsey Indian Rancheria of Wintun
P.O. Box 18
Brooks, CA 95606

Dear Mr. McKay,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

- Expand the Remote Facility Site to allow for installation of further process and compression equipment.
- Increase the compression from approximately 20,700 HP (six compressor units) to a total of approximately 35,000 HP (approximately 10 compressor units).
- Install two new process trains (for a total of five trains).
- Expand the meter station at the Delevan Interconnect Site to accommodate increased flow.

Additional wells will be drilled at a Well Pad Site, but these were approved in a previous Certificate of Public Convenience and Necessity (CPCN) and will not be part of our consultation.

Pursuant to Section 101 of the National Historic Preservation Act, TRC is notifying concerned Native American parties about our project and inquiring about any cultural sensitivity concerns you may have.

I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

10 December, 2008

Wintun Environmental Protection Agency
P.O. Box 1839
Williams, CA 95987

To whom it may concern,

TRC Companies, Inc. (TRC) conducted a Cultural Resources Inventory and a Sacred Lands Search with the Native American Heritage Commission for the proposed expansion of the Wild Goose Expansion 3 Project in Butte County and Colusa County, CA. The project will include the following components within the Sites, Pennington, and Sanborn Slough United States Geological Survey (USGS) 7.5' quadrangles:

- Expand the Remote Facility Site to allow for installation of further process and compression equipment.
- Increase the compression from approximately 20,700 HP (six compressor units) to a total of approximately 35,000 HP (approximately 10 compressor units).
- Install two new process trains (for a total of five trains).
- Expand the meter station at the Delevan Interconnect Site to accommodate increased flow.

Additional wells will be drilled at a Well Pad Site, but these were approved in a previous Certificate of Public Convenience and Necessity (CPCN) and will not be part of our consultation.

Pursuant to Section 101 of the National Historic Preservation Act, TRC is notifying concerned Native American parties about our project and inquiring about any cultural sensitivity concerns you may have.

I would appreciate any input or concerns you may have about the project in writing so they may be addressed in a timely manner. If you have any questions or concerns regarding this project, please feel free to contact me at any time.

Respectfully,

Tracy A. Stropes, M.A., RPA
Director of Archaeology
949.727.7371
tstropes@trcsolutions.com

Appendix E
Hazards Background Information

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STATE OF CALIFORNIA–THE RESOURCES AGENCY PETE WILSON, *Governor*

DEPARTMENT OF CONSERVATION

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES - DISTRICT 6

801 K Street, MS 20 - 22
SACRAMENTO, CALIFORNIA 95814-3530
(916) 322-1110
TDD (916) 324-2555
TELEFAX (916) 323-0424

ORIGINALS

August 5, 1997

Mr. Brain MacDonald
WILD GAS STORAGE INC.
3900, 421-7 Avenue S.W.
Calgary, Alberta
Canada T2P 4K9

Subject: Gas Storage Project, Lower Wild Goose Sandstone number four, Kione Formation, Section 17, T.17N., R.1E., Wild Goose Gas field, Butte County

Dear Mr. MacDonald:

Section 3008 of the Public Resources Code provides the Division of Oil, Gas, and Geothermal Resources responsibility for wells that inject and withdraw natural gas from an underground storage facility. The proposal to initiate a gas storage project in the Kione Formation, Wild Goose Gas field is approved provided:

1. Appropriate permits are obtained from Butte County.

2. Notices of Intention are completed on current Division forms (OG105 and OG107) and submitted to the Division for approval whenever a new well is to be drilled for use as an injection well, or whenever an existing well is to be reworked and/or converted to an injection well, even if no work is required on the well.

3. This office is notified of any anticipated changes in the project that will alter any conditions as originally approved, such as: expansion of the project area; a change of injection interval; a change in injection-fluid constituents; a significant increase in volume; or, an increase of injection pressure. No such changes shall be carried out without prior Division approval.

4. A monthly injection report is filed with the Division on form OG 110B, or by electronic or magnetic media approved by the Division, on or before the last day of each month, for the preceding month, showing the amount of fluid injected, surface pressure required, and source of fluid.

5. Surface pressures on each active or idle well are measured and recorded weekly with a calibrated test gauge. Evidence of such measurement and calibration must be made available to the Division upon request.

6. An accurate, operating pressure gauge or pressure-recording device is available at all times, and all injection wells are equipped for installation and operation of a gauge or device. Any gauge or device must be calibrated at least every two

months. Evidence of such calibration must be made available to the Division upon request.

7. All injection wells are completed with tubing and packer set immediately above the approved zone of injection, unless a variance to this requirement has been granted by the Division and indicated on the individual well permit.

8. All injection piping, valves and facilities meet or exceed design standards for the maximum anticipated injection pressure and are maintained in a safe and leak-free condition.

9. Precautions are taken to prevent corrosion from occurring in meter runs, wellheads, wellhead valves, casing, tubing, and packers. This Division shall be furnished with a report detailing the measures to be taken to prevent corrosion.

10. Mechanical integrity tests (MITs) are run within 30 days of beginning injection and the results are filed with the Division within thirty days of completion of the MIT. Also, MITs are to be run every year thereafter, and after any significant anomalous rate or pressure change, and as requested by the Division to confirm that injection fluid is confined to the permitted zone or zones. This monitoring schedule may be modified by the district deputy. The Division must be notified of any scheduled MITs, as the tests may be witnessed by a Division representative.

11. The casing of any well converted to injection must be pressure tested prior to commencing injection. Additional pressure tests must be performed at least once every five (5) years thereafter, or as requested by the Division. The Division must be notified before tests are made, as they may be witnessed by a Division representative. The results of any unwitnessed test must be submitted to the Division for approval.

12. The maximum allowable injection-pressure gradient is limited to (0.7) psi per foot of true vertical depth, as measured at the sand face. Prior to sustained fluid injection above this gradient, step-rate tests must be made. The test must begin at hydrostatic gradient of the injection fluid and continue until either the intended maximum injection pressure is reached or the formation fractures, whichever occurs first. The results of these tests must be submitted to the Division for approval.

13. Neither the handling nor discharge of wastes cause a condition of pollution nuisance.

14. Injection is discontinued if any evidence of damage is observed, or upon written notice from the Division.

15. Any remedial well work needed as a result of this project to repair idle, abandoned, or deeper-zone wells to protect gas and freshwater (USDW) zones will be the responsibility of the project operator.

16. Additional data are supplied to the Division upon request.

17. An annual project review meeting is held with Division personnel.

18. The Division is notified immediately if the project is terminated or problems occur with the operation of the project.

19. The lease and injection facility are maintained in a safe manner, consistent with established oil field practices, and are available for periodic inspection by Division personnel.

20. Any directional well drilled for use in this project has a directional survey run and the results submitted, in duplicate, to this office.

21. All active, idle, or abandoned wells that may be affected by this project are regularly and routinely monitored for surface gas emissions.

22. All critical wells, as defined by this Division, have fail-close subsurface safety valves installed. A testing and inspection schedule must be submitted to and approved by the Division.

23. Data are maintained to establish that no damage to life, health, property, or natural resources is occurring by reason of the project.

Sincerely,

Robert A. Reid

Robert A. Reid
District Deputy

cc: Regional Water Quality Control Board, Sacramento
Project File

Jeff FYI

DEPARTMENT OF CONSERVATION

STATE OF CALIFORNIA

CC JOHN CRAIG
JEFF CARLSON
Hamed B.
ORIG: FILE

July 23, 2002

DIVISION OF OIL, GAS, & GEOTHERMAL RESOURCES

801 K STREET
MS 20-22
SACRAMENTO
CALIFORNIA
95814-3530

PHONE
916/322-1110

FAX
916/322-1201

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916/324-2555

INTERNET
consrv.ca.gov

GRAY DAVIS
GOVERNOR

Wayne Mardian, Agent
WILD GOOSE STORAGE INC.
P.O. Box 8
Gridley, CA 95948

Subject: Gas Storage Project Expansion, Upper Wild Goose Sandstone Number 1 and 2 (U1& U2) reservoirs and Lower Wild Goose Sandstone Number 1 (L1) reservoirs (Kione Formation), Section 17, T.17N., R.1E., Wild Goose Gas field, Butte County.

Dear Mr. Mardian:

Section 3008 of the Public Resouces Code provides the Division of Oil, Gas and Geothermal Resources (Division) responsibility for wells that inject and withdraw natural gas from an underground storage facility. The proposal to expand the Wild Goose Gas field gas storage project in the Kione Formation **is approved provided:**

1. Appropriate permits are obtained from Butte County.

2. Notices of Intention are completed on current Division forms (OG105 and OG107) and submitted to the Division for approval whenever a new well is to be drilled, or whenever an existing well is to be reworked and/or converted to an injection well, even if no work is required on the well.

3. This office is notified of any anticipated changes in the project that will alter any conditions as originally approved, such as: expansion of the project area; a change of injection/withdraw interval; a change in injection-fluid constituents; a significant increase in volume; or, an increase of injection pressure. No such changes shall be carried out without prior Division approval.

4. A monthly injection and production reports are filed with the Division on forms OG 110, OG 110B, or by electronic or magnetic media approved by the Division, on or before the last day of each month, for the preceding month, showing the amount of gas injected and withdrawn, surface pressures, and source of injection gas.

5. Surface pressures on each active or idle well are measured and recorded weekly with a calibrated test gauge. Evidence of such measurement and calibration must be made available to the Division upon request.

6. An accurate, operating pressure gauge or pressure-recording device is available at all times, and all injection wells are equipped for installation and operation of a gauge or device. Any gauge or device must be calibrated at least every two months. Evidence of such calibration must be made available to the Division upon request.

7. All injection wells are completed with tubing and packer set immediately above the approved zone of injection, unless a variance to this requirement has been granted by the Division and indicated on the individual well permit.

8. All injection piping, valves and facilities meet or exceed design standards for the maximum anticipated injection pressure and are maintained in a safe and leak-free condition.

9. Precautions are taken to prevent corrosion from occurring in meter runs, wellheads, wellhead valves, casing, tubing, and packers. This Division shall be furnished with a report detailing the measures to be taken to prevent corrosion.

10. Mechanical integrity tests (MITs) are run within thirty (30) days of beginning injection and the results are filed with the Division within thirty (30) days of completion of the MIT. Also, MITs are to be run every year thereafter, and after any significant anomalous rate or pressure change, and as requested by the Division to confirm that injection gas is confined to the permitted zone or zones. This testing schedule may be modified by the district deputy. The Division must be notified of any scheduled MITs, as the tests may be witnessed by a Division representative.

11. The casing of any well converted to injection must be pressure tested prior to commencing injection. Additional pressure tests must be performed at least once every five (5) years thereafter, or as requested by the Division. The Division must be notified before tests are made, as a Division representative may witness them. The results of any un-witnessed test must be submitted to the Division.

12. The maximum allowable injection-pressure gradient is limited to (0.7) psi per foot of true vertical depth, as measured at the sand face. Prior to sustained gas injection above this gradient, step-rate tests must be made. The test must begin at hydrostatic gradient of the injection gas and continue until either the intended maximum injection pressure is reached or the formation fractures, whichever occurs first. The Division must be notified before tests are made, as a Division representative may witness them. The results of these tests must be submitted to the Division.

13. Neither the handling nor discharges of wastes cause a condition of pollution or nuisance.

14. Injection is discontinued if any evidence of damage is observed, or upon written notice from the Division.

15. Any remedial well work needed as a result of this project to repair idle, abandoned, or deeper-zone wells to protect gas and freshwater (USDW) zones will be the responsibility of the project operator.

16. Additional data are supplied to the Division upon request.

17. An annual project review meeting is held with Division personnel.

18. The Division is notified immediately if the project is terminated or problems occur with the operation of the project.

19. The lease and injection facility are maintained in a safe manner, consistent with established oil field practices, and are available for periodic inspection by Division personnel.

Sincerely,

Robert S Habel

Robert S. Habel,
District Deputy

cc: Hisham Metwally, Reservoir Engineer, WGSI
Regional Water Quality Control Board, Sacramento
Project File

DEPARTMENT OF CONSERVATION

DIVISION OF OIL, GAS AND GEOTHERMAL RESOURCES

801 K STREET • MS 20-22 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 322-1110 • **FAX** 916 / 322-1201 • **TDD** 916 / 324-2555 • **WEBSITE** conservation.ca.gov

August 3, 2007

Wayne Mardian, Agent
WILD GOOSE STORAGE LLC.
P.O. Box 8
Gridley, CA 95948

Subject: Amended (items 7 and 11) Project Approval letter which supersedes the August 5, 1997 and July 23, 2002 project approval letters for the gas storage project, Section 17, T.17N., R.1E., Wild Goose Gas field, Butte County.

Dear Mr. Mardian:

Section 3008 of the Public Resouces Code provides the Division of Oil, Gas and Geothermal Resources (Division) responsibility for wells that inject and withdraw natural gas from an underground storage facility. The proposal to expand the Wild Goose Gas field gas storage project in the Kione Formation **is approved provided:**

1. Appropriate permits are obtained from Butte County.

2. Notices of Intention are completed on current Division forms (OG105 and OG107) and submitted to the Division for approval whenever a new well is to be drilled, or whenever an existing well is to be reworked and/or converted to an injection well, even if no work is required on the well.

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4. A monthly injection and production reports are filed with the Division on forms OG 110, OG 110B, or by electronic or magnetic media approved by the Division, on or before the last day of each month, for the preceding month, showing the amount of gas injected and withdrawn, surface pressures, and source of injection gas.

5. Surface pressures on each active or idle well are measured and recorded weekly with a calibrated test gauge. Evidence of such measurement and calibration must be made available to the Division upon request.

6. An accurate, operating pressure gauge or pressure-recording device is available at all times, and all injection wells are equipped for installation and operation of a gauge or device. Any gauge or device must be calibrated at least every two months. Evidence of such calibration must be made available to the Division upon request.

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8. All injection piping, valves and facilities meet or exceed design standards for the maximum anticipated injection pressure and are maintained in a safe and leak-free condition.

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14. Injection is discontinued if any evidence of damage is observed, or upon written notice from the Division.

15. Any remedial well work needed as a result of this project to repair idle, abandoned, or deeper-zone wells to protect gas and freshwater (USDW) zones will be the responsibility of the project operator.

16. Additional data are supplied to the Division upon request.

17. An annual project review meeting is held with Division personnel.

18. The Division is notified immediately if the project is terminated or problems occur with the operation of the project.

19. The lease and injection facility are maintained in a safe manner, consistent with established oil field practices, and are available for periodic inspection by Division personnel.

Sincerely,

Original Signed By

Robert S. Habel,
District Deputy

cc: Hisham Metwally, Reservoir Engineer, WGSI
Regional Water Quality Control Board, Sacramento
Project File

→DA

DEPARTMENT OF CONSERVATION
STATE OF CALIFORNIA

DIVISION OF OIL, GAS, & GEOTHERMAL RESOURCES

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GRAY DAVIS
GOVERNOR

April 8, 2002

Mr. Michael Rosauer
PUC WGSI Project Manager
4 West Fourth Avenue, Suite 303
San Mateo, CA 94402

Subject: Wild Goose Gas Storage Project Draft EIR

A2

The Department of Conservation, Division of Oil, Gas, and Geothermal Resources (Division) appreciates the opportunity to comment on the Draft Environmental Impact Report for the Wild Goose Storage Inc., Expansion Project.

DOGGR JURISDICTION & PROGRAM

Section 3000 et sec, Division 3, of the Public Resources Code (PRC), mandates that the Division supervise the drilling, operation, maintenance, and plugging and abandonment of oil, gas, and geothermal wells in the State to prevent damage to life, health, property, and the environment. As part of this statutory authority, PRC Section 3403.5 identifies the Division's jurisdiction over underground storage facilities. Furthermore, permit conditions are outlined in Section 1724.6 Division 2, Title 14, of the California Code of Regulations. Before a permit is issued Division engineers review all aspects of a proposed project to ensure there will be no gas migration from the intended injection zone, and that there will be no contamination of any freshwater aquifers. If there are concerns regarding possible migration or contamination, the Division could require the operator to modify the project, undertake remedial actions, and/or perform additional monitoring to ensure there are no problems.

A2-1

In addition, all operators must report monthly injection or withdrawal volumes and well pressures to the Division. This information and regular site inspections insure the operator is in compliance with the conditions in their injection permit.

EXISTING PROJECT BACKGROUND

CEQA review of the initial project involved a Negative Declaration prepared by the Public Utilities Commission (PUC) in 1997. The initial project included a 3-acre compressor facility, a 1.5-acre well pad, a 12-inch pipeline to connect the facility with a PG&E transmission line, and an 18-inch pipeline connecting the well pad with a compressor facility.

Wild Goose Gas Storage, Inc., was issued a Division permit to inject gas into the Kione Formation on August 5, 1997. The permit contains 23 stipulations that must be met for the company to continue operation of the project. The following are some of the conditions:

- Corrosion prevention measures.
- Annual mechanical integrity testing.
- Maximum allowable injection pressure significantly below the fracture gradient of the cap rock.
- Waste-handling provisions.
- Annual project review meetings with Division engineers.
- Subsurface safety valves.
- Annual monitoring of plugged and abandoned wells in the area.

Wild Goose Gas Storage, Inc. began operation in April 1999, and there has been no evidence of fresh water contamination or gas migration from the injection zone.

COMMENTS ON DRAFT EIR

The Draft EIR overstates significantly the potential impacts of injecting gas into a depleted gas reservoir and the drilling, operation, and plugging and abandonment of gas-storage wells. In addition, there are jurisdictional issues that need clarification. A2-2

In each discussion of mitigation measures involving Division jurisdiction, the CPUC has been included for further consultation. The CPUC has no jurisdiction over the wells or the subsurface aspects of this type project. Therefore, the CPUC should not be included in regulatory oversight responsibilities that are duplicative or inappropriate. A2-3

Page 2-40, Well Workover

This section outlines the regular operational maintenance procedure that may be performed on a well. However, the equipment typically used for a well workover is much smaller and less elaborate than what is used in drilling operations. The workover frequency for any well is dependent on many factors, including the subsurface fluid chemistry, the physical properties of the reservoir rock, and the production practices of the operator. The workover frequency stated in the draft EIR is less than usual for wells in this type project. A2-4

In addition, whenever a workover operation is performed on an injection well, the operator must have a Division permit prior to commencing operations. This permit is provided after a Division engineer evaluates the proposed operations and specifies the proper safety equipment for the well.

Page 2-42, California Division of Oil, Gas, and Geothermal Resources

This section briefly describes the Division's regulatory program, including the requirements for initiating an injection project. The following information should be added to this section:

- Written approval (a permit) from the Division is required prior to commencing drilling, reworking (workover), injection, or any plugging operations. A2-5
- Upon completion of any drilling, redrilling, deepening or reworking operations, the operator must submit a written history of the operations to the Division, along with copies of all geophysical tests and surveys performed on the well.

Page 2-44, Permit Requirements

This section outlines the required permits in addition to permits from the PUC and the U.S. Army Corps of Engineers. The list fails to include the following Division permits:

- An updated gas storage project permit.
- A drilling permit for each well to be drilled. A2-6

When applicable, the following permits are necessary during the life of the project:

- A workover permit to change the mechanical condition of the well.
- An abandonment permit whenever a well is to be plugged and abandoned.

Page 3.7-14, Storage Field and Caprock Conditions

Project permit conditions set the maximum allowable injection pressure to ensure gas storage pressures are maintained at safe levels. Typically, the fracture pressure gradient for a sedimentary rock is approximately 1.0 psi per foot of depth. The Division requires at least a 20 percent safety margin for most injection projects, allowing a maximum of 0.8 psi per foot. The injection pressure in the current Wild Goose Gas Storage Project permit is limited to 0.7 psi per foot. All the project conditions, including the injection pressure for each well, are reviewed with the operator at annual meetings. If necessary, the Division will alter the maximum allowable injection pressure to prevent damage to the caprock.

A2-7

In addition, the Wild Goose Gas reservoirs were initially discovered as a gas field. The structure that resulted in the accumulation of gas has been dated at approximately 2.4 million years old. Over the life of this field, 103 billion cubic feet of gas was produced. Therefore, it is unreasonable to assume that the cap rock is now incompetent at pressures similar to the original natural pressure. The caprock coring proposed by the operator is an additional measure that would not be a requirement specified in the Division's project permit, especially because this project is an extension of a proven project. The requirement would be more appropriate for a new project.

A2-8

Page 3.7-14, Mitigation Measure 3.7-1

The core information gathered by Wild Goose Gas Storage, Inc., is beyond the typical project requirements. Considering its routine nature, it is unnecessary to review the core evaluation process prior to conducting the tests.

In addition, proposed injection pressures are at an appropriate level for safety, and they are consistent with Division guidelines.

A2-9

Page 3.7-14, Mitigation Measure 3.7-2

As detailed previously, this mitigation measure is excessive given the allowable injection pressures that include a large safety margin that is included in the Division's project permit.

A2-10

Page 3.7-16, Abandoned Wells and Dry Holes

This section describes potential hazards associated with plugged and abandoned wells in the project area, and provides mitigation measures for them. Two plugged and abandoned wells are identified as potential sources of problems; wells Brady 1-20 and WWGU1 1-17. These plugged and abandoned wells and the gas storage project wells are under the Division's jurisdiction, as specified in the Public Resources Code sited previously.

A2-11

Page 3.7-16, Mitigation Measure 3.7-3

As part of the justification for this mitigation measure, the report indicates that storage gas may escape and accumulate in a building or structure. There are several reasons outlined below indicating why this scenario is highly improbable.

Before any structure can be built over or adjacent to a well, the Division must be notified as required under Section 3208.1 of the Public Resources Code. Under this section the Division may require the owner of any property to plug any well that is in the proximity to a proposed structure when that well may pose a potential hazard. As part of this process, the Division may recommend that the developer install a vent to ensure that any potential gas leakage is vented to the atmosphere and not allowed to accumulate under or in a structure. This procedure is used extensively in Southern California where there are hundreds of structures built over plugged and abandoned oil and gas wells.

Well Brady 1-20 was plugged and abandoned in 1966 to the standards specified on the Division permit. Division engineers were on site during the plugging operations to ensure the gas zones were plugged properly. A review of the plugging and abandonment operations indicates that it is highly unlikely that any storage gas could be leaking from this well. A2-12

In addition, this well is located structurally below the gas-water contact for the current L-4 zone project and, therefore, could not act as a direct conduit for injected gas. Typically, the injected gas accumulates in the highest portions of a reservoir and forces the formation water downward. This well was located in a lower portion of the reservoir that has always been saturated with water.

The proposed expansion into the U-1 and U-2 zones would not pose a significant threat, even though the injected gas would come in contact with the wellbore of Brady 1-20. The cement plugs in this well ensure that any injected gas will be contained in the intended storage zone.

Page 3.7-17, Mitigation Measure 3.7-4

The argument behind this mitigation measure assumes that gas is currently leaking from the existing wells in the area. There is no evidence that this is occurring.

The current injection zone is approximately one half mile below the surface and there are several gas zones and several impermeable rock layers above the injection zones. Any gas leakage from the storage zone would most likely charge the other gas reservoirs in the field or be contained in the subsurface formations by the other confining rock strata. In addition, the gas storage operator monitors the volume of gas injected and withdrawn continuously to assure that no gas is escaping the gas storage reservoirs. A2-13

Also, gas storage operators use observation wells routinely to determine if there is any gas escaping from a storage reservoir. Typically, observation wells are sited in zones above the injection zone where any escaping gas would most likely collect. Typically, Division project permits require the use of observation wells, along with a regular monitoring program, if there is a question involving the competence of a gas-storage reservoir.

Page 3.7-17, Mitigation measure 3.7-5 & 3.7-6

These mitigation measures address the assumption that new and plugged and abandoned wells will fail with age. While it is true that older wells may have a higher probability of leaking, it is more a function of the plugging and abandonment practices used. Plugging and abandonment technologies have advanced significantly over the last 50 years and the Division's regulations have changed to meet those standards. The wells in the project area have been plugged and abandoned properly and should not pose a threat. A2-14

In addition to the advancement of plugging and abandonment technologies, the techniques used to drill and complete wells have progressed over time, also. Therefore, the statement that the casing and annular seals will fail with age is not necessarily valid. In other areas of the State, much older wells are used regularly in steam-injection or gas-storage projects without any evidence of casing or annulus-seal failure.

Page 3.7-18, Mitigation Measure 3.7-1 & 3.7-7

These mitigation measures are directed at the assumption that the locations of the plugged and abandoned wells in the area are unknown. The Division has detailed location information for every well in this area. This information is available at the Division's district office in Sacramento or through its web site.

In addition, Section 1723.5, in Title 14, Division 2, Chapter 4 of the California Code of Regulations requires that all plugged and abandoned wells be cut off and buried 5 feet below the ground surface. This is to ensure that the plugged and abandoned wells do not affect adversely any future use of the property. Requiring an operator to place monuments over all the plugged and abandoned wells is not a Division requirement and is considered unnecessary. A2-15

The comments regarding the previous mitigation measures for potential gas leaks to the surface apply, also.

Page 3.7-20, Mitigation Measure 3.7-8

This mitigation measure intends to resolve the possibility of gas migrating to the surface through faults. Typically, faults act as conduits or barriers to subsurface gas or fluid migration. Because this area was originally a gas field, it can be assumed that the faults are either not in contact with the gas reservoir or the faults act as a barrier to gas migration. Otherwise, the gas would not have accumulated in the reservoir.

During the project permitting phase, the Division evaluates the potential for gas escaping the reservoir through faults. When necessary, the Division requires alteration of the project to include observation wells or maintaining a higher gas-water contact prior to project approval.

A2-16

Not all faults extend to the surface; therefore, it is not reasonable to test for gas at the surface to prove or disprove that the fault is acting as a conduit. Comments provided above regarding the proper mitigation measures and improbability of gas reaching the surface apply, also.

CONCLUSION

In conclusion, the Division is mandated to protect life, heath, property, and the environment from damage resulting from the drilling, operation and plugging and abandonment of oil and gas wells, including gas-storage wells. The Division uses project evaluation permitting, site inspections, annual reviews, and monthly injection and withdrawal reporting to ensure the operations are operated in a safe manner.

A number of the comments to this draft would not have been necessary if the Division had been consulted prior to development of the report. The Notice of Preparation indicated that the Division would be consulted; however, there is no record of this consultation taking place.

If you have any questions please contact me at (916) 322-1110.

Sincerely,

Robert S. Habel

Robert S. Habel
District Deputy
DOGGR – District 6

Appendix F
Noise Background Information

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October 12, 2009

Mr. Mark Cassady
TRC Solutions
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Transmitted via email: mcassady@trcsolutions.com

Re: Noise-Related Data Gaps for Wild Goose Gas Storage Phase 3 Project Supplemental EIR.

Dear Mr. Cassady:

This letter contains Bollard Acoustical Consultants, Inc. responses to noise-related questions for the subject project.

Data Gap 63 Question:

The noise section in the 2002 EIR referred to five residences within 1 mile of project facilities in Butte County, and six residences within Colusa County, including one associated with a private airstrip. The PEA provides information on sensitive receptors located in Butte County only, indicating one instead of five, and does not refer to any private airstrip. Clarify this apparent discrepancy.

Provide a table of noise sensitive receptors within a 1-mile radius of the RFS site and Delevan site, indicating type (i.e., residential, hunting club/recreational, farm/agricultural), location, and relative distance to nearest project component (RFS or Delevan Interconnect Site).

BAC Response:

The 2002 EIR included analysis of noise impacts at residences within one mile of either pipeline construction routes or above-ground facilities (Well Pad Site, RFS, and Delevan Interconnect Site). The current project (Phase 3 Expansion), does not include any pipeline construction between the Delevan Interconnect Site and the Remote Facility Site (RFS), so some of the residences identified as being within one mile of the 2002 project are not located within one mile of the current project. As a result, the only residences evaluated in the current Proponent's Environmental Assessment (PEA) are those within one mile of either the Remote Facility Site or Delevan Interconnect Site. The differences between the 2002 project and the current project account for the apparent discrepancy between the analyses.

As noted in Section 3.11.2.2 of the current PEA, one residence and one hunting club were identified within one mile of the Remote Facility site (please see attached figure 1 illustrating residences within one mile of the RFS). A third receptor is located almost

exactly one mile northeast of the eastern RFS boundary, on the east side of Pennington Road, and the residence referenced above with the private airstrip is located just over one mile from the expanded northwestern corner of the RFS. Because these two residences are not located within one-mile of the RFS, they were not included in the PEA analysis. It is important to note, however, that because no adverse noise impacts were identified at the two residences located within one mile from the RFS, a similar finding of no significant noise impact would have been made for the two additional residences located just outside the one-mile study radius of the RFS.

With respect to the Delevan Interconnect Site, one apparent residence was identified approximately 0.5 miles southeast of that facility, but the PEA noise section inadvertently omitted a discussion of the ambient noise conditions in the vicinity of that receptor in the Environmental Setting (please see attached figure 2 illustrating residences within one mile of the Delevan Interconnect Site). However, both construction and operational noise impacts were evaluated for this receptor in sections 3.11.3.2 and 3.11.3.3, respectively. No noise impacts associated with either construction or operations were identified for that residence. Nonetheless, due to the inadvertent omission of the environmental setting section for the Delevan Interconnect Site, the following text is recommended for insertion in the PEA Noise Section, and subsequent sections should renumbered accordingly:

3.11.2.2 Environmental Setting – Delevan Interconnect Site - Colusa County

Noise Sensitive Receptors

Sensitive receptors within one mile of the Delevan Interconnect Site include one apparent farmhouse located approximately 0.5 miles to the southwest. This structure was identified through aerial imagery but it is not absolutely clear that this structure represents a residence. To provide a conservative assessment of potential project noise impacts, it was assumed in the PEA noise analysis that this structure could represent a noise-sensitive receptor. No other sensitive receptors were identified within one mile of the Delevan Interconnect Site, with the next closest residence being 1.15 miles to the southeast.

Ambient Noise Sources

Primary noise sources in the vicinity of the Delevan Interconnect Site include operations at the PG&E power generation facility to the northwest, distant traffic on local roads, agricultural equipment operating in fields, crop dusters, and natural noises. During the spring and fall months, farmers in the areas to the east typically use bulldozers for creating rice dikes, deep plowing, and leveling, tractors for other field preparation activities, backhoes for repairing and maintaining water control structures, and combines for harvesting the rice. Additional seasonal noise sources include:

- propane powered zone guns used in mid- to late-summer to scare birds from the rice fields as the seed heads mature;

- low-flying crop dusters applying seed, fertilizer, or pesticides, or buzzing the fields to scare off birds in the spring, summer, and fall just before harvest.

Ambient Noise Levels

Short-Term noise surveys conducted in the vicinity of the Delevan Interconnect Site area on December 4, 2008 indicated a daytime average noise level of 40 dBA (Leq). Although nighttime ambient noise surveys were not conducted at this location, it is reasonable to conclude that nighttime ambient conditions would be approximately 5 dB lower that daytime levels, consistent with survey results near the RFS location.

In response to the Data Gap 63 request for tables showing the noise sensitive receptors within a 1-mile radius of the RFS site and Delevan site, indicating type (i.e., residential, hunting club/recreational, farm/agricultural), location, and relative distance to nearest project component (RFS or Delevan Interconnect Site), the following table is provided:

Description of Noise-Sensitive Receivers within One Mile of RFS or Delevan Site

Facility	Noise-Sensitive Receiver	Land Use	Distance from Project Site (feet)
RFS	Waterbury Residence	Residential	4,500 NE
RFS	Gray Eagle Hunting Club	Hunting Club/Recreational	4,400 SW
Delevan	Residence	Residential	2,700 SW

Source: Bollard Acoustical Consultants, Inc.

Data Gap 64 Question:

Provide source/reference documents for previous noise surveys conducted for the existing facilities and nearest receptors (from 1999 and 2008). Indicate distances between nearest receptors and the RFS and Delevan sites.

BAC Response:

The distances between nearest residences and Delevan/RFS facilities are provided in the table above. Please see the Appendices to this letter for the results of the continuous ambient noise level measurements at the Waterbury and Weiking residences during the monitoring periods of January 1998 and December 1999. The following Tables summarize the ambient noise level measurement data taken at the Waterbury and

Weiking residences during June 1999, summaries of measured Wild Goose facility noise levels at the facility property line on June 23, 1999 and December 15, 1999, and ambient noise survey data conducted at the Waterbury and Weiking residences on December 4, 2008.

Ambient Noise Level Measurement Data
Waterbury Residence - June 23-24, 1999

Date	Time	Leq	Lmax	Lmin	L(2)	L(8)	L(10)	L(25)	L(50)	L(90)
23-Jun	3:00 PM	46	75	31	54	48	46	40	36	33
23-Jun	4:00 PM	40	59	29	50	42	41	36	34	32
23-Jun	5:00 PM	42	58	30	52	47	45	40	36	33
23-Jun	6:00 PM	41	70	31	48	43	42	39	37	33
23-Jun	7:00 PM	42	65	31	50	43	42	39	37	34
23-Jun	8:00 PM	43	62	33	53	44	43	40	39	35
23-Jun	9:00 PM	47	59	39	52	51	51	48	46	41
23-Jun	10:00 PM	52	57	40	55	55	55	54	52	42
23-Jun	11:00 PM	48	60	39	52	52	51	50	46	41
24-Jun	12:00 AM	46	61	40	51	48	48	47	45	43
24-Jun	1:00 AM	45	63	39	50	48	48	46	45	41
24-Jun	2:00 AM	44	58	38	49	47	47	45	44	41
24-Jun	3:00 AM	41	55	35	46	44	44	41	39	37
24-Jun	4:00 AM	41	54	34	46	44	43	41	39	37
24-Jun	5:00 AM	43	62	34	51	45	44	42	40	37
24-Jun	6:00 AM	43	58	34	51	46	45	42	40	37
24-Jun	7:00 AM	46	63	35	54	49	48	44	42	38
24-Jun	8:00 AM	42	58	34	51	45	45	42	39	36
24-Jun	9:00 AM	47	77	32	55	48	46	42	38	35
24-Jun	10:00 AM	55	81	32	66	54	51	41	38	34
24-Jun	11:00 AM	39	59	29	46	42	41	39	36	32
24-Jun	12:00 PM	41	63	31	49	44	44	41	38	34
24-Jun	1:00 PM	41	60	31	49	45	44	41	38	35
24-Jun	2:00 PM	43	66	34	50	46	45	42	40	37
24-Jun	3:00 PM	43	58	34	51	48	47	43	41	37
24-Jun	4:00 PM	45	60	36	51	48	48	45	42	39
24-Jun	5:00 PM	45	61	34	52	49	48	45	42	38
24-Jun	6:00 PM	51	65	36	55	54	54	53	51	42
24-Jun	7:00 PM	45	68	36	52	49	48	44	42	39
24-Jun	8:00 PM	43	55	37	50	48	48	44	42	39
24-Jun	9:00 PM	48	62	44	51	50	50	48	47	45

24-Jun	10:00 PM	46	67	37	50	48	48	46	45	40
24-Jun	11:00 PM	44	58	37	47	46	46	45	44	39
25-Jun	12:00 AM	43	57	36	46	45	45	44	43	39

Source: Bollard Acoustical Consultants, Inc.

Ambient Noise Level Measurement Data
Weiking Residence - June 23-24, 1999

Date	Time	Leq	Lmax	Lmin	L(2)	L(8)	L(10)	L(25)	L(50)	L(90)
23-Jun	3:00 PM	47	60	37	53	51	50	48	46	41
23-Jun	4:00 PM	47	57	37	53	51	51	49	46	42
23-Jun	5:00 PM	48	62	37	54	52	52	49	46	41
23-Jun	6:00 PM	48	61	37	55	52	51	49	46	42
23-Jun	7:00 PM	49	64	40	57	51	51	48	46	43
23-Jun	8:00 PM	45	60	39	50	47	47	46	44	42
23-Jun	9:00 PM	50	56	42	54	53	53	51	49	45
23-Jun	10:00 PM	50	55	45	53	52	52	51	50	48
23-Jun	11:00 PM	53	59	46	56	55	55	53	52	50
24-Jun	12:00 AM	56	68	48	61	59	59	57	54	51
24-Jun	1:00 AM	55	64	45	60	58	58	56	54	50
24-Jun	2:00 AM	52	61	43	58	56	55	53	51	47
24-Jun	3:00 AM	48	56	38	54	52	51	49	46	41
24-Jun	4:00 AM	44	59	31	51	48	48	45	38	34
24-Jun	5:00 AM	54	71	43	60	58	57	55	52	47
24-Jun	6:00 AM	49	66	38	55	53	52	49	46	42
24-Jun	7:00 AM	48	58	36	55	53	52	49	46	42
24-Jun	8:00 AM	48	60	38	54	52	52	49	46	42
24-Jun	9:00 AM	56	68	36	64	62	61	54	49	44
24-Jun	10:00 AM	74	89	36	84	79	78	72	64	47
24-Jun	11:00 AM	56	78	44	62	57	56	53	52	50
24-Jun	12:00 PM	52	66	43	57	54	54	52	51	47
24-Jun	1:00 PM	53	59	44	56	55	55	54	53	51
24-Jun	2:00 PM	48	62	40	53	51	50	49	47	44
24-Jun	3:00 PM	47	61	38	54	50	49	47	45	42
24-Jun	4:00 PM	50	66	35	56	54	53	51	47	40
24-Jun	5:00 PM	49	65	36	55	53	52	50	48	43
24-Jun	6:00 PM	47	61	37	53	51	50	48	45	42
24-Jun	7:00 PM	44	59	36	51	47	47	44	42	39
24-Jun	8:00 PM	46	62	37	51	50	50	48	45	41

24-Jun	9:00 PM	51	55	46	53	52	52	51	50	49
24-Jun	10:00 PM	48	54	43	51	50	50	49	48	46
24-Jun	11:00 PM	44	50	37	48	47	47	46	44	41
25-Jun	12:00 AM	42	47	34	45	44	44	43	41	38

Source: Bollard Acoustical Consultants, Inc.

Measured Wild Goose Storage Facility Noise Levels at Facility Property Line
June 23, 1999

Site	Fence Line	Location Description	Noise Level, dB
1	South	Western entrance gate	55
2	South	Between two gates at pressure control valves	58
3	South	Dehi-regen units	56
4	South	Eastern gate	49
5	Southeast	Southeast corner of fence line	48
6	East	Southeast corner of PG&E fence line	49
7	North	Northwest corner of PG&E fence line	65
8	North	Midpoint of north fence line between exhaust stacks	72
9	Northwest	Northwest fence line	57
10	West	Western fence line at northern compressor building extension	63
11	North	Same as site 8, but at northern property line instead of fence line	68

Source: Bollard Acoustical Consultants, Inc.

Measured Wild Goose Storage Facility Noise Levels at Facility Property Line
December 15, 1999

Site	Property Line	Location Description	Noise Level, dB
1	South	Western entrance gate	63
2	South	Between two gates at pressure control valves	87
3	South	Dehi-regen units	78
4	South	Eastern gate	76
5	Southeast	Southeast corner of fence line	67
6	East	Southeast corner of PG&E fence line	63
7	North	Northwest corner of PG&E fence line	50
8	North	Midpoint of north fence line between exhaust stacks	55
9	Northwest	Northwest fence line	45
10	West	Western fence line at northern compressor building extension	58

Source: Bollard Acoustical Consultants, Inc.

Measured Wild Goose Storage Facility Noise Levels at Facility Property Line
December 4, 2008

Site	Location Description	Noise Level, dB
Waterbury	Waterbury residence	45
Weiking (Ratto)	Entrance to the Gray Eagle Hunting Club	41

Source: Bollard Acoustical Consultants, Inc.

Data Gap 65 Question:

Provide source/reference for estimated loudest construction equipment used, and method of estimation. Provide table indicating construction equipment and estimated noise levels at 50, 100 and 200 feet.

BAC Response:

During construction of the project, noise from construction activities will intermittently increase the ambient noise environment in the immediate area of construction. The following table summarizes noise levels produced by construction equipment that is commonly used on construction projects. As indicated below, construction equipment is expected to generate noise levels generally ranging from 80 to 90 dB Lmax at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of approximately 6 dB per doubling of distance. At the nearest residences to the Delevan and RFS, located between approximately 2,500 and 5,000 feet, the table indicates that maximum noise levels would be in the range of 40-55 dB Lmax, which are well below both ambient noise levels and applicable county noise standards.

Maximum Construction Equipment Noise Levels (Lmax, dB)
Wild Goose Gas Storage Phase 3

Equipment	50 feet	100 feet	200 feet	2,500 ft.	5,000 ft.
Scrapers	89	83	77	55	49
Bulldozers	85	79	73	51	45
Heavy Trucks	88	82	76	54	48
Backhoe	80	74	68	46	40
Pneumatic Tools	85	79	73	51	45
Concrete Pump	82	76	70	48	42

Source: Federal Transit Administration, 1995.

Data Gap 66 Question:

Clarify if any County or municipal permits are required to conduct construction activities before daytime hours during the summer or when construction schedule variables may require noise-producing work outside this 13-hour window. Clarify if these activities would be in compliance with local ordinances regarding noise control.

BAC Response:

BAC reviewed the General Plan Noise Elements and Noise Ordinances of both Colusa and Butte Counties and could find no requirement for a special permit to conduct construction activities outside normal daytime hours. As noted in the response to Data Gap Quesiton 65, predicted construction noise levels at the nearest potentially affected sensitive receptors are predicted to be within compliance with applicable County noise standards.

Data Gap 67 Question:

Provide a table indicating estimated construction noise levels per project component at 50 feet from the source, and at those sensitive receptors located within a 1-mile radius of the RFS or Delevan site.

BAC Response:

This request is very similar to the request made in Data Gap 65. Please see the response provided for Data Gap 65 for predicted construction noise levels at the reference distance of 50 feet, as well as at the nearest sensitive receptors identified on the attached figures.

Data Gap 68 Question:

Provide a table indicating estimated normal operational noise levels per project component at 50 feet from the source, and at those sensitive receptors located in a 1-mile radius of the facilities.

BAC Response:

Description of Noise-Sensitive Receivers within One Mile of RFS or Delevan Site and Operational Noise Levels at those Sensitive Receptors

Facility	Reference Noise Level at 50 ft.	Noise-Sensitive Receptors	Distance	Noise Level at Sensitive Receiver
RFS	75 dB Ldn	Waterbury Residence	4,500 ft.	36 dB Ldn
RFS	75 dB Ldn	Gray Eagle Hunting Club	4,400 ft.	36 dB Ldn
Delevan	55 Ldn	Residence	2,700 ft.	20 dB Ldn

Source: Bollard Acoustical Consultants, Inc.

Note: The highest noise level measured at the RFS property line (approximately 50 feet from nearest equipment) was shown in the Table above to be 72 dBA. The theoretical maximum value of 75 dB Ldn is used here to provide a conservative assessment of RFS noise levels at the nearest receptors.

Data Gap 69 Question:

Provide the estimated radius of influence (noise impacts to sensitive receptors) in the event of pressure releases from pressure relief valves and blow downs.

BAC Response:

According to ATCO Noise Consultants of Calgary Canada, the design and implementation of noise control measures at the existing RFS ensures that property line noise levels do not exceed 75 dB Ldn, including normal pressure release valve operation. As indicated in the Table provided for response to Data Gap Question 68 above, noise levels of 75 dB Ldn at the property line are predicted to be less than 40 dB Ldn at any of the nearest noise-sensitive receptors to the RFS. The last Table in the response to Data Gap Question 64 indicates that ambient noise levels measured at the two nearest residences to the RFS with the compressors of that facility not in operation ranged from 41 to 45 dB. As a result, normal operation of the RFS facility, both under existing and expanded configurations, is not predicted to exceed applicable County noise standards or existing ambient conditions at those nearest neighbors, including normal pressure relief valve operations.

As noted in the 2002 Wild Goose Expansion Project EIR, unsilenced pressure safety-valve release events could generate noise levels of approximately 74 dB Lmax at a distance of 4,000 feet for a period of 5-10 seconds during the discharge (EIR page 3.10-9). While this would represent a clearly audible event at the nearest residences to the

RFS, audibility is not a threshold of significance under CEQA, and ambient noise survey data collected at the Weiking and Waterbury locations prior to initial plant start-up (January 1998) indicated several periods during which measured maximum noise levels exceeded 75 dB Lmax at those locations. Furthermore, records provided by the project applicant for the years of 2005-2009 indicate that there have been no safety-valve blow-downs of the 18-inch and 30-inch pipelines during that entire 5 year period. As a result, the radius of influence (noise impacts to sensitive receptors) during pressure releases from pressure relief valves and blow downs does not extend to either of the two existing receptors located within one mile of the RFS.

Data Gap 70 Question:

Provide the frequency of pressure releases per year during normal maintenance, and/or statistics of emergency releases from emergency shutdown (ESD) valves in the existing RFS facilities, or similar operations in the gas industry.

BAC Response:

Yearly blow-down reports provided by the project applicant for the years 2005-2009 (5-year period), indicate that there have been zero blow-downs of either 18-inch or 30-inch pipeline safety relief valves. Those reports indicate that there has been normal venting of the smaller facility components during nearly every month of the reporting period, but that venting reportedly occurred through silencers designed to limit maximum noise levels to 75 dB Ldn at any of the project property lines.

Data Gap 71 Question:

Indicate the level of noise attenuation provided by the silencer devices to be installed at blow down vents and ESD valves as noise control measures.

BAC Response:

According to the noise consulting firm which specified the silencers for the existing RFS equipment (ATCO Noise Consultants of Calgary Canada), the information being requested is proprietary but the silencers are guaranteed to limit maximum noise levels to 75 dB Ldn at any of the project property lines.

Data Gap 72 Question:

The PEA states that the existing compressor buildings have incorporated extensive noise control features which dramatically limit sound from compressor operations from escaping into the surrounding area. Provide a description of these noise control features and results of acoustic testing conducted at the RFS facilities.

Provide the estimated incremental increase in noise related to the proposed new compression units associated with Phase 3, and provide a table indicating noise attenuation over distance with respect to the nearest noise receptors.

BAC Response:

Extensive modeling of all existing noise-producing equipment at the RFS, including but not limited to generators, compressors, and blow-down vents, has been conducted by ATCO Acoustics of Calgary, Canada. As a result of that modeling, extensive acoustic treatments have been installed into the existing site design to ensure compliance with the 75 dBA property line noise limit, including noise generated during blow-down operations.

Noise control products and treatments which have been successfully utilized to reduce existing facility noise levels to 75 dB Ldn or less at project property lines include, but are not limited to, vent blow-down silencers on all but 18-inch and 30-inch pipelines, location of facility generators and compressors within acoustically enclosed buildings lined with sound absorbing panels, ventilation air inlet and exhaust duct silencers at the generator/compressor buildings, and acoustical isolation of heavy equipment within the generator/compresser buildings. The expanded RFS equipment will reportedly make use of similar noise control products which have been proven effective at the existing facilities, to continue to limit RFS facility noise emissions to 75 dB Ldn at the facility property lines.

As a result of the RFS project design requirement of limiting property line noise levels to 75 dB Ldn or less, which is consistent with the current facility equipment design objective, an appreciable off-site noise level increase is not anticipated to result from the additional equipment associated with the current expansion project.

Data Gap 73 Question:

Provide a reference and/or further explain the estimated 3 dBA increase in operational noise with the proposed new equipment at Delevan Interconnection Site (what are the uses and equipment associated with the Phase 3 improvements at the Delevan site?). Provide a table showing the estimated noise attenuation levels from the Delevan site boundary to the nearest receptors.

BAC Response:

The changes to the Interconnect Site will involve installation of a new custody transfer meter, and associated piping, valving, and instrumentation. PG&E will install the new meter run parallel to the current meter run within the existing 0.6 acre (140 feet by 200 feet) Interconnect Site. As noted on page 3.11-10 of the PEA, following these modifications, noise will continue to be generated at the Delevan site as it is currently, which is by gas passing through above ground piping control valves. The 3 dB project-

related increase in noise estimated for the Delevan site was based on a theoretical doubling of noise-producing equipment at this location. While a doubling of noise-producing equipment results in a doubling of sound energy, the logarithmic nature of the decibel scale translates that doubling of energy into a 3 decibel increase. The following table shows the post-project reference noise level of 55 dB Ldn (3 dB over the existing property line noise level of 52 dB Ldn), projected to the nearest apparent residence located approximately 2,700 feet to the southwest of the Delevan site. As shown in that table, noise levels at that nearest residence are predicted to be 40 dB below the 60 dB Ldn standard applied to residences by Colusa County. As a result, no noise impacts are identified for the small increase in noise anticipated at the Delevan Site.

Description of Noise-Sensitive Receivers within One Mile of Delevan Site and Operational Noise Levels at those Sensitive Receptors

Facility	Reference Noise Level at 50 ft.	Noise-Sensitive Receptors	Distance	Noise Level at Sensitive Receiver
Delevan	55 Ldn	Residence	2,700 ft.	20 dB Ldn

Source: Bollard Acoustical Consultants, Inc.

Data Gap 74 Question:

The 2002 EIR provided an analysis of potential exposure of people to excessive ground-borne vibration or ground-borne noise (Impact 3.10-2), in accordance with CEQA Guidelines Appendix G. Provide a discussion on this topic for the proposed Phase 3 expansion construction and operations, specifying vibration-sensitive uses within the area of influence (1-mile radius of RFS and Delevan sites) and expected incremental increases in ground-borne vibration, as well as a description of the sources and levels of ground-borne vibration at both the RFS and Delevan sites.

Explain and provide references on how ground-vibration would attenuate over distance from the potential sources to the nearest sensitive receptors.

BAC Response:

The 2002 EIR provided the following analysis of project-related vibration as it pertains to the Remote Facility:

> **Impact 3.10-2: Potential for exposure of people to excessive ground borne vibration** Ground borne vibration or noise propagates not more than perhaps 100 feet from the types of equipment or processes associated with the proposed project. There are no vibration-sensitive uses within this small zone of influence.

Remote Facility. The residence nearest to the Remote Facility is about 4,500 feet away and seasonal hunters would generally be beyond 100 feet from the site. Also, construction and operation-related activities would not generate excessive groundborne vibration. No impacts are anticipated from the Remote Facility in relation to exposure of people to excessive groundborne vibration.

Level of Significance Without Mitigation. No impacts are anticipated in relation to excessive groundborne vibration.

Mitigation Measures. No mitigation is necessary in relation to excessive groundborne vibration.

Because the current PEA tiers from the 2002 project EIR and involves the installation and operation of similar equipment and processes to that analyzed in the 2002 EIR, given the substantial distances between the project components and nearest residences it can logically be concluded that impacts associated with project-generated vibration would be similar to those identified in the 2002 EIR. Because no impacts were identified in the 2002 project EIR relative to groundborne vibration beyond 100 feet from the source, a similar finding of no adverse vibration impacts is reached for the current expansion project.

Data Gap 75 Question:

Provide additional information about the public coordination measures proposed for the Phase 3 RFS expansion. Clarify whether specific public notification procedures to landowners, residents and other stakeholders or sensitive receptors would be implemented before (and how long before) construction and maintenance activities.

BAC Response:

Specific public notification of landowners, residents and other sensitive receptors will be implemented at least one week prior to commencement of construction and maintenance activities associated with the proposed project.

This concludes BAC's responses to requests for additional information. Please call me if you have any questions or if we can otherwise be of assistance.

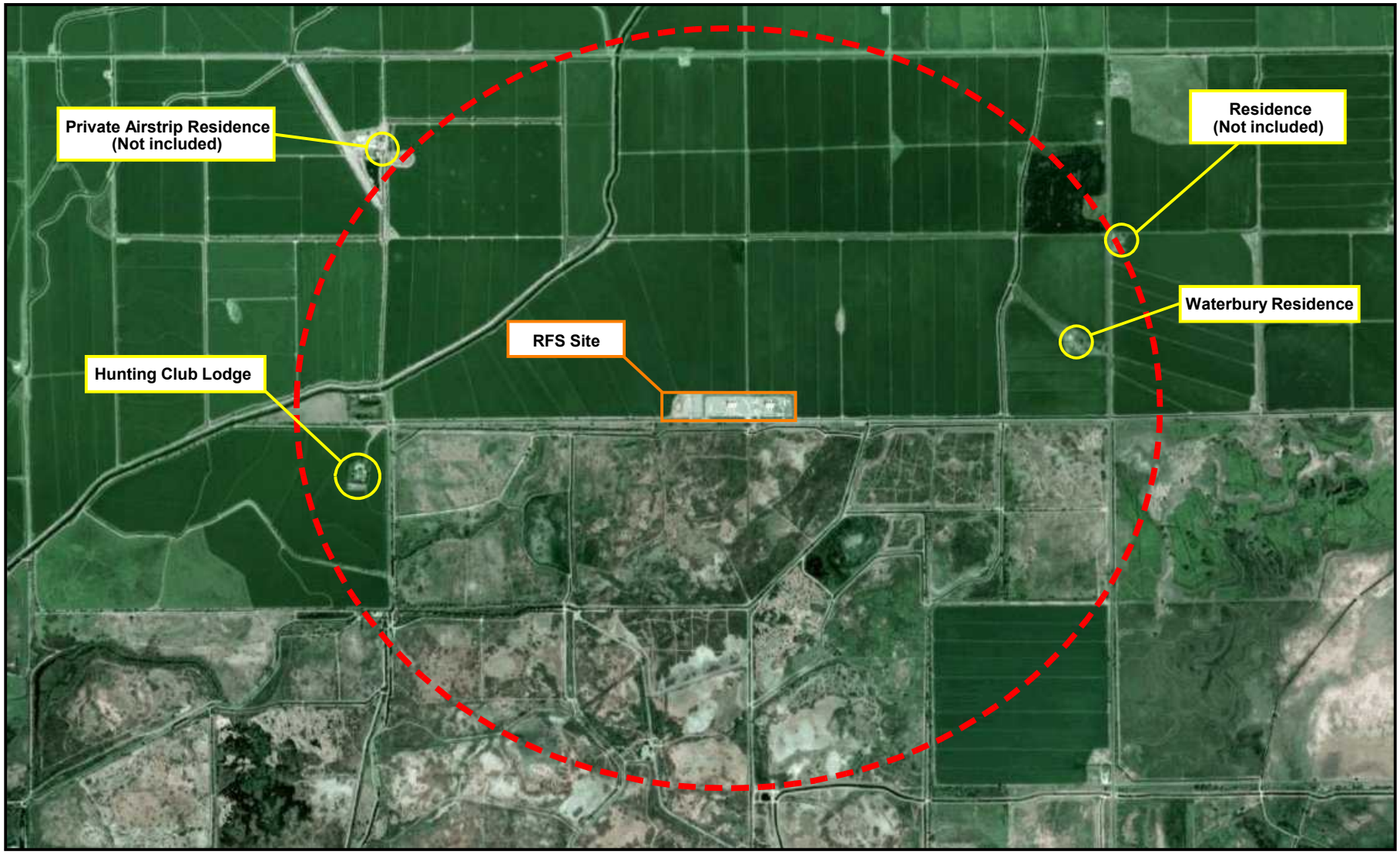
Sincerely,

Bollard Acoustical Consultants, Inc.

Paul Bollard
President

Figures 1 and 2

Figure 1
Remote Facility Site – Butte County, California
One Mile Radius



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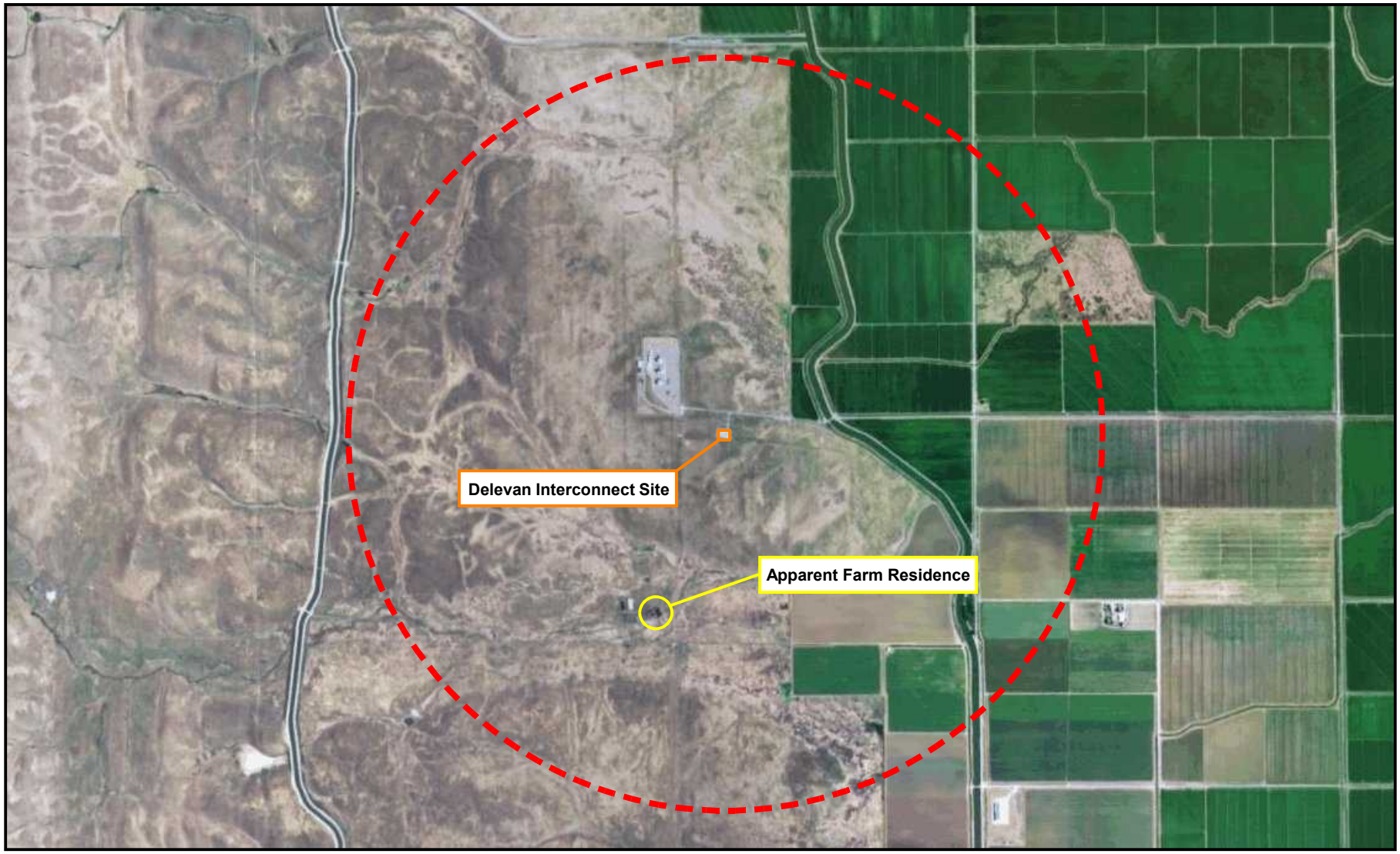
700' 2,100'
0 1,400' 2,800'

Figure 2
Delevan Interconnect Site – Colusa County, California
One Mile Radius



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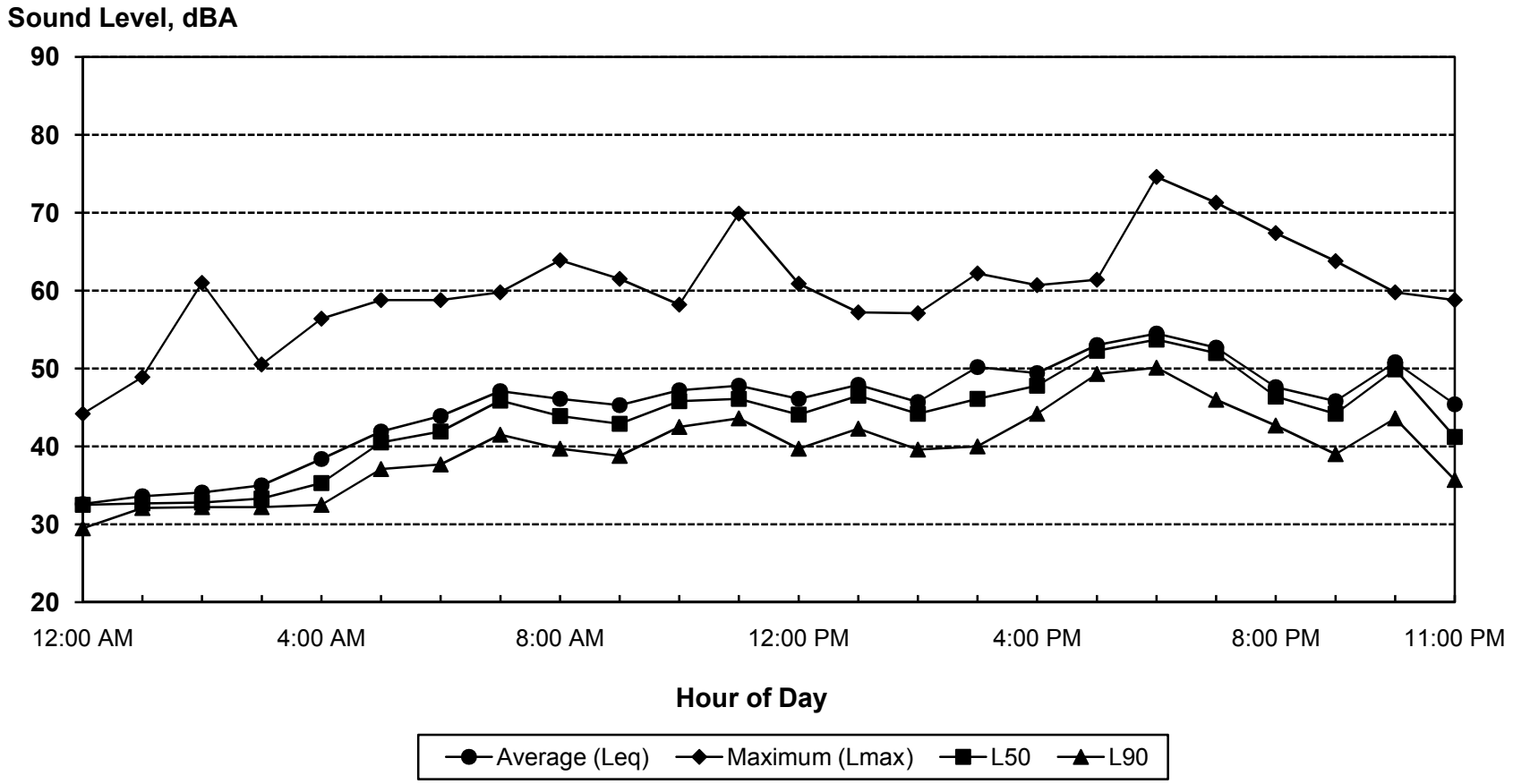
700' 2,100'
0 1,400' 2,800'

Continuous Ambient Noise Measurements at the

Waterbury and Weiking Residences in 1998 and 1999

Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence (Pool)
Friday, January 16, 1998



Ldn: 52 dB

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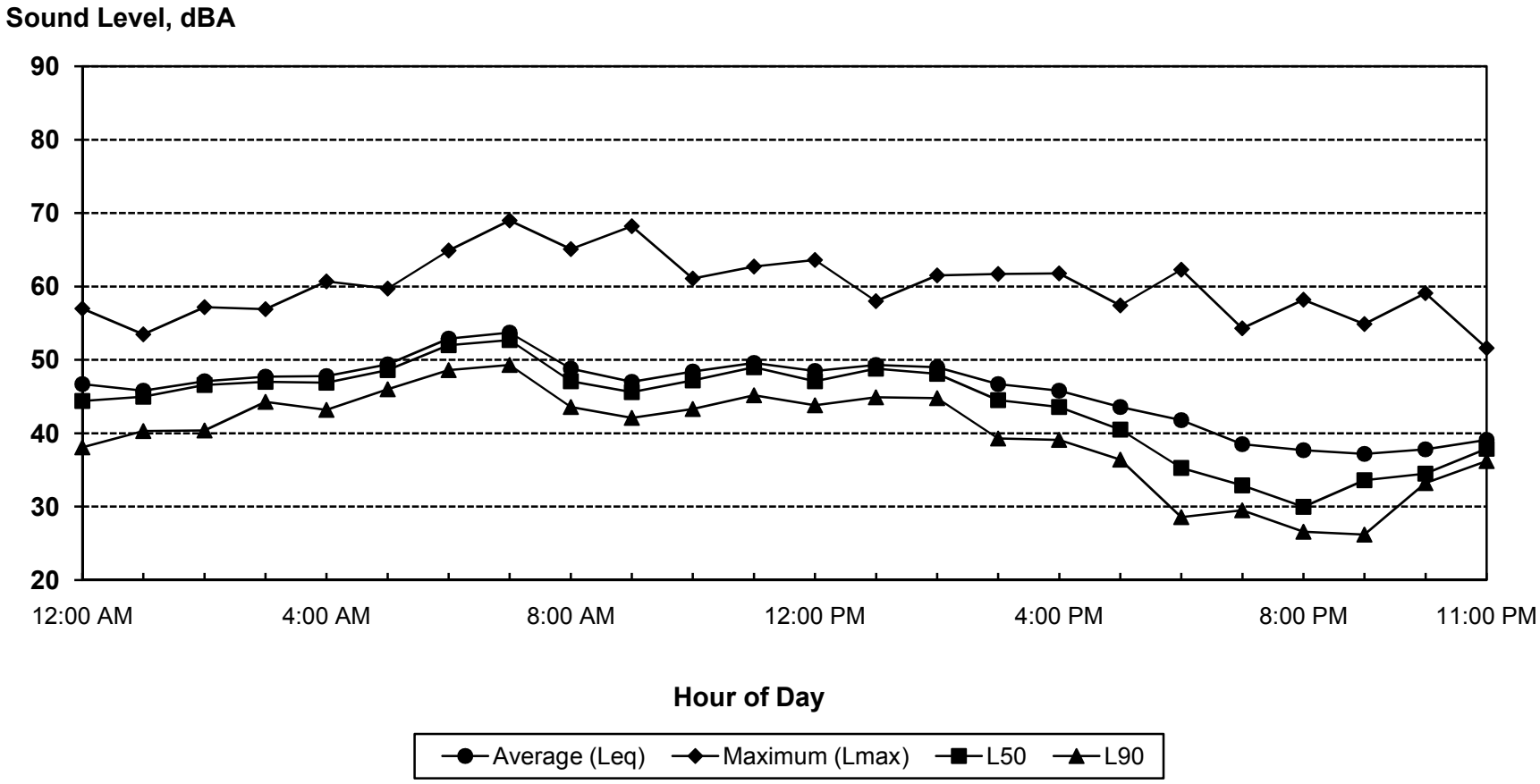
Acoustical Consultants

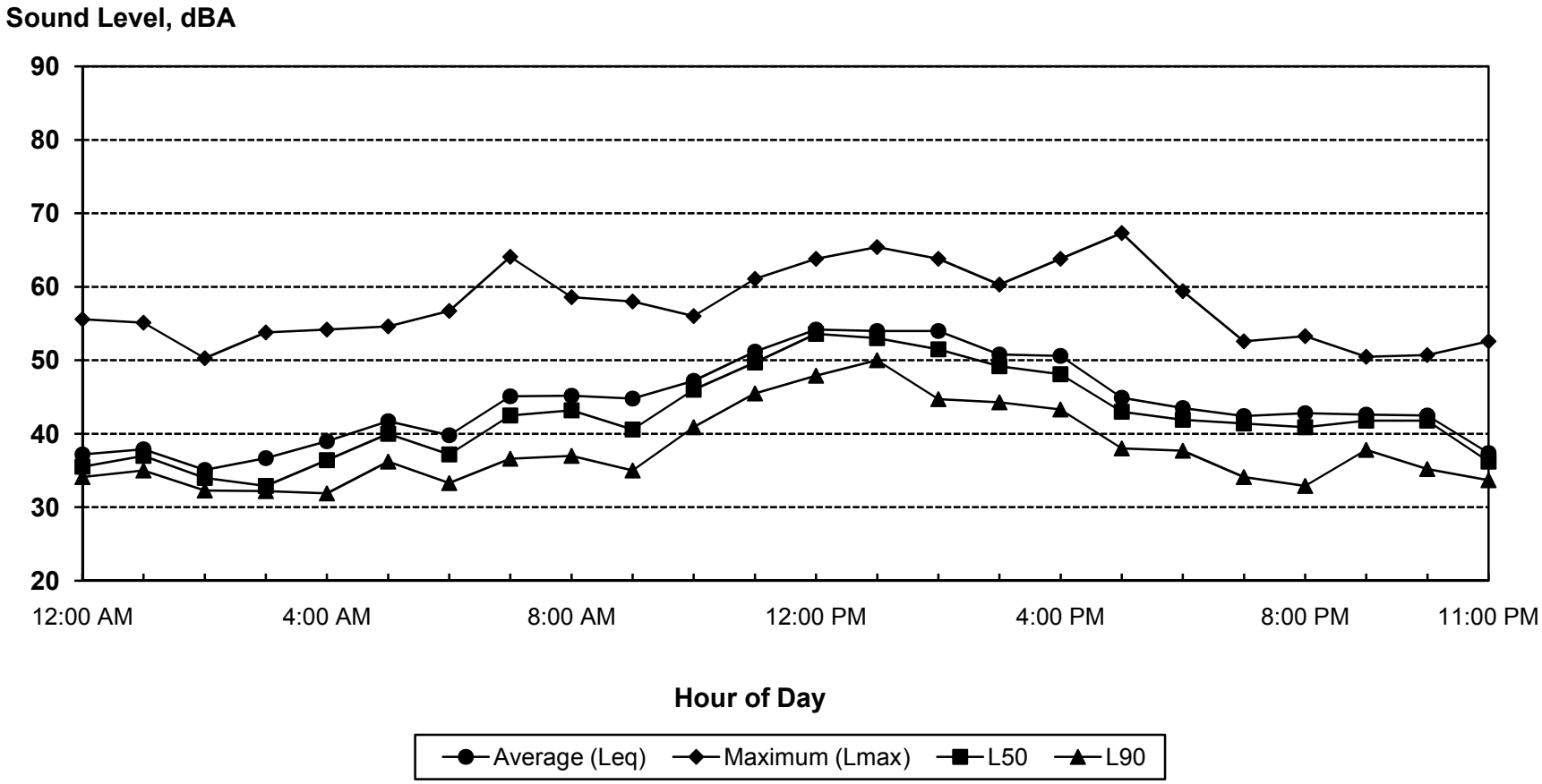
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence (Pool)
Saturday, January 17, 1998



Ldn: 54 dB

BOLLARD
Acoustical Consultants

Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence (Pool)
Sunday, January 18, 1998



Ldn: 49 dB

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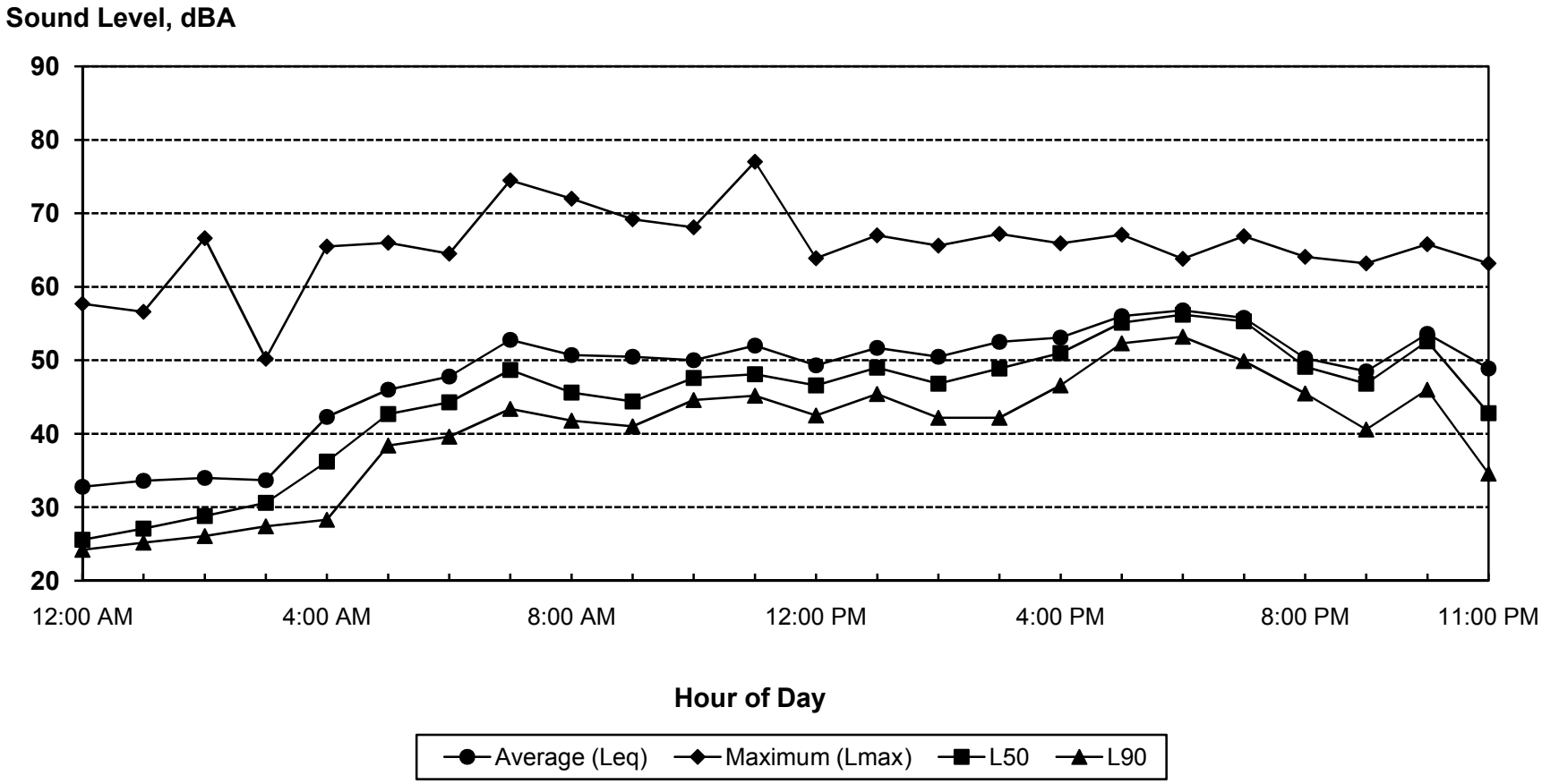
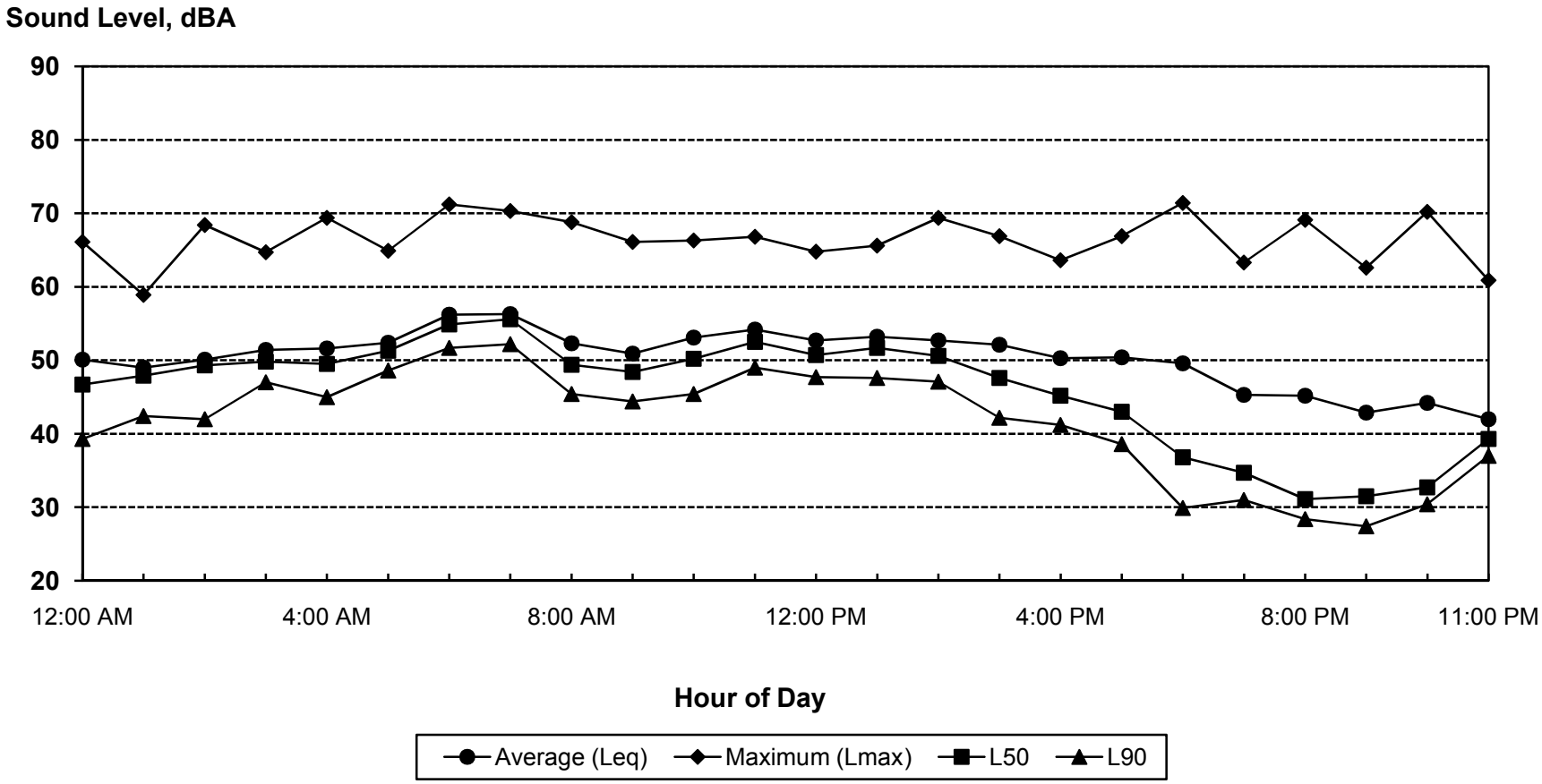
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence (Yard)
Friday, January 16, 1998



Ldn: 55 dB

BOLLARD
Acoustical Consultants

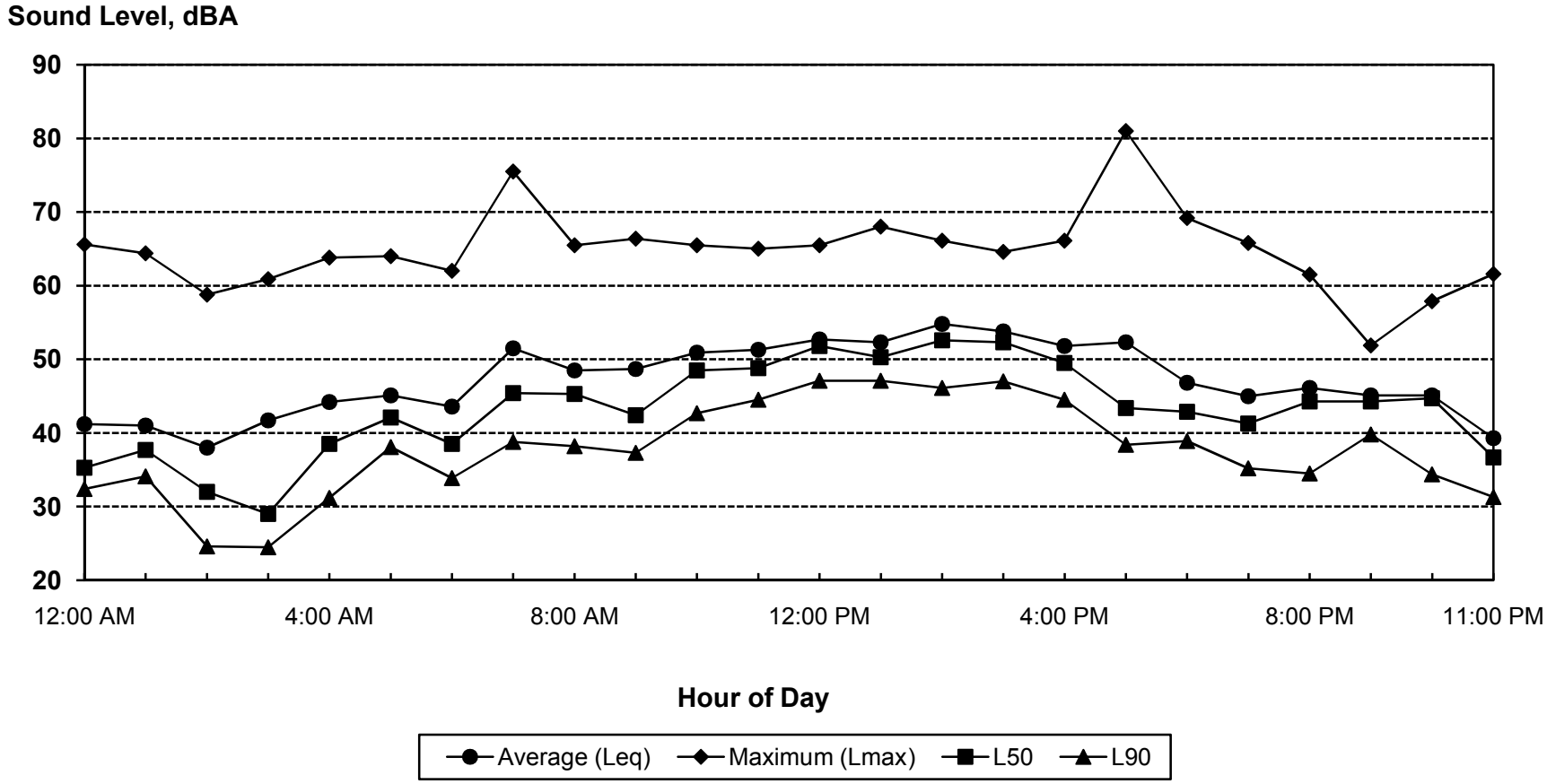
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence (Yard)
Saturday, January 17, 1998



Ldn: 58 dB

BOLLARD
Acoustical Consultants

Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence (Yard)
Sunday, January 18, 1998



Ldn: 52 dB

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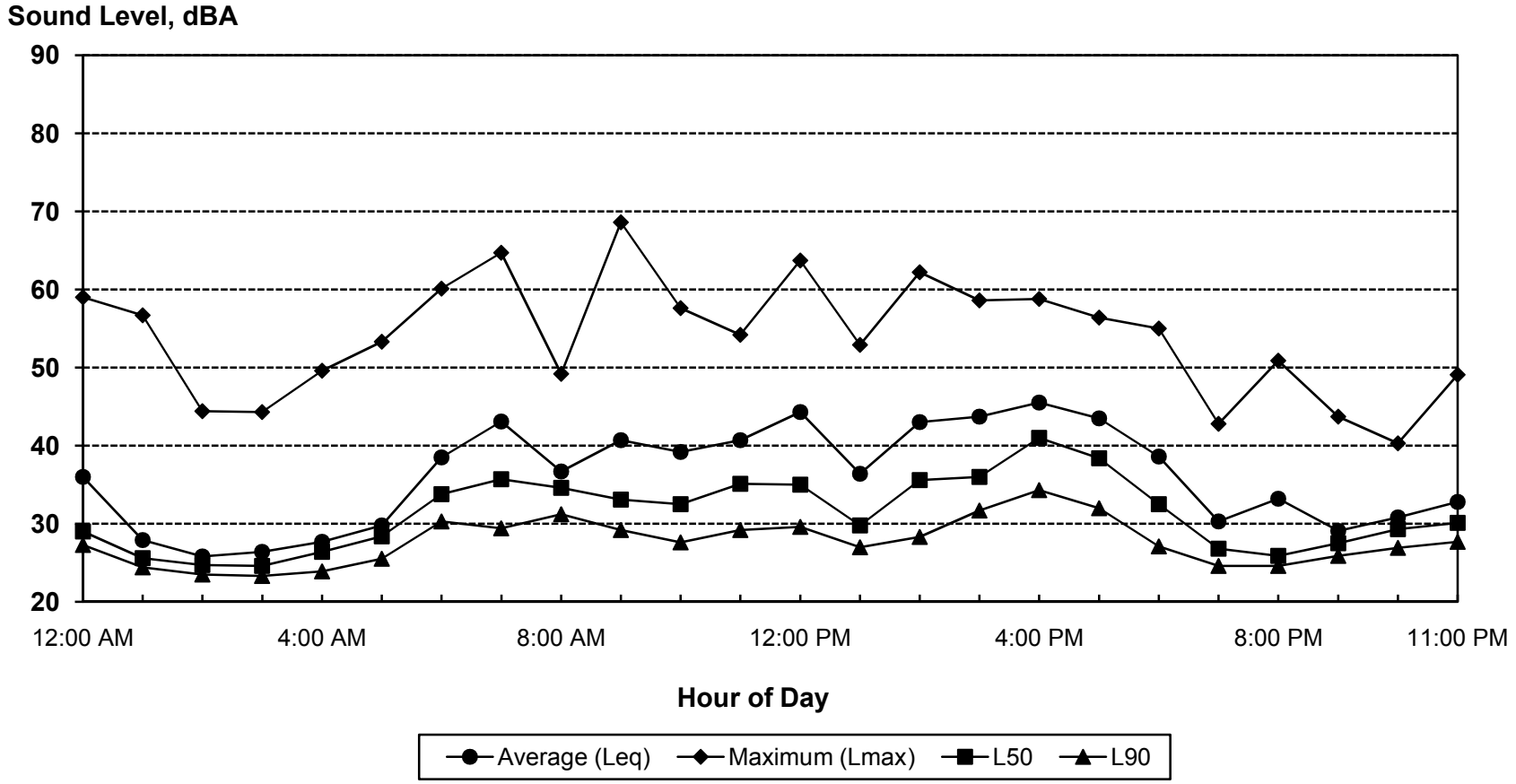
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence (North)
Tuesday, January 20, 1998



Ldn: 42 dB

BOLLARD
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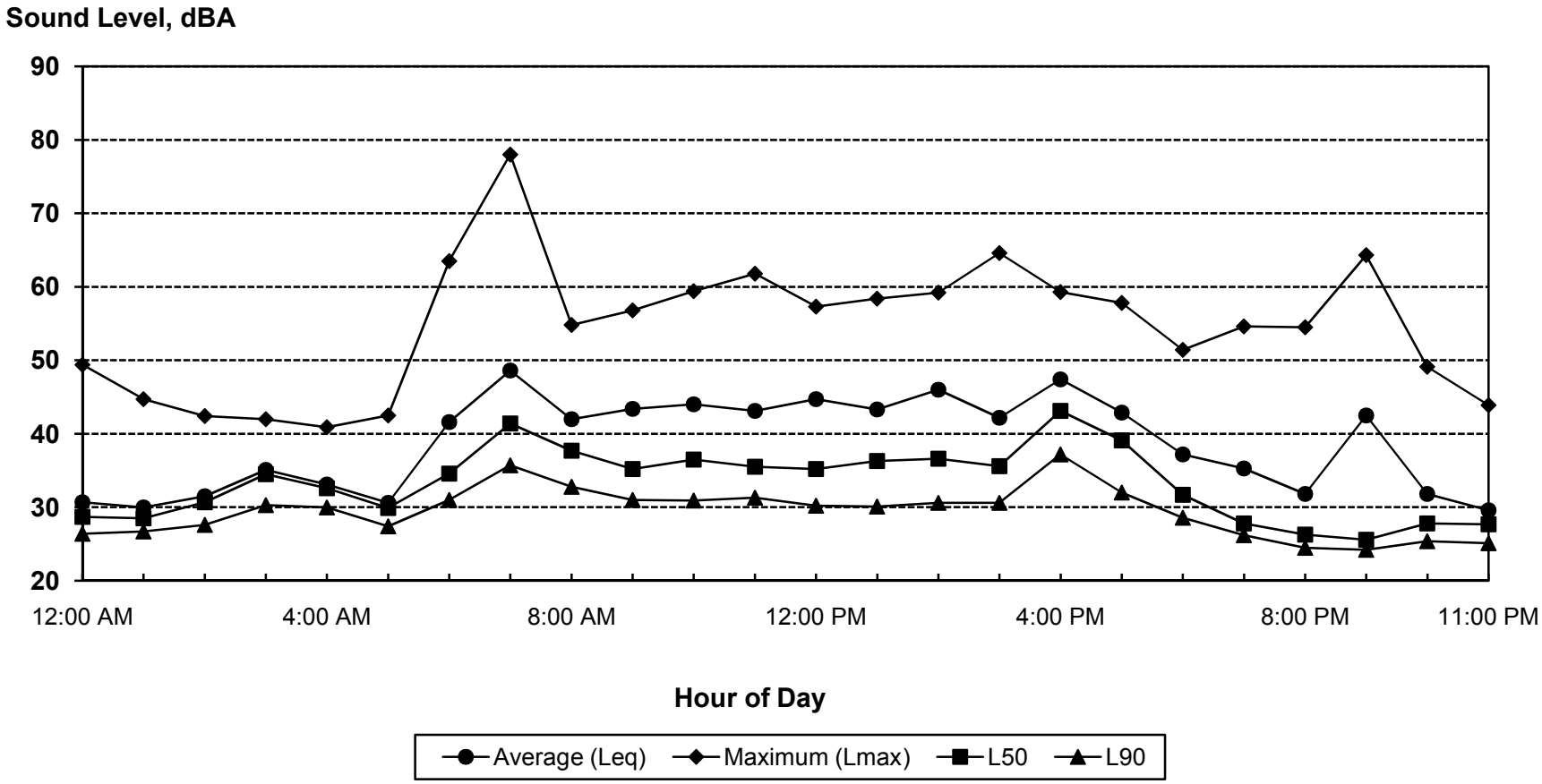
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence (North)
Wednesday, January 21, 1998



Ldn: 44 dB

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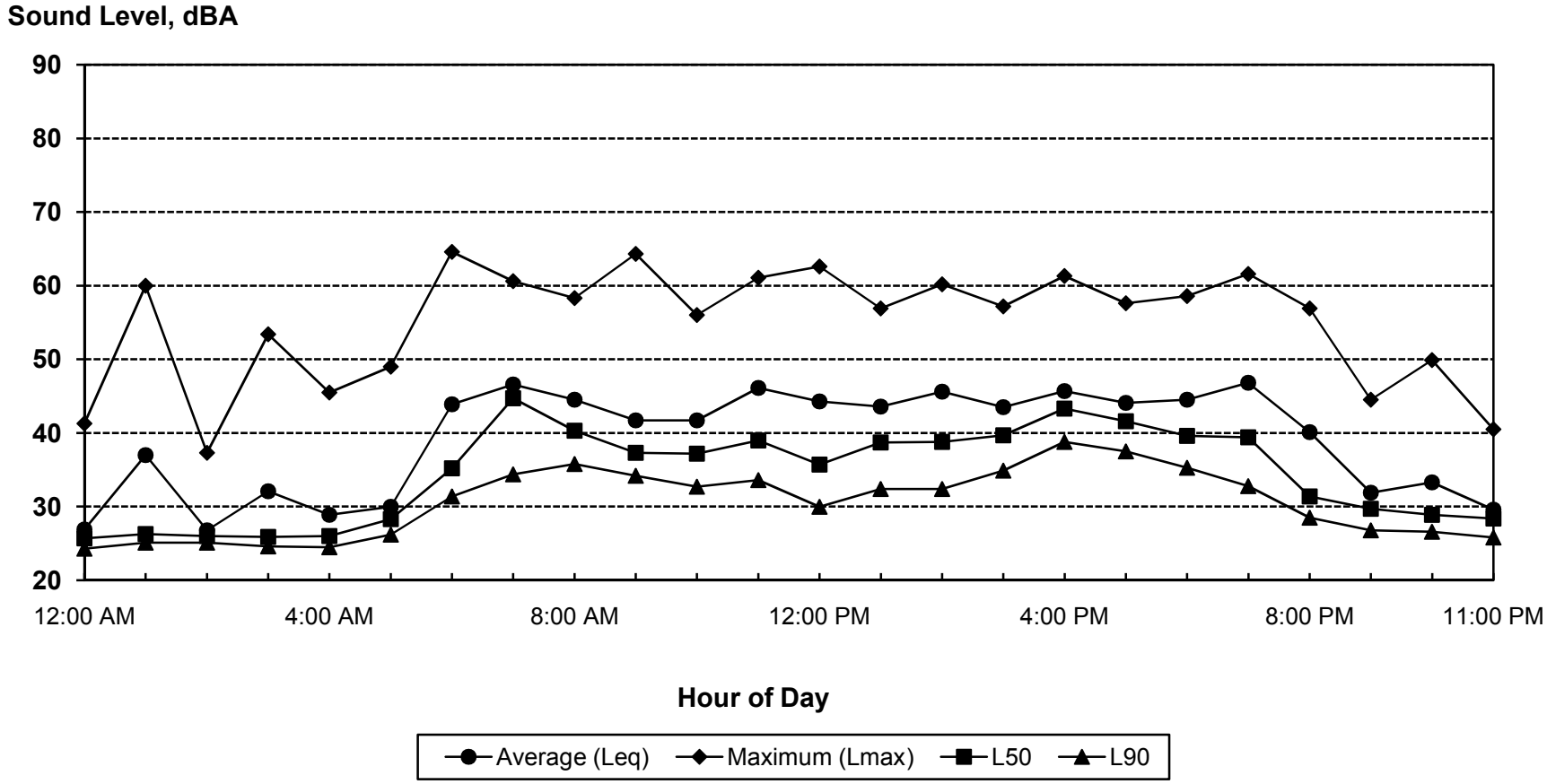
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence (North)
Thursday, January 22, 1998



Ldn: 45 dB

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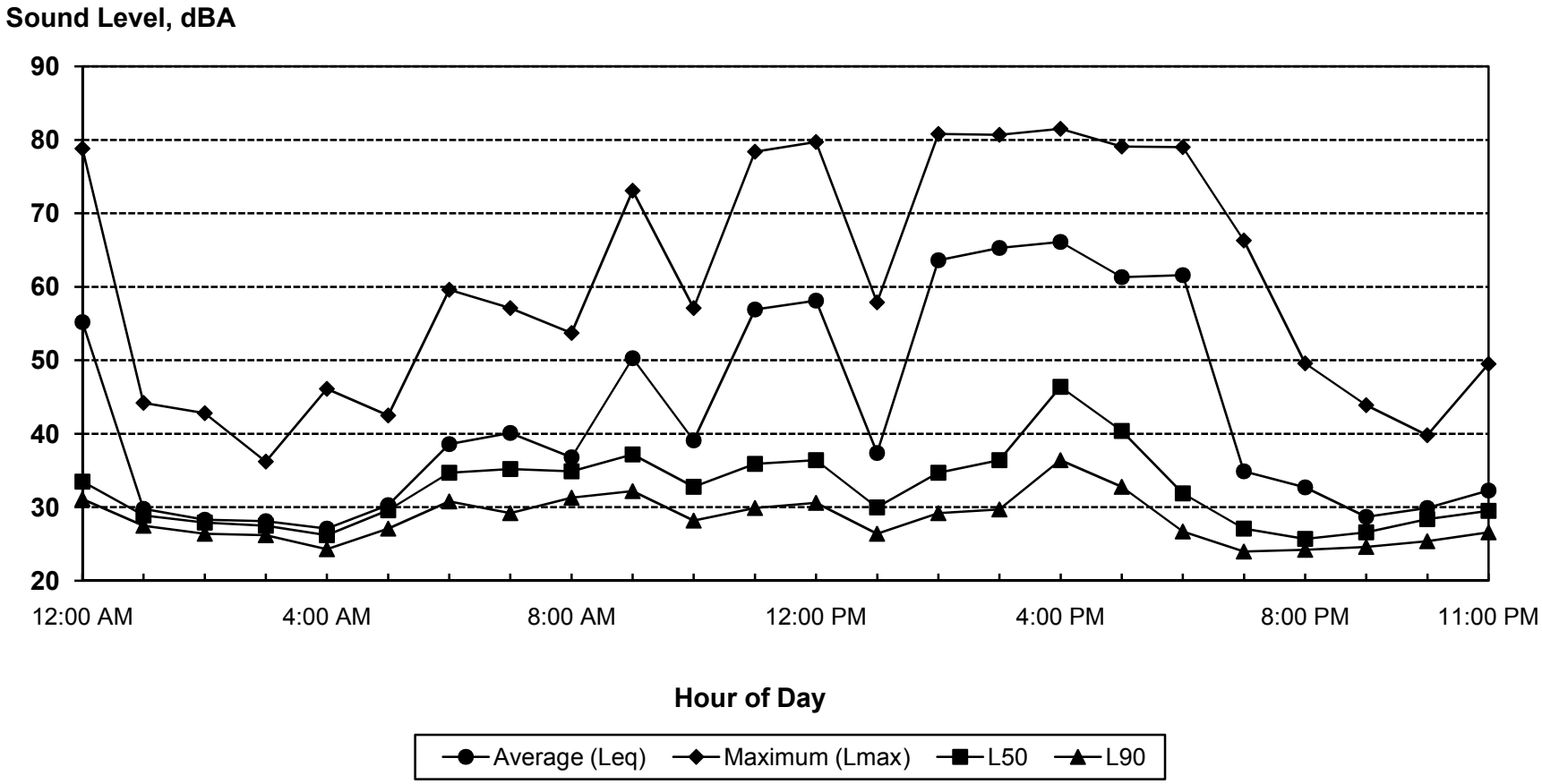
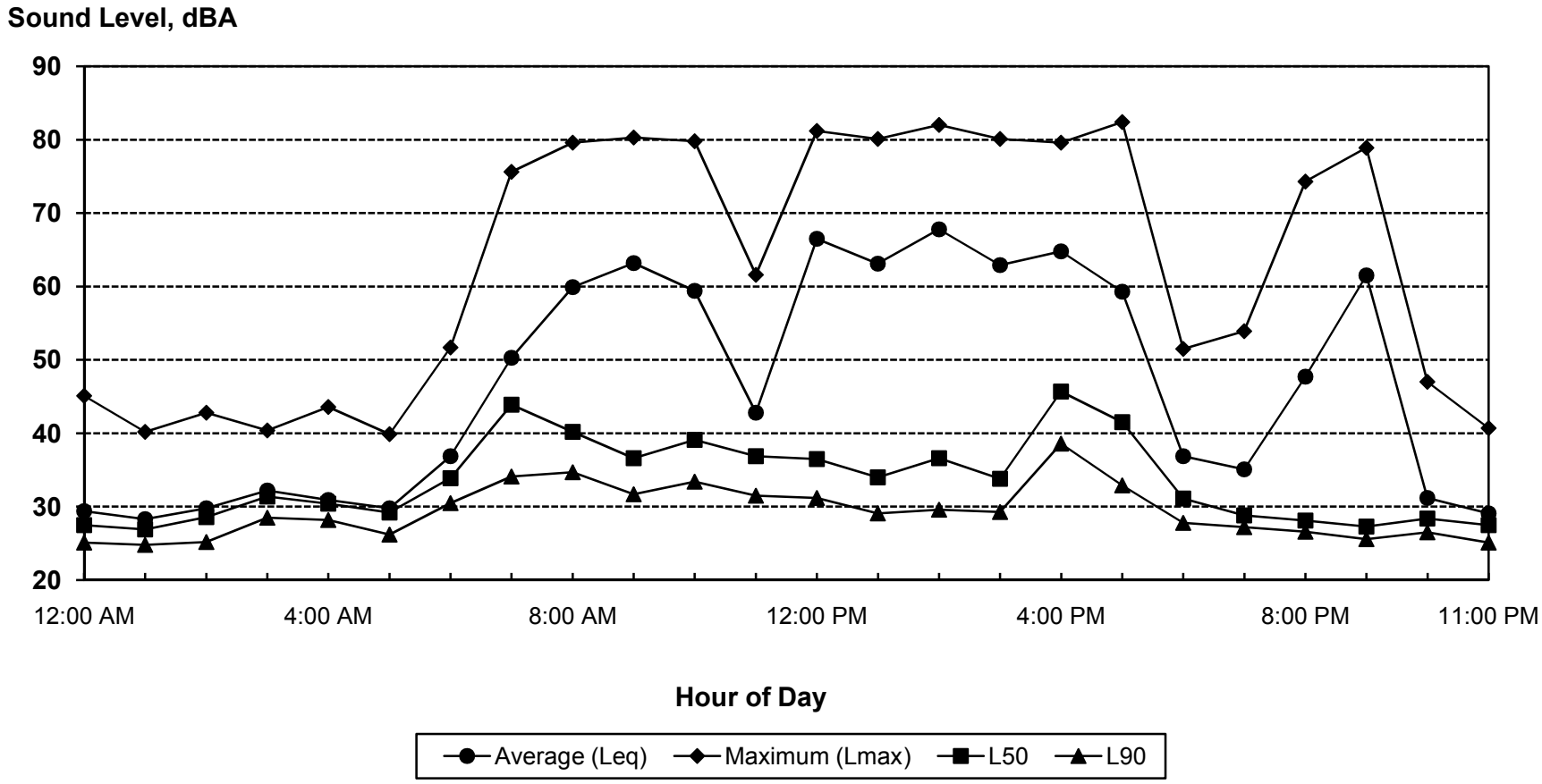
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence (East)
Tuesday, January 20, 1998



Ldn: 59 dB

BOLLARD
Acoustical Consultants

Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence (East)
Wednesday, January 21, 1998



Ldn: 60 dB

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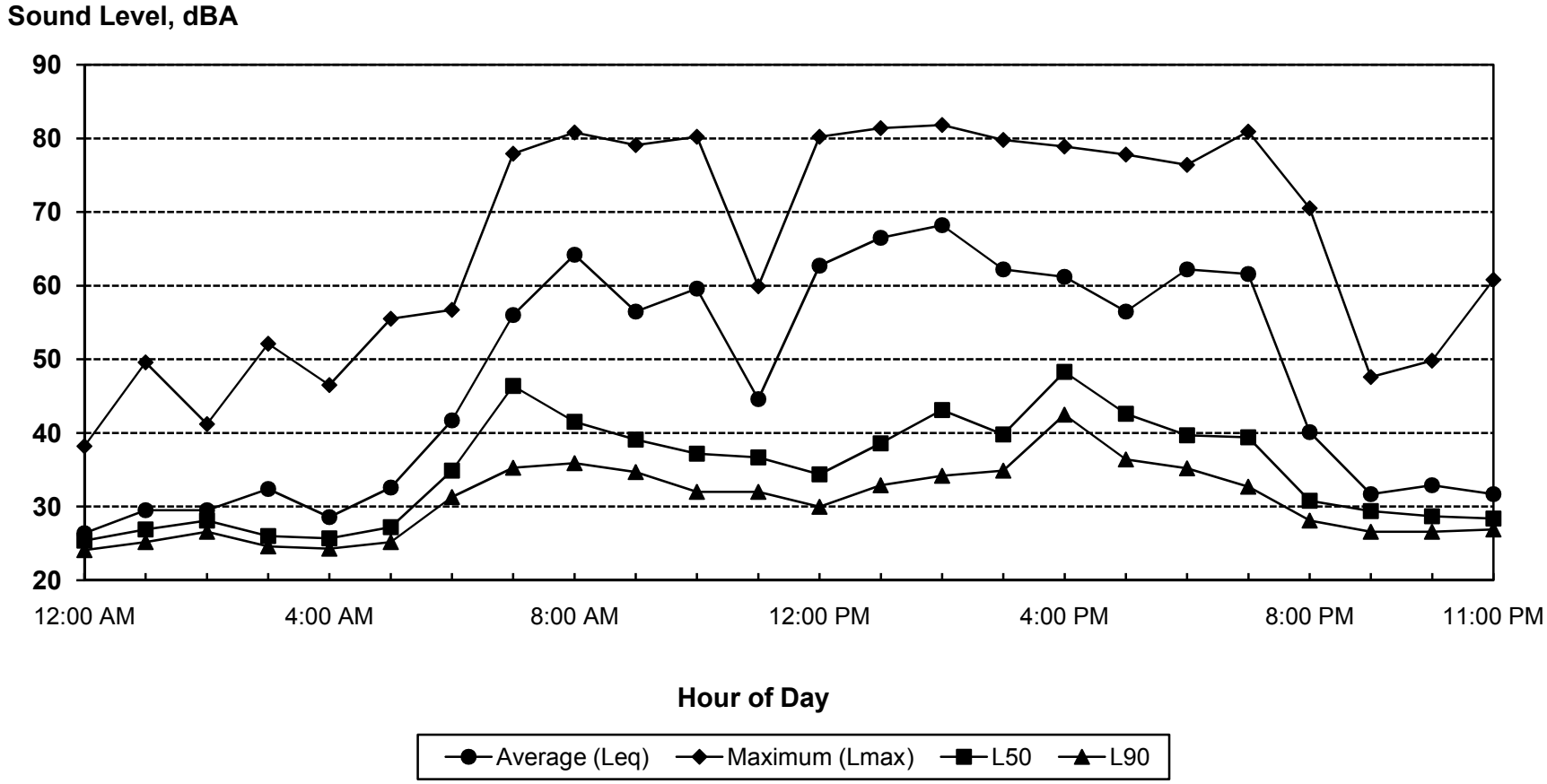
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence (East)
Thursday, January 22, 1998



Ldn: 60 dB

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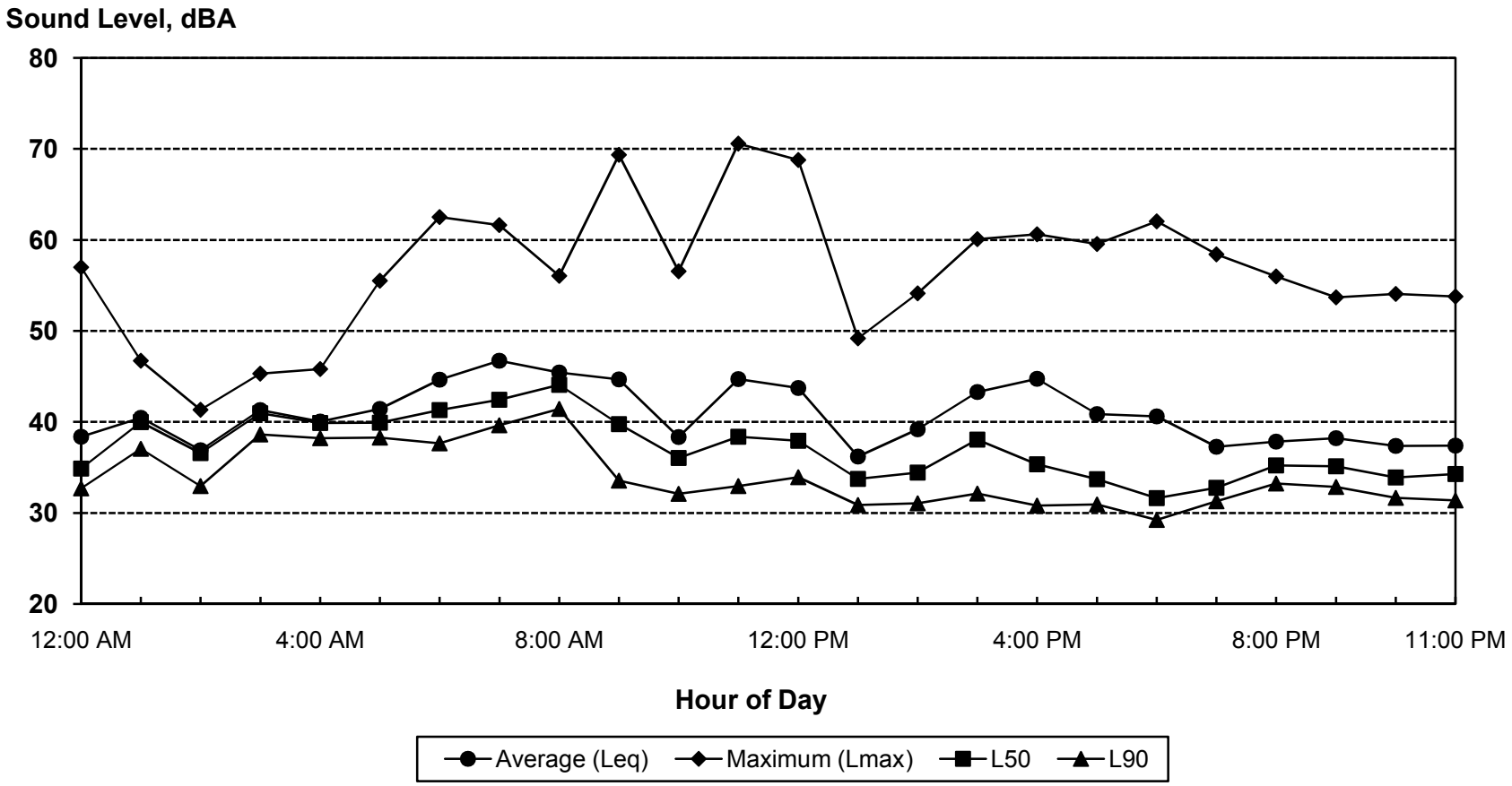
Acoustical Consultants

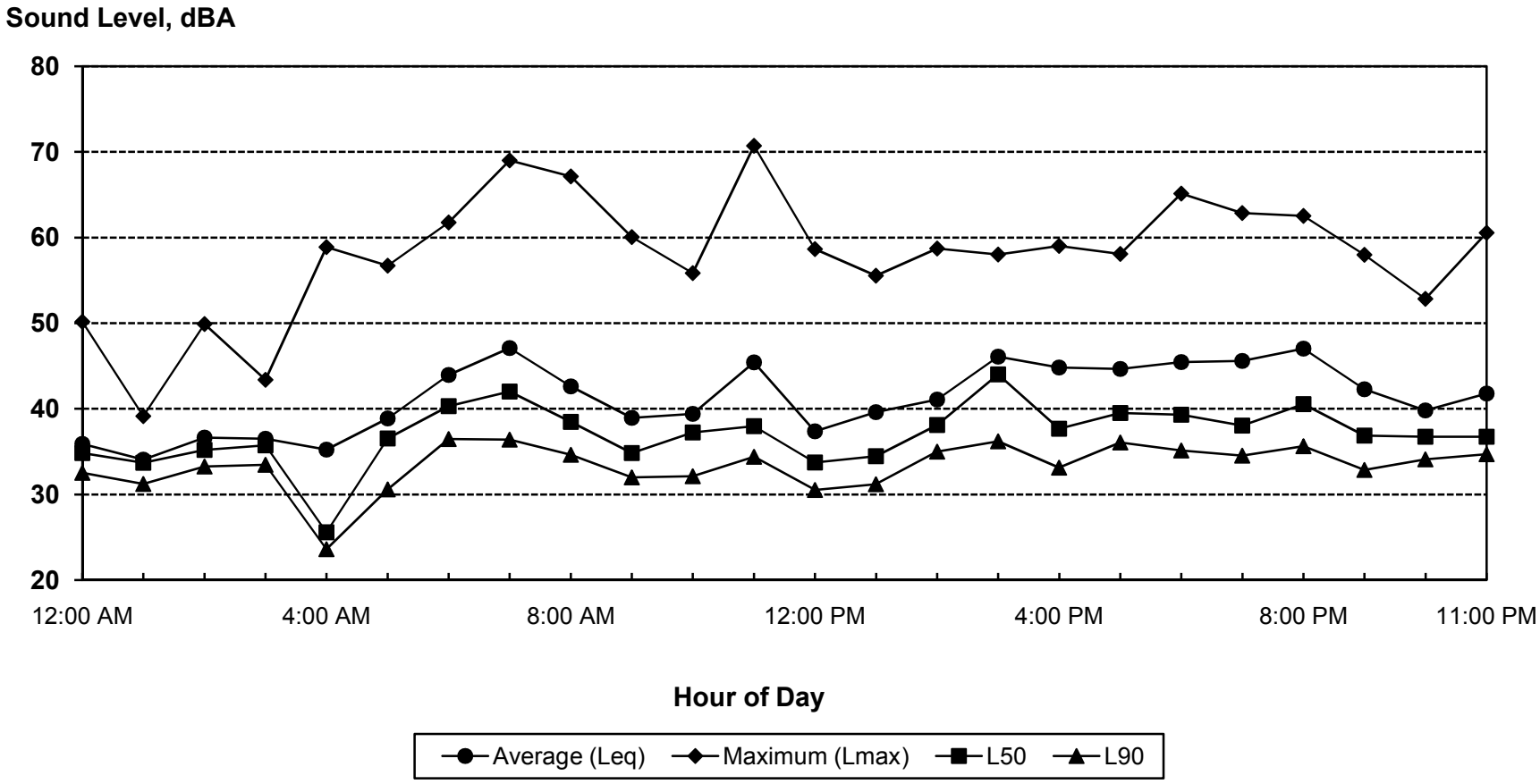
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence
Thursday, December 16, 1999



Ldn: 47 dB

BOLLARD
Acoustical Consultants

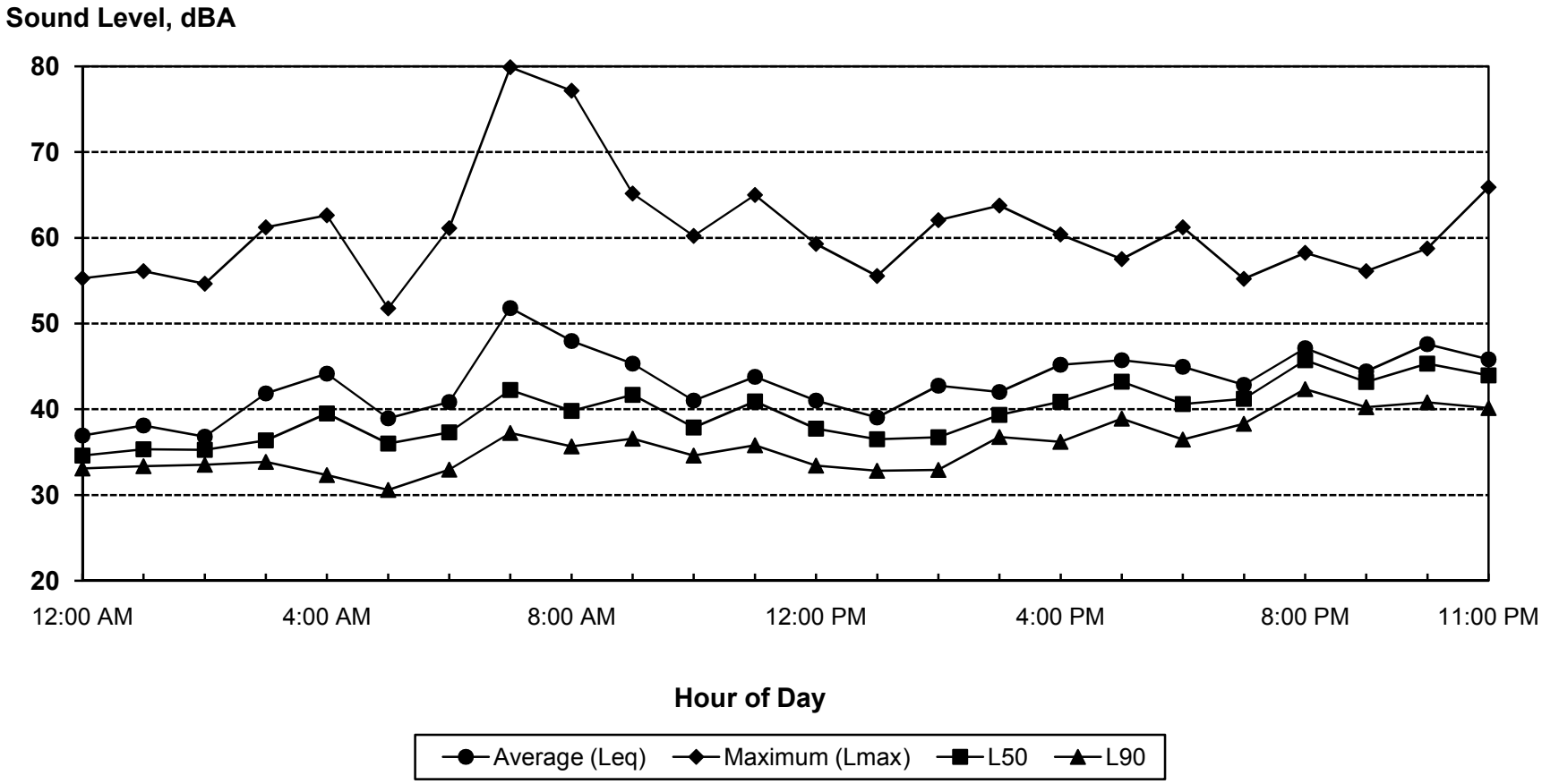
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence
Friday, December 17, 1999



Ldn: 47 dB

BOLLARD
Acoustical Consultants

Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence
Saturday, December 18, 1999



Ldn: 50 dB

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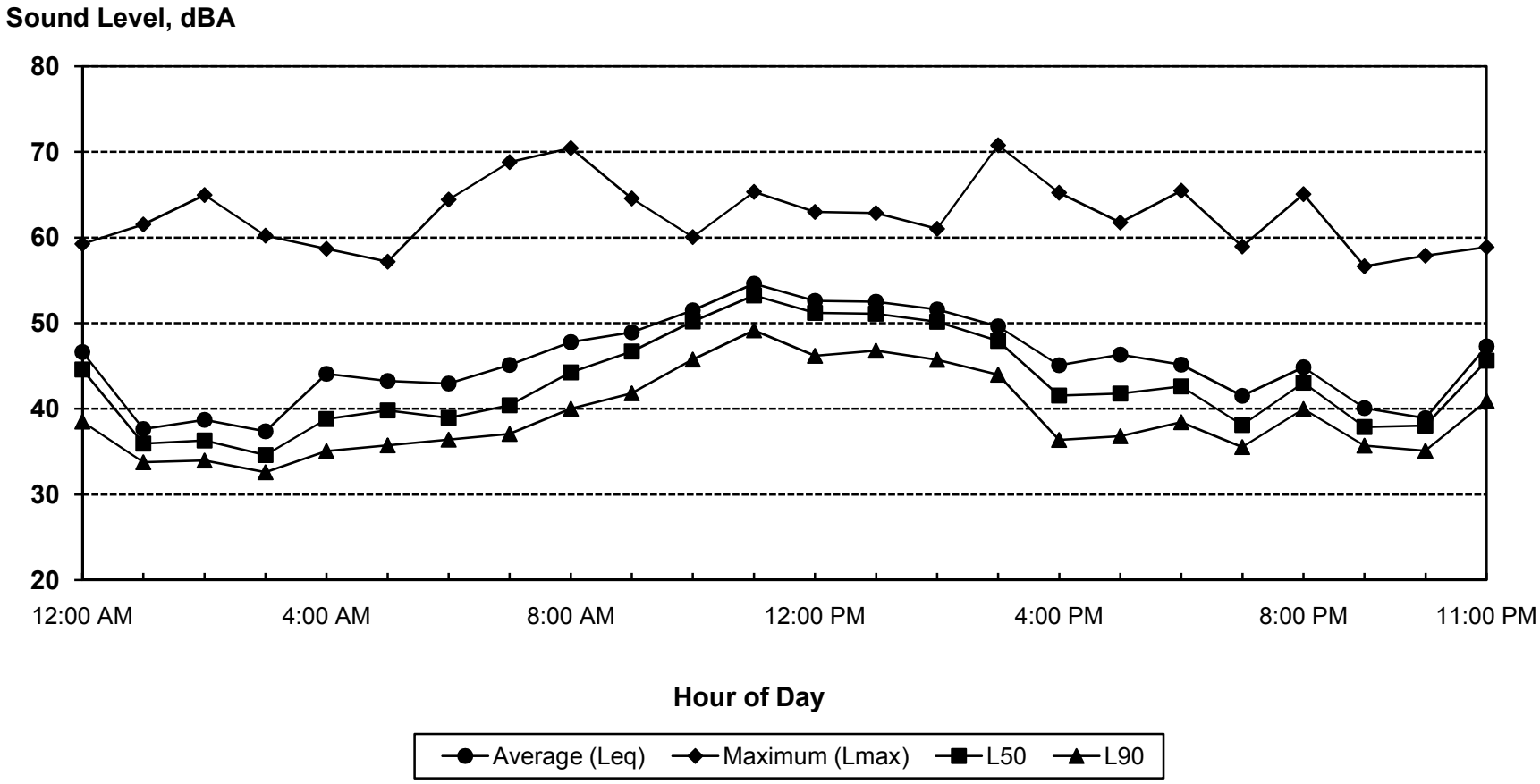
Acoustical Consultants

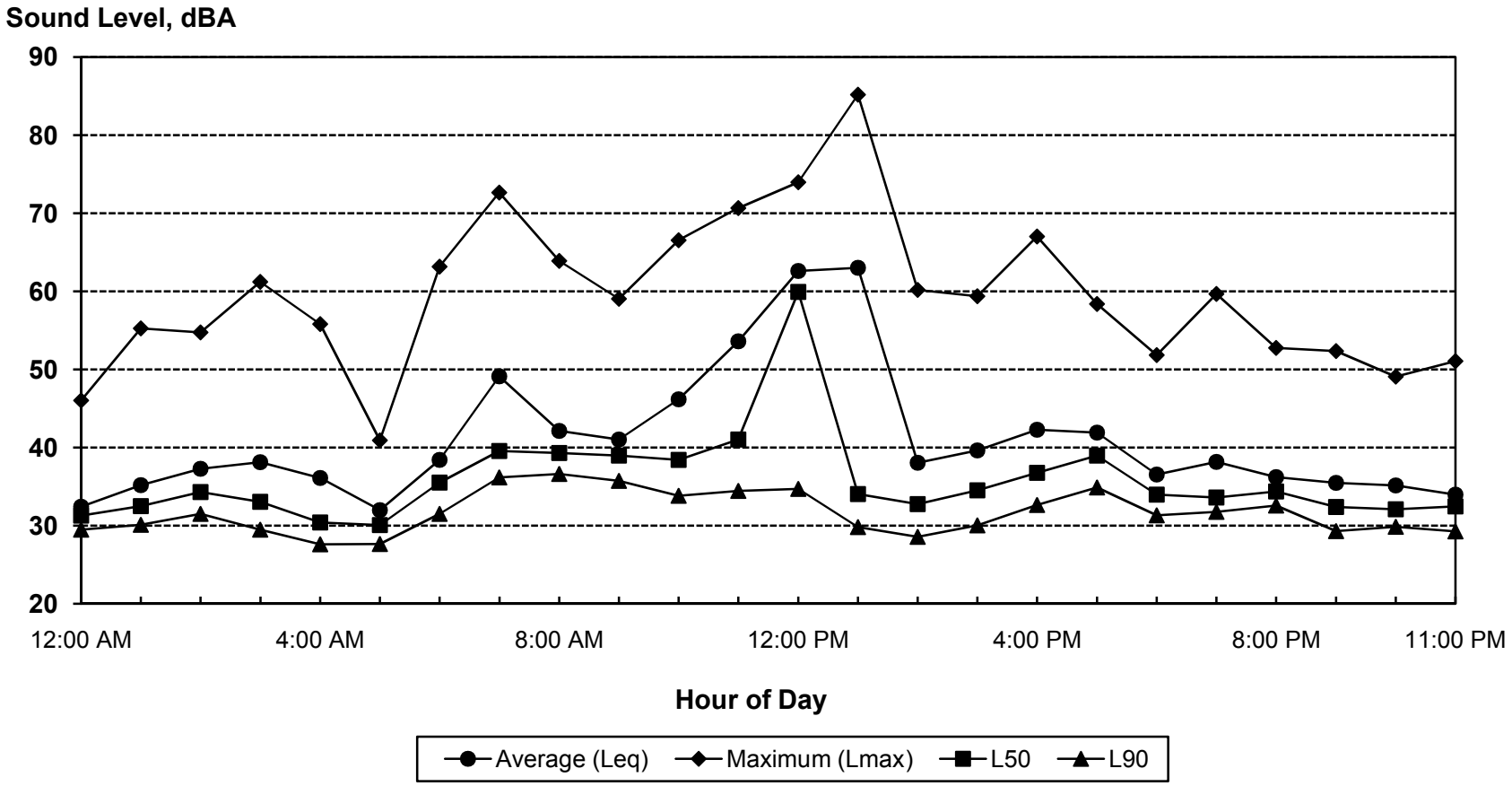
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Waterbury Residence
Sunday, December 19, 1999



Ldn: 51 dB

BOLLARD
Acoustical Consultants

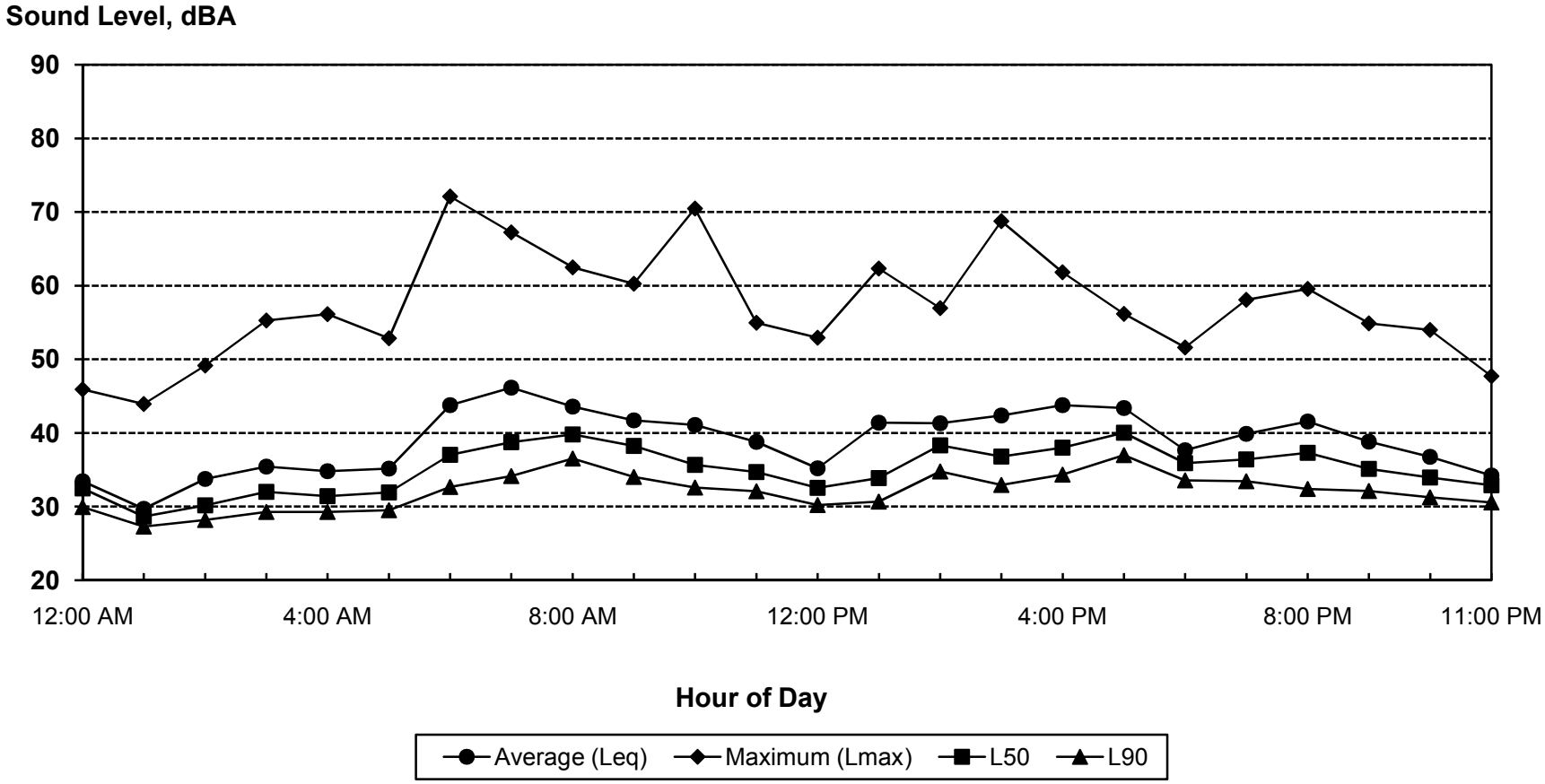
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence
Thursday, December 16, 1999



Ldn: 53 dB

BOLLARD
Acoustical Consultants

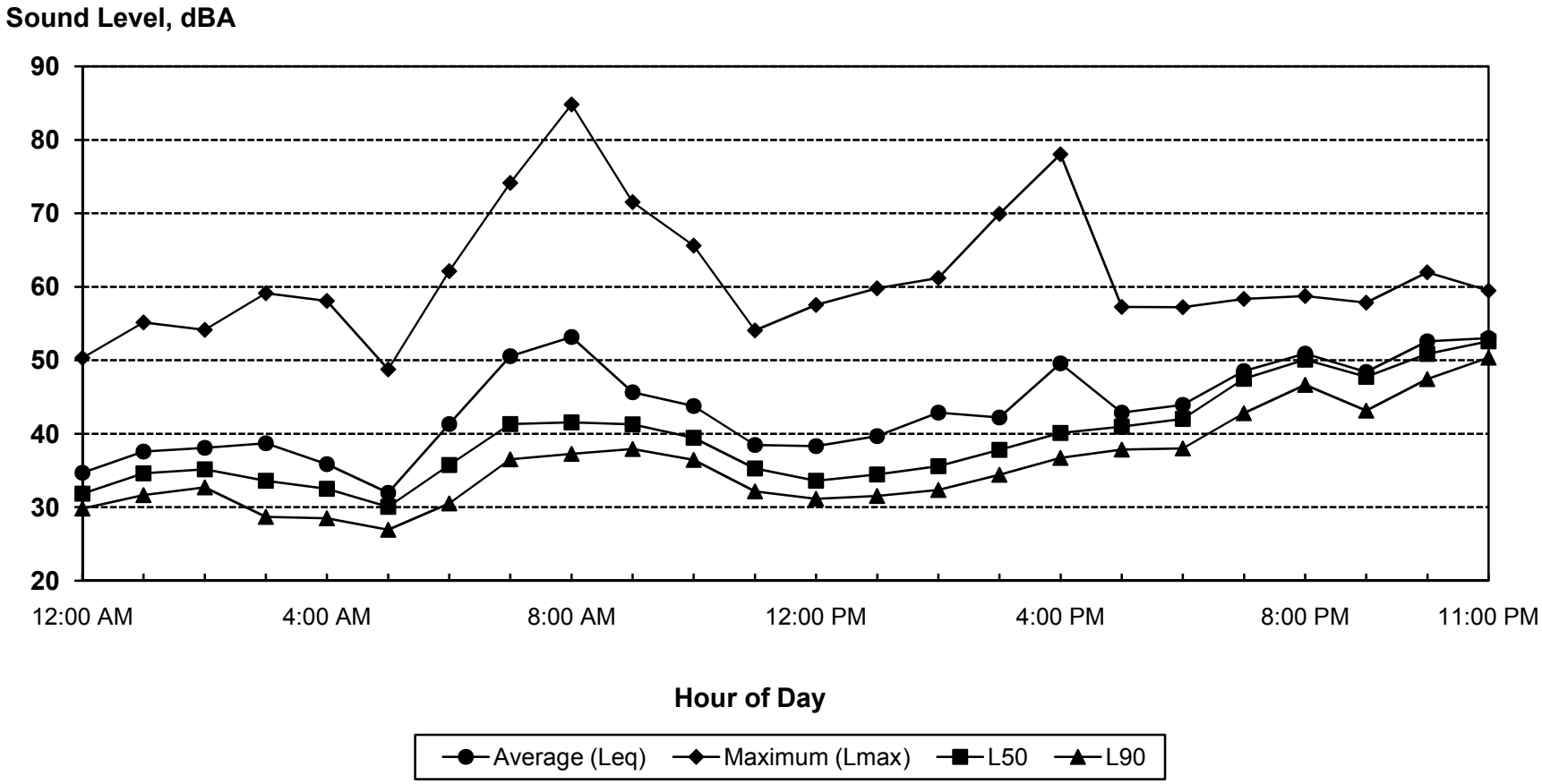
Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence
Friday, December 17, 1999



Ldn: 45 dB

BOLLARD
Acoustical Consultants

Butte County Area Gas Well Expansion
24hr Continuous Noise Monitoring at Weiking Residence
Saturday, December 18, 1999



Ldn: 53 dB

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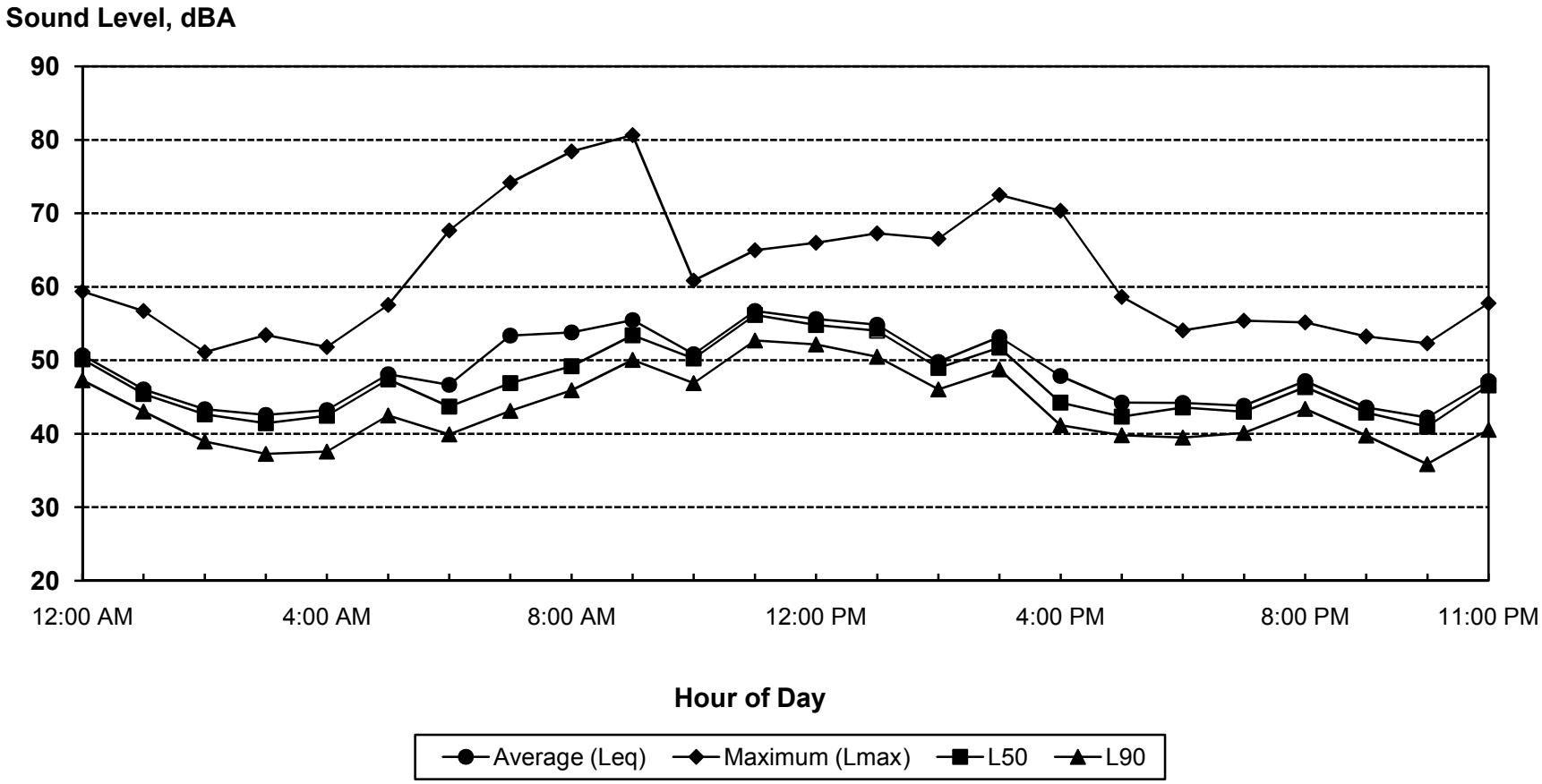

Ldn: 54 dB

BOLLARD
Acoustical Consultants