CHAPTER 5. DRAFT MITIGATION MONITORING AND REPORTING PLAN

Section 21081.6 of the Public Resources Code states that when an agency approves a project subject to implementing mitigation measures, the public agency must adopt a reporting or monitoring program for the changes to the project that it has adopted or made a condition of project approval in order to mitigate or avoid significant impacts on the environment.

Table 5-1 presents a draft mitigation monitoring and reporting framework for the mitigation measures incorporated into the proposed project and project alternatives by the Applicant (see Section 2.4.13, "Mitigation Measures Proposed by the Applicant").

The various technical sections in this EIR identify proposed mitigation measures. The CPUC will review these mitigation measures as part of the project review process. If the project is approved, many of these mitigation measures may become conditions of approval.

Table 5-2 summarizes the impacts and mitigation measures identified in this EIR for the Composite Route Alternative, which the CPUC has identified as the preferred alternative. For each mitigation measure, the table indicates the monitoring action, responsibility for monitoring, and timing for monitoring.

TABLE 5-1
LODI GAS STORAGE PROJECT
DRAFT MITIGATION MONITORING PLANCMITIGATION MEASURES PROPOSED BY THE APPLICANT

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
	CONSTRUCTION MEASURES		
Land Use/Agriculture			
LGS will prepare and implement a Site Restoration Plan that will specifically address site enhancement and restoration activities, regrading, repair and/or replacement of irrigation or drainage systems, control of soil erosion, and treatment for soil compaction.	LGS will submit a Site Restoration Plan to CPUC for review and approval before project construction. CPUC will monitor construction activities to ensure compliance with the plan	LGS and CPUC	The Site Restoration Plan shall be submitted to CPUC before the start of construction. Monitoring will occur during the restoration phase of the project as necessary.
Topsoil removed during construction will be stockpiled separately and spread over disturbed areas during replanting. Stockpiled topsoil will be tested for toxicity (hydrocarbons), phylloxera, and nutrient content (nitrogen and phosphorous) prior to use.	LGS will notify CPUC when soils tests identify potential issues before use. CPUC will monitor topsoil handling during project construction and site restoration activities.	LGS and CPUC	CPUC will monitor topsoil handling during the construction and site restoration phases of the project.
LGS will restore the land surface to pre-project condition if and when the project is abandoned in accordance with the terms of agreements with individual landowners.	LGS will provide CPUC with copies of all agreements with landowners that permit construction on private property. If and when LGS abandons the project, CPUC will monitor abandonment activities to ensure compliance with landowner agreements.	LGS and CPUC	CPUC will monitor abandonment activities during the abandonment phase of the project as necessary
LGS will prepare and implement a pipeline installation plan that addresses the depth of pipeline installation for each property. LGS proposes to cover the pipeline with a minimum of 4 feet of soil in non-row crop/vineyard use, and deeper where required by landowner negotiations. All trenches will be backfilled and soil compacted to its original density, as is practical.	LGS will submit the pipeline installation plan to CPUC for review and approval. CPUC will monitor construction activities to ensure compliance with the plan.	LGS and CPUC	The pipeline installation plan shall be submitted to CPUC before the start of construction. Monitoring will occur during the construction phase of the project.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
LGS will require the construction contractor through bid specifications to provide breaks in spoil piles, trench, or pipe strings to accommodate field access during construction.	LGS will provide final bid specifications to CPUC for review and approval to ensure that this measure is properly incorporated into construction specifications.	LGS and CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
LGS will schedule construction to avoid interference with agricultural practices, to the extent feasible, including but not limited to, cultivation, irrigation, and harvesting.	LGS will submit a detailed construction schedule to CPUC for review and approval. CPUC will monitor construction activities to ensure compliance with the approved schedule.	LGS and CPUC	Prior to and during construction.
Water Quality			
LGS will obtain and comply with the terms of project-specific Storm Water Pollution Prevention Plans developed in accordance with the Clean Water Act under the State Water Resources Control Board's National Pollutant Discharge Elimination System General Permits for storm water discharge during construction.	LGS will provide CPUC with a copy of the project-specific storm water pollution prevention plan. CPUC will monitor construction activities to ensure compliance with the plan.	LGS and CPUC	Monitoring will occur during the entire construction phase of the project.
Structural and operational "Best Management Practices" will be employed where necessary to minimize water quality impacts associated with construction and industrial operations.	LGS will provide CPUC with a copy of the Best Management Practices to be used during project construction and operation. CPUC will monitor construction and operation activities to ensure compliance with these measures.	LGS and CPUC	Monitoring will occur during the construction and operation phases of the project.
Visual monitoring of runoff water quality and quantitative analytical testing of runoff samples will be used to identify potential impacts, and corrective measures will be implemented, if necessary.	CPUC will visually monitor the water quality of runoff and review analytical testing of runoff. CPUC and LGS will identify corrective actions as necessary to maintain appropriate water quality	CPUC and LGS	Monitoring will occur during the entire construction phase of the project as necessary.
Bid specifications will require construction contractors to handle hazardous materials and wastes in accordance to best management practices prescribed in the Storm Water Pollution Prevention Plan.	LGS will provide final bid specifications to CPUC for review and approval to ensure that these measures are properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Hazardous waste will be handled in accordance with all applicable manufacturers' specifications for storage and handling, and in compliance with applicable local, state and federal requirements.	LGS will provide final bid specifications to CPUC for review and approval to ensure that these measures are properly incorporated into construction specifications. CPUC will monitor construction activities to ensure compliance.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications. CPUC will monitor compliance during construction.
Air Quality			
LGS will prepare and implement a dust control plan consistent with local air district requirements to reduce PM10 emissions.	LGS will submit a copy of the dust control plan to CPUC. CPUC will monitor construction activities to ensure compliance with the plan.	CPUC	Monitoring will occur during the entire construction phase of the project as necessary.
Traffic and Circulation			
LGS will include the following commitments in bid specifications. The project will use specific design features including minimizing peak hour traffic and congestion by adopting the following plan: • No lane closures will occur in major signalized intersections during weekday peak hours (6:00 a.m.-9:30 a.m., and 3:30 p.m.-6:00 p.m.). • The construction contractor will provide van/carpool service to shuttle construction workers (except welders) from offsite parking areas. LGS will encourage workers to carpool. • LGS will require the construction contractor to work with San Joaquin and Sacramento County Public Works Departments on timing and route selection for heavy equipment and truck traffic on county roads. • LGS will utilize horizontal boring and hammering techniques at road and rail line crossings and directional drilling at major waterway crossings.	LGS will provide final bid specifications to CPUC for review and approval to ensure that these measures are properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Biological Resources			
Swainson's Hawk			
Swainson's hawk surveys will be conducted to locate any nests within 0.5 mile or line-of-sight of the project area, whichever is less.	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken. LGS will submit survey results to CPUC.	CPUC and LGS	Monitoring will be conducted before and during project construction.
If active nests are located within 0.5 mile of the project, construction activities in the area may be modified following consultation with the California Department of Fish and Game (CDFG).	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken. LGS will submit CDFG approval to CPUC.	CPUC and LGS	Monitoring will be conducted before and during project construction.
If necessary, construction will be delayed in the area of the nest until the chicks have fledged.	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken. LGS will submit evidenced compliance to CPUC.	CPUC and LGS	Monitoring will be conducted before and during project construction.
Tricolored Blackbird			
Surveys for active tricolored blackbird colonies will be made within 60 days prior to construction.	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken. LGS will submit survey results to CPUC.	CPUC and LGS	Monitoring will be conducted before and during project construction.
If active nests are found within 100-feet of the project area, the CDFG will be contacted for directions on how to handle specific situations.	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken. LGS will submit CDFG approval to CPUC, if necessary.	CPUC and LGS	Monitoring will be conducted before and during project construction.
If necessary, construction will be delayed in the area of the nests until the chicks have fledged.	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken. LGS will submit evidence of compliance to CPUC.	CPUC and LGS	Monitoring will be conducted before and during project construction.
Giant Garter Snake			
Construction adjacent to or through irrigation ditches will be scheduled to allow ditch inspection by a qualified biologist immediately prior to construction to confirm that no giant garter snakes are present. Daily inspections will be conducted prior to the start of construction during each day construction activities are conducted at these sites, and any giant garter snake found will be moved a safe distance from the construction area.	LGS will be required to notify CPUC immediately if any giant garter snakes are found. CPUC will review the information provided by the project proponent and require appropriate action depending on its findings.	LGS and CPUC	Daily inspections will be conducted by a biologist before the start of construction activities at all water crossing sites.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
For all ditches and channels that will be trenched during the late summer dry season, the following mitigation measures will be implemented:	CPUC will review the information provided by the project proponent and require appropriate action depending on its findings.	LGS and CPUC	Monitoring will occur before and during project construction.
• Just prior to construction, the area will be surveyed for special-status species by a qualified biologist. The biologist will monitor construction near canals to ensure that no special-status species re-enter the area. Periodically, the biologist will check the open trenches to ensure that no giant garter snakes are trapped.	CPUC will review the information provided by the project proponent and require appropriate action depending on its findings.	LGS and CPUC	Monitoring will occur before and during project construction.
• Any sensitive species that are found will be relocated to suitable habitat outside the project area.	CPUC will review the information provided by the project proponent and require appropriate action depending on its findings.	LGS and CPUC	Monitoring will occur before and during project construction.
• Immediately following construction, the disturbed site will be restored to its original contour.	Ensure that appropriate language is included in bid specifications and that contractors comply with these requirements.	CPUC	Monitoring will occur during development of bid specifications and during project construction.
• All workers will attend a Worker Environmental Training that will discuss identification, mitigation measures, and their responsibilities regarding the giant garter snake and other sensitive species found in the project area.	Ensure that appropriate language is included in bid specifications and that contractors comply with these requirements.	CPUC	Monitoring will occur during development of bid specifications and during project construction.
General Measures			
LGS will restrict refueling and hazardous materials storage to areas further than 100 feet from riparian areas and drainage ditches.	Ensure that appropriate language is included in bid specifications and that contractors comply with these requirements. LGS will submit bid specifications to CPUC prior to release.	CPUC and LGS	Monitoring will occur during development of bid specifications and during project construction.
LGS will clearly mark the border of construction right-of-way to contain construction activities.	CPUC will monitor to ensure compliance with this measure. LGS will submit bid specifications to CPUC prior to release.	CPUC	Monitoring will occur during the entire construction phase of the project as necessary.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
In order to minimize the spread of noxious weeds, all construction equipment brought in from out-of-state will be cleaned of soil or mud that may contain weed seeds before being brought to the project site.	Ensure that appropriate language is included in bid specifications and that contractors comply with these requirements.	CPUC and LGS	Monitoring will occur during development of bid specifications and during project construction.
Public Health and Safety			
LGS will develop and implement an emergency response procedure for all facilities.	LGS will submit an emergency response plan to CPUC and local emergency response providers for review and approval. CPUC will monitor during project operation to ensure compliance with the plan.	LGS and CPUC	The emergency response plan shall be submitted to CPUC and local emergency response providers before project operation. Monitoring will occur during project operation as necessary.
During construction, hazardous materials and wastes will be handled in accordance with best management practices prescribed in the Storm Water Pollution Prevention Plan required by the National Pollutant Discharge Elimination System General Construction Activities Storm Water Discharge Permit (see Water Quality).	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Hazardous wastes generated by the project will be recycled, if possible, or disposed of by a permitted hazardous waste treatment, storage, and disposal facility.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Secondary containment facilities that provide 110 percent of storage tank capacity will be provided for all hazardous materials storage tanks.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Bid specifications will require construction contractors to submit a Fire Prevention Plan.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Noise			
Pipeline Construction			
Pipeline construction could generate significant noise impacts. Potential significant impacts may also occur at one residence near the separator facility. LGS will implement the following measures to reduce noise levels in the vicinity of residences and minimize impacts during construction:			
All residential and other noise-sensitive land uses within 600 feet of the proposed construction site will be notified in advance of the intended construction schedule. The notification packet provided to local noise-sensitive receivers will include such information as a telephone number to call with noise complaints, as well as a proposed schedule of construction activities describing the nature and duration of noise-generating construction activities in the area.	Construction activities will be monitored daily to ensure compliance with this mitigation measure. LGS will provide CPUC with documentation clearly indicating compliance with the mailing requirements of this measure.	CPUC	Monitoring will occur throughout project construction.
Project specific design features that further reduce the impact from noise include limiting pipeline and facility construction from 7:00 a.m. to 7:00 p.m., Monday through Saturday, as allowed by the San Joaquin County Noise Ordinance.	Construction activities will be monitored daily to ensure compliance with this mitigation measure.	CPUC	Monitoring will occur throughout project construction.
A portable noise barrier will be used in areas where pipeline construction comes within 200 feet of residences.	Construction activities will be monitored daily to ensure compliance with this mitigation measure.	CPUC	Monitoring will occur throughout project construction.
All construction equipment will be operated and maintained to minimize noise generation. Equipment and vehicles will be kept in good repair and fitted with “manufacturer-recommended” mufflers.	Construction activities will be monitored daily to ensure compliance with this mitigation measure.	CPUC	Monitoring will occur throughout project construction.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Maintenance will be conducted at least 650 feet from residences except under emergency conditions.	Construction activities will be monitored daily to ensure compliance with this mitigation measure.	CPUC	Monitoring will occur throughout project construction.
Enclosures will be provided for any noise-producing stationary sources (e.g., generators used for night lighting).	Construction activities will be monitored daily to ensure compliance with this mitigation measure.	CPUC	Monitoring will occur throughout project construction.
Well Drilling			
Noise barriers will be installed in strategic location around each drill pad to reduce noise levels at nearby residences to levels consistent with applicable county requirements.	Construction activities will be monitored daily to ensure compliance with this measure.	CPUC	Monitoring will occur throughout project construction.
Construction of a noise barrier will provide consistency with the San Joaquin County Noise Ordinance at all but 9 residences for nighttime drilling, and all but 6 residences for daytime drilling. One or more of the following measures will provide additional noise reduction at these residences:			
Selection of well drilling equipment that has a lower acoustic height and lower sound level than the equipment assumed for the noise analysis.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Increase the height of the noise barrier.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Place additional noise barriers at strategic locations on the property of the affected residence.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
In the event that noise levels consistent with the San Joaquin County Noise Ordinance cannot be achieved at any residence, LGS in consultation with the affected resident(s) will offer to temporarily relocate affected resident(s) at its expense during drilling activities or provide other mutually acceptable solutions.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Visual Resources			
LGS will minimize ground disturbance to reduce contrast between exposed soils and naturally vegetated areas, thus reducing impacts to viewers.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
LGS will limit the clearing of trees and vegetation for the project to the minimum area required.	LGS will provide final bid specifications to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Cultural Resources			
A team of qualified archaeologists will conduct a surface survey of 100% of the area affected by the pipeline construction following centerline staking and prior to right of way grading activities. If any indication of a cultural resource is identified, a plan for pipeline realignment or resource recovery will be developed and implemented through consultation between LGS, CPUC, and the State Historic Preservation Officer.	LGS will consult with CPUC if any artifacts are discovered.	LGS and CPUC	Prior to and during construction.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
If the pre-construction survey identifies areas of suspected cultural resources or potential high sensitivity, a qualified archaeologist will monitor all construction activities in these areas. In the event cultural resources are encountered during construction, the construction manager will stop work in the vicinity of these resources upon notification by the monitoring archaeologist.	LGS will monitor such areas during construction and report any finds to CPUC immediately.	LGS and CPUC	Prior to and during construction
Work will only proceed at the authorization of CPUC in accordance with consultation with the State Historic Preservation Officer and implementation of any required treatment.	LGS will provide CPUC with evidence of approval by the State Historic Preservation Offices prior to continuing construction.	LGS and CPUC	During project construction.
Artifacts recovered during construction will be returned to Native Americans or curated at an appropriate museum as required by the State Historic Preservation Officer.	LGS will record and document artifacts and provide CPUC with State Historic Preservation Offices approved plan.	LGS and CPUC	After completion of construction
TESTING PHASE			
Hydrostatic testing of the pipeline is required by regulatory agencies and normal engineering and construction procedures. Control and mitigation measures during hydrostatic testing would include the following: • The testing program will be designed to allow for pumping rates which are hydraulically insignificant for each water source, and which will minimize any potential channel erosion. • Intake screens will be provided and flow rates will be low to minimize effects on aquatic species. • Sediment will be removed prior to discharge of water on completion of testing.	LGS will provide CPUC with evidence that it has complied with the requirements of the National Pollutant Discharge Elimination System permit for the project, which requires hydrostatic testing.	CPUC	Monitoring will occur during the testing phase of the project.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
• Water used for testing will be sampled and analyzed for chemical constituents of concern prior to discharge. • Water to be discharged will be pre-treated or disposed of off-site if permitted constituent concentration limits would be exceeded. • Discharge flow rates will be controlled to provide discharge rates that will not exceed the hydraulic capacity of each channel, cause unacceptable channel erosion, or increase suspended sediment beyond acceptable levels.			
OPERATION MEASURES			
Visual Resources			
Vegetative landscaping will be used to screen aboveground facility components.	LGS will provide final landscape plan to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications for landscaping will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Equipment and facilities will be painted in non-glare earth tones.	LGS will provide final bid specifications for facility painting, to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Shielded, non-glare lighting will be used at facilities.	LGS will provide final lighting plan to CPUC for review and approval to ensure that the measure is properly incorporated into construction specifications.	CPUC	Bid specifications for lighting and fixtures will be provided to CPUC before they are released for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Water Quality/Hazardous Materials			
Waste will be stored at the site in enclosed, secured areas for a maximum of 90 days, until removed by licensed hazardous waste transporters for management at permitted Treatment, Storage and Disposal (TSD) facilities.	Project operation will be monitored weekly to ensure compliance with this measure.	CPUC	Monitoring will occur weekly during project operation.
Where appropriate, waste will be recycled by a licensed facility.	Project operation will be monitored weekly to ensure compliance with this measure.	CPUC	Monitoring will occur weekly during project operation.
LGS will prepare a Hazardous Materials Release Response Plan, consistent with the requirements of Section 25500 of the California Health and Safety Code, and submit it for approval for the operation of the project. It is expected that San Joaquin County will coordinate the review of this plan with the local fire departments and other appropriate agencies. The plan will identify the types of hazardous materials stored or used, types of wastes generated, and storage and disposal requirements. This plan will also identify employee training requirements and emergency response requirements and procedures in case of a spill or accident involving hazardous material or wastes.	LGS will submit a Hazardous Materials Release Response Plan to CPUC before project operation. CPUC will monitor project operation to ensure compliance with the plan.	LGS and CPUC	The Hazardous Materials Release Response Plan shall be submitted to CPUC before project operation. Monitoring will occur during the operation phase of the project as necessary.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Groundwater Quality			
LGS will implement a groundwater monitoring program by developing groundwater monitoring wells immediately above the storage field. Monitoring wells will be developed at locations recommended by a qualified geologist and by mutual agreement with affected landowners.	CPUC will inspect project to ensure installation of monitoring wells.	LGS and CPUC	Monitoring wells will be developed prior to the time other wells are developed.
LGS will sample and analyze groundwater prior to drilling any injection/withdrawal or observation wells to establish baseline conditions.	LGS and CPUC will agree on constituents for testing prior to initiation of the testing program. LGS will provide the results of water sampling to CPUC within 60 days of sampling.	LGS and CPUC	Prior to initiation of any project operations or injection/withdrawal or observation wells.
LGS will sample and analyze groundwater 30 days after the completion of the drilling of injection/withdrawal or observation wells and every six months thereafter .	LGS will provide groundwater quality data to CPUC within 30 days of each testing period.	LGS and CPUC	During the life of the project.
LGS will provide sampling containers to landowners/tenants with groundwater wells located above the storage field for biannual independent laboratory testing. LGS will pay all costs associated with sampling containers, laboratory analysis and shipping.	LGS will provide groundwater quality data to landowners/tenants within 30 days of each testing period.	LGS and CPUC	Biannually during the life of the project.
Results of all groundwater monitoring analyses will be mailed directly from the laboratory to the affected landowners and the CPUC.	See above	LGS	See above

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Noise			
The separator and compressor facilities will be designed and operated in such a manner as to ensure that noise levels at the nearest sensitive receptors does not exceed 45 dBA. The following measures will be implemented: • Select the quietest equipment practical. • Place noise-generating equipment as far from the property line as possible. • Place non-noise generating equipment and structures between a noise source and the property line, where practical. • Orient exhaust vents away from property lines. Equipment that generates "directional" noise should be oriented such that the side generating the most noise faces away from the property line and receptors, where practical. • Use noise barriers such as walls and earthen berms as necessary. • Use acoustical shielding by enclosures as necessary to reduce noise from equipment such as pumps and generators.	CPUC will review and approve the design before construction of the separation and compressor facilities. CPUC will also review and approve the post-construction monitoring plan developed by LGS. CPUC will require remedial measures if noise standards are exceeded.	LGS and CPUC	Designs will be approved by CPUC before construction. Noise monitoring and any remediation will occur after completion of construction.
Air Quality			
LGS will use Best Available Control Technologies for all emissions from all facilities.	LGS will provide CPUC with evidence of approval from the District that acceptable BACT has been incorporated into the project.	LGS and CPUC	Prior to construction.

Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
LGS will install additional post combustion exhaust gas scrubbing equipment including carbon monoxide oxidation catalysts to further reduce exhaust emissions.	LGS will provide CPUC with design drawings indicating compliance.	LGS and CPUC	Prior to construction.

TABLE 5-2
LODI GAS STORAGE PROJECT
DRAFT MITIGATION MONITORING PLAN—COMPOSITE ROUTE ALTERNATIVE
(PREFERRED ALTERNATIVE)

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
LAND USE, PLANNING, AND AGRICULTURAL RESOURCES				
Temporary disruption of agricultural production during construction *Potential temporary disruption of agricultural production during pipeline construction could have a significant impact on vineyard operations because of the short time frame available to successfully harvest grapes and the intensity of the harvesting effort.*	**Mitigation Measure 3.1-1: Avoid pipeline construction in vineyards during harvest season** *Avoidance of all construction activities during and immediately before (within 4 weeks of) the harvest season in vineyards whose owners have not reached an agreement with the project Applicant. The precise period of prohibition of construction activities will be determined by CPUC and will take into account the type of grape and seasonal weather conditions.*	LGS will provide CPUC with copies of all agreements with landowners that permit construction in vineyards during the harvest season. CPUC will map such lands, along with lands for which no agreement exists, and monitor construction activities to ensure compliance with this measure.	CPUC	The agreements shall be provided to CPUC by LGS no later than July 31 of any year in which construction is scheduled to occur during harvest season.
Permanent loss of agricultural production capability *Potential interference of pipeline with future grape production on lands that have not previously been deep ripped.*	**Mitigation Measure 3.1-2: Bury pipelines at a depth of 8 feet in lands that are suitable for grape production but that have not already been deep ripped, or obtain landowner agreeement to bury pipeline at a shallower depth** *The Applicant shall bury project-related pipelines in lands that are suitable for grape production but that have not previously been deep ripped at a depth of 8 feet unless other agreements are reached with landowners.*	LGS will provide CPUC with documentation showing that lands have been identified and that pipeline depths are appropriate. LGS will also provide CPUC with copies of all agreements with landowners permitting shallower installation.	LGS and CPUC	Agreements will be provided to CPUC before completion of project design and engineering. Project plans and designs will be submitted to CPUC clearly showing burial depths on individual parcels before release of bid specifications.
Compatibility with surrounding land uses *Pipeline construction could conflict with surrounding land uses at Brannan Island State Recreation Area and in the City of Isleton.*	**Mitigation Measure 3.1-5: Minimize effects on Brannan Island State Recreation Area facilities** *At Brannan Island State Recreation Area, directional drilling equipment shall be located at the south end of the drilling site on Sherman Island. If construction occurs during May 1 through September 30, construction activities within the park shall be limited to the hours of 8:00 a.m. to 5:00 p.m. Monday through Friday unless permission is*	Construction activities will be monitored to ensure that this measure is implemented.	CPUC	During construction at Brannan Island State Recreation Area.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
	granted by the Park Superintendent. All park facilities shall be avoided and construction sites shall be fenced.			
	Mitigation Measure 3.1-6: Minimize effects to residential property in the City of Isleton *Within the City of Isleton, the pipeline should be directionally drilled or bored underneath trees and property located at the southern end of Sixth Street.*	Construction activities will be monitored to ensure that this measure is implemented.	CPUC	During construction at the subject location.
Potential inconsistency with plans and policies *The compressor location at the airport site is potentially inconsistent with the locally adopted Airport Land Use Plan.*	**Mitigation Measure 3.1-3: Obtain determination that the project is consistent with or amend the airport land use plan** *Obtain determination from Airport Land Use Commission that project is consistent with plan or amend the plan.*	CPUC will monitor the Applicant's application to the Airport Land Use Commission	CPUC and Airport Land Use Commission	Proposed use must be approved by the Airport Land Use Commission prior to project construction.
GEOLOGY, SOIL, and PALEONTOLOGY				
Location of project facilities on a geological unit or soil that is unstable, potentially resulting in exposure of the pipeline to loss of support and damage *The transmission pipeline alignment would cross soils that are subsiding due to oxidation of organic materials and erosion. It is unlikely that in areas with high subsidence rates that the pipeline can be buried at a depth that would preclude potential interference with agricultural practices. Because of the shallow depth to groundwater and the low*	**Mitigation Measure 3.3-1: Identify potential areas of concern regarding potential future interference of the pipeline with agricultural practices and undertake remedial actions as necessary** *Prior to project construction, LGS will be required to prepare a report identifying specific areas where soil conditions are such that placement of the pipeline could lead to potential future interference with agricultural practices because of unstable soils. LGS will submit this report to CPUC for review and approval. LGS will be required to monitor the depth of the pipeline in these areas annually during the life of the project and submit annual reports to CPUC each January 31. The intent of this mitigation measure is to ensure that the pipeline remains a minimum of 4 feet below the ground surface. In areas where monitoring during*	CPUC will review the submittals from LGS to ensure compliance with the measures outlined above.	CPUC	The report identifying potential areas of concern shall be submitted to CPUC prior to the start of construction. Annual reports will be submitted by LGS and promptly reviewed by CPUC. Remedial actions needed will be completed within 1 year of identification of specific problem areas.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
strength of the soil materials in these areas it may not be possible to excavate a trench deep enough to keep the pipeline at a minimum of 4 feet below ground surface during the useful life of the project.	*the life of the project shows that the pipeline has become shallower than 3.5 feet below the ground surface, LGS will be required by CPUC to implement remediation measures that may include: 1) reburying the pipeline to an appropriate depth; 2) looping the pipeline segment by placing a replacement pipeline segment at a greater depth and removing the shallow segment; 3) importing additional soil cover to maintain the depth of pipeline at least 4 feet below the ground surface. However, importation of additional soil cover will not be permitted if it would interfered with then-existing agricultural practices, such as furrow irrigation; or 4) other measures proposed by LGS and approved by CPUC. Additionally, when the project is abandoned, pipeline segments in subsiding lands will be removed to prevent future interference with agricultural operations.* *Alternatively, at any time during the life of the project, LGS may provide the CPUC with proof of mutually acceptable agreements with individual landowners that indicate that the measures described above are not necessary and that any such potential interference with agricultural operations are acceptable to the landowners.*			

TABLE 5.2 Continued

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
HYDROLOGY				
Potential to expose structures to a significant risk of loss involving flooding related to Delta island flooding *The Composite Route Alternative pipeline alignment would cross numerous Delta islands that are protected by levee systems. The Delta region has a long history of levee failures, and it is likely that during the useful life of the project one or more Delta islands could be flooded. Additionally, habitat restoration plans proposed for Delta islands include intentional flooding. Potential damage could occur to the pipeline if the soil cover is eroded, or if it is saturated, in which case the pipeline may float out of the trench and become exposed to shear and bending loads that exceed its design capacity.*	**Mitigation Measure 3.4-1: Use concrete coated pipe or concrete pipe collars in all areas subject to the 100-year flood, where saturated soils would not prevent the pipeline from floating** *The project proponent shall use weighted pipe (concrete coated pipe or concrete pipe collars) in all areas that are subject to inundation during the 100-year flood event where saturated soils would not prevent the pipeline from floating. These areas include Delta islands that may be flooded intentionally in the future.*	LGS will provide CPUC with copies of the pipeline engineering design and supporting soil engineering studies at least 30 days before construction is scheduled to begin in areas west of Interstate 5.	CPUC	CPUC will monitor the construction of the pipeline to ensure that the mitigation measure is implemented.
AIR QUALITY				
Construction-Related PM10 Emissions in San Joaquin County *Estimated construction-related emissions in San Joaquin County are shown in Table 3.5-3. There are no construction-*	**Mitigation Measure 3.5-1a: Comply with the San Joaquin Air District's Regulation VIII (Fugitive Dust Prohibitions)** *The project Applicant shall comply with the San Joaquin Air District's Regulation VIII (fugitive dust prohibitions) to minimize the generation of fugitive dust.*	LGS will provide final bid specifications to CPUC for review and approval to ensure that these measures are properly incorporated into construction specifications. LGS shall also provide to CPUC a copy of Regulation VIII (Fugitive	CPUC	Bid specifications will be provided to CPUC prior to release for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.

TABLE 5.2 Continued

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
related emissions significance thresholds for the San Joaquin Valley; all emissions are considered significant. However, the San Joaquin Air District requires contractors to implement effective and comprehensive control measures for their projects.		Dust Prohibitions).		
	Mitigation Measure 3.5-1b: Comply with the San Joaquin Air District's recommendation for construction equipment mitigation measures *The project Applicant shall comply with the San Joaquin Air District's recommendation for construction equipment mitigation measures to reduce exhaust emissions from construction equipment.*	LGS will provide final bid specifications to CPUC for review and approval to ensure that these measures are properly incorporated into construction specifications. LGS shall also provide CPUC with a copy of San Joaquin Air District's recommendations for construction equipment.	CPUC	Bid specifications will be provided to CPUC prior to release for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Construction-Related PM10 Emissions in Sacramento County *Estimated construction-related emissions of PM10 would be significant because they exceed the Sacramento Air District's significance threshold for construction emissions. The dust generated during construction of the pipeline is the main source of PM10 emissions from the Composite Route Alternative.*	**Mitigation Measure 3.5-2: Water the construction site with adequate frequency to keep soil moist at all times** *The project Applicant shall water the construction site with adequate frequency to keep the soil moist at all times. This mitigation measure will control 75 percent of fugitive dust-related PM10 emissions.*	LGS will provide final bid specifications to CPUC for review and approval to ensure that these measures are properly incorporated into construction specifications.	CPUC	Bid specifications will be provided to CPUC prior to release for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.

TABLE 5.2 Continued

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Construction-Related ROG and NO_x Emissions in Sacramento County *Construction-related ROG and NOx emissions in Sacramento County would be significant because they exceed the Sacramento Air District=s significance threshold. Equipment exhaust emissions contribute to the ROG and NOx emissions. Although short term, based on Sacramento Air District=s significance threshold, this impact is significant and unavoidable.*	**Mitigation Measure 3.5-1b: Comply with the San Joaquin Air District's recommendation for construction equipment mitigation measures** *The project Applicant shall comply with the San Joaquin Air District=s recommendation for construction equipment mitigation measures to reduce exhaust emissions from construction equipment.*	LGS will provide final bid specifications to CPUC for review and approval to ensure that these measures are properly incorporated into construction specifications. LGS shall also provide CPUC with a copy of San Joaquin Air District's recommendations for construction equipment.	CPUC	Bid specifications will be provided to CPUC prior to release for bid. CPUC will provide comments within 2 weeks following receipt of the specifications.
Controlled Emissions of NOx and ROG during Project Operation that Exceed Emission Offset Trigger Thresholds *The emission of ozone precursors (NOx and ROG) during operation of the Composite Route Alternative, has the potential to further exacerbate high ozone concentrations in the San Joaquin Valley. Also, high ozone levels can severely reduce grape yields. Grapes are one of the most important crops in the region.*	**Mitigation Measure 3.5-3: Obtain emission offsets for NO_x and ROG emission increases or install electric compressor facilities** *The Applicant must obtain emission offsets in amounts equal to the net increase in NOx and ROG. The actual amount of emission offsets will be based on the final agreement between the Applicant and the San Joaquin Air District as to what constitutes BACT. Alternatively, the San Joaquin Air District and/or the Applicant may elect to install electric compressor facilities.*	LGS will provide CPUC with evidence that it has complied with the requirements of the San Joaquin Air District. This evidence shall be in the form of a final permit from the air district.	CPUC	The final permit will be provided to CPUC prior to the beginning of construction of the compression facility.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Potential for Objectionable Odors *The collection and processing of natural gas at the separation facility, compressor facility, and injection/withdrawal wells have the potential to result in the release of small quantities of odorized natural gas (objectionable odors). Odorized gas could be emitted from piping components such as valves and flanges (fugitive emissions).*	**Mitigation Measure 3.5-4: Properly construct, inspect, and maintain facilities** *Aboveground piping components will be properly maintained to minimize leakage of odorized gas. Piping connections will be welded to the extent practicable given design considerations. Valves, flanges, and other piping components will be subject to a quarterly inspection and a maintenance program to identify and repair leaking components. An inspection and maintenance report will be submitted to CPUC identifying all detected leaks and repair actions taken no more than 1 month following each quarterly inspection.*	LGS will promptly submit reports to CPUC for review.	CPUC	Reports will be submitted each quarter of each calendar year that the project is in operation. CPUC will promptly review the reports and identify any remedial actions necessary.
TRANSPORTATION AND CIRCULATION				
Temporary disruption of circulation from project construction *Construction traffic on local roadways during construction of facilities would inconvenience residences, businesses, and adjacent agricultural operations. Although the extent of public roads affected by construction of the Composite Route Alternative is limited, the potential remains for construction traffic and construction activities within and adjacent to road rights-of-way to disrupt routine agricultural operations.*	**Mitigation Measure 3.6-1: Develop and implement a traffic control plan** *In coordination with the Sacramento County and San Joaquin County Departments of Public Works, the Applicant will develop and implement a traffic control plan for all construction activities proposed within and adjacent to public road rights-of-way that would delay or disrupt local roadway traffic. Factors taken into account by the plan will include (but are not limited to) lane closures, road closures, traffic flow during peak hours, traffic control devices, detours, access to driveways, private roads, and farm roads, and development of an emergency access plan.*	LGS will provide CPUC with a copy of the traffic management plan. CPUC will monitor construction activities within and adjacent to public road rights-of-way to ensure compliance with the plan.	CPUC	Monitoring should occur at least weekly during construction within and adjacent to public road rights-of-way.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Potential for interference with emergency response routes *Construction-related activities within and adjacent to public road rights-of-way and increased truck and vehicle traffic along project access routes could temporarily increase response times for emergency response providers along affected roadways.*	**Mitigation Measure 3.6-1: Develop and implement a traffic control plan** *In coordination with the Sacramento County and San Joaquin County Departments of Public Works, the Applicant will develop and implement a traffic control plan for all construction activities proposed within and adjacent to public road rights-of-way that would delay or disrupt local roadway traffic. Factors taken into account by the plan will include (but are not limited to) lane closures, road closures, traffic flow during peak hours, traffic control devices, detours, access to driveways, private roads, and farm roads, and development of an emergency access plan.*	LGS will provide CPUC with a copy of the traffic management plan. CPUC will monitor construction activities within and adjacent to public road rights-of-way to ensure compliance with the plan.	CPUC	Monitoring should occur at least weekly during construction within and adjacent to public road rights-of-way.
BIOLOGICAL RESOURCES				
Potential disturbance to special-status plant species in unsurveyed portions of the alignment *The Composite Route Alternative could potentially result in effects on threatened, endangered, rare, and other special-status plants if they occur within areas directly affected by the project.*	**Mitigation Measure 3.7-1a: Conduct floristic surveys to identify the location and extent, if any, of threatened, endangered, proposed, and special status plants** *Prior to construction activities in any area, a qualified biologist will be retained by CPUC to determine the need to conduct detailed floristic surveys and to conduct appropriate surveys according to CDFG Guidelines to identify the locations of threatened, endangered, proposed, and other special-status plants. Areas that have a high likelihood to support special-status species will either be avoided by changes in construction techniques or alignment, or the area will be avoided until floristic surveys can be conducted and the site can be cleared for construction by the botanist. Active agricultural fields, excluding ruderal edge habitat that could contain habitat for special-status species, slough and river channels, and other sensitive habitat locations already*	Construction sites will be surveyed by CPUC to determine the presence or potential presence of special-status plant species.	CPUC	Construction sites will be surveyed prior to construction activities in each area during the entire project construction phase.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
	designated for surface avoidance do not require surveys because they do not support special-status plant species or have already been identified as locations or community types to be avoided by project activities according to the project design.			
	Mitigation Measure 3.7-1b: Avoid and protect known federal and state listed plants *Before construction activities are initiated near federal or state listed plant populations, the CPUC biological monitor will identify the location for a protective barrier. Special-status plant populations with a high potential to be disturbed will be identified and protected by installing fencing (e.g., barrier fencing, sedimentation fencing, straw bales) and posting signs. These protective barriers will be in place before construction activities are initiated and will remain in place until all construction activities that could disturb the special-status plants are completed.*	All identified state and federally listed plant species will be avoided during construction.	CPUC	Monitoring will occur during the entire construction phase of the project.
	Mitigation Measure 3.7-1c: Minimize long-term impacts on special-status plant populations *To minimize long-term impacts on plant species that are considered special-status species but are not state or federally listed, the project proponent will attempt to avoid impacts to these populations by prohibiting all construction activities in these areas. If directional drilling or project realignment is not feasible, the project proponent will implement the following general measures: 1) Notify CDFG at least 10 days in advance of construction that avoidance measures are not feasible; 2) Depending on the species, seed, propagules, and/or viable plant material will be collected and stored or maintained at a location*	Ensure that each step of the mitigation measure described above is implemented.	CPUC and LGS	During the entire construction phase of the project as necessary.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
	acceptable to CDFG; 3) The topsoil (6-12 inches) from the excavated site will be stockpiled with intact roots, rhizomes, and seed bank. The topsoil and collected plant material will be replaced during the appropriate season following completion of construction. This activity will be monitored by a botanist familiar with the local flora; (4) Contact CDFG to report findings after construction is complete; and 5) Monitor the success in reestablishing the special-status plant population through one growing season and report the results to CDFG.			
Potential introduction or spread of noxious and invasive weeds and pests during construction *Construction activities could result in the introduction or spread of noxious weeds into currently uninfested areas, potentially resulting in the displacement of native plant species or commercially important agricultural crops.*	**Mitigation Measure 3.7-2: Control dispersal of noxious and invasive weeds and pests during construction activities** *To prevent the spread of noxious and invasive weeds into previously uninfected areas, the project proponent will implement the following measures: 1) Coordinate with the Sacramento and San Joaquin County Agricultural Commissioners' offices and CDFG to determine noxious and invasive weeds of concern in the proposed project area; 2) Stake noxious and invasive weed infestation areas prior to construction and clearly identify their locations on the construction drawings; 3) Control populations of existing, staked, noxious and invasive weeds of concern in the project area prior to initiation of construction activities by applying an acceptable herbicide or by employing acceptable mechanical methods of removal; 4) Clean equipment at designated wash stations away from waterways prior to use in the project area and after leaving weed infestation areas; 5) Use certified weed-free imported materials; and 6) Conduct follow-up monitoring and treatment of noxious and invasive weeds introduced by project construction activities on*	Ensure that appropriate language is incorporated into bid specifications to require the measures above to be implemented and monitor project construction activities to ensure compliance and appropriate action.	CPUC and LGS	During development of bid specifications and during project construction.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
	lands and waterways in the project area that are not under active cultivation or vegetation management.			
Potential disturbance of sensitive habitats *The Composite Route Alternative could result in the temporary disturbance of sensitive habitats that may occur in the project area, including vernal pools and swales, alkali grassland, native bunchgrass grassland, and seasonal wetlands. The effect on these areas would be minimal because the project includes provisions to avoid direct impacts to sensitive biological resources. However, some sensitive habitat areas may be indirectly affected by construction activities in adjacent areas or by modifications to the project alignment.*	**Mitigation Measure 3.7-3a: Confine construction activities and equipment to the designated construction work area** *To minimize potential impacts on sensitive vegetation and wetland resources, the contractor will be required to designate work areas outside the currently identified zone. These designated work areas may include staging areas and pipeline trench and construction access corridors. Before construction, additional work areas will be surveyed by a qualified biologist, relocated as necessary to avoid effects on sensitive resources, approved by CPUC and demarcated before construction with lath and flagging, temporary orange construction fencing, or chain link fencing. Construction contractors will require that construction personnel stay within these designated work areas as a condition of employment. The project proponent will provide CPUC with draft bid specifications for review to ensure compliance with appropriate measures. Bid documents will not be released prior to CPUC approval.*	Ensure that appropriate language is included in bid specifications and that the contractor(s) comply with these requirements.	CPUC and LGS	During development of bid specifications and during project construction.
	Mitigation Measure 3.7-3b: Avoid and protect sensitive vegetation and wetland resources near designated construction work area *To minimize impacts on sensitive vegetation and wetland resources immediately next to designated construction areas, construction contractors will post signs identifying areas containing sensitive vegetation and wetland resources as Arestricted Areas@ and protect these areas with temporary barriers. The construction contractor will be required to keep construction equipment and personnel out of designated restricted areas.*	Ensure that appropriate language is included in bid specifications and that the contractor(s) comply with these requirements.	CPUC and LGS	During development of bid specifications and during project construction.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
	Mitigation Measure 3.7-3c: Reestablish preconstruction site conditions to allow natural colonization of plant species and, if necessary, reseed *In non-agricultural and developed areas, the construction contractor will be required to restore the construction zone to preconstruction site conditions. To ensure that impacts on native plant species and other natural communities are not long term, native topsoil will be immediately replaced and the natural site topography reestablished. Preconstruction conditions will be reestablished to allow natural colonization of plant species.*	Ensure that appropriate language is included in bid specifications and that the contractor(s) comply with these requirements.	CPUC and LGS	During development of bid specifications and during project construction.
Potential disturbance to landmark trees or groves *The Composite Route Alternative construction area may contain trees that would qualify for protection under tree ordinances in the Sacramento and San Joaquin county general plans. The Composite Route Alternative could potentially result in significant impacts to native trees, native oak trees, and landmark trees in the proposed project area in Sacramento County, and to native oak trees, heritage oak trees, or historical trees in the proposed project area in San Joaquin County. These impacts could result in the direct mortality or damage to trees that would qualify for protection under the ordinances.*	**Mitigation Measure 3.7-4: Conduct preconstruction surveys and create buffer zones to minimize impacts to heritage and landmark trees** *Surveys will be conducted by a qualified botanist to identify the locations of native trees, native oak trees, and landmark trees in the project area in Sacramento County and of native oak trees, heritage oak trees, or historical trees in the project area in San Joaquin County. A plan shall be developed by the project proponent for treatment of all heritage and landmark trees. This plan shall be incorporated into bid specifications. The plan shall be provided by LGS to CPUC for approval prior to issuance of project bid specifications. All native trees, native oak trees, landmark trees, and groves to be avoided will be marked in the field and fenced, and all construction activities will be prohibited in these designated areas, following the guidelines in Mitigation Measures 3.7-3a and 3.7-3b. If trees cannot be avoided, compensatory actions will be determined in coordination with the Sacramento and San Joaquin County Planning Departments and the guidelines in the county tree ordinances.*	CPUC will ensure that appropriate surveys are conducted by a qualified botanist. CPUC will review the survey results and approve the proposed treatment prior to project construction.	CPUC and LGS	During development of project bid specifications and during project construction.
Potential impacts on aquatic	**Mitigation Measure 3.7-3a: Confine construction**	Ensure that appropriate language is	CPUC and LGS	During development of bid

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
invertebrates, california tiger salamander, and western spadefoot toad and their habitat *The Composite Route Alternative could potentially result in incidental impacts on aquatic invertebrates; California tiger salamander; and western spadefoot toad in and along the margins of vernal pools, freshwater marsh, and ponds. Impacts could result from construction activities associated with installation of pipelines and well pads. These impacts could result in the direct mortality of individuals and degradation of habitat by altering hydrological processes associated with their habitat.*	**activities and equipment to the designated construction work area** *To minimize potential impacts on sensitive vegetation and wetland resources, the contractor will be required to designate work areas outside the currently identified zone. These designated work areas may include staging areas and pipeline trench and construction access corridors. Before construction, additional work areas will be surveyed by a qualified biologist, relocated as necessary to avoid effects on sensitive resources, approved by CPUC and demarcated before construction with lath and flagging, temporary orange construction fencing, or chain link fencing. Construction contractors will require that construction personnel stay within these designated work areas as a condition of employment. The project proponent will provide CPUC with draft bid specifications for review to ensure compliance with appropriate measures. Bid documents will not be released prior to CPUC approval.*	included in bid specifications and that the contractor(s) comply with these requirements.		specifications and during project construction.
	Mitigation Measure 3.7-3b: Avoid and protect sensitive vegetation and wetland resources near designated construction work area *To minimize impacts on sensitive vegetation and wetland resources immediately next to designated construction areas, construction contractors will post signs identifying areas containing sensitive vegetation and wetland resources as Arestricted Areas@ and protect these areas with temporary barriers. The construction contractor will be required to keep construction equipment and personnel out of designated restricted areas.*	Ensure that appropriate language is included in bid specifications and that the contractor(s) comply with these requirements.	CPUC and LGS	During development of bid specifications and during project construction.
	Mitigation Measure 3.7-3c: Reestablish preconstruction site conditions to allow natural	Ensure that appropriate language is included in bid specifications and	LGS and CPUC	During development of bid specifications and during

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
	recolonization of plant species and, if necessary, reseed *In non-agricultural and developed areas, the construction contractor will be required to restore the construction zone to preconstruction site conditions. To ensure that impacts on native plant species and other natural communities are not long term, native topsoil will be immediately replaced and the natural site topography reestablished. Preconstruction conditions will be reestablished to allow natural colonization of plant species.*	that the contractor(s) comply with these requirements.		project construction.
Potential impact on the valley elderberry longhorn beetle *The Composite Route Alternative may have significant impacts on the valley elderberry longhorn beetle if construction activities cause the mortality or lowered reproduction of elderberry shrubs. Although the project has been designed to avoid elderberry shrubs in the project area, minor changes in the final alignment may occur and the pipeline may affect shrubs in areas not yet surveyed.*	**Mitigation Measure 3.7-5: Conduct preconstruction valley elderberry longhorn beetle surveys and avoid or compensate for loss of habitat** *Before initiating construction, a qualified biologist will survey the final alignment corridor and document the extent of habitat, if any, for the valley elderberry longhorn beetle. If any habitat for the valley elderberry longhorn beetle is found, the project proponent will implement USFWS's mitigation guidelines for the valley elderberry longhorn beetle by avoiding construction activities within 20 feet of any elderberry shrub. Where avoidance is not feasible, a compensation plan will be prepared and implemented to compensate for the loss of habitat.*	CPUC will review the information provided by the project proponent and require appropriate action depending on its findings.	CPUC and LGS	Prior to and during project construction.
Potential disturbance on the greater sandhill crane *The Composite Route Alternative could potentially affect the greater sandhill crane because construction activities could disturb sandhill cranes in essential wintering areas (Staten Island, Canal Ranch,*	**Mitigation Measure 3.7-6: Conduct preconstruction surveys for sandhill cranes and avoid key foraging and roosting areas** *If construction is to occur during the time period when cranes winter in the Delta (September through mid-March), a qualified wildlife biologist will survey the proposed pipeline alignment for sandhill cranes to identify feeding and roosting areas before construction begins. Roosting and feeding areas*	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.	CPUC and LGS	Prior to and during project construction.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
and Brack Tract). Construction activities could cause the cranes to avoid or flush from important feeding areas for prolonged periods of time, resulting in disrupted feeding patterns and potentially affecting reproductive potential.	*shall be avoided while they are occupied. Generally, birds will disperse off roost sites in the morning and return during the late afternoon. If monitoring by CPUC shows that roosting or feeding areas are occupied by sandhill cranes for longer periods during the day, these areas shall be avoided.*			
Potential disturbance of active raptor and owl nests and tricolored blackbird nests *The Composite Route Alternative could potentially result in significant impacts on the tricolored blackbird and on raptors such as the northern harrier, white-tailed kite, burrowing owl, and short-eared owl if project construction would cause abandonment of several nests, nesting colonies, or the destruction of active nest sites.*	**Mitigation Measure 3.7-7: Conduct preconstruction surveys** *Preconstruction surveys will be conducted for tricolored blackbird, northern harrier, white-tailed kite, burrowing owl, and short-eared owl in the project area prior to proposed construction activities that occur between March 1 and August 31. A qualified biologist will survey suitable habitat for the presence of these nesting species along the pipeline alignment and the well pad sites. Where nest sites are identified or suspected to occur during preconstruction surveys, the qualified biologist will establish buffer zones around the nest to avoid significant impacts on these species. A 200-foot buffer zone will be established around active tricolored blackbird, northern harrier, white-tailed kite, and short-eared owl nests. No construction activities will occur within this buffer until the young have fledged or the species are no longer attempting to nest.*	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.	CPUC and LGS	Prior to and during project construction.

TABLE 5.2 Continued

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
Loss of or disturbance to nesting western burrowing owls *Disturbance of nesting western burrowing owls, a state species of special concern and a federal species of concern, during construction could cause nest abandonment or force nestlings to fledge early, which could result in mortality.*	**Mitigation Measure 3.7-8: Consult with CDFG and follow CDFG's burrowing owl mitigation guidelines** *If an active burrowing owl burrow (nesting or winter roosting) is found or reported to exist within 500 feet of the pipeline construction corridor during the raptor surveys, CDFG will be consulted. If an active burrowing owl burrow cannot be avoided during construction, the project proponent will consult with CDFG regarding the appropriate mitigation measures.*	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.	CPUC and LGS	Prior to and during project construction.
Construction activities may cause the reproductive failure of nesting Swainson's hawks *Construction activities near an active Swainson's hawks nest could directly cause reproductive failure by removing the nest tree, causing adults to abandon the nest, or forcing young to leave the nest prematurely.*	**Mitigation Measure 3.7-9: Conduct preconstruction surveys for nesting Swainson's hawks and follow CDFG's mitigation guidelines for Swainson's hawks** *Before construction activities are conducted between March 15 and September 15, preconstruction surveys for nesting Swainson's hawks will be conducted within 0.5 mile of the project area. If nesting Swainson's hawks are found, the project proponent will consult with the CDFG to determine if construction activities could cause reproductive failure. CDFG may require that no construction activities be allowed within 0.5 mile from the nest site until young have fledged or the adults are no longer nesting. However, construction may be allowed within 0.5 mile of the nest if a biologist monitors the nest to determine whether the adults may abandon the nest.*	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.	CPUC and LGS	Prior to and during project construction.
Construction activities may cause the reproductive failure of nesting swallows and herons *The Composite Route Alternative could potentially result in significant impacts on*	**Mitigation Measure 3.7-10: Conduct preconstruction surveys for nesting swallows and herons and establish appropriate buffer zones around nests** *Preconstruction surveys will be conducted for nesting swallows and herons in the project area prior to construction activities when construction is*	Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.	CPUC	Prior to and during project construction.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
nesting swallows occurring under bridge structures and nesting herons in tall, mature trees. Because swallows are migratory and protected under the Migratory Bird Treaty Act, and heron rookeries are considered a special-status resource by CDFG, construction-related disturbances that cause nesting failure would be considered a significant impact.	*proposed between March 15 and August 31. A qualified biologist will survey suitable nesting habitat for the presence of these nesting species along the pipeline and well pad sites. The biologist will be required to drive or walk along the pipeline alignment and well pad sites in and near suitable habitat types in the project area and inspect the habitats for nesting swallows and herons. Where nest sites are identified during preconstruction surveys, the qualified biologist will establish buffer zones around the nest sites and no project construction activities will occur within these buffer zones.*			
PUBLIC HEALTH AND SAFETY				
Potential peat fire hazard during pipeline construction *In the Delta portion of the pipeline alignment, the pipe would be buried in peat soils that are combustible. There is a slight possibility that pipeline joint preparation and welding of the pipeline may initiate a peat fire causing harmful air emissions and damage to property.*	**Mitigation Measure 3.9-1: Develop and implement a peat fire prevention plan** *The project Applicant shall develop and implement a peat fire prevention plan in addition to the fire protection plan required by the U.S. Department of Transportation Office of Pipeline Safety. The plan shall be developed in consultation with the State Fire Marshall or other responsible fire-fighting agencies. The plan shall include specific measures to prevent ignition and spread of a peat fire.*	LGS will submit a peat fire prevention plan to CPUC. CPUC will monitor construction activities to ensure compliance with the plan.	CPUC	Active construction areas will be patrolled daily.
NOISE				
Exposure of noise sensitive land uses to noise from construction activities other than well drilling *Construction of the well pad sites, separator facility, compressor facility, and installation of pipelines would*	**Mitigation Measure 3.10-1: Employ noise-reducing practices to reduce construction noise** *The project Applicant shall notify owners of all residential and other noise-sensitive properties within 3,000 feet of proposed construction sites that construction will be occurring at the site. A notification packet shall be sent to the property owners that identifies the intended construction*	Construction activities will be monitored daily to ensure compliance with this mitigation measure. LGS will provide CPUC with documentation clearly indicating compliance with the mailing requirements of this measure. LGS will also provide	CPUC	Monitoring will occur throughout project construction.

TABLE 5.2 Continued

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
result in temporary increases in noise in the area of construction activity. Primary noise-generating activities would include excavation, grading, scraping, and compaction activities. Noise increases from pipeline installation would typically last no more than a day. Noise from construction of other facilities would occur over several weeks. Construction noise could exceed 57 dBA within about 2,000 feet of an active construction site. Numerous residences are located within this distance along the pipeline alignment, and several residences are located within this distance near the well sites, separator facility, and compressor facility sites.	*schedule, the duration of noise-generating construction activities, and a telephone number to call with noise complaints. Notification packets shall be sent to property owners at least 30 days before the commencement of construction activity within 3,000 feet of the owners' property. The construction contract specifications shall also include: Sound-control devices on all equipment, no equipment with unmuffled exhaust, and maintenance and operation of equipment to minimize noise generation and appropriate additional noise mitigation measures as directed by the CPUC.*	weekly reports to CPUC regarding the number of noise complaints received on the telephone hotline and how each complaint was addressed.		
Exposure of noise-sensitive land uses to noise from well-drilling activities *Well drilling would be conducted on a 24-hour basis for approximately 12 weeks. Well drilling is considered a construction activity that is exempt from the San Joaquin County Noise Ordinance between 7:00 a.m. and 7:00 p.m. Monday through Saturday. Several residences are located within 2,000 feet of the well*	**Mitigation Measure 3.10-2:Restrict the hours of construction, install noise-reducing barriers around drilling sites, and employ other noise-reducing "best management practices" to reduce drilling noise** *To minimize noise impacts from well-drilling activities, the Applicant and the construction contractor shall limit the hours of well-drilling activities to these hours and employ other noise-reducing construction practices. Specifically, the Applicant shall notify owners of all residential and other noise-sensitive properties within 2,000 feet of proposed well sites that construction will be occurring at the site. A notification packet shall be*	Well-drilling activities will be monitored weekly to ensure compliance with this mitigation measure. The Applicant and CPUC will meet weekly to coordinate well-drilling activities and determine which measures should apply at each well-drilling site prior to the initiation of well-drilling activities at that site. LGS will provide the CPUC with documentation clearly indicating compliance with the mailing requirements of this measure. LGS will also provide weekly reports to	CPUC and LGS	Monitoring will occur during well-drilling activities.

Impact	Mitigation Monitoring Procedure	Monitoring Action	Responsibility	Timing
sites. The potential exists for these residences to be exposed to substantial increases in noise as well as noise exceeding the San Joaquin County Noise Ordinance as a result of well-drilling activities.	*sent to the property owners that identifies the intended construction schedule, the duration of noise-generating construction activities, and a telephone number to call with noise complaints. Notification packets shall be sent to property owners at least 30 days before the commencement of well-drilling activity within 2,000 feet of the owners' property. The Applicant shall also employ noise-reducing measures to reduce noise from well-drilling activities.*	CPUC regarding the number of noise complaints received on the telephone hotline and how each complaint was addressed.		
		VISUAL RESOURCES		
Potential to degrade the existing visual character of the site *Several of the project facilities (those associated with well pad and injection sites, the separation facility, the compressor/dehydration facility, PG&E Line 401 and Line 196 Interconnect and Meter Stations, and pipeline construction) are large enough or close enough to sensitive viewers that they may degrade the visual character of the site. The project proponent has agreed to implement several measures as part of the project to minimize disturbance of the visual character of the site. However, the potential for significant visual impacts at the aboveground project facility sites still remains.*	**Mitigation Measure 3.12-1*:* Develop and implement landscaping and site design plan** *In consultation with San Joaquin County Department, and subject to the approval of CPUC, LGS will develop and implement a landscaping and site design plan for the well pad, separation facility, and compressor facilities, which includes, but is not limited to, consideration of the following elements: 1) reducing the profile of the compressor facility by undergrounding a portion of the facility and using the excavated material to create a berm to serve as a partial screen and a landscaping base around the structures; 2) using evergreen trees and shrubs at a sufficient density to establish an effective landscape buffer around project facilities; 3) planting the landscaping buffer prior to construction to facilitate the rapid establishment of a mature landscape buffer around project facilities; 4) identifying performance criteria for the successful establishment of landscape vegetation; and 5) developing a long-term maintenance program to ensure plant survivorship.*	LGS will submit a landscaping and site design plan to CPUC for review and approval. CPUC will monitor the landscaping plan following completed installation of all plantings to ensure compliance with the plan. LGS will conduct annual monitoring of facility landscaping for 10 years after installation and submit annual monitoring reports to CPUC.	CPUC and LGS	Monitoring should occur after all facility landscaping has been installed, and thereafter annually for a period of 10 years.