4: MITIGATION, MONITORING AND REPORTING PROGRAM

4.1 Introduction

The purpose of this Mitigation, Monitoring, and Reporting Program (MMRP) is to summarize the mitigation, monitoring, and reporting process for the proposed WGSI Expansion Project and the role and responsibilities of the CPUC in ensuring the effective implementation of mitigation for potential adverse effects and cumulatively considerable effects.

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

4.2 Roles and Responsibilities

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

WGSI will have the responsibility for initiating implementation of all of the mitigation measures. Oversight of their implementation will be divided among a variety of agencies including:

- CPUC
- Butte County Agricultural Commissioner
- Colusa County Agricultural Commissioner
- California Department of Fish and Game
- Army Corps of Engineer
- Regional Water Quality Control Board
- US Fish and Wildlife Service
- Division of Oil, Gas, and Geothermal Resources
- Butte County Planning Department
- Department of Water Resources
- Department of Toxic Substance Control
- Butte County Public Works Department
- Colusa County Public Works Department
- Sutter County Public Works Department
- Local Fire Departments
- Local Sheriff's Departments
- California Highway Patrol

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

4.3 Environmental Sectors and Mitigation

Construction, operation, and maintenance of the proposed WGSI Expansion Project could result in potentially significant environmental impacts. Mitigation measures identified in this EIR have been developed to reduce those potential impacts to a less than significant level. The one exception to this is the permanent loss of agricultural land, which has been determined to be significant and unavoidable.

The numbers of the mitigation measures summarized in Table 4.3-1 correspond with the mitigation measure numbers outlined in Section 3. Numbering of mitigation measures in the air quality section was corrected due to duplication in the DEIR. Numbering of mitigation measure in the hazards section was amended due to deletion of a measure in the FEIR. WGSI Measure 3.15-2 was included in this FEIR as the measure was inadvertently omitted in the DEIR.

Table 4.3-1: Draft Mitigation, Monitoring, and Reporting Program

Aesthetics	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.1-1: Potential for a substantial adverse effect on scenic vista.	**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.	Less than significant	CPUC, WGSI
		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.	Less than significant	CPUC, WGSI
		WGSI Measure 3.1-3. The markers would be installed at angle points in the alignment, near road crossings, and at inter-visible locations, to provide notice of the approximate location of the line. Although these markers must be visible to be	Less than significant	CPUC, WGSI

Aesthetics	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		effective as safety devices, they would be sufficiently spaced along the line so as not to result in a significant visual impact to the scenic vista.		
		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.	Less than significant	CPUC, WGSI
	Impact 3.1-2: Potential to substantially degrade the existing visual character or quality of the site and its surroundings.	**WGSI Measure 3.1-5.** The lease with the Wild Goose Club stipulates that screening be provided around the Well Pad. In compliance with this stipulation, the existing landscape berm would be extended around the entire expanded Well Pad Site and landscaped similar to the existing vegetation.	Less than significant	CPUC, WGSI
		WGSI Measure 3.1-6. All buildings and aboveground features would be painted the same neutral color as the existing buildings.	Less than significant	CPUC, WGSI
		WGSI Measure 3.1-7. Site lighting would be hooded and directed toward the interior of the facility.	Less than significant	CPUC, WGSI
		WGSI Measure 3.1-8. Building design of the expanded Remote Facility Site would emulate the	Less than significant	CPUC, WGSI

Aesthetics	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		existing facility.		
		WGSI Measure 3.1-9. If a main line block valve lot must be located on the Line 400/401 Connection Pipeline adjacent to or within the foreground of views of either of the two county-designated scenic highways, the circulation policies of the *Colusa County General Plan* require that it be set back as far as possible from the designated roadway and in a low-visibility area, if possible. WGSI would create a feasible set back in accordance with this policy.	Less than significant	CPUC, WGSI
	Impact 3.1-3: Potential to substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	**WGSI Measure 3.1-10.** Valve lots would be placed as far back from the scenic highway as possible.	Less than significant	CPUC, WGSI
		WGSI Measure 3.1-11. Wooden slats would be installed in the valve lot chain link fence for screening on the sides facing the road.	Less than significant	CPUC, WGSI
		WGSI Measure 3.1-12. Site lighting would be low-profile and shrouded to direct light down and inside the valve lot.	Less than significant	CPUC, WGSI
	Impact 3.1-4: Potential to create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.	**WGSI Measure 3.1-13.** Light glare from night construction at the Remote Facility Site would be mitigated by using smaller grinding wheels which produces smaller spark showers.	Less than significant	CPUC. WGSI
		WGSI Measure 3.1-14. Directing all lighting down	Less than significant	CPUC, WGSI

Aesthetics	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		Directing all lighting down toward the work area,	significant	
		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.	Less than significant	CPUC, WGSI
		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.	Less than significant	CPUC, WGSI
		WGSI Measure 3.1-17. Installation of shielding on all light fixtures to direct light downward	Less than significant	CPUC, WGSI
		WGSI Measure 3.1-18. Use of low profile, shrouded light at the valve stations	Less than significant	CPUC, WGSI
Agriculture	**Impact**	**Mitigation Measure**	**Level of Significance w/ Mitigation**	**Responsible Party**
	Impact 3.2-1: Direct Conversion of Farmland to Non-Agricultural Use	**WGSI Measure 3.2-1.** Farmers shall be compensated for the loss of crops during construction of the proposed facilities.	Significant and unavoidable	CPUC. WGSI
		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	Less than significant	CPUC, WGSI

Agriculture	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		trench backfill in agricultural areas will be compacted to the original density to minimize settling (see Section 3.6 Geology), follow-up 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.	Less than significant	CPUC, WGSI
		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.	Less than significant	CPUC, WGSI
		WGSI Measure 3.2-5. The installation of Line 400 Connection Pipeline with ~~up to~~ a minimum of five feet of cover in agricultural areas will allow virtually all plowing and ripping practices currently utilized	Less than significant	CPUC, WGSI

Agriculture	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		by farmers in the area.		
		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.	Less than significant	CPUC, WGSI
		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 framers 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.	Less than significant	CPUC, WGSI
		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	Less than significant	CPUC. WGSI, Butte County and Colusa County Agricultural Commissioner

Agriculture	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		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 3.2-4. Temporary fencing shall be provided in the grazing areas near the Well Pad Site to prevent livestock from straying into the construction areas and to maintain temporary pasture boundaries.	Less than significant	CPUC, WGSI
		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	Less than significant	CPUC, WGSI

Agriculture	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		removed within 72 hours of placement.		
		~~**Mitigation Measure 3.2-6.** Impacts from the Remote Facility expansion shall be reduced by positioning block valves at the perimeter of cropland areas so that interference with planting, tillage, and harvesting is minimized.~~	~~Less than significant~~	~~CPUC, WGSI~~
	Impact 3.2-2: Potential conflict with Existing Designated Land Uses	**Mitigation Measure 3.2-~~7~~6.** WGSI shall submit payment of fair market value for crops removed from production by construction or operation of the project.	Less than significant	CPUC. WGSI
	Impact 3.2-3: Indirect Conversion of Farmland to Non-Agricultural Use	**Mitigation Measure 3.2-~~8~~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 manager(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.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.2-~~9~~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.)	Less than significant	CPUC, WGSI

Agriculture	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		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.		
		Mitigation Measure 3.2-~~10~~9. If any organic crops are grown along access roads or ROW areas, monitoring shall be performed to assess conditions prior to construction, and WGSI shall control any increase of noxious weed growth for the growing season after construction is completed.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.2-~~12~~10. To mitigate significant adverse effects on cattle grazing, WGSI ~~shall provide two cattle water troughs, one north and another south of the ROW from west of the Glenn-Colusa Canal to the Delevan Compressor Station.~~ locate or relocate cattle water troughs where needed in cooperation with the ranchers needs for livestock water if existing water supplies or livestock access is curtailed by construction activities.	Less than significant	CPUC, WGSI

Air Quality	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.3-1: Potential to Conflict with or Obstruct	None required		

Air Quality	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Implementation of the Applicable Air Quality Plan.			
	Impact 3.3-2: Potential to Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation	**WGSI Measure 3.3-1.** Workers, excluding welders and construction supervisors, will be bussed from staging areas to the daily pipeline work site to minimize emissions from workers' vehicles.	Less than significant	CPUC, WGSI
		WGSI Measure 3.3-2. Car-pooling will be encouraged among construction workers through contractor bid specifications and project orientation training for workers.	Less than significant	CPUC, WGSI
		WGSI Measure 3.3-3. Vehicles used in construction activities will be tuned per the manufacturer's recommended maintenance schedule, or at least annually thereafter.	Less than significant	CPUC, WGSI
		WGSI 3.3-4. Beginning with the initial clearing and continuing until the disturbed area is restored, water will be applied to disturbed areas as necessary to reduce dust when vehicle traffic is present.	Less than significant	CPUC, WGSI
		WGSI Measure 3.3-5. If construction of the Line 400 / 401 Connection Pipeline along the orchards near the Sacramento River must occur during the growing season (anytime between bud break and the conclusion of harvest), additional water will be applied as necessary to minimize dust or vehicle	Less than significant	CPUC, WGSI

Air Quality	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		speeds will be limited to 15 mph.		
		WGSI Measure 3.3-6. Construction vehicles will use paved roads to access the ROW wherever possible.	Less than significant	CPUC, WGSI
		WGSI Measure 3.3-7. Any soil or mud deposited by construction equipment on paved roads near the egress from unpaved areas will be removed on a daily basis.	Less than significant	CPUC, WGSI
		WGSI Measure 3.3-8. Following the completion of construction, disturbed areas will be stabilized as prescribed in the Restoration and Monitoring Plan.	Less than significant	CPUC, WGSI
		WGSI Measure 3.3-9. Valves and flanges will be subject to a leak test following installation and following any maintenance on the valve.	Less than significant	CPUC, WGSI
		WGSI Measure 3.3-10. Welded connections will be used to the extent feasible to minimize the number of flanges.	Less than significant	CPUC, WGSI
		WGSI Measure 3.3-11. Unless necessitated by specific design requirements or valve location limitations, pipeline pressure valve actuators will not be used by WGSI. Pneumatic valve actuators are presently powered by compressed air. PG&E may use natural gas valve actuators on its portions of the Interconnect Sites, and WGSI may use similar actuators for its main line block valve(s) if they	Less than significant	CPUC, WGSI

Air Quality Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	must be remotely operated. However, the remote location of these facilities should preclude any odor impacts.		
	Mitigation Measure 3.3-1. WGSI shall use adequate dust control measures that are implemented in a timely and effective manner during all phases of project development.	Less than significant	CPUC, WGSI
	Mitigation Measure 3.3-2. Vehicle speeds will be limited to 15 mph on private unpaved roads and the ROW, or as required to control dust.	Less than significant	CPUC, WGSI
	Mitigation Measure 3.3-3. Open haul trucks will be covered with tarps both on and off the work site.	Less than significant	CPUC, WGSI
	Mitigation Measure 3.3-4. WGSI shall ~~construct an area to wash all heavy equipment vehicle tires before entering paved roadways~~ stabilize the construction access points with 6 inches of gravel to remove mud from construction equipment prior to entering paved roads.	Less than significant	CPUC, WGSI
	Mitigation Measure 3.3-5. WGSI shall utilize non-toxic chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).	Less than significant	CPUC, WGSI
	Mitigation Measure 3.3-~~5~~6. Any soil or mud deposited by construction equipment	Less than significant	CPUC, WGSI

Air Quality	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		by construction equipment on paved roads near the egress from unpaved areas will be removed on a daily basis.		
		Mitigation Measure 3.3-~~6~~7. Land clearing, grading, earth moving or excavation activities shall be suspended when winds exceed 20 miles per hour within the project area.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.3-~~7~~8. WGSI shall use alternatives to open burning of vegetative material on the project site unless otherwise deemed infeasible by the AQMD (Among suitable alternatives are chipping, mulching, or conversion to biomass fuel).	Less than significant	CPUC, WGSI
		Mitigation Measure 3.3-~~8~~9. WGSI shall cover all inactive storage piles during construction and operation of the proposed project.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.3-~~9~~10. WGSI shall post a publicly visible sign with the telephone number and person to contact regarding dust complaints at all major construction ~~and operation~~ areas. This person shall respond and take corrective action within 24 hours. The telephone number of the Colusa County Air District and BCAQMD shall also be visible to ensure compliance with BCAQMD Rule 201 & 207 (Nuisance and Fugitive Dust Emissions).	Less than significant	CPUC, WGSI

Air Quality	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		Mitigation Measure 3.3-~~10~~11. Prior to final occupancy, the applicant shall demonstrate that all ground surfaces have been covered or treated sufficiently to minimize fugitive dust emissions.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.3-~~11~~12. WGSI shall use fleet vehicles that use clean-burning fuels as may be practical.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.3-~~12~~13: WGSI shall use non-toxic ~~binders~~ chemical soil stabilizers exposed areas after cut and fill operation and by hydroseed areas.	Less than significant	CPUC, WGSI
	Impact 3.3-3: Potential to Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for Which the Project Region is Non-attainment Under an Applicable Federal or State Ambient Air Quality Standard (Including Releasing Emissions, Which Exceed Quantitative Thresholds for Ozone Precursors)	~~None required.~~		
		Mitigation Measure 3.3-14: The prime contractor shall submit to the District for approval an Off-road Construction Equipment Reduction Plan (Plan) prior to groundbreaking. The Plan should include a comprehensive inventory (i.e. make, model, engine year, emission year, emission rating, fuel consumption rate) of all the heavy-duty off-road equipment, 50 horsepower or greater, that will be used an aggregate of 40 or more hours for the construction project, and indicate how the following measures will be met: 1. At 20% of the heavy-duty off-road equipment included in the inventory should be powered	Less than significant	CPUC, WGSI

Air Quality Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	by EPA / CARB certified off-road engines, as follows: a. 175 hp-750hp 1996 and newer engines b. 100 hp-174hp 1997 and newer engines c. 50hp-99hp 1998 and newer engines Alternatively, equivalent emission reductions may be achieved by engine retrofit technology, exhaust filtration and low-sulfur diesel fuel, emulsified diesel fuels, or other CARB verified or certified technology. The District should be contacted to discuss alternative strategies. 2. Construction equipment exhaust emissions shall not exceed BCAQMD Rule 202 Visible Emission limitations. 3. The primary contractor shall be responsible to ensure all construction equipment is		

Air Quality	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		properly tuned and maintained. 4. Utilize existing power sources (e.g. power poles) or clean fuel generator rather than temporary power generators. 5. Minimize idling time to 10 minutes. 6. Employ construction activity management techniques, such as: extending the construction period outside the ozone season of May through October; reducing the number of pieces used simultaneously; increasing the distance between emission sources; reducing or changing the hours of construction; and scheduling activity during off-peak hours.		
	Impact 3.3-4: Potential to Expose Sensitive Receptors to Substantial Pollutant Concentrations	None required.		
	Impact 3.3-5: Potential to Create Objectionable Odors Affecting a Substantial Number of People	None required.		

Biology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.4-1: Potential for disturbance or elimination of native vegetation during vegetation management activities	**Mitigation 3.4-1.** WGSI shall develop and implement an Integrated Vegetation Management Plan	Less than significant	CPUC, WGSI, CDFG
	Impact 3.4-2: Potential for vegetation clearing and soil grading to disturb or eliminate local populations of two special-status plants species - California hibiscus and little mousetail.	**Mitigation 3.4-2 (a).** Preconstruction surveys for California hibiscus and little mousetail will be initiated by WGSI.	Less than significant	CPUC, WGSI, CDFG
		Mitigation 3.4-2(b). Populations of California hibiscus and little mousetail shall be avoided and protected by WGSI	Less than significant	CPUC, WGSI, CDFG
		Mitigation 3.4-2(c). If avoidance of populations of California hibiscus or little mousetail is not feasible, WSGI shall implement compensatory habitat restoration	Less than significant	CPUC, WGSI, CDFG
	Impact 3.4-3: Potential for temporary disturbance of riparian habitat.	**Mitigation 3.4-3(a).** Trees within the pipeline ROW shall be avoided during construction.	Less than significant	CPUC, WGSI, CDFG
		Mitigation 3.4-3(b). Soil compaction and excavation within the ~~root zone (root zone = 15 feet beyond the drip line of the canopy or tree crown)~~ Critical Root Zone (CRZ) shall be minimized and protected by appropriate buffers.	Less than significant	CPUC, WGSI, CDFG

Biology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		Mitigation 3.4-3(c). If tree roots must be severed or exposed; protective treatments to prevent root drying will be implemented.	Less than significant	CPUC, WGSI, CDFG
		Mitigation 3.4-3(d). Riparian scrub vegetation disturbed at water crossings shall be restored	Less than significant	CPUC, WGSI, CDFG
	Impact 3.4-4: Potential for loss and conversion of wetlands.	**Mitigation 3.4-4.** WSGI shall compensate the loss of 1.4 acres of wetlands by wetlands creation, restoration, or securing mitigation at an appropriate mitigation bank	Less than significant	CPUC, WGSI, Army Corps, RWQCB
	Impact 3.4-5: Potential to convert freshwater marsh and wet meadow wetlands to other wetland types.	**Mitigation 3.4-5.** WSGI shall compensate the conversion of 23 acres of wetlands by wetlands creation, restoration, or securing mitigation at an appropriate mitigation bank	Less than significant	CPUC, WGSI, Army Corps, RWQCB
	Impact 3.4-6: Potential for effects on the habitat of special-status fish species.	**Mitigation 3.4-6(a).** Drilling of channel crossing bores would be scheduled, as directed by the responsible state and federal resource agencies, to avoid, to the extent possible, the spawning periods of special-status fish.	Less than significant	CPUC, WGSI, Army Corps, USFWS, DWR
		Mitigation 3.4-6(b). Best Management Practices would be employed to Avoid or Minimize the Discharge of Drilling Mud or Hazardous Materials	Less than significant	CPUC, WGSI, Army Corps, USFWS, RWQCB
	Impact 3.4-7: Potential for water withdrawals from perennial streams to adversely affect downstream fisheries and aquatic life.	**Mitigation 3.4-7.** Water Withdrawal for Hydrostatic Testing will be Timed and Conducted in a Manner to Avoid Adverse Effects to Fish and Aquatic Life	Less than significant	CPUC, WGSI, USFWS

Biology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.4-8: Potential for effects to special-status wildlife species from project construction.	**Mitigation 3.4-8(a).** Preconstruction surveys shall be conducted and construction shall be scheduled in giant garter snake habitat to avoid impacts to snakes or their habitat.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(b). Preconstruction surveys shall be conducted for giant garter snake and protective actions (such as snake removal) shall be initiated prior to implementation of the Habitat Enhancement Plan.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(c). Preconstruction surveys for northwestern pond turtle shall be conducted and impact avoidance and species protection procedures shall be implemented	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8 (d). Preconstruction surveys for Swainson's hawk shall be conducted and construction activities shall be scheduled to avoid impacts to nest sites.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(e). Preconstruction surveys for Northern harrier shall be conducted and construction activities shall be scheduled to avoid impacts to nest sites.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(f). Preconstruction surveys for Western yellow-billed cuckoo shall be conducted	Less than significant	CPUC, WGSI, USFWS

Biology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		and construction activities shall be scheduled to avoid impacts to nest sites		
		Mitigation 3.4-8(g). Preconstruction surveys for Loggerhead shrike shall be conducted and construction activities shall be scheduled to avoid impacts to nest sites.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(h). Preconstruction surveys for American bittern shall be conducted and if present, nest sites shall be protected by appropriate buffers during construction.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(i). Preconstruction surveys for White-faced ibis shall be conducted and if present, nest sites shall be protected by appropriate buffers during construction.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(j). Preconstruction surveys for Black tern shall be conducted and if present, nest sites shall be protected by appropriate buffers during construction.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(k). Preconstruction surveys for Tricolored blackbird shall be conducted and if present, nest sites shall be protected by appropriate buffers during construction.	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(l). Preconstruction surveys for Western burrowing owl shall be conducted and if required, species protection, or species relocation plans	Less than significant	CPUC, WGSI, USFWS

Biology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		shall be implemented.		
		Mitigation 3.4-8(m). Protective measures will be implemented to prevent Bank swallow nesting in potentially high impact construction zones	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-8(n). Preconstruction surveys for elderberry shrubs shall be initiated by WSGI and, as appropriate, avoidance through project redesign shall be implemented.	Less than significant	CPUC, WGSI, USFWS
	Impact 3.4-9: Exposed pipeline trenches or bores could pose a barrier to wildlife movement and result in increased wildlife mortality.	None required.		
	Impact 3.4-10: Potential exposure of nesting birds to sudden noise emissions greater than ambient noise levels	**Mitigation 3.4-10(a).** WGSI will schedule blowdowns at the Sacramento River to avoid impacts to sensitive bird species (see WSGI Measure 3.10-4).	Less than significant	CPUC, WGSI, USFWS
		Mitigation 3.4-10(b). Operations blowdowns and emergency shutdown valve blowdowns shall be routed into silencers (see WSGI Measure 3.10-2).		
		Mitigation 3.4-10(c). WGSI will reduce the gas / volume in the pipeline to a minimum prior to a planned maintenance blowdown (see WSGI Measure 3.10-3).		
	Impact 3.4-11: Potential introduction and spread of noxious weeds	**Mitigation 3.4-11(a).** WGSI will implement an equipment-washing program to control the	Less than significant	CPUC, WGSI

Biology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		introduction and potential spread of noxious weeds. Washing of construction equipment before such equipment is delivered to the project site will be implemented to control the introduction of potentially noxious weeds to the project area. In addition, only weed-free materials will be used to for erosion control materials.		
		Mitigation 3.4-11(b). WSGI shall implement a weed eradication program if weeds are introduced to construction areas. All construction areas revegetated by the project will be monitored to ensure that noxious weeds are not present. If noxious weeds do occur on the pipeline ROW in numbers exceeding those in populations adjacent to the ROW, in areas not disturbed by construction, a noxious weed control program will be implemented. This program would be a component of the Integrated Vegetation Management Plan (see Mitigation 3.4-9) and would involve eradication of weeds by a combination of grubbing or chemical spraying pursuant to the IVM goals of environmentally sound vegetation management.	Less than significant	CPUC, WGSI

Cultural Resources	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.5-1: Potential for Loss of Integrity and/or Alteration of Identified Resources Potentially Eligible for the NRHP and CRHR.	**WGSI Measure 3.5-1.** WGSI shall seek to avoid cultural resources as the preferred mitigation measure. Avoidance of cultural resources would result in less-than-significant levels of impacts to identified cultural resources. The pipelines would be buried and construction techniques would avoid any of the known cultural resources by boring under the resources (e.g. canal/levee). If the resources cannot be avoided then documentation and data recovery efforts consistent with Section 5, Archaeological Data Recovery Plan in HPMP would be implemented to reduce impacts to less than significant levels. Historic resource mitigation measures may include further study to evaluate the sites, detailed recording, and/or excavation.	Less than significant	CPUC, WGSI
		WGSI Measure 3.5-2: Protection measures for NRHP or CRHR eligible sites would be implemented prior to any subsurface disturbance. This may include a passive protection program (e.g. barrier fencing, signage, etc), construction personnel education, and/or archaeological monitoring. To ensure that no inadvertent damage occurs to avoided cultural resources, the cultural resource boundaries shall be marked as exclusion zones	Less than significant	CPUC, WGSI

Cultural Resources	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		both on the ground and on construction maps. Construction supervisory personnel shall be notified of the existence of these resources and required to keep personnel and equipment away from these areas. A WGSI-assigned qualified archeologist shall be notified prior to initiation of construction activities. Periodic monitoring of cultural resources to be avoided shall be completed by a qualified archeologist to ensure that no inadvertent damage to the resources occurs as a result of construction or construction-related activities. The timing and frequency of this monitoring shall be at the discretion of the archaeologist.		
		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.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.5-1. The contractor shall observe ~~reclamation district~~ the local district and the State Reclamation Board requirement that a minimum distance of ~~15 feet be maintained between the toe of any canal/levee and the construction right-of-way to or 10-foot distance indicated in Section 7.1 Resource Protection of the HPMP (whichever is applicable)~~ 10-	Less than significant	CPUC, WGSI

Cultural Resources	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		foot setback from the landward side of the levee toe or canal for any excavation activity to insure protection of the 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.	Less than significant	CPUC, WGSI
	Impact 3.5-2: Potential for Disturbance to Previously Unidentified Cultural Resources during Project Construction, Operations, and Maintenance.	**WGSI Measure 3.5-4.** WGSI shall complete the remaining inventory of unsurveyed areas 60 days prior to the start of construction. This would include the reported location of the prehistoric site which, as of January 2002, is inundated. Any design changes that cause a change in the alignment would be inventoried at least 60 days prior to construction. A final report would be completed. Field survey methods and reporting would be consistent with the terms and conditions found in Section 6, Project Changes of the HPMP.	Less than significant	CPUC, WGSI
		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	Less than significant	CPUC, WGSI

Cultural Resources	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		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, the WGSI Mitigation Measures 3.5-1 through 3.5-3 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,	Less than significant	CPUC, WGSI

Cultural Resources	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		Discovery of Native American Skeletal Remains and Appendix 1, Native American Burial Plan of the HPMP.		
	Impact 3.5-3: Potential for a disturbance to a unique paleontological resource or site or unique geologic feature.	**WGSI Measure 3.5-5:** Geologic units , which based on their general lithologic features (e.g. grain size, primary features, color, secondary minerals), hold potential to yield vertebrate fossils but have not produced known fossils in the general vicinity of the project area would be spot monitored during the course of any major excavation, including trenches, bore pits, or site preparation for other project-related facilities. Scheduling for this monitoring shall be arranged by the paleontologist in charge of this phase of the project in light of expected construction scheduling details, including the number and distribution of excavating crews and equipment, proposed rate of trenching, lag time between excavation and pipe laying/backfilling, and other factors which may impose limits on access to potentially fossil-bearing sediments or sedimentary rocks. The paleontologic monitor would be present at the beginning of excavation into each named geologic unit and *at least* one day per week per active excavation site thereafter unless factors favoring closer scheduling appear during the course of	Less than significant	CPUC, WGSI

Cultural Resources	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		the project.		
		WGSI Measure 3.5-6: The assigned monitor would periodically examine in close detail at least one 100-square-foot sample area of the spoils pile surface, and note the presence or absence of very small fossils, within each half-mile along trench lines and at each larger excavation through sensitive paleontologic formations. If bones, teeth, or other significant fossils appear in these sample areas, an attempt would be made to locate their stratigraphic source level and to collect at least 1,000 pounds of sediment from that level. Bulk samples also require the same detailed documentation as isolated fossil specimens described above. Processing the bulk sediment to recover additional small fossils may begin on- or off-site, and may involve dry or wet screening, heavy liquid separation, and hand-picking of concentrate. Wet screening and heavy liquid separation would be done in a manner that precludes sediment-laden runoff from leaving the ROW.	Less than significant	CPUC, WGSI
		WGSI Measure 3.5-7. Pre-arranged agreements would be made to ensure that any significant fossils discovered during the project would be incorporated into established paleontological collections in	Less than significant	CPUC, WGSI

Cultural Resources	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		a public research or educational institution supporting such collections.		

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.6-1.1: Potential for Effects from Faulting or Uplift.	**Mitigation Measure 3.6-1:** The Applicant shall assess the pipeline response to surface faulting or uplift using a detailed nonlinear pipe-soil interaction analysis model for a case-specific evaluation of the Willows fault crossing. ~~The model shall consider different possible fault offsets (or local uplifts) and slip vectors, different fault crossing geometries, different wall thickness and different steel grades for the selected pipeline diameter. The analysis shall consider both the fault offset required to reach the failure (loss of pressure integrity) limit state and to reach the damage limit states (i.e., incipient wrinkling) as a measure of the fault crossing design performance. A detailed plan for the analysis shall be prepared for review by the CPUC (or its designated consultants) and the analysis methodology shall be approved by the CPUC prior to the Applicant preparing the analysis. Results of the analysis shall be used in the design of the pipeline section within a reasonable distance (to be reviewed and approved by the CPUC or its~~	Less than significant	CPUC, WGSI

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~designated consultants) of the projected location of the Willows fault and the mapped anticlinal feature adjacent to the Sacramento River.~~ The pipeline shall be designed within the area of influence of the Willows Fault to withstand a discrete displacement of 1.1m along dip (reverse, East Side up) with 50 % strike slip component, or 0.55m, at a depth of 1600 feet below the ground surface. The analysis shall be performed in accordance with the Seismic Hazard Analysis Workplan in Appendix S. The pipeline shall be designed to mitigate stresses due to faulting or uplift such that these stresses remain at or below the following acceptance criteria: longitudinal pipeline strain in tension of 4%, longitudinal pipeline strain in compression for 30-inch pipeline of 2.6%, ovality of 15%. In addition, if a seismic event exceeds the criteria established in the Post Seismic Pipeline Inspection Plan (Appendix T) the appropriate actions will be initiated.		
	Impact 3.6-1.2: Potential for Effects from Strong Seismic Ground Shaking.	**Mitigation Measure 3.6-2:** The Applicant ~~shall provide the CPUC with a plan to analyze pipeline response to ground shaking and traveling wave effects based on the unique geologic conditions along the pipeline routes (Line 400/401 and the Loop Pipeline) and the conservative levels of~~	Less than significant	CPUC, WGSI

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~groundshaking determined by Kleinfelder. The CPUC shall review and approve a final analysis plan prior to final design.~~ analyze the pipeline response to seismic strong ground shaking and resulting traveling wave effects. Analysis shall be performed in accordance with the Seismic Hazard Analysis Workplan and will be based on the unique geologic conditions along the pipeline route (Line 400/401 Connection and Storage Loop Pipeline) and the conservative levels of ground shaking previously determined by Kleinfelder (Kleinfelder 2001e, pp. 20-23). The pipeline shall be designed to mitigate stresses due to strong ground motion and resulting traveling wave effects such that these stresses remain at or below the following acceptance criteria: longitudinal pipeline strain in tension of 4%, longitudinal pipeline strain in compression for 30-inch pipeline of 2.6%, ovality of 15%. In addition, if a seismic event exceeds the criteria established in the Post Seismic Pipeline Inspection Plan the appropriate actions will be initiated.		
	Impact 3.6-1.3: Potential to Expose People or Structures to Effects from Liquefaction and Dynamic Compaction	**Mitigation Measure 3.6-3.** At the Sacramento River crossing, ~~T~~the Applicant shall ~~drill new borings at the final Sacramento River crossing site, using the drilling and sampling techniques recommended by~~	Less than significant	CPUC, WGSI

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~Martin and Lew (1999). These borings shall be performed at the locations with possibly the thickest liquefiable soil deposits, to confirm the SPT blow counts measured (with or without sample rings and considering gravel) and the estimates of liquefaction-induced settlements and lateral deformations. It is possible that the additional field investigation scope may be reduced if a parametric/sensitivity analysis can be performed to investigate the effects of possible lower blow counts and thicker liquefiable soil layers on the liquefaction-induced hazards discussed in Appendix A (Kleinfelder, 2001e). A detailed plan for the drilling, sampling, and analysis shall be prepared for review by the CPUC (or its designated consultants) and the analysis methodology shall be approved by the CPUC prior to the Applicant preparing the analysis. Results of the analysis shall be used in the design of the pipeline section within a reasonable distance (to be reviewed and approved by the CPUC or its designated consultants) of the Sacramento River crossing.~~ perform a sensitivity analysis to investigate the effects of possible lower blow counts and thicker liquefiable soil layers on permanent ground deformation and resulting pipe stresses. Analysis shall		

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		be performed in accordance with the Seismic Hazard Analysis Workplan and will incorporate conservative estimates of liquefiable layer depth and blow count factors. The pipeline shall be designed to mitigate stresses due to permanent ground deformation associated with liquefaction and dynamic compaction such that these stresses remain at or below the following acceptance criteria: longitudinal pipeline strain in tension of 4%, longitudinal pipeline strain in compression for 30-inch pipeline of 2.6%, ovality of 15%. In addition, if a seismic event exceeds the criteria established in the Post Seismic Pipeline Inspection Plan the appropriate actions will be initiated.		
		Mitigation Measure 3.6-4. For the entire pipeline, the ~~The~~ Applicant shall ~~compile~~ obtain data in ~~City, State, or County files, and to obtain new data on shallow water levels and the density of shallow geologic materials so that a broad area assessment of areas with potential for liquefaction along the pipeline alignment can be made. Results of the analysis shall be used in the design of the pipeline section crossing identified potentially liquefaction prone areas (to be reviewed and approved by the CPUC or its designated consultants).~~ terms of shallow geologic materials		CPUC, WGSI

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		from published California Geological Survey, CGS (formerly California Division of Mines and Geology, CDMG), geologic maps along the pipeline alignment. In addition, the Applicant shall obtain data for the approximate shallow groundwater levels from the State and County files along the pipeline alignment, or assume near surface soils are saturated. The combination of shallow groundwater, shallow Holocene geologic materials, and the conservative levels of ground shaking previously determined by Kleinfelder (Kleinfelder 2001e, pp. 20-23) shall be combined to indicate areas of liquefaction susceptibility. The Applicant shall employ the same techniques as used by CGS in assessing the areas of low, moderate and high liquefaction susceptibility. The pipeline shall be designed to mitigate stresses due to permanent ground deformation associated with liquefaction and dynamic compaction such that these stresses remain at or below the following acceptance criteria: longitudinal pipeline strain in tension of 4%, longitudinal pipeline strain in compression for 30-inch pipeline of 2.6%, ovality of 15%. In addition, if a seismic event exceeds the criteria established in the Post Seismic Pipeline Inspection Plan the appropriate actions		

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		will be initiated.		
	Impact 3.6-1.4: Potential to Expose People or Structures to Adverse Effects from Liquefaction and Cause Lateral Spread Landslides	**Mitigation Measure 3.6-5:** After performing the liquefaction analysis in Mitigation Measure 3.6-3, ~~The~~ the Applicant shall ~~complete Mitigation Measure 3.6-3 above, including drilling new borings in areas adjacent to the final Sacramento River crossing site, where lateral spreading landslides are most likely to occur based on topography.~~ evaluate lateral spreading due to liquefaction at the Sacramento River crossing. Initially the potentially for lateral spreading and landslides shall be evaluated using semi-empirical calculation methods by Youd and Garris (1995). If lateral spreading is predicted to occur and the pipeline is within the zone of lateral spreading, then the pipeline will be evaluated using a detailed nonlinear pipe-soil interaction analysis model in accordance with the Seismic Hazard Analysis Workplan in Appendix F. The pipeline shall be designed to mitigate stresses due to permanent ground deformation associated with liquefaction and dynamic compaction such that these stresses remain at or below the following acceptance criteria: longitudinal pipeline strain in tension of 4%, longitudinal pipeline strain in compression for 30-inch pipeline of 2.6%, ovality of		CPUC, WGSI

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		15%. In addition, if a seismic event exceeds the criteria established in the Post Seismic Pipeline Inspection Plan the appropriate actions will be initiated.		
	Impact 3.6-2: Potential for Soil Erosion or the Loss of Topsoil	None required.		
	Impact 3.6-3: Potential for Impacts due to Unstable Soils or Subsidence	None required.		
	Impact 3.6-4: Potential for Effects Related to Expansive Soils	None required.		
	~~**Impact 3.6-5:** Potential for Effects to Extraction of Mineral Resources~~	~~**Mitigation Measures 3.6-6:** The Applicant shall undertake and complete a modeling study to define possible in-steam mining and floodplain mining scenarios and the potential impacts of the scenarios on the pipeline at the preferred depths. Based on the modeling study the final depth of burial below the river bottom shall be determined. A plan for the modeling study shall be prepared for review by the CPUC. The analysis methodology shall be approved by the CPUC prior to the Applicant preparing the analysis. Results of the analysis shall be used in the design of the pipeline section crossing the Sacramento River (to be reviewed and approved by the CPUC).~~	~~Less than significant~~	~~CPUC, WGSI~~
	Impact 3.6-6: Potential to Overcover or Preclude	None required.		

Geology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Overcover or Preclude Extraction of Natural Gas or Sand and Gravel Mineral Resources			

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.7-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	None required.		
	Impact 3.7-2: 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	**WGSI Measure 3.7-1.** WGSI would initiate a program to locate each previously abandoned and documented well in the field and place permanent markers at these locations.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.7-1. WGSI will ~~submit core sample analysis protocols to the CPUC technical team for review and approval prior to conducting tests on new core samples.~~ implement the following protocols for the coring process, preservation, handling and testing: ~~Test data on new core samples will be submitted to the CPUC technical team for review. If new data indicates that cap rock strength is different (substantially lower) than indicated by previous tests,~~	Less than significant	CPUC, WGSI, DOGGR

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~operating and injection pressures would be reduced to maintain an appropriate level of safety consistent with DOGGR safety guidelines.~~ **Core Preservation and Transport** • Cores should be cut into five foot lengths or shorter in PVC core tubes upon extrusion from the core barrel at the wellsite. Avoid bending long, unsupported core lengths during handling. • The individual core lengths should be capped with plastic end caps and sealed with ample duct tape or equivalent. • Freezing: Not recommended for argillaceous rocks; optional for poorly cemented, unconsolidated sandstones (injection gel is also an option for weak sandstones). • Transport the core lengths in their PVC tubes, packed and bound securely into core boxes or special racks such that they cannot move or rotate. Minimize time elapsed from rig floor to testing laboratory. **Core Handling and Logging at the Testing Laboratory** • Commence core logging, sampling and preservation as soon as possible upon arrival at the testing laboratory.		

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		• X-ray the cores to assess quality and identify defects. • Run a core gamma log. • Unwrap ends, split core tube by making two cuts at 180°. • Conduct geological analyses (e.g. lithology, fractures, other potentially weak discontinuities) and core photography as quickly as possible; minimize the number of tubes cut open at any given time; select samples to be used for future testing promptly so they can be preserved. • If possible, do not slab core samples to be used for mechanical properties testing and caprock analysis. • Wrap the samples selected for preservation in plastic wrap and several layers of aluminum foil; seal the samples by immersing in hot wax. • Select smaller grab samples from each tube and store in plastic zip-lock bags for possible future testing such as X-ray diffraction. **Core Sampling** • Drill plugs from preserved cores as required for the testing program; optional - use frozen nitrogen for weak sandstone samples. • Apply the minimum axial		

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		force possible and use slow rotation speeds when drilling plugs from weak core samples. • Take several core plugs for paleomagnetic analysis to orient selected segments of the core. Core orientation is required to obtain strike data for features such as natural fractures, bedding or other discontinuities identified in the core. **Core Testing** • For tests to be conducted at stressed conditions, calculate a confining stress representative of in-situ conditions. For example, at a depth of 2900 ft (approximate L1 unit caprock depth), the mean effective in-situ stress is estimated to be 1220 psi. This estimate is based on an overburden stress gradient of 0.89 psi/ft, maximum and minimum horizontal stress gradients of 0.89 and 0.80 psi/ft, respectively, and a formation pressure gradient of 0.44 psi/ft. • X-ray Diffraction – to determine clay mineralogy – Use small grab samples • Triaxial Compression – to determine static elastic and rock strength properties – Conduct a minimum of four compression tests at different confining stresses (from very low		

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		values up to the mean effective in-situ stress) – Use full-diameter samples if possible (2:1 length to diameter ratio) – Additional properties can also be measured if required (e.g., stressed sonic velocities, dynamic elastic moduli, residual strength properties). • Caprock Analysis – to determine nitrogen gas threshold pressures – At a confining stress representative of in-situ conditions – Use full-diameter samples if possible – Mercury Injection Capillary Pressure – for displacement pressures and pore size data • Pulse Decay Permeability – to determine gas permeability at in-situ conditions for very low permeability rocks – At a confining stress representative of in-situ conditions – Use preserved core plugs – Test at native saturation state – Routine Core Analyses– to determine porosity, saturations and particle size distributions. WGSI will submit all test results on new core samples for the L1, U1 and U2 intervals to the DOGGR immediately following the		

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		tests. If new data indicates that the cap rock quality is different (substantially lower) than indicated by previous tests, operating and injection pressures would be reduced to maintain an appropriate level of safety consistent with DOGGR safety guidelines.		
		~~**Mitigation Measure 3.7-2.** WGSI will conduct in-situ stress tests of the project relevant cap rock intervals in at least one well when drilled. If in-situ stress tests results are not consistent with core sample test results, re-evaluation of operating pressures may be necessary. If in-situ stress tests indicate that cap rock strength is substantially less than currently believed, operating and injection pressures would be reduced to maintain an appropriate level of safety consistent with DOGGR guidelines.~~	~~Less than significant~~	~~CPUC, WGSI, DOGGR~~
		Mitigation Measure 3.7-~~3~~2. The Brady #1-20 shall be inspected and tested ~~immediately~~ during summer 2002 to ascertain its condition. This well shall be located and soil surrounding it excavated to expose the well casing. An attempt should be made to tap (drill a small hole) the plate welded onto the casing, and ~~test for gas~~ if gas is present, a sample will be collected for further analysis. ~~If gas were present, a sample would be~~	Less than significant	CPUC, WGSI, DOGGR

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~extracted and collected for further analysis.~~ Depending on gas origin, if present, appropriate remedial actions (re-abandonment) would be implemented. ~~Routine inspection, monitoring and testing of this well would continue for the duration of the gas storage operation. WGSI shall prepare a report of investigation and remedial actions taken. This report shall be submitted to the CPUC and DOGGR prior to initiating gas storage activities in additional storage zones. Annual inspection of this abandoned well would be included as part of the WGSI inspection program. Annual reports would be submitted to CPUC and DOGGR upon inspection completion. With these immediate (inspection, testing and remediation) and on-going (annual inspection) mitigation measures, potential impacts associated with leaks from the Brady #1-20 would be less than significant.~~ Re-abandonment will be consistent with DOGGR procedures outlined in California Code of Regulations § 1723 et. seq. Any surface disturbance associated with implementing remedial actions shall be conducted consistent with the wetland impact minimization and mitigation measure specified under Impact 3.4-4 on page 3.4-27. Routine surface gas monitoring of this well will continue for the duration of		

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		the gas storage operation with immediate notification of the DOGGR in the unlikely event of a leak. WGSI shall prepare a report of investigation and remedial actions taken. This report shall be submitted to the DOGGR prior to initiating gas storage activities in additional storage zones. With the immediate (inspection, testing and remediation) and on-going (routine gas detection) mitigation measures, potential impacts associated with leaks from the Brady #1-20 are less than significant.		
		~~**Mitigation Measure 3.7-4.** Prior to initiating new gas storage operations, WGSI shall conduct a soil-gas survey in the vicinity around each abandoned well within the storage zone boundaries to define current shallow subsurface gas conditions and document that storage gas is not currently leaking. If soil-gas is detected, samples should be collected for laboratory analysis. Samples would be analyzed to determine if any natural gas collected is of biogenic, thermogenic or storage zone origin. All testing and sampling plans would be submitted to CPUC for review and approval by a qualified member of the technical team (Registered Geologist with appropriate background evaluating soil-gas). If wells are found to be~~	~~Less than significant~~	~~CPUC, WGSI, DOGGR~~

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~leaking, the leaking well would be remediated in consultation with CPUC and DOGGR.~~		
		Mitigation Measure 3.7-~~5~~3. At the end of each injection cycle, WGSI shall conduct ~~well~~ surface gas monitoring and vegetation inspections~~, testing and leak surveys for each abandoned well in the field.~~ at each abandoned well within the original productive area. If gas is detected, samples ~~should~~ will be collected, if possible, and analyzed to determine its source or origin. ~~Necessary remedial actions would be implemented to address the leak. All testing and sampling plans would be submitted to CPUC and DOGGR for review and approval by a qualified member of the technical team (Registered Geologist with appropriate background evaluating soil gas).~~ If a leak is indicated by the data, the necessary remedial actions will be implemented consistent with DOGGR procedures outlined in in California Code of Regulations § 1723 et. seq. All monitoring and sampling results will be submitted to the DOGGR. Any surface disturbance associated with implementing remedial actions shall be conducted consistent with the wetland impact minimization and mitigation measures specified under Impact 3.4-4 on page 3.4-27.	Less than significant	CPUC, WGSI, DOGGR

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		Mitigation Measure 3.7-~~6~~4. ~~In addition to regularly scheduled well tests,~~ If routine surface gas monitoring indicates that a well may be leaking (gas bubbles, distressed vegetation), WGSI shall ~~test any well if other indicators or leaks are present (gas bubbles, distressed vegetation) in the immediate well vicinity. WGSI would submit all well test and repair records to DOGGR, CPUC and Butte County. Any well leaks detected would be reported immediately to these agencies. With DOGGR oversight, WGSI would implement appropriate remedial actions to repair detected leaks.~~ 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.	Less than significant	CPUC, WGSI, DOGGR, Butte County Planning Department
		Mitigation Measure 3.7-~~7~~5. WGSI shall locate each abandoned well within the	Less than significant	CPUC, WGSI, DOGGR

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		abandoned well within the field and immediate vicinity, and place permanent markers over each one, subject to landowner approvals. WGSI will accurately survey and record these locations and submit plans and maps to the DOGGR~~, CPUC, and Butte County~~. All markers will be maintained so ~~they are clearly visible at all times~~ that they can be located during the duration of storage field activities and upon final field decommissioning. Alternatively, WGSI may conduct a Global Positioning Satellite (GPS) survey to obtain GPS coordinates for each well. WGSI would submit any GPS location survey information to DOGGR.		
	Impact 3.7-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	None required.		
	Impact 3.7-4: 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.	None required.		

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.7-5: Potential for the project to result in a safety hazard for people residing or working in the project area based on a proposed location near an airport.	None required.		
	Impact 3.7-6: Potential to expose people or structures to a significant risk of fire or explosion.	~~**Mitigation Measure 3.7-8.** During periodic well testing and leak surveys, evaluate the area overlying the documented faults along the southern field boundary. This will require installation of at least three permanent soil gas probes. Each probe would be monitored during routine leak surveys. If gas were detected in these probes, samples would be collected and analyzed to determine gas origin. All testing and sampling plans, along with probe design and installation procedures, will be submitted to a qualified member of the CPUC.~~ ~~If storage gas is found leaking through the fault or fracture zone along the southern side of Wild Goose Field, storage activities would be reduced to restrict the volume of gas stored in the field until further investigations are conducted. New data from exploratory wells could be required in order to redefine storage reservoir boundaries near the fault or fracture zone area. Based on this new data and revised reservoir boundary conditions, allowable storage volumes would be reduced to prevent storage gas from reaching~~	~~Less than significant~~	~~CPUC, WGSI, DOGGR~~

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~the fault zone and maintain an appropriate level of safety. All studies and remedial actions would be conducted under the supervision of DOGGR and CPUC technical staff (California Registered Geologist) with the appropriate background to evaluate gas migration through fault or fracture zones.~~		
		~~**Mitigation measure 3.7-9:** The standard "monitored and maintained" seismic design approach would accept significant levels of plastic pipe strain for low probability design events and utilize post-earthquake review and inspection to identify locations where permanent ground displacement induced (PGD-induced) damage may have occurred. Considering this approach, the Applicant shall prepare (prior to final project approval) a post-earthquake monitoring plan in which an accurate "as-built" base line of the pipeline geometry at/near know seismic hazards will be clearly identified. This plan shall become part of the existing Emergency Plan and will allow rapid response to the most probable damage areas in the event of a severe earthquake.~~	~~Less than significant~~	~~CPUC, WGSI~~
		~~**Mitigation Measure 3.7-10:** All of the measures of pipe demand and capacity considered in Appendix A of the Kleinfelder report~~	~~Less than significant~~	~~CPUC, WGSI~~

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~(2001e) are based on the failure condition (i.e., the loss of pressure integrity limit state). The loss of pressure integrity condition occurs in the post wrinkling condition, i.e., well beyond the peak in the moment curvature diagram. As the wrinkle forms, the moment capacity decreases with increasing curvature. Pipe curvature tends to concentrate in the wrinkle (sometimes referred to as "hinging") while the pipe on either side of the wrinkle tends to straighten and unload elastically. It is not necessary to account for hinging action in demand-capacity assessments that are limited to consideration of the incipient wrinkling limit state. This is because the concentration of curvature is still relatively limited. For all pipe deformation demand-capacity assessments, which make use of post-wrinkling demand-capacity measures, the Applicant shall account for the concentration of curvature at the wrinkle, because demand analyses, which do not include this hinging behavior, can significantly underestimate the pipe strain demand. The CPUC shall review and approve the analysis methodology in advance of its application to the final design.~~		
		~~**Mitigation Measure 3.7-11:** In addition to the seismic demand required to reach~~	~~Less than significant~~	~~CPUC, WGSI~~

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~demand required to reach the loss of pressure integrity limit state, for all of the PGD analyses the Applicant shall incorporate into their final design different "damage" limit states (e.g., incipient wrinkling) that can occur well before the failure limit state is reached. The CPUC shall review and approve the analysis methodology in advance of its application to the final design.~~		
		~~**Mitigation Measure 3.7-12:** The PGD demand analyses for PGD parallel to and perpendicular to the pipe alignment discussed in Appendix A of the Kleinfelder report (2001e) are based on simplified hand or spreadsheet calculations methods. The Applicant shall utilize a rigorous analysis and design approach, nonlinear pipe-soil interaction analysis, for evaluating PGD effects for all but the simplest cases~~.	~~Less than significant~~	~~CPUC, WGSI~~
		~~**Mitigation Measure 3.7-13:** Further analysis by the Applicant of generic perpendicular PGD scenarios shall consider a range of soil block lengths (i.e., span lengths) rather than a single span length. The critical span length shall be considered the soil block length that generates the largest strain for given amplitude of a selected PGD profile.~~	~~Less than significant~~	~~CPUC, WGSI~~
		~~**Mitigation Measure 3.7-14:** The Applicant shall provide~~	~~Less than significant~~	

Hazards	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		~~a more formal limit states seismic design for the final pipeline design. The framework of such a procedure shall include: identification of ultimate and serviceability limit states, application of appropriate load (demand) factors and load combinations, application of appropriate resistance (capacity) factors, structural analysis to calculate pipe deformation demand, and a demand-capacity comparison for each limit state of interest.~~	~~significant~~	
	Impact 3.7-7: Potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	**Mitigation Measure 3.7-~~15~~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 re-training 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.	Less than significant	CPUC, WGSI

Hydrology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.8-1. Potential to Substantially Degrade Surface and Groundwater	**WGSI Measure 3.8.1.** Provide continuous visual observation of waterway	Less than significant	CPUC, WGSI

Hydrology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Surface and Groundwater Water Quality	during boring operations. If visual observations indicate possible problems, cease boring operations immediately until conditions are stabilized.		
		WGSI Measure 3.8-2. WGSI will submit a list of proposed drilling mud components and additives to DTSC, RWQCB, and DWR for review and receive approval of specific products prior to commencing subsurface boring operations.	Less than significant	CPUC, WGSI, DTSC, RWQCB, DWR
		Mitigation Measure 3.8-1. In addition to visual observation of waterways, provide continuous monitoring of drilling fluid pressures while advancing each pipeline bore. If fluid pressure changes indicate possible problems, cease boring operations immediately until conditions are stabilized.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.8-2. No hazardous or potentially hazardous materials shall be permanently stored on-site at the Well Pad Site as noted in the Water Pollution Prevention Plan and Hazardous Materials Release Response Plan for construction and operations.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.8-3. Prior to project implementation, water samples would be collected from water well number 17N01E-17F01M, located at the Tule Goose Gun Club.	Less than significant	CPUC, WGSI, DOGGR, RWQCB, DWR

Hydrology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		Dissolved gases would be analyzed to ascertain if methane is present. If detected, methane would be further analyzed to determine its origin (biogenic, thermogenic or storage gas) to establish baseline conditions. If storage gas were detected, appropriate investigations would be conducted to find the gas leak source and initiate remedial actions as necessary. Water samples would be collected and analyzed for methane annually, as part of the WGSI field monitoring program. Results would be reported to DOGGR, CPUC, RWQCB and DWR. Remedial actions would be implemented as deemed necessary by these State agencies.		
		Mitigation Measure 3.8-4. With regard to buoyant uplift effects, both beam and cable effects shall be included in buoyant uplift calculations. Also, buoyant span lengths other than 100 feet shall be considered. The critical span length is the length that generates the largest strain for a given amplitude of a selected buoyant uplift profile.	Less than significant	CPUC, WGSI
		Mitigation Measure 3.8-5. WGSI would obtain appropriate permits from the Board prior to implementing the proposed well pad site expansion project. In addition, WGSI would comply with all	Less than significant	CPUC, WGSI, State Reclamation Board

Hydrology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		requirements defined in CCR, Title 23, Waters, Article 8, Section 135. WGSI would also comply with any permit restrictions or requirements by the Board, for both the proposed project and the existing well pad site.		
	Impact 3.8-2: Potential to Substantially Deplete Groundwater Supply	**Mitigation Measure 3.8-~~5~~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 de-watering methods, if necessary, to protect local groundwater supplies. The hydrogeological investigation shall be conducted by a California Certified Hydrogeolgist 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.	Less than significant	CPUC, WGSI

Hydrology	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.8-3: Potential for Flooding or to Place Structures within a 100-year Flood Hazard Area	**Mitigation Measure 3.8-~~6~~7.** ~~The berm around the Well Pad Site shall be designed to withstand exposure to flood water anticipated during~~ Since all equipment at the Well Pad Site is designed to withstand periodic inundation, it is not necessary for the berm to tolerate a 100 year and 500 year event. ~~Berm height shall be sufficiently high to exceed water surge. Berm design shall include measures to protect exposed surfaces from erosion and to minimize water seepage through the berm (internal erosion called piping).~~ As the berm is soley for visual screening and habitat it would be designed and constructed in accordance with guidelines and requirements set by the Reclamation Board, and discussed above in Responses A3-2 and A3-3.	Less than significant	CPUC, WGSI

Land Use	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.9-1: Physically Divide an Established Community.	None required.		
	Impact 3.9-2: Conformance with Land Use Plans, Policies, and Regulations	None required.		

Land Use	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.9-3: Conflict with Habitat Conservation or Natural Community Conservation Plans	None required.		

Noise	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.10-1: Potential for exposure to noise levels in excess of standards	**WGSI Measure 3.10-1.** Pipeline operators will notify nearby residents when a blowdown is planned at the Well Pad Site, so they will not be alarmed by the noise or can make plans to be elsewhere while it is occurring.	Less than significant	CPUC, WGSI
		WGSI Measure 3.10-2. During the design of the additional compressors 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.	Less than significant	CPUC, WGSI
		WGSI Measure 3.10-3. WGSI will reduce the gas pressure/volume in the pipeline to a minimum prior to a planned maintenance blowdown.	Less than significant	CPUC, WGSI
		WGSI Measure 3.10-4. Pipeline operators will notify	Less than significant	CPUC, WGSI, USFWS

Noise	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		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.	significant	USFWS
	Impact 3.10-2: Potential for exposure of people to excessive ground borne vibration	None required.		
	Impact 3.10-3: Potential for permanent increase in ambient noise levels	**Refer to mitigation for Impact 3.10-1.**	Less than significant	CPUC, WGSI
	Impact 3.10-4: Potential for temporary or periodic increase in ambient noise levels	**WGSI Measure 3.10-5.** Limiting construction activities (excluding horizontal directional drilling) 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.	Less than significant	CPUC, WGSI
		WGSI Measure 3.10-6. Coordinating construction with residents within 200 feet of the route and accommodating any unique or unusual noise-related	Less than significant	CPUC, WGSI

Noise	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		situations if possible.		
		WGSI Measure 3.10-7. Ensuring all construction equipment have mufflers no less effective than original equipment and maintained to minimize noise generation.	Less than significant	CPUC, WGSI
		WGSI Measure 3.10-8. Changing the location of stationary construction equipment to minimize noise impacts to sensitive receptors where feasible.	Less than significant	CPUC, WGSI
		WGSI Measure 3.10-9. Rescheduling construction activities to accommodate specific situations where feasible.	Less than significant	CPUC, WGSI
		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.	Less than significant	CPUC, WGSI
	Impact 3.10-5: Exposure of people to excessive noise in areas designated	None required.		

Noise	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	for airport use			
	Impact 3.10-6: Potential exposure of people to excessive noise in the vicinity of a private airstrip	WGSI Measures 3.10-3, 3.10-4, and 3.10-6 through 3.10-9 would mitigate this impact to a less than significant level.	Less than significant	CPUC, WGSI

Population and Housing	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.11-1: Potential for Substantial Population Growth in the Area, Either Directly or Indirectly	None required.		
	Impact 3.11-2: Potential to Displace Substantial Numbers of Existing Housing, Necessitating the Construction of Replacement Housing Elsewhere	None required.		
	Impact 3.11-3: Potential to Displace Substantial Numbers of People, Necessitating the Construction of Replacement Housing Elsewhere	None required.		

Public Services and Socio-economics	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.12-1: Potential to Increase the Demand for Public Services in Excess of their Existing and/or Projected Capabilities	None required.		

Public Services and Socio-economics	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.12-2: Potential To Cause A Substantial Increase In Acceptable Service Ratios, Response Times, Or Other Performance Objectives For All Emergency Response Providers	**Refer to Mitigation Measure 3.15-1**	Less than significant	CPUC, WGSI
	Impact 3.12-3: Potential To Cause A Quantifiable Reduction in the Value Of Properties Crossed By The Pipeline Or Substantially Impact The Economies Of Those Communities Affected by the Proposed Project	None required.		
	Impact 3.12-4: Potential To Result In A Disruption In The Balance Between Employment Opportunities And Available Housing In An Area	None required.		

Transportation	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.14-1: Potential for Temporary Disruption in Circulation from Project Construction	**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	Less than significant	CPUC, WGSI, Butte, Colusa, Sutter County Public Works Departments, Caltrans

Transportation	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		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		

Transportation	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		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. • Provide breaks in spoil piles, trench, or pipe strings to accommodate agricultural field access during construction. • Obtain and encroachment permit from Caltrans for crossings of the State Route 45 and Interstate 5 which will address specific boring techniques and pipeline design requirements.		
	Impact 3.14-2: Temporary Increase in Traffic in the Project Area During Construction	None required.		
	Impact 3.14-3: Potential for Interference with Emergency Response	**WGSI Measure 3.14-2.** Develop and Implement a Transportation	Less than significant	CPUC, WGSI, Butte, Colusa, Sutter County

Transportation	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Routes and Accesses	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.		Public Works, Local Fire Departments and Paramedics, Local Sheriff Departments, California Highway Patrol, Caltrans
	Impact 3.14-4: Potential for Increase in Traffic During Project Operation	**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	Less than significant	CPUC, WGSI

Transportation	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
		basis.		

Utilities	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.15-1: Potential to Exceed Wastewater Treatment Requirements	None required		CPUC, WGSI, RWQCB
	Impact 3.15-2. Potential for Construction / Expansion of Water or Wastewater Treatment Facilities	None required.		
	Impact 3.15-3. Potential for Construction / Expansion of Storm Drainage	**WGSI Measure 3.15-1.** Following pipeline construction, all disturbed surfaces would be returned to their pre-construction elevation and slope. Above-ground facilities would be covered with gravel to allow storm water infiltration and directed flow of runoff to existing drainage ways.	Less than significant	CPUC, WGSI, RWQCB
		WGSI Measure 3.15-2. The temporary construction access ramps installed on the levee face would be removed following construction and the levee face would be returned to its preconstruction configuration and appearance.	Less than significant	CPUC, WGSI
		WGSI Measure 3.15-3. Following construction, agricultural fields would be surveyed and regraded to their original elevation where needed and all rice fields dikes and check boxes would be repaired and / or replaced.	Less than significant	CPUC, WGSI

Utilities	Impact	Mitigation Measure	Level of Significance w/ Mitigation	Responsible Party
	Impact 3.15-4. Sufficient Water Supply	None required.		
	Impact 3.15-5. Adequate wastewater treatment, septic system, and pumper and hauler service capacity	**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.	Less than significant	CPUC, WGSI, RWQCB
	Impact 3.15-6. Adequate Capacity for Solid Waste Disposal	None required.		
	Impact 3.15-7. Compliance with Solid Waste Regulations and Statutes	None required.		