Chapter 3 Environmental Analysis

3.1 Introduction to the Analysis

This section describes the existing environmental setting, impacts, and mitigation measures for the proposed project, which would involve the construction, operation, and maintenance of a wellhead site, compressor station, metering and gas conditioning equipment, and approximately 2 miles of pipeline.

This PEA contains the environmental checklist presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. Each discussion includes specific mitigation measures, as appropriate, which are recommended as part of the proposed project.

For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified. If any potentially-significant impacts are identified and cannot be mitigated, an Environmental Impact Report must be prepared.

Less-Than-Significant Impact with Mitigation Incorporated: A potentially significant environmental impact which, after the implementation of an identified mitigation measure or measures, will be avoided or reduced to a less than significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under the CEQA Guidelines, relative to existing standards.

No Impact: The issue discussed would have no environmental impact.

3.2 Aesthetics

3.2.1 Introduction

This section describes the visual character of the landscape in the project area and discusses the potential effects of the proposed project on the surrounding landscape. The project area includes the proposed wellhead site, the proposed Depot Park compressor station site, the proposed Morrison Creek Cross-Tie metering and gas conditioning equipment site, the proposed pipelines from the wellhead site to the Depot Park compressor station, and the proposed pipelines from the Depot Park compressor station to the PG&E and SMUD pipelines in Fruitridge Road. Local planning and policy guidelines relevant to the physical appearance of the proposed project are described, along with the project's compatibility with those guidelines.

Information to prepare this section was obtained from site visits conducted in November 2006, the City of Sacramento General Plan, the County of Sacramento General Plan, and project-specific material provided by SNGS. There are no additional policies from specific plans, community plans, or other documents related to visual resources that are relevant to the proposed project site.

3.2.2 Existing Conditions

Landscape Character

The project area is located in central Sacramento County, in the southeastern portion of the City of Sacramento. The area to the west of the wellhead site (west of Power Inn Road) and proposed pipeline alignment (south of Elder Creek Road) is characterized by suburban residential development. Areas to the north, south, and east are primarily industrial.

Topography throughout the project area is flat, with elevations ranging from approximately 30 feet above sea level (asl) at the proposed wellhead site to 35 feet asl at the Depot Park compressor station site. A UPRR rail line lies approximately one-quarter mile east of the wellhead site and travels north-northwest, where it crosses Power Inn Road approximately one-half mile south of the intersection of Power Inn Road and 14th Avenue. The railroad track right-of-way constitutes the Depot Park's western boundary, and lies directly west of the proposed compressor station site.

Wellhead Site

The proposed wellhead site location occupies approximately 4 acres east of Power Inn Road and is completely surrounded by chain link fencing. The site contains disturbed vegetation, non-native grasses, exposed soil, and some small trees along the edges of the site. Weedy vegetation and a roadside ditch run along side Power Inn Road outside of the chain link fence. Power lines traverse the western portion of the site, running north to south parallel to Power Inn Road. Industrial warehouses are located directly north, east, and south of the site, with a park and housing directly west of Power Inn Road. Housing located near the southwest corner of the wellhead site consists of suburban duplexes constructed in the 1980s, while the single family housing across Power Inn Road near the northwest corner of the wellhead site was under construction at the time of the site visit in November

2006. There is currently no lighting at the site. See Figure 3.2-1 for viewpoint locations; views from and to the wellhead site are shown in Figure 3.2-1 as Viewpoints A and B, respectively.

Compressor Station

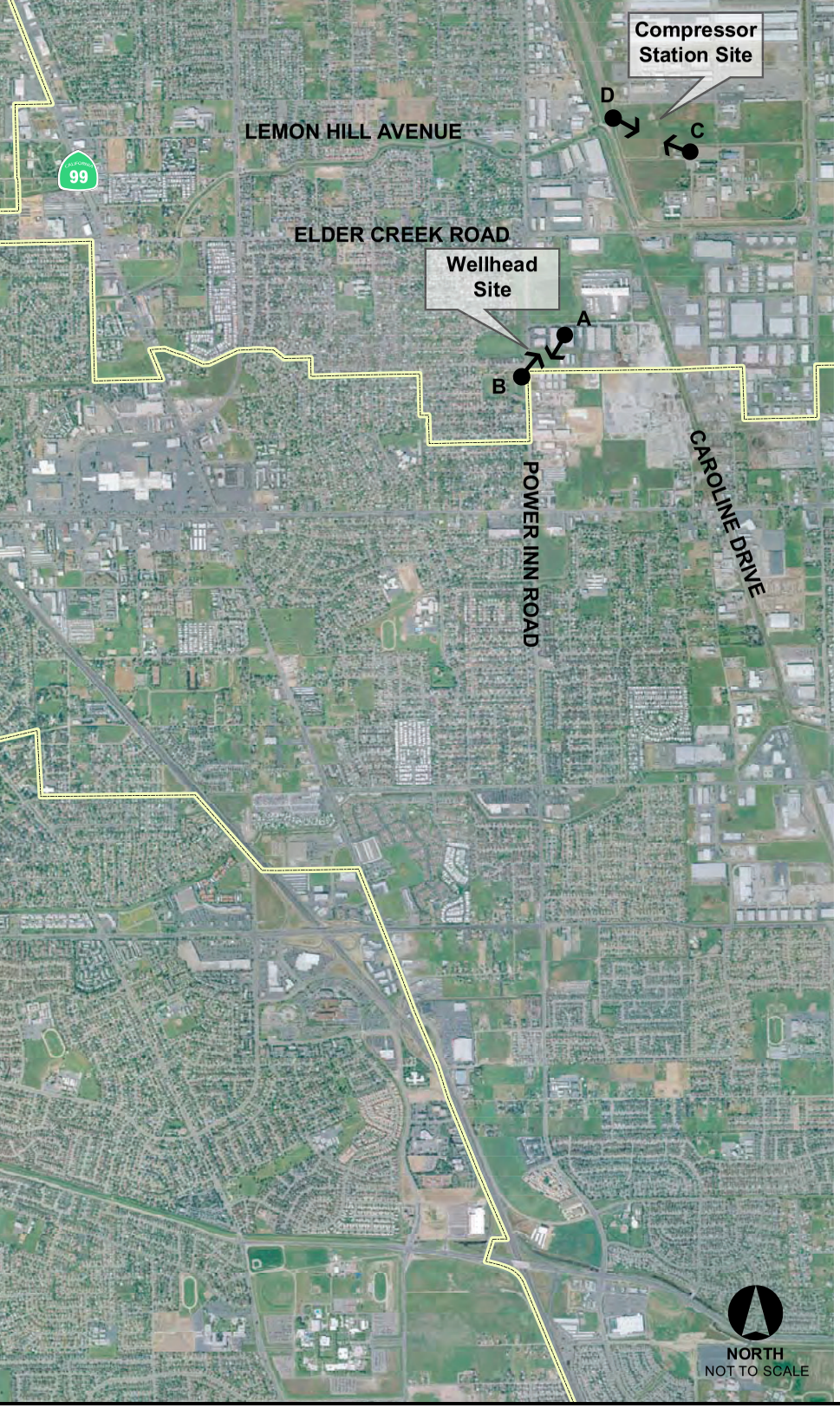
The proposed 5-acre compressor station site is located within the former Sacramento Army Depot, which was decommissioned in 1991, and has since been converted into a controlled-access industrial use business park, Depot Park. Access to the site is limited; the entire business park is fenced and the access gates are either locked or guarded. The compressor station site is located in the center of Depot Park, directly east of the UPRR and Morrison Creek canal, which runs parallel to the railroad tracks in the area. To the north, the site is surrounded by large industrial warehouses and an enclosed concrete parking area within Depot Park. There are several light poles located within this parking area. There are open fields located directly east and south of the compressor station site, with the remnant Morrison Creek corridor comprising the site's southern boundary. The site currently contains a concrete pad on which storage containers and barrels were located at the time of the site visit in November 2006. A small mound approximately five feet high is located near the southeast corner of the concrete pad. A large yellow utility box is located in the western portion of the site, near the railroad tracks and canal. Vegetation on site is typical of disturbed locations, with non-native long grasses and weedy vegetation. Due to the site's location within Depot Park and limited access, the compressor site is not visible to the general public. See Figure 3.2-1 for viewpoint locations; views to and from the compressor station site are shown in Figure 3.2-1 as Viewpoints C and D, respectively.

Metering and Gas Conditioning Equipment

The proposed project would also include metering and gas conditioning equipment at the existing Morrison Creek Cross-Tie, which connects existing SMUD and PG&E gas lines. The Cross-Tie is located west of the City of Sacramento in unincorporated Sacramento County between I-5 and Franklin Boulevard, within the Stone Lakes National Wildlife Refuge boundary at the Sacramento Regional Waste Water Treatment Plant Bufferlands. The metering and gas conditioning equipment would be located on an existing natural gas station that is enclosed within chain link fencing. There is an area to the west where oak trees have been planted for mitigation. Power lines run north to south adjacent to the valve station. There are some residences located approximately 1,000 feet beyond the Bufferlands to the northeast; due to the distance this site is largely unviewable to these residences. See Figure 3.2-1 for viewpoint locations; views to and from the metering and gas conditioning equipment site are shown in Figure 3.2-1 as Viewpoints E and F, respectively.

Pipeline Alignments

The proposed pipeline alignment would be constructed within an existing utility easement that runs along Power Inn Road, and turns east approximately 500 feet south of Elder Creek Road to the UPRR tracks. The pipeline would then parallel the UPRR tracks north to Elder Creek Road. The exact route from Elder Creek Road to the compressor station will be determined pending easement acquisition from the land owners. The pipeline would either cross Elder Creek Road in one HDD, parallel the west side of the UPRR tracks and then cross the UPRR tracks and Morrison Creek in a second HDD; or, cross



A. View from wellhead site west toward residences and park

B. View from residenc

C. View from compressor station site northwest toward railroad and industrial uses

D. View from western looking east

E. View from metering station site looking northeast toward residences

F. View from metering Sacramento Regio

Elder Creek Road, the UPRR tracks, and Morrison Creek in one HDD and run up the west side of Depot Park, along a levee road. The pipeline would then cross Depot Park to connect to the compressor station. From the compressor station, two pipelines would run due west for a short distance and then continue north to connect with SMUD's and PG&E's existing natural gas pipelines in Fruitridge Road. The proposed pipeline alignment would run entirely through industrial areas; however, the portion of the alignment along Power Inn Road contains residential uses across the road to the west, as described under the proposed wellhead site section, above.

Sensitive receptors would include residences and park uses near the wellhead site. Visual impacts would occur along roads where pipelines would be built only during construction. The compressor station and metering and gas conditioning equipment would be located in areas not viewable to these sensitive uses. The project area is not located within view of any designated scenic highways or vistas.[1]

3.2.3 Regulatory Settings

County of Sacramento General Plan

The following objective and policies from the *County of Sacramento General Plan* pertaining to visual resources apply to the proposed project:

Objective Low glare external building surfaces and light fixtures that minimize reflected light and focalize illumination.

Policy LU-22 Exterior building materials on nonresidential structures shall be composed of a minimum of 50 percent low-reflectance, non-polished finishes.

Policy LU-23 Bare metallic surfaces such as pipes, flashing, vents, and light standards on new construction shall be painted so as to minimize reflectance.

Policy LU-24 Require overhead light fixtures to be shaded and directed away from adjacent residential areas.

Policy LU-25 Require exterior lighting to be low- intensity and only used where necessary for safety and security purposes.

City of Sacramento General Plan

The following goal from the Public Facilities and Services Element of the City of Sacramento General Plan pertaining to visual resources applies to the proposed project.

Goal E Design public facilities in such a manner as to ensure safety and attractiveness.

[1] California Department of Transportation, *California Scenic Highway Mapping System, Sacramento County*, www.dot.ca.gov, accessed January 10, 2006.

3.2.4 Impact Assessment Methods

A description of the project area was prepared using information gathered during visits to the project area in November 2006. The site plans for project facilities and pipeline alignments for the proposed project were used to evaluate the potential effects of project development on the visual character of the project area and the surrounding uses. The analysis focuses on the manner in which the proposed project could change the visual elements or features that exist in the project area.

The visual impacts of the proposed project are analyzed in relation to existing conditions, which consists of suburban residential uses, a park, commercial uses, industrial uses, roadways, and a railroad. The positive or negative value attached to change in visual character is largely subjective; for the purpose of this analysis, a significant adverse change is considered a significant impact.

Significance Criteria

Criteria for determining the significance of impacts to the aesthetic value of the project area and proposed pipeline alignments were developed based on the questions from the environmental checklist from Appendix G of the CEQA Guidelines.

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

3.2.5 Impact Assessment Results

As described in Section 3.1, for each impact a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, AES refers to Aesthetics.

AES-1. The proposed project would have no impact on any scenic vistas and no impact on scenic resources.

The various elements that comprise the proposed project are not located within view of a designated scenic highway or scenic vista. Therefore, the proposed project would have no impact on scenic vistas or resources along scenic highways and no mitigation measures would be required.

AES-2. The proposed project would have a less than significant impact on the existing visual character and quality of the project area and its surroundings.

The proposed project would consist of an underground natural gas storage field, wellhead site, compressor station, metering and gas conditioning equipment, and underground pipelines. The natural gas storage field is not visible, so it would not have an impact on visual resources in the area. The compressor station would be located in an area not accessible to or visible by the general public, including sensitive receptors. The metering and gas conditioning equipment would be located at the Sacramento Regional Wastewater Treatment Plant Bufferlands at an existing natural gas station and is approximately 1,000 feet from residences. Pipelines are proposed to be constructed underground along railroad or utility rights-of-way and would be marked with pipeline markers in accordance with DOT standards. During construction, the landscape would be altered to install the pipelines. Signs marking the pipeline alignment would remain permanent surface features, but would not dominate scenic views within the area. Although these structures are designed to be seen by the public, the placement and relatively small size of the markers and additional equipment adjacent to existing stations would not degrade the existing visual character.

The wellhead site would be the only portion of the proposed project that could have an impact on visual resources in the project area. The wellhead site would be located adjacent to Power Inn Road, a frequently traveled road in Sacramento. The site is also located adjacent to a park and existing residences, both of which are considered sensitive receptors.

Although the site would be visible from the park, existing residences, and Power Inn Road, the site is currently surrounded by industrial development on three sides and traversed by power lines running parallel to Power Inn Road. Additionally, the wellhead site has been designed to minimize visual impacts in the area. An eight-foot masonry wall would be designed to be compatible with existing design elements in the area, including the adjacent residences. The masonry wall would be located along the western and southern boundaries of the wellhead site, and would continue from the western boundary onto the northern boundary for approximately 50 feet. The additional 50 feet of masonry wall along the northern boundary would prevent traffic along Power Inn Road from viewing the site. Although the wellheads within the site would project approximately six feet above the surface, the eight-foot wall surrounding the site would screen views onto the site. The northern and eastern side of the wellhead site would be enclosed by a chain link fence, which would not be visible to the park users, residences, or travelers along Power Inn Road. The wall would be set back from Power Inn Road by a 100-foot wide landscaped power line easement. This area would be designed to be visually compatible with the surrounding area, incorporating landscaping, curbs, and gutters (see Figure 2-6).

Because the compressor station and metering and gas conditioning equipment would not be visible to nearby sensitive receptors, and the wellhead site would be shielded from view by landscaping and a masonry wall designed to be compatible with existing surrounding uses,

the proposed project would not significantly degrade the existing visual character or quality of the project area and its surroundings, thus resulting in a less-than-significant impact. No additional mitigation would be required.

AES-3. The proposed project would not create a new source of substantial light or glare which could adversely affect day or night-time views in the area. No impact would occur.

The wellhead site would not require any regular lighting at night because it would be monitored offsite at the compressor station. It is anticipated that occasional maintenance would occur at the wellhead site which would require lighting if activities were to occur at night; however, any lighting that would be viewed by adjacent uses would be intermittent and temporary. In addition, the wellhead site would be set back from Power Inn Road 100 feet, so intermittent light from maintenance activities at the site would not directly affect residences. Therefore, the intermittent lighting from the wellhead site would not result in a significant change in the existing ambient night-time lighting, which is a result of the surrounding industrials uses, residential uses, and street lighting on Power Inn Road.

The compressor station site would be monitored by an employee 24 hours a day. There would be no general illumination of the site at night, with the exception for lighting at the entrance gate to support security camera use and walkway lighting which would be low voltage to reduce spillover of light. Similar to the wellhead site, illumination of the entire compressor station site would only occur if specific maintenance was required. This lighting would be intermittent and temporary. In addition, because the compressor station site is not viewable from public streets, potential sensitive viewers would not be affected by the temporary lighting. Because there are adjacent industrial uses that have existing security lighting at night, the addition of occasional maintenance lighting at the compressor station would not result in a significant change in the ambient night-time lighting at the Depot Park.

The proposed project would introduce new light sources to the area surrounding the wellhead site only during infrequent nighttime maintenance activities. The compressor station site would include some lighting, but it would be minimal and would not be visible by sensitive receptors. Also, because the wellhead site would be set back from Power Inn Road 100 feet and the use of lighting at night is expected to be intermittent and temporary, the project would not create a significant new source of light or glare that would affect adjacent uses. Therefore, this would result in a less-than-significant impact and no additional mitigation measures are required.

3.2.6 Mitigation Measures

Operation of the proposed project would not cause significant changes to visual resources or lighting in the project area. Therefore, no additional mitigation is required.

3.3 Air Quality

3.3.1 Introduction

This section evaluates potential impacts to air quality resulting from implementation of the proposed project. This includes the potential for the proposed project to conflict with or obstruct implementation of the applicable air quality plan, violate an air quality standard or contribute substantially to an existing or projected air quality violation, result in a cumulatively considerable net increase of any criteria pollutant for which the proposed project region is in nonattainment, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors affecting a substantial number of people. This air quality evaluation includes a description of the environmental and regulatory settings and a discussion of the proposed project's construction- and operations-related air quality impacts.

Sources reviewed for this section include the Sacramento Metropolitan Air Quality Management District (SMAQMD) *Guide to Air Quality Assessment in Sacramento County*, the California Air Resources Board (ARB) website, and the City of Sacramento General Plan (General Plan).

3.3.2 Existing Conditions

A region's air quality is influenced by the region's climate, topography, and pollutant sources. Based on these factors, the Sacramento region has a potential for high concentrations of regional and localized air pollutants.

Climate

The proposed project area is situated in the southeast portion of the City of Sacramento with metering and gas conditioning equipment to be installed in the unincorporated portion of Sacramento County. The City of Sacramento is the major metropolitan area of Sacramento County, which is located at the southern end of the Sacramento Valley, and is bounded by the Coast and Diablo ranges on the west and the Sierra Nevada on the east. The county is 55 miles northeast of the Carquinez Strait, a sea-level gap between the Coast Range and the Diablo Range; the intervening terrain is flat.

Between late spring and early fall, a layer of warm air often overlays a layer of cool air from the Sacramento River Delta and San Francisco Bay, resulting in stagnation of air called an inversion. Typical winter inversions are formed when the sun heats the upper layers of air, trapping below them air that has been cooled by contact with the colder surface of the earth during the night. Although each inversion type predominates at certain times of the year, both types can occur at any time of the year. Because inversions inhibit the mixing of air in the atmosphere, they can prevent air pollution from dispersing, contributing to higher pollutant concentrations.

The climatological station closest to the project area that monitors temperature and precipitation is the Sacramento 5 ESE station.[1] The annual average maximum temperature recorded for the last 115 years at this station is 73.0 degrees Fahrenheit, and the annual average minimum is 49.7 degrees Fahrenheit.

[1] Western Regional Climatic Center, website: http://www.wrcc.dri.edu, accessed January 2007.

January and December are typically the coldest months shown at this station. Average rainfall measured at this climatological station for the last 115 years varied from 3.69 inches in January to 0.01 inch July, with an average annual total of approximately 18.21 inches. The influence of rainfall on the contaminant levels in the Sacramento Valley is minimal.[2]

Criteria Air Pollutants

Criteria air pollutants are a group of pollutants for which federal or state regulatory agencies have adopted ambient air quality standards. Criteria air pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in size (PM_{10}), particulate matter less than 2.5 microns in size ($PM_{2.5}$), and lead. Most of the criteria pollutants are directly emitted. Ozone, however, is a secondary pollutant that is formed in the atmosphere by chemical reactions between oxides of nitrogen (NO_X) and reactive organic gases (ROG). According to the most recent emissions inventory data for Sacramento County, mobile sources are the largest contributors of both ROG and NO_X. Health effects associated with the criteria pollutants discussed in this chapter are shown in Table 3.3-1.

Table 3.3-1
Health Effects Summary Of The Major Criteria Air Pollutants

Air Pollutant	Adverse Effects
Ozone	Breathing Difficulties Lung Tissue Damage
Carbon Monoxide	Chest Pain in Heart Patients Headaches Reduced Mental Alertness
Particulate Matter (PM_{10} and $PM_{2.5}$)	Increased Respiratory Disease Lung Damage Cancer Premature Death
Nitrogen Dioxide	Lung Irritation and Damage
Sulfur Dioxide	Increases Lung Disease and Breathing for Asthmatics

Source: Air Resources Board – ARB Fact Sheet: Air Pollution Sources, Effects and Control. CARB website: www.arb.ca.gov/research/health/fs/fs2/fs2.htm, accessed January 16, 2007.

Criteria air pollutants are classified in each air basin, county, or in some cases, within a specific urbanized area. The classification is determined by comparing actual monitoring data with state and federal standards. If a pollutant concentration is lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "non-attainment" for that pollutant. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified". The ambient air quality standards, and the Sacramento Valley Air Basin's (SVAB) attainment status for the criteria pollutants are summarized in Table 3.3-2.

[2] Western Regional Climate Center, website: http://www.wrcc.dri.edu, accessed January 2007.

Table 3.3-2
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]		Sacramento County State Status/ Classification	Sacramento County National Status/ Classification
		Concentrations[c]	Primary[c,d]	Secondary[c,e]		
Ozone	8-hour	--	0.08 ppm	Same as Primary	Nonattainment/ Serious	Nonattainment/ Serious
	1-hour[f]	0.09 ppm	0.12 ppm			
Carbon Monoxide	8-hour	9.0 ppm	9 ppm	Same as Primary	Attainment/ None	Attainment/ None
	1-hour	20.0 ppm	35 ppm			
Nitrogen Dioxide	Annual Mean	--	0.053 pm	Same as Primary	Attainment/ None	Attainment/ None
	1-hour	0.25 ppm	--			
Sulfur Dioxide	Annual Mean	--	0.03 ppm	--	Attainment/ None	Attainment/ None
	24-hour	0.04 ppm	0.14 ppm	--		
	3-hour	--	--	0.5 ppm		
	1-hour	0.25 ppm	--	--		
Fine Particulate Matter (PM_{10})	Annual Mean	--	--	--	Nonattainment	Nonattainment
	Annual Geometric Mean	20 $\mu g/m^3$	--	--		
	24-hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary		
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	Same as Primary	Nonattainment	Not Designated/ None
	24-hour	--	35 $\mu g/m^3$			

Source: California Air Resources Board, www.arb.ca.gov/adam, accessed January 16, 2007.
Notes:
ppm = parts per million, $\mu g/m^3$ = micrograms per cubic meter

a. California standards, other than carbon monoxide, sulfur dioxide (1-hour), and fine particulate matter, are values that are not to be equaled or violated. The carbon monoxide, sulfur dioxide (1-hour), and fine particulate matter standards are not to be violated.

b. National standards, other than ozone, the 24-hour $PM_{2.5}$, the PM_{10}, and those standards based on annual averages, are not to be exceeded more than once a year. The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or les than one. The 8-hour ozone standard is attained when the 3-year average of the annual fourth highest daily maximum concentration is less than 0.08 ppm. The 24-hour PM_{10} standard is attained when the 99th percentile of 24-hour PM_{10} concentrations in a year, averaged over 3 years, at the population-oriented monitoring site with the highest measured values in the area, is below 150 $\mu g/m^3$. The 24-hour $PM_{2.5}$ standard is attained when the 98th percentile of 24-hour $PM_{2.5}$ concentrations in a year, averaged over 3 years, at the population-oriented monitoring site with the highest measured values in the area, is below 65 $\mu g/m^3$. The annual average $PM_{2.5}$ standard is attained when the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations, from single or multiple community oriented monitors is les than or equal to 15 $\mu g/m^3$.

c. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (Hg) (1013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d. National Primary Standards: The levels of air quality deemed necessary by the federal government, with an adequate margin of safety, to protect the public health.

e. National Primary Standards: The levels of air quality deemed necessary by the federal government, to protect the public welfare from any known or anticipated adverse effects to a pollutant.

f. The 1-hour ozone standard will be replaced by the 8-hour standard on an area-by-area basis when the area has achieved 3 consecutive years of air quality data meeting the 1-hour standard.

Monitors that collect air quality data are located throughout the SVAB. The closest monitoring station to the project area is the Sacramento T Street station, located in downtown Sacramento at 1309 T Street. This monitoring station is operated by the California Air Resources Board (ARB). Recent air quality data collected at this monitoring site is summarized in Table 3.3-3. Classifications for the key criteria pollutants in the SVAB are discussed in the following section.

Table 3.3-3
Summary of Air Pollutant Data from T Street Monitoring Station, Sacramento
(Compared to Federal and State Standards)

Pollutant	2003	2004	2005
Ozone (1-hour)			
Highest 1-hour (ppm)	0.111	0.105	0.108
Days > 0.125 ppm (Fed)	0	0	0
Days > 0.09 ppm (Cal)	4	1	4
Ozone (8-hour)			
Highest 8-hour (ppm)	0.091	0.075	0.087
Days > 0.08 (Fed)[a]	1	0	1
Carbon Monoxide			
Highest 8-hour (ppm)	3.40	2.96	3.64
Days > =9.5 ppm (Fed)	0	0	0
Days > =9.1 ppm (Cal)	0	0	0
Particulate Matter (PM_{10})			
Highest federal Concentration	65	58	53
Highest state Concentration	66	58	55
Days > 50 ug/m^3 (Cal)	1	1	4
Days > 150 ug/m^3 (Fed)	0	0	0
Particulate Matter ($PM_{2.5}$)[b]			
Highest 24-hour (ug/m^3)	49.0	46.0	59.0
Days > 65 ug/m^3 (Fed)	0	0	0
Nitrogen Dioxide			
Highest 1-hour (ppm)	0.084	0.072	0.071
Days > .25 ppm (Cal)[3]	0	0	0
Annual (Fed) > 0.053 ppm	0	0	0

Source: California Air Resources Board, www.arb.ca.gov, accessed January 16, 2007.
Notes:
a. There is no State 8-hour ozone standard.
b. There is no State 24-hour $PM_{2.5}$ standard.

Existing Attainment Status

The criteria air pollutants most relevant to air quality planning and regulation in the SVAB include O_3, CO, and PM_{10}. Each of the relevant criteria pollutants is briefly described below in the context of the SVAB attainment status.

Ozone (O_3) is a gas that is formed when reactive organic compounds (ROGs) and NO_x—both byproducts of internal combustion engine exhaust, the primary source of ROGs and NO_x in the SVAB—undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable. The federal government uses a number of different classifications to describe the extent to which an area is in nonattainment for the federal ozone standard. The SVAB is currently classified as being in "serious" nonattainment for ozone, which means that the SVAB has exceeded the standard more than four times over the last three years.[3]

Carbon Monoxide (CO) is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines—unlike ozone—and motor vehicles operating at slow speeds are the primary source of CO in the SVAB, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections. Additional traffic generated by a project may increase congestion at nearby intersections, and consequently increase the likelihood of creating high levels of CO.

Through control measures adopted by state, local and federal agencies, all areas of the SVAB have attained the California and federal CO standards.

Respirable Particulate Matter (PM_{10}) and ***Fine Particulate Matter ($PM_{2.5}$)*** consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter. $PM_{2.5}$ is a subset of PM_{10}. Some sources of suspended particulate matter, like pollen and entrained dust during windstorms, occur naturally. However, in populated areas, most fine suspended particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities. Generally, PM_{10} is generated by soil disturbance (which could include construction activity or wind generated); $PM_{2.5}$ is predominately a product of fuel combustion.

Monitoring data shows that the SVAB currently is in attainment of the federal PM_{10} standard.[4] However, the USEPA has not officially changed the SVAB's designation to attainment; therefore, the SVAB is officially in nonattainment for the federal standards. The SVAB is also officially in nonattainment of the more stringent state PM_{10} standard. The SVAB has not yet been classified for $PM_{2.5}$ based on the federal standard, but is in nonattainment for the annual state standard. Although the

[3] Sacramento Metropolitan Air Quality District, http://www.airquality.org/aqdata/attainmentstat.shtml, accessed January 16, 2007.

[4] Sacramento Metropolitan Air Quality District, http://www.airquality.org/aqdata/attainmentstat.shtml, accessed January 16, 2007.

SVAB is unclassified for $PM_{2.5}$ against the federal standard, monitoring data is being collected for this pollutant. It is anticipated that the USEPA will make $PM_{2.5}$ designations for areas in the near future.

Other Criteria Pollutants. The SVAB is in attainment of state and federal standards for all other criteria pollutants.

Toxic Air Contaminants

In addition to the criteria air pollutants, another group of airborne substances, called Toxic Air Contaminants (TACs), are known to be highly hazardous to health, even in small quantities. TACs are airborne substances capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects (i.e., injury or illness).

TACs can be emitted from a variety of common sources, including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Natural sources of emissions include windblown dust and wildfires. Farms, construction sites, and residential areas can also contribute to toxic air emissions. The ARB has recently identified diesel particulate matter as a toxic air contaminant.

Odors

Part of any air quality analysis includes an evaluation of whether odor impacts would result from implementation of the proposed project. The apparent presence of an odor in ambient air depends on the properties of the substance emitted, its concentration when it is emitted from a source, and the dilution of emission between the emission point and the receptor.

3.3.3 Regulatory Setting

Air quality in the project area is regulated by the USEPA, the ARB, and the SMAQMD. These agencies develop rules or regulations to meet the goals or directives imposed on them through legislation. Although USEPA regulations may not be superseded, both state and local regulations may be more stringent. In general, air quality evaluations are based on air quality standards developed by the federal and state governments.

Since many air pollution problems are regional in nature, the federal government sometimes designates multi-county areas or areas consisting of several different air districts as "Nonattainment Areas." The "Nonattainment Area" designation for areas comprising more than one district means that these individual local agencies must work together to solve regional air pollution problems. The Sacramento Ozone Nonattainment Area includes all of Sacramento County and parts of Yolo, Solano, Sutter, and Placer Counties.

Federal

U.S. Environmental Protection Agency

The USEPA is the federal agency responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The USEPA also has jurisdiction over emissions sources outside state waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs.

Federal Clean Air Act

The Federal Clean Air Act (FCAA 42 USC 7401-7661), as amended, establishes air quality standards for several pollutants. These standards are divided into primary standards and secondary standards. Primary standards are designed to protect public health, and secondary standards are intended to protect public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. The FCAA requires that regional plans be prepared for non-attainment areas illustrating how the federal air quality standards will be met. The ARB approved the most recent SIP in 1994 for the Sacramento ozone non-attainment area, and submitted it to the USEPA. The SIP was approved by the USEPA in 1996. The SIP consists of a list of reactive organic gas and nitrogen oxide control measures for demonstrating future attainment of ozone standards. The steps to achieve attainment will continue to require significant emissions reductions in both stationary and mobile sources.

Ozone Standards

The federal eight-hour ozone standard was established in response to human health studies indicating that longer ozone exposures at lower levels resulted in adverse health effects, including coughing, increased asthma attacks, chronic lung inflammation, decreased lung function, and decreased lung defenses against bacterial infections. The eight-hour standard was established in order to complement, not replace, the one-hour standard as established by the USEPA. Both federal ozone standards now apply, along with California's own one-hour ozone standard.

Federal Ozone Attainment Plan

The SVAB is subject to a 1994 Federal Ozone Attainment Plan. This plan was adopted by five air districts in the Sacramento area in order to build upon existing state and local air quality programs. The Sacramento Area Regional Ozone Attainment Plan contains adopted measures, implementation and adoption schedules for new measures, emission inventories, modeling results, contingency measures, and emissions reduction demonstrations that guide reduction of emissions in the SVAB. Sacramento

County needed to demonstrate attainment of federal ozone standards by 2005. In February 2006, the ARB approved the Sacramento Regional Nonattainment Area 8-Hour Ozone Rate of Progress Plan to update the previous plan with new emissions factors for attainment of the 1-Hour and 8-Hour federal ozone standards. The USEPA has established the new attainment deadline for the SVAB as 2013.

Toxic Air Contaminants

Regulation of TACs is achieved through federal and state controls on individual sources. The 1990 FCAA Amendments offer a comprehensive plan for achieving significant reduction in both mobile and stationary source emissions of certain designated Hazardous Air Pollutants (HAP). All major stationary sources of designated HAP's are required to obtain and pay the required fees for an operating permit under Title V of the FCAA Amendments.

State

California Clean Air Act

The State of California air quality standards are generally more stringent than the corresponding federal standards for the criteria air pollutants. The California Clean Air Act (CCAA) requires non-attainment areas to plan for the eventual attainment of the standards. Areas have been designated as attainment or non-attainment with respect to the ambient air quality standards. The timeframe given to meet state air quality standards would depend upon the severity of air quality problems. The California Health and Safety Code Section 40914(A) requires that air districts design a plan to achieve an annual reduction in district-wide emissions of five percent or more for each non-attainment criteria pollutant or its precursor, averaged every consecutive three-year period, beginning at base year 1987.

California Air Resources Board

The ARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the ARB conducts research, sets state ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The ARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. The ARB also has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

Toxic Air Contaminants

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 air toxics and is the primary toxic air contaminant legislation in the state. Under the Act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high-priority designated facilities are required to submit a health risk assessment and

communicate the results to the affected public. The TAC control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources of TACs, and developing new rules and regulations to reduce TAC emissions. The purpose of AB 2588 is to identify and inventory toxic air emissions and to communicate the potential for adverse health effects to the public.

Assembly Bill 1807 (AB 1807), enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. The ARB is responsible for the identification and control of TACs, except in their pesticide use. AB 1807 defines a TAC as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. The ARB prepares identification reports on candidate substances under consideration for listing as TACs. The reports and summaries describe the use of and the extent of emissions in California resulting in public exposure, together with their potential health effects.

The ARB has recently identified diesel particulate matter as a toxic air contaminant under the AB 1807 program. Diesel particulate matter is emitted into the air via heavy-duty diesel trucks, construction equipment, and passenger cars. In October 2000, the ARB released the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. This plan identifies diesel particulate matter as the predominant TAC in California and proposes methods for reducing diesel emissions.

TAC impacts are assessed using a standard Maximally Exposed Individual (MEI) health risk of 10 in 1 million. The ARB and the local air district have determined that any source that poses a risk to the general population that is equal to or greater than 10 people out of 1 million contracting cancer as excessive. When estimating this risk, it is assumed that an individual is exposed to the maximum concentration of any given TAC, continuously for 70 years. If the risk of such exposure levels meets or exceeds the threshold of 10 excess cancer cases per 1 million people, then the ARB and local air district require the installation of best available control technology (BACT) or maximum available control technology (MACT) to reduce the risk threshold. This ensures that the toxics source is being controlled to the fullest extent possible using current technology.

California Global Warming Solutions Act

The California Global Warming Solutions Act of 2006 (AB 32) requires the California Air Resources Board to develop regulations and market mechanisms that will ultimately reduce California's greenhouse gas (GHG) emissions to 1990 levels by 2020, an estimated 25 percent reduction. Mandatory caps will begin in 2012 for significant GHG sources—such as utilities, industries, and large businesses—and ratchet down to meet the 2020 goals. ARB must establish the statewide GHG emissions cap by January 1st, 2008; adopt mandatory reporting rules for significant GHG sources and adopt a plan for achieving GHG emissions reductions by January 1, 2009; and adopt its final GHG emission regulations by January 1, 2011.

Local

Sacramento Metropolitan Air Quality Management District

The SMAQMD is the primary agency responsible for planning to meet federal and state ambient standards in the SVAB. In order to demonstrate the area's ability to eventually meet the federal ozone standards, the SMAQMD, along with the other air districts in the nonattainment area, maintain the region's portion of the SIP for ozone. The SVAB's part of the SIP is a compilation of regulations that govern how the region and state will comply with the Federal Clean Air Act requirements to attain and maintain the federal ozone standard. The compilation of rules that comprises the Sacramento Nonattainment Area's portion of the SIP is contained in the Sacramento Area Regional Ozone Attainment Plan. The most recent update of the Plan was adopted by the SMAQMD on January 26, 2006.

For PM_{10}, the other criteria pollutant of concern for the SVAB, Sacramento currently meets the federal standard, but has not yet been officially re-designated to attainment by the USEPA. Since monitoring data show that the PM_{10} standard is being met in practice, no PM_{10} plan exists in the SMAQMD.

Sacramento County is also in nonattainment of certain state standards. These standards are either equally stringent, or more stringent than federal standards. Currently, the County does not attain the state PM_{10}, $PM_{2.5}$, or ozone standards, and is considered a maintenance area for CO.

The SMAQMD rules that relate to development within the SVAB and are of relevance to the proposed project are summarized below:

RULE 402 – Nuisance

Prohibits a person from discharging, from any source whatsoever, such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such person or the public or which cause or have a natural tendency to cause injury or damage to business or property.

RULE 403 – Fugitive Dust

Requires a person to take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation.

RULE 442 – Architectural Coatings

Sets ROG limits for coatings that are applied to stationary structures or their appurtenances. The rule also specifies storage and cleanup requirements for these coatings.

RULE 460 – Adhesives and Sealants

Limits ROG from the application of products used for bonding two surfaces. Also regulates the storage and disposal of solvents associated with such applications.

RULE 401 – Ringelmann Chart

Prohibits individuals from discharging into the atmosphere from any single source of emissions whatsoever any air contaminant whose opacity exceeds certain specified limits.

County of Sacramento General Plan

As part of the proposed project, the project area would include metering and gas conditioning equipment located in County of Sacramento. Local jurisdictions, such as the County of Sacramento, have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the County is responsible for the assessment and mitigation, as necessary, of air emissions resulting from its land use decisions. The County of Sacramento 1993 General Plan (revised 1997) contains an Air Quality Element designed to ensure a healthy environment through the management of air resources. The following air quality policies found in the General Plan pertain to the proposed project:

Policy AQ-1 *Minimize air pollutant emissions from Sacramento County facilities and operations.*

Policy AQ-2 *Use ARB, SMAQMD and SACOG guidelines for Sacramento County facilities and operations in order to comply with mandated measures to reduce emissions from fuel consumption, energy consumption, surface coating operations, and solvent usage.*

Policy AQ-3 *Promote optimal air quality benefits through energy conservation measures in new development.*

Policy AQ-4 *Support AQMD's development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds and rules to more adequately address the air quality impacts of proposed project plans and proposals.*

Policy AQ-5 *Require the use of Best Available Control Technology (BACT) to reduce air pollution emissions.*

Policy AQ-17 *Require that development projects be located and designed in a manner which will conserve air quality and minimize direct and indirect emission of air contaminants.*

Policy AQ-19 *Identify the air quality impacts of development proposals to avoid significant adverse impacts and require appropriate mitigation measures or offset fees.*

Policy AQ-20 *Submit development proposals to AQMD for review and comment in compliance with CEQA prior to consideration by the appropriate decision making body.*

Policy AQ-22 Provide for buffers between sensitive land uses and sources of air pollution or odor.

The proposed project would be required to implement all feasible measures to reduce air quality impacts on a regional and local level. This would include the use of BACT and coordination with the SMAQMD to mitigated potentially significant air quality impacts resulting from construction and operation of the proposed project. Therefore, the proposed project would be consistent with the applicable air quality policies of the County of Sacramento General Plan.

City of Sacramento General Plan

The City of Sacramento General Plan does not contain an Air Quality Element and there are no specific goals or policies that pertain to air quality. The City of Sacramento is currently updating its 1988 General Plan, which will include an Air Quality Element. Adoption is expected in Fall 2008.

3.3.4 Impact Assessment Methods

Significance Criteria

Criteria for determining the significance of impacts on air quality during construction and operation of the proposed project were developed based on the questions provided in Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☑	☐
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☑	☐
4. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
5. Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐

The SMAQMD considers the following generation of emissions to represent a significant adverse impact:

Pollutant	Construction	Operation
ROG	None	65 lbs/day
NO_x	85 lbs/day	65 lbs/day
PM_{10}	50 $\mu g/m^3$*	50 $\mu g/m^3$*

Source: SMAQMD, Guide to Air Quality Assessment in Sacramento County, July 2004.

Notes: * $\mu g/m^3$ is the measurement of the concentration of particulate matter in a cube that is one meter on all sides.

The SMAQMD recommends a PM_{10} threshold of significance that is equal to the California standard for PM_{10} of 50 $\mu g/m^3$. The SMAQMD's *Guide to Air Quality Assessment in Sacramento County* specifies a methodology for evaluating whether a project would exceed this PM_{10} standard during construction. Appendix B of the Guide contains Table B.1 – Particulate Matter Screening Level for Construction Projects. This table lists various acreages and mitigation associated with the various acreage ranges that would reduce PM_{10} impacts to less-than-significant levels. As long as a project's maximum acreage graded per day falls into one of the acreage ranges, and the appropriate mitigation measures are applied, the project would be considered to have a less-than-significant PM_{10} impact during construction, and no concentration modeling would required.

3.3.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, AQ refers to Air Quality.

AQ-1. The proposed project would not conflict with or obstruct implementation of the applicable air quality plan. No impact would occur.

Air quality plans, both within the SVAB and in California, encourage use of natural gas as a "clean fuel" replacement for liquid or solid fuels. Because the proposed project would be designed as a natural gas storage resource for the area, it would facilitate those planning objectives. The SMAQMD's air quality plan implicitly incorporated all the rules and regulations of the SMAQMD. The proposed project would be required to comply with these rules. Projects that are consistent with the projections of SACOG's employment and population forecasts, which are based on the designation included in the General Plan, are considered consistent with the SMAQMD's air quality plan. The proposed project area is currently designated and zoned by the City of Sacramento as M-2, Heavy Industrial. According to the City of Sacramento Zoning Ordinance (Chapter 17.24.040), the development of public utility yards and gas wells are compatible with the current zoning of both sites. In addition, as discussed in Section 3.14, Transportation and Circulation, operation of the proposed project would require approximately six round trip vehicle trips per day, which is a negligible increase in existing and future traffic volume. There is,

therefore, no conflict with the applicable air quality plan. No impact would occur and no additional mitigation is required.

AQ-2. The proposed project would not violate existing SMAQMD air quality standards during construction or operation of the proposed project. This would result in a less-than-significant impact.

Construction Emissions. In order to determine a "worst-case scenario" with the greatest potential for air quality impacts during construction, equipment emissions for construction of the proposed project assumed each component described in Chapter 2, Project Description, could be constructed simultaneously. Exhaust emissions of ROG, NO_X, CO, SO_2, and PM_{10} would occur from internal combustion engines in dump trucks, dozers, scrapers, excavators and other heavy construction equipment, and from construction workers' cars and supply trucks traveling to and from the proposed project area. In addition, PM_{10} from fugitive dust would be generated as a result of grading, excavation, and drilling activities associated with the proposed project. The proposed project would not disturb an area greater than five acres per day. Therefore, the SMAQMD screening methodology for PM_{10} was used to analyze impacts from particulate matter. The estimated construction emissions were modeled using the URBEMIS 2002 emissions model, version 8.7 and are shown in Table 3.3-4. These emissions assume implementation of Level One fugitive dust (PM_{10}) control measures as described in Section 2.5.7 of the project description.

As shown in Table 3.3-4, the proposed project would not exceed the SMAQMD construction emissions threshold for NO_X during grading or construction activities, including activities associated with asphalt paving.

As described in Section 2.5.7 of the project description, SNGS would implement *Level One* mitigation measures from the SMAQMD *Guide to Air Quality Assessment in Sacramento County*. With implementation PM_{10} levels associated with construction of the proposed project would be considered less than significant as discussed under the Section 3.3.4 Impact Assessment Methods. Therefore, this impact is less than significant and no additional mitigation is required.

Operational Emissions. The primary source of emissions associated with the proposed project would be stationary sources, including combustion equipment such as the glycol dehydrator, reboilers, and thermal oxidizer, the relief vent system, and fugitive natural gas emissions from valves and flanges. The electric-drive compressors would have no emissions. Applicable emissions estimates developed for the Kirby Hills Facility indicate potential emissions of 0.9 pounds per day of ROG and 1.2 pounds per day of NO_X,[5] which are well below the SMAQMD significance thresholds of 65 pounds per day for each of

[5] CPUC, Final Mitigated Negative Declaration and Supporting Initial Study for the Kirby Hills Natural Gas Storage Facility, 2006.

ROG and NO_x. Therefore, this impact would be less than significant and no additional mitigation is required.

Table 3.3-4
Estimated Peak Daily Construction Emissions

Construction Phase	Peak Day Emissions in Pounds per Day (Lbs/day)				
	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**
Site Grading					
Fugitive Dust	—	—	—	—	33.00
Off-Road Diesel	13.37	83.41	110.36	—	2.76
On-Road Diesel	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.13	0.16	2.85	0.02	0.01
Maximum Lbs/Day	***13.50***	***83.57***	***113.21***	***0.00***	***35.77***
SCAQMD Thresholds	N/A	85	N/A	N/A	N/A
Significant Impact	No	No	No	No	No
Building Construction					
Off-Road Diesel	4.81	28.26	40.91	—	0.86
Worker Trips	1.11	0.69	14.48	0.00	0.19
Maximum Lbs/Day	***5.92***	***28.95***	***55.39***	***0.00***	***1.05***
SCAQMD Thresholds	N/A	85	N/A	N/A	N/A
Significant Impact	No	No	No	No	No
Asphalt Paving					
Off-Gas	0.12	—	—	—	—
Off-Road Diesel	1.40	8.11	11.88	—	0.22
On-Road Diesel	0.02	0.28	0.06	0.00	0.01
Worker Trips	0.01	0.00	0.12	0.00	0.00
Maximum Lbs/Day	***1.55***	***8.39***	***12.06***	***0.00***	***0.23***
SCAQMD Thresholds	N/A	85	N/A	N/A	N/A
Significant Impact	No	No	No	No	No

Source: EIP Associates, a division of PBS&J, 2007. Calculation sheets are provided in Appendix B.

Note: Daily thresholds for emissions of lead and $PM_{2.5}$ are not provided as they have not been established by the SMAQMD. In addition, because ozone is formed by photochemical reactions between VOCs and NO_x, the generation of ozone resulting from the proposed project is addressed through the daily emissions of these two precursors, which are shown in this table.

AQ-3. *The proposed project would not 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. This would be a less-than-significant impact.*

With regard to determining the significance of the proposed project contribution, the SMAQMD neither recommends quantified analyses of cumulative construction or operational emissions, nor provides separate methodologies or thresholds of significance to be used to assess cumulative air quality impacts. Instead, the SMAQMD recommends that a project's potential contribution to cumulative impacts should be assessed by determining whether a project would require a General Plan amendment or rezoning that would result in emissions estimates greater than those under the existing General Plan.[6] The proposed project area is currently designated for industrial uses under the City of Sacramento General Plan and zoned by the City of Sacramento as M-2, Heavy Industrial. According to the City of Sacramento Zoning Ordinance (Chapter 17.24.040), the development of public utility yards and gas wells are compatible with the current zoning of both sites. In addition, the pipeline routing for the proposed project would be located within road, railroad, and utilities right-of-ways. The proposed project would also be required to comply with all applicable SMAQMD rules on operational emissions. As the proposed project is considered compatible with existing zoning designations in the City of Sacramento General Plan, the proposed project would therefore not result in a cumulatively considerable increase of criteria air pollutants. This is considered a less-than-significant impact and no additional mitigation is required.

AQ-4. *The proposed project would not expose sensitive receptors to substantial pollutant concentrations. This would be a less-than-significant impact.*

As stated in Section 3.14, Transportation and Circulation, the proposed project would generate approximately six daily vehicle round trips during operation of the proposed project. As this would be a negligible increase in traffic, the proposed project would not result in increased CO concentrations with implementation of the proposed project.

TACs associated with the project could be generated either by stationary sources on-site or by mobile sources, such as diesel trucks, making trips to and from the site, primarily during construction. TACs can produce both acute (short-term) and chronic (long-term) adverse health impacts. Usually chronic TAC impacts are measured over a lifetime of 70 years. Both construction and operational activities would emit TACs, but neither the level of project construction activities nor the industrial land use in place after project implementation would pose significant additional health risk to sensitive land uses on or near the project area. To date, there has not been a formally adopted standard for cancer risk attributed to ambient air exposure.

[6] Sacramento Metropolitan Air Quality Management District, Guide to Air Quality Assessment in Sacramento County, July 2004, p. 7-8.

As the proposed project would be powered by electricity and only approximately six daily vehicle round trips per day would occur during operation, the proposed project would not be a source of diesel particulate matter or formaldehyde (two types of TACs). Estimated toxic air pollutant emissions from the glycol reboilers, used during the natural gas dehydration process at the compressor station have the potential to cause health impacts based on the SMAQMD's accepted thresholds of significance for toxic air compounds. The SMAQMD accepts a lifetime probability cancer risk threshold of 10 in one million. Also, for ground-level concentrations of non-carcinogenic toxic air pollutants, a Hazard Index greater than 1 constitutes a significant impact, according to SMAQMD thresholds of significance.

The highest estimated cancer risk of a natural gas storage project in the region, such as the proposed project, would result from exposure to benzene emissions, a by-product of the natural gas dehydration process, which would equal a cancer risk of approximately 0.1 in a million.[7] This is two orders of magnitude below the SMAQMD's threshold of 10 in one million.

The chronic non-carcinogenic health hazards indices also would be well below the SMAQMD significance threshold for Hazard Index of 1.[8] Therefore, the proposed project would not be expected to expose sensitive receptors to substantial pollutant concentrations. This is a less-than-significant impact and no additional mitigation is required.

AQ-5. The proposed project could create objectionable odors that could affect a substantial number of people. This would result in a less-than-significant impact.

Processing of natural gas at the compressor facility and at the injection/withdrawal wells has a small potential to result in releases of small quantities of odorized natural gas. Odorized gas could be emitted from piping components such as valves and flanges (fugitive emissions). In addition to being unlikely, such small leaks, if they occur, would be would quickly be dissipated by even light winds. Additionally, SNGS has committed to measures to prevent, detect, and repair such leaks, such as the use of automated leak detectors, as part of their operation and maintenance program.

As described under Section 2.5.7 of this PEA, Air Quality Protection Measures, aboveground piping components would be maintained to minimize leakage of odorized gas. Piping connections would be welded to the extent practicable given design considerations. Valves, flanges, and other piping components would be monitored for leaks by operations personnel as part of facility operations. SNGS has committed to providing incident, quarterly, and annual reports to the CPUC in accordance with CPUC Rule 112-E,

[7] CPUC, Final Mitigated Negative Declaration and Supporting Initial Study for the Kirby Hills Natural Gas Storage Facility, 2006, page B-69.

[8] CPUC, Final Mitigated Negative Declaration and Supporting Initial Study for the Kirby Hills Natural Gas Storage Facility, 2006, page B-69.

Subpart B. Because these measures have been incorporated into the proposed project, this potential impact is considered less than significant and no additional mitigation is required.

3.3.6 Mitigation Measures

Implementation of the proposed project would not result in substantial emissions during construction or operation that would exceed thresholds of significance established by the SMAQMD. Therefore, no additional mitigation is required.

3.4 Biological Resources

3.4.1 Introduction

This section describes biological resources that are existing, or have the potential to be present, in the project area. The project area includes the wellhead site, the compressor station site, the Morrison Creek Cross-Tie metering and gas conditioning equipment site, the pipeline alignments from the wellhead site to the Depot Park compressor station, and the pipeline alignment from the compressor station to the PG&E and SMUD pipelines in Fruitridge Road.

The biological resources discussed include vegetation communities, special-status species and their habitat, and wetlands and waters of the U.S. Potential impacts on biological resources that are associated with each of the project components are described, and mitigation measures to avoid, minimize, or compensate for potential significant impacts to biological resources are identified.

3.4.2 Environmental Setting

The proposed project is located in the Sacramento Valley geographic subregion of the California Floristic Province.[1] The project area is situated in southeast Sacramento County within an industrial area in the City of Sacramento. The wellhead site, compressor station site and pipeline alignments are surrounded by industrial uses to the north, south, and east. Residential and commercial uses are located to the west. The Morrison Creek Cross-Tie metering and gas conditioning equipment site is located in the County of Sacramento, on the Sacramento Regional County Sanitation District Bufferlands site, which is included in the Stone Lakes National Wildlife Refuge boundary, between Franklin Road and I-5.

EIP/PBSJ staff biologists conducted a general reconnaissance-level special-status species survey of the project area on November 29, 2006 using meandering transects. The pipeline alignment north of Elder Creek Road and east of Morrison Creek was surveyed on April 4, 2007. Plant and wildlife species, vegetative communities, and the locations of potential jurisdictional wetlands and other waters of the U.S. observed in the project area were identified and recorded in field notes. A chain-link fence was present along the crown of the Morrison Creek levee, which precluded access to the low flow section of the creek. EIP/PBSJ staff biologists walked the eastern crown of the Morrison Creek levee from the compressor station site to the southwest corner of the Depot Park parcel. Visual surveys of plant and wildlife in the Morrison Creek low flow channel were conducted from the crown of the eastern creek levee.

The general reconnaissance-level field survey was conducted outside the blooming period for special-status plant species. If a plant species could not be identified in the field, a sample was taken for positive identification upon returning to the office. Plants observed during the survey were identified to the species level using *The Jepson Manual: Higher Plants of California*.[2]

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1 Hickman, James C., *The Jepson Manual Higher Plants of California*, 1993.
2 Hickman, James C., *The Jepson Manual Higher Plants of California,* 1993.

Vegetative Communities in the Project Area

Non-Native Annual Grassland

Non-native annual grassland is the most common community type on the wellhead site and compressor station site. In general, the non-native annual grassland is characterized by a mix of annual grasses and weedy forbs. Herbaceous species observed include ripgut grass (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), curly dock (*Rumex crispus*), field bindweed (*Convolvulus arvensis*), vetch (*Vicia* sp.), quaking grass (*Briza minor*), prickly lettuce (*Lactuca serriola*), turkey mullein (*Eremocarpus setigerus*), Bermuda grass (*Cynodon dactylon*), cranesbill (*Geranium dissectum*), filaree (*Erodium* sp.), perennial pepperweed (*Lepidium latifolium*), yellow-star thistle (*Centaurea solstitialis*), fireweed (*Epilobium* sp.), field mustard (*Brassica rapa*), medusa head (*Taeniatherum caput-medusa*), tumbleweed (*Amaranthus albus*), horehound (*Marrubium vulgare*), and chicory (*Cichorium intybus*). The non-native annual grassland on the wellhead site had been recently disked.

Wildlife bird species observed during the reconnaissance-level survey of the project area include mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferus*), ring-necked pheasant (*Phasianus colchicus*), western meadowlark (*Sturnella neglecta*), burrowing owl (*Athene cunicularia*), and house sparrow (*Passer domesticus*). Mammals observed during the survey included California vole (*Microtus californicus*), black-tailed jackrabbit (*Lepus californicus*), and evidence of use (scat) by coyote (*Canis latrans*).

Wetlands and Waters of the U.S. in the Project Area

Seasonal Wetlands

A jurisdictional wetland delineation using the methods outlined in the U.S. Army Corps of Engineers (Corps) 1987 *Wetlands Delineation Manual*, and the 2006 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* has not yet been conducted for the project.

Potential seasonal wetlands were observed along both sides of the UPRR tracks from Berry Avenue to Fruitridge Road and along the southern boundary of the compressor station site. A potential wetland was also observed just east of the wellhead site.

Vegetation observed at the potential wetlands along the UPRR tracks include hyssop loosestrife, coyote thistle (*Eryngium castrense*), cocklebur (*Xanthium* sp.), and bristlegrass (*Setaria* sp.). The potential wetlands along the UPRR tracks do not provide suitable habitat for special-status vernal pool plants because of prior disturbance related to UPRR activities and because the seasonal wetlands are too shallow. The potential seasonal wetlands along the UPRR tracks do provide potential habitat for special-status vernal pool crustaceans, including vernal pool fairy shrimp and vernal pool tadpole shrimp.

The remnant Morrison Creek corridor occurs along the southern boundary of the compressor station site. Vegetation observed in this channel includes Italian ryegrass, curly dock, hyssop loosestrife, *Navarretia* sp., spikerush (*Eleocharis* sp.), Mediterranean barley, and tumbleweed. This remnant

Morrison Creek corridor would be considered a potential seasonal wetland because of the presence of hydrophytic vegetation and hydrology. The remnant Morrison Creek corridor connects to the current Morrison Creek channel via three culverts, west of the Depot Park site. The remnant Morrison Creek corridor does not provide suitable habitat for special-status vernal pool plants because it is too shallow. However, the remnant Morrison Creek corridor does provide potential habitat for vernal pool crustaceans because these species have historically occurred in the area.

Morrison Creek

Morrison Creek is mapped as a blue-line channel (a perennial stream) on the Sacramento East 7.5 minute U.S. Geological Service (USGS) topographic quadrangle. Morrison Creek was realigned in 1946 from its historical alignment to a man-made concrete channel along the southern boundary of Depot Park. The realignment of and later improvements on Morrison Creek provided 100-year flood protection to the project area. The new alignment of the Morrison Creek channel has earthen crowns on the upper portion of the levees. Chain-link fences block access to Morrison Creek channel from the compressor station site.

Morrison Creek is a water of the U.S. according to the Corps definition because in part it is hydrologically connected to the Sacramento River.

Special-Status Species

Prior to visiting the project area, an EIP/PBSJ biologist compiled a list of special-status plant and wildlife species that have the potential to occur in the project vicinity. For the purposes of this report, special-status species include:

- species listed, proposed, or candidate species for listing as Threatened or Endangered by the USFWS pursuant to the federal Endangered Species Act (FESA) of 1969, as amended;
- species listed as Rare, Threatened, or Endangered by the California Department of Fish and Game (CDFG) pursuant to the California Endangered Species Act (CESA) of 1970, as amended;
- species designated as Fully Protected under Sections 3511 (birds), 4700 (mammals), and 5050 (reptiles and amphibians) of the California Fish and Game Code;
- species designated by the CDFG as California Species of Concern;
- plant species listed as Category 1B and 2 by the CNPS; and
- species not currently protected by statute or regulation, but considered rare, threatened or endangered under CEQA (Section 15380).

Table 3.4-1 presents a list of special-status plant and wildlife species potentially occurring in the region, along with a description of their habitat requirements, protection status and a brief discussion of its likelihood to occur within the project area. This list was derived from the following sources: (1) a query of the California Department of Fish and Game's (CDFG) Natural Diversity Database (CNDDB)

Table 3.4-1
Special-Status Species[a] Potentially Occurring Within the Vicinity of the Project Area

Common Name	Scientific Name	Status[b] Fed/CA/other	Habitat and Seasonal Distribution in California	Likelihood of Occurrence within the Project Area Vicinity[c]
Plants				
Ahart's dwarf rush	*Juncus leiospermus* var. *ahartii*	none/none/1B	Valley and foothill grasslands.	**Not Likely.** The habitat quality is poor and the project area is located within an industrial setting.
Antioch Dunes evening-primrose	*Oenothera deltoids* ssp. *howellii*	FE/SE/1B	Inland dunes.	**Not Likely.** The project area does not provide suitable habitat.
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	none/SE/1B	Occurs in marshes, swamps, lake margins, and vernal pools.	**Not Likely.** Suitable habitat does not occur in the project area.
Legenere	*Legenere limosa*	none/none/1B	Vernal pools.	**Not Likely.** Suitable habitat does not occur in the project area.
Northern California black walnut	*Juglans hindsii*	none/none/1B	Riparian forests and woodlands.	**Not Likely.** The project area does not provide suitable habitat; none were observed in the project area.
Sacramento Orcutt grass	*Orcuttia viscida*	FE/SE/1B	Vernal pools in open grassland habitat.	**Not Likely.** The potential seasonal wetlands in the project area do not pond for a sufficient duration for this species to occur.
Sanford's arrowhead	*Sagittaria sanfordii*	none/none/1B	Irrigation ditches and margins of ponds and marshes.	**Low.** Morrison Creek provides potential habitat for this species. There are CNDDB records for this species in Morrison Creek downstream of the project area.
Slender Orcutt grass	*Orcuttia tenuis*	FT/SE/1B	Vernal pools with annual grassland and blue oak woodlands.	**Not likely.** The potential seasonal wetlands in the project area do not pond for a sufficient duration for this species to occur.
Invertebrates				
California linderiella	*Linderiella occidentalis*	none/none/ SAL	Vernal pools and other seasonal wetlands in open grassland habitat.	**High.** The potential seasonal wetlands along the pipeline alignments provide habitat for this species. Several CNDDB records for this species occur along the UPRR right-of-way.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT/none/none	Elderberry shrubs (*Sambucus* sp.) associated with riparian areas.	**Not Likely.** Elderberry shrubs were not observed in the project area.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT/none/none	Vernal pools and other seasonal wetlands in open grassland habitat.	**High.** The potential seasonal wetlands along the pipeline alignments provide habitat for this species. Several CNDDB records for this species occur along the UPRR right-of-way.
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE/none/none	Vernal pools and other seasonal wetlands in open grassland habitat.	**High.** The potential seasonal wetlands along the pipeline alignments provide habitat for this species. Several CNDDB records for this species occur along the UPRR right-of-way.
Fish				
Central Valley fall/late fall-run Chinook salmon	*Oncorhynchus tshawytscha*	FC/CSC/none	Sacramento and San Joaquin River Basins and their tributaries.	**Not Likely.** This species does not occur in Morrison Creek.

Table 3.4-1
Special-Status Species[a] Potentially Occurring Within the Vicinity of the Project Area

Common Name	Scientific Name	Status[b] Fed/CA/other	Habitat and Seasonal Distribution in California	Likelihood of Occurrence within the Project Area Vicinity[c]
Central Valley spring-run Chinook salmon	*Oncorhynchus tshawytscha*	FT/ST/none	Sacramento River and its tributaries in California.	**Not Likely.** This species does not occur in Morrison Creek.
Central Valley steelhead	*Oncorhynchus mykiss*	FT/none/none	Sacramento and San Joaquin Rivers and their tributaries.	**Not Likely.** This species does not occur in Morrison Creek.
Winter-run Chinook salmon	*Oncorhynchus tshawytscha*	FE/SE/none	Sacramento and San Joaquin River Basins and their tributaries.	**Not Likely.** This species does not occur in Morrison Creek.
Amphibians				
California red-legged frog	*Rana aurora draytonii*	FT/CSC/none	Requires a permanent water source over 2 ft deep and is found along quiet slow moving streams, ponds, or marsh communities with emergent vegetation.	**Not Likely.** The project area lacks suitable habitat for this species and is outside the range for this species.
California tiger salamander	*Ambystoma californiense*	FT/CSC/none	Ponded water required for breeding. Adults spend summer in small mammal burrows.	**Not Likely.** The project area is outside the known range of this species.
Western spadefoot	*Spea hammondii*	none/CSC/ none	Vernal pools and other seasonal wetlands in open grassland habitat, where the soil is sandy or gravelly.	**Not Likely.** The project area does not support habitat for this species. Also, the potential seasonal wetlands do not have sandy or gravelly soil.
Reptiles				
Giant garter snake	*Thamnophis gigas*	FT/ST/none	Agricultural wetlands and other wetland such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes and their associated uplands.	**Low.** The portion of Morrison Creek in the project area does not provide suitable habitat for this species. There are CNDDB records for this species in Morrison Creek downstream of the project area.
Western pond turtle	*Actinemys* (*Clemmys*) *marmorata*	none/CSC/ none	Occurs in marshes, ponds, streams and rivers. Requires suitable basking sites and emergent vegetation for cover. Also requires adjacent upland areas for nesting and hibernation.	**Not Likely.** The portion of Morrison Creek in the project area does not provide suitable habitat for this species.
Birds				
Bank swallow	*Riparia riparia*	none/ST/none	Requires vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, and the ocean for nesting.	**Not Likely.** The project area does not provide suitable nesting habitat for this species.
Burrowing owl	*Athene cunicularia*	none/CSC/ none	Grasslands, open areas near human habitation; nests in old burrows of ground squirrels or other small mammals.	**Known.** Burrowing owls were observed during the reconnaissance-level field survey at the compressor station site and along Morrison Creek. There are several CNDDB records for this species along Morrison Creek, adjacent to the Depot Park.
Cooper's hawk	*Accipiter cooperii*	none/CSC/ none	Nests in riparian growths of deciduous trees, as in canyon bottoms of river floodplains, within open, interrupted or marginal woodland.	**Low.** The project area does not provide suitable nesting habitat for this species. The project area does provide potential foraging habitat.

Table 3.4-1
Special-Status Species[a] Potentially Occurring Within the Vicinity of the Project Area

Common Name	Scientific Name	Status[b] Fed/CA/other	Habitat and Seasonal Distribution in California	Likelihood of Occurrence within the Project Area Vicinity[c]
Ferruginous hawk	*Buteo regalis*	BCC/CSC/ none	Breeds in the Pacific Northwest and Canada, but winters in a variety of California habitats, (e.g. grasslands, savannahs, and wetlands).	**Not Likely.** The project area does not provide suitable nesting habitat for this species.
Great egret	*Ardea alba*	none/SAL/ none	Forages in fresh and saline emergent wetlands along the margins of estuaries, lakes, slow moving streams, croplands and pastures.	**High.** No great egret rookeries are recorded in the project area. This species is known to forage in Morrison Creek.
Great blue heron	*Ardea herodias*	none/SAL/ none	Forages in fresh and saline emergent wetlands along the margins of estuaries, lakes, slow moving streams, croplands and pastures.	**High.** No great blue heron rookeries are recorded in the project area. This species is known to forage in Morrison Creek.
Purple martin	*Progne subis*	none/CSC/ none	Nests in old woodpecker cavity and in human-made structures.	**Not Likely.** The project area does not provide suitable nesting habitat for this species.
Swainson's hawk	*Buteo swainsoni*	none/ST/none	Grasslands and cultivated lands with scattered trees; nests in large trees or open riparian forest.	**Moderate.** Tress in the project area provide potential nesting habitat for this species. The nonnative grassland in the project area provides marginal foraging habitat for this species.
Tricolor blackbird	*Agelaius tricolor*	none/CSC/ none	Requires open water, cattail or tule marshes, protected nesting habitat (blackberry thickets), and a foraging area with insect prey within a few miles of the colony.	**Not Likely.** The project area does not provide suitable nesting habitat for this species.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	BCC/SE/none	Requires dense, large tracts of riparian woodlands with well developed understories for breeding. Occurs in deciduous trees and shrubs, especially willows which are required for roost and nest sites.	**Not Likely.** The project area does not provide suitable nesting habitat for this species.
White-tailed kite	*Elanus leucurus*	none/CFP/ none	Forages in grasslands and croplands. Nests in large trees adjacent to foraging habitat.	**Moderate.** Trees in the project area provide potential nesting habitat for this species. The nonnative grassland in the project area provides marginal foraging habitat for this species.
Mammals				
American badger	*Taxidea taxus*	none/CSC/ none	Need friable soils and open, uncultivated ground in drier open stages of most shrub, forest, and herbaceous habitats.	**Not Likely.** The project area does not provide suitable habitat for this species.

Table 3.4-1
Special-Status Species[a] Potentially Occurring Within the Vicinity of the Project Area

Common Name	Scientific Name	Status[b] Fed/CA/other	Habitat and Seasonal Distribution in California	Likelihood of Occurrence within the Project Area Vicinity[c]

Source: CDFG Natural Diversity Database (CNDDB), 2006.

Notes:

a. **Special Status Species:** Animals that were included in this table have a ranking of CSC or higher. Special-status plants that were included in this table have a ranking of List 2 or higher.

b. **Status:**

Federal

FE-Federally listed as Endangered
FT-Federally listed as Threatened
FC-Federal Candidate
BCC-Birds of Conservation Concern

State

SE-State listed as Endangered
ST-State listed as Threatened
CFP-California Department of Fish and Game designated "Fully Protected" or "Protected" – Permit required for "take."
CSC-California Department of Fish and Game designated "Species of Special Concern"
SAL-California Department of Fish and Game Special Animals List

Other

1B California Native Plant Society (CNPS) Ranking. Defined as plants that are rare, threatened, or endangered in California and elsewhere.
2 California Native Plant Society (CNPS) Ranking. Defined as plants that are rare, threatened, or endangered in California, but more common elsewhere.

c. Likelihood of occurrence evaluations

A rating of "**Known**" indicates that the species has been observed on the project area.
A rating of "**High**" indicates that the species has not been observed, but sufficient information is available to indicate suitable habitat and conditions are present on-site and the species is expected to occur on the project area.
A rating of "**Moderate**" indicates that it is not known if the species is present, but suitable habitat exists on the project area.
A rating of "**Low**" indicates that species was not found during biological surveys conducted to date on the project area and may not be expected given the species' known regional distribution or the quality of habitats located on the project area.
A rating of "**Not Likely**" indicates that the taxa would not be expected to occur on the project area because the project area does not include the known range or does not support suitable habitat.

for the Sacramento East 7.5 minute USGS topographic quadrangle (see Figure 3.4-1);[3] (2) a query of the California Native Plant Society's (CNPS) Electronic Inventory[4] for Sacramento County; (3) a query of the U.S. Fish and Wildlife Service's (USFWS) Species List website;[5] and (4) previous environmental documents prepared for other projects in the area.[6] Species with a potential to occur in the project area are further discussed. Species without the potential to occur in the project area are omitted from further discussion.

Special-Status Plant Species

Sanford's Arrowhead (Sagittaria sanfordii)

Sanford's arrowhead is a CNPS List 1B species. It is a member of the water-plantain (Alismataceae) family and blooms from May to October. It is a rhizomatous, aquatic perennial herb with linear to three-angled emergent leaf blades with white-petaled flowers. It is found in shallow freshwater marshes, swamps, and slow gradient streams at elevations less than 610 meters. Sanford's arrowhead is threatened by grazing, development, and channel alteration of its habitat.

The reconnaissance-level field survey was conducted outside the blooming period for special-status vernal pool plants and a focused botanical survey was not conducted for the project area. However, Sanford's arrowhead can be identified outside of its blooming period because of its distinctive leaf characteristics. This species was not observed in the project area, but Morrison Creek, in the vicinity of the project area, could not be surveyed due to access limitations.

Morrison Creek, west of the compressor station site within Depot Park, provides limited potential habitat for this species because the creek has a concrete low-flow channel, and earthen levees. The closest CNDDB record is approximately two miles downstream of the project area in Morrison Creek at Florin Road. This record is from 1993 and Morrison Creek at this location is in a cement channel, similar to Morrison Creek in the project area.

Special-Status Wildlife Species

Vernal Pool Fairy Shrimp (Branchinecta lynchi)

Vernal pool fairy shrimp (VPFS) are federally listed as threatened. This species occurs throughout the Central Valley and eastern margin of the Coast Ranges. VPFS occurs in neutral to slightly alkaline vernal pools, seasonal wetlands, small swales, earth slumps, or basalt-flow depression basins with

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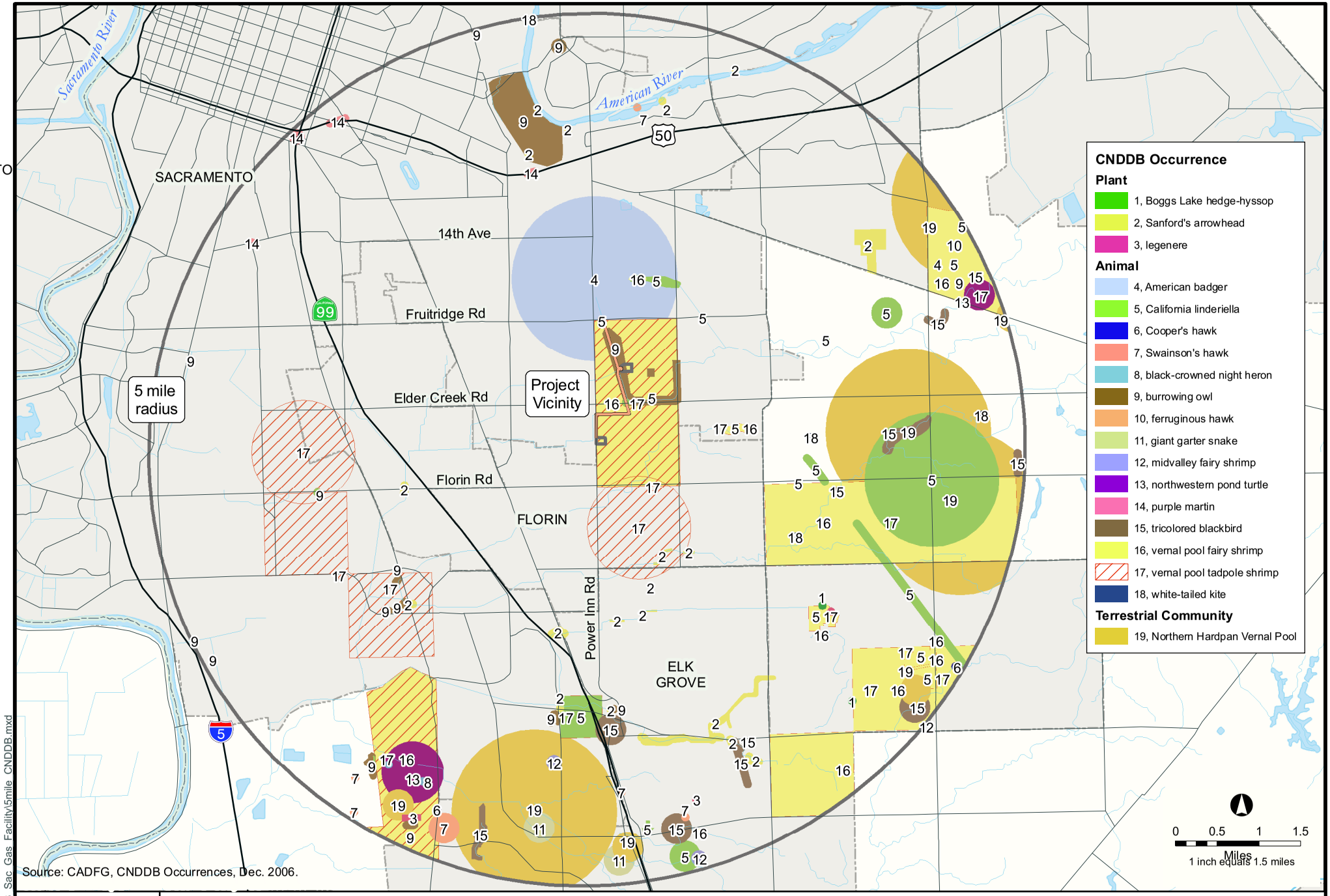
[3] California Department of Fish and Game, California Natural Diversity Database, http://www.dfg.ca.gov/whdab/html/cnddb.html, accessed December 13, 2006.

[4] California Native Plant Society, Electronic Inventory, http://www.cnps.org/inventory, accessed December 13, 2006.

[5] United States Fish and Wildlife, Species list, http://www.fws.gov/pacific/sacramento/es/spp_lists/auto_list_form.cfm, accessed December 1, 2006.

[6] City of Sacramento, Department of Planning and Development, *Sacramento Army Depot Draft Environmental Impact Report*, Prepared by EIP Associates, 1994.



Source: CADFG, CNDDB Occurrences, Dec. 2006.

N:\GISProjects\D41288 Sac Gas Facility\5mile CNDDB.mxd

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FIGURE **3.4-1**

Sensitive Species Occurrences

D41288.00

Sacramento Natural Gas Storage Project PEA

grassy or, occasionally, muddy bottom, in unplowed grassland.[7] This species has an abbreviated life cycle, hatching when rains first inundate the pool, emerging from cysts that have lain dormant in the soil since the pool last dried.

VPFS have been recorded along the pipeline alignments from the wellhead site to the compressor station, and from the compressor station to the PG&E and SMUD pipelines at the Fruitridge Road and UPRR crossing.

Vernal Pool Tadpole Shrimp (Lepidurus packardi)

Vernal pool tadpole shrimp (VPTS) are federally listed as endangered. VPTS are small to moderate sized crustaceans adapted to survive in deeper or longer lasting vernal pools and other seasonal wetlands. Like the fairy shrimp, they grow over a period of a few weeks, breed, and produce eggs that the females carry in an egg sac until they mature. As the vernal pool dries, the adults die, and the eggs become embedded in the mud at the bottom of the pool. These "resting" eggs are protected by thick outer coverings that resist cold, heat, and desiccation during the summer months.

VPTS have been recorded along the pipeline alignments from the wellhead site to the compressor station, and from the compressor station to the PG&E and SMUD pipeline at Fruitridge Road. VPTS and California linderiella have also been observed at the Fruitridge Road and UPRR crossing.

California Linderiella (Linderiella occidentalis)

California linderiella is not considered a state or federally listed species or species of concern, but is included on the CDFG Special Animals list. This small fairy shrimp occurs in vernal pools and other seasonal wetlands. Their life history is very similar to that of the vernal pool fairy shrimp, but this species is more widespread. California linderiella has been recorded at multiple locations in the project area as described above for VPFS and VPTS.

Giant Garter Snake (Thamnophis gigas)

The giant garter snake (GGS) is a federal and state threatened species. This highly aquatic garter snake prefers freshwater marshes and low gradient streams, but has adapted to drainage canals and irrigation ditches. Essential habitat components consist of 1) adequate water during the snake's active season; 2) emergent, herbaceous wetland vegetation; 3) upland habitat for basking, cover, and retreat site; and 4) higher elevation uplands for cover and refuge from flood waters. Threats to GGS include loss and degradation of habitat. Morrison Creek in the project area lacks emergent herbaceous wetland vegetation and the water level is relatively shallow.

There is a recorded occurrence of GGS approximately five miles south of the project area, near the Stone Lake and Beach Lake preserves, but this is an unverified record. There are no records for GGS east of Highway 99 along Morrison Creek.

[7] Eriksen, Clyde and Denton Belk, *Fairy Shrimps of California's Puddles, Pools, and Playas*, 1999.

Burrowing Owl (Athene cunicularia)

The burrowing owl is a California species of special concern. Burrowing owls are year-long residents in generally flat, open dry grasslands, pastures, deserts, and shrub lands, and in grass, forbs and open shrub stages of pinyon-juniper and ponderosa pine habitats. They use communal ground squirrel and other small mammal burrow colonies for nesting and cover, as well as artificial structures such as roadside embankments, levees, and berms. They prefer open, dry, nearly level grassland or prairie habitat and can exhibit high site fidelity, often reusing burrows year after year. Suitable burrowing owl habitat can be verified at a site by observation of a pair of burrowing owls during their breeding season (March to August) or, alternatively, by the presence of molted feathers, cast pellets, prey remains (rodents, small reptiles, and large insects), eggshell fragments, or excrement (guano or must), near or at a burrow.

The upper portions of the levees along Morrison Creek have evidence of ground squirrel (*Spermophilus beecheyi*) activity. Burrowing owls are often associated with ground squirrels and their dens. There is a CNDDB record for burrowing owl in the vicinity of the B.T. Collins USAR Center, just southeast of the junction of Fruitridge Road and Power Inn Road. The record is mapped along Morrison Creek, which occurs in the west of the compressor station at the Depot Park site. In 2003, 11 active burrows with adults and juveniles were observed. A burrowing owl was observed on November 29, 2006 approximately 50 feet east of Morrison Creek and in February 2007, along the Morrison Creek bank northeast of the Elder Creek Road and UPRR intersection.

Great Egret (Ardea alba)

Great egret rookeries are included on the CDFG Special Animals list. This bird is a common yearlong resident throughout California, except in high mountain and desert areas of the state. They feed and rest in fresh and saline emergent wetlands along the margins of estuaries, lakes, and slow moving streams, on mudflats and salt ponds and in irrigated croplands and pastures. In northern California, they are fairly common in coastal lowlands, inland valleys and the Central Valley. Egrets nest communally from March to July in protected rookeries. Suitable foraging habitat occurs in portions of Morrison Creek.

There are no CNDDB records for great egret rookeries in the project area. Many occurrences of this species go unreported because they are commonly found in the Sacramento Region. Great egrets have been observed foraging in Morrison Creek while conducting biological surveys for unrelated projects in the vicinity of the project area.

Great Blue Heron (Ardea herodias)

Great blue heron rookeries are included on the CDFG Special Animals list. It is a fairly common year-round resident throughout most of California in shallow estuaries and fresh and saline emergent wetlands and less commonly along riverine and rocky marine shores, in croplands, pastures, and in mountains above foothills. Herons nest communally from February to July in protected rookeries. Great blue heron are frequently encountered throughout the region wherever suitable foraging habitat is

available, even in highly urbanized open landscapes. Suitable foraging habitat occurs in portions of Morrison Creek.

There are no CNDDB records for great blue heron rookeries in the project area. Many occurrences of this species go unreported because they are commonly found in the Sacramento Region. Great blue herons have been observed foraging in Morrison Creek while conducting biological surveys for unrelated projects in the vicinity of the project area.

Swainson's Hawk (Buteo swainsoni)

Swainson's hawk is state listed as threatened. They are found during the breeding season throughout the Central Valley where suitable nesting and foraging habitat is available. Swainson's hawks often nest within or peripheral to riparian areas, adjacent to suitable foraging habitat as well as in single or stands of trees in agricultural fields. They are open country birds that forage in large, open grasslands and agricultural fields, especially after the fields have been disked or harvested. Swainson's hawks can forage as much as ten miles from the nest. Ruderal habitats along the project corridor provide suitable foraging habitat. The breeding season for Swainson's hawk is between March to August, with peak activity from May through July.

There are several CNDDB records for Swainson's hawk along the Sacramento River, the closest of which is approximately 6.5 miles west of the project area. The mature cottonwood tree located adjacent to the wellhead site and other trees along the pipeline alignments could provide suitable nesting habitat for Swainson's hawk.

White-tailed Kite (Elanus leucurus)

The white-tailed kite (also known as black-shouldered kite) is a state "fully protected" raptor. It breeds between February and October and feeds on rodents, small reptiles, and large insects in fresh emergent wetlands, annual grasslands, pastures, and ruderal vegetation. Unlike other raptors, kites often roost and occasionally nest communally; therefore, disturbance of a relatively small roost or nesting area could affect a large number of birds.

White-tailed kites have been documented along the American River, approximately 3.4 miles north of the project area, and have been observed foraging at the compressor station site. The mature cottonwood tree located adjacent to the wellhead site and other trees along the pipeline alignments could provide suitable nesting habitat for white-tailed kites.

Cooper's Hawk (Accipiter cooperii)

Cooper's hawk is a CDFG Species of Concern. A breeding resident throughout most of the wooded portions of the state, they breed in southern Sierra Nevada foothills, New York Mountains, Owens Valley, and other local areas in southern California. Cooper's hawk has declined throughout California as a breeding bird, which was once considered a common nester throughout California. Habitat destruction, mainly in lowland riparian areas, is probably the main threat, although direct or indirect human disturbance at nest sites can be equally detrimental. Illegal take of nestlings is also a

potential threat, especially in populated areas. Suitable nesting habitat for this hawk does not occur in the project area. The non-native annual grassland provides marginal foraging habitat for this species.

The closest CNDDB occurrence of this species is approximately 7.5 miles northwest of the project area.

Other Birds of Prey and Migratory Birds

Several non-special-status migratory birds could nest in and adjacent to the project area, based on the presence of suitable nesting habitat. In general, the breeding season for migratory birds and nesting birds of prey is from March 1 to August 15. The occupied nests and eggs of these birds are protected by federal and state laws, including the California Fish and Game Code Sections 3505 and 3505.5.

3.4.3 Regulatory Setting

Federal

Endangered Species Act (FESA)

The FESA of 1973 provides legal protection for plant and animal species in danger of extinction, and requires definitions of critical habitat and development of recovery plans for specific species.

Section 3 of the FESA defines an endangered species as "any species, including subspecies, in danger of extinction throughout all or a significant portion of its range"; and a threatened species as any species "likely to become endangered within the foreseeable future throughout all or a significant portion of its range." "Federally listed" or "listed" indicates that a species has been designated as endangered or threatened through publication of a final rule in the Federal Register. Endangered and threatened species listed under Section 4 of the FESA receive the full protection of the FESA. Proposed endangered and threatened species are those for which a proposed regulation, but not a final rule, has been published in the Federal Register. Proposed species are granted limited protection, while candidate species are afforded no protection under the FESA.

Section 9 of the FESA prohibits the take of any member of an endangered species. Take is defined by the FESA as "…to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Projects that would result in adverse effects on federally listed threatened or endangered species are required to consult with the USFWS. The objective of consultation is to determine whether the project would adversely affect a protected species or its designated critical habitat, and to identify mitigation measures to avoid or reduce impacts to the species. This consultation can be pursuant to either Sections 7 or 10 of the FESA. Section 7 consultation is required when a federal agency is involved in project approval, funding, or permitting. If no federal agency is involved, incidental taking authorization may be obtained pursuant to Section 10.

Section 7 of the FESA requires federal agencies to make a finding on the potential to jeopardize the continued existence of any listed species potentially impacted by all federal actions, including the

approval of a public or private action, such as the issuance of a permit pursuant to Section 10 of the Rivers and Harbors Act and Section 404 of the CWA.

Section 10(a) of the FESA permits the incidental take of listed species if the take is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

USFWS identifies birds of conservation concern (BCC) to identify the migratory and non-migratory bird species, beyond those already designated as federally threatened or endangered, that represent conservation priority species. BCC designated species promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities.

Migratory Bird Treaty Act (MBTA)

The MBTA regulates or prohibits the taking, killing, possession of, or harm of migratory bird species listed in Title 50 Code of Federal Regulations (CFR) Section 10.13. It is the implementation statute for several international treaties for the conservation and management of bird species that migrate through more than one country, and is enforced in the United States by the USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50 CFR 20.

Federal Clean Water Act (CWA), Section 404

Under Section 404 of the U.S. CWA, the U.S. Army Corps of Engineers (Corps) has authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. Their jurisdiction over such features is limited to navigable waters, and wetlands or other waters that have a significant nexus to navigable waters. The Corps implements the federal policy embodied in Executive Order 11990, which is intended to preserve wetland function and values. In achieving the goals of the CWA, the Corps seeks to avoid adverse impacts and to offset unavoidable adverse impacts on existing aquatic resources. Any fill or adverse modification of wetlands could require a permit from the Corps prior to the start of work. Typically, permits issued by the Corps condition a project with mitigation to offset unavoidable impacts on wetlands and other waters of the United States in a manner that achieves the goal of no net loss of wetland acres or values.

Federal Clean Water Act, Section 401

The CWA requires under Section 401 that an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the State Water Resources Control Board (SWRCB) to the nine regional boards. The Central Valley Regional Water Quality Control Board (CVRWQCB) is the appointed authorities for the proposed project. A request for certification or waiver is submitted to the regional board at the same time that an application is filed with the Corps. The regional board has 60 days to review the

application and act on it. Because no Corps permit is valid under the CWA unless "certified" by the state, these boards may effectively veto or add conditions to any Corps permit.

State Regulations

California Wetlands Conservation Policy

The California Wetlands Conservation Policy (1993 - Senate Concurrent Resolution No. 28) created an interagency task force headed by the State Resources Agency and California EPA to: (1) ensure no overall net loss, and a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values; (2) reduce procedural complexity in the administration of state and federal wetlands conservation programs; and (3) encourage partnerships that make restoration, landowner incentives, and cooperative planning the primary focus of wetlands conservation.

This resolution directed the CDFG to prepare and submit to the legislature a plan identifying means to protect existing wetlands and restore former wetlands. This includes identification of sufficient potential wetlands sites to increase the amount of wetlands in California by 50 percent by the year 2000, and a program for the public and private acquisition of such lands. While the resolution does not have the force and effect of law, CDFG and other California state agencies frequently point to it as an expression of state policy.

Porter-Cologne Act

Pursuant to the Porter-Cologne Act, each of California's nine regional boards must prepare and periodically update basin plans that set forth water quality standards for surface and groundwater, as well as actions to control point and non-point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to achieve wetlands protection through enforcement of water quality standards.

California Endangered Species Act (CESA)

The CDFG administers a number of laws and programs designed to protect fish and wildlife resources. Principal among these is the California Endangered Species Act of 1984 (Fish and Game Code Section 2050), which regulates the listing and take of state-endangered and state-threatened species. CESA declares that deserving species will be given protection by the state because they are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the state. CESA established that it is state policy to conserve, protect, restore, and enhance endangered species and their habitats.

Species listed under CESA cannot be taken without authorization, which is conditioned on adequate mitigation and compensation. The definition of take under CESA is the same as described above for the FESA. However, based on findings of the California Attorney General's Office, take under CESA does not prohibit indirect harm by way of habitat modification. Typically, the CDFG implements endangered species protection and take determinations by entering into management agreements (Section 2081 Management Agreements) with project applicants.

California Environmental Quality Act (CEQA)

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides that a species not federally- or state-listed may still be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after definitions in the FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(b) requires public agencies to undertake reviews to determine if projects would result in significant effects on species not listed by either the USFWS or CDFG (i.e., candidate species). Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

California Fish and Game Code Sections 3503, 3503.5, and 3513

Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Fish and Game Code Section 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act (MBTA). These regulations could require that elements of the proposed project (particularly vegetation removal or construction near nest trees) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFG and/or USFWS.

California Fish and Game Code Sections 3511, 4700, 5050, and 5515

Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code designate certain species as "fully protected." Fully protected species, or parts thereof, may not be taken or possessed at any time. The California Fish and Game Commission may authorize the collecting of such species for necessary scientific research. Legally imported and fully protected species or parts thereof may be possessed under a permit issued by CDFG.

California Fish and Game Code Sections 1600-1616: Streambed Alteration Agreement (SAA)

Under sections 1600-1616 of the California Fish and Game Code, the CDFG prohibits activities that would "substantially divert or obstruct the natural flow of, or substantially change or use any material of the bed, channel, or bank of any river, stream and lake, or deposit or dispose of debris, waste or other material containing crumbled, flaked or ground pavement where it may pass into any river, stream or lake" without consulting with CDFG. Notification is required prior to any such activities and CDFG will issue a SAA with any necessary mitigation to ensure protection of the state's fish and wildlife resources.

Native Plant Protection Act

The California Native Plant Protection Act (California Fish and Game Code Sections 1900-1913) prohibits the taking, possession, or sale within the state of any rare, threatened, or endangered plants as defined by CDFG. Under this act, landowners with rare plants on their property must provide CDFG ten days notice to salvage (remove for transplant) the plants before destruction occurs. Project impacts to these species would be considered "significant" if the species are known to occur within the area of disturbance associated with construction of the project, or "potentially significant" if the species has a high potential to occur within the area of disturbance.

California Native Plant Society (CNPS)

CNPS maintains an inventory of special-status plant species. CNPS maintains four species lists of varying rarity. Vascular plants listed as rare or endangered by the CNPS,[8] but which have no designated status or protection under federal or state-endangered species legislation, are defined as follows:

List 1A	Plants Believed Extinct.
List 1B	Plants Rare, Threatened, or Endangered in California and elsewhere.
List 2	Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.
List 3	Plants About Which More Information is Needed - A Review List.
List 4	Plants of Limited Distribution - A Watch List.

Threat Code Extension

.1	Species seriously endangered in California
.2	Species fairly endangered in California
.3	Species not very endangered in California

In general, plants appearing on CNPS List 1 or 2 are considered to meet CEQA Guidelines section 15380 criteria and adverse effects to these species are considered significant in this report.

Local Regulations

Sacramento County General Plan

The following objectives and policies related to land use from the *Sacramento County General Plan* were considered in this analysis:

Open Space Policy (Open Space Element, Section III)

OS-1 *Permanently protect, as open space, areas of natural resource value, including wetlands preserves, riparian corridors, woodlands, and floodplains.*

[8] California Native Plant Society, California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (sixth edition), Sacramento, CA., 2001.

PF-73. Minimize the potential adverse impacts of energy production and distribution facilities to environmentally sensitive areas by, when possible, avoiding siting in the following areas:

- Wetlands
- Permanent marshes
- Riparian habitat
- Vernal pools
- Oak woodlands
- Historic and/or archaeological sites and/or districts

City of Sacramento General Plan

The City of Sacramento General Plan's conservation strategy focuses on habitat conservation, minimization of impacts on sensitive biological resources, and the preservation of plant and animal diversity as the most effective way to protect individual special status species.

The following City of Sacramento General Plan policies will guide the conservation and protection of biological resources in regards to the proposed project:

Preservation of Natural Resources

Goal A

Policy 2 *Continue to implement the Heritage Tree Program.*

Goal B

Policy 1 *Protect the wooded areas along the waterways and drainage canals insofar as possible.*

Goal C

Policy 1 *Retain the habitat areas where known endangered wildlife exists to the extent feasible.*

Goal E

Policy 1 *Explore ways to reverse degradation and pollution and enhance the natural beauty and wildlife habitats of creeks and drainage canals.*

3.4.4 Impact Assessment Methods

Biological Resources in the Project Area

Biological resources in the project area include seasonal wetlands and non-native annual grasslands. Seasonal wetlands provide potential habitat for vernal pool species and non-native annual grasslands provide potential foraging habitat for birds of prey and other migratory birds.

Background Research

Studies included conducting field surveys for biological resources; obtaining and analyzing data from state and federal agencies; and reviewing maps, aerial photographs, and published and unpublished literature. The purpose of the biological evaluation was to determine if any state or federal-listed

special-status plant or wildlife species or their habitat occurs within or adjacent to the project area footprint.

Significance Criteria

Criteria for determining the significance of impacts on biological resources affected by the proposed project were developed based on the questions from the environmental checklist from Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☑	☐	☐
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☑	☐	☐
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

3.4.5 Impact Assessment Results

Methodology and Assumptions

This biological resources impact assessment is based on reconnaissance-level field surveys conducted by EIP/PBSJ in November 2006 and a description of existing habitats, plants, and wildlife found within the proposed project area. Biological resources potentially impacted by the proposed project have been identified and recommendations for mitigation, if necessary to preserve these resources, are provided. For this impact analysis, it is assumed that all habitat would be lost within the wellhead site and compressor station site, but would only temporarily be impacted along the pipeline alignments.

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, BIO refers to Biological Resources.

BIO-1. *The proposed project could result in potential impacts on Sanford's arrowhead. This impact would be less than significant with implementation of Mitigation Measure MM BIO-1.*

Sanford's arrowhead has a low potential to occur in Morrison Creek. The pipeline would be installed by using horizontal directional drilling below Morrison Creek which would reduce the likelihood of any direct impact. SNGS will prepare a bore plan and frac-out contingency plan that would both reduce the potential for a frac-out to occur and minimize any negative impacts should a frac-out occur. Regardless, impacts to Sanford's arrowhead could occur during the containment and cleanup of a frac-out. Implementation of Mitigation Measure MM BIO-1 would further reduce this impact to less than significant by fencing off the areas where Sanford's arrowhead is growing.

BIO-2. *The proposed project's potential impacts on vernal pool crustaceans and their habitat would be less than significant with implementation of Mitigation Measure MM BIO-2.*

Potential seasonal wetlands throughout the project area provide suitable habitat for several special-status vernal pool crustaceans, including vernal pool fairy shrimp, vernal pool tadpole shrimp, and California linderiella. CNDDB contains several records of these species in and adjacent to the project area. Based on a preliminary review of aerial photography and site visits, it is assumed that less than half an acre of suitable habitat is present in the project area.

Trenching for pipeline installation, construction of the Depot Park compressor station, equipment staging, soil stockpiling, and other construction-related activity could adversely affect any California linderiella, vernal pool fairy shrimp, and vernal pool tadpole shrimp associated with wetland habitat directly or indirectly impacted by these activities. Loss or modification of habitat for these vernal pool species would be considered a potentially significant impact that would be reduced to a less-than-significant impact with implementation of Mitigation Measure MM BIO-2. Implementation of this mitigation measure would reduce the impact to less than significant by identifying and avoiding vernal pool habitat in the project area, where possible, and mitigating for the loss of habitat at an approved preservation bank, in consultation with the USFWS.

BIO-3. *The proposed project would not adversely affect giant garter snake and their dispersal habitat. No impact would occur.*

It is unlikely that giant garter snakes (GGS) could use open water habitat in the concrete-lined portion of Morrison Creek in the project area. Morrison Creek in the project area

lacks emergent herbaceous wetland vegetation and the water level is relatively shallow. Because GGS is unlikely to occur in the project area, no impact would occur as a result of the proposed project.

BIO-4. Construction of the proposed project could adversely affect breeding or wintering burrowing owls. This impact would be less than significant with implementation of Mitigation Measure MM BIO-3.

Several burrowing owls may reside along Morrison Creek in the project area, and a burrowing owl was observed during surveys in November 2006 and February 2007. Burrowing owls are known to reuse nesting sites year after year.

Construction of the project could potentially affect burrowing owls during the nesting or wintering season. Construction directly through nesting or wintering burrows could adversely impact burrowing owls and construction activities in proximity to active nest burrows could result in nest abandonment. This could be considered a potentially significant impact. Mitigation Measure MM BIO-3 would reduce this impact to a less than significant impact by identifying any owls in the project area, avoiding active burrows where feasible, and avoiding the violation of California Fish and Game Codes Section 3503 and Section 3503.5 and the MBTA.

BIO-5. The proposed project could result in the loss of foraging habitat for Swainson's hawk. This impact would be less than significant with implementation of Mitigation Measure MM BIO-4.

There are many special status birds with the potential to occur in the vicinity of the project area. These include: Cooper's hawk, great egret, great blue heron, burrowing owl, Swainson's hawk, and white-tailed kite. The project area contains suitable foraging and/or nesting habitat for most of these birds, and development of the wellhead site and compressor station would result in the permanent loss of nine non-contiguous acres of marginal foraging habitat in the City of Sacramento. Metering and gas conditioning equipment would be installed at the Morrison Creek Cross-Tie site, an existing fenced natural gas facility that has a gravel substrate, located in the County of Sacramento, and thus not impact potential foraging habitat.

CDFG considers annual grasslands, pasture lands, alfalfa and other hay crops, and combinations of hay, grain, and row crops to be suitable foraging habitat, for Swainson's hawk, a state-listed threatened species. Additionally they recognize that small disjunct parcels of habitat seldom provide foraging habitat needed to sustain the reproductive effort of a Swainson's hawk pair, and do not recommend mitigation pursuant to CEQA nor a Management Authorization for infill projects (within an already urbanized area). Swainson's hawks are known to forage up to 10 miles from their nest sites, and nests have been recorded within 5 miles of the project area. CDFG guidelines recommend a mitigation ratio of 0.75 acres for each acre lost within five miles of an active nest. Loss of

suitable Swainson's hawk foraging habitat would be considered a potentially significant impact. Implementation of Mitigation Measure MM BIO-4 would reduce this impact to a less-than-significant level by consulting with CDFG to determine if the project area does support suitable foraging habitat and if so, replacing it in accordance with CDFG guidelines.

BIO-6. Construction of the proposed project could result in the loss of nesting habitat for Swainson's hawk, birds of prey, and migratory birds. This impact would be less than significant with implementation of Mitigation Measure MM BIO-5.

The mature cottonwood tree located adjacent to the wellhead site and other trees along the pipeline alignments could provide nesting habitat for raptors or other migratory birds. Migratory birds and their active nests are protected under the MBTA, and nesting raptors are further protected under Section 3503.5 of the Fish and Game Code of California. Additional protection is afforded to the Swainson's hawk, a state-listed threatened species, under the CESA. While tree removal is not planned, construction noise and other activities can disturb nesting birds and/or nestlings. Disruption of nesting birds, resulting in the abandonment of active nests, or the loss of active nests through structure removal would be a significant impact, but could be reduced to a less-than-significant level with implementation of Mitigation Measure MM BIO-5 which would identify if any Swainson's hawk or other raptors are nesting in or adjacent to the project area, and establish buffers around the nest tree.

BIO-7. Construction and operation of the proposed project would not adversely affect riparian habitat or other sensitive natural community. No impact would occur.

Riparian habitat was not identified in the project area. Impacts to wetland habitat, which can be considered a sensitive natural community, are addressed under Impact BIO-2 and BIO-8. Therefore, no additional mitigation is required.

BIO-8. Construction of the proposed project could result in the loss of wetlands and waters of the U.S. This impact would be less than significant with implementation of Mitigation Measure MM BIO-6.

Potential wetlands and waters of the U.S. occur near the wellhead site, along the UPRR tracks, and along the southern boundary of the compressor station site. Construction of the proposed project has the potential to affect potential wetlands and waters of the U.S. Project related activities that would encroach within the ordinary high water mark of Morrison Creek or within the boundaries of jurisdictional wetlands would require permitting under CWA sections 401 and 404, and a Streambed Alteration Agreement from the CDFG. Compliance with these permit requirements and implementation of Mitigation Measure MM BIO-6 would reduce this potentially significant impact to a less-than-significant level by identifying wetlands and waters of the U.S. in the project area and ensuring no net loss of wetlands.

BIO-9. Construction and operation of the proposed project would not substantially interfere with migratory fish or wildlife corridors. No impact would occur.

The project area is generally surrounded by industrial, commercial, and residential development and the wellhead and compressor station sites would not serve as a terrestrial wildlife corridor. Operation of the proposed project would not interfere with any migratory bird route. Morrison Creek does not provide suitable habitat for migratory fish, but may be used as a migratory corridor for other species. The pipeline would be installed by using horizontal directional drilling below Morrison Creek which would reduce the likelihood of any direct impact during construction. SNGS will prepare a bore plan and frac-out contingency plan that would both reduce the potential for a frac-out to occur and minimize any negative impacts should a frac-out occur. Any impacts to a wildlife corridor during a frac-out would be temporary. Therefore, the project would not substantially interfere with migratory fish and wildlife corridors, and no additional mitigation is required.

BIO-10. The proposed project would not result in potential effects to local policies that protect trees. No impact would occur.

There are no trees in the project area that are protected by the City of Sacramento Tree Protection Ordinance or County of Sacramento Heritage Tree Program. Thus, there would be no impact to protected trees, and no mitigation is required.

BIO-11. The proposed project would not conflict with an applicable habitat conservation plan or natural community conservation plan. No impact would occur.

The proposed South Sacramento Habitat Conservation Plan (SSHCP) provides a regional approach to addressing issues related to urban development, habitat conservation, and agricultural protection in southeastern Sacramento County. The SSHCP is currently being developed and is designed to consolidate environmental efforts to protect and enhance wetlands and upland habitats to provide ecologically viable conservation areas. The SSHCP would be an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which would allow land owners to engage in the "incidental take" of listed species (i.e., to destroy or degrade habitat in connection with economic activity) in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and would be identified prior to the adoption of the SSHCP. The geographic scope of the SSHCP includes the area bounded by Highway 50 to the north; the county line to the east and south, excluding the Sacramento Delta; Interstate 5 to the west; and the Sacramento City limits to the northwest. Adoption of the SSHCP is expected by early 2008.

The proposed project would occur in the Urban Service Boundary of the County. Most of the SSHCP conservation would likely occur outside of the Urban Service Boundary, due to its developed nature. With the exception of the Morrison Creek Cross-Tie metering and

gas conditioning equipment, the project would be located outside of the Habitat Conservation Plan project boundary. The equipment at the Morrison Creek Cross-Tie would be installed at an existing natural gas station and would not result in the loss of land that could potentially be included in the conservation efforts of the SSHCP. Therefore, development of the proposed project would not negatively affect the conservation efforts of the SSHCP. No impact would occur and no mitigation is required.

3.4.6 Mitigation Measures

MM BIO-1. Conduct Preconstruction Survey for Sanford's Arrowhead and Fence Any Populations Located during the Survey.

a) SNGS shall retain a qualified botanist to conduct focused surveys in Morrison Creek from Elder Creek Road to 250 feet upstream and downstream from where the HDD would cross Morrison Creek, during the blooming period for Sanford's arrowhead (May through October). If Sanford's arrowhead is not located during the survey, no additional mitigation would be required.

b) If Sanford's arrowhead is located during the survey, it will need to be protected from construction activities. Prior to any pipeline construction activities, a protective fence shall be installed a minimum of one foot (or greater, if feasible) from the edge of all Sanford's arrowhead populations located during the survey. Prior to initiation of construction activities, a qualified biologist shall inspect the protective fencing to ensure that all Sanford arrowhead populations have been appropriately protected. No encroachment into fenced areas shall be permitted during construction and the fence shall remain in place until pipeline construction activities have been completed.

MM BIO-2. Mitigate for Potential Vernal Pool Crustacean Sensitive Habitat.

a) As a condition of project approval, SNGS, in consultation with USFWS, shall either (1) conduct a protocol-level survey for the federally listed vernal pool crustaceans or (2) assume presence of the federally-listed vernal pool crustaceans in all directly or indirectly affected wetlands that are suitable habitat. Surveys shall be conducted by qualified biologists in accordance with the most current USFWS guidelines or protocols to determine the time of year and survey methodology (survey timing for these species is dependent on yearly rainfall patterns, seasonal occurrences and breeding season, and is determined on a case-by-case basis).

b) Compensation

The following or equally effective compensation measures shall be implemented as determined in consultation with the USFWS.

For every acre of habitat directly or indirectly affected, at least two vernal pool preservation credits shall be dedicated within a USFWS-approved ecosystem preservation bank, or, based on USFWS evaluation of site-specific conservation values, three acres of vernal pool habitat may be preserved on the project area.

c) Avoidance

If habitat is avoided on site, a USFWS-approved biologist (monitor) shall inspect any construction-related activities in or near suitable habitat at the proposed project area to ensure that no unpermitted take of listed species or destruction of their habitat occurs. The biologist shall have the authority to stop all activities that the biologist deems may result in such a take or destruction until appropriate corrective measures have been completed. The biologist also shall immediately report any unauthorized impacts to the USFWS.

MM BIO-3. Conduct Preconstruction Surveys for Active Burrowing Owl Burrows and Implement the DFG Guidelines for Burrowing Owl Mitigation, if Burrows are detected in the Project Area.

a) Pre-construction surveys for burrowing owls shall be conducted by an experienced biologist within 30-days prior to the start of work activities where land construction is planned in known or suitable habitat areas. If construction activities are delayed for more than 30 days after the preconstruction surveys, then a new preconstruction survey shall be required. All surveys shall be conducted in accordance with the CDFG/California Burrowing Owl Consortium survey protocols.[9]

b) If burrowing owls are observed within the project area during the breeding season (February 1 to August 31), a 250-foot buffer zone shall be established around the occupied burrow(s) and construction delayed in that buffer zone until all young have fledged and are able to feed on their own, as determined by monitoring surveys conducted by a qualified biologist.

[9] California Burrowing Owl Consortium, "Burrowing Owl Survey Protocol and Mitigation Guidelines", *Raptor Research Report No. 9, The Burrowing Owl, Its Biology and Management, including the Proceedings of the First International Burrowing Owl Symposium*, 1997.

c) If burrowing owls are observed within the project area or areas adjacent to it during the non-breeding season (September to January), a 160-foot buffer zone shall be established around the occupied burrow(s) and construction delayed in that buffer zone until the owls have vacated the occupied burrow, as determined by monitoring conducted by a qualified biologist.

d) Where maintenance of a minimum 250-foot buffer zone around active burrowing owls nests (160 feet when owls are not nesting) is not practical, SNGS shall retain an experienced burrowing owl biologist to recommend project/site–specific construction techniques to avoid violating California Fish and Game Codes Section 3503 and Section 3503.5 and the MBTA, which could include the following or equally effective measures:

   i) Modification of construction procedures so critical pipeline construction tasks could be completed in as short a time as possible; and

   ii) Close monitoring of the owls' behavior before and during construction so any significant changes in the owls' behavior would be apparent. Construction would be stopped if, based on the biologists' assessment, the owls appear sufficiently agitated to abandon the nest.

e) If the proposed project would result in direct impacts to active burrows (i.e. trenching), passive relocation/exclusion shall be allowed during the non-breeding season (September to January). CDFG shall be consulted on current passive relocation methodology before relocation of owls is attempted. Breeding burrowing owls and their young shall not be relocated. Following exclusion, the burrows can be destroyed to prevent the birds from returning to the site.

f) Following the passive exclusion, burrows within 250 feet of the project area shall be seasonally blocked (anchored plywood or other similar mechanism) to prevent burrowing owls from establishing new burrows in the project area. Monitoring shall occur from prior to the nesting season through construction of the proposed project, as determined in consultation with the CDFG, to ensure that owls do not return to the project area during the construction season. The burrows will be unblocked prior to the beginning of the next breeding season.

MM BIO-4. Mitigate for Loss of Swainson's Hawk Foraging Habitat.

a) SNGS shall consult with CDFG to determine if the project area represents important suitable foraging habitat for Swainson's hawk. If CDFG concurs that the project area is not important habitat by virtue of its small size, disturbed nature and surrounded industrial uses, no additional mitigation would be required.

b) If CDFG determines that the project area is important Swainson's hawk foraging habitat then SNGS shall mitigate for its loss. SNGS shall ensure that impacts are mitigated at a 0.75:1 ratio. Preservation may occur through either:

i) Purchase of mitigation credits in an approved CDFG mitigation bank that is within the service area of the project area; or

ii) Payment of a mitigation fee to a habitat development and management company, through a negotiated agreement between said company, SNGS, and CDFG. The lands must be within 10 miles of the project area (consistent with CDFG guidelines); or

iii) Purchase of conservation easements or fee title in Sacramento County. This mitigation must occur within ten miles of the project area, unless otherwise approved by CDFG (consistent with CDFG guidelines).

MM BIO-5. Avoid Disturbance of Active Nests of Swainson's Hawk, White-tailed Kite, other Birds of Prey, and Migratory Birds.

a) SNGS shall conduct a pre-construction breeding-season survey (approximately February 1 through August 30) within one-half mile of the project area. The survey shall be conducted by a qualified biologist to determine if any birds, including raptors are nesting on or directly adjacent to the project area. If the above survey does not identify any nesting birds of prey and migratory bird species on the project area, no additional mitigation would be required.

b) Should any active bird nests be located on the project area, the following mitigation measures shall be implemented:

i) SNGS shall avoid all birds nest sites located in the project area during the breeding season (approximately February 1 through August 30) while the nest is occupied with adults and/or young. This avoidance could consist of delaying construction to avoid the nesting season. Any occupied nest shall be monitored by a qualified biologist to determine when the nest is no longer in

use. If construction cannot be delayed, avoidance shall include the establishment of a non-disturbance buffer zone around the nest site. The size of the buffer zone will be determined in consultation with the CDFG and USFWS. The buffer zone shall be delineated by highly visible temporary construction fencing.

ii) Every effort should be made to preserve Swainson's hawk nest trees through project design or avoidance measures. However, if removal of the nest tree during the nesting season is unavoidable, a Section 2081 permit would be required from the CDFG. Mitigation for the loss of active Swainson's hawk nest trees at any time of year would be determined in consultation with the CDFG and could include the replacement of trees at a CDFG approved mitigation site and ratio.

MM BIO-6. Conduct Preliminary Jurisdictional Delineation for Wetlands and Waters of the U.S. and Mitigate for Potential Effects.

a) A preliminary jurisdictional wetland delineation shall be conducted to determine the location and extent of Corps regulated wetlands and waters of the U.S. in the project area.

b) SNGS shall prepare a Wetlands Mitigation Plan that ensures no net loss of wetlands, consistent with federal policy. The Wetlands Mitigation Plan shall be based on the level of project impacts to wetlands identified in the wetland delineation report. The plan shall include the following or equally effective components:

i) Horizontal direction drilling technique shall be used to install the pipeline under Morrison Creek.

ii) Construction will occur during the dry season to the extent feasible.

iii) Prior to any construction activities on the site, a protective fence (silt fence or equivalent) shall be installed a minimum of one foot (or greater, if feasible) from the edge of all wetland habitat to be avoided in the immediate vicinity of the proposed construction areas. Prior to initiation of construction activities, a qualified biologist shall inspect the protective fencing to ensure that all wetland features have been appropriately protected. No encroachment into fenced areas shall be permitted during construction and the fence shall remain in place until construction activities in the immediate vicinity of the wetland habitat have been completed.

c) Water quality of the wetlands not directly affected by construction activities shall be protected using BMP erosion control techniques. Appropriate sediment control measures shall be in place prior to the onset of project construction and shall be monitored and maintained until construction activities have ceased.

d) Staging areas shall be located 100 feet from any wetland habitat. Temporary stockpiling of excavated or imported material shall occur only in approved construction staging areas. Excess excavated soil shall be disposed of at a regional landfill or at another approved and/or properly permitted location. Stockpiles that are to remain on the site throughout the wet season shall be protected to prevent erosion (e.g. silt fences, straw bales).

e) Stormwater runoff and erosion from overburden and aggregate stockpiles, quarrying areas, construction activities, and any other ground disturbing activities shall be controlled through the implementation of a program of erosion control BMPs and engineered sediment control structures. Erosion control BMPs may include, but are not limited to, the application of straw mulch; seeding with fast growing grasses; and the construction of berms, silt fences, hay bale dikes, stormwater detention basins, and other energy dissipaters.

3.5 Cultural Resources

3.5.1 Introduction

This section assesses the potential effects of the proposed project on cultural resources. Cultural resources include historic architectural resources and prehistoric or historic archaeological resources. This section briefly describes the cultural setting of the project area, discusses known cultural resources within the project area, and identifies the cultural resource sensitivity of the project area. Applicable state, federal, and local regulations are identified, followed by the impact analysis and mitigation measures, where necessary, to reduce adverse impacts on cultural resources to less-than-significant levels where feasible.

Sources reviewed for this section include the City of Sacramento General Plan, the Sacramento County General Plan, the Sacramento Register, and the cultural resources records search prepared for the project by the North Central Information Center (NCIC) of the California Historic Resources Information System (CHRIS). Historical information on the Sacramento Army Depot was obtained primarily from The California State Military Museum's Historic California Posts: Sacramento Army Depot posted on their website.[1]

3.5.2 Environmental Setting

Prehistoric and Ethnographic Periods

The first settlements in the Sacramento Valley likely occurred during the late Pleistocene and early Holocene (14,000 to 8000 B.P.(before present)) period. Sacramento's location within a great valley and at the confluence of two rivers, the Sacramento River and the American River, shaped its early and modern settlements. However, the archaeological record of such use is sparse. It is likely that Paleo-Indian populations occupied the area with villages located near watercourses. Archaeological investigations of the region have focused on archival research of Spanish sources, reexamination of earlier work, and archeological investigations at a number of small sites. The sites likely represent satellite encampments or small villages associated with major villages. Detailed studies of faunal materials collected at the sites suggest seasonal occupation and a focus on fish as a food resource.

The project area is located in a geographic region that, at the time of European contact, was occupied by the Valley Nisenan. The Nisenan and their ancestors inhabited the American, Yuba, and Bear River drainages for at least 4,500 years before Euroamerican settlers arrived. Major prehistoric archaeological sites in this portion of Sacramento County tend to be situated on elevated ridges or terraces adjacent to creeks or major watercourses.

[1] The California Military Museum website, http://www.militarymuseum.org/SacramentoArmyDepot.html, accessed December 12, 2006

Historic Period

Spanish exploration of the Sacramento Valley began in the early nineteenth century. By 1822, the region was a part of Mexican California. John Sutter, a German-born entrepreneur who had been granted Mexican citizenship, arrived at the confluence of the Sacramento and American rivers in 1839, settling in Nisenan territory. The knoll on which Sutter placed his fort was an abandoned Indian mound. Beginning in 1824, under Mexican rule, land in California was divided into large parcels or Mexican land grants, referred to as ranchos. By 1846, eight land grants were claimed in Sacramento County, including New Helvetia, the first settlement in the Sacramento area, granted to Sutter in 1839.

In 1848, Sutter hired William Warner to conduct a survey, which imposed a grid pattern on the land east of the Sacramento River with east-west streets designated by letters and north-south streets by numbers. This original grid, which survives today, extended east from the Sacramento River (Front Street) to just beyond Sutter's Fort and south from Sutter's Slough (at approximately 6th and I Street) to where Broadway is today. As the gateway to the gold fields, mining and the business of supplying miners served as a basis for the city's early economy. The railroad played a role in making Sacramento the principal agricultural processing and transportation center for the Central Valley and drew people to the area. In 1854, the State Capital was moved to the City of Sacramento.

By 1860 the Wells Fargo stage line helped to link Sacramento with the City of Stockton. Within the next 20 years, most major towns in the valley were connected by the stage line, and some by rail.

Sacramento Army Depot

The Sacramento Army Depot (SAAD) was a U.S. Army support facility that operated as a repair center for high-tech military hardware, such as night vision goggles, electronic circuit boards, and radium-dial instrumentation.[2] The facility was originally called the Sacramento Advanced Communications Zone Depot and was first located at the Old California State Fairgrounds at Broadway and Stockton Boulevard. This is the current location of the University of California, Davis Medical Center. This was a temporary staging area and the facilities were soon moved to the Bercut-Richards packing plant at the intersection of 7th Street and B Street in downtown Sacramento. The packing plant site was officially established in 1943 as the "Sacramento Signal Depot."

SAAD was established at the Fruitridge location in 1945 as the permanent location for the facility. Warehouses, barracks, maintenance, and machine shop buildings were some of the buildings constructed on the site. A portion of the proposed project is located on the SAAD site.

In 1992, as a result of the Base Realignment and Closure Act of 1990, the Department of the Army, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers executed a programmatic agreement concerning the investigations of cultural resources. At that time an evaluation of the buildings and structures within historic contexts was performed.

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[2] The California Military Museum website, http://www.militarymuseum.org/SacramentoArmyDepot.html, accessed December 12, 2006

3.5.3 Regulatory Setting

Federal

Federal regulations for cultural resources are primarily governed by Section 106 of the National Historic Preservation Act (NHPA) of 1966, which applies to actions taken by federal agencies. The goal of the Section 106 review process is to offer a measure of protection to sites that are determined eligible for listing on the National Register of Historic Places (NRHP). The criteria for determining NRHP eligibility are found in Title 36 of the Code of Federal Regulations (CFR) Part 60. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and affords the Federal Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The Council's implementing regulations, "Protection of Historic Properties," are found in 36 CFR Part 800. The NRHP criteria (contained in 36 CFR 60.4) are used to evaluate resources when complying with NHPA Section 106. Those criteria state that eligible resources comprise districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

a) are associated with events that have made a significant contribution to the broad patterns of our history; or
b) are associated with the lives of persons significant in our past; or
c) embody the distinctive characteristics of a type, period, or method of construction, or that possess high artistic values, or that represent a significant distinguishable entity whose components may lack individual distinction; or
d) have yielded or may be likely to yield, information important to history or prehistory.

Archaeological site evaluation assesses the potential of each site to meet one or more of the criteria for NRHP eligibility based upon visual surface and subsurface evidence (if available) at each site location, information gathered during the literature and records searches, and the researcher's knowledge of and familiarity with the historic or prehistoric context associated with each site.

The American Indian Religious Freedom Act, Title 42 United States Code, Section 1996, protects Native American religious practices, ethnic heritage sites, and land uses.

State

Under CEQA, public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment."

"Historical resource" is a term with a defined statutory meaning (Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5(a) and (b)). The term embraces any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be "historical resources" for the purposes of CEQA unless a preponderance of evidence indicates otherwise (Public Resources Code Section 5024.1; California Code of Regulations, Title 14, Section 4850). Unless a resource listed in a survey has been demolished, or has lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process, lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts on historical resources (Public Resources Code, Section 21084.1; CEQA Guidelines Section 15064.5(a)(3)). In general, an historical resource, under this approach, is defined as any object, building, structure, site, area, place, record, or manuscript that:

a) is historically or archeologically significant; or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and

   meets any of the following criteria:

   1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
   2. is associated with the lives of persons important in our past;
   3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
   4. has yielded, or may be likely to yield, information important in prehistory or history.

For historic structures, CEQA Guidelines Section 15064.5(b)(3) indicates that a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), shall mitigate impacts to a level of less than significant. Potential eligibility also rests upon the integrity of the resource. Integrity is defined as the retention of the resource's physical identity that existed during its period of significance. Integrity is determined through considering the setting, design, workmanship, materials, location, feeling, and association of the resource.

As noted above, CEQA also requires lead agencies to consider whether projects will impact "unique archaeological resources." Public Resources Code Section 21083.2 (g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. is directly associated with a scientifically recognized important prehistoric or historic event or person" (Public Resources Code Section 21083.2 (g)).

Treatment options under Section 21083.2 of the Public Resources Code include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

Advice on procedures to identify cultural resources, evaluate their importance, and estimate potential effects is given in several agency publications, such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including but not limited to, museums, historical commissions, associations and societies, be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains.

Section 7050.5 (b) of the California Health and Safety Code specifies protocol when human remains are discovered. The code states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

CEQA Guidelines Section 15064.5(e) requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, the lead agency is required to consult with the appropriate Native Americans as identified by the NAHC and directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Local

City of Sacramento General Plan

The *City of Sacramento General Plan* contains the following goal and policy that pertains to the protection and management of archeological resources. The City of Sacramento is currently in the process of updating the 1988 General Plan.

Goal D Work with the County of Sacramento to identify, protect, and enhance physical features and settings that are unique to the area to the maximum extent feasible.

Policy 2 *Work with all interested parties to protect ancient burial grounds threatened by development activity and preserve their artifacts, either on-site or at a suitable relocation, to the extent feasible. Ancient Indian tribes used various locations within the City limits and influence area for burial grounds. These burial grounds are a unique heritage. When threatened by development, these sites should evaluate for their content and uniqueness. The sites should either be preserved or their contents removed and preserved at a new location depending upon an analysis of the site and the development factors involved.*

Preservation Element

The City of Sacramento adopted a Preservation Element into its General Plan on April 25, 2000. The City's overall preservation objectives are to identify, protect, and encourage preservation of Sacramento's historic and cultural resources throughout the city. The Preservation Element establishes the policy framework to guide the City's achievement of its preservation objectives. The following goal of the Preservation Element applies to the proposed project:

Goal B To protect and preserve important historic and cultural resources that serve as significant, visible reminders of the City's social and architectural history.

Historic Preservation Ordinance

The City of Sacramento's historic preservation program began in 1975 with the enactment of the City's first Historic Preservation Ordinance. The current Historic Preservation Ordinance (No. 2006-063) was enacted in October 2006. The purpose of the Historic Preservation Ordinance is to identify, protect, and encourage the preservation of significant resources; maintain an inventory and ensure the preservation of these resources; encourage maintenance and rehabilitation of the resources; encourage retention, preservation, and re-use of the resources; safeguard City resources; provide consistency with state and federal regulations; protect and enhance the City's attraction to tourists; foster civic pride in the City's resources; and encourage new development to be aesthetically compatible.

Preservation Commission

The Historic Preservation Ordinance establishes a Preservation Commission. The Preservation Commission's primary responsibility is to develop and recommend to the City Council preservation policies appropriate for inclusion in the General Plan and other regulatory plans and programs of the

City and to provide oversight relative to the maintenance and integrity of the Sacramento Register of Historical and Cultural Resources. The Preservation Commission reviews, nominates, and makes recommendations to the City Council on properties eligible for listing in the Sacramento Register as landmarks, historic districts, and contributing resources as set forth in City Code Chapter 17.134, Historic Preservation.

Sacramento Register

The City Code provides for the compilation of Landmarks, Contributing Resources, and Historic Districts into the Sacramento Register of Historic and Cultural Resources (Sacramento Register). The Sacramento Register includes all listed or surveyed historic resources in the City of Sacramento. This includes a listing of all individually designated City Landmarks and all of the City designated Historic Districts. The Sacramento Register also includes listings or maps of the properties within two of the City's Special Planning Districts that have been afforded preservation protection by ordinance. Also included are all the properties within the City that are currently listed in the NRHP and the CRHR and properties listed in the State of California's Historical Properties Directory.

There are five factors to be considered in determining whether to place a nominated resource on the Sacramento Register as a landmark. These factors, as stated in the Historic Preservation Code (17.134.170 A.2), are:

a) A structure removed from its original location is eligible if it is significant primarily for its architectural value or it is the most important surviving structure associated with a historic person or event.
b) A birthplace or grave is eligible if it is that of a historical figure of outstanding importance and there is no other appropriate site or structure directly associated with his or her productive life.
c) A reconstructed building is eligible if the reconstruction is historically accurate, if the structure is presented in a dignified manner as part of a restoration master plan; and if no other original structure survives that has the same association.
d) Properties that are primarily commemorative in intent are eligible if design, age, tradition or symbolic value invests such properties with their own historical significance.
e) Properties achieving significance within the past fifty (50) years are eligible if such properties are of exceptional importance.

Article VIII of the Historic Preservation Ordinance

The proposed project is subject to the following requirements under Article VIII of the Historic Preservation Ordinance.

17.134.430 Proposed demolition or relocation of buildings or structures that are at least fifty years old: review for nomination for placement on Sacramento register.

A. If a permit is sought to demolish or relocate a building or structure that was constructed at least fifty (50) years prior to the date of application for demolition or relocation, and that building or structure is not currently on the official register, is not the subject of a pending nomination, has not been

nominated for placement on the official register or reviewed pursuant to this section within the past three years, the permit application shall be referred to the preservation director to allow the director to make a preliminary determination whether the structure should be nominated for placement on the official register. For purposes of this Section, a building or structure for which a building permit issued and construction commenced not less than fifty (50) years prior to the date of application for a demolition or relocation permit shall be considered to have been constructed not less than fifty (50) years ago, regardless of when the construction was completed, and regardless of whether the building or structure was thereafter expanded, modified or otherwise altered. Absent sufficient evidence to the contrary, the date of issuance of the building permit shall be considered to be the date on which construction commenced.

1. Exceptions:

    a. Buildings and Structures within the Richards Boulevard Special Planning District. The requirements of this section shall apply only to applications to demolish or relocate buildings or structures within the Richards Boulevard special planning district which are identified in the "Richards Boulevard area architectural and historical property survey" (hereinafter "survey"), as either potential essential structures, priority structures, or contributing structures within the potential North 16th Street preservation area. Applications to demolish or relocate buildings or structures which are not so identified in the survey shall not be subject to the requirements of this section.

County of Sacramento General Plan

The *Sacramento County General Plan* contains the following goal, objective, and policies that pertain to the protection and management of archeological resources.

Goal — Promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts and/or areas of ethnic historical, religious or socio-economical importance.

Objective — Attention and care during project review and construction to ensure that cultural resource sites, either previously known or discovered on the project area, are properly protected with sensitivity to cultural and ethnic values of all affected.

Policy CO-160 — *Monitor project during construction to ensure crews follow proper reporting safeguards, and procedures.*

Policy CO-161 — *As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction.*

3.5.4 Impact Assessment Methods

In November 2006, EIP/PBSJ conducted a site visit and documented the existing conditions on the project area through photographs. EIP/PBSJ also reviewed previous documentation prepared about the City of Sacramento and the project area. No buildings exist on the in the project area; therefore, no evaluation for historic significance was required. A portion of the project area is on the Depot Park site, which historically was the Sacramento Army Depot. Both the NCIC and NAHC were contacted for information with regards to this project.

Native American Consultation

On December 18, 2006, a letter was sent to the NAHC requesting a search of the sacred land file to determine the possible presence of Native American cultural resources on or in the vicinity of the project area. Communication from the NAHC on January 4, 2007, indicated that the search "failed to indicate the presence of Native American cultural resources in the immediate project area." The NAHC letter included a list of Native American organizations and individuals who may have knowledge of cultural resources in the project area. Letters that included a brief description of the project and a project map were sent to each organization/individual identified on the NAHC list. As of the printing of this document, EIP/PBSJ has received no responses from tribal representatives indicating the presence of Native American cultural resources in the project area. However, the absence of site-specific information in the sacred lands file or through correspondence with tribal representatives does not conclusively demonstrate an absence of cultural resources on the project area or in the immediate vicinity.

NCIC Records Search

On November 30, 2006, a letter was sent to the NCIC requesting the preparation of a records search of the CHRIS for the project area. The records search was completed by the NCIC on December 6, 2006, and a total of 18 cultural resource studies were conducted within the project area or within a one quarter-mile search radius of the site. The results of that search are discussed below. The records search included an examination of the official records and maps for archaeological sites and surveys in Sacramento, as well as a review of the National Register of Historic Places, the California Register of Historical Resources, the California Inventory of Historic Resources, California State Landmarks, California Points of Historical Interest, the Directory of Properties in the Historical Resources Inventory (Office of Historic Preservation 2005), Caltrans Local Bridge Surveys, and secondary sources pertaining to state and local prehistory and history. The NCIC record search encountered seven records of archaeological studies conducted within the project area or the one-quarter mile search radius.

Previous Investigations

Proposed Compressor Station Site (Depot Park)

In 1979, an intensive cultural resources survey was performed on the Sacramento Army Depot site focusing on the remnants of the natural stream channel of Morrison Creek and the undeveloped land on

the depot. No resources were found during this investigation. Subsequent work has included a historic properties survey in 1983, a field inventory and Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation in the 1980s, completion of an archaeological overview and management plan in 1983, and an evaluation of cultural resources in 1993.

Pipeline Routes

A Cultural Resources Assessment prepared by Peak & Associates in 1980 evaluated nearly the entire proposed pipeline routes. No previously identified archaeological sites were noted in this report and no sites were discovered during the field investigation.

A portion of the proposed pipeline route was also covered during the cultural resource reconnaissance that was performed by the Archeological Study Center in 1980 for the widening of Power Inn Road. This report covers a portion of Power Inn Road south of Elder Creek Road extending to the proposed wellhead site.

Proposed Wellhead Site

No previous investigations appear to have covered the proposed wellhead site.

Proposed Morison Creek Cross-Tie Metering and Gas Conditioning Equipment Site

A cultural resources investigation performed for the Sacramento Regional Wastewater Treatment Plant Master Plan Project in 1994 covered this proposed metering and gas conditioning equipment site. The report gives a full account of archaeological and historic resources at and surrounding the site.

Significance Criteria

Criteria for determining the significance of impacts on cultural resources during construction and operation of the proposed project were developed based on the questions from the environmental checklist from Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines?	☐	☐	☐	☑
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines?	☐	☑	☐	☐
3. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐

3.5.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, CUL refers to Cultural Resources.

CUL-1. The proposed project would cause no change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines. No impact would occur.

The proposed project consists of installing gas wells on a vacant parcel of land along Power Inn Road, constructing a compressor station on a vacant parcel of land within Depot Park, installing metering and gas conditioning equipment on the Sacramento Regional County Sanitation District Bufferlands site, and installing pipelines in railroad, road, and utility rights-of-way. No buildings are proposed for modification or demolition; therefore, there is no potential for existing historic resources to be adversely affected by the proposed project. The proposed project would have no impact on historic resources; therefore, no mitigation measures are required.

CUL-2. As determined pursuant to Section 15064.5 of the State CEQA Guidelines, the proposed project's potential impacts on archaeological resources, or potential disturbance of human remains, including those interred outside of formal cemeteries, would be less than significant with the implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3.

The project consists of construction activities, as discussed above, which include earthmoving activities. The proposed wellhead site is located on an undeveloped lot along Power Inn Road, a four lane road. The compressor station site is located at the southern end of Depot Park. A pipeline would connect the wellhead site to the compressor station at Depot Park and two pipelines would connect the compressor station to existing lines. The pipelines would be contained in existing railroad, road, and utility rights-of-way and the wellhead site and compressor station would be located on vacant parcels. Despite numerous surveys in the areas of the project area, no archaeological resources have been discovered to date.

However, because the area was known to be occupied by Native Americans and the entire project area has not been surveyed, there is a possibility subsurface historical resources or unique archaeological resources exist on the project area that could be uncovered during grading, excavation, and other earth-moving activities during construction. The possibility that subsurface historical resources exist on the Depot Park site is due to the historic occupation of the site since the 1940s. If encountered during construction, such resources could be damaged or destroyed. This would be considered a potentially significant impact.

Mitigation Measures MM CUL-1, MM CUL-2, and MM CUL-3 would reduce potential impacts to archaeological resources by requiring that a qualified archaeologist peer review existing documentation, survey areas not previously surveyed or in areas determined to

have been inadequately documented, prepare a Recovery, Recordation, and Preservation Plan for consideration by the City and be present during all earth moving activities. In addition, adherence to Section 7050.5(b) of the California Health and Safety code would protect any previously unidentified buried human remains. These mitigation measures would reduce potential impacts to archaeological resources to less than significant by ensuring that, if resources are identified on the project site, these resources are not significantly impacted.

3.5.6 Mitigation Measures

MM CUL-1 a) SNGS shall retain a qualified archaeologist, who meets the Secretary of the Interior's Professional Qualifications for Archaeology, to peer review all existing documentation that pertains to cultural resources on the proposed project area to determine the sufficiency of the studies. Based on the results of the review, a brief report addressing the adequacy of the previous studies and discussing any deficiencies shall be prepared by the archaeologist. Any areas deemed inadequately studied shall be resurveyed by the archaeologist per MM CUL-1(b).

b) SNGS shall retain a qualified archaeologist, who meets the Secretary of the Interior's Professional Qualifications for Archaeology, to survey any areas within the project site that were not previously surveyed or were found to be inadequately studied, per mitigation measure MM CUL-1(a) above, to determine if any resources are present that qualify as unique archaeological resource as defined in CEQA Section 21083.2 of the State CEQA Guidelines. A report shall be prepared containing the findings of the survey and shall meet the requirements for Section 106 of the National Historic Preservation Act. Impacts to any significant resources shall be mitigated to a less-than-significant level through data recovery or other methods determined adequate by a qualified archaeologist and that are consistent with the Secretary of the Interior's Standards for Archaeological Documentation.

MM CUL-2 (a) SNGS shall retain a qualified archaeologist to monitor all earthmoving activities. If resources are discovered during construction the protocol established in MM CUL-2(b) shall be implemented.

(b) SNGS shall retain a qualified archaeologist, who meets the Secretary of the Interior's Professional Qualifications for Archaeology, to prepare a Recovery, Recordation, and Preservation Plan. In the event that any prehistoric or historic subsurface archaeological

features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, animal bone, obsidian, and/or mortar are discovered during construction-related earth-moving activities, all ground-disturbing activity within 100 feet of the resources shall be halted and the City of Sacramento Community Development Department shall be notified if the discovery is made within the City limits and the County of Sacramento shall be notified if the discovery is made in the unincorporated County. The appropriate Department shall consult with a qualified archeologist to assess the significance of the find. Impacts to any significant resources shall be mitigated to a less-than-significant level through data recovery or other methods determined adequate by a qualified archaeologist and that are consistent with the Secretary of the Interior's Standards for Archaeological Documentation, as outlined in the Recovery, Recordation, and Preservation Plan.

MM CUL-3 If human remains are discovered at any project construction sites during any phase of construction, all ground-disturbing activity within 50 feet of the remains shall be halted immediately, and the City of Sacramento Planning Services Department and the County coroner shall be notified immediately. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. The project applicant shall also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC. As necessary, the archaeologist may provide professional assistance to the Most Likely Descendant, including the excavation and removal of the human remains. The County shall be responsible for approval of recommended mitigation as it deems appropriate, taking account of the provisions of state law, as set forth in CEQA Guidelines Section 15064.5(e) and Public Resources Code section 5097.98. The project applicant shall implement approved mitigation, to be verified by the City of Sacramento Planning Services Department, before the resumption of ground-disturbing activities within 50 feet of where the remains were discovered.

3.6 Energy and Mineral Resources

3.6.1 Introduction

This section describes the energy and mineral resource characteristics in the area of the proposed project and addresses the potential effects on those resources from the development of the project. Energy resource conditions evaluated include the requirements the proposed project could have on the provision of electrical and natural gas service to the project area and existing customers in the project vicinity. Mineral resource conditions evaluated include the potential effects on local sand and gravel mining.

Information for this section was obtained from project plans, the City of Sacramento General Plan and General Plan Update Technical Background Report, the Sacramento County General Plan, the California Geological Survey, and the United States Geological Survey.

3.6.2 Existing Conditions

Historic mineral production in the vicinity of the City of Sacramento has included the non-fuel minerals construction aggregate, kaolin clay, common clay, pumice, gold, and the fuel minerals oil, and natural gas.[1] Existing mineral extraction activities in the vicinity of Sacramento include fine (sand) and coarse (gravel and crushed rock) construction aggregates, clay, gold, and natural gas.

The Surface Mining and Reclamation Act (SMARA) directs the State Geologist to classify (identify and map) the non-fuel mineral resources of the State to show where economically significant mineral deposits occur and where they are likely to occur based upon the best available scientific data. Areas known as Mineral Resource Zones (MRZs) are classified on the basis of geologic factors, without regard to existing land use and land ownership. The areas are categorized into four general classifications (MRZ-1 through MRZ-4). Of the four, the MRZ-2 classification is recognized in land use planning because the likelihood for occurrence of significant mineral deposits is high, and the classification may be a factor in the discovery and development of mineral deposits that would tend to be economically beneficial to society.

The State of California Division of Oil, Gas, and Geothermal Resources (DOGGR) regulates statewide oil and gas activities. DOGGR supervises the drilling, operation, maintenance, and plugging and abandonment of fuel mineral sources including onshore and offshore oil, gas, and geothermal wells. It is the state's repository for oil, gas, and geothermal well information and publishes statistics on drilling, production, and injection.

[1] City of Sacramento, General Plan Update Technical Background Report, June 2005, p. 6.4-1.

3.6.3 Regulatory Setting

Federal

There are no federal regulations relevant to assessing the proposed project's potential effects on energy and mineral resources.

State

California Code of Regulations (CCR), Title 14. Natural Resources

Injection of fluids, including natural gas, into a reservoir is regulated by the CCR, Title 14, Natural Resources, Division 2, Department of Conservation, Chapter 4, Development, Regulation, and Conservation of Oil and Gas Resources, Article 3, Requirements. Section 1724.6, Approval of Underground Injection and Disposal Projects, states that DOGGR approval must be obtained before any subsurface injection project can begin, including gas-injection wells. Section 1724.7, Project Data Requirements, lists the information required for approval by DOGGR, including (but not limited to) an engineering study, a geologic study, and an injection plan. Section 1724.9, Gas Storage Projects, requires, in addition to the Section 1724.7 requirements:

- Characteristics of the cap rock, such as aerial extent, average thickness, and threshold pressure.
- Oil and gas reserves of storage zones prior to start of injection, including calculations.
- List of proposed surface and subsurface safety devices, tests, and precautions to be taken to ensure safety of the project.
- Proposed waste water disposal method.

California Surface Mining and Reclamation Act

The California Surface Mining and Reclamation Act (Public Resources Code Sections 2710 et seq.) (SMARA) includes state policies for the protection and continued availability of mineral resources. The purpose of SMARA is to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations to assure that: adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses. Under SMARA the production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, wildlife, range and forage, and aesthetic enjoyment; and assuring that residual hazards to the public health and safety are eliminated. These goals are achieved through land use planning at the local level by allowing a jurisdiction to balance the economic benefits of resource reclamation with the need to provide other land uses.

The proposed wellhead site, compressor station site, and associated pipelines are located in the MRZ-3 zone. The MRZ-3 zone is defined as an area containing known mineral occurrences, the significance of which cannot be evaluated from available data.[2]

Local

Sacramento County General Plan

The following goal and objectives from the *Sacramento County General Plan* are applicable to the proposed project.

Mineral Resources

Goal — Mineral resource protected for economic extraction with minimal adverse impacts.

Objectives — Known mineral resources protected from land uses which would preclude or inhibit timely mineral extraction to meet market demand.

Resources and options for future extraction identified within the context of an ongoing local resource evaluation and management program.

City of Sacramento General Plan

The following goal and policies from the 1988 *City of Sacramento General Plan* are applicable to the proposed project so far as they refer to at mineral resources in general. The Plan contains no policies directed specifically at natural gas resources. The 2005 General Plan Technical Background Report Section 6.4, Mineral Resources recognises that mineral resource production in the City generally is limited to small areas of construction sand and gravel and that gas fields underlie the City, but there is no active drilling or production.

Goal B — Comply with the State's Surface Mining and Reclamation Act requirements, and conserve newly discovered aggregate deposits for extraction and land reclamation wherever feasible.

Policy 1 — *Adopt the Surface Mining and Reclamation Act map and mineral land classification information.*

Policy 3 — *Encourage research and data gathering efforts aimed at locating and identifying mineral resources within the City and County, and use this information in a long-range and continuous mineral conservation effort integrated into comprehensive planning programs.*

Policy 4 — *Adopt implementing procedures to aid in the preservation and possible future extraction of any newly discovered mineral resource areas.*

[2] City of Sacramento, General Plan Update Technical Background Report, June 2005, Figure 6.4-1.

3.6.4 Impact Assessment Methods

Significance Criteria

For the purposes of analyzing the energy and mineral resource effects of the proposed project, an impact on mineral or energy resources would be considered significant if the proposed project would conflict with the goals and policies of the Sacramento County or City of Sacramento General Plans. The following criteria for determining the significance of energy and mineral resource impacts were developed based Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
2. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☑

3.6.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, EMR refers to Energy and Mineral Resources.

EMR-1. The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. No impact would occur.

The proposed project area is located in the MRZ-3 zone according to the California Department of Conservation, Division of Mines and Geology. Areas zoned as MRZ-3 contain known or inferred mineral occurrences of undetermined mineral resource significance. Further exploration within these areas might result in the reclassification of specific localities as MRZ-2. Of the four Mineral Resources Zone classifications established by the California Surface Mining and Reclamation Act (MRZ-1 through MRZ-4), the MRZ-2 classification is recognized in land use planning because the likelihood for occurrence of significant mineral resources is high. No further exploration is necessary for the purposes of the proposed project because implementation of the project would not decrease access to underlying mineral resources, if they exist on the site.

Although the project site contains mineral resources of unknown significance, the economic benefit to society from access to mineral resources would not be compromised by development of the proposed project. The proposed project would be constructed in an area that has been previously developed with industrial uses, so access to any potentially-significant mineral resources is already restricted to some extent by buildings, roadways, and utility lines. The addition of another utility line and building near the existing ones would not substantially decrease access to underlying mineral resources, if they exist. In addition, the City of Sacramento does not identify any active mining or natural gas extraction sites in or near the project area. Therefore, there would be no impact to mineral resources caused by construction and operation of the proposed project and no mitigation measures are required.

EMR-2. The proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. No impact would occur.

No locally significant mineral resources have been identified within the project area in the City of Sacramento General Plan, the Sacramento County General Plan, or other land use plans. As explained in Impact EMR-1, the proposed project would not be in an area where locally important mineral resources are extracted or known to exist. Although it is possible that undiscovered mineral resources exist in the project area, it is improbable that mineral exploration would occur in this urbanized part of the City and County. Therefore, there would be no impact to mineral resources as delineated on an applicable land use plan and no mitigation measures are required.

3.6.6 Mitigation Measures

Construction and operation of the proposed project would not result in significant impacts to mineral resources in the project area; therefore, no mitigation measures are required.

3.7 Geology, Soils, and Paleontology

3.7.1 Introduction

This section of the PEA describes the regional geologic, soils, and paleontologic characteristics of the area of the proposed project and how these would affect, or be affected by, implementation of the project. Geologic hazards evaluated include seismic conditions such as fault movement, groundshaking, and related hazards. Soil constraints evaluated include erosion, shrink-swell potential, depth to hardpan, and permeability. Paleontological resource conditions evaluated include the proximity to known fossil-bearing sites and the potential for finding other such sites in or near the project.

The information in this section is based on observations in the project area and studies published by federal, state, or local agencies (such as the United States Geological Survey, the California Geological Survey, the City of Sacramento) and are cited in the references for this section of the PEA. Agricultural aspects of the soils are addressed in Section 3.9, Land Use, Planning, and Agricultural Resources. Erosion and sedimentation issues are outlined briefly in this section and are addressed in more detail in Section 3.8, Hydrology and Water Quality. The reader is referred to Section 3.12, Public Health and Safety, for information and analysis regarding pipeline and wellhead safety.

3.7.2 Existing Conditions

Regional Geology

The Sacramento area is in the Great Valley geomorphic province, a relatively flat alluvial plain composed of a deep sequence of sediments in a bedrock trough. The Great Valley is bounded on the west by the California Coast Ranges and on the east by the Sierra Nevada Mountains. Erosion of the Coast Ranges and the Sierras has produced the sediments deposited in the Great Valley.

The basement rock underlying the Great Valley is a complex of metamorphosed Paleozoic (at least 245 million years old) and Mesozoic (at least 66 million years old) sediments, volcanics, and granites extending west from the Sierra Nevada Mountains. Overlying the basement rock is a sequence of siltstone, claystone, and sandstone about 60,000 feet thick and predominantly of marine origin. Overlying the sedimentary rock layer is approximately 3,000 feet of fluvial-deposited sediments eroded from the mountains to the north and east.

Seismic Conditions

California is in the circum-Pacific earthquake zone, which is created by the process of plate tectonics, and is the most seismically active area in the United States. The San Andreas Fault System is an elongated zone of fracturing about 40 miles wide caused by the northwestward movement of the Pacific Plate, to the west, past the North American Plate, to the east. Another result of this movement is the regional rock deformation that creates the general northwest-southeast trend of valleys and ridges in the

Coast Ranges, as well as the shape of the Great Valley. A third result is the earthquake activity that is common through California.

No known active faults occur in or adjacent to the City of Sacramento. During the past 150 years, there has been no documented movement on faults mapped in Sacramento County. Nonetheless, the region has experienced numerous instances of groundshaking originating from faults in the San Andreas Fault Zone, west of the county, and the Foothills Fault System, east of the county.[1]

The closest known potentially active fault mapped by the California Geological Survey is the Dunnigan Hills fault (possible Holocene activity, i.e., within the last 11,000 years), about 19 miles northwest of Sacramento. The closest branches of the seismically active San Andreas Fault System (Historic activity, i.e., within the last 200 years) are the Green Valley-Concord faults (45 miles southwest). The main trace of the San Andreas fault is approximately 80 miles to the southwest. As shown on Table 3.7-1, other active faults within 100 miles of the city include the Hayward and Calaveras faults, approximately 66 miles to the southwest; the Healdsburg-Rogers Creek fault (56 miles west); the Bear Mountain fault (22 miles east); and the New Melones fault (40 miles east). The Stockton and Greenville faults are approximately 47 and 43 miles to the south. The Midland fault (22 miles west of Sacramento) and the Antioch (42 miles southwest) are considered pre-Quaternary (i.e., not active within the last 1.6 million years).

According to the *Probabilistic Seismic Hazard Assessment Maps* (2002) prepared by the California Geological Survey, Sacramento is in an area of relatively low severity, characterized by peak ground accelerations between 10 and 20 percent of the acceleration of gravity (0.1g to 0.2g). The earthquake intensities generally correlated with this amount of groundshaking are between VI and VII on the Modified Mercalli Intensity Scale (MMI). A characteristic earthquake on the entire San Andreas fault (M_w 7.9 - Moment Magnitude) probably is the largest earthquake that would be felt in the project area. Because of the distance between the San Andreas fault and the project area, the felt intensity would be between MMI IV and V (light to moderate shaking). A felt intensity between MMI VII and VIII would be caused by a characteristic earthquake on the Dunnigan Hills fault (M_w 6.6) because it is much closer to the project area.

Paleontological Resources

The Riverbank formation, which underlies the project area, is a fossil-bearing alluvial (river sediment) formation of the Pleistocene Epoch (less than 1.6 million years old). The fossil remains of horses, dogs, numerous smaller mammals, and invertebrates have been recovered from excavations of this formation throughout Sacramento County. The closest recovery site to the project area is in the vicinity of Rancho Cordova, about 6 miles east of the project. The Riverbank Formation is considered paleontologically sensitive. The occurrence of previously recorded vertebrate fossil sites in the Riverbank Formation in the local and regional vicinity of the project indicates there is a potential for

[1] City of Sacramento, 2005, General Plan Update Technical Background Report Chapter 7, Public Health and Safety, Pages 7.1-1 through 7.1-6

uncovering additional similar fossil remains during earth-moving activities related to construction of the pipelines.

Table 3.7-1
Faults within 100 Miles of Sacramento

Name	Distance from Sacramento (miles)	Characteristic earthquake (moment magnitude)[1]
West Valley Faults		
Dunnigan Hills	19	6.6[2]
Midland	22	Pre-Quaternary: no longer considered active[3]
Central Valley Faults		
Willow Fault Zone	5	Pre-Quaternary: no longer considered active[3]
Foothill Fault System[3]		
Bear Mountain	22	6.0
New Melones	40	6.0
Stockton	47	5.0[4]
San Andreas Fault System		
Vaca –Kirby Hill	28	6.1[2]
Antioch	42	Pre-Quaternary: no longer considered active[5]
Greenville	43	6.6
Concord	45	6.2
Green Valley	42	6.2
Healdsburg/Rogers Creek	56	7.1
Hayward	66	6.9 - 7.1
Calaveras	66	7.5
San Andreas	80	7.9

Source: EIP Associates, a Division of PBS&J, December 2006.
Notes:
1 Characteristic Earthquake and Moment Magnitude are explained in the Glossary.
2 Wesnouski, S.G., 1986, *Earthquakes, Quaternary Faults, and Seismic Hazard in California*, Journal of Geophysical Research, Vol. 91, No. B12, Table A1.
3 California Geological Survey, 1994, *Fault Activity Map of California,* Pages 27 and 30.
4 AGS, Inc., 2005, *Preliminary Geotechnical Study, Delta Water Supply Project*, Table 2.
5 California Geological Survey, 1991, *Fault Evaluation Report FER-228, The Antioch fault, Contra Costa County, California*, Pages 1, 18, and 19.

Site Geology

Topography

The project area is on alluvial deposits of the American river system. Ground surface elevations in the area are between about 20 feet and 40 feet above mean sea level (+20 to +40 feet msl). Most of the area is relatively flat at about +38 to +40 feet msl.[2]

[2] Site observation by PBJ&J California-registered geologist G.J. Burwasser, PG 7151, November 29, 2006.

Surface and Near-Subsurface Materials

The project area is an urban setting, although there is a substantial amount of unpaved land adjacent to the streets and railroads. Disking and grading activities of the area over the years makes it difficult to distinguish between natural surfaces and ones altered by fill. Fill material consists of sand, gravel, cobbles, etc., mostly of local origin. Near the surface and to a depth of 30 to 50 feet are deposits of silt and sand (commonly referred to as the upper sand unit), that represents the uppermost portion of the Riverbank Formation. Underlying the upper sand unit is a layer of sandy gravel between 60 and 80 feet below the ground surface that extends to an unknown depth. The caprock and the gas-bearing formations are in excess of 3,000 feet below the ground surface (bgs).

Soils

As noted above, most of the locations where project features would be constructed are urbanized land consisting of buildings and structures or roadways. These locations are generally underlain by fill used to provide a base for foundations and roadways. Undisturbed, native soil types in the project area that do not contain roadways, structures, or other development where the pipeline would be installed all belong to the San Joaquin sandy loam series. Where the San Joaquin soils are in their undisturbed, native state, they have relatively high clay content; often occurring as layers of hardpan (indurated and/or cemented subsoils) within a few feet bgs. As a result, there is high shrink-swell potential in many surface soils and near-surface subsoils containing San Joaquin soils. These soils swell (expand) when wetted and shrink (contract) as they dry, threatening the stability of structures without adequately engineered foundations. These clayey soils do not absorb water readily and generate moderately high to high rates of runoff. The hazard of erosion by running water of these soils varies from slight, where gently sloping, to high in steeper areas. The clayey surface texture of these soils renders them relatively non-susceptible to wind erosion and limits their susceptibility to water erosion.

At the proposed compressor station site, native soil consists of Hedge loam 0-2 percent slopes. This soil characterized by moderately slow permeability, slow runoff and slight erosion potential, and low expansion potential.

The project area is not considered a source of topsoil, because areas where native San Joaquin and Hedge soils are exposed are minimal.

Groundwater

There are four water-bearing zones in the vicinity of the project area: two zones are interconnected at depths approximately 80 to 150 feet bgs; and two zones appear to be distinct confined aquifers at 155 to 190 feet bgs and 195 to 230 feet bgs, respectively. Groundwater flow is primarily south to southwest in the deeper aquifers; however, the shallow aquifer flow follows landscape topography and flows westward. Local groundwater flow can also be influenced by local areas of recharge or withdrawal. The reader is referred to Section 3.8, Hydrology and Water Quality, for additional information on groundwater conditions.

Underground Field Conditions[3]

The Florin Gas Field was discovered by Union Oil Company of California in November 1977. Directional drilling, to reduce impacts on the existing urban surface development, was used to reach commercial quantities of natural gas in the Winters Formation gas sand (about 70 million years old) at a depth of about 3,750 feet bgs. Gas delivery began in 1980 and continued until 1987. Through 1983, five wells were completed in the same formation. The last productive field well was abandoned in 1993.

The sequence of rock and sediment in the Florin Gas Field consists of alternating layers of sand and shale deposited in ancient seas that occupied the Sacramento Valley between 10 million and at least 80 million years ago. The sequence is at least 6,800 feet thick and dips west, a condition caused by the rising of the Sierra Nevada Mountains and the sinking of the Sacramento Valley during this time. The constantly steepening older (lower) layers on the slope between the valley and the mountain range were cut off, or "capped," by the continuing deposition of younger (upper) layers, creating a mechanism to trap natural gas. In the Winters Formation, a maximally-150-feet-thick porous sandstone unit formed the reservoir for the natural gas: a 150 to 500-feet-thick shale unit above the sandstone formed a seal which prevented the natural gas from escaping. The gas field appears to be a simple sand mound controlled by thinning sand deposition to the east and northeast with closure on all sides of the reservoir provided by the shale layer above the sandstone. There do not appear to be any structural faults through the field that would contribute to leaking of natural gas through the caprock.

3.7.3 Regulatory Setting

Regulations and standards related to geology, soils, and seismicity in the City of Sacramento are included in state regulations, city ordinances, and plans adopted to protect public health and safety. The following is a brief summary of the regulatory context under which geology, soils, and seismic hazards are managed. Agencies with responsibility for protecting people and property in the project area from damage associated with soil conditions and geologic hazards are identified below.

Federal Regulation

Pipeline Safety

The Natural Gas Pipeline Safety Act of 1968 as amended through March 2006 (Title 49 Section VIII USC Chapter 601) specifies, among others, the minimum safety standards for designing, installing, constructing, initially inspecting, and initially testing a new natural gas pipeline facility. The standards include the characteristics of the material used in constructing the facility, design factors for specific

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[3] a) Boyd, R.W., PG 3623, *Florin Gas Field*, Canyon Oil & Gas, February 2007.

b) Magoon, L.B., III , and Valin, Z.C., 1995b, "Sacramento Basin Province (009)," *in* Gautier, D.L., Dolton, G.L., Takahashi, K.I., and Varnes, K.L., eds., *1995 National assessment of United States oil and gas resources--Results, methodology, and supporting data: U.S. Geological Survey Digital Data Series 30*, one CD-ROM: available online at http://certmapper.cr.usgs.gov/noga/broker1995.jsp?theServlet=NogaMain ResultsServ&theProvince=09&thePage=basin.

locations, and the public safety factors, particularly its ability to prevent and contain a natural gas spill. The design standards for specific locations reflect site-specific geological, topographical, seismic, and soils conditions. Please see Section 3.12, Public Health and Safety, for additional information.

State Regulations

California Public Utilities Commission (CPUC)

CPUC General Order 112-E establishes the following to safeguard life or limb, health, property, and public welfare and to provide that adequate service will be maintained by gas utilities operating under the jurisdiction of the CPUC.

- minimum requirements for the design, construction, quality of materials, locations, testing, operations and maintenance of facilities used in the gathering, transmission, and distribution of gas and
- minimum requirements for similar equipment and procedures used in liquefied natural gas facilities

These requirements are in addition to federal pipeline safety regulations. They are concerned with the safety of the general public and employees' safety to the extent they are affected by basic design, quality of the materials and workmanship, and requirements for testing and maintenance of gas gathering, transmission, and distribution facilities, as well as liquefied natural gas facilities. They are intended to be adequate for safety under conditions normally encountered in the gas industry and all work performed within their scope must meet or exceed the safety standards by them.

Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR)

The DOGGR oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. The regulatory program, which is codified in Title 14, Division 2, Chapter 4, emphasizes responsible development of oil, natural gas, and geothermal resources in the state through sound engineering practices that protect the environment, prevent pollution, and ensure public safety.

Building Construction

The State of California provides minimum standards for structural design and site development for projects containing buildings for human occupancy through the California Building Standards Code (California Code of Regulations (CCR), Title 24). The California Building Code (CBC) is based on the Uniform Building Code, which is used widely throughout United States, when adopted on a state-by-state or district-by-district basis, and has been modified for California conditions with numerous more detailed and/or more stringent regulations.

Chapter 16 of the CBC reduces impacts associated with exposure of people and structures to seismic hazards, and ensures structures meet specific minimum seismic safety and structural design standards. Chapter 33 specifies the requirements to be fulfilled for site work, demolition, and construction, including the protection of adjacent properties from damage caused by such work. The CBC requires a site-specific geotechnical study to address seismic issues and identifies seismic factors that must be

considered in structural design. Appendix Chapter 33 requires all development intended for human occupancy to adhere to regulations pertaining to grading activities, including drainage and erosion control, and treatment of expansive soils.

Active Faults

The state legislation protecting the population of California from the effects of fault-line ground-surface rupture is the Alquist-Priolo Earthquake Fault Zoning Act. In 1972, the State of California began delineating Earthquake Fault Zones (called Special Studies Zones prior to 1994) around active and potentially active faults to reduce fault rupture risks to structures for human occupancy. The Act provides for special seismic design considerations if developments are planned in areas adjacent to active or potentially active faults. The project area is not crossed by any Alquist-Priolo Earthquake Fault Zone. Because the project area is not in an Alquist-Priolo Earthquake Fault Zone, no associated provisions of the Alquist-Priolo Earthquake Fault Zoning Act related to fault rupture would apply.

Seismic Groundshaking Hazards

The California Seismic Hazards Mapping Act of 1990 is designed to protect the public from the effects of strong groundshaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. The act requires site-specific geotechnical investigations to identify the hazard and the formulation of mitigation measures before the permitting of most developments designed for human occupancy.

Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, constitutes the guidelines for evaluating seismic hazards other than surface fault rupture and for recommending mitigation measures as required by Public Resources Code Section 2695(a).[4] Because the project area has yet to be mapped, the provisions related to the California Seismic Hazards Mapping Act would not apply.

Erosion

State regulations pertaining to the management of erosion/sedimentation as they relate to water quality are described in Section 3.8, Hydrology and Water Quality, of this PEA. The primary purpose of these regulations and standards is to protect surface waters from the effects of land development. Among other measures included in such regulations and standards are the requirements to reduce the potential for sedimentation caused by erosion.

Local Regulations

The City of Sacramento General Plan contains policies regarding seismic and geological issues as they relate to public health and safety and natural resources. The City's Building Division of the

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[4] California Geological Survey, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117, 81 pages, Sacramento CA, March 13, 1997. On the Web at http://www.conservation.ca.gov/cgs/shzp/webdocs/sp117.pdf.

Development Services Department (Department of Public Works) regulates construction at the local level.

General Plan Goals and Policies

The City of Sacramento General Plan contains a Goal and Policies to protect people and structures from geologic, soils, and seismic hazards that would apply to the project as indicated below.

Goals and Policies for Seismic Safety

Goal A Protect lives and property from unacceptable risk of hazards due to seismic and geologic activity to the maximum extent feasible.

Policy 1 Prohibit construction of structures for permanent occupancy across faults, should any be designated.

Implementation of the project would not occur across any currently identified fault.

Policy 3 Continue to implement the Uniform Building Code requirements that recognize State and Federal earthquake protection standards in the construction or repair of buildings.

The standards of the California Building Code as adopted by the City of Sacramento are required to be implemented by the project.

Department of Public Works

The City of Sacramento Building Division of the Development Services Department (Department of Public Works) maintains policies and guidelines regarding grading, erosion control, stormwater drainage design, inspection, and permitting with responsibility for several types of permits, including:

- Grading permits
- Construction permits
- U.S. Army Corps of Engineers Nationwide Permit 12, for utility line backfill and bedding

Site-Specific Geotechnical Investigation

Prior to the commencement of any earthwork at a construction site that would require a building permit from the City, such as the proposed project, a complete geotechnical investigation must be prepared for that site. The City requires that a geotechnical engineering report produced by a California Registered Civil Engineer (Geotechnical) or Engineering Geologist be submitted to the Department of Public Works for review. The report must address and make recommendations on the following topics, among others:

- Structural foundations
- Grading practices
- Erosion control
- Special problems discovered on-site, (i.e., shallow groundwater, expansive/unstable soils, corrosive characteristics, etc.)

A grading permit must also be prepared prior to grading activities, as also described in Section 3.8, Hydrology and Water Quality. The applicant must submit, for review and approval, Improvement and/or Grading Plans along with a site-specific erosion and sedimentation control plan.

3.7.4 Impact Assessment Methods

Methods of Analysis

The geotechnical characteristics of a project area determine its potential for structural and safety hazards that can occur during construction and/or operation of a proposed project. Available USGS and CGS topographical and seismic maps, NRCS reports, and other studies that included relevant geologic data, were reviewed and used to determine whether geological impacts could occur as a result of the proposed development in the project area.

The geotechnical design-controllable aspects of building foundation support and wellhead and pipeline integrity are governed by existing regulations summarized above ensure that a project would not result in a substantial hazard to people or the environment. Compliance with these regulations is required, not optional. Compliance must be demonstrated by the project applicant to have been incorporated in the project's design before permits for project construction would be issued by either the CPUC or the City.

Significance Criteria

Criteria for determining the significance of impacts on geology, soils, and paleontological resources during construction and operation of the proposed project were developed based on the questions provided in Appendix G of the CEQA guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
a) Rupture of a known earthquake fault, as described on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☑
b) Strong seismic groundshaking?	☐	☐	☑	☐
c) Seismic-related ground failure, including liquefaction?	☐	☐	☑	☐
d) Landslides?	☐	☐	☐	☑
2) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
3) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
4) Be located on expansive soil, as defined in Table 18-1-A of the California Building Code (2001), creating substantial risks to life or property?	☐	☐	☑	☐
5) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑
6) Directly or indirectly destroy an unique paleontological resource or site or unique geologic feature?	☐	☐	☑	☐

3.7.5 Impact Assessment Results

As described in Section 3.1, Introduction to the Analysis, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, GEO refers to Geology, Soils, and Paleontology.

GEO-1. The proposed project would not expose people or structures to rupture of a known earthquake fault. No impact would occur.

The Holocene Dunnigan Hills fault, about 20 miles northwest, is the closest known fault to the project. The Late Quaternary Vaca fault, about 28 miles southwest, is the next closest known fault. The buried pre-Quaternary Midland fault and Willows fault zone may pass about 22 miles west and 5 miles east of the project area, respectively, but their existence and locations are uncertain. The Green Valley fault, about 42 miles southwest, is the closest fault in an Alquist-Priolo Earthquake Fault Zone. Because none of these faults cross or trend toward the project area, fault-line surface rupture is not considered a hazard. Consequently, the proposed project would have no impact regarding exposing people or structures to rupture of a known earthquake fault, and no mitigation measures are required.

GEO-2. The risks of exposing people and structures to strong seismic groundshaking would be less than significant.

From a review of regional and local geo-seismic conditions, the City of Sacramento would be subjected to at least one major earthquake in the future.[5] The highest intensity of groundshaking experienced in Sacramento (MMI VI to VII) would be caused by a M_w 7.9

[5] Working Group on California Earthquake Probabilities, 2003. The United States Geological Survey projected a 27 percent chance of at least one earthquake equal to or greater than M_w 6.7 on the Hayward fault and a 21 percent chance on the San Andreas fault between 2003 and 2032.

earthquake on the San Andreas fault or a M_w 6.6 earthquake on the Dunnigan Hills fault (see Table 3.7-2). The resulting vibration could have the potential to cause damage to the pipelines, wellheads, or structures (primary risks), and could cause ground failures such as liquefaction or settlement in loose alluvium and/or poorly compacted fill (secondary effects) if such materials were present. Damage to the wellheads or pipelines could result in fire, which could present a hazard to nearby residential uses (see Section 3.12, Public Health and Safety).

To reduce the primary and secondary risks associated with seismically induced groundshaking, it is necessary to take the location and type of subsurface materials into consideration when designing foundations and structures at the project area. The site-specific geotechnical report prepared for the City in conjunction with obtaining a building permit would identify these conditions and appropriate design features. Similarly, the CPUC would be responsible for ensuring that SNGS complies with the design requirements of the Natural Gas Pipeline Safety Act of 1968 and CPUC General Order 112-E, or other accepted non-building structure standards to reduce the primary and secondary risks associated with seismically induced groundshaking. The reader is referred to Section 3.12, Public Health and Safety, for additional information regarding the safety features incorporated in the proposed project to minimize the risk of public endangerment for accidental release of natural gas into the environment.

The existing gas-bearing rock unit is capped by between 150 feet to 500 feet of impermeable shale and is overlain by layers of shale, sandstone, and alluvium totaling about 3,600 feet of material between the reservoir and the surface that would prevent any seepage from the reservoir. Because of the geologic conditions at the project area and implementation of mitigation measures, the potential for a significant increase in risk from fire to occur as a result of the proposed project is considered to be low.

Based on an existing regulatory framework that addresses earthquake safety issues and adherence to the requirements of the Building Code and Design Standards and the Natural Gas Pipeline Safety Act of 1968, seismically induced groundshaking would not be a substantial hazard for the project. Therefore, the proposed project would have a less-than-significant impact regarding exposing people or structures to damage resulting from strong seismic groundshaking and no additional mitigation measures is required.

GEO-3. The proposed project would not expose people and structures to substantial adverse effects due to seismic-related ground failure, including liquefaction, or unstable soils units subject to lateral spreading, subsidence, or collapse. This impact would be less than significant.

As part of the construction permitting process, the City and CPUC would require completed reports of soil conditions at the specific construction sites to identify potentially unsuitable soil conditions including liquefaction, settlement, subsidence, lateral spreading, and collapse. Potentially unstable soils discovered by the required geotechnical investigations and/or revealed during trenching for the pipelines or development of the

wellheads are required by provisions of the Natural Gas Pipeline Safety Act and the CBC to be removed and replaced, or otherwise treated to provide appropriate foundation support and to protect foundations from failure through liquefaction. Adherence to the Seismic Zone 3 requirements, which would be ensured during the building permit issuance process and CPUC reviews, would provide the maximum practicable protection available from soil failures under static or dynamic conditions for structures and pipelines. Therefore, the proposed project would have a less-than-significant impact regarding exposing people or structures to damage resulting from seismic-related ground failure, and no mitigation measures are required.

GEO-4. The proposed project would not expose people or structures to landslides. No impact would occur.

The project area is flat; landslides would not be a hazard. Therefore, the proposed project would have no impact regarding exposing people or structures to hazardous landslide conditions and no mitigation measures are required.

GEO-5. The proposed project's potential impacts on erosion or the loss of topsoil during construction or operation would be less than significant.

The project area is not a significant source of topsoil. Installation of the pipelines and construction of the wellheads and other project structures would result in earth-disturbing activities that could expose soil to erosion. Because the project area is flat, there would be no hazards associated with erosion of slopes, but dust and sediment from the construction sites could be conveyed via stormwater into local waterways from drainage systems (see also Impact HWQ-1 in Section 3.8, Hydrology and Water Quality).

The Municipal NPDES Permit, as described in Section 3.8, Hydrology and Water Quailty, requires implementation of nonpoint source control of stormwater runoff through the application of a number of BMPs. These BMPs are meant to reduce the amount of constituents, including eroded sediment, that enter streams and other water bodies. The City municipal code requires an erosion and sediment control plan that would ensure that potential sediment associated pollutant transport during construction and grading operation would not be substantial.

Consequently, the proposed project would have a less-than-significant impact regarding soil erosion and loss of topsoil, and no mitigation measures are required.

GEO-6. The proposed project's potential impacts on expansive soil, as defined in Table 18-1-A of the California Building Code (2001) would be less than significant.

The existence of expansive soil in the project area increases the possibility of expansive soils occurring along the pipeline alignments and causing foundation-stability issues at the wellheads, compressor site, and the Morrison Creek Cross-Tie metering and gas conditioning equipment site. The preceding discussions of soil and seismic issues indicate

that the Building Code, Title 14 of the CCR, and the Natural Gas Pipeline Safety Act requires a site-specific foundation investigation and report for each construction site that (a) identifies potentially unsuitable soil conditions and (b) contains appropriate recommendations for foundation type and design criteria that conform to the analysis and implementation criteria in the UBC and Natural Gas Pipeline Safety Act. As indicated, a regulatory framework exists to address weak soils issues, including the risk of soil expansion. In view of these requirements, the proposed project would have a less-than-significant impact regarding exposing people or property to the hazards of expansive soils, and no mitigation measures are required.

GEO-7. The proposed project would not be affected by soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. No impact would occur.

The proposed project would include a toilet at the compressor station that would be connected to the existing sewer system. No septic tanks or alternative wastewater disposal systems would be installed. Consequently, the proposed project would have no impact regarding the capability of soils to support such systems. No mitigation measures are required.

GEO-8. The proposed project's potential impacts on unique paleontological resources during excavation for the pipelines or compressor station would be less than significant.

Based on the record search conducted at the UC Berkeley Museum of Paleontology, there are no previously-recorded fossil sites along the proposed pipeline alignments or at any of the proposed facilities.[6] Nonetheless, the alignments are in sediments of the Riverbank Formation, which is a paleontologically sensitive unit under the Society of Vertebrate Paleontology guidelines. Using standard monitoring and recovery programs as described under Section 2.5.7, Best Management Practices, the project design would include paleontological resource identification and monitoring. A paleontological resources discovery and management plan would be developed prior to construction and would be implemented as part of the project to avoid potential impacts on these resources. Prior to the start of construction, a qualified paleontologist would conduct a field survey to identify sensitive stratigraphic units within the construction area that might be disturbed. If paleontological resources were discovered during construction-related earth-moving activities, all ground-disturbing activity in the vicinity of the discovery would be halted; the City of Sacramento Community Development Department or the County of Sacramento, as appropriate would be notified; and specimen or data recovery as determined adequate by a qualified paleontologist and that are consistent with the Society of Vertebrate Paleontology guidelines would be completed before construction in the vicinity of the discovery

[6] Burwasser, G.J., PG 7151, online search through UCMP Locality Search, University of California Museum of Paleontology, December 7, 2007, available at http://bscit.berkeley.edu/ucmp/loc.shtml.

resumed. These procedures would ensure the proposed project would have a less-than-significant impact regarding effects on paleontological resources.

3.7.6 Mitigation Measures

Because the existing regulatory framework for the construction and operation of gas facilities requires design, site preparation, construction, maintenance, and reporting procedures to provide the maximum feasible protection from adverse geotechnical conditions, the proposed project would not cause substantial changes to, nor be subject to hazards from, the existing geology, soils, and seismic conditions in the project area. Because the project design includes BMPs to protect paleontological resources, the proposed project would have no significant effect those resources. Consequently, no additional mitigation measures are required.

3.8 Hydrology and Water Quality

3.8.1 Introduction

This section describes the potential hydrology and water quality conditions present at the project area including surface and groundwater resources. It also assesses possible effects that the project could have on surface waters, including storm drainage and streams that the proposed pipelines would pass under, and on the local groundwater resources in the area. Potential contamination of ground and surface waters by drilling fluids, construction and operation effects on water quality and quantity, and possible contamination of groundwater caused by cross-connection of a freshwater aquifer and a brackish aquifer and natural gas reservoir are all discussed.

Some information presented in this section has been obtained through a review of the *Sacramento Army Depot Reuse Plan EIR,*[1] the Depot Park environmental site assessment,[2] *Central Sacramento County Groundwater Management Plan (Water Forum and Sacramento County Water Agency, 2006), City of Sacramento Stormwater Improvement Plan (2004)*[3] and the *City of Sacramento General Plan EIR*. Evaluation of project hydrology and water quality effects was also prepared using available reference materials (USGS Topomaps, climate information) and assessments based on a site visit conducted November 22, 2006.

3.8.2 Existing Conditions

The project area is located within the Central Valley of California, primarily within the southeastern portion of the City of Sacramento with metering and gas conditioning equipment in the unincorporated portion of Sacramento County. Sacramento's climate is characterized by a Mediterranean climate[4] and mild, wet winters and warm to hot dry summers.[5] Summers are dry with sunny days and little humidity. The winter rainy season lasts from about November through March. Winter months can be cool and often rainy. Mean annual precipitation is about 19.9 inches per year with over 85 percent occurring from October through March.[6] The highest temperatures occur throughout July and August and maximum temperatures can average around 92 to 94 degrees F. The coldest days are usually in December and January when the mean minimum temperature can drop to an average low of 40 to 41 degrees F. Overall, mean monthly temperatures are about 48 degrees F in December and January and

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1 City of Sacramento, Sacramento Army Depot Reuse Plan Draft Environmental Impact Report, 1994.

2 National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way, Sacramento, California 95927, June 14, 2004.

3 City of Sacramento, July 2004, http://www.sacstormwater.org/AboutSQIP/ProgramInformation/SQIP/SQIP.htm, accessed December 2006.

4 California Academy of Sciences. Mediterranean Climate Worksheet for 5-6 Graders Teachers Guide. Hotspot California on the Edge. http://www.calacademy.org/education/classroomactivities/pdfs/climate/climate%20pre%20visit%205-6%20teacher.pdf Accessed February 7, 2007

5 Heidorn, K.C. 2006 The Weather Doctor Glossary: Mediterranean Climate. www.islandnet.com/~see/weather/ general/glosswx.htm. Accessed February 7, 2007.

6 Western Regional Climate Center, 2006. SACRAMENTO 5 ESE, CALIFORNIA NCDC 1971-2000 Monthly Normals, http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7633, accessed December 22, 2006.

about 77 degrees F in July and August. The 24-hour 100-year rainfall event is 4.23 inches and the 10-year 24-hour rainfall event is 2.98 inches.[7]

Surface Water Drainage

The project area is located within the Morrison Creek (USGS Hydrologic Unit Code: 18020109) stream group watersheds, within the mid-southern portion of the County of Sacramento and the southeastern area of the City of Sacramento. The Morrison Creek stream group discharges to the Beach-Stone Lakes that flow southwest to the Delta. There are approximately 11 creeks that drain into Morrison Creek. Major creeks within the Morrison Creek stream group include Elder Creek, Morrison Creek, Elk Grove Creek, Strawberry Creek, Florin Creek, Union House Creek, Gerber Creek, and Whitehouse Creek.

The Morrison Creek watershed (Hydrologic Unit: Valley American; Hydrologic Area: Morrison Creek; Hydrologic Sub Area: Florin, 519.12) consists of both urbanized and agricultural areas. The urbanized areas have been developed with piped stormwater conveyance, pump stations, and concrete-lined channels. Much of this development occurred many years ago, prior to current floodplain management policies. In the agricultural areas, drainage flows into roadside ditches and most of the ditches or channels are unimproved. Many of the creeks in this area have been or are being constructed/improved as part of overall development; Morrison, Florin, Elder, Union House (Beacon), Strawberry, Laguna, and Elk Grove Creeks have all been extensively relocated and channelized as a result of urban development.[8] This has lead to many of the creeks providing adequate freeboard and 100-year flood protection.[9] However, the County of Sacramento Department of Water Resources has identified Morrison Creek near South Route 99 and the Beach-Stone Lakes area as areas where out-of-bank flooding has caused damage.[10] The first major relocation of Morrison Creek occurred with the construction of the Sacramento Army Depot in 1945.[11] The project area is located within the Morrison Creek watershed that drains the southern portion of the City of Sacramento.

During major storm events, regional creeks and streams (including Morrison Creek) empty high flows into the Sacramento and American Rivers. Flood control facilities along the rivers consist of a comprehensive system of dams, levees, overflow weirs (diversion structures in the river intended to

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7 California Department of Water Resources, State Climatologist, Climate Data and Information for California: Rainfall Depth-Duration-Frequency Data, MorrisonCrk/S WattP Station A00 5871 27 http://www.climate.water.ca.gov/climate_data/, accessed December 26, 2006.

8 Rick Bettis, 1998 Sacramento's Creeks & Sloughs a Brief Overview with Historical Vignettes, Urban Creeks Council of Sacramento, http://www.sacto-ucc.org/ucc-creeks-sloughs.htm#morrison, accessed December 22, 2006.

9 County of Sacramento Public Works Agency Department of Water Resources 2001, Local Floodplain Management Plan for the County of Sacramento, http://www.msa.saccounty.net/waterresources/drainage/docs/LocalFPMgmtPlan.pdf, accessed December 28, 2006.

10 County of Sacramento Public Works Agency Department of Water Resources 2001, Local Floodplain Management Plan for the County of Sacramento, http://www.msa.saccounty.net/waterresources/drainage/docs /LocalFPMgmtPlan.pdf, accessed December 28, 2006.

11 Rick Bettis, 1998 Sacramento's Creeks & Sloughs a Brief Overview with Historical Vignettes, Urban Creeks Council of Sacramento, http://www.sacto-ucc.org/ucc-creeks-sloughs.htm#morrison, accessed December 22, 2006.

ensure a maximum flow in the river), drainage pumping plants, and flood control bypass channels. Such facilities control flood flows by regulating the amount of water passing through a particular reach of a river.

The relative timing of high flows can accentuate the flood risk because of a "backwater" effect, where peak flows back up and water flows backwards. In the American River, water surface elevations are "controlled" or affected by the Sacramento River water surface elevation (WSEL) either at the mouth of the American or at the Sacramento Weir. Under most conditions, the water surface in the American River is controlled by the WSEL at its mouth; however, during maximum peak flows, the American River WSEL is controlled by the WSEL in the Sacramento River at I Street, at the confluence, and at the Sacramento Weir. Under these conditions there is actually a "flow reversal" and a portion of the flow from the American River moves upstream in the Sacramento River to the Sacramento Weir. Numerous other local flood control and drainage facilities are also affected by the high water levels, peak flows, and potential 'backwater' effects in the main channels. Because of the relatively flat topography in the area, this "backwater" effect can be a significant controlling factor for high flow conditions in most natural streams and flood control or drainage channels in the region.

Studies by both the Corps[12] and the City of Sacramento[13] have concluded that channels and levees of the Stream Group provide a degree of flood protection that varies from a 40-year level to over a 100-year level.[14] The flood stage in Morrison Creek at Florin Road is 17.5 feet and the monitor stage is 16.5 feet.[15] This means that Morrison Creek at Florin Road is about 17.5 feet deep to the bottom of the concrete-lined channel.

The maximum flow rate within Morrison Creek near Sacramento was 2,730 cubic feet per second (cfs) in February of 1986.[16] Mean daily flow (1959 to 2005) ranges from 6.55 cfs in July to 75.2 cfs in January.[17] The 100-year flow (one percent chance of occurring in any given year) within Morrison Creek is 352 cfs at Florin Road.[18]

Compressor Station Site. The compressor station site is approximately five acres in size on an undeveloped portion of the Depot Park (Figure 2.2). The site contains non-native annual grassland and

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12 ACOE, Morrison Creek Stream, 1987, as referenced in National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way, Sacramento, California 95927, June 14, 2004.

13 City of Sacramento, Department of Public Works, 1992, as referenced in National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way, Sacramento, California 95927, June 14, 2004.

14 National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way, Sacramento, California 95927, June 14, 2004.

15 California Department of Water Resources Division of Flood Management, Real-Time River Stages, http://cdec.water.ca.gov/misc/rivstage_info.html, accessed January 14, 2007.

16 US Geological Survey, 2006. Water Data Report CA-2005: 1336580 Morrison Creek near Sacramento CA. http://web10capp.er.usgs.gov/imf/sites/adr/pdfs/11336580.2005.pdf, accessed January 11, 2007.

17 US Geological Survey. 2006. Water Data Report CA-2005: 1336580 Morrison Creek near Sacramento CA. http://web10capp.er.usgs.gov/imf/sites/adr/pdfs/11336580.2005.pdf, accessed January 11, 2007.

18 EIP Associates a Division of PBSJ, 2007, 99th percentile daily flow from daily flow data at US Geological Survey gage # USGS 11336580 MORRISON C NR Sacramento CA, from August 1, 1959 through January 14, 2007.

is bounded on the south by the remnant Morrison Creek corridor, industrial uses, and parking lots to the north, and open space to the west, south, and east. Morrison Creek, which used to flow on the southern boundary of the project area in the remnant Morrison Creek corridor, has been diverted to a flood control channel that flows along the boundaries of Depot Park.

Topography in this area is relatively flat with an elevation of 35 to 40 feet above mean sea level, sloping generally towards the south and west toward the remnant Morrison Creek corridor and Morrison Creek. Other ephemeral drainages crossing the compressor station site were observed during the site visit. The west edge of the project area contains an impervious concrete pad currently used (about 0.12 acres) for materials storage and loading. A portion of the project area also contains a section of test road. On-site drainage is variable, but generally runoff drains away from the concrete pad and towards a wetland area in the eastern area of the open space lands off-site and towards the remnant Morrison Creek corridor. Drainage from the northern parking lot appears to be graded away from the project area; therefore, no off-site contributions to overland flow on the project area are expected from this area.

This area is not located within a FEMA-defined flood hazard area and is therefore not subject to flooding during a 100-year storm event.[19] A 100-year flood is a flood event that has a rate of occurrence of one percent in any given year.

Wellhead Site. The wellhead site is located on a vacant parcel within an industrial area. General topography of the site is very flat at about 30 to 35 feet above mean sea level. The area drains generally towards the west to either Morrison Creek or Florin Creek systems. The project area is bounded on the west by Power Inn Road and an adjacent roadside ditch, to the north and east by commercial/warehouse uses, and on the south by an access road.

During runoff events, stormwater appears to flow from Power Inn Road into an adjacent ditch that discharges through a culvert onto the southwest corner of the project area. Although the entire off-site contributing area is unknown, the drainage ditch bordering the west side of the site appears to be graded to drain away from the culvert inlet about two-thirds of the way north along the boundary. Some runoff from the access road on the southern boundary of the site may drain to this roadside ditch and onto the project area; however, there is no culvert beneath this access road that would allow runoff from drainage areas south of the access road. Consequently, the off-site contributing drainage area appears to be primarily the section of Power Inn Road adjacent to the project area. It appears that the project area is used to provide storage of excess stormwater runoff from the roadway and thereby allow for some stormwater detention. Although a survey has not been completed, a site visit and aerial photos indicate that on-site drainage appears to flow east along the southern boundary and north along the eastern boundary to a low wet area just outside of the project area. Areas within the north and northwest appear to drain either south or east.

[19] FEMA Issued Flood Maps, FIRMette of City of Sacramento, California, Community Pannel Number 060266 0015 F Pannel 15 of 30, July 6, 1998, http://msc.fema.gov/webapp/wcs/stores/servlet/ StoreCatalogDisplay?storeId=10001catalogId=10001&langId=-1&userType=G, accessed December 27, 2006.

This area is not located within a FEMA-defined flood hazard area and is therefore not subject to flooding during a 100-year storm event.[20]

Surface Water Quality

Water quality in the numerous streams and drainage tributary to the Sacramento River (including Morrison Creek) is primarily based on surrounding land use. Urban runoff can also have a major effect on water quality. The Sacramento River is classified as having numerous beneficial uses, including municipal and agricultural water supply, recreation, and fisheries. Water quality within the river is classified as "good" to "impaired" in the span from Red Bluff to the Delta. Upstream water management and land use can affect the quality of water in the river. Regulation of stream flow by federal and state flood control and storage facilities reduces high water flows and increases summer and fall flows, substantially lessening water quality variations. Extensive irrigated agriculture along the Sacramento River tends to contribute to degraded river water quality.

Morrison Creek is listed as not supporting designated beneficial uses of aquatic life support, warm freshwater habitat, and overall use support because of pesticides from agriculture and municipal/urban runoff.[21] Morrison Creek is listed as impaired by diazinon from agricultural land uses and urban runoff/storm sewers.[22] The agricultural source of diazinon for these waterbodies is from aerial deposition.

Elder Creek is listed as only partially supporting designated beneficial uses of aquatic life, warm freshwater habitat, and overall use support because of pesticides (chlorpyrifos and diazinon) from agriculture and municipal/urban runoff.[23,24] Agriculture and urban runoff/storm sewers are listed as sources of chlorpyrifos and diazinon impairment. Elder Creek is also listed as impaired by diazinon from agricultural land uses and urban runoff/stormwater. The agricultural source of diazinon for these waterbodies is from aerial deposition.

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[20] FEMA Issued Flood Maps, FIRMette of City of Sacramento, California, Community Pannel Number 060266 0015 F Pannel 15 of 30, July 6, 1998, http://msc.fema.gov/webapp/wcs/stores/servlet/ StoreCatalogDisplay?storeId=10001catalogId=10001&langId=-1&userType=G, accessed December 27, 2006.

[21] USEPA, 305(b) Lists/Assessment Unit Information Year 2002, http://iaspub.epa.gov/tmdl/enviro_v2.wcontrol?p_id305b=CAR5191100019980817123042_00, accessed January 5, 2007.

[22] USEPA, 305(b) Lists/Assessment Unit Information Year 2002, http://iaspub.epa.gov/tmdl/enviro_v2.wcontrol?p_id305b=CAR5191100019980817123042_00, accessed January 5, 2007.

[23] USEPA, 305(b) Lists/Assessment Unit Information Year 2002, http://iaspub.epa.gov/tmdl/enviro_v2.wcontrol?p_id305b=CAR5191100019980817123042_00, accessed January 5, 2007.

[24] CVRWQCB. 2002 CWA Section 303(d) List of Water Quality Limited Segment. Approved by USEPA July 2003. http://www.swrcb.ca.gov/tmdl/docs/2002reg5303dlist.pdf, accessed on March 26, 2007.

Groundwater

The project area is located in the Sacramento Valley Groundwater Basin, South American Subbasin (5-21.65).[25] This subbasin is composed of water-bearing formations of continental deposits of Late Tertiary to quaternary age, including younger alluvium (flood basin deposits, dredge tailings, and Holocene stream channel deposits), older alluvium, and Miocene/Pliocene volcanics (Mehrten Formation: discontinuous fragmented volcanics). The thickness of all deposits ranges from a few hundred feet near the Sierra Nevada foothills to over 2,500 feet along the western edge. The maximum thickness of the younger alluvium deposits is about 100 feet. Specific yields range from about 5.4 percent in the flood basin deposits to 10 percent in the stream channel deposits of the younger alluvium, with an average of 6.8 percent for a depth range of 20 to 310 feet below ground surface (bgs).[26]

The Central Basin is part of the South American Subbasin that includes the project area. The upper, unconfined aquifer system consists of the Victor, Fair Oaks, and Modesto Formation and a lower, unconfined aquifer system consists primarily of the Mehrten Formation. These formations are typically composed of lenses of interbedded sand, silt, and clay interlaced with coarse-grained stream channel deposits. Groundwater typically occurs in either the Modesto Formation or underlying Mehrten Formation. Within the Central Basin, the shallow aquifer (Modesto Formation) extends to about 200 to 300 feet bgs. The deep aquifer (Mehrten Formation) is semi-confined and extends to about 1,400 feet bgs. Recharge occurs through natural recharge from river and stream channels, subsurface inflows from the eastern boundary at the transition point from the consolidated rocks of the Sierra Nevada to the alluvial-deposited basin sediments, and deep percolation of precipitation and applied surface water.[27] Rivers and streams, primarily the extensive sand and gravel deposits of the American, Cosumnes, and Sacramento River channels, account for about half the groundwater recharge. Subsurface inflows account for about 10 percent and deep percolation accounts for about 40 percent of recharge.[28] Depth to groundwater within the vicinity of the project area is about 65 to 75 feet bgs.[29] The compressor station site is located in an area of poor groundwater recharge because of underlying hardpan soil.[30]

According to a 1994 Army Depot base-wide feasibility study,[31] there are four water-bearing zones beneath the compressor site: two zones are interconnected at depths approximately 80 to 150 feet bgs;

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[25] Department of Water Resources, California's Groundwater Bulletin 118: Sacramento River Hydrologic Region, Sacramento Valley Groundwater Basin, accessed February 27, 2004.

[26] Department of Water Resources, California's Groundwater Bulletin 118: Sacramento River Hydrologic Region, Sacramento Valley Groundwater Basin, accessed February 27, 2004.

[27] Water Forum and Sacramento County Water Authority, 2006, Central Sacramento County Groundwater Management Plan, February 2006.

[28] Water Forum and Sacramento County Water Authority, 2006, Figure 2-16 Central Sacramento County Groundwater Management Plan, February 2006.

[29] Water Forum and Sacramento County Water Authority, 2006, Figure 2-17 Central Sacramento County Groundwater Management Plan, February 2006.

[30] Sacramento County. Sacramento County General Plan Update Draft Environmental Impact Report. Volume I. Sacramento, CA. 1992.

[31] National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way, Sacramento, California 95927, June 14, 2004.

and two zones appear to be distinct confined aquifers at 155 to 190 ft bgs and 195 to 230 feet bgs, respectively.[32] Groundwater flow is primarily south to southwest in the deeper aquifers; however, the shallow aquifer flow follows landscape topography and flows westward.[33] Local groundwater flow can also be influenced by local areas of recharge or withdrawal.

Groundwater Quality

Groundwater quality within the Sacramento Valley Groundwater Basin, South American Subbasin is generally suitable for municipal water supplies with little or no treatment required except for the lower aquifer sources. Groundwater quality of the upper aquifer system is generally considered to be of higher quality than the lower system because of high iron, manganese, and total dissolved solids in the Mehrten formation lower aquifer.[34] At depths of around 1,400 feet bgs, total dissolved salt (TDS) concentrations are high enough to render water unpotable unless treated by reverse-osmosis.[35] Groundwater quality is primarily a sodium calcium bicarbonate or calcium sodium bicarbonate near Elk Grove and a magnesium sodium bicarbonate or sodium magnesium bicarbonate near the confluence of the Sacramento and American Rivers.[36] In 1997, several sites in the area had significant groundwater contamination including areas below the Sacramento Army Depot. The Army has instituted a site clean-up program that should be completed in 2009.[37]

Groundwater used in the Central Basin region is derived from both shallow and deep aquifers. Older municipal wells and domestic wells are typically within the shallow aquifer where groundwater quality is good and requires little, if any, treatment. However, the Sacramento County Water Authority policies and practices have led to construction of large municipal wells within the Mehrten Formation. Several production wells are located within 0.5 miles of the wellhead site and within 2 miles of the compressor site.[38] Annual urban extraction is about 26 percent of inflows and agricultural extraction about 63 percent of inflows.[39] The long term sustainable yield has been calculated as 273,000 acre-feet per year.[40]

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[32] National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way, Sacramento, California 95927, June 14, 2004

[33] National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way, Sacramento, California 95927, June 14, 2004

[34] Water Forum and Sacramento County Water Authority, 2006. Central Sacramento County Groundwater Management Plan, February 2006.

[35] Water Forum and Sacramento County Water Authority, Central Sacramento County Groundwater Management Plan. February 2006.

[36] Department of Water Resources, California's Groundwater Bulletin 118: Sacramento River Hydrologic Region, Sacramento Valley Groundwater Basin, February 27, 2004.

[37] California Department of Toxic Substances Control, 2007, EnviroStor Database Sacramento Army Depot Report, www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id34970004, accessed January 2, 2007.

[38] Water Forum and Sacramento County Water Authority, Figure 2-20 Central Sacramento County Groundwater Management Plan, February 2006.

[39] Department of Water Resources, California's Groundwater Bulletin 118: Sacramento River Hydrologic Region, Sacramento Valley Groundwater Basin, February 27, 2004.

[40] Water Forum and Sacramento County Water Authority, 2006, Central Sacramento County Groundwater Management Plan, February 2006.

Other Site Characteristics

The proposed project would include the depleted Florin Gas Field, which is about 3,800 feet underground. It is centered under Danny Nunn Park (formerly Reservoir Park), at the corner of Power Inn Road and 53rd Avenue. About three-quarters of the site is in the City of Sacramento, and one-quarter is in Sacramento County. Natural gas was extracted from the Florin Gas Field up until approximately 1987. As noted in Project Description, Chapter 2, all of the wells were appropriately capped and abandoned, in accordance with the Division of Oil, Gas and Geothermal Resources (DOGGR) when they were no longer productive. No wells, pipelines, or meters currently connect to the abandoned gas field.

3.8.3 Regulatory Setting

Federal Regulations

Safe Drinking Water Act - USEPA Underground Injection Control Program. Prohibition of fluid movement of injectate into underground sources of drinking water is the standard for protection in the UIC program. The citation below (from 40 CFR Part 144) [48 FR 14189, Apr. 1, 1983, as amended at 52 FR 20676, June 2, 1987] provides the standard that all injection wells are measured against, including Class V (shallow and other) wells. This standard is currently in effect.

> § 144.12 Prohibition of movement of fluid into underground sources of drinking water.
>
> (a) No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.
>
> (b) For Class I, II and III wells, if any water quality monitoring of an underground source of drinking water indicates the movement of any contaminant into the underground source of drinking water, except as authorized under part 146, the Director shall prescribe such additional requirements for construction, corrective action, operation, monitoring, or reporting (including closure of the injection well) as are necessary to prevent such movement. In the case of wells authorized by permit, these additional requirements shall be imposed by modifying the permit in accordance with § 144.39, or the permit may be terminated under § 144.40 if cause exists, or appropriate enforcement action may be taken if the permit has been violated. In the case of wells authorized by rule, see §§ 144.21 through 144.24. For USEPA administered programs, such enforcement action shall be taken in accordance with appropriate sections of the SDWA.
>
> (e) Notwithstanding any other provision of this section, the Director may take emergency action upon receipt of information that a contaminant which is present in or is likely to enter a public water system or underground source of drinking water may present an imminent and

substantial endangerment to the health of persons. If the Director is an USEPA official, he must first determine the appropriate State and local authorities have not taken appropriate action to protect the health of such persons, before taking emergency action.

The water disposal well in the proposed project will be a Class II well under the classification definitions of the UIC program at 40 CFR Section 144.6. The UIC program for Class II wells in the State of California is administered by the DOGGR under the administrative regulations of that agency summarized below.

Clean Water Act

The Clean Water Act (CWA) was designed to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA also directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. Other provisions of the CWA related to basin planning include Section 208, which authorizes the preparation of waste treatment management plans, and Section 319, which mandates specific actions for the control of pollution from non-point sources. The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program, to individual states and/or tribal nations within each USEPA region.

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. Section 304(a) requires the USEPA to publish water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards.

Section 303(c)(2)(b) of the CWA requires states to adopt numerical water quality standards for toxic pollutants for which USEPA has published water quality criteria and which could reasonably be expected to interfere with designated uses in a water body.

Clean Water Act 404 U.S. Army Corps of Engineers Permit. Section 404 of the Clean Water Act requires authorization from the Secretary of the Army, acting through the Corps of Engineers, for the discharge of dredged or fill material into all waters of the United States, including wetlands. Discharges of fill material generally include, without limitation: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; beach nourishment; levees; fill for intake and outfall pipes and subaqueous utility lines; fill associated with the creation of ponds; and other work involving the discharge of fill or dredged material. A Corps permit is required whether the

work is permanent or temporary. The proposed project may involve fill of wetlands, which would require a 404 Permit.

Total Maximum Daily Loads (TMDLs). Section 303(d) of the CWA requires that the states make a list of waters that are not attaining water quality standards and designated beneficial uses. For waters on this list (and where ever the USEPA administrator deems they are appropriate) the states must develop total maximum daily loads, or TMDLs, to determine the amount of pollutant that can be discharged to a water that will not result in water quality impairment. A TMDL must account for all sources of the pollutants that caused the water to be listed including, background loads and both point sources and nonpoint sources of pollution. The USEPA is required to review and approve the list of impaired waters and each TMDL. If USEPA cannot approve the state list or a state TMDL, then the USEPA is required to establish them for the state.

TMDLs are established at the regulatory level necessary to implement the applicable water quality standards. The CWA does not expressly require the implementation of TMDLs; however, section 303(d), 303(e), and their implementing regulations require that approved TMDLs be incorporated into water quality control plans. A federal regulation, established in August 2000 and effective as of October 2001, requires that implementation plans be developed along with the TMDLs. In California, the SWRCB has interpreted state law (Porter-Cologne Water Quality Control Act, California Water Code Section 13000 et. seq.) to require that implementation be addressed when TMDLs are incorporated into Basin Plans (water quality control plans). The Porter-Cologne Act requires each Regional Board to formulate and adopt water quality control plans for all areas within its region. It also requires that a program of implementation be developed that describes how water quality standards will be attained. TMDLs can be developed as a component of the program of implementation. When the TMDL is established as a standard, the program of implementation must be designed to implement the TMDL.

Chlorpyrifos and diazinon. TMDLs were developed and approved by the USEPA for Morrison and Elder Creeks.[41]

National Pollutant Discharge Elimination System

The NPDES permit system was established in the CWA to regulate both point source discharges (a municipal or industrial discharge at a specific location or pipe) and non-point source discharges (diffuse runoff of water from adjacent land uses) to surface waters of the U.S. Non-point source pollution often enters receiving waters, such as the Sacramento River, in the form of overland flow (i.e., surface runoff that is not delivered by pipelines or other discrete conveyances). To meet the goals of the NPDES permit, each local stormwater program and each permittee within a program establishes a Stormwater Management Plan (SWMP). These SWMPs give specific local requirements targeted to meet the environmental needs of each watershed, as well as to reflect the political consensus of each community.

[41] USEPA, Section 303(d) List Fact Sheet for Watershed December 28, 2006, Lower Sacramento http://iaspub.epa.gov/tmdl/huc_rept.control?p_huc=18020109&p_huc_desc=LOWER%20SACRAMENTO, accessed December 28, 2006.

For point source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge; however, the project area would not be considered a point source for regulatory purposes. For non-point source discharges, the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of (1) characterizing receiving water quality, (2) identifying harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a Comprehensive Stormwater Management Program. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that the USEPA must consider in setting effluent limits for priority pollutants.

The reduction of pollutants in urban stormwater discharge through the use of structural and nonstructural Best Management Practices (BMPs) is one of the primary objectives of the water quality regulations. BMPs typically used to manage runoff water quality include controlling roadway and parking lot contaminants by installing oil and grease separators at storm drain inlets, cleaning parking lots on a regular basis, incorporating peak-flow reduction and infiltration features (such as grass swales, infiltration trenches, and grass filter strips) into landscaping, and implementing educational programs.

Clean Water Act National Pollutant Discharge Elimination System (NPDES) Section 402(l)(2) Stormwater Runoff from Oil, Gas, and Mining Operations

The Administrator shall not require a permit under this section, nor shall the Administrator directly or indirectly require any State to require a permit, for discharges of stormwater runoff from mining operations or oil and gas exploration, production, processing, or treatment operations or transmission facilities, composed entirely of flows which are from conveyances or systems of conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations.

Title 40—Protection of the Environment Part 122 EPA Administered Permit Programs: the National Pollutant Discharge Elimination System Sec. 122.26 Storm water discharges

§ 122.26 Storm water

(a) (2) The Director may not require a permit for discharges of storm water runoff from the following:

(ii) All field activities or operations associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities, except in accordance with paragraph (c)(1)(iii) of this section. Discharges of sediment from

construction activities associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities are not subject to the provisions of paragraph (c)(1)(iii)(C) of this section.

(c)(1) (iii) The operator of an existing or new discharge composed entirely of storm water from an oil or gas exploration, production, processing, or treatment operation, or transmission facility is not required to submit a permit application in accordance with paragraph (c)(1)(i) of this section, unless the facility:

(A) Has had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21 or 40 CFR 302.6 at anytime since November 16, 1987; or

(B) Has had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 110.6 at any time since November 16, 1987; or

(C) Contributes to a violation of a water quality standard.

Amendments to the National Pollutant Discharge Elimination System (NPDES) Regulations for Storm Water Discharges Associated With Oil and Gas Exploration, Production, Processing, or Treatment Operations or Transmission Facilities[42]

On June 12, 2006, USEPA published a rule that exempts construction activities at oil and gas sites from the requirement to obtain an NPDES permit for stormwater discharges except in very limited instances. These amendments are consistent with the Energy Policy Act of 2005 signed by the President on August 8, 2005. This action also encourages voluntary application of best management practices for construction activities associated with oil and gas field activities and operations to minimize erosion and control sediment to protect surface water quality. The final rule is effective June 12, 2006.

Construction activities that result in a discharge of a reportable quantity release or that contribute pollutants (other than non-contaminated sediments) to a violation of a water quality standard are still subject to permit coverage.[43]

This final rule makes clear, through 40 CFR 122.26(a)(2)(ii), that a water quality standard violation for sediment from construction activities associated with oil and gas field operations alone will not trigger an NPDES permit requirement.[44] However, sediments may serve as a vehicle for discharges of oil or hazardous substances (e.g., heavy metals) or some other pollutant, and if a reporting quantity is

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[42] USEPA. 2006. 40 CFR Part 122 [EPA–HQ–OW–2002–0068; FRL–8183–3] RIN 2040–AE81. Federal Register / Vol. 71, No. 112 / Monday, June 12, 2006 / Rules and Regulations.

[43] USEPA. 2006. Final Rule: Amendments to the Storm Water Regulations for Discharges Associated with Oil and Gas Construction Activities. http://www.epa.gov/npdes/regulations/final_oil_gas_factsheet.pdf. Accessed February 5, 2007

[44] USEPA. 2006 Oil and Gas Stormwater Final Rule Q&A. http://www.epa.gov/npdes/regulations/final_rule_QA.pdf. Accessed February 5, 2007

exceeded or a water quality standard violated for such other pollutant, the resulting contamination could trigger NPDES permitting requirements for the stormwater discharge. Discharges of stormwater resulting in the discharge of a reportable quantity or that contribute to a violation of a water quality standard are two criteria for oil and gas activities that meet USEPA's "contaminated by contact" threshold for which NPDES permit coverage is required. Once the facility meets either of these two criteria, the operator must obtain NPDES permit coverage under either an individual permit or an applicable general permit. NPDES permit coverage is required for the lifetime of these facilities. Stormwater discharges from oil and gas activities (i.e., exploration, production, processing, or treatment operations, or transmission facilities, including construction) that are contaminated by contact with raw material, intermediate products, finished product, byproduct, or waste products, as indicated by discharges of reportable quantities of hazardous substances or oil, or by violations of water quality standards are subject to NPDES permitting requirements. The USEPA does not consider sediment from construction activities to be the result of such contact and as such, discharges of sediment from construction activities do not trigger the need to obtain permit coverage.

The CWA exemption at 402(l)(2) prohibits states from permitting these activities through a federally approved NPDES program; however, states retain authority pursuant to state law to regulate these activities through a non-NPDES program.[45]

Floodplain Development

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on Corps studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMS), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including the 100-year floodplain.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within the flood hazard areas depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR) which enables FEMA to require municipalities that participate in the National Flood Insurance Program (NFIP) to adopt certain flood hazard reduction standards for construction and development in 100-year flood plains.

AR Zone Legislation. Congress adopted legislation which created a new "AR" flood zone designation which applies to Sacramento and other similar areas, whose certified 100-year or greater flood protection system has been decertified as a result of new hydraulic or other data. The AR zone delineates the new 100-year flood plain and establishes the flood insurance and development regulations that apply within this zone. Qualifying communities may use the AR zone designation provided they apply to FEMA and demonstrate that their flood protection system will be restored within a specified time period based on a plan acceptable to FEMA. Under legislation, flood insurance in the AR zones is mandatory.

[45] USEPA. 2006 Oil and Gas Stormwater Final Rule Q&A. http://www.epa.gov/npdes/regulations/final_rule_QA.pdf. Accessed February 5, 2007

This legislation prohibits FEMA from requiring the new elevation of improvements to existing structures. However, FEMA may require that new structures be elevated up to three feet above existing grade in areas where the base flood elevations does not exceed five feet, where the new construction occurs on an infill site, qualifies as rehabilitation of an existing structure, or constitutes redevelopment of a previously developed area. The legislation imposes no limits on FEMA in promulgating flood plain management criteria for areas where the base flood elevation exceeds five feet and the new construction does not meet any of the above criteria.

FEMA requirements for residential development in a designated A Zones (except A99) include raising the first floor to or above the base flood elevation (100-year). Requirements for nonresidential structures include the following:

- Elevate the lowest floor (including the basement) to or above the base flood level; or
- Together with attendant utility and sanitary facilities, design so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
- Require that fully enclosed areas below the lowest floor that are subject to flooding be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.

State Regulations

Responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard. Other criteria may be applied from State Water Resources Control Board (SWRCB) documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document, California Toxics Rule) or from USEPA water quality criteria developed under Section 304(a) of the CWA. The Central Valley Regional Water Quality Control Board (CVRWQCB) implements a number of federal and state laws, the most important of which are the State Porter-Cologne Water Quality Control Act and the Federal Clean Water Act. Additionally, the DOGGR has regulations in place to maintain water quality during construction and operation of gas wells.

All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code and are required to obtain approval of Waste Discharge Requirements (WDRs) by the RWQCBs. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as NPDES permits, which are further described below.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwater) and directs the RWQCBs to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the SWRCB to adopt water quality control plans on its own initiative.

The Central Valley Region Basin Plan specifically: (1) designates beneficial uses for surface and ground waters; (2) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy; and (3) describes implementation programs to protect all waters in the region.

Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP)

In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard. These may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document) or from water quality criteria developed under Section 304(a) of the Clean Water Act (e.g., California Toxics Rule). Numeric criteria are required by the CWA for many priority toxic pollutants. However, in 1994, a state court overturned the state's water quality control plans containing water quality criteria for priority toxic pollutants. To fill in the gap between the water quality control plans and CWA requirements, on May 18, 2000, the USEPA promulgated the California Toxics Rule based on the Administrator's determination that numeric criteria are necessary in the State of California to protect human health and the environment. These federal criteria are numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards legally applicable in the State of California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the Clean Water Act.

In March of 2000, the SWRCB adopted the SIP in Resolution No. 2000-015, which establishes: (1) implementation provisions for priority pollutant criteria promulgated by the USEPA through the National Toxics Rule (40 CFR 131.36) (promulgated on 22 December 1992 and amended on 4 May 1995) and through the California Toxics Rule (40 CFR 131.38) (promulgated on 18 May 2000 and amended on 13 February 2001), and for priority pollutant objectives established by Regional Water Boards in their basin plans; (2) monitoring requirements for 2,3,7,8-TCDD equivalents; and (3) chronic toxicity control provisions. In addition, this policy includes special provisions for certain types of discharges and factors that could affect the application of other provisions in this policy. A list of priority pollutants and associated criteria can be found in the CFR, Section 40, Part 131.[46]

[46] Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California, May 18, 2000.

Inland Surface Water Quality Standards

The SWRCB has developed water quality objectives for inland surface waters.[47] Included among the provisions of these objectives are: (a) that all point and non-point discharges must comply with identified water quality objectives; and (b) that effluent limits are to be imposed, either through NPDES permits or WDRs, such that the water quality objectives shall not be exceeded in the receiving water outside a designated mixing zone. The 1991 Inland Surface Waters Plan (ISWP) established water quality objectives for priority pollutants that are more stringent than those water quality objectives in the Basin Plan. Therefore, the more stringent objectives are applied to discharges that contain priority pollutants.

NPDES General Construction Activity Stormwater Permit

Oil and gas industries, including transmission lines and the proposed project, are exempt from any construction activities NPDES permit requirements unless the construction activities will result in a discharge of a reportable quantity release or will contribute pollutants (other than non-contaminated sediments) to a violation of a water quality standard are still subject to permit coverage (See above Federal regulatory requirements and 40 CFR Part 122). However, non-construction related NPDES permit requirements still apply and non-NPDES State construction regulations still apply. Therefore, if construction activities would result in the discharge of any contaminant other than non-contaminated sediment that would result in an exceedence of a water quality standard, the following conditions would apply.

In accordance with NPDES Phase I regulations, to minimize the potential effects of construction runoff on receiving water quality, California requires that any construction activity affecting five acres or more must obtain coverage under the General Construction Storm Water Permit. Implementation of NPDES Phase II expanded this requirement to include construction activities disturbing one acre or more. The SWRCB permits all regulated construction activities under Order No. 98-08-DWQ (1999). This permit requires implementation of non-point source control of stormwater pollution runoff through the application of a number of BMPs, meant to reduce the amount of pollutants entering streams and other water bodies. Projects of less than one acre, the MS4 (municipal separate storm sewer systems) operations are controlled through issuance of a Notice of Intent (NOI) to comply with the terms of the region-specific General Construction Activity Stormwater Permit (General Permit).

Prior to beginning any construction activities, the permit applicant is typically required to obtain coverage under the Construction General Permit by preparing and submitting an NOI and a Stormwater Pollution Prevention Plan (SWPPP) to the SWRCB; and, by implementing the SWPPP to mitigate potential construction impacts on receiving water quality.

In addition, 2003 revisions to the original Construction General Permit clarify that all construction activity, including small construction sites that are part of a larger common plan, must obtain a coverage under this Construction General Permit. Required elements of a SWPPP include: (1) site

[47] CVRWQCB. Fourth Edition of the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins. September 15, 1998, revised August 6, 2006

description addressing the elements and characteristics specific to the site; (2) descriptions of BMPs for erosion and sediment controls (only if sediment is contaminated for oil and gas projects); (3) BMPs for construction waste handling and disposal; (4) implementation of approved local plans; (5) proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and (6) non-stormwater management. The SWPPP must include BMPs that address source control, and, if necessary, include BMPs that address specific pollutant control. Dischargers are also required to inspect their construction sites before and after storms to identify stormwater discharge associated with construction activity and to identify and implement controls where necessary. Even though the proposed project would disturb more than one acre, because it is a gas industry project, it would not be required to obtain coverage under the Construction General Permit.

California General Industrial Storm Water Permit

The SWRCB adopted an NPDES Industrial Storm Water General Permit (Order 97-03-DWQ, CAS000001) to regulate discharges associated with ten broad categories of industrial activities.[48] The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The General Industrial Permit also requires the development of a Storm Water Pollution Prevention Plan (SWPPP) and a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce stormwater pollution are described, including spill prevention and response procedures. The General Industrial Permit requires that an annual report be submitted each July 1.[49]

All storm drains from the Depot Park site are owned and operated by the United States Army. The site is registered as a general permittee under the Statewide General Industrial Activity Stormwater Discharge Permit (5A34S0061-10/23/92) under standard limitations for BMPs, monitoring and reporting requirements, as well as under limits (standards) for the Clean Water Act, 40 CFR 110.10, 117.21, and 302.4 for hazardous substances. Stormwater at this site is discharged to Morrison Creek under the NPDES permit.[50]

California Code of Regulations

Construction and operation of wells is regulated under the California Code of Regulations (CCR).[51] Pertinent requirements are listed below.

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[48] Industrial General Permit Attachment 1. Currently, categories of facilities subject to storm water effluent limitations guidelines are: Cement Manufacturing (40 CFR Part 411), Feedlots (40 CFR Part 412), Fertilizer Manufacturing (40 CFR Part 418), Petroleum Refining (40 CFR Part 419), Phosphate Manufacturing (40 CFR Part 422), Steam Electric (40 CFR Part 423), Coal Mining (40 CFR Part 434), Mineral Mining and Processing (40 CFR Part 436), Ore Mining and Dressing (40 CFR Part 440), and Asphalt Emulsion (40 CFR Part 443).

[49] State Water Resources Control Board, Current Industrial Activities Storm Water General Permit (adopted 1997), http://www.waterboards.ca.gov/stormwtr/gen_indus.html, accessed August 7, 2006.

[50] City of Sacramento, Sacramento Army Depot Reuse Plan Draft Environmental Impact Report, 1994.

[51] California Department of Conservation Division of Oil, Gas, and Geothermal Resources October 2006 Sacramento State of California Title 14. Natural Resources Division 2. Department of Conservation

Chapter 4. Development, Regulation, and Conservation of Oil and Gas Resources Subchapter 1. Onshore Well Regulations Article 3. Requirements.

General requirements include good oilfield practices, preparation of an oil spill contingency plan and condensate spill plan (where gas field operations produce sufficient condensate). A blowout prevention and control plan is also required for certain critical or high pressure wells. Section 1722.5 includes requirements for blowout prevention and related well control equipment. All urban wells must have blowout prevention equipment installed.[52] Furthermore, prior to drilling, re-drilling, reworking, deepening, plugging, or abandoning wells, a Notice of Intent must be completed and filed with the appropriate Division district office for approval.

Section 1722.2. Casing Program

Each well shall have casing designed to provide anchorage for blowout prevention equipment and to seal off fluids and segregate them for the protection of all oil, gas, and freshwater zones. All casing strings shall be designed to withstand anticipated collapse, burst, and tension forces with the appropriate design factor provided to obtain a safe operation.

Casing setting depths shall be based upon geological and engineering factors, including but not limited to the presence or absence of hydrocarbons, formation pressures, fracture gradients, lost circulation intervals, and the degree of formation compaction or consolidation. All depths refer to true vertical depth (TVD) below ground level.

Section 1722.5. Blowout Prevention and Related Well Control Equipment

Blowout prevention and related well control equipment shall be installed, tested, used, and maintained in a manner necessary to prevent an uncontrolled flow of fluid from a well. Division of Oil, Gas, and Geothermal Resources publication No. MO 7, "Blowout Prevention in California," shall be used by Division personnel as a guide in establishing the blowout prevention equipment requirements specified in the Division's approval of proposed operations.

Section 1722.6. Drilling Fluid Program

The operational procedures and the properties, use, and testing of drilling fluid shall be such as are necessary to prevent the uncontrolled flow of fluids from any well. During removal of the drill pipe or tubing from the hole, a hole-filling program shall be followed to maintain a satisfactory pressure overbalance condition. Tests of the drilling fluid to determine viscosity, water loss, weight, and gel strength shall be performed at least once daily while circulating, and the results of such tests shall be recorded on the driller's log. Disposal of drilling fluids shall be done in accordance with Section 1775, Subchapter 2 of these regulations.

[52] Department of Conservation Division of Oil, Gas, and Geothermal Resources. Notice to Operators January 2, 2007.

Section 1724.3. Well Safety Devices for Critical Wells

Certain wells designated by the Supervisor, that meet the definition of "critical" pursuant to Section 1720(a) and have sufficient pressure to allow fluid-flow to the surface, shall have safety devices as specified by the Supervisor, installed and maintained in operating condition.

Section 1724.6. Approval of Underground Injection and Disposal Projects

Approval must be obtained from this Division before any subsurface injection or disposal project can begin. This includes all USEPA Class II wells and air- and gas-injection wells. The operator requesting approval for such a project must provide the appropriate Division district deputy with any data that, in the judgment of the Supervisor, are pertinent and necessary for the proper evaluation of the proposed project.

Section 1724.7. Project Data Requirements

The data required to be filed with the district deputy include the following, where applicable (Section 1724.9 includes additional requirements for gas storage projects):

An engineering study, including but not limited to: reservoir characteristics of each injection zone, such as porosity, permeability, average thickness, areal extent, fracture gradient, original and present temperature and pressure, and original and residual oil, gas, and water saturations; reservoir fluid data for each injection zone, such as oil gravity and viscosity, water quality, and specific gravity of gas; casing diagrams, including cement plugs, and actual or calculated cement fill behind casing, of all idle, plugged and abandoned, or deeper-zone producing wells within the area affected by the project, and evidence that plugged and abandoned wells in the area will not have an adverse effect on the project or cause damage to life, health, property, or natural resources; planned well-drilling and plugging and abandonment program to complete the project, including a flood-pattern map showing all injection, production, and plugged and abandoned wells, and unit boundaries.

A geologic study, including but not limited to: structural contour map drawn on a geologic marker at or near the top of each injection zone in the project area; Isopachous map of each injection zone or subzone in the project area; at least one geologic cross section through at least one injection well in the project area; representative electric log to a depth below the deepest producing zone (if not already shown on the cross section), identifying all geologic units, formations, freshwater aquifers, and oil or gas zones.

An injection plan, including but not limited to: a map showing injection facilities; maximum anticipated surface injection pressure (pump pressure) and daily rate of injection, by well; monitoring system or method to be utilized to ensure that no damage is occurring and that the injection fluid is confined to the intended zone or zones of injection; method of injection; list of proposed cathodic protection measures for plant, lines, and wells, if such measures are warranted; treatment of water to be injected; source and analysis of the injection liquid; location and depth of each water-source well that will be used in conjunction with the project.

Copies of letters of notification sent to offset operators.

Other data as required for large, unusual, or hazardous projects, for unusual or complex structures, or for critical wells. Examples of such data are: isogor maps, water-oil ratio maps, isobar maps, equipment diagrams, and safety programs.

Section 1724.9. Gas Storage Projects

The data required by the Division prior to approval of a gas storage project include all applicable items listed in Section 1724.7(a) through (e), and the following, where applicable:

a) Characteristics of the cap rock, such as areal extent, average thickness, and threshold pressure.
b) Oil and gas reserves of storage zones prior to start of injection, including calculations.
c) List of proposed surface and subsurface safety devices, tests, and precautions to be taken to ensure safety of the project.
d) Proposed waste water disposal method.

Section 1724.10. Filing, Notification, Operating, and Testing Requirements for Underground Injection Projects

b) Notices of intention to drill, redrill, deepen, or rework, on current Division forms, shall be completed and submitted to the Division for approval whenever a new well is to be drilled for use as an injection well and whenever an existing well is converted to an injection well, even if no work is required on the well.
d) A chemical analysis of the liquid being injected shall be made and filed with the Division whenever the source of injection liquid is changed, or as requested by the Supervisor.
e) An accurate, operating pressure gauge or pressure recording device shall be available at all times, and all injection wells shall be equipped for installation and operation of such gauge or device. A gauge or device used for injection-pressure testing, which is permanently affixed to the well or any part of the injection system, shall be calibrated at least every six months.
f) All injection piping, valves, and facilities shall meet or exceed design standards for the maximum anticipated injection pressure, and shall be maintained in a safe and leak-free condition.
g) All injection wells, except steam, air, and pipeline-quality gas injection wells, shall be equipped with tubing and packer set immediately above the approved zone of injection within one year after the effective date of this act.
h) Data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the project. Project data shall be available for periodic inspection by Division personnel.
i) To determine the maximum allowable surface injection pressure, a step-rate test shall be conducted prior to sustained liquid injection. Test pressure shall be from hydrostatic to the pressure required to fracture the injection zone or the proposed injection pressure, whichever occurs first. Maximum allowable surface injection pressure shall be less than the fracture pressure. The district deputy may waive or modify the requirement for a step-rate test if he or she determines that surface injection pressure

for a particular well will be maintained considerably below the estimated pressure required to fracture the zone of injection.

j) A mechanical integrity test (MIT) must be performed on all injection wells to ensure the injected fluid is confined to the approved zone or zones.
    1) Prior to commencing injection operations, each injection well must pass a pressure test of the casing-tubing annulus to determine the absence of leaks. Thereafter, the annulus of each well must be tested at least once every five years; prior to recommencing injection operations following the repositioning or replacement of downhole equipment; or whenever requested by the appropriate Division district deputy.
    2) When required by subsection (j) above, injection wells shall pass a second demonstration of mechanical integrity.
    4) The appropriate district office shall be notified before such tests/surveys are made, as a Division inspector may witness the operations. Copies of surveys and test results shall be submitted to the Division within 60 days.

k) Additional requirements or modifications of the above requirements may be necessary to fit specific circumstances and types of projects. Examples of such additional requirements or modifications are:
    1) Injectivity tests.
    2) Graphs of time vs. oil, water, and gas production rates, maintained for each pool in the project and available for periodic inspection by Division personnel.
    3) Graphs of time vs. tubing pressure, casing pressure, and injection rate maintained for each injection well and available for periodic inspection by Division personnel.
    4) List of all observation wells used to monitor the project, indicating what parameter each well is monitoring (i.e., pressure, temperature, etc.), submitted to the Division annually.
    5) List of all injection-withdrawal wells in a gas storage project, showing casing-integrity test methods and dates, the types of safety valves used, submitted to the Division annually.
    6) Isobaric maps of the injection zone, submitted to the Division annually.
    7) Notification of any change in waste disposal methods.

Section 1775. Oilfield Wastes and Refuse

This section regulates disposal of drilling fluids and soil cuttings. Disposal is required to be performed in such a manner as to not cause damage to life, health, property, freshwater aquifers or surface waters, or natural resources, or be a menace to public safety. Disposal sites for oilfield wastes shall also conform to State Water Resources Control Board and appropriate California Regional Water Quality Control Board Regulations. Disposal of contaminated waste materials containing harmful chemicals are prohibited where precipitation might wash significant quantities into freshwater systems. Drilling mud may not be disposed of in open pits and cement slurries and dry materials are prohibited from being disposed of on the land surface.

California Water Code, Section 13260

Section 13260 states that persons discharging or proposing to discharge waste that could affect the quality of the waters of the state, other than into a community sewer system, shall file a Report of Waste Discharge (ROWD) containing information which may be required by the appropriate Regional RWQCB. For discharges into surface waters, a completed NPDES permit application forms must be filed with the appropriate Regional Board. For other types of discharges, such as those affecting groundwater or in a diffused manner (e.g., erosion from soil disturbance or waste discharges to land) Report of Waste Discharge must be filed with the appropriate Regional Board in order to obtain WDRs.

Typical activities that affect water include, but are not limited to, the following:

- Discharge of process wastewater not discharging to a sewer (factories, cooling water, etc.)
- Confined Animal facilities (dairies, feedlots, etc.)
- Waste containments (landfills, waste ponds, etc.)
- Construction sites
- Boatyards and shipyards
- Discharges of pumped groundwater and cleanups (underground tank cleanups, dewatering, spills)
- Material handling areas draining to storm drains
- Sewage treatment facilities
- Filling of wetlands
- Dredging, filling, and disposal of dredge wastes
- Commercial activities not discharging to a sewer (e.g. factory waste water, storm drain)
- Waste discharges to land

Streambed Alteration Agreement

California Department of Fish and Game Code (CDFG) Section 1602 requires any person, state or local governmental agency, or public utility to notify CDFG before beginning any activity that will do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream corridor, or lake, including flood control projects; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. This applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state. In addition, all aquatic and riparian habitats occurring between the outer edges (drip line) of riparian vegetation along one top of bank to outer edge of riparian vegetation rooted in the opposite top of bank is under CDFG jurisdiction. All construction activity occurring in designated stream corridors is subject to review and approval by the agency. The submission and approval of Section 1602 Streambed Alteration Agreements from the CDFG normally is required prior to the initiation of construction in a creek or stream channel. The proposed project could include grading and alteration of drainage paths and would cross intermittent or ephemeral drainages. Consequently, CDFG project approvals and permits might be required.

Clean Water Act 401 State Water Quality Certification

The State's Water Quality Certification (WQC) Program was formally initiated in 1990 in response to the requirements of Clean Water Act (CWA) Section 401. Any applicant for a federal license or permit to conduct any activity that may result in any discharge into the navigable waters, must provide the licensing or permitting agency a certification from the state in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that any such discharge will comply with the applicable Clean Water Act provisions. If a federal permit is required, such Corps' permits for wetland fill and dredge discharges, the proposed project must also obtain a WQC.

Regional

Sacramento River Basin Water Quality Control Plan

Water quality objectives have been established for the Sacramento River (and its tributaries including Morrison Creek) that are contained in the l991 Sacramento River Basin Water Quality Control Plan (Basin Plan) prepared by the CVRWQCB in compliance with the Federal CWA and the State Porter-Cologne Water Quality Control Act. The Basin Plan establishes water quality objectives, and implementation programs to meet stated objectives and to protect the beneficial uses of water in the Sacramento River Basin. Specific objectives are not established for Morrison Creek or Elder Creek, therefore, the applicable objectives are the ones listed for the Sacramento River, the nearest downstream water body with specified objectives.

Construction Site Dewatering

The CVRWQCB has determined that clean or relatively pollutant-free construction-generated wastewater that poses little or no threat to water quality may be discharged directly to surface water under certain conditions. Permit conditions for the discharge of these types of wastewaters to surface water are specified in Waste Discharge Requirements General Order for Dewatering and Other Low-Threat Discharges to Surface Waters, Order No. 5-00-175. Discharges may be covered by the permit provided either (1) they are four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 million gallons per day. Construction dewatering, well development water, pump/well testing, and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the permit. This general order also specifies standards for testing, monitoring and reporting, receiving water limitations, and discharge prohibitions.

Sacramento Area Flood Control Agency

The Sacramento Area Flood Control Agency (SAFCA) was formed in 1989 to address the Sacramento area's vulnerability to catastrophic flooding. This vulnerability was exposed during the record flood of 1986 when Folsom Dam exceeded its normal flood control storage capacity and several area levees nearly collapsed under the strain of the storm. In response, the City of Sacramento, the County of Sacramento, the County of Sutter, and the American River Flood Control District and Reclamation

District 1000 created SAFCA through a Joint Exercise of Powers Agreement to provide the Sacramento region with increased flood protection along the American and Sacramento Rivers. Under the Sacramento Area Flood Control Agency Act of 1990, the California Legislature has given SAFCA broad authority to finance flood control projects and has directed the Agency to carry out its flood control responsibilities in ways that provide optimum protection to the natural environment.

County of Sacramento Municipal Code[53]

County of Sacramento Stormwater Management and Discharge Control Code. Chapter 15.12

15.12.120 Purpose and Intent.

The purpose of this Chapter is to protect and enhance the watercourses within the unincorporated area of the County, by controlling the contribution of urban pollutants to stormwater runoff which enters the County storm drain system in a manner consistent with the Federal Clean Water Act, the Porter-Cologne Water Quality Control Act and Municipal discharge Permit No. CAS082597, and by controlling pollutants that are discharged directly to natural surface waters.

This includes the following goals: reduction of stormwater pollutant discharge to the maximum extent practicable; prohibition of Non-stormwater discharges into the County storm drain system or to natural surface waters; compliance with the requirements of the Federal Clean Water Act, the Porter-Cologne Water Quality Control Act and NPDES Municipal Storm Water Discharge Permit #CAS082597 as they apply to the discharge of pollutants into and from the County storm drain system; implementation of the county's SQIP; prevention of groundwater contamination; establishment of appropriate enforcement procedures and penalties for violations of the provisions of this Chapter. (SCC 1280 § 2 (part), 2004)

15.12.240 Prohibited Conditions.

a. In the interest of preventing prohibited discharges from occurring, it shall be unlawful for any person to maintain, or cause to be maintained, any of the following conditions:

    1. Unmitigated stormwater pollution source;
    2. Threatened prohibited non-stormwater discharge;
    3. Prohibited non-stormwater discharge Installation; or
    4. Illicit connection.

15.12.322 Construction Sites With Building Permits.

Any person owning or operating a construction site for which a building permit has been issued shall implement BMPs to control the discharge of pollutants to the maximum extent practicable, and eliminate non-stormwater discharges that are not in compliance with an NPDES Permit. (SCC 1280 § 2 (part), 2004)

[53] Lexis Nexus. 2006. Sacramento County, CA Code. Updated through Ordinance SCC 1342, passed October 24, 2006. Accessed February 2, 2007.

15.12.325 Post Construction Requirements for New Development and Significant Redevelopment.

a. The Administrator shall be authorized to establish specified performance requirements and requirements for BMPs as appropriate to minimize the long-term, post construction discharge of stormwater pollutants from new development or significant redevelopment, to implement the development standards plan, and to comply with the requirements associated with development standards in the Municipal Stormwater Permit, including but not limited to Provisions 16 through 26. The requirements for new development or redevelopment may include but are not limited to performance standards, source control BMPs, treatment BMPs, structural BMPs, operational BMPs, building material specifications or limitations, site design requirements, signage and marking, and associated maintenance programs or schedules.

County of Sacramento Land Grading and Erosion Control Code. Chapter 16.44

It is the intent of the Board of Supervisors in enacting this chapter to minimize damage to surrounding properties and public rights-of-way, the degradation of the water quality of watercourses, and the disruption of natural or County authorized drainage flows caused by the activities of clearing and grubbing, grading, filling and excavating of land, and sediment and pollutant runoff from other construction related activities, and to comply with the provisions of the NPDES Permit Number, CA0082597, issued by the California Regional Water Quality Control Board (Regional Board) (SCC 1002 § 3, 1995; SCC 0928 § 2, 1993.).

16.44.050 Permits Required.

Except as provided by Sections 16.44.060, 16.44.065 or 16.44.070, a Grading and Erosion Control Permit shall be required to (1) grade, fill, excavate, store or dispose of 350 cubic yards or more of soil or earthly material or (2) clear and grub 1 acre or greater of land within the unincorporated area of the County. A separate permit is required for work on each site unless sites are contiguous, have the same ownership, and are included in the approved plan. (SCC 1002 § 3, 1995; SCC 0928 § 2, 1993.)

16.44.060 Permits Not Required.

A Grading and Erosion Control Permit shall not be required to (1) grade, fill, excavate, store or dispose of less than three hundred fifty (350) cubic yards of soil or earthly material or (2) clear and grub less than 1 acre of land within the unincorporated area of the County or (3) for the grading, filling, excavating, storing, disposing, or clearing and grubbing for:

b. Underground utilities

Local

City of Sacramento Municipal NPDES Permit

The 1987 amendments to the CWA directed the USEPA to implement the stormwater program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II addresses all

other discharges defined by USEPA that are not included in Phase I, and construction activities that affect one to five acres. NPDES Phase I permits to municipalities are issued by their respective RWQCB. Municipal stormwater discharges from the City of Sacramento are regulated under the Phase I regulations.

The City of Sacramento, along with the County of Sacramento and other regional municipalities, has obtained a NPDES permit (Order No. R5-2002-0206, NPDES No. CAS082597) from the CVRWQCB under the requirements of the USEPA and Section 402 of the CWA. The goal of this permit is to reduce pollutants found in urban stormwater runoff. The NPDES permit requires the use of BMPs. The City has a list of BMPs necessary to accomplish the goals of this permit. The primary objective of the BMPs is to reduce non-point source pollution into waterways. These practices include structural and source control measures for residential and commercial areas, and BMPs for construction sites. Components of the BMPs include:

- Maintenance of structures and roads
- Flood control management
- Comprehensive development plans
- Grading, Erosion and Sediment Control Ordinance
- Inspection and enforcement procedures
- Educational programs for toxic material and oil control
- Reduction of pesticide use

City of Sacramento Stormwater Quality Improvement Plan (SQIP)

To comply with the NPDES Municipal Permit, the City of Sacramento has prepared and implemented the City of Sacramento Stormwater Quality Improvement Plan (July, 2003). In this plan, construction projects are required to adequately address City and state requirements through the development approval process and municipal procedures by requiring each project to have an adequate Erosion and Sediment Control Plan (ESC plan) and, if applicable, obtain coverage under the State General Construction Permit. Prior to issuing a grading permit for development projects, development review staff will require proof that a NOI for coverage under the State General Construction Permit has been submitted and require the submittal of a SWPPP, if applicable. The SWPPPs submitted to the City must contain the following items at a minimum: (1) vicinity map; (2) site map; (3) list of potential sources of stormwater pollution; (4) type and location of ESC BMPs; (5) name and number of the person responsible for implementing the SWPPP; and (6) signed landowner certification. Municipal project managers ensure that ESC plans are prepared and State General Construction Permits are obtained and implemented for municipal construction projects. Because the project is in the oil and gas industry, it is exempt from all NPDES permit requirements for control of non-contaminated, construction-related sediment including sediments in Stormwater discharges. However, it is not exempt from construction sediment controls required through non-NPDES permit regulations or non-construction sediment control requirements.

Development review staff and municipal project managers ensure that projects incorporate source and regional/on-site treatment control measures that meet local development standards through the

development approval process and municipal procedures. Inspection staff ensures that regional and on-site control measures are properly installed.

Acceptable on-site stormwater quality treatment options for new and redevelopment projects within the City of Sacramento are included in the Sacramento Stormwater Quality Program.[54] Non-proprietary treatment options include implementation of:

- Vegetative Swale
- Vegetative Filter Strip
- Austin Aboveground Sand Filter
- District of Columbia Underground Sand Filter
- Delaware Surface Sand Filter
- Surface Infiltration Trench
- Infiltration Basin
- Porous Paving Blocks
- Water Quality Detention Basins

City of Sacramento Municipal Code[55]

The City of Sacramento has incorporated stormwater and stormwater quality regulations within the municipal code. Pertinent regulations are described below.

City of Sacramento Stormwater Management and Discharge Control Municipal Code. Discharge of stormwater within the City of Sacramento must comply with the requirements specified in the Municipal Chapter 13.16 Stormwater Management and Discharge Control Municipal Code; pertinent section excerpts are described below:

13.16.120 Reduction of pollutants in stormwater.

Section 13.16.120 includes business related activities such as implementation of a Stormwater Pollution Prevention Plan, coordination with Hazardous Materials Release Response Plans and Inventory for any business for which a hazardous materials release response plan and inventory are required under Chapter 6.95 (commencing with Section 25500) of Division 20 of the California Health and Safety Code, coordination with Hazardous Waste Generator Contingency Plan and Emergency Procedures for any business for which a hazardous waste generator contingency plan and emergency procedures are required pursuant to California Code of Regulations, Title 22, Sections 66265.51 to 66265.56, and compliance with all applicable federal, state and local laws, ordinances or regulations.

Section 13.16.120 also includes provisions for development activities within the City of Sacramento including the potential for City enforcement officials to establish and impose controls deemed necessary and appropriate to minimize the long-term, post-construction discharge of stormwater pollutants from

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[54] City of Sacramento, http://www.sactostormwater.org/SSQP/treatment-options.asp, accessed January 5, 2007.

[55] City of Sacramento, City of Sacramento Municipal Code http://www.qcode.us/codes/sacramento/, accessed January 5, 2007.

new development or modifications to existing development. These controls may include source control measures to prevent pollution of stormwater and/or treatment controls designed to remove pollutants from stormwater. Furthermore, developers must prevent pollutants from entering the stormwater conveyance system and comply with all applicable federal, state and local laws, ordinances or regulations, including but not limited to the City Grading, Erosion and Sediment Control Ordinance set forth in Chapter 15.88 of this code and all applicable General Permits (Ord. 2004-042 Section 1 (part); Ord. 98-007 Section 1 (part): prior code Section 87.01.112).

13.16.130 Compliance with best management practices.

Section 13.16.130 requires that all activities or uses that may cause or contribute to stormwater pollution or contamination, illegal discharges, or nonstormwater discharges shall: (1) comply with best management practices guidelines or pollution control requirements established or imposed by the enforcement official; and (2) properly operate and maintain any treatment control device or other measures utilized on the premises to prevent or reduce, to the maximum extent practicable, stormwater pollution or contamination, illegal discharges or nonstormwater discharges, as required by the enforcement official (Ord. 2004-042 Section 1 (part)).

13.16.140 Containment and notification of spills.

Section 13.16.140 requires immediate reasonable action to contain and abate the release of any pollutants or prohibited nonstormwater discharge and notification of incidents to the enforcement agency as soon as reasonably possible of the release of any pollutants or prohibited nonstormwater discharge (Ord. 2004-042 Section 1).

City of Sacramento Grading, Erosion, and Sediment Control Ordinance. All grading activities associated with site development within the City of Sacramento are required to comply with the City's Grading, Erosion and Sediment Control Ordinance (Ordinance 93-068) (Municipal Code Chapter 15.88 Grading, Erosion And Sediment Control).

This ordinance requires the project applicant to prepare erosion and sediment control plans (ESC plans) for both during and after construction of the proposed project (Municipal Code 15.88.250 Erosion and sediment control plans), prepare preliminary and final grading plans and prepare plans to control urban runoff pollution from the project area during construction. These requirements ensure that development sites are graded such that new topography makes a smooth transition to existing adjacent topography. Developers are required to carry out dust and soil erosion control measures before, during, and after the construction phase of development. Implement accepted dust control procedures, revegetation or covering tracks containing loose and dry soil, constructing ingress/egress roads and adopting measures to prevent construction vehicles from tracking mud onto adjacent roadways, covering trucks containing loose and dry soil, and providing interim drainage measures during the construction period are measures are intended to minimize soil erosion and fugitive dust emissions so that there is a less-than-significant impact on water quality from site development. Other acceptable measures are discussed in the City's manual entitled "Administrative and Technical Procedures Manual

for Grading, Erosion, and Sediment Control", available at the Department of Utilities. BMPs are approved by the City's Department of Utilities before beginning construction.[56]

Chapter 15.88 Grading, Erosion and Sediment Control (pertinent section excerpts are described below):

15.88.060 Grading approval required.

> Except for the specific exemptions no grading is allowed without approval of such grading from the director in accordance with the provisions of the grading ordinance (Prior code Section 9.31.1506).

15.88.120 Water obstruction.

> No person shall do or permit to be done any grading which may obstruct, impede, or interfere with the natural flow of stormwaters, whether such waters are unconfined upon the surface of the land or confined within land depressions, natural drainage ways, unimproved channels, watercourses, improved ditches, channels or conduits, in such manner as to cause flooding where it would not otherwise occur, aggravate any existing flooding condition or cause accelerated erosion except where said grading is in accordance with all applicable laws including, but not limited to, the provisions of the grading ordinance (Prior code Section 9.31.1512).

15.88.130 Levee work.

> No person shall excavate or remove any material from or otherwise alter any levee adjacent to any river, creek, bay, or local drainage control channel, without prior approval of the governmental agency or agencies responsible for the operation and/or maintenance of the levee (Prior code Section 9.31.1513).

15.88.140 Construction in public right-of-ways.

> No person shall perform any grading work within the right-of-way of a public road or street, or within a public easement, without prior written approval of the director, and without obtaining a city encroachment permit (Prior code Section 9.31.1514).

15.88.250 Erosion and sediment control plans (ESC plan).

> An ESC plan shall be prepared for all projects to control surface runoff and erosion and to retain sediment on a particular site and prevent pollution of site runoff during the period beginning when any preconstruction- or construction-related grading or soil storage first occurs, until all final improvements and permanent structures are complete. The ESC plan shall be prepared and submitted concurrently with the final grading plan. The ESC shall contain a statement of the purpose of the proposed best management practices to be used, and shall

[56] A list of the BMP measures is available from the Department of Utilities, Flood Control and Sewers Division, at 5770 Freeport Boulevard, Suite 100, Sacramento, California 95822.

include all of the information required and contained in the Manual of Standards, Chapter 2, Section 3 (Ord. 2003-058 Section 3; prior code Section 9.33.1704).

15.88.260 Postconstruction erosion and sediment control plan (PC plan).

The PC plan shall be prepared for all projects to control surface runoff and erosion and retain sediment on a particular site after all planned final improvements and/or structures have been installed or erected. The PC plan shall be prepared and submitted concurrently with the final grading plan. The PC plan shall contain a statement of the purpose of the proposed best management practices to be used to secure the project after completion, and shall include all of the information required and contained in the Manual of Standards, Chapter 2, Section 4.

15.88.270 Winterization certification.

A winterization certification shall be submitted no later than September 15th for all projects where any construction will occur between October 1st and April 30th.

15.88.290 General design standards.

Any activities performed under the authority of the grading ordinance, including but not limited to grading, excavation, soil storage, soil transportation, erosion and sediment control measures, shall conform to the general design standards set forth in the Manual of Standards, Chapter 3.

City of Sacramento Floodplain Management Regulations.

15.104.050 Provisions for flood hazard reduction. (Ord. 98-022 § 3: prior code § 9.26.1005)

Includes standards for construction of residential and non-residential structures within a special flood hazard area such as: anchoring to prevent floatation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy; construction with materials and utility equipment resistant to flood damage; construction using methods and practices that minimize flood damage; all electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding; adequate drainage paths around structure on slopes to guide flood waters around and away from proposed structures; floodway development limitations (e.g., prohibition of encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

3.8.4 Impact Assessment Methods

Significance Criteria

Criteria for determining the significance of impacts on hydrology and water quality during construction and operation of the proposed project were developed based on Appendix G of the State CEQA Guidelines.

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

3.8.5 Impact Assessment Results

The proposed project is evaluated for impacts to drainage ways, including drainage pattern modifications; changes in storm flow peak flow rate, elevation, and duration; drainage system capacity, including impacts on downstream conditions and regional implications; changes in pollutant and sediment load to surface water systems; and effect on groundwater supplies.

Site runoff for existing and proposed project calculations was determined using the site size, percent of impervious area, and the City and County of Sacramento Drainage Manual Volume 2 Hydrology Standards.[57] Table 3.8-1 lists the existing and proposed project runoff conditions.

[57] Sacramento County Water Resources Division and the City of Sacramento Department of Utilities Division of Engineering Services, 1998. City and County of Sacramento Drainage Manual Volume 2 Hydrology Standards: Figure 2-22, December 1996.

Table 3.8-1
Site Runoff Characteristics

Site	Area	Condition	Percent Impervious[a]	100-yr Runoff[b]
Compressor Site	5 acres	existing	2%	9 cfs
		proposed property	20%	11 cfs
			difference	**22%**
Wellhead	3.8 acres	existing	0%	8.5 cfs
		proposed property	4%	9.4 cfs
			difference	**11%**

Notes:

a. See site figures and dimensions.

b. Sacramento County Water Resources Division and the City of Sacramento Department of Utilities Division of Engineering Services, 1998. City and County of Sacramento Drainage Manual Volume 2 Hydrology Standards: Figure 2-22, December 1996.

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, HWQ refers to Hydrology and Water Quality.

HWQ-1. The proposed project's potential impacts on water quality standards or waste discharge requirements through disposal of contaminated soil cuttings or drilling fluid or discharge of contaminated test waters would be less-than-significant.

Construction of the proposed project would involve grading and construction activities, excavation of wells and bore holes, and testing of pipelines. All stormwater and construction discharges would be controlled under existing regulations including: the Municipal NPDES permit, California Code of Regulations (CCR), state and federal regulations (e.g., potentially including CWA 401 certification requirements, CDFG 1602 requirements, and Corps 404 permit requirements), and municipal codes. Furthermore, the proposed project may be subject to the Construction General Permit requirements for non-sediment related concerns. These regulatory conditions are considered protective of receiving water quality and effective for preventing violation of water quality standards and evidence of compliance with requirements is required prior to obtaining a grading or building permit. The City and County of Sacramento have implemented a SQIP (Stormwater Quality Improvement Plan), which includes site monitoring to ensure that areas under their jurisdiction comply with their Municipal NPDES Permit.

Furthermore, the City municipal code requires an Erosion and Sediment Control (ESC) plan prior to issuing a grading permit. Implementation of the required ESC plan would ensure that potential sediment and sediment-associated pollutant transport during construction and grading operations would not be substantial. The proposed project also includes BMPs and design features to minimize potential site runoff of pollutants that might contribute to degradation of water quality including: equipment maintenance and refueling

restrictions, hazardous materials management measures, designated work zones, and site reclamation measures. Consequently, general construction operations would not substantially affect any water quality standards.

Prior to use, all fluids used in or for the drilling operation would be contained in temporary mobile tanks or 55-gallon drums stored within a containment area. Fluid and mud circulation systems are based on closed-loop designs, which result in no discharge. Furthermore, drilling fluids will be hauled away and disposed of at an approved location to be determined by the contractor. Disposal of soil cuttings and drilling fluids are regulated under the CCR (Section 1775), which requires disposal to be performed in such a manner as to not cause damage to life, health, property, freshwater aquifers or surface waters, natural resources, or be a menace to public safety. SNGS would dispose its drilling fluid at an approved disposal facility. Therefore, proposed project well-drilling wastes would not be expected to substantially affect water quality standards or violate WDRs.

The water used for hydrostatic testing of the pipelines would be disposed of in the City storm drainage system (which ultimately discharges to Morrison Creek) in accordance with the Waste Discharge Requirements (WDR) General Order for Dewatering and Other Low-Threat Discharges to Surface Waters. The proposed project would use only clean, municipal water sources for hydrostatic testing, which would be in compliance with this General Order. CVRWQCB staff typically does not evaluate compliance with requirements prior to discharge. The discharger makes that decision and whether or not to seek professional advice when they submit the Notice of Intent (NOI) to comply with the General Order. Dischargers who submit an NOI and the appropriate fee are authorized to discharge under the terms and conditions of the General Order, including both effluent and receiving water limitations.

The following discharges may be covered by the General Order, provided they do not contain significant quantities of pollutants and they are either (1) four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 mgd (million gallons per day). The USEPA and the CVRWQCB generally classify this type of discharge as a minor discharge. Violations of the General Order conditions may result in enforcement action, including CVRWQCB or court orders requiring corrective action or imposing civil monetary liability, or revocation of authorization to discharge under the General Order. The discharger's reporting and monitoring program, required for compliance with this General Order, would assess whether a discharge is in compliance with General Order effluent and receiving water limitations.

If test waters are contaminated during the testing process, the water would no longer be considered a 'low-threat' discharge and would not be in compliance with the General Order WDR. An individual WDR would be prepared if the proposed project cannot meet the requirements of the General Order WDR and the proposed project violation of a WDR would not be substantial. The individual WDR would detail water treatment and disposal conditions in the event of contamination.

Because the discharge of hydrostatic test waters can not exceed 0.25 mgd, even if test waters are found to be contaminated, the potential impacts on Morrison Creek would not be substantial. The minimum mean daily dry weather flow (July) within the Morrison Creek channel at Florin Road is about 6.55 cfs, or 4.23 mgd. Consequently, potential discharges would be less than six percent of the dry weather flow. This small portion of flow, along with use of clean water for testing and the monitoring and reporting requirements would ensure that Morrison Creek water quality would not be substantially altered and any proposed project potential violation of water quality standards would be less than significant.

Dewatering of trenches is not likely to be necessary because the local shallow groundwater table is about 30 to 50 feet below the ground surface and the maximum depth of trenches would not exceed about 10 feet in depth (six feet of cover for an 18-inch pipeline). Therefore, trench and other construction dewatering discharges are not expected.

Because SNGS would comply with all existing federal, state, and local regulations, the proposed project would not result in a substantial effect on water quality or exceed any WDRs, and impacts associated with violation of water quality standards or WDRs would be less-than-significant with no additional mitigation required.

HWQ-2. The proposed project would not significantly impact groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted). This impact would be less than significant.

The proposed project would not significantly interfere with groundwater recharge in the area. As noted in the setting, the compressor station site is not located in an area of significant groundwater recharge, either natural or augmented. Furthermore, the amount of new impervious surfaces created by the proposed project (about 1 acre) that could impede groundwater recharge from percolation of precipitation would not be substantial. Consequently, the proposed project would have not have a significant effect on groundwater recharge and the lowering of the local groundwater table, and impacts would be less than significant.

HWQ-3. The proposed project may contribute to depletion of groundwater supplies if wells and operations result in contamination of the water supply aquifers above the storage reservoir. However, existing regulatory requirements would ensure that potential project impacts on groundwater supplies are less than significant.

The proposed project would not create any water supply wells or further demand on existing groundwater. The project would use approximately 44,000 gallons of municipal water for system testing. However, this would not have a substantial effect on

groundwater because it would be temporary condition and the water supply may not include any groundwater resources.

The proposed project would install six gas wells, one water injection well, and one observation well within the wellhead site. The wellhead site overlays the two municipal groundwater supply aquifers. There are currently eight abandoned wells in the reservoir system. The proposed project could contribute to depletion of groundwater supplies by potentially causing contamination. Five potential impact scenarios include: 1) direct leakage between the different aquifers (salt water aquifer and gas from the gas storage reservoir, high TDS water in the lower water supply aquifer, and potable water in the upper water supply aquifer) because of well installation through these aquifers that could result cross contamination; 2) cross-contamination between aquifers during the drilling phase; 3) cross-contamination of aquifers by operations resulting in cracking of seals on old wells not necessarily designed to withstand reservoir pressurization and loss of pressure during filling and extraction processes; 4) potential contaminated surface runoff that could enter the groundwater system through improperly sealed well casings; and 5) contamination from gas dewatering fluids re-injected into the storage reservoir.

To address potential impact scenarios 1 and 2, the proposed project would be required to comply with the CCR, which specifies prior to drilling, re-drilling, reworking, deepening, plugging or abandoning wells, a NOI must be completed and filed with the appropriate DOGGR Division district office for approval and approval must be obtained from this Division before any subsurface injection or disposal project can begin, including all USEPA Class II wells and air- and gas-injection wells (1724.6).

All Underground Injection Control Programs (UIC Programs) must comply with Federal regulations, including design standards and 40 CFR 144.12. The State of California operates its UIC Program jointly with the USEPA.

Each well shall have casings designed to provide anchorage for blowout prevention equipment and to seal off fluids and segregate them for the protection of all oil, gas, and freshwater zones in accordance with CCRs 1722.2, 1722.5, and 1722.6. The operational procedures and properties, use, and testing of drilling fluid shall be required, as necessary, to prevent the uncontrolled flow of fluids from any well. During removal of the drill pipe or tubing from the hole, a hole-filling program shall be followed to maintain a satisfactory pressure overbalance condition. Casing design requirements would ensure that well drilling and installation operations are effective and do not result in substantial contamination or cross-contamination of aquifers. Consequently, proposed project impacts of well drilling operations on groundwater supplies would be less than significant without any additional mitigation.

To address potential impact scenarios 3 and 4, data and project-related plans are required to be filed with the district deputy for gas storage projects in accordance with CCRs 1724.7 and 1724.9. These include an engineering study, a geologic study, an injection plan, and

copies of letters of notification sent to offset operator. Other required information for gas storage and injection wells included the characteristics of the cap rock (including aerial extent, average thickness, and threshold pressure), oil and gas reserves of storage zones prior to start of injection, list of proposed surface and subsurface safety devices, tests, and precautions to be taken to ensure safety of the project, and proposed waste water disposal method.

The engineering study shall include information on the reservoir characteristics of each injection zone and casing diagrams that include the fill behind casings of all idle, plugged and abandoned, or deeper-zone producing wells within the area, and evidence that the abandoned wells would not have an adverse effect on the project or cause damage to life, health, property or natural resources. The study must also include the planned well-drilling program. This required evidence of abandoned well safety, along with other required project data, casing designs, and drilling program would ensure that potential impacts of the proposed project on existing, abandoned wells within the storage reservoir would be not be substantial and the potential impact on groundwater supplies would be less than significant without any additional mitigation.

To address potential impact scenario 5, an injection plan shall include but not be limited to; maximum anticipated surface injection pressure (pump pressure) and daily rate of injection, by well; the monitoring system or method to be used to ensure that no damage is occurring and that the injection fluid is confined to the intended zone or zones of injection; the method of injection; a list of proposed cathodic protection measures for plant, lines, and wells, if such measures are warranted; treatment of water to be injected; source and analysis of the injection liquid; and location and depth of each water-source well that would be used in conjunction with the project. Furthermore, the operating pressure of all injection wells shall be monitored; all injection piping, valves, and facilities shall meet or exceed design standards for the maximum anticipated injection pressure, and shall be maintained in a safe and leak-free condition; the maximum allowable surface injection pressure shall be less than the fracture pressure; a mechanical integrity test (MIT) must be performed on all injection wells to ensure the injected fluid is confined to the approved zone or zones, and prior to beginning injection operations, each injection well must pass a pressure test of the casing-tubing annulus to determine the absence of leaks. The injection plan and injection well requirements would ensure that the project would not result in cross-contamination of aquifers during operations. Well design and testing requirements would ensure that the construction of wells is sufficient to prevent cross-contamination and leakage. Re-injected water would have to be tested to make sure that there is no groundwater contamination in the gas storage reservoir. The monitoring system would ensure that after installation and during operations any subsequent potential leaks and cross-contamination in the system is minimized. Consequently, potential project impacts on cross-contamination of aquifers by operations would be less than significant without additional mitigation.

Additional monitoring and data requirements to ensure safety such as: the geologic study with information identifying all geologic units and formation, freshwater aquifers, and oil or gas zones; characteristics of the cap rock, such as aerial extent, average thickness, and threshold pressure; oil and gas reserves of storage zones prior to start of injection, including calculations; list of proposed surface and subsurface safety devices, tests, and precautions to be taken to ensure safety of the project, and proposed waste water disposal method would ensure that sufficient information is gathered to accurately design well casings, injection plans, and monitoring plans to prevent degradation of groundwater quality that might affect groundwater supplies. Throughout the proposed project's operations, data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the proposed project. Compliance with this regulation would ensure that any potential effects of the proposed project on groundwater quality are less than significant with no additional mitigation required.

Oil and gas injection wells (Class II wells) have to follow strict construction and conversion standards except when historical practices in the State and geology allow for different standards. A Class II well that follows USEPA federal standards is built very much the same as a deep or Class I well.[58] A groundwater contamination risk study of Class I wells was completed by the USEPA in 2001, which documented that existing regulatory guidance reduces the groundwater contamination risk.[59] The study concluded the following:

- USEPA's UIC requirements and current operational practices for all Class I wells reflect years of experience and insight into what makes Class I wells safe and what practices are unacceptable. From the early failures of Class I wells, USEPA learned that migration of injected wastewater can result from failure of injection wells due to faulty design, construction, operating practices, or the presence of pathways for migration near the injection zone. Recognizing this, USEPA passed its UIC regulations for Class I nonhazardous and hazardous wells in 1980 based on the idea that injection into properly constructed and operated wells is a safe means to dispose of wastewater. USEPA's geologic siting, well engineering, and operating requirements for Class I wells offer multiple safeguards against failure of the well or migration of injected fluids.
- Because the presence of an unplugged abandoned borehole can be a significant potential contributing factor to migration of injected fluids from the injection zone, USEPA requires operators to identify and address all improperly abandoned wells in the area of review (AoR).[60] Several states that account for the majority of all Class I wells require an AoR that is even larger than that required by federal

[58] USEPA Office of Water. Underground Injection Control Program. Oil and Gas Injection Wells (Class II). Updated February 28, 2006. http://www.epa.gov/safewater/uic/classii.html

[59] USEPA Office of Water. Class I Underground Injection Control Program: Study of the Risks Associated with Class I Underground Injection Wells. March 2001. USEPA 819-R-01-007 http://www.epa.gov/safewater/uic/classi.html

[60] Area of review is the zone of endangering influence (the radius at which injection can affect a drinking water source), and must be determined by either a fixed radius or mathematical computation. The AoR for Class I nonhazardous wells and municipal wells must be, at a minimum, one-quarter mile [40 CFR 146.69(b)]; for hazardous wells, the AoR is extended to, at a minimum, 2 miles [40 CFR 146.63].

regulations. These unplugged wells, if found, must be properly addressed before UIC permitting authorities will allow operators to begin injection.

- In addition to the AoR requirement, Class I wells are sited to minimize the potential for waste migration. Pre-construction studies by operators must demonstrate that the rock formations which make up the injection and confining zones and the local geologic structure are amenable to safe injection and confinement of wastewaters. Wells are constructed using well materials that are suitable to the injection of wastewaters at the intended pressure, rate, and volume. Inspections and well testing, along with passive monitoring systems such as continuous annulus monitoring systems, can detect malfunctions before wastewaters could escape the injection system. Periodic MITs are an additional means of ensuring the integrity of the well components. An internal or external MI failure does not imply failure of the injection well or loss of wastewater confinement. Rather, they indicate that one of the several protective elements may have malfunctioned.
- The probability of Class I well failures, both nonhazardous and hazardous, has been demonstrated to be low. Many early Class I failures were a result of historic practices that are no longer permissible under the UIC regulations. Class I wells have redundant safety systems and several protective layers; an injection well would fail only when multiple systems fail in sequence without detection. In the unlikely event that a well would fail, the geology of the injection and confining zones serves as a final safety net against movement of wastewaters to USDWs. Injection well operators invest millions of dollars in the permitting, construction, and operation of wells, and even in the absence of UIC regulations would carefully monitor the integrity of the injection operation to safeguard their investments.
- Indeed, failures of Class I wells are rare. Most failures of MI are internal failures, detected by continuous annulus monitoring systems or MITs, and the wells are shut-in until they are repaired. USEPA's study of more than 500 Class I nonhazardous and hazardous wells showed that loss of MI contributed to only 4 cases of significant wastewater migration (none of which affected a drinking water source) over several decades of operation. Even as injection wells are entering "middle age," their MI remains intact. This can be attributed to the rigorous requirements for monitoring and for ensuring that the well materials are compatible with the wastewater injected.
- The 1988 UIC regulations implementing the HSWA offer additional protection by requiring operators of Class I hazardous wells to complete a no-migration petition to demonstrate that the hazardous constituents of the wastewater will not migrate from the injection zone for 10,000 years, or as long as the wastewater remains hazardous. Although operators are not required to place decharacterized wastes in wells subject to no migration requirements, the fact that these wastes are being injected into Class I hazardous wells offers additional protection by this practice.
- From an assessment of information collected on Class I wells, both nonhazardous and hazardous, USEPA believes that a substantial volume of decharacterized wastes are still being disposed via Class I hazardous wells, particularly where the facility may not segregate waste streams. Thus, public health and the environment is being afforded an additional level of protection by this injection practice, because the additional controls on hazardous wells are in place. No migration petitions account for all volumes of waste injected into a Class I hazardous well to ascertain the size, shape, and directional drift of the waste plume. In addition, states with a proportionally large number of the national total for Class I injection wells have

stricter regulatory requirements than the minimum federal standards for their Class I nonhazardous wells. As such, a substantial number of Class I nonhazardous wells managing decharacterized wastes are extremely protective. The USEPA has no reason but to conclude that existing Class I UIC regulatory controls are strong, adequately protective, and provide an extremely low-risk option in managing the wastewaters of concern.

Because SNGS would comply with existing regulations for natural resources protection and system design, the proposed project would have a less-than-significant impact on groundwater supplies with no additional mitigation required.

HWQ-4. The proposed project would alter the site(s) drainage patterns, which may result in substantial erosion or siltation on- or off-site. Implementation of Mitigation Measure MM HWQ-1 and existing regulations would, however, reduce potential impacts to the less-than-significant level.

Construction Phase

Siltation and On-site Erosion. The proposed project would involve construction activities, such as excavation and trenching for foundations, and pipelines; soil compaction and moving; cut and fill activities; and grading, all of which would temporarily disturb soils. Disturbed soils are susceptible to high rates of erosion from wind and rain, resulting in sediment transport from the site. Erosion and siltation affect water quality through interference with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported to surface water, which could also contribute to degradation of water quality.

Because the proposed project is an oil and gas industry project, it would be exempt from requirements of the Construction General NPDES permit for erosion and sediment controls. However, the proposed project would still be subject to the existing regulatory requirements in the City of Sacramento Municipal Code Grading, Erosion, and Sediment Control section, which includes obtaining grading approval, preparation of an ESC plan, winterization certification (if grading and construction operations occur between October 1 through April 30), and general design standards for sediment and erosion controls. These regulatory requirements would ensure that erosion and on- or off-site transport of eroded particles during construction activities is minimized and consequently, the proposed project construction impacts on on-site erosion and on- or off-site siltation would be less than significant and no additional mitigation would be required.

Off-site Erosion. During construction, changes in drainage could affect the peak flow rate or flow volume to off-site water bodies that might cause an increase in bed or bank erosion and siltation. The proposed project would be constructed during the dry season. Consequently, stormwater runoff during construction is not expected to be substantial. Construction of the pipelines and wellhead site would not be expected to

runoff rates or amounts because the areas are relatively flat and drainage changes would not likely alter drainage slopes or patterns in such a manner that would contribute to substantial off-site runoff.

However, changes in drainage patterns during construction of the compressor station site could contribute to an increased runoff rate or volume that could induce increases in in-channel flow rates and forces that would result in more erosion and siltation within the area channels (e.g., remnant Morrison Creek corridor, ephemeral draingeway to the east). This would result in potentially significant impacts of off-site erosion and siltation. Implementation of Mitigation Measure MM HWQ-1 and the required ESC plan would ensure that potential construction impacts associated with erosion or siltation by alteration in drainage patterns to regulated water courses are minimized and that impacts would be reduced to a less-than-significant level.

Post Construction Phase

Siltation and On-site Erosion. After completion of the proposed project, the disturbed soil at the compressor station and wellhead sites would be paved, revegetated, or graveled. Following installation of the pipelines, excavated soil would be backfilled into the exposed trenches, the right-of-way would be graded to preconstruction grades and contours, and exposed surfaces would be revegetated with an appropriate seed mix. These activities would stabilize disturbed soil or protect soil from raindrop impact and erosive forces and limit on-site erosion and runoff to existing conditions or less.

City municipal code requires that projects also prepare and implement a Post-construction plan (PC plan) for erosion and sediment control. This regulatory requirement and proposed project features would ensure that post-construction on-site erosion and on- and off-site siltation is minimized and consequently, the proposed project impacts would be less than significant with no additional mitigation required.

Off-site Erosion. Construction of the pipelines and wellhead site would not be expected to substantially alter runoff rates or amounts. Both areas would continue to be relatively flat and drainage changes would not substantially alter amount of impervious area (0.2 acres for the wellhead site, 0 acres for the pipeline routes) to contribute substantially more runoff, and consequently, off-site erosion. Therefore, erosion impacts from the pipeline route areas and wellhead site would be less than significant with no additional mitigation required.

Grading and filling activities as well as more impervious surfaces at the compressor station site could result in more stormwater runoff that could cause off-site erosion in area drainage features or on overland surfaces. However, the post-construction drainage conditions are currently unknown.

If stormwater is routed through the Depot Park storm drainage system, discharges would be to the Morrison Creek channel, which is a lined flood-control structure. Any potential

increase in runoff amount or rate would not contribute to potential bed or bank erosion and siltation of the Morrison Creek channel because it is armored and protected. Stormwater could also be routed through a new stormwater drainage system that outfalls to the Morrison Creek channel, which would also result in no impact to off-site erosion. If stormwater is not routed through a storm drain system and runs off the site to the overland areas or nearby drainage features, increases in runoff could contribute to overland sheet erosion or in-channel bank or bed erosion. Furthermore, if the compressor site development results in any direct alteration of drainage features, the changes in flow properties could destabilize the banks and bed and/or change the flow path to a less stable morphology.

The proposed project is not expected to directly alter the remnant Morrison Creek corridor, Consequently, there would be no impact of the proposed project by direct alteration of the remnant Morrison Creek corridor. However, it is unknown whether the proposed project would (directly) avoid other drainage features (e.g., the small drainage feature in the eastern proposed project area that conveys runoff from areas to the north and east into the remnant Morrison Creek corridor).

If stormwater is allowed to run off the site to the adjacent remnant Morrison Creek corridor or other area drainage features, increases in runoff could cause potential increases in peak flow rates and flow volumes in the drainage features, which could result in higher bed or bank erosion. Increased runoff rate or volume from the compressor station site, because of changes in the upland runoff properties, could still induce greater in-channel flow rates and forces that could result in more erosion and siltation within the area channels. This would be a potentially significant impact of off-site erosion and siltation.

Implementation of Mitigation Measures MM HWQ-1 and MM HWQ-2 would ensure that potential impacts associated with alteration in drainage patterns are minimized and runoff rates and volumes do not contribute to off-site erosion by either making sure runoff does not exceed existing conditions or by routing runoff into a storm drain system that is not susceptible to bed or bank erosion. Consequently, with mitigation, off-site erosion impacts would be less than significant.

HWQ-5. The proposed project would alter the compressor station and wellhead site drainage patterns that could result in flooding on- or off-site. However, implementation of mitigation measures to control runoff would reduce potential impacts to less-than-significant levels.

Pipeline Routes On- and Off-Site Flooding

The pipeline routes would be restored to existing conditions; consequently, there would be no impacts of the pipeline routes on flooding.

Compressor Station Site Off-Site Flooding

The proposed project would alter site drainage patterns and increase impervious surfaces at the compressor station site. This increase in amount of impervious surface could be about 1 acre of new impervious area. Stormwater runoff from the site could therefore increase by about 22 percent; runoff rates could increase from about 9 cfs (2 percent impervious surface area) to about 11 cfs (20 percent impervious surface area) during a 100-year storm event (see Table 3.8-1).[61]

In the project area, Morrison Creek is designed to contain the 100-year storm event. Morrison Creek at Florin Road 100-year daily flow rate is 352 cfs and the maximum flow rate ever measured was 2,730 cfs with a water surface elevation of 10.4 feet. The channel depth is about 17.5 feet. Therefore, even at the maximum measured peak flow in Morrison Creek, the channel had 7.1 feet of freeboard at Florin Road. Consequently, if all the runoff from the developed compressor station area were to be discharged into the Morrison Creek system, it would add only about 3 percent to the 100-year daily flow rate and an even smaller proportion of the maximum flow. This would be a less-than-significant impact on off-site flooding because there would not be a substantial effect on Morrison Creek conveyance capacity. Impacts would be less than significant and no additional mitigation is required.

If stormwater is not routed to the Morrison Creek system, and were instead allowed to run off to overland flow and the remnant Morrison Creek corridor, effects on flooding are unknown. The conveyance capacity of the remnant Morrison Creek corridor system, the culvert through which it passes under the railroad tracks, and the conveyance capacity of the discharge channel and area are unknown. A 2 cfs increase in flow is typically not a large increase and would not likely have a substantial effect on off-site flooding. Furthermore, implementation of Mitigation Measure MM HWQ-2 would reduce off-site runoff to existing conditions levels and therefore impacts would be less than significant.

Compressor Station Site On-Site Flooding

The compressor station site does not yet have a designed drainage system. Consequently, there is the potential for on-site flooding that would be potentially significant if structures or equipment would be inundated during a storm event. Implementation of Mitigation Measure MM HWQ-2, however, would make sure that an adequate drainage system is designed and that potential on-site flooding impacts are reduced to less-that-significant levels.

[61] Sacramento County Water Resources Division and the City of Sacramento Department of Utilities Division of Engineering Services, 1998. City and County of Sacramento Drainage Manual Volume 2 Hydrology Standards: Figure 2-22, December 1996.

Wellhead Site Flooding

The amount of impervious area created by development of the wellhead site would be about 0.2 acres on the 3.8 acre site. The remainder of the graded site would be covered with crushed rock that would not typically impede site permeability. Consequently, the existing 100-year storm event runoff would be expected to be about 8.5 cfs or less and developed conditions would have a runoff rate for this event of about 9.4 cfs (approximately a 11 percent increase in runoff rate) (see Table 3.8-1). The wellhead site would be surrounded by an 8-foot high masonry wall, 100-feet from Power Inn Road. This wall would isolate the wellhead site from runoff to and from the west, except for the culvert from the Power Inn Road ditch**,** which would remain within the developed portion of the wellhead site. The north and west side of the wellhead site would be open to both runoff and runon during a storm event.

An unknown amount of runoff from the adjacent portion of Power Inn Road and some nearby areas is currently detained within the wellhead site (runon). An approximately 12-inch culvert connects drainage from a Power Inn Road ditch to the interior of the wellhead site during runoff events. Furthermore, the site visit identified surface characteristics indicating that, during runoff events, flow from the ditch and site overland flow may travel along the southern portion of the property to be discharged off-site to the adjacent parcel. Grading and construction activities would alter this detention situation and flow path drainage, which might contribute to off-site flooding as stormwater backs up in the ditch (e.g., changes in land surface elevation and backwater effects from runoff not allowed to continue off-site along the southern boundary). Depending upon the amount of flow impedance, this could be a potentially significant effect of the proposed project on flooding of Power Inn Road or by on-site flooding of facilities if waters back up onto the site.

The increase in proposed project wellhead site runoff, because of new impervious surfaces, would be small (about 1 cfs), and therefore, not expected to have a substantial effect on on- or off-site flooding (see Table 3.8-1). However, because the existing drainage system is unknown, this increase could still result in potentially significant impacts on flooding. Implementation of Mitigation Measure MM HWQ-3 would prevent flooding by flow impedance and would mitigate for any potential effects of this small increase in stormwater runoff.

Implementation of Mitigation Measure MM HWQ-2 and Mitigation Measure MM HWQ-3 would reduce any potential on- or off-site flooding effects of the proposed project wellhead site to less-than-significant levels. This mitigation measures would require a Drainage Plan and implementation of stormwater detention/retention features sufficient to prevent substantial flooding.

HWQ-6. The proposed project would not exceed the capacity of any planned stormwater drainage system, however it might exceed the capacity of existing systems. Implementation of

mitigation measures to prevent flooding and other impacts would also ensure that stormwater drainage system capacity impacts are reduced to less-than-significant levels.

There are no planned stormwater drainage systems that would be affected by the proposed project, therefore, there would be no impact on planned stormwater drainage system capacity.

Pipeline Routes

The proposed project would have no effect on stormwater runoff from the pipeline alignment areas; these areas would be covered with previously excavated soil and revegetated resulting in runoff properties similar to existing conditions and no additional mitigation would be required.

Compressor Station Site

The amount of potential increase in runoff because of the proposed project is minimal. However, the proposed project has not yet designed a stormwater drainage system, including the discharge location.

Given the small potential increase in runoff (about 2 cfs), effects on stormwater drainage system capacity is not expected to be substantial (see Table 3.8-1). However, if stormwater is discharged to the Depot Park stormwater drainage system, effects on capacity are unknown, and therefore, potentially significant. Effects in the downstream Morrison Creek system would not be substantial. Potential increases in stormwater flow from the compressor station site are less than 3 percent of the 100-year daily flow within Morrison Creek. Furthermore, even at the highest measured peak flow, there was 7.1 feet of freeboard of flood flow capacity available at Florin Road (flow depth was 10.1 feet at the highest measured peak flow).

Implementation of Mitigation Measure MM HWQ-2 would include preparation of a Drainage Plan that incorporates features for insuring the Depot Park stormwater drainage system capacity is not exceeded, which would reduce potential proposed project impacts to less-than-significant levels.

Wellhead Site

Stormwater drainage from the wellhead site is primarily land-locked within the wellhead site and adjacent parcel. Some flow from the wellhead site may continue offsite onto roads and into other drainages; however, there is currently no storm drainage system used for conveying stormwater from this site. Some stormwater also runs onto the site from areas to the west. The proposed project development of the wellhead site would only increase potential stormwater runoff by about 0.9 cfs (see Table 3.8-1). This would not typically be considered a substantial increase in runoff. However, there is no designed drainage system for the wellhead site and no grading information is available to show adequate detention

and/or conveyance capacity, therefore, impacts could be potentially significant. Furthermore, changes in site drainage patterns may affect the stormwater drainage system capacity of the culvert from the Power Inn Road ditch to the western side of the wellhead site. Implementation of Mitigation Measure MM HWQ-3, however, would include development of a wellhead site Drainage Plan that would ensure adequate drainage for the off-site areas that run onto the wellhead site and reduce potential impacts to less-than-significant levels.

HWQ-7. The proposed project could provide substantial additional sources of polluted runoff during general construction activities, drilling and boring operations, and operation of the proposed project facilities. However, existing regulatory requirements and implementation of Mitigation Measure MM HWQ-4 would ensure that potential project effects would be minimal and impacts would be less than significant with mitigation.

General Construction and Operation

Construction of the proposed project would involve grading and construction activities, excavation of wells and bore holes for installation of a water injection well, an observation well, and gas extraction/injection wells. The proposed project includes construction BMPs to prevent hazardous material contamination and transport, including: construction contract specifications to address hazardous materials generated from construction-related activities (e.g., diesel fuel and petroleum-based lubricants shall be stored only at designated staging areas, and all hazardous material spills or threatened releases, including petroleum products such as gasoline, diesel, and hydraulic fluid—regardless of the quantity spilled—must be immediately reported if the spill has entered or threatens to enter a water of the State of California or the United States, or has caused injury to a person or threatens injury to public health), preparation of an Hazardous Materials Contingency Plan (HMCP) that would be implemented if an spill occurs or if any hazardous materials are encountered during construction, and preparation of a Health and Safety Plan (HSP) to minimize environmental impacts in the event that hazardous soils or other materials are encountered during construction of the project.

Although the proposed project would not need to obtain coverage under the NPDES permitting program for construction discharges of non-contaminated sediment, the proposed project would be required to obtain coverage under applicable NPDES permits for discharges of other pollutants during construction, and all pollutants during project operation, where such activities would contribute to a violation of water quality standards.

The City of Sacramento may require the submittal of a SWPPP, if it determines that the proposed project could affect its ability to stay in compliance with its NPDES Municipal Permit. The SWPPP submitted to the City must contain the following items at a minimum: (1) vicinity map; (2) site map; (3) list of potential sources of stormwater pollution; (4) type and location of ESC BMPs; (5) name and number of the person responsible for implementing the SWPPP; and (6) signed landowner certification. Municipal project

managers ensure that ESC plans are prepared. Furthermore, unmitigated stormwater pollution sources are considered prohibited conditions under the City of Sacramento Municipal Code (15.12.240 a.1.); spill containment and notification is required (City of Sacramento Municipal Code 15.12.310); and BMPs shall be implemented to control the discharge of pollutants to the maximum extent practicable (City of Sacramento Municipal Code 15.12.322).

Accidental spills or disposal of potentially harmful materials used during construction could wash into and pollute surface waters or groundwater. Construction activities could result in spills from accidents (e.g., vehicle accidents) or improper handling of fuels or hazardous materials (e.g., breaching of hazardous materials storage containment). Materials that would potentially contaminate the construction area from a spill or leak include: diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. If a spill occurs, contaminants may pollute surface and groundwater by transport in surface runoff, infiltration water, or by a combination of these processes. Potentially affected receiving waters include Morrison Creek, Elder Creek, the remnant Morrison Creek corridor, wetlands, other drainageways, the Sacramento Valley groundwater basin, and the South American Subbasin.

Spill prevention countermeasures would also be required as part of the construction and post-construction stormwater quality prevention measures for compliance with the SQIP, HMCP, and municipal code. Spill prevention measures would be developed and implemented to prevent or minimize the risk of construction spills and operation chemicals from being discharged to the land, surface waters, or groundwater during the boring process and construction of all proposed project facilities.

All grading, trench excavation, construction, and operation of underground and aboveground facilities would also be conducted in conformance with the ESC, City of Sacramento Municipal Code, HMCP, and SQIP. Therefore, implementation of existing regulatory requirements and the project HMCP would ensure that the general construction and operation of the proposed project does not contribute a substantial amount of additional polluted runoff to receiving waters and impacts would be less than significant with no additional mitigation required.

Drilling and Boring

Construction of the proposed project would involve excavation of wells and bore holes for installation of the water injection well, the observation well, gas extraction/injection wells, and pipeline under-crossing of Elder Creek Road, the UPPR tracks and Morrison Creek. Drilling fluids and well drilling activities are regulated under Title 14 of the CCR. Disposal of drilling fluids is regulated in accordance with 14 CCR Subchapter 2, Section 1775. For well-drilling, all fluids used in or for the drilling operation would be contained in temporary mobile tanks or 55-gallon drums stored within a containment area. Fluid and mud circulation systems are based on closed-loop designs, which result in no discharge.

Depending upon the fluid mixture and exact HDD process, materials could be accidentally released during HDD process and the impact could be significant depending on the size of spill and spill constituents. The drilling mud usually consists of a mixture of fresh water and bentonite clay; however, other materials, such as polymers, are sometimes used. Bentonite is a naturally occurring clay mineral that forms a mud when mixed with water and would not be expected to cause hazardous conditions if released. However, it could contribute to siltation pollution of water bodies if transported off-site.

Chemicals associated with HDD operations could include drilling detergents, oil, well drilling additives, fluid loss reducers, grouting material, viscosifiers, wetting agents, gelling agents, shale inhibitors, stabilizers, anionic and nonionic surfactants, lubricants, and other HDD fluids. Most of these materials are not considered regulated hazardous wastes. However, because the constituents contained in the drilling fluids is unknown, the potential for proposed project contributions polluted runoff from disposal or spills of drilling fluids could be potentially significant.

If a spill occurs, contaminants may pollute surface and groundwater by transport in surface runoff, infiltration water, or by a combination of these processes. As required by existing regulations and the proposed project HMCP, spill prevention measures would be developed and implemented to prevent or minimize the risk of construction spills and spills of drilling fluid and other drilling operation chemicals from being discharged to the land, surface waters, or groundwater during the boring process and construction of all proposed project facilities. The proposed project will require that all waste drilling fluid be hauled away and disposed of at an approved location, to be determined by the contractor. Furthermore, implementation of Mitigation Measure MM HWQ-4 would ensure that disposal of drilling fluids would not result in a substantial additional source of polluted runoff.

As an oil and gas industry project, the proposed project is exempt from non-contaminated sediment construction NPDES requirements. However, disposal of soil cuttings and drilling fluids are regulated under the 14 CCR Section 1775 and municipal code requirements for the prevention of erosion and sedimentation during construction. Disposal is required to be performed in such a manner as to not cause damage to life, health, property, freshwater aquifers or surface waters, or natural resources, or be a menace to public safety. Drilling mud may not be disposed of in open pits and cement slurries and dry materials are prohibited from being disposed of on the land surface. The proposed project would require that drilling fluids and mud be hauled to an appropriate disposal site by the contractor. Therefore, proposed project well drilling and boring wastes would not be expected to substantially contribute additional sources of pollution, including sediment, to surface waters.

Portions within the project area, however, may have once contained contaminated soils that have been excavated and remediated. This indicates that the potential exists for other areas of contamination, such as proposed project drill areas. If a substantial amount of drilling fluid and soil cuttings contains hazardous material, the proposed project could contribute

substantial additional sources of polluted runoff to receiving water from the disposed soil cuttings if they are treated as non-contaminated materials. The HSP and HMCP would be implemented if any hazardous materials are encountered during construction.

Regardless, testing of drilling fluids and soil cuttings for contamination, prior to disposal, would be implemented to ensure proper handling and disposal of soils. Implementation of Mitigation Measure MM HWQ-4 would ensure that soil cuttings and drilling fluids meet requirements for disposal under Resolution R-5-2003-0008, an WDR, non-hazardous waste site, or hazardous waste facility, depending on the level of contamination.

Spill prevention measures (e.g., wellhead site closed-loop drilling fluid system, HMCP, HSP, release reporting, designated storage areas, and others), drilling fluid waste disposal regulations and BMPs, City of Sacramento general construction and post-construction regulations and BMPs, and Mitigation Measure MM HWQ-4 (soil cuttings and waste drilling fluid testing) would ensure that the proposed project would not contribute substantial additional sources of polluted runoff and proposed project impacts would be less than significant with mitigation.

HWQ-8. The proposed project could otherwise substantially degrade water quality through release of HDD drilling fluid to receiving water during a 'frac-out' event. However, the proposed project includes preparation of a frac-out contingency plan that would minimize potential impacts and reduce them to less-than-significant levels.

The likelihood that HDD water or water/drilling mud mixtures would be released into receiving waters is unlikely. However, if pressures created by the drilling operation forces the liquid through a weak point in the geologic formation and into a surface drainage or the groundwater ('frac-out' condition), drilling fluids could contaminate water resources. As described in Chapter 2, prior to construction, SNGS, or its contractor would prepare a Bore Plan that would include a frac-out contingency plan. This plan would minimize impacts of the HDD construction on pollution potential and reduce potential project impacts to less-than-significant levels with no additional mitigation required.

HWQ-9. The proposed project would have no impact on placement of housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

The proposed project does not include any housing; therefore, there would be no impact of the proposed project on placement housing in a 100-year flood hazard area.

HWQ-10. The proposed project would not place structures within a 100-year flood hazard area that could impede or redirect flood flows. No impact would occur.

The proposed project may place underground pipelines within a FEMA defined special flood area (AR) that could result from a potential failure of the American River levee system. However, these structures would be buried (pipeline) or small (e.g., the metering

and gas conditioning equipment at the Morrison Creek Cross-Tie) and would not be expected to impede or redirect flood flow within the project area. Therefore, no impact would occur.

HWQ-11. The proposed project would not expose people to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam and the risk to any structures would be less than significant.

Implementation of the proposed project would not substantially increase exposure of people to risks associated with failure of the American River levee system; therefore, there would be no impact associated the proposed project on human health and safety associated with a levee or dam failure.

The proposed project would place only underground structures and metering and gas conditioning equipment (at the Morrison Creek Cross-Tie site) within the fringe of a FEMA defined special flood hazard area (AR). This area is designated as subject to flooding because of dam or levee failure; however, it also indicates the deficiencies in flood protection are being remedied. Underground pipes and metering and gas conditioning equipment would not be substantially affected by flooding. Furthermore, FEMA and City regulations for development of non-residential structures within this area require designs so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Consequently, the exposure of structures to risk is minimal and impacts to structures would be less than significant without additional mitigation.

HWQ-12. The proposed project would not be inundated by seiche, tsunami, or mudflow therefore there would be no impact.

Tsunami are large sea waves generated by submarine earthquakes or similar large-scale, short-duration phenomena, such as volcanic eruptions, that can cause considerable damage to low-lying coastal areas. The project area is not located near the coast and is not subject to inundation by tsunamis. The project area is not near the base of foothills or landforms that could be susceptible to mudflows and local topography is relatively flat. Consequently, the proposed project would not expose people or structures to hazards from mudflows. Seiches are waves caused by large-scale, short-duration phenomena that result from the oscillation of confined bodies of water (e.g., earthquakes). There are no large confined bodies of water located near the project area; Beach Stone Lake is more than four miles away from the project area. The proposed project would not be subject to seiche inundation. Therefore, there would be no impact of tsunamis, mudflows, or seiches on the proposed project.

3.8.6 Mitigation Measures

MM HWQ-1 Prepare a compressor station site Grading Plan. SNGS shall prepare a Grading Plan for the compressor site, prior to obtaining a grading permit, and submit the Grading Plan to the City of Sacramento Engineer. The Grading Plan shall include the existing a topographical survey contour lines to a 50-foot extent around the compressor station site at a 2-foot contour intervals. The Grading Plan shall also include the post-project topography, including all cut and fill areas. Preparation of the Grading Plan will allow the City Engineer to determine where and to what extent any drainage features are directly altered by the proposed project.

If the City Engineer determines that the Grading Plan shows there are potential drainage features that are affected by cut or fill activities:

- SNGS will consult with the California Department of Fish and Game (CDFG) to determine if these drainage features would require a Department of Fish and Game 1602 Streambed Alteration Agreement (SAA). The SAA would include discussion of potential impacts and mitigation.
- If the CDFG determines there are no drainage features requiring an SAA, the City Engineer will assess whether or not any direct alteration is likely to substantially alter the drainage feature flow rate and amount in a manner that would contribute to an increase in off-site erosion and/or siltation. If the City Engineer determines that changes in the drainage conditions would contribute to more erosion and siltation, the City Engineer shall require that SNGS incorporate additional mitigation to avoid any substantial alteration of drainage conditions.

MM HWQ-2 Prepare a Compressor Station Site Drainage Plan. SNGS shall prepare a site Drainage Plan prior to obtaining a grading permit to show the City and CPUC that drainage is adequate for the 100-year storm event and storm sewer design storm event to prevent flooding, erosion, and drainage system capacity exceedence. The Drainage Plan shall include:

- Identification of the amount and peak rate of stormwater runoff for the 10-year and 100-year storm event.
- Storm drainage routing and discharge location(s)
- Drainage conditions that do not exceed existing or planned stormwater drainage system capacities. Sufficient evidence that this condition will be met shall be included in the Drainage Plan.
- Design characteristics and features to prevent off-site runoff from exceeding existing conditions and causing or contributing to an increase in erosion. Potential options to meet these requirements include:

    1. On-site runoff detention or retention features, with discharge occurring off-site to overland flow areas or through infiltration

systems. Energy dissipaters would also be required if runoff flow is concentrated at the discharge location(s). Because proposed project features cover less than half the project site, it is expected that sufficient area is available on-site to provide adequate detention facilities.

2. Discharge to the Morrison Creek channel through the Depot Park storm drain system. The Depot Park storm drain system is permitted for stormwater discharge under an Industrial NPDES permit. SNGS would therefore have to meet any requirements for stormwater discharge imposed by the Depot Park.
3. Discharge to the Morrison Creek channel through a new, constructed storm drain system. The Sacramento Area Flood Control Agency (SAFCA) controls the Morrison Creek channel and any modifications (e.g., a new outfall to the channel) would require approval by SAFCA. Furthermore, this option would require a reanalysis of potential impact to include construction and installation of the new storm drain.

- Design features to prevent on-site flooding.

MM HWQ-3 Prepare a Wellhead Site Drainage Plan. Prior to receiving a grading permit, SNGS shall prepare a Drainage Plan to show the City of Sacramento and CPUC that the project design provides sufficient stormwater detention for the 100-year storm event for both the developed wellhead site runoff and for runon from areas including, but not limited to, the section of Power Inn Road adjacent to the project area.

The Drainage Plan shall include:

- Identification of the amount and peak rate of stormwater runoff for the 10-year and 100-year storm event (including runon from off-site areas);
- Storm drainage routing and collection location(s) (including runon from off-site areas);
- Design characteristics and features to prevent off-site runoff from exceeding existing conditions and causing or contributing to an increase in erosion. This may include, but is not limited to runoff detention or retention features with discharge occurring off-site to overland flow areas, adjacent roads, or infiltration systems. Energy dissipaters would also be required if runoff flow is concentrated at the discharge location(s). Because proposed project features cover less than half the project site, it is expected that sufficient area is available on-site to provide adequate detention facilities;
- Design features, such as flow routing and detention, to prevent on-site flooding. Because proposed project features cover less than half the project site, it is expected that sufficient area is available on-site to provide adequate detention facilities; and

- Design features to prevent impediment of drainage from Power Inn Road and other areas that produce runon to the site.

MM HWQ-4 Soil testing and soil cuttings disposal. Prior to receiving a drilling permit, SNGS shall prepare procedures for testing of soil cuttings and drilling fluids and incorporate these procedures in the HSP and HWCP. The test procedures shall include the constituents to be tested, waste material sampling methods, sample handling and storage methods, reporting limits, not-to-exceed concentrations, and methods for disposal, depending upon test concentration(s). The soil cuttings and drilling fluid test procedure for waste disposal shall be approved by the CVRWQCB.

Following testing of soil cuttings and drilling fluid waste materials, SNGS shall consult with the CVRWQCB to determine if the disposal tests indicate compliance with Resolution R5-2003-0008 conditions or if an individual Waste Discharge Report application is required. Following consultation with the CVRWQCB, SNGS shall comply with the CVRWQCB required waste disposal process, methods, and/or locations.

3.9 Land Use, Planning, and Agricultural Resources

3.9.1 Introduction

This section discusses the existing and proposed land uses in the project area, the relevant and applicable land use plans and policies in the City of Sacramento and in Sacramento County, and the compatibility of the proposed project with these land uses and land use plans and policies, including agricultural resources.

Information for this section was obtained from project plans; the City of Sacramento General Plan and Zoning Ordinance; the Sacramento County General Plan and Zoning Ordinance; the California Department of Conservation, Division of Land Resource Protection and the Farmland Mapping and Monitoring Program; and the U.S. Department of Agriculture, National Cooperative Soil Survey.

3.9.2 Existing Conditions

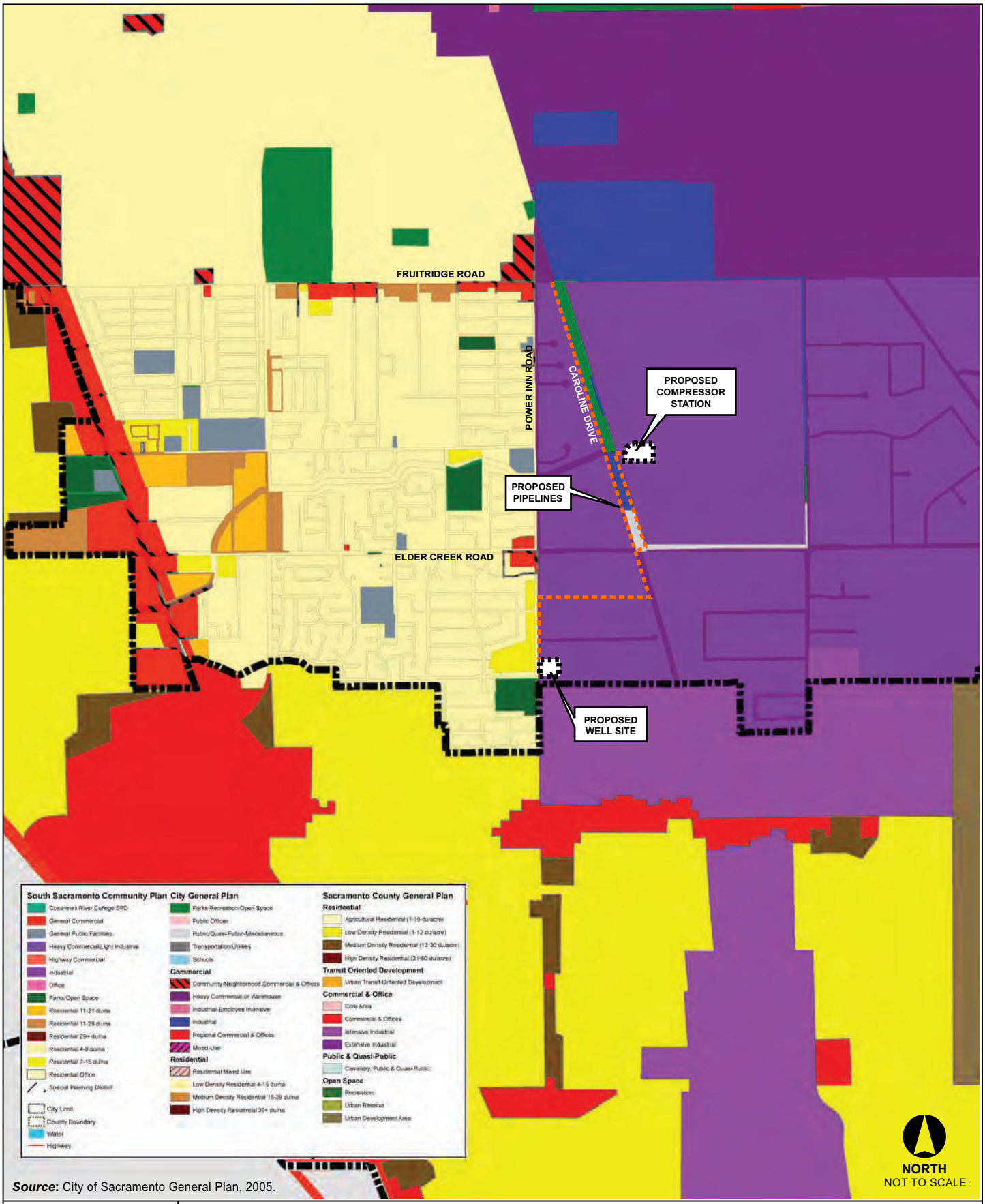
The proposed project is situated in the southeast portion of the City of Sacramento and in the southwest portion of Sacramento County, California. The project components would extend from the wellhead site, at the northeast corner of the intersection of Junipero Street and Power Inn Road, north to the compressor station site, in Depot Park off Fruitridge Road. Pipeline components would connect from the wellhead site to the compressor station and from the compressor station to SMUD's and PG&E's existing pipelines in Fruitridge Road. Additionally, metering and gas conditioning equipment would be located at the Morrison Creek Cross-Tie, an existing natural gas station where SMUD and PG&E lines connect. The Cross-Tie is located between Franklin Road and I-5 in the southwest portion of Sacramento County.

The wellhead site and compressor station sites are vacant lots with predominately non-native annual grassland habitat, surrounded by residential, commercial, and industrial development. Residential development is located west of the wellhead site with a neighborhood park located southwest of the site. The wellhead site is adjacent to large industrial warehouse buildings and industrial uses to the north, south, and east. The compressor station site is surrounded by the Depot Park buildings to the north, railroad tracks to the west, and undeveloped land to the east and south.

There are no lands in the vicinity of the proposed wellhead site, compressor station site, or pipelines in current agricultural production.

Land Use Designations and Zoning

The proposed wellhead site is designated for industrial uses under the City of Sacramento General Plan (see Figure 3.9-1). The proposed compressor station site is also designated as Industrial, with the westernmost portion of the site designated as Parks/Open Space along the railroad right-of-way. The proposed wellhead site is zoned M-2 Heavy Industrial (see Figure 3.9-2). The compressor station site at Depot Park is also within the M-2 Heavy Industrial zone. The western portion of the proposed compressor station site overlaps the A-OS Agriculture-Open Space zone along the railroad right-of-way.



***Source*:** City of Sacramento General Plan, 2005.

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FIGURE **3.9-1**

Existing Land Use Designations

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Sacramento Natural Gas Storage Project PEA

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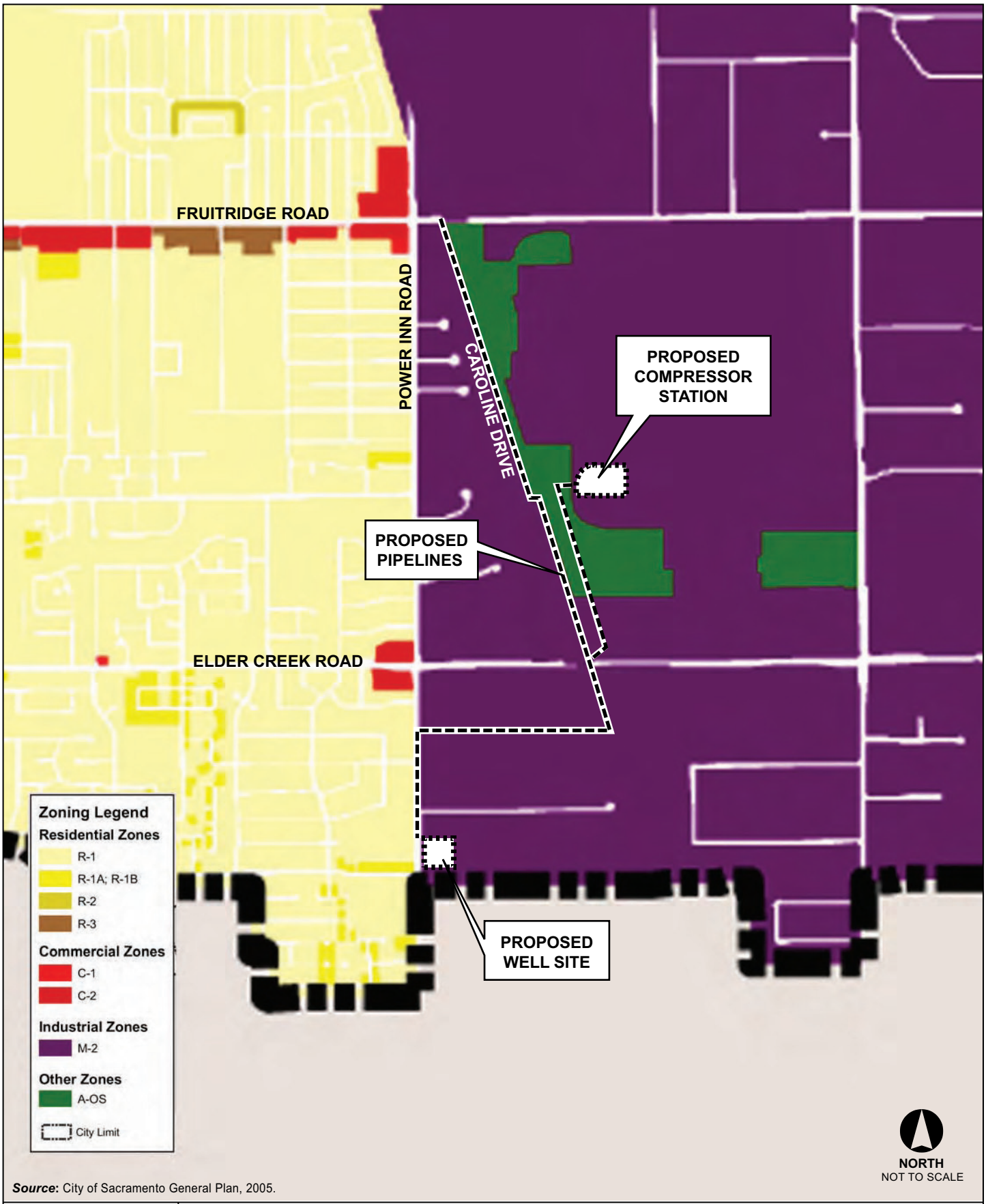

***Source*:** City of Sacramento General Plan, 2005.

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FIGURE **3.9-2**

Existing Zoning

Land use designations of lands adjacent to the wellhead site are Residential at 4 to 8 dwelling units per acre (du/ac), Residential at 7 to 15 du/ac, and Parks/Open Space. These lands are west of the wellhead site, across Power Inn Road. This area is also zoned as R-1, Standard Single Family use. In the unincorporated County, immediately south of the wellhead site, the land is designated as Intensive Industrial.

Land adjacent to the compressor station site is primarily zoned M-2 Heavy Industrial with the A-OS zone along the railroad right-of-way, as discussed above.

Agricultural Resources and Soils

There are currently 13,522 acres of agricultural land within the City of Sacramento and the City's General Plan policy area. This is approximately eight percent of all the land in the Sacramento General Plan policy area.[1] There are no lands within the project area or in the vicinity of the project area that are under a Williamson Act contract.[2] There are no lands on or adjacent to the project area that are designated as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Local Importance.[3]

Soils on the proposed wellhead site consist of San Joaquin silt loam with 0 to 3 percent slopes. The proposed compressor station site is located on soils of hedge loam with 0 to 2 percent slopes.[4] These soils are not associated with important farmland.

3.9.3 Regulatory Setting

Federal

There are no specific federal regulations pertaining to land use or agriculture that would be applicable to the proposed project.

State

Williamson Act

The California Land Conservation Act of 1965 (Williamson Act) enables counties and cities to designate agricultural preserves (Williamson Act lands) and offer preferential taxation to agricultural landowners based on the income producing value of their property in agricultural use, rather than on its assessed market value. In return for the preferential tax rate, the landowner is required to sign a contract with the county or city agreeing not to develop the land for a minimum period. Contracts are

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1 City of Sacramento, General Plan Technical Background Report, June 2005, page 2.1-9.

2 CA Department of Conservation, Division of Land Resource Protection, January, 2004.

3 CA Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, 2004.

4 USDA, Natural Resources Conservation Service, National Cooperative Soil Survey, Web Soil Survey 1.1, http://websoilsurvey.nrcs.usda.gov/app/, accessed December 26, 2006.

automatically renewed annually unless a party to the contract files for nonrenewal or petitions for cancellation.

There are no lands on the project area or in the vicinity of the project area under Williamson Act contract.

Local

County of Sacramento General Plan

The following goals from the *County of Sacramento General Plan* are applicable to the proposed project.

Land Use Element

Goal An orderly pattern of land use that concentrates urban development, enhances community character and identity through the creation and maintenance of neighborhoods, is functionally linked with transit, and protects the County's natural, environmental and agricultural resources.

Urban Growth Management Strategy

Goal Land use patterns that minimize the impacts of new and existing development while maintaining the quality, character, and identity of neighborhood and community areas.

Farmland and Agricultural Resource Protection

Goal Protect important farmlands from conversion and encroachment and conserve agricultural resources.

County of Sacramento Zoning Ordinance

The County of Sacramento Zoning Ordinance permits a variety of uses on industrial lots. Gas and oil wells and public utility facilities are permitted on M-1 or M-2 zones similar to the City of Sacramento Zoning Ordinance.

City of Sacramento General Plan

The following goals from the *City of Sacramento General Plan* are applicable to the proposed project.

Commerce and Industry Land Use Element

Goal B Promote the re-use and revitalization of existing developed areas, with special emphasis on commercial and industrial districts.

Conservation of, and Open Space Used for, the Managed Production of Resources

Goal A Retain land inside the City for agricultural use until the need arises for development, and support actions of Sacramento County to similarly conserve its land until needed for urban growth.

Residential Land Use Element

Goal A Maintain and improve the quality and character of residential neighborhoods in the City.

Policy 6 *Prohibit the intrusion of incompatible uses into residential neighborhoods through adequate buffers, screening and zoning practices that do not preclude pedestrian access to arterials that may serve as transit corridors.*

City of Sacramento Zoning Ordinance

The proposed wellhead site is within the Industrial and Manufacturing Zone, and zoned M-2 Heavy Industrial. The compressor station site at Depot Park is also within the M-2 Heavy Industrial zone. The western portion of the proposed compressor station site overlaps the A-OS Agriculture-Open Space zone along the railroad right-of-way. M-2 permits the manufacture or treatment of goods from raw materials. This zone has certain regulations designed to obtain industrial park developments that are in keeping with the modern concept of attractive, landscaped industrial plants. Public utility yards are permitted on M-2 zones. Gas or oil wells are also permitted in this zone; however, a Special Permit is required to locate this use in the M-2 zone.

3.9.4 Impact Assessment Methods

Impact Analysis

The following impact analysis addresses construction impacts, impacts of operation and maintenance, and impacts associated with potential incompatibility of the proposed project with applicable plans and policies. Construction impacts deal with changes that would occur during construction. Impacts of operation and maintenance are categorized by permanent structures or any change from construction that cannot be guaranteed to be returned back to its original state. Impacts associated with incompatibility with applicable plans and policies are determined through examination of the plans and policies of those agencies with jurisdiction over the area encompassing the proposed project.

Significance Criteria

Criteria for determining the significance of impacts on land use or agricultural resources during construction and operation of the proposed project were developed based on the questions provided in Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Physically divide an established community?	☐	☐	☐	☑
2. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, or zoning ordinance)?	☐	☐	☐	☑
3. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑
4. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared in accordance with the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☑
5. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☑
6. Involve other changes in the existing environment that, because of their location or nature, could result in conversion of farmland to nonagricultural use?	☐	☐	☐	☑

3.9.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, LPA refers to Land Use, Planning, and Agricultural Resources.

LPA-1. *The proposed project would not result in the physical division of an established community. No impact would occur.*

The proposed project consists of construction of a wellhead site, compressor station, associated pipelines, and metering and gas conditioning equipment. A residential neighborhood and park site are located across from the proposed wellhead site, west of Power Inn Road. The proposed project would be constructed within an existing industrial area and would not result in the physical division of an established community. The residential neighborhoods west of the site would not be physically altered due to construction or operation of the proposed project. Therefore, no impact would occur and no mitigation is required.

LPA-2. *The proposed project would not result in potential inconsistencies with applicable plans and policies. No impact would occur.*

The proposed project involves construction of a wellhead site, compressor station, and associated pipeline in a largely industrial area. The land proposed for the wellhead site and compressor station are both designated and zoned by the City of Sacramento as M-2, Heavy Industrial. According to the City of Sacramento Zoning Ordinance (Chapter

17.24.040), the development of public utility yards and gas wells are compatible with the current zoning of both sites.

The compressor station site is surrounded by similar industrial uses; thus, the proposed facility on the Depot Park site, which is also adjacent to railroad tracks, would be compatible with surrounding land uses. However, the proposed wellhead site is adjacent to residential and park uses west of Power Inn Road. The *City of Sacramento General Plan* has policies relevant to the proposed project in the Residential Land Use Element. Goal A and Policy 6 discuss the maintenance of the quality and character of residential neighborhoods, including the prohibition of incompatible uses in residential neighborhoods through adequate buffers and screening.

The addition of the wellhead site would not significantly change the existing industrial character of the area east of Power Inn Road. A majority of land east of this road is currently in industrial use. To avoid conflict with the residential neighborhood to the west of the site, the proposed wellhead site would be designed to minimize the visual effects of these facilities with the construction of walls and the addition of landscaping and other visual screening (see Section 3.2.3, Aesthetics). In addition, construction of the wellhead site in zone M-2 would be allowed with approval of a Special Permit in the City. Accordingly, this siting would not conflict with Goal A and Policy 6.

The pipeline routing for the proposed project would be located within road, railroad, and utility right-of-ways to minimize proximity to residential uses and to minimize land use conflicts and safety issues. Because the proposed compressor station would be an allowed use and would be compatible with surrounding industrial uses, the wellhead site would include appropriate visual buffers to shield residential and park uses from the site, and the pipelines would be located within road, railroad, and utility right-of-ways, no significant land use conflicts are expected. Therefore, the proposed project is not expected to result in land use conflicts, nor is it incompatible with surrounding land uses. No impact would occur and no mitigation is required.

LPA-3. The proposed project would not conflict with an applicable habitat conservation plan or natural community conservation plan. No impact would occur.

The proposed South Sacramento Habitat Conservation Plan (SSHCP) provides a regional approach to addressing issues related to urban development, habitat conservation, and agricultural protection in southeastern Sacramento County. The SSHCP is currently being developed and will consolidate environmental efforts to protect and enhance wetlands and upland habitats to provide ecologically viable conservation areas. The SSHCP will be an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the "incidental take" of listed species (i.e., to destroy or degrade habitat in connection with economic activity) in return for conservation commitments from local jurisdictions. The options for securing these commitments are currently being developed and will be identified prior to the adoption of the SSHCP. The

geographic scope of the SSHCP includes the area bounded by Highway 50 to the north; the county line to the east and south, excluding the Sacramento Delta; Interstate 5 to the west; and the Sacramento city limits to the northwest. Adoption of the SSHCP is expected by early 2008.

The proposed project would occur in the Urban Service Boundary of the County. Most of the SSHCP conservation would likely occur outside of the Urban Service Boundary, due to its developed nature. With the exception of the Morrison Creek Cross-Tie metering and gas conditioning equipment, the project would be located outside of the Habitat Conservation Plan project boundary. The equipment at the Morrison Creek Cross-Tie would be installed at an existing natural gas station and would not result in the loss of land that could potentially be included in the conservation efforts of the SSHCP. Therefore, development of the proposed project would not negatively affect the conservation efforts of the SSHCP. No impact would occur and no mitigation is required.

LPA-4. The proposed project would not convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or other farmland to nonagricultural use. No impact would occur.

As discussed in the Environmental Setting above, the proposed project does not include land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor is it adjacent to lands that are zoned or currently used for agricultural production. The project would not convert agricultural land to nonagricultural use. The project would be constructed on vacant land designated for industrial uses that would be compatible with development of gas wells and utility yards. Therefore, there would be no impact and no mitigation is required.

LPA-5. The proposed project would not conflict with a Williamson Act contract. No impact would occur.

The proposed project area does not include land under a Williamson Act contract; therefore the project would not conflict with lands under Williamson Act Contracts. There is no impact and no mitigation is required.

LPA-6. The proposed project would not involve other changes in the existing environment that, because of their location or nature, could result in conversion of farmland to nonagricultural use. No impact would occur.

The proposed wellhead site and compressor station site would be located on land designated for industrial use. In addition, land adjacent to these sites and pipeline alignments consists of urban, built-up land that is not suitable for agricultural activities. As discussed in Impacts LPA-4 and LPA-5 above, the proposed project is not located on or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide or Local Importance. The project is also not located on land under Williamson Act contract. Soils on the proposed wellhead site and compressor station site are not suitable for agricultural production and

have minimal potential for agricultural production in the future. Because the proposed project is not on or adjacent to land designated for agricultural use, and the project area is not currently in agricultural production, there is no impact and no mitigation is required.

3.9.6 Mitigation Measures

Construction and operation of the proposed project would not cause significant changes to the existing land uses, zoning, or agricultural uses in the project area; therefore, no additional mitigation measures are required.

3.10 Noise

3.10.1 Introduction

This section of the PEA describes the noise issues related to construction and operation of the proposed project. Existing conditions and the regulatory setting are described, followed by an analysis of the potential for noise impacts based on specified significance criteria. The information in this section is based on observations and noise measurements taken at the project area, and the General Plan and Municipal Codes from both the City and County of Sacramento.

3.10.2 Existing Conditions

Noise Background

Sound is created when objects vibrate, resulting in air pressure variations characterized by their amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude is the decibel (dB). The decibel scale is logarithmic; it describes the physical intensity of the pressure variations. The pitch of the sound is related to the frequency of the pressure variation. The human ear's sensitivity to sound is frequency-dependent. The A-weighted decibel scale (dBA) measures sound intensity while discriminating against frequencies in a manner approximating that of the human ear.

Noise is "unwanted" sound. A typical noise environment consists of a base of steady "background" noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background is the noise from individual distinguishable local sources, such as aircraft overflights or traffic on an adjacent roadway.

Several rating scales have been developed to analyze the adverse effect of noise on people. Since environmental noise fluctuates over time, these scales consider that the effect of noise upon people is largely dependent upon the volume of the noise, as well as the time of day when the noise occurs. Those that are applicable to this analysis are as follows:

- L_{eq}, the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- L_{dn}, the Day Night Average Level, is a 24-hour average Leq with a 10 dBA "weighting" added to noise during the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the nighttime.
- L_{max}, the maximum instantaneous noise level experienced during a given period of time.

Noise levels from a particular source decline as distance to a receptor increases. Other factors, such as the weather and reflecting or shielding, also help intensify or reduce noise levels at any given location. A commonly-used rule of thumb for roadway noise is that the noise level is reduced by about 3 dBA for every doubling of distance from the source. In comparison, noise from stationary or point sources is reduced by about 6 dBA for every doubling of distance. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source

reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA.

Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB). Groundborne vibration levels vary from approximately 50 VdB, which is the typical background vibration velocity level that is barely perceptible by humans, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

Land uses in the vicinity of the project area include residential, commercial, and industrial uses. Existing noise sources at the project area include traffic on nearby roadways and operational noise from nearby industrial sources. Noise measurements taken in the project vicinity are presented in Table 3.10-1.

Table 3.10-1
Daytime Noise Measurements at Selected Locations on/around Project Area

Noise Measurement Location	Noise Sources	Noise Level Statistics		
		L_{eq}	L_{min}	L_{max}
Proposed project – Wellhead Site approximately 150 feet from Power Inn Road	Traffic along Power Inn Road	64.5	52.8	76.5
Proposed project – Compressor Station Site	Truck activity within Depot Park, aircraft overflights, and Amtrak train passby and horne use	61.4	48.9	84.1
Residential area along Power Inn Road across from Wellhead Site, at setback of residential property	Traffic along Power Inn Road	77.0	52.3	89.7
Residential area along Power Inn Road at Lemon Hill Avenue, at setback of residential property	Traffic along Power Inn Road, train horn	76.3	54.5	96.4

Source: EIP Associates, a division of PBS&J, 2006.
Notes:
Measurements taken midday on November 29, 2006. Each measurement was 10 minutes in duration.
L_{eq} is the average noise level over the measurement period, L_{min} is the minimum instantaneous noise level measured during the 10-minute period, while L_{max} is the maximum instantaneous noise level measured during the 10-minute period.

Regular sources of groundborne vibration at the project area and immediate vicinity are from heavy truck and bus traffic along area roadways including Power Inn Road. Trucks and buses typically generate groundborne vibration velocity levels of approximately 63 VdB. These levels could reach 72 VdB where trucks and buses pass over bumps in the road.

3.10.3 Regulatory Setting

Federal and State

There are no federal or state regulations regarding noise that would apply to the proposed project.

Local

Sacramento County General Plan

Sacramento County has published a General Plan that includes a noise element. This noise element contains County-adopted noise standards for various land uses such as residential, educational, medical, recreational, etc. The County General Plan's Land Use Compatibility for Community Noise Environments defines these standards (see Figure 3.10-1).

Sacramento County Municipal Code

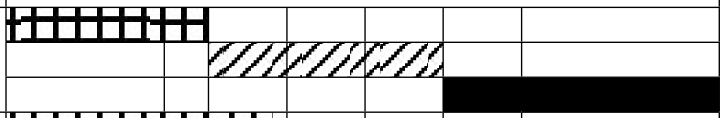
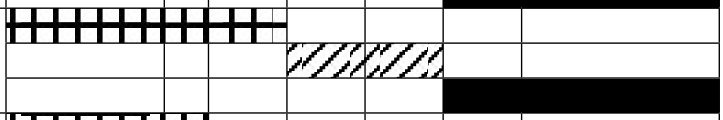
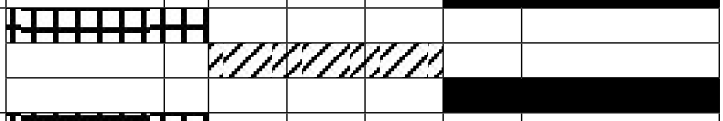
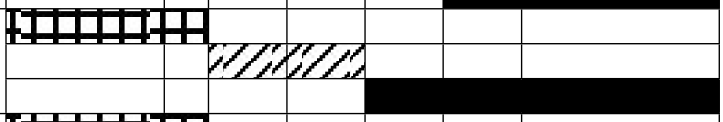
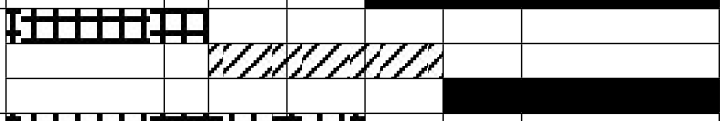
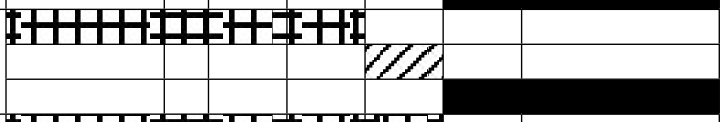
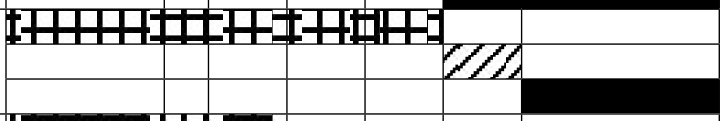
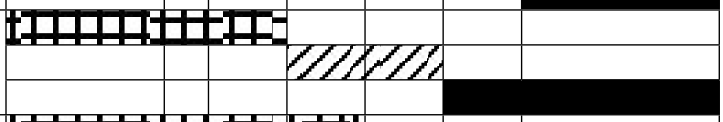
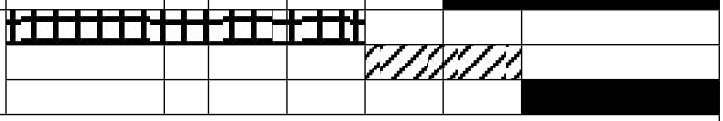
The County of Sacramento Municipal Code includes regulations related to noise. Chapter 6.68 – Noise Control, is the regulatory chapter devoted to noise. Section 6.68.070 defines acceptable exterior noise levels for residential uses as being 55 dBA from 7 AM to 10 PM and 50 dBA from 10 PM to 7 AM. Section 6.68.070 specifies that this 55 dBA standard may be exceeded, but the cumulative duration of the exceedance may not exceed certain levels in any one hour. Section 6.68.070 prohibits any person from exceeding the 55 dBA standard for more than 30 minutes in any one hour. A person may not exceed the standard by 20 dBA at any time.

The Sacramento County Municipal Code requires that construction take place only within the specified hours of 6 AM and 8 PM Monday through Friday, and 7 AM and 8 PM on Saturdays and Sundays. This is to ensure that construction does not take place during nighttime hours when people would normally be trying to sleep. In addition, Section 6.68.090 lists that as long as construction is restricted to these listed hours, the resulting construction noise is exempt from the other standards of the Municipal Code. The Code allows an extension of the construction hours if the nature of the project is such that work must continue outside of these specified hours.

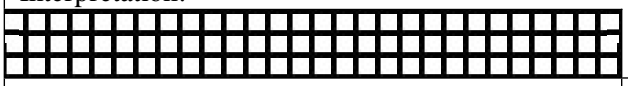
City of Sacramento General Plan

The City of Sacramento General Plan contains goals, policies, and information related to noise that are included in the Health and Safety element of the General Plan. This element establishes maximum acceptable exterior noise level criteria for new development, which are shown in the Community Noise Exposure Levels shown in Figure 3.10-2.

The General Plan identifies five goals concerning noise in its Health and Safety element. Each goal is implemented by a number of corresponding policies. The following are the applicable goals and policies for the proposed project.

Land Use Category	Community Noise Exposure L_{dn} or CNEL, dB 55 60 65 70 75 80
Residential Including AR-1 and AR-2	
Agricultural – Residential 5 and 10 acres	
Transient Lodging – Motels, Hotels	
Schools, Libraries, Churches, Hospitals, Nursing Homes	
Auditoriums, Concert Halls, Amphitheatres, Sports Arenas	
Playgrounds, Neighborhood Parks	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	
Office Buildings, Business Commercial and Professional	
Industrial, manufacturing Utilities, Agriculture	

Interpretation:

	Acceptable. Specified land use is satisfactory. No noise mitigation measures are required.
	Conditionally Acceptable. Use should be permitted only after careful study and inclusion of protective measures as needed for intended use and to satisfy policies of the Noise Element.
	Unacceptable. Development is not feasible in accordance with Noise Element. Use is prohibited.

Notes:
This figure is to be used to determine the necessity for an acoustical study based on the exterior, pre-mitigation noise exposure level. Any mitigation must achieve noise levels that are in compliance with the policies of the Noise Element.
Noise Source: All noise except airport: for Airport Noise compatibility see Figure II-4 and Table II-6 in the County of Sacramento General Plan Noise Element.

***Source*:** County of Sacramento General Plan Noise Element, 1993.

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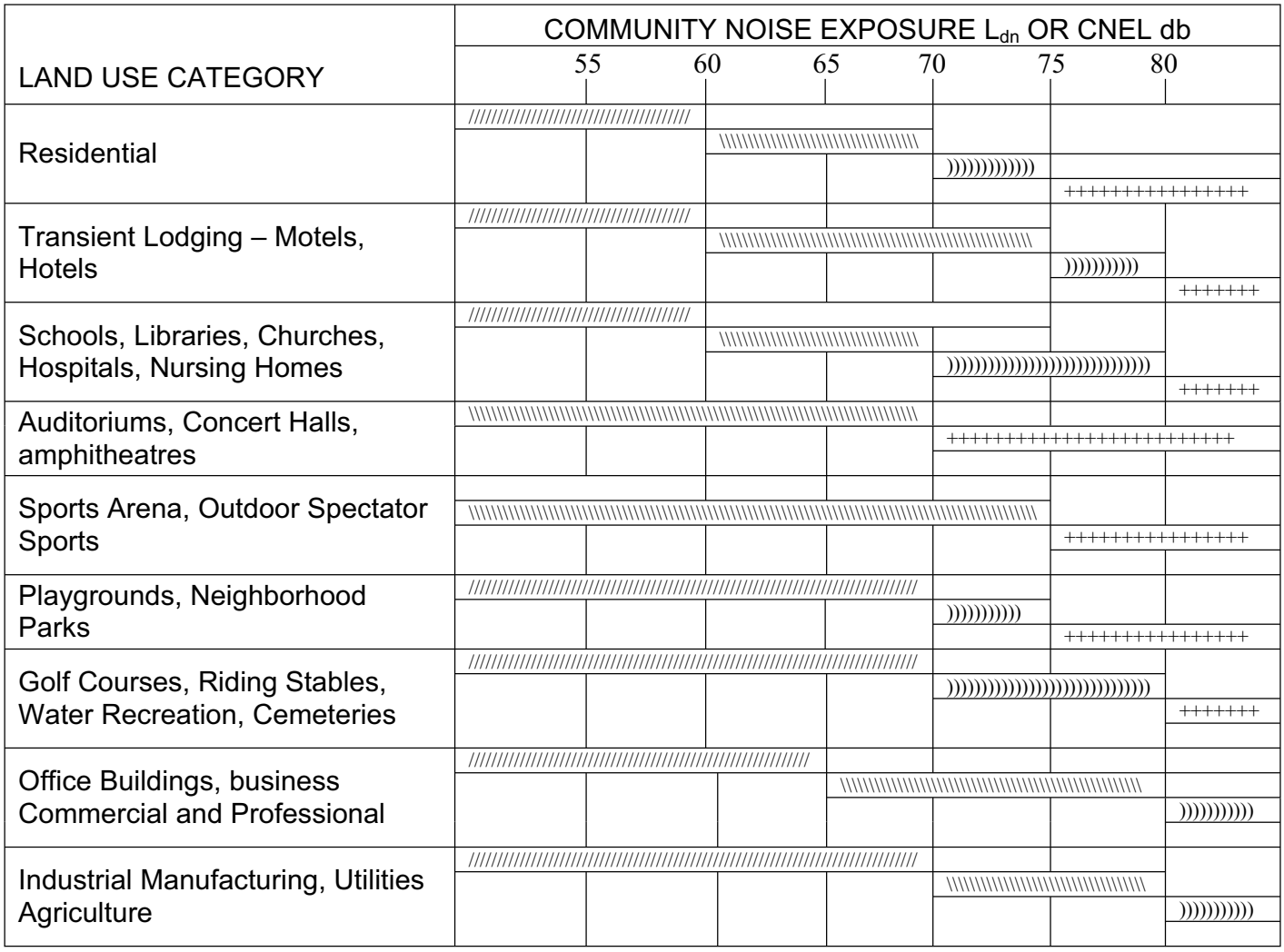
FIGURE **3.10-1**
County of Sacramento
Land Use Compatibility for Community Noise Environments



INTERPRETATION

////////////////	NORMALLY ACCEPTABLE	))))))))))))))	NORMALLY UNACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise requirements		New construction or development shouldbe discouraged. If new construction ordevelopment does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.	
\\\\\\\\\\\\\\\\	CONDITIONALLY ACCEPTABLE	++++++++	CLEARLY UNACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.		New construction or development clearly should not be undertaken.	

***Source*:** Sacramento General Plan,1988.

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FIGURE **3.10-2**
City of Sacramento
Land Use Compatibility for Community Noise Environments

Goal C Eliminate or minimize the noise impacts of future development on existing land uses in Sacramento.

Policy 1 *Review projects that may have noise generation potential to determine what impact they may have on existing uses. Additional acoustical analysis may be necessary to mitigate identified impacts.*

There are areas of the City which are considered relatively quiet (ambient levels below "normally acceptable" noise levels). While new development in these areas might not cause the "normally acceptable" noise level for existing development to be exceeded, it is recognized that such new development might cause an increase in ambient noise considered significant in terms of impacts on existing uses.

Enforce the Sacramento Noise Ordinance as the method to control noise from sources other than transportation sources.

Sacramento Municipal Code

The Sacramento Municipal Code contains regulations concerning noise. These noise regulations are found in Title 8 – Health and Safety, Chapter 8.68 – Noise Control. Of the regulations in Chapter 8.68, not all are applicable to the proposed project. Of the applicable regulations, section 8.68.060 sets standards for exterior noise levels at residential properties as shown in Table 3.10-2. Section 8.68.190 generally prohibits any person from making "any loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area." However, section 8.68.060 exempts certain activities from Chapter 8.68, including "noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure" as long as these activities are limited to between the hours of 7 a.m. and 6 p.m. Monday through Saturday, and between the hours of 9 a.m. and 6 p.m. on Sunday. Section 8.68.060 also requires the use of exhaust and intake silencers for internal combustion engines, and provides for construction work to occur outside of the designated hours if the work is of urgent necessity and in the interest of public health and welfare for a period not to exceed three days.

3.10.4 Impact Assessment Methods

The analysis in this section focuses on the nature and magnitude of the change in the noise environment associated with implementation of the proposed project. The primary temporary source of noise associated with the project would be construction activities. Construction noise could affect existing receptors. Permanent noise increases could be generated by new stationary sources and greater traffic volumes associated with project-related trips; however, as discussed in Section 3.14 Transportation and Circulation, only six daily roundtrip trips are estimated and this increase would be minimal. Secondary sources of noise would include the heating, ventilation, and air conditioning units that would be part of the proposed project. The net increase in noise levels associated with these activities and sources have

been quantitatively estimated using methods discussed below. The levels are then compared to applicable noise standards and thresholds of significance.

Table 3.10-2
City of Sacramento Exterior Noise Standards

Cumulative Duration of Sound	Allowable Noise Level (dBA)	
	Daytime (7:00 a.m. to 7:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Exterior Noise Standard	55 dBA	50 dBA
Cumulative period of 30 minutes per hour	0	0
Cumulative period of 15 minutes per hour	+5	+5
Cumulative period of 5 minutes per hour	+10	+10
Cumulative period of 1 minutes per hour	+15	+15
Level not to be exceeded for any time period	+20	+20

Source: City of Sacramento Municipal Code Section 8.68.060.

Notes:

Each of the noise limits specified shall be reduced by five dBA for impulsive or simple tone noises, or for noises consisting of speech or music.

If the ambient noise level exceeds that permitted by any of the first four noise limit categories specified, the allowable noise limit shall be increased in five dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.

Construction noise levels were estimated using data published by the USEPA. The USEPA has identified typical noise levels for construction equipment that will be used during construction of the proposed project. Operational noise levels were estimated using published data used for similar natural gas facilities for water injection facilities and well drilling, the published data for gas operated wells and drilling were used in this analysis recognizing that electric wells and drills would make less noise. Noise levels for electric compressors were provided by the Hanover Company and Hoover & Keith. Potential noise levels from construction and operation are identified as they would affect existing nearby noise receptors.

Significance Criteria

Criteria for determining the significance of impacts relative to noise during construction and operation of the proposed project were developed based on questions provided in Appendix G of the State CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☑	☐	☐
2. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐	☐
5. Lie within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and, as a result, would it expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
6. Lie in the vicinity of a private airstrip, and, as a result, would it expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

3.10.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, NOI refers to Noise.

NOI-1. *Operational activities would not exceed the existing daytime ambient noise levels or the City of Sacramento daytime and nighttime noise standards. Nighttime construction activities could result in noise levels above the standards established in the noise ordinance at nearby receptors. However, with implementation of Mitigation Measures MM NOI-1 through MM NOI-3 this potential impact would be reduced to less than significant.*

Implementation of the proposed project would introduce new stationary noise sources at the compressor station site and there would be an associated increase in ambient noise levels in the vicinity of this area. The proposed project would also include construction of metering and gas conditioning equipment and new pipelines that would not result in substantial noise level increases. Construction of the project would require nighttime construction activities for well drilling and could result in an increase in ambient noise levels during nighttime hours. Construction activities other than well drilling would occur during daytime hours, and would be exempt from the City's noise standards. These impacts are addressed under Impact NOI-4.

Operation

Wellhead Site. The closest sensitive receptors to the wellhead site would be along Power Inn Road, with residents directly across Power Inn Road from the property boundary. The wellhead site is proposed to contain six gas wells, one water injection well and one observation well. All of the wells would be positioned on the eastern side of the site, approximately 475 feet from the nearest residential units. An 8-foot high masonry wall would be constructed on the western side of the site and would provide limited shielding of equipment noise for the adjacent residential units. Existing noise levels at the residents adjacent to the wellhead site were measured to be about 77 dBA during daytime hours; this noise level is primarily due to traffic along Power Inn Road. It should be noted, that the existing noise level along Power Inn Road is in excess of the City's General Plan land use compatibility criterion of up to 60 dBA Ldn for residential uses.

Under City's Municipal Code, the maximum daytime exterior noise level for residential uses is 55 dBA or the maximum existing ambient noise level. Because noise levels at residential units along Power Inn Road exceed the City's 55 dBA daytime standard, the daytime standard for this area would be the ambient noise level at each location. It is assumed that existing nighttime noise levels would be substantially less than those measured at the site during daytime hours due to reduced traffic volumes during nighttime hours. However it is also likely that the nighttime noise levels would be in excess of the City's nighttime exterior noise level standard of 50 dBA.

Because compression of the gas would occur at the compressor station, noise from the proposed wells would only be associated with the piping systems and would not constitute a significant source of noise. The project would also install an 8-foot high masonry wall on the western and southern side of the site, which would provide limited noise shielding for the residents. Therefore, because operation of the wells at the wellhead site would not be expected to exceed the City's exterior noise level standards, this would be considered a less-than-significant impact.

Compressor Station Site. The closest sensitive receptors to the compressor station site would be along Power Inn Road near Lemon Hill Avenue, with residents approximately 2,250 feet from the proposed site. There are intervening buildings and a railroad located between the compressor station and the closest sensitive receptor. The intervening buildings would be expected to result in some shielding of operational noise for the adjacent residents. Existing noise levels at the residents near Power Inn Road and Lemon Hill Avenue were measured to be about 76 dBA during daytime hours. This existing noise level is in excess of the City's General Plan land use compatibility criterion of up to 60 dBA Ldn for residential uses.

Noise from a typical compressor station is generally composed of multiple noise sources that include an internal combustion engine or gas turbine, cooling fan, electric compressor, and relief valves. The proposed project would include an electric-power compressor, and

primary noise sources would be associated with the cooling units. An electric-powered compressor station would produce noise levels of approximately 68dBA at 50 feet.[1] At a distance of 2,250 feet (distance to closest receptor) noise levels for an electric-powered compressor station would be approximately 35 dBA. This would be below the existing daytime noise level in that area of 76 dBA. In addition, the intervening buildings would provide shielding for the compressor noise to the residents. This would also be below the City's nighttime exterior noise level standard of 50 dBA and would be considered a less-than-significant impact.

Nighttime Construction

Well Drilling. The proposed project would require well drilling to operate 24 hours per day, seven days per week while each well is drilled and completed. A total of eight wells would be drilled at the site, all approximately 475 feet from the nearby residential receptors. Noise levels for well drilling would be approximately 83 dBA at 50 feet[2] and would be approximately 63 dBA at the closest residential receptor during the drilling process. The City's Municipal Code exempts construction activities from the noise standards during specified daytime hours; however, because of the nature of the drilling process, the proposed project would require construction activities to operate outside of the exemption hours. Construction activities that would occur outside of the exemption hours would be subject to the City's noise standard of 50 dBA at residential properties or the ambient noise level, whichever is greater.

As discussed above, noise levels measured during daytime hours were 77 dBA, which are above the City's daytime standard of 55 dBA. Based on the daytime noise levels, it is likely that the existing nighttime ambient noise levels would also be above the City standard of 50 dBA. While the projected noise levels for well drilling of 63 dBA would exceed the City's nighttime exterior noise level standard of 50 dBA, it is unknown whether this would exceed the existing ambient nighttime noise levels. The project would install an 8-foot high masonry wall on the western side of the site, which would provide limited noise shielding for the residents. However, even with the proposed wall, noise levels could exceed the City standard. Therefore, because it could exceed the City's exterior noise level standard, this would be considered a potentially significant impact.

To minimize the impacts from nighttime drilling for nearby receptors, Mitigation Measures MM NOI-1 through MM NOI-3 would be required to reduce noise levels to below the standards and to provide notification of nearby residents of the proposed construction activities to minimize the potential for annoyance of nearby residents during construction. With implementation of Mitigation Measures MM NOI-1 through MM NOI-3, impacts from the proposed project would be considered less than significant.

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[1] Noise levels provided by The Hanover Company and Hoover and Keith. The reference noise level for the electric compressor facilities is calculated based on a noise level of 92 dBA at 3 feet from the cooler units.

[2] Reference noise levels obtained from *United States Bureau of Land Management*. Oct.2000. Draft RMPA/EIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties. Page 4-29.

NOI-2. Construction activities associated with the proposed project would expose persons to some groundborne vibration or groundborne noise levels. This impact would be less than significant.

Groundborne vibration would occur during project construction as a result of operation of construction equipment. Activities that typically cause the most substantial ground vibration, such as pile driving or blasting, are not proposed for this project. As shown in the Table 3.10-3, vibration from most equipment would fall below the 80 VdB residential sleep disturbance threshold at a distance of 50 feet, and for all equipment at a distance of 75 feet or more from the areas where they would operate. Of the construction equipment likely to be used for the project, the construction equipment that would be used for trenching of the pipeline alignment would be the most likely to produce vibration in areas close to nearby sensitive uses as they would be adjacent to Power Inn Road. Because this equipment would be to the east of the roadway, it would be at a distance greater than 75 feet from residences. While vibration levels could exceed the 80 VdB threshold, this threshold is set for sleep disturbance and the City-imposed hours of construction would not allow nighttime construction for general construction activities. As a result, the 80 VdB exposure would not occur when most people are sleeping. Construction under the proposed project would only require nighttime construction activities during well drilling at the wellhead site and horizontal directional drilling for the roadway and waterway crossings. The well drilling would be at least 475 feet from the closest resident and the directional drilling areas would be at least 1,000 feet from the closest resident. As shown in Table 3.10-3, at distances greater than 75 feet, vibration from construction equipment would be below the 80 VdB sleep disturbance threshold. Therefore, the groundborne vibration impact of the proposed project would be less than significant and no mitigation would be required.

Table 3.10-3
Vibration Source Levels for Construction Equipment

	Approximate VdB			
Construction Equipment	**25 feet**	**50 feet**	**75 feet**	**100 feet**
Vibratory Roller	94	85	80	76
Hoe Ram	87	78	73	69
Large Bulldozer	87	78	73	69
Caisson Drilling	87	78	73	69
Loaded Trucks	86	77	72	68
Jackhammer	79	70	65	61
Small Bulldozer	58	49	44	40

Source: Federal Transit Administration, 2006; and EIP Associates, a division of PBS&J 2007.

NOI-3. *The proposed project would generate noise associated with operation of the compressor station; however, this would not result in a substantial permanent increase in ambient noise levels at nearby sensitive receptors. This impact would be less than significant.*

As discussed above under Impact NOI-1, operation of the proposed project would result in noise level increases in the project area due to operation of the compressor station. As also discussed, the nearest sensitive receptors are along Power Inn Road where existing daytime ambient noise levels are in excess of the City's Municipal Code standards of 55 dBA for residential uses. Noise levels from the compressor station would be 35 dBA which would be below the existing daytime noise levels of 76 to 77 dBA and below the City's nighttime standard of 50 dBA. Therefore, this impact would be less than significant.

NOI-4. *Daytime construction activities associated with the proposed project would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity. However, daytime construction activities would be exempt under the City's Municipal Code standards and daytime construction impacts would be less than significant.*

Construction of the proposed project would result in temporary increases in noise in the vicinity of the project. Primary noise-generating activities would include site development, drilling of wells, and pipeline construction. Vehicle traffic traveling to and from the construction area may also affect noise in the area. Sound levels created by construction equipment vary depending on the type of construction equipment, the operation being performed, and the condition of the equipment. The received sound level depends on the distance between the activity and noise-sensitive receivers and whether local barriers and topography provide shielding effects. Residential receptors would be located closest to the wellhead site and the proposed pipeline alignment south of Elder Creek Road. Table 3.10-4 shows noise levels for typical construction equipment other than well drilling. Noise associated with well drilling is addressed in Impact NOI-1.

Construction-related activities associated with the proposed project, other than well drilling, would include excavation, grading, and general site development. These activities would be required to comply with the City's Municipal Code standards. As discussed above, Section 8.68.060 of the City's Municipal Code limits the hours of construction to 7 a.m. and 6 p.m. Monday through Saturday, and between the hours of 9 a.m. and 6 p.m. on Sunday. Construction is exempted from standard noise thresholds during these hours. Section 8.68.060 also requires the use of exhaust and intake silencers for internal combustion engines, and provides for construction work to occur outside of the designated hours if the work is of urgent necessity and in the interest of public health and welfare for a period not to exceed three days. Well drilling would require construction to occur on a 24-hour basis and is addressed above under Impact NOI-1.

Table 3.10-4
Average Noise Levels of Construction Equipment with and without Controls (dBA)

Equipment	Noise Level at 50 feet	
	Unabated	With Feasible Noise Control[a]
Earthmoving		
Front Loaders	79	75
Backhoes	85	75
Dozers	80	75
Tractors	80	75
Scrapers	88	80
Graders	85	75
Trucks	91	75
Pavers	89	80
Materials Handling		
Concrete Mixer	85	75
Concrete Pump	82	75
Crane	83	75
Derrick	88	75
Stationary		
Pumps	76	75
Generator	78	75
Compressors	81	75
Impact		
Jack Hammers	88	75
Pneumatic Tools	86	80
Other		
Saws	78	75
Soil Vibrators/Compactors	76	75

Source: U.S. Environmental Protection Agency. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances,* December 1971.

Note:

a. Feasible noise control methods include installation of noise control devices (e.g., mufflers), selection of quieter machinery from among available equipment and/or implementation of noise-control measures (e.g., surrounding stationary equipment with noise barriers), all of which require no major equipment redesign.

During the hours permitted by the City for construction activities, project-related construction noise would result in an increase in ambient noise levels in the project vicinity. However, this would be exempted from the noise standard during the specified daytime hours, provided the equipment includes installation of noise control devices (e.g., mufflers), which would be required by the City for internal combustion engines. The incorporation of other measures such as selection of quieter machinery from among available equipment and/or implementation of noise-control measures (e.g., surrounding stationary equipment with noise barriers), all of which require no major equipment redesign, and could reduce noise generated by construction activities. However, because

construction equipment is exempt from City standards these measures would not be required for the project.

Daytime construction activities would be less than significant because these activities would be exempt from the noise standards during the City's specified hours.

NOI-5. The proposed project would not be located within two miles of a public or private airport and would not expose people to excessive airport-related noise levels. No impact would occur.

The project area is approximately five miles from both the Sacramento Executive Airport to the west and the Mather Airport to the northeast. Because the proposed project would not be located within an airport land use plan or within two miles of a public or private airport, the project would not expose people to excessive airport-related noise levels.

3.10.6 Mitigation Measures

MM NOI-1. Install temporary noise barriers between drilling equipment and sensitive receptors. SNGS shall install temporary noise barriers between the drilling rig and nearby receptors, such that noise levels at the receiving property would be minimized to the extent feasible. Depending on the length of the barrier, the barrier may need to be repositioned after drilling of each well had been completed and the drilling rig is repositioned. The height and location(s) of the noise barrier shall be determined based on the size of the drilling rig to be used and the locations of the proposed wells, and shall be included in a drilling plan and submitted to CPUC and the City for review and approval.

If this does not reduce the noise levels below the City's 50 dBA standard or existing nighttime ambient noise levels (whichever is greater) then SNGS shall implement the following mitigation measures to reduce impacts to less than significant.

MM NOI-2. Provide prior notification to nearby residents of nighttime construction activities. SNGS shall provide notification to residents within 300 feet of the wellhead site at least 30 days in advance of nighttime construction activities and provide an estimate of the hours of operation and duration of the activities. SNGS shall also post signs on the site pertaining to the construction days and hours, complaint procedures, and who to notify in the event of a problem.

MM NOI-3. Designate a noise disturbance coordinator. SNGS shall designate a noise disturbance coordinator who will be responsible for responding to complaints about noise during construction. The telephone number of the noise disturbance coordinator shall be conspicuously posted at the

construction site, included in the notice to the residents, and shall be provided to the City.

3.11 Population and Housing

3.11.1 Introduction

This section discusses potential project-related impacts to population and housing in the project area. Information for this section was obtained from project plans, the City of Sacramento General Plan, the County of Sacramento General Plan, 2005 U.S. Census data, and Sacramento Area Council of Governments (SACOG) projections data.

3.11.2 Existing Conditions

The proposed project is situated in the southeast portion of the City of Sacramento and in the southwest portion of Sacramento County, California (see Figure 2-1). The project components would extend from the wellhead site, at the northeast corner of the intersection of Junipero Street and Power Inn Road, north to the compressor station on the Depot Park site off of Fruitridge Road (see Figure 2-2). Pipeline components would connect from the wellhead site to the compressor station and from the compressor station to existing SMUD and PG&E pipelines in Fruitridge Road. Additionally, metering and gas conditioning equipment would be located at the Morison Creek Cross-Tie, an existing SMUD and PG&E connection. The Cross-Tie is located between Franklin Road and I-5 in the southwest portion of Sacramento County.

The City of Sacramento has a population of 445,287 as of 2005.[1] The Sacramento Area Council of Governments (SACOG) projects a population in the city of 538,303 residents by 2035.[2] Within all of Sacramento County, the population is expected to increase from 1,361,637 in 2005 to 1,725,710 by 2035.[3] As the home of California's State capital, the governmental sector is a major source of population growth in Sacramento County. In addition, the greater Sacramento area has seen growth due to the influx of professionals from the San Francisco Bay Area due to rising housing costs. The County is expected to see a 27 percent increase in population by 2035.

The number of jobs in the City of Sacramento would also increase from 293,218 in 2005 to 405,943 in 2035. Similarly, the County would see an increase of 30 percent from 657,100 jobs in 2005 to 854,804 jobs in 2035.[4]

Project construction would entail between 150 and 200 employees. It is estimated that approximately 70 percent of these employees would be hired from the local area. The remaining 30 percent of workers would be expected to find temporary housing in the Sacramento area. Construction is anticipated to last between 6 and 9 months.

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1 U.S. Census Bureau, American FactFinder, Sacramento, California, http://factfinder.census.gov, accessed January 15, 2007.

2 SACOG, Projections for Jurisdictions from 2005 to 2035, http://www.sacog.org/demographics/projections/index.cfm, accessed January 15, 2007.

3 SACOG, Projections for Jurisdictions from 2005 to 2035, http://www.sacog.org/demographics/projections/index.cfm, accessed January 15, 2007.

4 SACOG, Projections for Jurisdictions from 2005 to 2035, http://www.sacog.org/demographics/projections/index.cfm, accessed January 15, 2007.

Operation of the proposed project would require a total of 3 employees who would likely be hired from the local Sacramento area.

3.11.3 Regulatory Setting

Federal and State

There are no specific federal or state regulations pertaining to population and housing that would be applicable to the proposed project.

Local

County of Sacramento General Plan

The following goals from the *County of Sacramento General Plan* are applicable to the proposed project.

Housing Element

Goal Promote and adequate supply of decent, safe and affordable housing to meet the needs of all residents of Sacramento County without regard to race, color, age, sex, religion, natural origin, family status or disability.

Policy HE-1 The County shall maintain an adequate supply of residential and agricultural-residential zoned land to accommodate projected housing needs.

Policy HE-3 Promote the development of various types of housing opportunities, by ensuring an adequate supply of designated or zoned sites for rental and purchase housing, in all residential areas throughout the County.

City of Sacramento General Plan

The following goals from the *City of Sacramento General Plan* are applicable to the proposed project.

Housing Element

Goal 1 Housing Supply: Provide adequate housing sites and opportunities for all households.

Policy 1.A The City of Sacramento shall adopt policies, programs and procedures with the intent of achieving its regional fair share housing allocation of affordable housing for all income groups of the City.

Goal 2 Housing Affordability: Provide housing assistance to low and moderate income households.

Goal 3 Housing Mix, Balance, and Neighborhood Compatibility: Promote a variety of housing types within neighborhoods to encourage economic diversity and housing choice.

3.11.4 Impact Assessment Methods

Impact Analysis

The following impact analysis addresses construction and operational impacts on population and housing in the project area.

Significance Criteria

Criteria for determining the significance of impacts on population and housing during construction and operation of the proposed project were developed based on Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
2. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
3. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

3.11.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, PAH refers to Population and Housing.

PAH-1. The proposed project would not induce substantial population growth in the area, either directly or indirectly. No impact would occur.

The proposed project consists of construction of a wellhead site, compressor station, metering and gas conditioning equipment site, and associated pipelines. The project is intended to allow for natural gas storage services, which would not directly induce population growth in the area. The total population change would be temporary and equal the total number of non-local construction workers, plus any family members accompanying them if the family relocated during the 6 to 9 months of project construction. Between 150 and 200 employees would be required; it is estimated that 70 percent of whom would be hired from the local area. The remaining 30 percent of workers would be hired from outside the area for specialized construction techniques, such as well drilling and horizontal directional drills. Workers from outside the local area would be

expected to find temporary housing (e.g., motel, hotels, apartments, etc.) in the greater Sacramento area during the construction period.

Given the brief construction period (between 6 and 9 months), family members are not expected to accompany non-local workers. The estimated 30 percent of the workers who may relocate to the project area temporarily during construction of the project would not constitute a major impact on the local population. These approximately 60 workers would comprise about 0.013 percent of the city's population.

Operation of the proposed project would not induce significant population growth in the area. Operation of the proposed project would require only one employee at any given time to monitor safety on a 24-hour basis. Employees would be stationed at the compressor site in order to monitor activity both at the compressor site and at the wellhead site. These employees would likely be hired from the Sacramento area, and therefore would not be considered to add to the existing population.

In addition, the proposed project would not indirectly induce population growth because it would not bring new natural gas to the area, but would store it for customers to help stabilize gas prices.

Because the proposed project would not require additional employees for operation outside of the local area, and construction workers would be housed temporarily in motels, hotels, or apartments for the duration of the construction period, the project would not result in direct or indirect impacts to population in the project area. Therefore, no impact would occur and no mitigation is required.

PAH-2. The proposed project would not displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere. No impact would occur.

The proposed project involves construction of a wellhead site, compressor station, and associated pipelines in a largely industrial area. The land proposed for the wellhead site and compressor station are both designated and zoned by the City of Sacramento as M-2, Heavy Industrial.

The proposed wellhead site is adjacent to residential and park uses west of Power Inn Road. However, the proposed project would be constructed within an existing industrial area and would not result in the displacement of existing housing. The residential neighborhoods west of the site would not be physically altered from construction or operation of the proposed project. Therefore, no impact would occur and no mitigation is required.

PAH-3. The proposed project would not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. No impact would occur.

As discussed above in Impact PAH-2, the proposed project would be constructed within an existing industrial area and would not result in the displacement of existing housing. The residential neighborhoods west of the project area would not be physically altered as a result of the construction or operation of the proposed project. The project would not result in the displacement of people in the area, necessitating the construction of replacement housing elsewhere. Therefore, no impact would occur and no mitigation is required.

3.11.6 Mitigation Measures

Construction and operation of the proposed project would not cause significant changes to the existing population and housing environment in the project area; therefore, no additional mitigation measures are required.

3.12 Public Health and Safety

3.12.1 Introduction

This section describes the public health and safety issues related to hazardous materials handling and storage, risks associated with the release of hazardous materials into the environment through reasonably foreseeable upset and accident conditions, and the potential rupture or explosion of the proposed natural gas pipelines and facilities. This section also provides a brief overview of the safety features of the proposed project and relevant state and federal safety requirements. This section also describes whether the site is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, whether the project could create a significant hazard to the public or environment, or impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. This section also describes regulatory and physical settings, followed by an analysis of the potential for public health and safety impacts based on specified significance criteria. Section 3.14, Transportation and Circulation, discusses potential disruption of emergency vehicle access during construction of the project. Section 3.13, Public Services and Utilities, discusses public safety concerns related to potential increased demand for emergency response services, including law enforcement and fire protection.

The term "hazardous material" is defined in different ways for different regulatory programs. For purposes of this environmental analysis the definition of "hazardous material" is similar to that in the California Health and Safety Code, Section 25501, where "because of their quantity, concentration, or physical or chemical characteristics, (they) pose a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment."

"Hazardous waste" is a subset of hazardous materials. For the purposes of this environmental analysis, the definition of hazardous waste is the same as that in the California Health and Safety Code, Section 25517, and in the California Code of Regulations, Title 22, Section 66261.2, where "because of their quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed".

3.12.2 Existing Conditions

Existing Land Uses

Residential land uses are located above the proposed natural gas storage field. A residential neighborhood is located across Power Inn Road from the site of the proposed wellhead. There is also a neighborhood park, Danny Nunn Park (formerly Florin Reservoir Park), on the west side of Power Inn Road near the residential uses. Along the proposed pipeline alignments are residential (west of Power Inn Road and South of Elder Creek Road), commercial, and industrial land uses. The compressor station site is located within Depot Park, the former Sacramento Army Depot, which is a business park that consists of primarily offices and warehouses.

The closest schools to the project area, including the proposed pipeline alignments, are the Camelia Elementary School along Cougar Drive, south of Elder Creek Road and Elder Creek Elementary School at the intersection of Power Inn Road and Lemon Hill Road. The Camelia Elementary School is approximately one-half mile from the proposed pipeline alignment along Power Inn Road and more than one-half mile from the wellhead site and compressor station. The Elder Creek Elementary School is approximately 1,800 feet or approximately 0.3 miles from the proposed pipeline alignment and more than one-half mile from the wellhead site and compressor station.

Historic Uses/Site Conditions

Wellhead Site[1]

The wellhead site is currently a vacant lot. According to the Phase I Environmental Site Assessment (ESA) prepared for the wellhead site in January 2007, the site is not listed on any federal, state, or local regulatory databases. However, there were 20 facilities listed within the minimum search distance from the wellhead site. Of the sites listed, the former Sacramento Army Depot was the only site identified in the Phase I ESA as having potentially affected the groundwater beneath the wellhead site. According to the Phase I ESA, the facility was decommissioned in 1991 and groundwater at the Army Depot site is being pumped and treated for contamination. Contaminated soil at the Army Depot site was identified to have been excavated and shipped off site or consolidated and stabilized at the southern end of the Army Depot site.

Review of historical aerial photographs in the Phase I ESA revealed that past uses of the site and adjacent properties may have included agricultural uses. Historical aerial photographs also revealed that a portion of a ranch was located in the southwestern portion of the site. A caved-in concrete tank was discovered in the southwestern portion of the site and may have been a former septic tank. In addition, the Phase I ESA reports that Purity Oil Sales Company formerly conducted operations adjacent to the south of the wellhead site in 1970; although no environmental investigations or releases have been reported from these operations.

Compressor Station Site[2]

The compressor station site is located within Depot Park, which was formerly the Sacramento Army Depot. A Phase I ESA completed for Depot Park in June 2004 indicated that historic uses at the site when occupied by the Sacramento Army Depot resulted in soil and groundwater impacts. The site is listed on various federal, state, and local regulatory databases including but not limited to the USEPA's, National Priority List (NPL), the Resource Conservation and Recovery Act's (RCRA) Corrective Action System (CORRACTS), the State Priority List (SPL), and the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).

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1 Kleinfelder, Phase I Environmental Site Assessment, 6881 Power Inn Road, Sacramento, California. January 26, 2006.

2 National Assessment Corporation, Phase I Environmental Site Assessment Report Depot Park 16 Business Park Way Sacramento, California 95927, June 14, 2004.

According to the Army Depot Phase I ESA, the soil impacts had been remediated by the U.S. Army and required no further action. Impacts to groundwater at the site and downgradient properties have been quantified and at the time of the Army Depot Phase I ESA, the property was undergoing remediation. The U.S. Army has accepted responsibility for known impacts and for any impacts that are discovered in the future that are related to previous U.S. Army activities on the site.

Other properties in the vicinity of the site were also listed on regulatory databases, including the Regional Water Quality Control Board's (RWQCB) leaking underground storage tank (LUST) list, the California Solid Waste Information System (SWIS) of Solid Waste Landfills (SWLF), and the state's underground and aboveground storage tank registration list (UST/AST). However, based on the Army Depot Phase I ESA, the potential for any of the identified off-site operations to have significantly impacted the site is considered to be low.

Underground Field Conditions

The Florin Gas Field conditions are described in detail in Section 3.7 Geology, Soils, and Paleontology. As described in that section, the Florin Gas Field occurs at a depth of approximately 3,800 feet below the ground surface, within a sequence of alternating layers of sand and shale deposits that are at least 6,800 feet thick. Within the sequence, the Florin Gas Field is contained within a 150-foot-thick porous sandstone unit with a 150- to 500-f00t-thick shale unit above the sandstone, which forms a seal that prevents the natural gas from escaping. As discussed in the geology section, there do not appear to be any structural faults through the field.

3.12.3 Regulatory Setting

Federal

Gas Pipelines

The U.S. Department of Transportation (DOT) Office of Pipeline Safety (OPS) regulates the safety of gas transmission pipelines. All gas pipeline projects delivering gas through a distribution system must be designed and constructed to meet or exceed the federal safety standards established in 49 Code of Federal Regulations (CFR) Part 192. These regulations include specific standards for material selection and qualification, design requirements, protection from internal, external, and atmospheric corrosion, and worker training, safety, and qualifications specific to the location of the pipeline relative to population densities. Following the passing of the Pipeline Safety Improvement Act (49 United States Code 60109) on December 17, 2002, the OPS on December 15, 2003, issued final pipeline integrity management regulations for gas transmission lines in areas with high population numbers. The OPS final rule includes prescriptive requirements, including repairing or replacement of potentially unsafe transmission infrastructure. The new law and rules mandate safety inspections and reinspections of pipelines over the next ten years.[3]

[3] U.S. Department of Energy, Environmental Assessment Division, Argonne National Laboratory, *Environmental Policy and Regulatory Constraints to Natural Gas Production*, December 2004, pp. 66 to 67.

Hazardous Materials

Several federal agencies regulate hazardous materials, including the USEPA, the Occupational Safety and Health Administration (OSHA), and DOT. Applicable federal regulations are contained primarily in Titles 10, 29, 40, and 49 of the CFR, and lead exposure guidelines provided by the U.S. Department of Housing and Urban Development.

Worker Safety

The DOT requires that gas pipeline operators meet certain qualifications. For the proposed project, construction crews are not required to meet these qualifications. However, when the project is connected to the main gas transmission system, operators would be subject to the DOT qualifications.

Hazardous Materials Transportation

The DOT has developed regulations pertaining to the transport of hazardous materials and hazardous wastes by all modes of transportation. The DOT regulations specify packaging requirements for different types of materials. The USEPA has also promulgated regulations for the transport of hazardous wastes. These more stringent requirements include tracking shipments with manifests to ensure that wastes are delivered to their intended destinations.

State

The California Environmental Protection Agency (Cal/EPA) establishes regulations governing the use of hazardous materials in the state. The Office of Emergency Services (OES) coordinates state and local agencies and resources for educating, planning, and warning citizens of hazardous materials, hazardous materials emergencies, including organized response efforts in case of emergencies. The California Highway Patrol (CHP) and the California Department of Transportation (Caltrans) are the enforcement agencies for hazardous materials transportation regulations. Transporters of hazardous materials and waste are responsible for complying with all applicable packaging, labeling, and shipping regulations.

Gas Pipelines

In addition to Federal Pipeline Safety Regulations, the CPUC has developed General Order 112-E, which establish minimum requirements for the design, construction, quality of materials, locations, testing, operations and maintenance of facilities used in the gathering, transmission and distribution of gas. General Order 112-E provides requirements for reporting, construction and safety standards, liquefied natural gas facilities, gas holders, and petroleum gas vessel stations.

Department of Toxic Substances Control

Within Cal/EPA, the Department of Toxic Substances Control (DTSC) has primary regulatory responsibility for hazardous waste management and cleanup. Requirements place “cradle-to-grave” responsibility for hazardous waste disposal on the shoulders of hazardous waste generators. Generators must ensure that their wastes are disposed of properly, and legal requirements dictate the disposal

requirements for many waste streams (e.g., banning many types of hazardous wastes from landfills). Enforcement of regulations has been delegated to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the Hazardous Waste Control Law. State regulations applicable to hazardous materials are contained in Title 22 of the California Code of Regulations (CCR). Title 26 of the CCR is a compilation of those sections or titles of the CCR that are applicable to hazardous materials management. Title 8 of the CCR contains Construction Safety Orders pertaining to lead.

Department of Conservation, Division of Oil, Gas, and Geothermal Resources

The DOGGR oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. The regulatory program emphasizes responsible development of oil, natural gas, and geothermal resources in the state through sound engineering practices that protect the environment, prevent pollution, and ensure public safety.

Hazardous Materials Management Plans

In January 1996, Cal/EPA adopted regulations implementing a "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program" (Unified Program). The six program elements of the Unified Program are: (1) hazardous waste generators and hazardous waste on-site treatment; (2) underground storage tanks; (3) above-ground storage tanks; (4) hazardous material release response plans and inventories; (5) risk management and prevention program; and (6) Uniform Fire Code hazardous materials management plans and inventories. The program is implemented at the local level by the Certified Unified Program Agency (CUPA), which is responsible for consolidating the administration of the six program elements within its jurisdiction. The Sacramento County Environmental Management Department is the CUPA that serves the project area.

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. California's Hazardous Materials Release Response Plans and Inventory Law (#4, above), sometimes called the "Business Plan Act," aims to minimize the potential for accidents involving hazardous materials and to facilitate an appropriate response to possible hazardous materials emergencies. The law requires businesses that use hazardous materials to provide inventories of those materials to designated emergency response agencies, to illustrate on a diagram where the materials are stored on site, to prepare an emergency response plan, and to train employees to use the materials safely.

Worker Safety

Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA obligates many businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle. For example,

manufacturers are to appropriately label containers, Material Safety Data Sheets are to be available in the workplace, and employers are to properly train workers.

Local

Sacramento County Environmental Management Department. Sacramento County is responsible for enforcing the state hazardous materials regulations, both in the City of Sacramento and the County, governing hazardous waste generators, hazardous waste storage, and underground storage tanks (including inspections, enforcement, and removals). The Sacramento County Environmental Management Department (EMD) regulates the use, storage, and disposal of hazardous materials in Sacramento County by issuing permits, monitoring regulatory compliance, investigating complaints, and other enforcement activities. EMD reviews technical aspects of hazardous waste site cleanups, and oversees remediation of certain contaminated sites resulting from leaking underground storage tanks. EMD is also responsible for providing technical assistance to public and private entities which seek to minimize the generation of hazardous waste.

City of Sacramento General Plan. The following Sacramento General Plan goals and policies related to hazards and hazardous materials are applicable to the proposed project and are found in the Safety and Hazardous Materials Element.

Goal A Provide for the health and safety of the citizens of Sacramento and for the protection of the environment by reducing, and where possible eliminating exposure to hazardous materials and waste.

Policy 1 *Work with the County, State, federal agencies and responsible parties to identify, contain and clean up sites that contain hazardous materials*.

The Safety and Hazardous Materials Element also contains the following goals and policies related to fire protection and prevention.

Goal A Maintain effective programs of fire protection and prevention.

Policy 1 *Continue the Fire Department's program of inspecting all public and private buildings, and review all future developments to ensure maximum safety from potential fire hazards*.

Policy 2 *Require existing and proposed buildings to have adequate fire protection measures to reduce the potential loss of lives and property*.

3.12.4 Impact Assessment Methods

Significance Criteria

Criteria for determining the significance of impacts relative to public health and safety during construction and operation of the proposed project were developed based on Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
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?	☐	☑	☐	☐
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☑
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?	☐	☑	☐	☐
5. Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
6. Be located within the vicinity of a private airstrip, and would result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
7. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑	☐
8. Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑

3.12.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, PHS refers to Public Health and Safety.

PHS-1. The proposed project would involve the routine use, storage, transport, or disposal of hazardous materials. This would be a less-than-significant impact.

During construction and operation of the proposed project, several types of hazardous materials would be stored and generated.

Construction Impacts. During construction, hazardous materials would primarily be associated with the operation of construction equipment and the use of oils and fuel for

operation and maintenance of construction equipment. Best management practices that would be implemented by the project would include equipment maintenance and refueling restrictions that would require the designation of areas for refueling or servicing activities and procedures for containment, storage, and disposal of any contain spilled fuel or fluids associated with refueling or servicing activities. The proposed project would also include development of a hazardous materials contingency plan to be implemented if an accidental spill occurs or if any subsurface hazardous materials are encountered during construction.

Drilling for pipelines and wells would also result in the use and disposal of hazardous materials in the drilling fluid and cuttings. As discussed in the project description, the project proposes to use HDD technology to cross under the UPRR tracks, Morrison Creek and Elder Creek Road. The use of HDD would require the use of drilling fluid to rotate the cutting head and would generate soil cuttings at the surface entry point. The drilling fluid would consist of a water/bentonite (dehydrated clay) mixture. Bentonite is a naturally occurring, non-toxic, inert substance that meets National Science Foundation/ American National Standards Institute (NSF/ANSI) 60 Drinking Water Additive Standards. The drilling fluids and soil cuttings would be required to be properly disposed of at an approved disposal site.

There is potential for fracture of the geologic strata above the bore during drilling, allowing drilling mud to rise to the surface (termed a "frac-out"). SNGS would include a frac-out contingency plan as part of the proposed bore plan. Measures that would be contained within the plan are described in the project description.

The proposed project would also install six gas wells, a water injection well and an observation well within the wellhead site. These wells would be drilled down to the depth of the existing reservoir, approximately 3,800 feet underground. As with HDD, the drilling of the wellhead site would result in generation of drilling fluids and soil cuttings that would require disposal at an authorized hazardous waste management facility. In addition, drilling, operation, and closure of all wells on the project area would be addressed in an injection plan that would be developed as part of the proposed project and would be subject to regulation and oversight by DOGGR. This includes, but is not limited to, development of drilling plans for the wells, development of injection plans for any injection wells, closure procedures for abandoned wells, and a monitoring plan for leaks.

To minimize the potential for accidental releases of hazardous materials into the environment during the construction phase, the RWQCB would require the project to develop a SWPPP, which would require the project to use best management practices for handling and storing hazardous materials and wastes (see Section 3.8, Hydrology).

The potential for public health hazards associated with routine use, handling, storage, or transport of hazardous materials or waste during construction is considered to be less than significant.

Operational Impacts. Operation of the facilities would require hazardous materials use for maintenance of the compressor and well operations. As with construction, the proposed project would use best management practices that would include equipment maintenance and refueling restrictions. Hazardous materials and waste would be handled in accordance with all applicable manufacturers' specifications for storage and handling, and would be required to comply with local, state, and federal requirements. Wastes would be required to be disposed of properly at an authorized hazardous waste management facility.

If a release of hazardous materials or waste occurred at the project area, a potential health and safety impact could result. The closest sensitive receptors are approximately 100 feet from the property boundary of the wellhead site, and approximately one-half mile away from the compressor station site. While there are sensitive receptors within 100 feet of the wellhead site, the amount of hazardous materials associated with that site would be minimal. Storage of hazardous materials would primarily occur at the compressor station site, which is located within an industrial park and no residential receptors are nearby. In addition, because the materials would be handled, stored, and transported according to applicable regulations, the chance of accidental release reaching the public is considered unlikely.

The proposed project would include the storage and transport of natural gas as part of the proposed project. Because of the combustive nature of natural gas, it could be considered to be a hazardous material, and could present a potential hazard to human health and safety or to the environment if released. The project would involve storage of the gas within the underground reservoir, and transport of the gas through pipelines. Construction of the pipelines would be required to comply with federal pipeline regulations, which become more stringent as human population density increases near a pipeline. The DOT regulations define area classifications, based on population density in the vicinity of the pipeline and on an area that extends for 220 yards on either side of the centerline of any continuous one-mile length of pipeline. The four area classifications are defined as:

Class 1: A location with ten or fewer buildings intended for human occupancy.

Class 2: A location with more than ten but less than 46 buildings intended for human occupancy.

Class 3: A location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building or small well-defined outside area occupied by 20 or more people during normal use.

Class 4: A location where buildings with four or more stories aboveground are prevalent.

Each class location requires a minimum specified pipe wall thickness. The pipe used for the proposed project would meet the design factor requirements of a Class 3 area which would include signage, notification, and pipeline integrity design specifications. In addition to the federal regulations, the proposed pipelines would also be required to comply

with CPUC General Order 112E, including requirements for reporting, and for construction and safety standards.

The operation and maintenance of the proposed wells, pipelines, and compressor station would be required through permitting and inspection by federal, state, and local agencies to follow all applicable hazards and hazardous materials regulations for the use, transportation, or disposal of hazardous materials. Implementation of the required safety and emergency response plans that are proposed as part of the project, that includes an Operation and Maintenance Plan, Damage Prevention Plan, and an Emergency Response Plan for pipeline construction, operation, and safety would reduce impacts from the transportation, use, or disposal of materials to less-than-significant levels. Therefore, the potential for public health hazards associated with routine use, handling, storage, or transport of hazardous materials or waste is considered to be a less-than-significant impact.

PHS-2. Construction and operation of the proposed project could expose construction workers to significant health and safety hazards through the earthmoving activities that could result in the release of unknown hazardous materials to the environment through reasonably foreseeable upset and accident conditions. This impact would be reduced to less than significant with the implementation of Mitigation Measures MM PHS-1 and MM PHS-2.

Construction Impacts

Wellhead Site. As discussed above, the wellhead site is not listed on any federal, state, or local regulatory databases; however, the site is within the search radius of 20 facilities including the former Sacramento Army Depot. Based on direction of groundwater flow, the Phase I ESA completed for the wellhead site indicated that while the Army Depot was undergoing remediation efforts, there was the potential for groundwater contamination under the wellhead site as a result of the Army Depot contamination. The wellhead site Phase I ESA also indicated that past uses of the wellhead site may have included agricultural uses and a portion of the site may have been part of a former ranch. Because of the past uses of the site and surrounding properties, the Phase I ESA identified the potential for uncovering unknown remnants of the ranch and/or potential for residual petroleum hydrocarbons from historical oil and gas operations in the vicinity of the site. While there are no known contaminations on the site, there is the possibility that unknown hazards could exist, therefore, there is a potential for construction activities, primarily earthmoving activities, to result in the release of unknown hazardous materials on the site. If soil or items contaminated with hazardous materials in sufficient amounts to present a health risk are inadvertently encountered during construction, workers could be exposed to adverse health risks. The proposed project would prepare a Hazardous Materials Contingency Plan that would be implemented if any subsurface hazardous materials are encountered during construction. In the unlikely event that contamination is encountered at a site during construction, the appropriate agencies would be notified, including the DTSC. All necessary measures to identify the nature of the contaminants present, the extent of the contamination, and the remedial technologies available to protect human health and the

environment would be implemented, but are not guaranteed to mitigate all potential risk of exposure to such hazards. Therefore, this is considered a potentially significant impact.

Implementation of Mitigation Measure MM PHS-1 would reduce the potential risk of exposure to contaminated soils by testing any potentially contaminated soils during construction and notifying the County's CUPA of potentially hazardous conditions, thus reducing this impact to a less-than-significant level.

Compressor Station Site. As discussed above, the compressor station site was formerly occupied by the Sacramento Army Depot, which resulted in contamination of soil and groundwater at the site. Known soil contamination was remediated by the U.S. Army and considered to require no future action and groundwater contamination was being monitored at the time the Army Depot Phase I ESA was prepared in 2004. As with the wellhead site, there is the possibility that unknown hazards could exist; therefore, there is a potential for construction activities to result in the release of unknown hazardous materials on the site. The proposed project would prepare a Hazardous Materials Contingency Plan that would be implemented if any subsurface hazardous materials are encountered during construction. In the unlikely event that contamination is encountered at a site during construction, the appropriate agencies would be notified and all necessary measures to identify the nature of the contaminants present, the extent of the contamination, and the remedial technologies available to protect human health and the environment would be implemented, but are not guaranteed to mitigate all potential risk of exposure to such hazards. Therefore, this is considered a potentially significant impact.

Implementation of Mitigation Measure MM PHS-1 would reduce the potential risk of exposure to contaminated soils by testing any potentially contaminated soils during construction and notifying the County's CUPA of potentially hazardous conditions, thus reducing this impact to a less-than-significant level.

Operation Impacts. As discussed in the Existing Conditions section above, the existing natural gas storage field is a natural formation that previously held natural gas. As gas was extracted from the reservoir, water from the surrounding aquifer filled in its place. In order to operate the gas reservoir as a storage field, the water currently present in the reservoir must be displaced. Water displacement requires gas to be injected into the formation at a relatively high pressure to force water out of the field area. This high operating pressure would be temporary; once the water has been displaced the storage field would be operated at a lower pressure level. To displace the water in the Florin Gas Field, SNGS proposes to inject the gas at a slightly higher pressure than the original field pressures. The proposed injection pressures must be approved by DOGGR prior to implementation.

The temporary increase in pressure within the field would potentially increase the risk of gas migration through either natural or man-made pathways through the reservoir cap rock. As discussed in the Existing Conditions above, the cap rock above the reservoir is between

150 feet and 500 feet thick with no apparent structural faults within the field. DOGGR will review the proposed injection pressures and determine an acceptable operational pressure, which would maintain a margin of safety to prevent migration through natural pathways within the cap rock.

Man-made pathways, in particular any abandoned wells on-site, would also be considered a containment issue for possible gas migration. The eight known abandoned wells on-site were properly closed according to DOGGR guidelines and have received approval by DOGGR. As part of the abandonment procedure, cement plugs are placed in the borehole to prevent migration of fluids between the different formations or to the surface. For each of the wells in the formation, three plugs were placed into the borehole, including one in the gas-producing formation or cap rock, one at or above the cap rock, and one at or near the ground surface. Because each of the wells was properly closed, the potential for migration through these pathways is considered to be low. In addition, because the period of active drilling and abandonment of the known permitted wells was conducted between approximately 1980 and 1993, the potential for the existence of unknown wells not permitted by DOGGR is considered to be low. While the potential for migration through abandoned wells would be low, the potential for migration through the wells would increase during initial injection cycles when pressures would be higher than during normal operation. Because there is the potential for migration, this would be a potentially significant impact.

Mitigation Measure MM PHS-2 would require development of a monitoring plan for inspection and testing of the area surrounding each of the abandoned wells to detect potential gas leaks and investigation if there are indicators of leaks are present in the well vicinity. This would reduce potential impacts to less than significant.

In addition to potential gas leakage, the proposed project may expose people or structures in the vicinity of the project area to risk of fire. The wellhead site and proposed pipeline alignment, south of Elder Creek Road, are adjacent to residential uses. There are also residential uses located above the proposed underground storage facility. Risk from fire is present because the project would involve operation of high-pressure gas lines for transmission to the wellhead site and for tie-in to the main gas lines. The proposed project would be required to comply with federal and state requirements for design and construction of the pipelines to provide an adequate margin of safety. The federal pipeline regulations were developed based on population density in the vicinity of the pipeline. Based on the population density in the project vicinity, the pipe used for the proposed project would meet the design factor requirements of a Class 3 area, to reduce hazards in and around the pipeline routes, including signage, notification, and pipeline integrity design specifications. In addition to the design requirements, the proposed project would be required to develop an Emergency Response Plan, for use in response to a pipeline-related emergency; included in this plan would be measures for fire prevention.

In addition to the above ground facilities, there are risks associated with leaks from the below ground facilities. This risk is associated with any structures that exist above an underground gas field, where there is potential for gas from underground sources to migrate to the surface and accumulate inside buildings, resulting in risk of fire. Factors that can contribute to this potential include depth to source, subsurface geologic and soil units, and the potential for leakage from the reservoir through natural or man-made pathways. The existing gas field is approximately 3,800 feet below ground surface and there are intervening layers of shale, sandstone, and alluvium between the reservoir and the surface that would impede and laterally disperse any seepage from the reservoir. Mitigation Measure MM PHS-2 would be implemented to identify any potential for gas leaks from the abandoned wellhead sites. Because of the geologic conditions at the project area and implementation of mitigation measures, the potential for a significant increase in risk from fire to occur as a result of the proposed project is considered to be low. Therefore, this is a less-than-significant impact.

PHS-3. The project would not emit hazardous emissions or handle hazardous materials within one-quarter mile of an existing or proposed school. No impact would occur.

The closest schools to the project area, including the proposed pipeline alignments, are Camelia Elementary School on Cougar Drive, south of Elder Creek Road and Elder Creek Elementary School at the intersection of Power Inn Road and Lemon Hill Road. The Camelia Elementary School is approximately one-half mile from the proposed pipeline alignment along Power Inn Road and more than one-half mile from the wellhead site and compressor station site. The Elder Creek Elementary School is approximately 0.3 miles from the proposed pipeline alignment along Power Inn Road and more than one half mile from the wellhead site and compressor station site. There are no schools within one-quarter mile of the proposed project, therefore, there would be no safety hazards associated with hazardous emissions within one-quarter mile of an existing or proposed school. Therefore, this would be a less-than-significant impact.

PHS-4. The compressor station site is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and as a result, could create a significant hazard to the public or the environment. Implementation of Mitigation Measure MM PHS-1 would reduce this impact to a less-than-significant level.

Government Code Section 65962.5, mandates that the Cal/EPA develop and maintain an updated Hazardous Waste and Substances Site List known as the Cortese List. The requirements of Government Code Section 65962.5 are met by Cal/EPA with a number of separate lists provided by the appropriate regulatory agency, including the Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (SWRCB), and the California Integrated Waste Management Board's (CIWMB). These lists are used as planning documents by State and local agencies, and developers.

Wellhead Site. As noted above in Existing Conditions, the wellhead site is not listed on any federal, state, or local regulatory databases. Therefore, there would be no impact at this location.

Compressor Station Site. As noted above in Existing Conditions, the compressor station site is located within Depot Park, which was formerly occupied by the Sacramento Army Depot. The Sacramento Army Depot is listed on various federal, state, and local regulatory databases, including but not limited to, the NPL, CORRACTS, SPL, and CERCLIS. The Phase I ESA completed for the Army Depot site in 2004 indicated that remediation activities had occurred for contaminated soils at the site and monitoring was being conducted for groundwater contaminations. In addition, the U.S. Army has accepted responsibility for known impacts and for any impacts that are discovered in the future that are related to previous U.S. Army activities on the site. As discussed above under Impact PHS-2, because the site has the potential for unknown contamination, there is the potential for exposure of workers during construction. This would be a potentially significant impact, however, implementation of the identified Mitigation Measure MM PHS-1 would minimize impacts to a less-than-significant level.

PHS-5. The proposed project would not be located within two miles of a public or private airport. No impact would occur.

The project area is approximately five miles from both the Sacramento Executive Airport to the west and the Mather Airport to the northeast. Because the proposed project would not be located within an airport land use plan or within two miles of a public or private airport, the project would not result in impacts from proximity to an airport.

PHS-6. Implementation of the proposed project could interfere with an adopted emergency response plan and/or emergency evacuation plan during construction. This impact would be less than significant.

The proposed project would install gas pipelines within easements and rights-of-way along and under existing roads. There would be no permanent modifications to road alignments, amount of traffic, or other changes to the environment that would interfere with an emergency response plan. During construction, the proposed project would require connection to existing pipelines in Fruitridge Road, which would result in temporary lane closures and/or diversion of traffic. SNGS would prepare a traffic control plan to minimize short-term construction-related impacts on local traffic. The plan would be reviewed and approved by either the City of Sacramento Director of Public Works or Director of Utilities (see Section 3.14, Transportation, for discussion of traffic impacts during construction). Because construction impacts would be temporary, and there would be would be no permanent modifications to road alignments, amount of traffic, or other changes to the environment that would interfere with an emergency response plan, impacts are considered less than significant.

PHS-7. Implementation of the proposed project would not result in a significant risk of loss, injury, or death involving wildland fires. No impact would occur.

The project area is within an urbanized area that is not adjacent to any wildland areas; therefore, there would not be a significant impact associated with wildland fires.

3.12.6 Mitigation Measures

MM PHS-1 If evidence of soil contamination is encountered during construction, work shall cease until the area can be tested, and, if necessary, remediated. As part of this process, the County shall ensure that any necessary investigation and/or remediation activities conducted in the project area are coordinated with the County Fire Department, the Sacramento County Environmental Management Department, and, if needed, other appropriate state agencies (e.g. State Water Resources Control Board or Department of Toxic Substances Control). Once the site is remediated, construction can continue.

MM PHS-2 SNGS shall develop a monitoring plan to conduct well surface gas monitoring and vegetation inspections, and testing and leak surveys for each abandoned well in the field. The plan shall include procedures for when indications of gas leaks are present, such as collection of samples to determine the source or origin of any gas leaks. The plan shall also include procedures for when a leak is indicated by the data, and the necessary remedial actions that would be implemented. Remedial actions shall be consistent with DOGGR procedures outlined in California Code of Regulations Section 1723 et. seq. The monitoring plan and all monitoring and sampling results will be submitted to the DOGGR.

3.13 Public Services and Utilities

3.13.1 Introduction

This section describes the existing public services and utilities in the project area, including law enforcement and a portion of fire protection, medical facilities, schools and parks, water and wastewater, solid waste, electricity, and natural gas services.

Information for this section was obtained from project plans; the City of Sacramento General Plan; the Sacramento County General Plan; 2005 Urban Water Management Plan; the Sacramento Metropolitan Fire District, Sacramento County Sheriff's Department, Sacramento City Unified School District, Department of Parks and Recreation, SMUD, and PG&E websites; and personal communications with the Sacramento Fire Department, Sacramento Police Department, and Department of Parks and Recreation staff.

3.13.2 Existing Conditions

Public Services

Fire Protection

The proposed wellhead site and compressor station site are both located within the City of Sacramento, but the proposed metering and gas conditioning equipment would be installed at the Morrison Creek Cross-Tie in the unincorporated area of Sacramento County; therefore, the proposed project would be served through mutual aid agreements between the Sacramento Fire Department (SFD) and the Sacramento Metropolitan Fire District (SMFD).

The SFD provides fire suppression, emergency medical services, fire prevention, and special operations services within the City of Sacramento. Special operations include hazardous materials response, domestic preparedness, urban search and rescue, swiftwater rescue, and specialized/technical rescue services. The SFD currently employs approximately 535 fire suppression personnel and 100 fire prevention personnel and support staff.[1] The SFD also operates 23 engines companies, one housed at each station, nine truck companies, 11 medic units, and two public safety boats.[2,3] The project area is currently served by Station 10, located at 5642 66th Street.[4]

The SFD has automatic aid agreements with all the fire departments and fire protection districts that receive dispatch services from the Sacramento Regional Fire/EMS Communications Center

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1 Captain Jim Doucette, Public Information Officer, Sacramento Fire Department, personal communication, June 20, 2006.

2 Captain Jim Doucette, Public Information Officer, Sacramento Fire Department, personal communication, June 20, 2006.

3 City of Sacramento, *FY 2006/07 Proposed Budget*, Section 15 – Fire, p. 161.

4 Angie Shook, Sacramento Fire Department, personal communication, June 22, 2006.

(SRFECC).[5] The SRFECC is a Joint Powers Authority comprised of the SFD, SMFD, Elk Grove Fire Department, Folsom Fire Department, and Galt Fire Protection District.

The SMFD provides service through 42 stations and 750 uniformed and support personnel to nearly 600,000 people in a 417 square-mile area. The varied demographics of the SMFD provide opportunities for its personnel to respond to emergencies in rural, suburban, and urban settings. The wide diversity of emergency incidents require firefighters to be proficient in wildland fire fighting, structural fire fighting, crash fire rescue, technical rescue, swift water rescue, hazardous material mitigation, and paramedic medical services.[6]

The Operations Division provides a multitude of emergency and non-emergency services to the public. The SMFD operates 10 transporting Advanced Life Support medics, 7 reserve transporting medics, 38 engine companies, 5 truck companies, 24 grass engines, 2 crash rescue rigs, 6 water tenders, 4 swift water rescue bikes, 5 swift water rescue inflatable rubber boats, 5 air units, 3 reserve firefighter engine companies, and 2 reserve firefighter grass engines. In addition to emergency medical alarms and structural or wildland fire responses, the SMFD's personnel are trained and equipped to deal with swift water emergencies, confined space incidents, technical rescues, hazardous materials incidents, and crash fire rescue. Station 53 is in closest proximity to the proposed project, located at 6722 Fleming Avenue.[7]

Law Enforcement

The wellhead and compressor station sites are located within the City of Sacramento; therefore, the proposed project would be served by the Sacramento Police Department (SPD). The SPD is staffed by 790 sworn police officers, 382 civilian staff, and 26 part-time non-career employees and received 946,301 calls for service in 2005, resulting in 327,716 calls dispatched.[8] The SPD currently houses its main headquarters at the Public Safety Center, Chief Deise/Kearns Administration Facility, located at 5770 Freeport Boulevard, approximately 7 miles from the proposed wellhead site and compressor station site. The SPD has two substations from which patrol divisions operate.[9] The William J. Kinney Police Facility is located at 3550 Marysville Boulevard. The substation that would serve the proposed project is the Joseph E. Rooney Police Facility located at 5303 Franklin Boulevard, approximately 5 miles from the proposed area.[10]

The SPD maintains mutual aid agreements as part of a statewide emergency response system. Locally, the SPD maintains memorandums of understanding (MOUs); contracts to provide services with Regional Transit and school districts within the city, with the exception of Grant Joint Unified School

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5 Captain Jim Doucette, Public Information Officer, Sacramento Fire Department, personal communication, June 20, 2006.

6 SMFD website, Fire and Rescue Operations, http://www.smfd.ca.gov/, accessed December 21, 2006.

7 SMFD website, Fire and Rescue Operations, http://www.smfd.ca.gov/, accessed December 21, 2006.

8 Sergeant Eric Poerio, Sacramento Police Department, Memorandum to Nedzelene Ferrario, Senior Planner, City of Sacramento, May 11, 2006.

9 Sergeant Eric Poerio, Sacramento Police Department, Memorandum to Nedzelene Ferrario, Senior Planner, City of Sacramento, May 11, 2006.

10 Sergeant Eric Poerio, Sacramento Police Department, Memorandum to Nedzelene Ferrario, Senior Planner, City of Sacramento, May 11, 2006.

District, which employs its own police force. The SPD has specialized staff to work with Regional Transit and in city high schools.[11]

Schools and Parks

Schools. The project area is located within the Sacramento City Unified School District (SCUSD). The SCUSD has 54 elementary schools (K through 6th grade), 6 elementary schools (K through 8th grade), 8 middle schools (7th through 8th grade, with 2 schools that have 6th through 8th grade), 6 high schools, 6 charter schools, 5 adult education centers, 1 continuation school, 1 independent study school (K through 12th grade), and 1 alternative school.[12] The schools in closest proximity to the project area are Camellia Elementary at 6600 Cougar Drive, Elder Creek Elementary at 7934 Lemon Hill Avenue, Earl Warren Elementary at 5420 Lowell Street, and Will C. Wood Middle School at 6201 Lemon Hill Avenue. Camellia Elementary had enrollment of 441 K through 6th grade students for the 2004-2005 school year, Elder Creek had 768 K through 6th grade students, Earl Warren had 534 K through 6th grade students, and Will C. Wood had approximately 941 grade 7th through 8th grade students.[13]

Parks. The City of Sacramento Department of Parks and Recreation (Department) maintains more than 3,000 acres of developed parkland and manages more than 204 parks; 81 miles of on- and off-road bikeways and trails; 17 lakes, ponds, or beaches; over 20 aquatic facilities; and 18 community centers.[14] Parks in the Sacramento area are generally categorized into three distinct park types by the Department: neighborhood, community, and regional parks.

The Danny Nunn Park (formerly Florin Reservoir Park) is located at 6920 Power Inn Road, across from the proposed wellhead site, west of Power Inn Road. The park is approximately 16 acres with two soccer fields and a lighted rugby field. The park also has a community garden with 20 spaces that is planned to open at the end of January 2007.[15,16]

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[11] Sergeant Eric Poerio, Crime Prevention through Environmental Design, Sacramento Police Department, personal communication, June 27, 2006.

[12] Sacramento City Unified School District, Who We Are, www.scusd.edu, accessed December 7, 2006.

[13] Sacramento City Unified School District, Our Schools, Learning, and Programs, http://www.scusd.edu/ourschools/, accessed December 8, 2006.

[14] City of Sacramento, *Parks and Recreation Master Plan*, Adopted December 2004, Services Chapter, p. 1.

[15] City of Sacramento, Department of Parks and Recreation website, Parks in South Sacramento Area, http://www.cityofsacramento.org/parksandrecreation/parks/ssac.htm, accessed December 21, 2006.

[16] William Mayner, City of Sacramento Department of Parks and Recreation, personal communication, December 26, 2006.

Medical Facilities. The City of Sacramento has a variety of medical services and facilities. These facilities include hospitals, medical and dental clinics, public health centers, convalescent and nursing homes, and similar types of land uses. The role of the City in medical facilities planning is to administer regulatory controls, to coordinate with those agencies skilled in comprehensive medical and health care planning, and to support land use policy documents to provide a balanced system of facilities. The City can help facilitate the improvement of health care by developing policies to improve and maintain adequate health care.[17]

The Emergency Medical Services Division of the Sacramento Fire Department has developed partnerships with local hospitals and community organizations in the prevention and review of infant, child, and elderly deaths, sexual assaults, domestic violence, and child and adult abuse. Partnerships have also included educational programs, research projects, and publications. Many of the Firefighter/Emergency Medical Technicians (EMT)—Paramedics are also trained in Urban Search and Rescue, swiftwater rescue, and hazardous materials mitigation. In support of the EMS Division, the Advanced Life Support and Transportation Program deploys 11 24-hour ambulances along with 2 8-hour flex ambulances during peak hours throughout the City and contracted areas.

Utilities

Water, Wastewater, and Solid Waste

Water. The City obtains its water supply from two surface water sources (Sacramento and American Rivers) and groundwater pumped from the North American and South American subbasins of the Sacramento Valley Groundwater Basin. Consequently, the City has its own water entitlements, and does not receive any water supply from another water agency. The City has surface water entitlements, consisting of five appropriative water right permits issued by the State Water Resources Control Board, pre-1914 rights, and a water rights settlement contract with the Bureau of Reclamation. The City is permitted to divert a maximum of approximately 326,800 acre-feet per year (AFA).[18]

Additionally, the City maintains 32 groundwater wells for potable and non-potable use; 23 wells are actively used to supply drinking water. The current system can supply 24 million gallons per day (mgd) and produce up to 26,800 AFA.

Wastewater. Wastewater treatment within the City of Sacramento is provided by the Sacramento Regional County Sanitation District (SRCSD). SRCSD operates all regional interceptors and wastewater treatment plants serving the City except for the combined sewer and storm drain treatment facilities which are operated by the City of Sacramento. Local and trunk wastewater collection in the City is provided by County Sanitation District 1 (CSD-1) and the City of Sacramento. Within this area, the CSD-1 serves the community plan areas of South Natomas, North Natomas, and portions of Arcade-Arden, East Broadway, East Sacramento, Airport Meadowview and South Sacramento, including the proposed project area. The City provides wastewater collection to about two-thirds of the

[17] City of Sacramento General Plan Technical Background Report, June 2005, Page 5.2-2.
[18] City of Sacramento, 2005 Urban Water Management Plan, November 2006, Table 4-1, p.4-2.

area within the city limits, which is comprised of two distinct areas; the area served by the combined sewer system (CSS) and the areas served by a separated sewer system.

The city provides wastewater collection to the project area by a separated sewer system. However, all wastewater flows from the project area within the separated sewer system are directed into the CSS in the city's center and are ultimately directed to the Sacramento Regional Wastewater Treatment Plant (SRWTP) for treatment. The SRWTP, which is located just south of the city limits, is owned and operated by SRCSD and provides sewage treatment for the entire city. Sewage is routed to the wastewater treatment plant by collections systems owned by CSD-1 and the cities of Sacramento and Folsom. After secondary treatment and disinfection, a portion of the effluent from the plant is further treated in SRCSD's Water Reclamation Facility and then used for landscape irrigation within the City of Elk Grove. The majority of the treated wastewater is dechlorinated and discharged into the Sacramento River.

Solid Waste. Solid waste in the City of Sacramento is collected by city and permitted private haulers. The city offers residential and commercial solid waste collection services. Construction and demolition waste is collected by private companies and disposed of at a variety of facilities, including the Sacramento County Kiefer Landfill, the Yolo County Landfill, Forward Landfill, L and D Landfill, and Florin Perkins Landfill. Private haulers can deliver waste to the landfill of their choice and base the decision on market conditions and capacity. Waste collected by the city is transported to the Sacramento Recycling and Transfer Station at 8491 Fruitridge Road. The Sacramento Recycling and Transfer Station accepts approximately 2,000 tons of mixed municipal waste per day and is permitted for a maximum daily disposal of 3,000 tons. From the transfer station the waste is currently transported to the Lockwood Regional Landfill located in Sparks, Nevada. The Lockwood currently accepts an average of 7,700 tons of solid waste per day, 800 tons of which come from the City of Sacramento. The Lockwood Landfill does not have maximum daily disposal limits, and it has a remaining capacity of 32.5 million tons.

The Sacramento County (Kiefer) Landfill, operated by the County Department of Public Works, is the primary municipal solid waste disposal facility in Sacramento County. Kiefer Landfill, categorized as a Class III facility, also accepts waste from the general public, businesses, and private waste haulers. More specifically, wastes accepted include: construction/demolition, mixed municipal, and sludge (biosolids). The facility is on a 1,084-acre site near the intersection of Kiefer Boulevard and Grantline Road. The permitted capacity for the landfill is 117,400,000 cubic yards (10,815 tons per day) and, as of 2000, the landfill had a remaining capacity of 112,900,000 cubic yards (96 percent).[19] The landfill has an estimated closure date of 2064.[20]

[19] California Integrated Waste Management Board, *Active Landfills Profile*, www.ciwmb.ca.gov, Accessed February 14, 2007.

[20] California Integrated Waste Management Board, *Active Landfills Profile*, www.ciwmb.ca.gov, Accessed February 14, 2007.

Electricity and Gas

Electricity. Electrical service is provided to the project area by SMUD, which is the publicly owned utility responsible for the generation, transmission, and distribution of electrical power to its 900 square-mile service area. The service area includes most of Sacramento County and a small portion of Placer County.

SMUD obtains its electricity from a variety of sources, including hydro-generation and co-generation plants, advanced and renewable technologies (such as wind, solar, and biomass/landfill gas power), and power purchased on the wholesale market.[21]

Natural Gas. Gas service is provided to the project area by PG&E. PG&E is responsible for the transmission and distribution of gas to much of northern and central California, serving approximately 15 million people throughout a 70,000 square-mile service area from Eureka to Bakersfield.[22] Gas is derived from sources in California, Canada, the Permian, San Juan, and Anadarko Basins in the southwestern states, and from the Rocky Mountain area.[23]

3.13.3 Regulatory Setting

Federal and State

No federal or state goals, objectives, or policies relate to the potential effects of the project on public services and utilities.

Local

County of Sacramento General Plan

The following goals, objectives, and policies from the *County of Sacramento General Plan* are applicable to the proposed project.

Water Facilities

Goal — Water facilities developed in an environmentally sound, economically efficient, and financially equitable manner.

Objective — Water treatment and distribution facilities located to minimize environmental impact and maximize distribution efficiency with respect to point of withdrawal and area to be served.

Implementation Measure B — Review new development proposals to ensure water provisions requirements of this plan are satisfied.

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[21] Sacramento Municipal Utilities District website, http://www.smud.org/about/index.html, accessed June 28, 2006.

[22] Pacific Gas and Electric Company website, http://www.pge.com/, accessed June 29, 2006.

[23] California Gas Utilities, *California Gas Report*, 2004, p. 26.

Wastewater Collection and Treatment

Goal Safe, efficient, and environmentally sound public sewer system and treatment facility serving all urban development.

Policy PF-8 *Do not permit development which would cause sewage flows into the trunk or interceptor system to exceed their capacity*.

Implementation Measure D Review all proposed development projects within the urban policy area for appropriate easements and facility needs, and identify potential capacity problems and suggest changes from the facilities identified in the sewerage system expansion documents.

Solid Waste Services and Facilities

Goal Safe, efficient, and environmentally sound operation of solid waste facilities in Sacramento County.

Objective Adequate sanitary landfill and transfer station capacity to meet long-term growth needs.

Sheriff

Goal Adequate Sheriff Services and Facilities for the Unincorporated Areas of Sacramento County.

Objective Provide law enforcement services to the unincorporated area in accord with a commitment of crime prevention, control, and correction.

Fire Protection and Emergency Services

Goal Efficient and effective fire protection and emergency response serving existing and new development.

Objective Fire and emergency safety measures integrated into all neighborhood and building design.

Policy PF-61 *Require new development to install fire hydrants and associated water supply systems which meet the fire flow requirements of the appropriate fire district*.

Policy PF-62 *New development shall provide access arrangements pursuant to the requirements of the Uniform Fire Code*.

Implementation Measure B Provide for review of all projects by fire districts having jurisdiction and maintain fire district representation on the Subdivision Review Committee.

Implementation Measure C Update and enforce the County's fire and building codes utilizing best and most cost-effective technologies available and TOD (Transit-Oriented Development) designs.

Energy Facilities

Goal Appropriately sited energy facilities that efficiently and safely produce and distribute energy to Sacramento County residents without compromising environmental quality or human health.

General Energy Facility Objective Minimize the health, safety, aesthetic, cultural, and biological impacts of energy facilities in Sacramento County.

Policy PF-71 Locate and design production and distribution facilities so as to minimize visual intrusion problems in urban areas and areas of scenic and/or cultural value including the following:

- *Recreation and historic area.*
- *Scenic highways*
- *Landscape corridors*
- *State or federal designated wild and scenic rivers*
- *Visually prominent locations such as ridges, designated scenic corridors, and open viewsheds*
- *Native American sacred sites*

Policy PF-74 Energy production and distribution facilities shall be designed and sited in a manner so as to protect the residents of Sacramento County from the effects of a hazardous materials incident.

Natural Gas Objective Distribute natural gas safely and efficiently, and withdraw underground gas reserves in an environmentally sensitive manner.

Policy PF-117 New natural gas wells will be subject to the permitting process as regulated by the State Conservation Department, Division of Oil Gas, and Geothermal Resources as well as Sacramento County Zoning Code Section 301-19.

Policy PF-l18 Route new high pressure gas mains within railway and electric transmission corridors, along collector roads, and wherever possible, within existing easements. If not feasible these gas mains shall be placed as close to the easement as possible.

Local Park Acquisition and Maintenance

Goal Adequate and well funded local park facilities for existing and new developments.

City of Sacramento General Plan

The following goals, objectives, and policies from the *City of Sacramento General Plan* are applicable to the proposed project.

Goals and Policies for Water

Goal A Provide and improve water supply facilities to meet future growth of the City and assure a continued supply of safe potable water.

Policy 3 Work with property owners to develop financing arrangements in order to provide needed water facilities.

Goals and Policies for Sanitary Sewers

Goal A Provide adequate sewer service for all urbanized or developing neighborhoods.

Policy 2 Develop plans for extension of sewer lines to existing developed areas where sewer service is lacking.

Policy 3 Work with property owners to develop financing arrangements in order to provide sewer services.

Goals and Policies for Utility Services

Goal A Continue to improve and provide communication and utility services to all areas of the City.

Policy 1 Continue to work closely with utility companies on long-range planning for newly developing areas.

Policy 2 Support and encourage the utility companies to place utilities underground in new development areas.

Goals and Policies for Solid Waste

Goal A Provide adequate solid waste disposal facilities and services for collection, storage and reuse of refuse.

Goals and Policies for Schools

Policy 2 Involve school districts in the early stages of the land use planning process for the future growth of the City.

Goals and Policies for Fire Service

Goal A Provide adequate fire service for all areas of the City.

Policy 3 *Work with the various fire protection districts bordering the City in establishing centralized communications and fire-fighter training facilities.*

Policy 4 *Promote greater coordination of land use development proposals with the Fire Department in order to ensure adequate on-site fire protection provisions.*

Goals and Policies for Police Service

Goal A Provide the highest possible level of police service to protect City residents and businesses.

Goals and Policies for Parks and Recreation Services

Policy 10 *Develop and implement programs to help ensure the safety of residents utilizing the parks and recreational facilities.*

3.13.4 Impact Assessment Methods

Significance Criteria

Criteria for determining the significance of public service and utility impacts were developed based on questions contained in the environmental checklist form in Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a. Fire protection?	☐	☐	☑	☐
b. Police protection?	☐	☐	☐	☑
c. Schools?	☐	☐	☐	☑
d. Parks?	☐	☐	☐	☑
e. Other public facilities?	☐	☐	☐	☑
2. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☑	☐
3. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☑
4. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☑	☐	☐

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
5. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☑	☐
6. Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐
7. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑	☐
8. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☑	☐
9. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
10. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☑

3.13.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, PSU refers to Public Services and Utilities.

PSU-1. *The proposed project could result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, such as police, fire, parks, and school facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times or other performance objectives. This would be a less-than-significant impact.*

The proposed project would not result in the construction of new residential units, would not induce growth and would not require the construction of additional fire facilities. Construction activities and operation of the proposed project may increase the demand for fire protection and emergency response for the project because there could be an increased risk of fire at the wellhead site and compressor facility. Accidental releases of natural gas during construction and/or operation of the gas wells and compressor station, while unlikely, could create potentially life-threatening hazards to persons near the location of the release.

SNGS would develop an Emergency Response Plan as part of the proposed project that would apply to pipeline construction and maintenance activities and include guidelines and procedures to be followed in the event of an emergency. The purpose of the plan is to provide procedures and other directives to be carried out in the event of fire, explosion, earthquake, accidental release of hazardous materials or waste, or any similar emergency. The plan would be annually reviewed with local agencies to ensure that plan design and implementation measures are current and that all personnel understand the plan and their responsibilities. With implementation of this plan, impacts related to fire protection service would be considered less than significant.

Police. The proposed project consists of the construction of a wellhead site, compressor station, and associated pipelines. Construction activities would take 6 to 9 months and would require up to 200 employees. Operation of the proposed project would require up to three full time employees per day, assuming each employee works an eight-hour shift to monitor safety on a 24-hour basis. It is anticipated that new population would not be generated by the project.

The wellhead site and the compressor station site would be surrounded by walls and security fencing to prevent tampering of equipment or other criminal activity on the project areas. The wall at the wellhead site would be approximately 8 feet tall and constructed out of concrete. The masonry wall would be constructed along the west, south, and a portion of the north side of the property, with a chain link fence on a portion of the north and all of the east side. Access to the site would be provided through a gate on Junipero Street. The compressor station would be surrounded by a chain link fence approximately 6 feet tall. The compressor station would be staffed 24 hours a day, seven days a week. The wellhead site would be remotely monitored and controlled at all times from the compressor station. As stated above, construction of the proposed project would require between 150 and 200 employees, an estimated 70 percent of whom would be hired from the local area. These employees are not expected to generate a significant need for new or increased police protection, and approximately 30 percent of the construction workers would only be in the Sacramento area temporarily. Therefore, no impact would occur and no mitigation is required.

Schools. The schools in closest proximity to the wellhead site and compressor station are Camellia Elementary, Elder Creek Elementary, Earl Warren Elementary, and Will C. Wood Middle School. Camellia Elementary is approximately 1,875 feet from the Florin Gas Field, which is where the wellheads would be installed. Elder Creek Elementary is approximately 2,250 feet from the gas field and 1,500 feet from the compressor station site. Both the Earl Warren Elementary School and Will C. Wood Middle School are more than 4,500 feet from the Florin Gas Field and compressor station site. None of the schools are located directly above the Florin Gas Field. Because construction and operation of the proposed project facilities would not generate students in the project area, there would be no need for constructing new or expanding existing school facilities.

While there is a potential for construction workers from outside the Sacramento area to bring school-age children that could impact school capacities, because the construction period is expected to last between 6 to 9 months, it is not anticipated that families of these workers would accompany them to the Sacramento area. If any school-age children would relocate to the area, the numbers are expected to be minimal and would not result in significant impacts to school capacities in the SCUSD. Therefore, no impact would occur and no mitigation is required.

Parks. The Danny Nunn Park is located adjacent to the proposed wellhead site and is directly above the Florin Gas Field. However, use of the park would not be restricted during construction or operation of the proposed project. Because the proposed project would not result in a new population that would utilize existing park facilities, no new or expanded park facilities would be required to serve the project. Because construction and operation of the proposed project facilities would not disturb recreational uses in the project area, there would be no need for constructing new or expanding existing park facilities. Therefore, no impact would occur and no mitigation is required.

Other Public Facilities. Electricity and gas infrastructure (underground and aboveground utility cables) may be temporarily disrupted due to construction activities, especially during construction of pipelines along road, railroad, and utility right-of-ways. The west side of the wellhead site has overhead electric lines and the pipeline alignment along the railroad right-of-way also has overhead electric lines. SNGS would coordinate closely with the City of Sacramento Public Works Department during final project design, and affected service providers would be contacted so that any potential utility conflicts can be identified and relocation efforts can be initiated. SNGS would contact Underground Service Alert at least two full working days before construction begins.

The proposed project would not increase demand for electricity or gas that would require construction of new facilities. The proposed project would provide storage service which would allow SNGS to inject gas during periods of high or over supply and to withdraw gas during periods of low supply and high demand. During supply emergencies, such as when pipeline deliveries are cut off by earthquakes or other natural disasters, stored gas may be the only energy source available in a given service area. The proposed project would help maintain a constant natural gas reserve in cases of low supply and high demand or in case of emergency. Therefore, no impact would occur and no mitigation is required.

PSU-2. The proposed project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand, or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. No impact would occur.

The proposed project consists of construction of a wellhead site, compressor station site, metering and gas conditioning equipment, and pipelines. Three employees would be required to monitor the compressor station and wellhead site 24 hours each day. The volume of wastewater generated from operation of the proposed project is expected to be minimal and would not result in the need for new or expanded wastewater treatment facilities. The amount of wastewater expected to be generated would also not exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board. In addition, wastewater pipelines for the proposed project would connect to existing wastewater infrastructure at the project area. Therefore, no impact would occur and no mitigation is required.

PSU-3. The proposed project could result in insufficient water supplies available to serve the project from existing entitlements and resources, or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. This would be a less-than-significant impact.

Construction of the proposed project would require approximately 44,000 gallons of water for use during the hydrostatic testing of the pipelines. Additional water may be needed for dust control and for the drilling fluids. Water would come from City of Sacramento water entitlements.

Operation of the project would only require water for the restroom facilities used by the employees and landscaping.

In addition, water lines for the proposed project would connect to existing water infrastructure at the project area. Because the expected demand for additional water supplies to serve the proposed project would be minimal, this impact is considered less than significant and no mitigation is required.

PSU-4. The proposed project could result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. This would be a less-than-significant impact with mitigation incorporated.

The proposed project would result in the construction of a wellhead site, a compressor station site, metering and gas conditioning equipment, and pipeline connections. The pipelines would not result in new impervious surfaces. Additionally, metering and gas conditioning equipment would be installed at the Morrison Creek Cross-Tie, an existing graveled natural gas station, which would not result in the addition of new impervious surfaces.

Up to six new injection/withdrawal wells, one water injection well and one observation well would be constructed on a 4-acre parcel, with a water tank and water separator

installed on the wellhead site. The wellheads would project approximately six feet above ground surface. The entire lot would be filled with crushed rock.

The compressor station would be located on a site approximately 5 acres in size. The station would consist of two 3,000 horse-power electric drive compressors (and one backup compressor) that would be on a concrete pad approximately 50 feet by 110 feet wide. This lot would also be covered with crushed rock.

The construction of the wellhead and compressor station sites would increase the amount of impervious surface on the project area. This increase in impervious surface could be up to 1 to 2 acres of new impervious area. In addition, there is currently no outlet for stormwater runoff from the project site, and there is potential for significant on-site flooding and structures or equipment would be inundated during a storm event. The proposed project could also contribute to the flooding of Power Inn Road or by on-site flooding of facilities. See Section 3.08 Hydrology and Water Quality for a more detailed discussion of impacts to stormwater runoff as a result of the proposed project. Mitigation Measure MM PSU-1, which would require implementation of Mitigation Measures MM HWQ-1, MM HWQ-2, and MM HWQ-3 from Section 3.08 would ensure that the potential for on- or off-site flooding would be reduced to a less-than-significant level with mitigation incorporated.

PSU-5. The proposed project could be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs or be incompatible with federal, state, and local statutes and regulations related to solid waste. This would be a less-than-significant impact.

Soil would need to be excavated during project construction, but is expected to remain on the project area. There would be an increase in solid waste from construction activities, such as concrete, asphalt, wood, glass, piping, and electrical wiring. Waste could be taken to any number of facilities in the area. Waste from construction of the proposed project would likely be routed to either the Lockwood Landfill in Nevada via the Sacramento Recycling and Transfer Station or the Kiefer Landfill. The Lockwood Landfill does not have maximum daily disposal limits, and it has a remaining capacity of 32.5 million tons. The Sacramento County (Kiefer) Landfill had a remaining capacity of 96 percent as of 2000. The landfill has an estimated closure date of 2064. Construction waste and soil from excavation is expected to be minimal and would not affect the lifetime of landfills in the area. The proposed project would also be consistent with applicable regulations related to solid waste. Operational solid waste generation would be minimal, from the monitoring employee and periodic maintenance. Therefore, this impact is considered less than significant and no mitigation is required.

3.13.6 Mitigation Measures

MM PSU-1 Implement Mitigation Measures MM HWQ-1, MM HWQ-2, and MM HWQ-3.

3.14 Transportation and Circulation

3.14.1 Introduction

This section discusses the potential effect of the proposed project on local transportation and circulation systems. Effects on local roadways during both construction and operation of the proposed project are evaluated.

Information used to prepare this section was obtained from the City of Sacramento Engineering Services Traffic Counts Database, City of Sacramento General Plan, County of Sacramento General Plan, Sacramento Regional Transit website, and project-specific material provided by SNGS.

3.14.2 Existing Conditions

Regional circulation in the greater Sacramento area consists of U.S. Highway 50 (Hwy 50), Interstate 5 (I-5), Interstate 80 (I-80), and State Route 99 (SR 99). The proposed project's wellhead site is located on Power Inn Road at Junipero Street in the southeastern portion of the City of Sacramento. This area is located approximately four miles south of Hwy 50 and approximately two miles east of SR 99.

Major east-west roads in the area include Folsom Boulevard, 3.5 miles to the north; Fruitridge Road, 1.5 miles north; Elder Creek Road, 0.5 miles north; and Florin Road, 0.5 miles south. Major north-south roads in the project area include Power Inn Road, adjacent to the wellhead site; Stockton Boulevard, 2 miles west; 65th Street, 1.5 miles west; Florin Perkins Road, 1.5 miles east; and Watt Avenue, 2.5 miles east of the proposed project's wellhead site.

The City of Sacramento Division of Engineering Services maintains a Traffic Counts Database, containing traffic count information for many of the City's major roads, including average daily traffic (ADT) counts. The ADT count is the average number of vehicles expected to travel along a road during a 24-hour period on a typical day. A typical day is considered to be a Tuesday, Wednesday, or Thursday.[1] Within the project area, the City's Traffic Counts Database contains ADT information for Power Inn Road, Elder Creek Road, and Fruitridge Road. In 2003, north-south traffic on Power Inn Road at the intersection of 21st Avenue had a measured ADT of 28,867 vehicles. The ADT count of east-west traveling vehicles at the intersection of Elder Creek Road at Power Inn Road in 2004 is listed at 15,495. The 2004 ADT count for east-west traveling vehicles along Fruitridge Road at Power Inn Road was measured at 20,958.[2] From these counts, it can be inferred that these intersections and roadway segments see a large volume of traffic on a daily basis.

The compressor station would be constructed within the former Sacramento Army Depot, which has been decommissioned and converted into a controlled-access business park called Depot Park. This site is located approximately one mile northeast of the proposed wellhead site. Metering and gas

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1 City of Sacramento, Division of Engineering Services, *Traffic Counts Database*, http://www.cityofsacramento.org/transportation/traffic/list/cfm, accessed December 11, 2006.

2 City of Sacramento, Division of Engineering Services, *Traffic Counts Database*, http://www.cityofsacramento.org/transportation/traffic/list/cfm, accessed December 11, 2006.

conditioning equipment would be located at Morrison Creek Cross-Tie, approximately six miles southwest of the wellhead site. This site is located within the Bufferlands of the Sacramento Regional Wastewater Treatment Plant and is not accessible by public roads. The site is located between I-5, approximately two miles to the west, and Franklin Boulevard, approximately one mile to the east. Both the compressor station and Morrison Creek Cross-Tie sites are located in controlled-access areas not readily accessible to the public.

Construction access to the wellhead site and Depot Park compressor station site would likely be provided via Hwy 50, Power Inn Road, and Fruitridge Road or SR 99 to Fruitridge Road or Elder Creek Road. Access to the Morrison Creek Cross-Tie site would likely be provided via I-5 to Laguna Boulevard to Franklin Boulevard.

3.14.3 Regulatory Setting

California Vehicle Code

Chapter 2, Article 3 of the California Vehicle Code defines the powers and duties of the California Highway Patrol, which has enforcement responsibilities for the operation of vehicles and highway use within the state.

California Department of Transportation

Caltrans is responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as that portion of the Interstate Highway System within the state's boundaries.

County of Sacramento General Plan

County of Sacramento Congestion Management Plan

The Sacramento County Congestion Management Plan was prepared to respond to the need for new funding sources for state transportation systems. The plan requires that land use, transportation, and air quality agencies coordinate their planning processes to respond to regional traffic congestion issues. The Sacramento County General Plan requires that development projects use the Sacramento County Congestion Management Plan as a guide for determining a project's impact to roadways. Projects that do not mitigate traffic congestion impacts within applicable service standards may be denied.

City of Sacramento General Plan

The following goal from the Circulation Element of the 1988 City of Sacramento General Plan is relevant to the Transportation and Circulation portion of the proposed project:

Goal D Work toward achieving an overall Level of Service C on the City's local and major street systems.

3.14.4 Impact Assessment Methods

Significance Criteria

Criteria for determining the significance of impacts to transportation and circulation during construction and operation of the proposed project were developed based on the questions from the environmental checklist from Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☑	☐
2. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☑	☐
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☑	☐
5. Result in inadequate emergency access?	☐	☐	☑	☐
6. Result in inadequate parking capacity?	☐	☐	☑	☐
7. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☑	☐

3.14.5 Impact Assessment Results

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, TRA refers to Transportation and Circulation.

TRA-1. The proposed project could result in a temporary increase in the existing traffic load in the project area, which could result in the exceedance of local level of service standards and traffic hazards during construction. This would result in a less-than-significant impact.

Construction of the proposed project could require as many as 150 to 200 workers during the 6 to 9 month construction period. Construction workers would travel to the project area daily in personal vehicles, which would add to existing traffic volumes in the project area and along access routes. Project construction would also entail the delivery of

construction materials to each site within the project area and along pipeline routes. As many as 20 truck trips could occur daily during the height of construction to deliver materials to each job site. These additional vehicles would temporarily add to the existing traffic conditions along Power Inn Road, Fruitridge Road, and Elder Creek Road. However, the number of additional vehicles would not be expected to be significant enough to noticeably add to existing traffic volumes.

The compressor station site would be in a location where construction activities would not directly interfere with traffic, due to its location within the controlled-access Depot Park. Increases in traffic as a result of construction at this location could occur along Fruitridge Road, from where the site would be accessed by construction personnel and material delivery trucks. The Morrison Creek Cross-Tie site is also located in an area where construction activities would not directly interfere with daily traffic. An increase in traffic to the Morrison Creek Cross-Tie site would likely be minimal, since construction activities at that site would last only two weeks.

Impacts to local traffic could occur during construction of the pipeline along Power Inn Road. The pipeline would be constructed within an existing utility easement, and no road work would be necessary. Traffic impacts could also occur along Fruitridge Road, where the pipelines would connect to existing SMUD and PG&E pipelines. This is the only location along the pipeline routes that would require construction activities within the road. The pipeline would cross under Elder Creek Road using horizontal directional drilling (HDD), so no road work would be required. Because little road work would be required, increases in traffic along these roads would likely be the most affected by the presence of construction vehicles and equipment. Construction could potentially require lane closures during certain phases of project construction, which could result in potential traffic hazards.

However, the City of Sacramento requires all non-emergency projects that would involve the obstruction of vehicular or pedestrian traffic on a city street to prepare a traffic control plan approved by either the Director of Public Works or the Director of Utilities. The plan is subject to modification and periodic site inspections by the director. Pursuant to Sections 12.20.020 and 12.20.030 of the Sacramento Municipal Code, SNGS shall prepare a written submission of the plan including the following:

- The named and business address of the applicant;
- A diagram showing the location of the proposed work area;
- A diagram showing the locations of areas where public right-of-way may be closed or obstructed;
- A diagram showing the placement of traffic control devices;
- The proposed phasing of traffic control;
- Times when traffic control would be in effect;
- Times when demolition/construction activities would prohibit access to private property from a public right-of-way;

- A statement that the applicant shall comply with the City's noise ordinance during the performance of all work; and
- A statement that the applicant understands that the plan may be modified by the director at any time in order to eliminate or avoid traffic conditions that are hazardous to the safety of the public.

The plan would clearly define the location, timing, and types of interferences that could potentially block public right-of-way and emergency access. The plan also allows the Director of Public Works or Director or Utilities to modify, suspend, or stop the plan if a potential public safety hazard would result. This would ensure that potential impacts to the local traffic load and circulation system are properly managed so that they would not cause a substantial adverse impact.

Construction work at the Morrison Creek Cross-Tie site within Sacramento County would not directly cause impacts to traffic due because no construction activities would occur on or near public roads. Access of construction vehicles or personnel would be minimal and would not likely result in significant impacts to traffic congestion on or near access roads to the site. Therefore, the proposed project would not result in the need for mitigation, and coordination with the County Public Works Director would not be necessary.

Due to the temporary nature of construction of the proposed project, and because the project would implement the BMPs described in the Project Description, including a traffic control plan during construction, this would be a less-than-significant impact and additional mitigation measures are not required.

TRA-2. Operation of the proposed project could result in an increase in traffic in the project area. This would be a less-than-significant impact.

Operation of the proposed project would require up to three full time employees per day, assuming each employee works an eight-hour shift to provide 24-hour coverage. Each employee would be based out of the compressor station facility and would travel to the wellhead site and pipelines to perform routine operation and maintenance activities when necessary. For the purposes of this analysis, it is assumed that each shift would include one trip to the wellhead site and pipelines. Hence, operation of the proposed project would require approximately six round trip vehicle trips per day. The addition of these trips at each of the project facilities would result in a negligible increase in traffic volume along the roads that would be affected by implementation of the proposed project. Therefore, this impact would be less than significant and does not require mitigation.

TRA-3. The proposed project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk. No impact would occur.

The proposed project does not include any elements that would potentially cause a change in air traffic patterns. Therefore, there would be no impact and no mitigation is required.

TRA-4. The proposed project could interfere with emergency response routes. This would be a less-than-significant impact.

As discussed under Impact TRA-1, most of the pipeline work would occur alongside roadways rather than in roads, so restrictions such as lane closures, lane narrowing, and detours would be limited. The only road work would occur in Fruitridge Road when the pipelines would be connected to the existing SMUD and PG&E pipelines. Although temporary, these limited roadway restrictions could affect emergency response access or response times in the event of an emergency. However, as discussed above, the BMPs described in the Project Description, including the preparation of a traffic control plan, would reduce impacts to traffic and the local circulation system. This would ensure that potential interference with emergency response routes is minimized and that alternative routes are available, making this a less-than-significant impact and no additional mitigation measures are required.

TRA-5. The proposed project could cause inadequate parking in the project area. This would be a less-than-significant impact.

Construction of the proposed project could require as many as 150 to 200 construction employees, each of whom could require parking for personal vehicles. These employees would be spread out at different construction sites. All construction sites within the proposed project are located in areas with ample parking areas available on site, so parking for construction personnel is not anticipated to result in substantial impacts. In addition, the proposed project would not result in the removal of existing parking facilities, either during construction or operation. Since operation of the proposed project would only require one employee to be on site at a time, the facilities would only need to provide a single parking space. Therefore, neither construction nor operation of the proposed project is expected to create a substantial demand on existing parking facilities in the area. This would be a less-than-significant impact and would not require mitigation.

TRA-6. The proposed project could conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks). This would be a less-than-significant impact.

The proposed project would be located in a portion of the city with limited existing alternative transportation routes, including bikeways and bus routes. However, a City-designated on-street bikeway runs along Power Inn Road and another runs along Fruitridge Road, where the proposed pipelines would connect to SMUD and PG&E's existing natural gas lines. In addition, one bus route travels south on Power Inn Road and turns west at Elder Creek Road. A bus stop located at the intersection of Fruitridge Road and Power Inn Road would not be affected by construction of any pipelines associated with the proposed project. Construction of the pipelines in road rights-of-way could interfere with bike traffic and bus route. However, as required by Section 12.20.020 and 12.20.030 of the City Municipal Code and as discussed in the Project Description and under Impact TRA-1, the

proposed project would prepare a traffic control plan which would reduce impacts to traffic in the area, including bus traffic and bike traffic. In addition, construction impacts that could potentially interfere with roadways containing bikeways and bus routes would be temporary, making this a less-than-significant impact. Additional mitigation would not be required.

3.14.6 Mitigation Measures

Operation of the proposed project would not cause substantial changes to traffic in the project area and construction of the proposed project would include a traffic control plan for the management of potential traffic impacts during construction. Therefore, no additional mitigation is required.

3.15 Mandatory Findings of Significance

Significance Criteria

Criteria for determining the significance of impacts relative to the mandatory findings of significance for the proposed project were developed based on the questions from the environmental checklist from Appendix G of the CEQA Guidelines.

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☑	☐	☐
2. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☑	☐	☐
3. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☑	☐	☐

As described in Section 3.1, for each impact, a level of significance is determined and is reported in the impact statement. Conclusions of significance are defined as follows: potentially significant, less than significant with mitigation incorporated, less than significant, and no impact. For this section, MFS refers to Mandatory Findings of Significance.

MFS-1. *The proposed project could degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. This would be a less-than-significant impact with implementation of Mitigation Measures MM BIO-1 through MM BIO-6, and MM CUL-1 through MM CUL-3.*

As discussed in Chapters 3.4 and 3.5, impacts on biological and cultural resources could occur through the development of the proposed project. However, Mitigation Measures MM BIO-1 through MM BIO-6, and Mitigation Measures MM CUL-1 through MM

CUL-3 would reduce impacts on biological resources and cultural resources, respectively, to less-than-significant levels with mitigation incorporated.

MFS-2. *The proposed project could have impacts that are individually limited, but cumulatively considerable. This impact would be reduced to less than significant with mitigation.*

The proposed project would construct injection/withdrawal wells, a compressor station, metering and gas conditioning equipment, and associated pipeline connections for reuse of an existing natural gas storage field within the southeast portion of the City of Sacramento and Sacramento County. Impacts from construction of the proposed project would be temporary and operational impacts would be minimal.

As discussed in Chapter 3.3, the SMAQMD recommends that a project's potential contribution to cumulative air quality impacts should be assessed by determining whether a project would require a General Plan amendment or rezoning that would result in emissions estimates greater than those under the existing General Plan. The proposed project is considered compatible with existing zoning designations in the City of Sacramento General Plan, and would therefore not result in a cumulatively considerable increase of criteria air pollutants.

The project's potential contribution to a cumulative biological resources impact would be less than significant with implementation of Mitigation Measures MM BIO-1 through MM BIO-6. Impacts on transportation and circulation would be temporary. Therefore, the proposed project's contribution to cumulatively considerable impacts would be less than significant.

MFS-3. *The proposed project could have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. This would be a less-than-significant impact with implementation of Mitigation Measures MM NOI-1 through MM NOI-3 and MM PHS-1 through MM PHS-2.*

As discussed in Chapter 3.3, the proposed project would not result in significant air quality impacts. Impacts from natural hazards that could endanger residents adjacent to the project site, such as ground shaking and flooding were found to be less than significant. Mitigation Measures MM NOI-1 through MM NOI-3 would reduce potential construction-related noise impacts to less-then-significant levels. As discussed in Chapter 3.12, the proposed project would not result in a significant impact due to the transport, use, or disposal of hazardous materials. It could 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, but this was reduced to less than significant with implementation of Mitigation Measure MM PHS-1 through MM PHS-2. The proposed project is not anticipated to result in substantial effects on humans and therefore, this impact is considered to be less than significant with mitigation incorporated.