5.0 PROJECT ALTERNATIVES

5.1 Introduction

The following sections identify and compare the relative merits of alternatives to the proposed project as required by the CEQA guidelines. According to CEQA Guidelines §15126.6(a), "An EIR shall describe a range of reasonable alternatives to the proposed project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project…" Additionally, §15126.6(c) of the CEQA Guidelines stipulates that the EIR should identify alternatives that were considered but rejected as infeasible during the scoping process. Section 15126.6(f) of the CEQA Guidelines stipulates that the range of alternatives required in an EIR is governed by a rule of reason in that the EIR must discuss only those alternatives "necessary to permit a reasoned choice" and those that could feasibly attain most of the basic objectives of the project. Both the identified feasible project alternatives as well as the alternatives rejected as infeasible are discussed further below.

In accordance with §15126.6(e) of the CEQA Guidelines, the "No Project" Alternative shall be evaluated along with its impact. The purpose of describing and analyzing a No Project Alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. An analysis of the No Project Alternative is discussed below.

Three project alternatives are proposed for consideration. Project alternatives were developed by considering different ways or engineering designs that would aid LADWP in complying with its future RECLAIM Annual Allocations and meet the terms of the compliance agreement it entered into with the SCAQMD.

5.2 Alternatives Rejected as Infeasible

In accordance with CEQA Guidelines §15126.6(c), a CEQA document should identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process and briefly explain the reason underlying the lead agency's determination. Section15126.6(c) also states that among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts. Furthermore, CEQA Guidelines §15126.6 (f)(2)(B) indicates that if the lead agency concludes that no feasible alternative locations for the project exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR. Table 5-2.1 identifies the alternatives that were initially considered by the SCAQMD but were subsequently rejected as infeasible.

Table 5-2.1
Description of Alternatives Rejected as Infeasible

Rejected Alternative	Description	Comment
#1 – Different Air Pollution Controls	Rather than installing SCR systems on the new CTs at HGS and VGS and the existing Units at SGS, LADWP would install other air pollution controls such as: SCONOx, water injection, steam injection at HGS and VGS; and SCONOx, low NO_x burners, urea injection, burners-out-of-service, and optimization at SGS.	The SCAQMD looked at these controls initially since no ammonia is associated with their use. However, at the HGS and VGS sites, the use of SCONOx was not feasible since the manufacturer of this technology did not submit a bid on LADWP's Request for Proposal (RFP) for the installation of control equipment on the new CTs. As to water injection and steam injection, the new CTs will have water injection as a built-in pollution control. However, the use of this technology alone would not satisfy the SCAQMD's regulatory or permitting requirements. To receive permits to construct and operate, the CTs must be equipped with control technology that meets both Best Available Control Technology (BACT), which is consistent with EPA's lowest achievable emission rate. Only the SCR manufacturers that bidded on LADWP's RFP meet the BACT and lowest achievable emission rate criteria.
		As for the SGS site, LADWP is seeking NO_x reductions of approximately 90 percent from the three existing power generation units. These NO_x reductions are necessary to aid LADWP in complying with its future RECLAIM Annual Allocation, which must comply with its compliance agreement with the SCAQMD. Unfortunately, control technologies such as low NO_x burners, urea injection, burners-out-of-service, and optimization can only achieve NO_x reduction efficiencies ranging from 10 to 30 percent. SCR and SCONOx are the only technologies currently available that can achieve NO_x reductions of 90 percent or greater. As mentioned above, SCONOx is not feasible since the manufacturer of the technology did not bid on LADWP's RFP.

Table 5-2.1 (cont'd)
Description of Alternatives Rejected as Infeasible

Rejected Alternative	Description	Comment
#2 - Different Project Sites	Rather than install the new CTs with SCR systems at HGS and VGS and the SCR systems on existing units at SGS, install them at other LADWP electrical generating stations.	LADWP has only four electrical generating stations in the Basin. Three of them HGS, SGS, and VGS are affected by this project. The other electrical generation station, Haynes located in Long Beach is currently unaffected by this project. However, the space limitations at Haynes as well as the HGS, VGS, and SGS is limited. LADWP went through several design iterations to determine which of its four stations had adequate space to accommodate the installation of the new CTS with SCR systems (six total), installation of three SCR systems on existing power generating units, and future repowering considerations. LADWP's conclusion regarding installation sites was the proposed project. Any other configuration would not physically accommodate the new CTs with SCRs or meet the compliance agreement entered into with the SCAQMD, which specifically indicates that LADWP must install five new CTs with SCR systems at HGS, install one new CT with a SCR system at VGS, install three SCR systems on three existing Units at SGS. It should be noted that LADWP has installed SCR systems on existing Units at Haynes, and that the existing combined cycle gas turbine units at HGS are equipped with SCR.

Table 5-2.1 (cont'd)
Description of Alternatives Rejected as Infeasible

Rejected Alternative	Description	Comment
#3 – Import More Out-of-Basin Power	Rather than install the six new CTs, import more out-of-Basin power.	Currently, a significant portion of the electricity that LADWP provides to its customers is from out-of-Basin. Historically, LADWP has purchased cheap out-of-Basin power for its customers' use. This practice is expected to continue with or without the proposed project. However, LADWP's ability to import more out-of-basin power is limited. This is partly due to its recent decision to divest itself from 750 MW coal-powered station in Nevada. The LADWP made this divestment decision for environmental and system reliability reasons. LADWP believes that it is more environmentally sound to produce electricity from clean fuel sources such as natural gas rather than coal, which is inherently more polluting. Furthermore, to prevent future brown or blackouts, similar to the ones experienced throughout California this summer, LAPWP believes that new peaker power is needed in-Basin. Therefore, the installation of the new CTs is necessary to meet these environmental and system and reliability goals as well as aid LADWP in complying with its future RECLAIM annual Allocations, which must also comply with its compliance agreement with the SCAQMD.
#4 – Energy Conservation	Rather than install the six new CTs, use more renewable energy sources (e.g., solar, wind, hydroelectric, etc.)	The LADWP currently has an aggressive energy conservation program that consists of 14 separate initiatives. For example LADWP currently is installing rooftop solar systems, assisting its largest customers by installing energy storage systems to shift electrical load from daytime to nighttime hours, and providing electric buses and solar-powered recharging stations for electric buses at a local community. However, even with these actions, there will not be sufficient energy to meet in-Basin demands. Therefore, LADWP must install the new CTs to stabilize in-Basin power needs, provide cleaner power to the Cal-ISO and help it comply with its future RECLAIM Annual Allocations, which must also comply with its compliance agreement with the SCAQMD.

5.3 Project Alternatives

Three project alternatives have been identified for the proposed project, including the No Project Alternative. It should be noted that the range of reasonable alternatives to the proposed project is relatively limited for several reasons. As noted elsewhere in this ~~Draft~~Final EIR, LADWP has

entered into a Compliance Agreement, which is a legally binding contractual agreement between LADWP and SCAQMD. The Compliance Agreement specifically stipulates the number of CTs to be installed and the number of existing utility boilers to be retrofitted with SCR. The Compliance Agreement also stipulates when the CTs and SCRs must be operational. Because the installation schedule is very aggressive, it has precluded consideration of some project alternatives such as alternative types of BACT (e.g., SCONOX) as discussed in the preceding section.

The project alternatives were developed by modifying one or more components of the proposed project taking into consideration the project's limitations as to space, permitting requirements, and compliance agreement stipulations. Unless otherwise stated, all other components of each project alternative are identical to the proposed project.

5.3.1 Alternative A – No Project

The No Project Alternative would consist of the continued operation of the three power generating stations with the existing equipment. The new CTs with associated pollution control equipment (e.g., SCR systems) and the installation of the new SCR systems on existing power generating equipment needed to aid LADWP in meeting future RECLAIM requirements as well as improve its ability to provide reliable in-Basin power would not be installed. Thus, the goals of the Compliance Agreement, a legally binding contractual agreement between LADWP and SCAQMD, would not be met. This could result in a potential exceedance of LADWP's annual allocations of NO_x and/or SO_x emissions, which could subject LADWP to substantial fines and penalties, and a reduced ability to meet peak energy demands in-Basin and in California.

5.3.2 Alternative B – Install Two New 20,000-gallon Ammonia Tanks at HGS

The HGS has an existing aqueous ammonia storage system. However, to transport the ammonia from the existing storage tanks to the new CTs and SCR units, under the proposed project a pipeline would have to be placed under Fries Street. In lieu of the new pipeline installation, Alternative B considers the installation of two aboveground aqueous ammonia storage tanks at the HGS site. This alternative may be necessary in the event that there are engineering design constraints that would prevent the installation of the proposed pipeline to transport the ammonia from the existing onsite aqueous ammonia storage tanks to the SCR systems associates with the new CTs.

5.3.3 Alternative C – No Tank Demolition and Demolition of One Cooling Tower at VGS

Alternative C assumes the existing out-of-service 80,000-barrel fuel oil storage tank would not be decommissioned and removed from the site to accommodate the new aqueous ammonia tank. Rather, the new aqueous ammonia tank would be installed adjacent to the new CT and SCR unit. Under this alternative, only one of the four existing redwood cooling towers would be decommissioned and removed. This alternative is being considered to reduce the time required

for demolition of existing equipment, and therefore, shorten the overall project site's construction timeline.

5.4 Alternatives Analysis

This section contains an analysis of project alternatives as they relate to each environmental impact area evaluated in the ~~Draft~~Final EIR. Alternative A is separately discussed for each environmental impact area. Since the air quality and hazards impact areas have the greatest potential to be adversely affected by the proposed project, Alternatives B and C are evaluated separately for these impact areas. For most other environmental impact areas, Alternatives B and C are jointly discussed together.

5.4.1 Air Quality

The following air quality analysis for the feasible alternatives to the proposed project are based on the same methodologies that were used to estimate the construction and operational-related impacts associated with the implementation of the proposed project. See Appendix C for the assumptions and methodologies used in this analysis.

5.4.1.1 Alternative A - No Project

Alternative A would not generate the significant adverse air quality impacts from construction-related activities. Additionally, increased ammonia emissions from operation of the SCR systems at the project sites would not occur. However, the expected overall decrease in NO_x emissions from LADWP's power generating stations would not be realized nor would LADWP be likely to comply with its future RECLAIM Annual NO_x Allocations. Furthermore, LADWP would violate its Compliance Agreement with the SCAQMD resulting in fines and other penalties.

5.4.1.2 Alternative B – Install Two New 20,000-gallon Ammonia Tanks at HGS

This alternative will require the construction of a foundation for the tanks of approximately 5,000 square feet with secondary containment walls. Given the time constraints of the project, an additional concrete crew of 25 workers will be required, with a gasoline-fueled concrete vibrator and a small concrete pump (Means, 033-130-0840). The construction of the tank foundation would occur concurrently with the construction of the foundations for the CTs.

With this project alternative, trenching of approximately 775 linear feet onsite and crossing of a city street will not be required for the ammonia piping. However, trenching will still be required for approximately 200 feet onsite for the natural gas piping. Consequently, no adjustments to worker or equipment requirements were made for the peak day emissions estimates for the equipment installation phase of the project.

Mitigated construction-related emissions during construction of foundations and during equipment installation at HGS for Alternative B are listed in Table 5.4-1, and overall peak daily construction-

related emissions associated with Alternative B are listed in Table 5.4-2. The overall construction-related mitigated peak daily CO and PM_{10} emissions occur during foundation construction and paving at HGS, SGS, and VGS; the overall construction-related peak daily VOC, NO_x, and SO_X emissions occur during equipment installation at HGS, SGS, and VGS.

Table 5.4-1
Peak Daily Construction Emissions During Foundations Construction and Equipment Installation at HGS for Alternative B (Mitigated)

Activity	Location	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	Exhaust PM_{10} (lb/day)	Fugitive PM_{10}[a] (lb/day)	Total PM_{10} (lb/day)
HGS Foundations	Onsite	275.2	23.5	132.8	10.8	8.1	33.6	41.6
	Offsite	162.1	21.8	46.2	0.0	1.7	90.7	92.4
HGS Equipment Installation	Onsite	171.2	72.3	312.2	24.8	18.0	14.7	32.7
	Offsite	199.0	26.2	35.7	0.0	0.5	42.8	43.4

[a] It is assumed that construction activities will comply with SCAQMD Rule 403 - Fugitive Dust, by watering active sites two times per day, reducing fugitive dust by 50 percent.

This alternative would result in approximately the same foundation and equipment installation construction emissions as for the proposed project. See Table 4.2-6 in Chapter 4 for the construction emissions for the proposed project.

Table 5.4-2
Overall Peak Daily Emissions During Construction for Alternative B (Mitigated)

Source	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	Exhaust PM_{10} (lb/day)	Fugitive PM_{10}[a] (lb/day)	Total PM_{10} (lb/day)
Onsite Construction Equipment Exhaust	429.0	67.3	577.6	47.4	18.6	-	18.1
Mitigation Reduction (%)	0%	5%	5%	5%	5%	-	0.0
Mitigation Reduction (lb/day)	0.0	-3.4	-28.9	-2.4	-0.9	-	-0.9
Remaining Emissions	**429.0**	**63.9**	**548.7**	**45.1**	**17.6**	**-**	**17.6**
Onsite Motor Vehicles	13.5	1.3	1.6	0.0	0.1	-	0.1
Mitigation Reduction (%)	0%	0%	0%	0%	0%	-	-
Mitigation Reduction (lb/day)	0.0	0.0	0.0	0.0	0.0	-	0.0
Remaining Emissions	**13.5**	**1.3**	**1.6**	**0.0**	**0.1**	**-**	**0.1**
Onsite Fugitive PM10	-	-	-	-	-	66.0	66.0
Mitigation Reduction (%)	-	-	-	-	-	16%	-
Mitigation Reduction (lb/day)	-	-	-	-	-	-10.6	-10.6
Remaining Emissions	**-**	**-**	**-**	**-**	**-**	**55.5**	**55.5**
Architectural Coating	-	77.0	-	-	-	-	-
Mitigation Reduction (%)	-	0%	-	-	-	-	-
Mitigation Reduction (lb/day)	-	0.0	-	-	-	-	-
Remaining Emissions	**-**	**77.0**	**-**	**-**	**-**	**-**	**-**
Total Onsite	**442.5**	**142.2**	**550.3**	**45.1**	**17.8**	**55.5**	**73.1**
Offsite Motor Vehicles	258.3	42.0	67.1	0.0	5.3	253.1	257.1
Mitigation Reduction (%)	0%	0%	0%	0%	0%	0%	
Mitigation Reduction (lb/day)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Remaining Emissions	**258.3**	**42.0**	**67.1**	**0.0**	**5.3**	**253.1**	**258.3**
Total Offsite	**258.3**	**42.0**	**67.1**	**0.0**	**5.3**	**253.1**	**258.3**
TOTAL	**700.8**	**184.2**	**617.5**	**45.1**	**23.0**	**308.6**	**331.5**
CEQA Significance Level	*550*	*75*	*100*	*150*	-	-	*150*
Significant? (Yes/No)	**Yes**	**Yes**	**Yes**	No	-	-	**Yes**
Note: Totals may not match sum of individual values because of rounding							

Both the proposed project and Alternative B generate significant CO, VOC, NO_x, and PM_{10} emissions from construction activities. See Table 4.2-7 in Chapter 4 for the overall peak daily emissions during construction for the proposed project.

Operational emissions for Alternative B will be equal to those of the proposed project.

5.4.1.3 Alternative C – No Tank Demolition and Demolition of One Cooling Tower at VGS

The existing out-of-service 80,000-barrel fuel-oil storage tank at VGS would not be decommissioned and removed from the site to accommodate the new ammonia storage tank. Instead, the new ammonia storage tank would be installed at a different location. Additionally, only one cooling tower of the existing four redwood cooling towers would be decommissioned. This alternative is being considered to reduce the time required for demolition of existing equipment at the VGS site.

With this project alternative, tank degassing would not be required, nor would the tank demolition crew of three workers with a backhoe, crane, and haul truck be required. Demolition of one cooling tower would still be required. Because only one crew is anticipated for cooling tower demolition for the proposed project, the crew would be on-site fewer days to remove one tower than to remove four towers under this alternative. However, the peak day manpower and equipment requirements will remain the same as the proposed project.

Mitigated construction-related emissions during demolition at VGS for Alternative C are listed In Table 5.4-3, and overall peak daily construction-related emissions associated with Alternative C are listed in Table 5.4-4. The overall construction-related mitigated peak daily CO and PM_{10} emissions occur during foundation construction and paving at HGS, SGS, and VGS; the overall construction-related peak daily VOC, NO_X, and SO_X emissions occur during equipment installation at HGS, SGS, and VGS.

Table 5.4-3
Peak Daily Construction Emissions During Demolition at VGS
for Alternative B (Mitigated)

Activity	Location	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	Exhaust PM_{10} (lb/day)	Fugitive PM_{10}[a] (lb/day)	Total PM_{10} (lb/day)
VGS Demolition	Onsite	55.6	8.5	84.1	7.4	4.6	3.8	8.4
	Offsite	15.6	2.2	9.1	0.0	0.5	27.2	27.8

[a] It is assumed that construction activities will comply with SCAQMD Rule 403 – Fugitive Dust, by watering active sites two times per day, reducing fugitive dust by 50 percent.

This alternative would result in lower demolition emissions than the proposed project because the existing tank would not be demolished and only one cooling tower would be decommissioned. See Table 4.2-6 in Chapter 4 for the construction emissions for the proposed project.

Table 5.4-4
Overall Peak Daily Emissions During Construction for Alternative C (Mitigated)

Source	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	Exhaust PM_{10} (lb/day)	Fugitive PM_{10}[a] (lb/day)	Total PM_{10} (lb/day)
On-Site Construction Equipment Exhaust	408.3	69.1	590.5	48.6	18.1	-	18.1
Mitigation Reduction (%)	0%	5%	5%	5%	5%	-	0.0
Mitigation Reduction (lb/day)	0.0	-3.5	-29.5	-2.4	-0.9	-	-0.9
Remaining Emissions	**408.3**	**65.6**	**561.0**	**46.2**	**17.2**	**-**	**17.2**
On-Site Motor Vehicles	13.5	1.3	1.6	0.0	0.1	-	0.1
Mitigation Reduction (%)	0%	0%	0%	0%	0%	-	-
Mitigation Reduction (lb/day)	0.0	0.0	0.0	0.0	0.0	-	0.0
Remaining Emissions	**13.5**	**1.3**	**1.6**	**0.0**	**0.1**	**-**	**0.1**
On-Site Fugitive PM10	-	-	-	-	-	66.0	66.0
Mitigation Reduction (%)	-	-	-	-	-	16%	-
Mitigation Reduction (lb/day)	-	-	-	-	-	-10.6	-10.6
Remaining Emissions	**-**	**-**	**-**	**-**	**-**	**55.5**	**55.5**
Architectural Coating	-	77.0	-	-	-	-	-
Mitigation Reduction (%)	-	0%	-	-	-	-	-
Mitigation Reduction (lb/day)	-	0.0	-	-	-	-	-
Remaining Emissions	**-**	**77.0**	**-**	**-**	**-**	**-**	**-**
Total On-Site	**421.8**	**143.9**	**562.6**	**46.2**	**17.3**	**55.5**	**72.7**
Off-Site Motor Vehicles	246.2	42.4	67.6	0.0	5.3	251.8	257.1
Mitigation Reduction (%)	0%	0%	0%	0%	0%	0%	-
Mitigation Reduction (lb/day)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Remaining Emissions	**246.2**	**42.4**	**67.6**	**0.0**	**5.3**	**251.8**	**257.1**
Total Off-Site	**246.2**	**42.4**	**67.6**	**0.0**	**5.3**	**251.8**	**257.1**
TOTAL	**668.0**	**186.3**	**630.2**	**46.2**	**22.6**	**307.3**	**329.8**
CEQA Significance Level	*550*	*75*	*100*	*150*	-	-	*150*
Significant? (Yes/No)	**Yes**	**Yes**	**Yes**	No	-	-	**Yes**
Note: Totals may not match sum of individual values because of rounding							

Both the proposed project and Alternative C generate significant CO, VOC, NO_x, and PM_{10} emissions from construction activities. See Table 4.2-7 in Chapter 4 for the overall peak daily emissions during construction for the proposed project.

Operational emissions for Alternative C will be equal to those of the proposed project.

5.4.2 Biological Resources

Alternative A would result in no impacts to biological resources, as existing operations would continue with no changes.

No significant biological resources are known to exist at either HGS or VGS. Therefore, no impacts to biological resources are expected if either Alternatives B or C are implemented. As Alternatives B and C do not involve the SGS, impacts to biological resources will be equivalent to the proposed project.

5.4.3 Cultural Resources

Alternative A would result in no impacts to cultural resources, as no changes would be made from existing operations.

No cultural resources are known to exist at the HGS and SGS sites. Therefore, no impacts to cultural resources at HGS are expected if either Alternatives B or C are implemented.

Under Alternative C, one cooling tower will be decommissioned at the VGS. The cooling tower has been determined to be a nonunique cultural resource. Therefore, no significant impacts are expected from the implementation of Alternative C.

5.4.4 Energy

No significant impacts to energy would result from implementation of Alternative A, as no changes to existing operations would occur. However, additional reliable in-Basin electrical power would not be generated.

During construction-related activities, Alternatives B and C are expected to consume less gasoline and diesel fuel than would be required for the proposed project, since there will be fewer construction activities at the VGS site. However, operational-related activities are expected to consume the same amount of energy (e.g., natural gas, fuel oil, and diesel) as the proposed project, since operational activities will not change for these alternatives. Therefore, under these alternatives, energy impacts for construction-related activities would be slightly less than the proposed project and operational-related activities would be equivalent to the proposed project. As noted in Section 4.5 of Chapter 4, energy impacts for the proposed project are expected to be insignificant.

5.4.5 Geology/Soils

No significant impacts to geology/soils would result from implementation of Alternative A, as no changes to existing operations would occur.

Alternatives B and C would not be expected to result in substantially different geology/soils impacts than those expected from the proposed project, as the changes associated with the alternatives would occur within the confines of the existing three project sites. As noted in Section

4.6.3 of Chapter 4, after mitigation, no significant adverse geology/soils impacts at the project sites are anticipated for the equipment installations and modifications.

5.4.6 Hazards and Hazardous Materials

No significant impacts from hazards or hazardous materials would result from implementation of Alternative A, as no changes to existing operations would occur.

5.4.6.1 Alternative B – Install Two New 20,000-gallon Ammonia Tanks at HGS

With this alternative, the aqueous ammonia needed for the proposed SCR systems associated with the new five CTs will be stored on-site in two new 20,000-gallon aboveground storage tanks. This alternative may be necessary in the event there are engineering limitations to installing the proposed pipeline to transport onsite aqueous ammonia from two existing on-site tanks to the new SCR systems.

To compare this alternative with the proposed project, two release scenarios were compared. The baseline case is a rupture of the pipeline with loss of one hour of flow rate at 28 gallons of ammonia per hour, which spreads on the surface in an unconfined manner (e.g., in all directions). For the alternate scenario, the contents of one of the two new aqueous ammonia tanks (20,000 gallons) at HGS is assumed to be spilled into a dike that is five feet high and capable of containing the entire contents of the tank plus 20 percent. The liquid in the dike then evaporates at a rate estimated from USEPA equations. The pipeline failure was assumed to be caused by an earthquake or digging accident. The storage tank failure was assumed to be caused by an external event (e.g., an earthquake) or degradation of the equipment. The incremental risk was compared with the ammonia pipeline risk. Appendix D presents the results of the calculations. The distance to the USEPA's 200-ppm endpoint is 200 meters and the impact distance of the tank failure is 695 meters. A pipeline digging accident can be expected to occur once per 100 years or less. A tank failure can also be expected once per 100 years. Figure 5.4-1 shows the relative impact of a pipeline rupture and a tank failure.

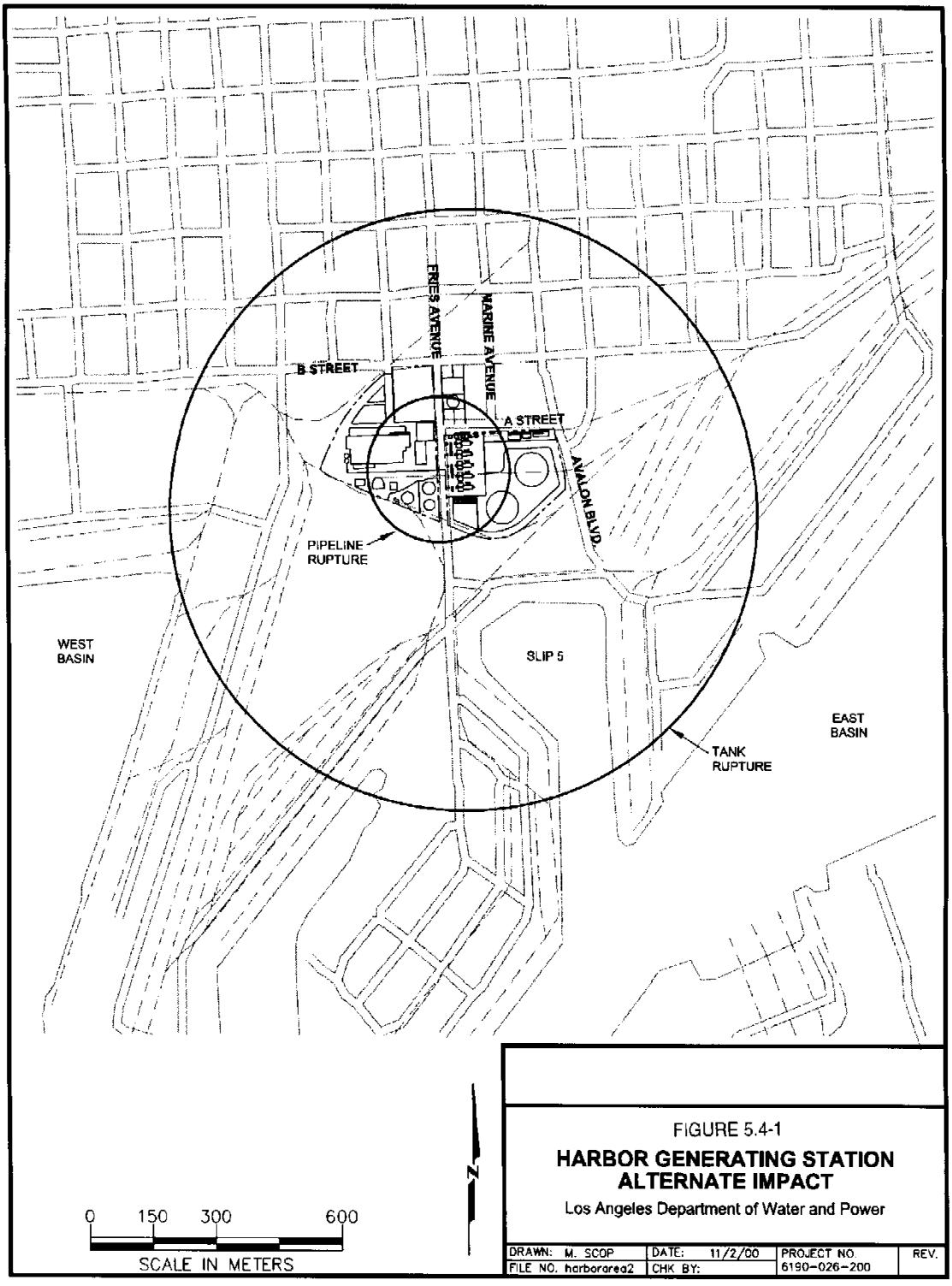


FIGURE 5.4-1

HARBOR GENERATING STATION ALTERNATE IMPACT

Los Angeles Department of Water and Power

DRAWN: M. SCOP	DATE: 11/2/00	PROJECT NO. 6190-026-200	REV.
FILE NO. harborarea2	CHK BY:		

Based upon the above considerations there is a higher risk associated with the storage of aqueous ammonia from the implementation of Alternative B than from the proposed project pipeline. However, comparably-sized ammonia tanks are currently located at HGS and the addition of new tanks should not create an impact zone significantly different than the current storage tank impact zone. It should be noted that the newer tanks would be less likely to fail structurally due to their lower age.

5.4.6.2 Alternative C – No Tank Demolition and Demolition of One Cooling Tower at VGS

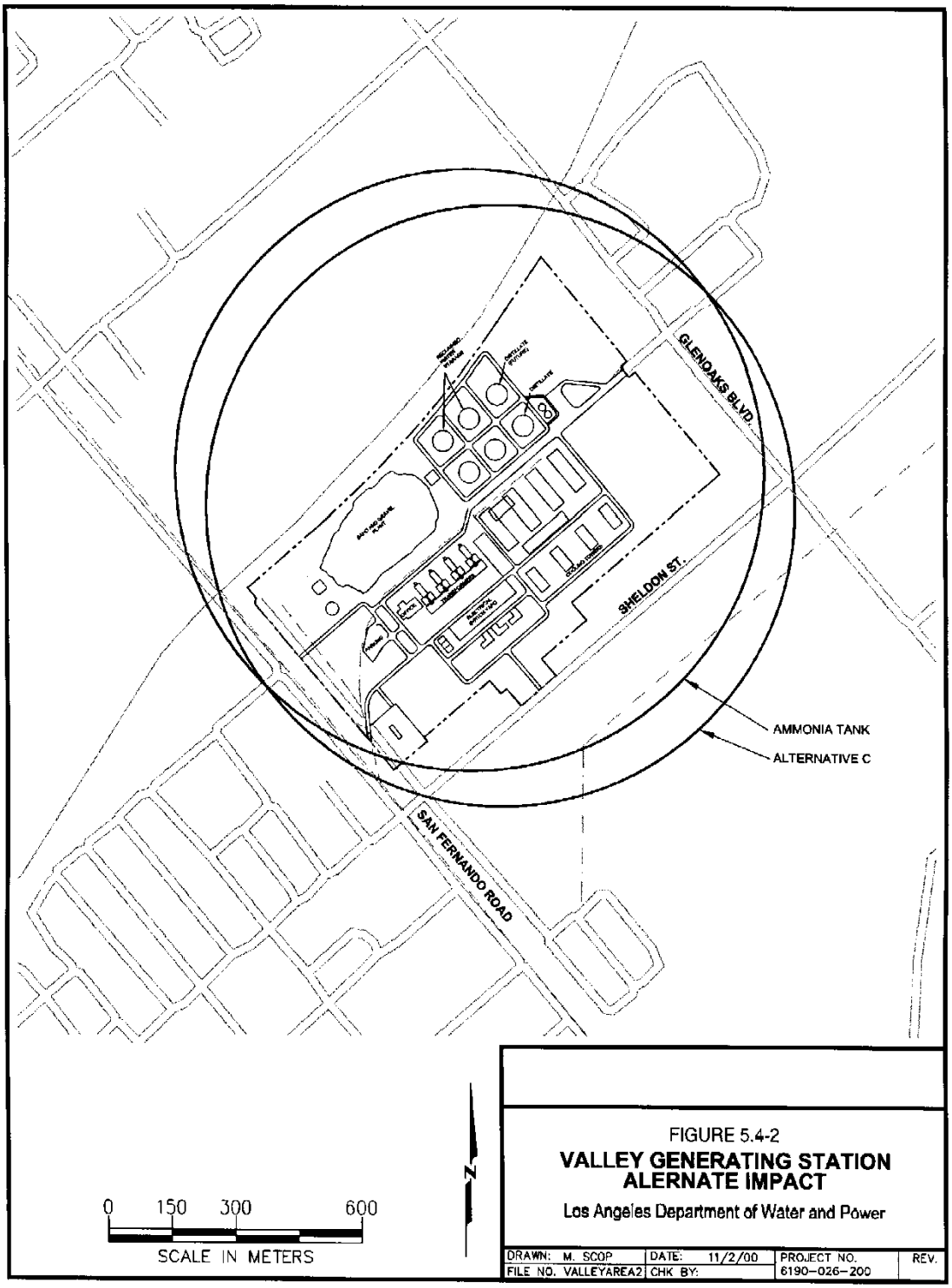
With this option, the existing out-of-service 80,000-barrel fuel oil storage tank would not be decommissioned and removed from the site to accommodate room for the new aqueous ammonia tank. Rather, the new aqueous ammonia tank would be installed at a different location closer to the new CT and SCR system. As in Alternative B above, the impact distance for the failure of one 20,000-gallon tank that spills aqueous ammonia to a containment dike was calculated to be 695 meters (see Appendix D). The impact distance for the proposed project which decommissions an 80,000 barrel tank is also 695 meters. The impact zones would differ because the receptors contained in each 695-meter radius circle would have different origins but there should be a sizable overlap of the two impact circles. The alternate tank location would be approximately 100 meters southeast of the proposed location. Figure 5.4-2 shows the relative impact of the location change.

Based upon the above considerations, the hazards associated with the implementation of Alternative C are expected to be comparable with the proposed project, as the proposed tank for both is a 20,000-gallon tank.

5.4.7 Hydrology/Water Quality

Alternative A would not change existing water use requirements or wastewater discharge profiles and volumes from the three project sites. Therefore, Alternative A would not create any new or additional hydrology/water quality impacts.

Because Alternatives B and C are related to ammonia storage locations rather than major operational components, these alternatives would yield little or no change in water use or water quality from that of the proposed project. These alternatives are expected to use approximately the same quantity of water during construction and operation. Because there is expected to be no significant impact from the project as proposed, similarly there would be no significant impact to hydrology/water quality from either Alternative B or C.


GLENOAKS BLVD.
SHELDON ST.
SAN FERNANDO ROAD
AMMONIA TANK
ALTERNATIVE C
0 150 300 600
SCALE IN METERS
N
FIGURE 5.4-2
VALLEY GENERATING STATION
ALERNATE IMPACT
Los Angeles Department of Water and Power
DRAWN: M. SCOP
DATE: 11/2/00
PROJECT NO. 6190-026-200
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5.4.8 Noise

Because no changes to existing operations at the three sites would occur, no construction-related noise impacts would occur as a result of Alternative A. Furthermore, existing operational-related noise levels at the three project sites would remain unchanged under Alternative A.

Alternatives B and C involve modifications or additions within the existing LADWP project sites' boundaries. As a result, noise levels generated by Alternatives B and C would be equivalent to those generated by the project. While each of these alternatives would involve noise associated with industrial activities, none would include components that would generate substantially different noise during construction or operation than the proposed project.

5.4.9 Solid/Hazardous Waste

Because no changes to existing operations would occur under Alternative A, no additional solid or hazardous wastes would be generated. Thus, Alternative A would result in no impacts related to solid or hazardous waste generation/disposal above current levels.

Construction of the new storage tanks at the HGS site under Alternative B would create similar amounts of hazardous and non-hazardous solid waste as the SGS and VGS sites under the proposed project. For operational-related activities, Alternative B would have the same impacts as the proposed project, since operational characteristics under this alternative will remain unchanged. As noted in Section 4.10.3 of Chapter 4, no significant adverse solid/hazardous waste impacts are anticipated for construction- and operational-related activities associated with the proposed project sites.

Implementation of Alternative C would create fewer solid and hazardous waste impacts than the proposed project, because the 80,000-barrel storage tank at VGS would not be decommissioned and only one cooling tower would be decommissioned. For operational-related activities, Alternative C would have the same impacts as the proposed project since operational characteristics under this alternative will remain unchanged. As noted in Section 4.10.3 of Chapter 4, no significant adverse solid/hazardous waste impacts are anticipated for construction- and operational-related activities associated with the proposed project sites.

5.4.10 Transportation/Traffic

Because no changes to existing operations at the three project sites would occur with Alternative A, no impacts to transportation/traffic would be expected.

For the new aqueous ammonia tank installations at the HGS site, no additional demolition and only minimal grading would be required for Alternative B. As a result, the construction of the new aqueous ammonia storage tanks proposed under Alternative B would cause no increase in the number of construction workers. For operational-related activities, Alternative B would have equal impacts to the proposed project since operational characteristics under this alternative will

remain unchanged. Therefore, as with the proposed project, impacts to transportation/traffic are expected to be insignificant.

Under Alternative C, an existing storage tank at the VGS would not be decommissioned and only one redwood cooling tower would be decommissioned and removed. As a result, only minor grading and minimal demolition would be required. Consequently, there would be no changes to the number of construction workers from those needed for the proposed project. For operational-related activities, Alternative C would have the same impacts as the proposed project since operational characteristics under this alternative will remain unchanged. Therefore, there would be no substantive difference in the insignificant transportation/traffic impacts between the proposed project and this alternative.

5.5 Conclusion

As the alternatives discussed above are primarily slight changes to individual project sites to account for engineering design considerations, the construction- and operational-related environmental impacts differences are not expected to be substantially different than those of the proposed project. With a few exceptions (e.g., air quality and hazards and hazardous materials) none of the alternatives create a substantially different impact to the environment than the proposed project.

Section 15126.6 of the CEQA Guidelines indicates that a CEQA document shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each project alternative may be used to summarize the comparison. Table 5.5-1 lists the alternatives considered by the SCAQMD and how they compare to the proposed project. Table 5.5-2 presents a matrix that lists the significant adverse impacts as well as cumulative impacts associated with the proposed project and the project alternatives for all environmental impact areas analyzed. The table also ranks each impact area as to whether the proposed project or a project alternative would result in greater or lesser impacts relative to one another.

Alternative A is not a superior project, as no long-term NO_x emission reductions would result and no additional electrical power would be generated. Alternatives B and C result in similar impacts to the proposed project, but do not eliminate any of the significant impacts associated with the proposed project. Therefore, the proposed project is the preferred alternative since it will aid LADWP in complying with its future RECLAIM Annual NO_x Allocations, which will result in complying its Compliance Agreement with the SCAQMD; will allow LADWP to stabilize its in-basin power demand for peak summer days; and allow LADWP to provide cleaner power to the Cal-ISO.

Table 5.5-1
Comparison of Adverse Environmental Impacts Associated with Project Alternatives to the Proposed Project

Environmental Topic	Alternative A (No Project)	Alternative B	Alternative C	Mitigation Measures
Air Quality Pollutants[a]	TACs, NOx, CO, VOC, PM10	TACs, NOx, CO, VOC, PM10	TACs, NOx, CO, VOC, PM10	NOx, CO, VOC, PM10
Construction	Not Significant, less than Proposed Project	Significant, less than Proposed Project[b]	Significant, equivalent to Proposed Project	Additional watering in addition to complying with Rule 403, proper maintenance
Operational	Not Significant, less than Proposed Project	Significant, equivalent to Proposed Project	Significant, equivalent to Proposed Project	None feasible for NO_x, CO, PM_{10}; Offsets for VOCs
Biological Resources	Not Significant, less than Proposed Project	Not Significant, less than Proposed Project	Not Significant, equivalent to Proposed Project	None Required
Energy	Not Significant, less than Proposed Project	Not Significant, equivalent to Proposed Project	Not Significant, equivalent Proposed Project	None Required
Cultural Resources	Not Significant, less than Proposed Project	Not Significant, equivalent to Proposed Project	Not Significant, equivalent to Proposed Project	None Required
Geology/Soils	Not Significant, less than Proposed Project	Mitigated to Insignificance, equivalent to Proposed Project	Mitigated to Insignificance, equivalent to Proposed Project	Compliance with building codes
Hazards and Hazardous Materials	Not Significant, less than Proposed Project	Significant, equivalent to Proposed Project	Significant, equivalent to Proposed Project	Develop hazards plan; Perform pre-start Job Safety Analysis; Manual shutdowns on tanks; Containment dikes; Ammonia detectors
Hydrology/Water Quality	Not Significant, less than Proposed Project	Not Significant, less than Proposed Project	Not Significant, equivalent to Proposed Project	None Required

Table 5.5-1 (cont'd)
Comparison of Adverse Environmental Impacts Associated with Project Alternatives to the Proposed Project

Environmental Topic	Alternative A (No Project)	Alternative B	Alternative C	Mitigation Measures
Noise	Not Significant, less than Proposed Project	Mitigated to Insignificance, equivalent to Proposed Project	Mitigated to insignificant, equivalent to Proposed Project	Equipment specifications; Muffler maintenance; Rubber-tired equipment; limit traffic through residential areas; Location of loading/staging areas
Solid/Hazardous Waste	Not Significant, less than Proposed Project	Not Significant, equivalent to than Proposed Project	Not Significant, less than Proposed Project	None Required
Transportation/ Traffic	Not Significant, less than Proposed Project	Not Significant, equivalent to than Proposed Project	Not Significant, equivalent to Proposed Project	None Required

a Pollutants = Emission benefits and increases associated with the proposed project.
b Proposed Project = The simultaneous activities at all three project sites.

Table 5.5-2
Ranking of Alternatives[a]

Project/ Alternative	Air Quality Impacts		Biological Resources Impacts		Cultural Sources		Energy Impacts		Geology/ Soils Impacts		Hazards/ Hazardous Materials Impacts		Hydrology/ Water Quality Impacts		Noise Resources		Solid/Hazardous Waste Impacts		Transport-ation/ Traffic Impacts	
	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts	Sign. Impacts	Cum. Impacts
Project[b]	**X(4)**	**X(4)**									**X(2)**	**X(2)**								
A	**(1)**	**(1)**									**(1)**	**(1)**								
B	**X(3)**	**X(3)**									**X(2)**	**X(2)**								
C	**X(2)**	**X(2)**									**X(2)**	**X(2)**								

[a] Rankings do not take into consideration the benefits of the proposed project or project alternatives.

[b] Project = The simultaneous activities at all three project sites.

Notes: The ranking scale is such that 1 represents the least impacts and subsequent higher number represent increasingly worse impacts.

The same two numbers in brackets for a specific Impact Section means that these alternatives would have the same impacts if implemented.

An "X" denotes either a project-specific significant adverse impact or cumulative significant adverse impact.

A "blank" denotes no significant adverse impact or no cumulative significant adverse impact.

6.0 CUMULATIVE IMPACTS

6.1 Introduction

"An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable,…" (CEQA Guidelines § 15130(a)). The assessment of cumulative impacts in this EIR includes a discussion of the potential cumulative effects of past, present, and probable future projects in the vicinity of the three project sites that may produce related or cumulative impacts affecting a given resource. The cumulative impact analyses in this section addresses the following:

- Do the impacts of individual projects, when considered together, compound or increase other environmental impacts?
- Will significant cumulative impacts result from individually minor but collectively significant projects taking place over a period of time?

According to §15130(b) of the CEQA Guidelines, "The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone."

The environmental impact areas evaluated in this ~~Draft~~Final EIR are included in this section together with proposed appropriate mitigation measures for potential cumulative impacts.

6.2 Other Proposed Projects

Based upon information received from local planning agencies and individuals contacted to compile data for this section, projects with the potential to have cumulative impacts with the proposed project are discussed in this section. Currently, there are no significant projects planned by LADWP or currently underway at HGS, SGS, or VGS, which would create cumulative impacts when considered with the proposed project.

6.2.1 Projects Proposed Near HGS

The following projects are in various stages of planning, permitting, and construction in vicinity of the HGS (Los Angeles Harbor Department, 2000).

- Construction is scheduled to begin on the Harry S. Bridges Avenue Realignment project in April 2001. The project involves realignment of Harry S. Bridges Avenue and C Street and development of adjacent areas. The project includes acquisition of properties north of Harry S. Bridges Avenue to C Street from Figueroa Street to Broad Avenue and south of Harry S. Bridges Avenue between John S. Gibson Boulevard and Avalon Boulevard. Additionally, Harry S. Bridges will be widened between Avalon Boulevard and Alameda Street, and the railroad tracks will be realigned to parallel Harry S. Bridges Avenue. Construction will begin along C

Street between Figueroa and Neptune. The Harry S. Bridges realignment work will begin in approximately October 2001 pending issuance of a CDP permit.

- A 10,000-square-foot commercial building and associated parking area is currently being constructed south of Water Street at Berths 184 and 185, approximately one-quarter mile south of HGS.
- The Alameda Corridor project is currently under construction and includes widening of Alameda Street, double-tracking the rail line, and construction of 16 grade separations along the Corridor. Partial lane closures are in effect for ongoing construction along the southern portion of Alameda Street north of HGS.
- A railyard is proposed northeast of HGS in the south Classification Yard area. A negative declaration has been prepared and is currently under review.
- The Gaffey Street Business Center, a 1.9-million-square-foot warehouse development, is currently under construction southwest of HGS.
- Regularly scheduled maintenance is expected to occur at HGS in February 2001, which is concurrent with the construction of the proposed project. An additional 50 workers will be commuting to HGS for the month of February.

6.2.2 Projects Proposed Near SGS

No projects were identified in the vicinity of SGS that would have the potential to create cumulative impacts with the proposed project.

6.2.3 Proposed Projects Near VGS

The following projects are in various stages of planning, and permitting in the vicinity of VGS (Sedwick, 2000).

- A 500,000-square-foot industrial development is planned at the intersection of San Fernando Road and Branford Street, approximately one-half mile northwest of the project site.
- A 300,000-square-foot industrial development is planned at the intersection of San Fernando Road and Osborn Street, approximately one mile northwest of the project site.
- An application is pending for a 150,000-square-foot industrial development at the intersection of Osborn Place and Glenoaks Boulevard, approximately one mile north of the project site.
- An application is pending for a 70,000-square-foot industrial development near the intersection of Glenoaks Boulevard and Pendleton Street, approximately one mile east-southeast of the project site.

6.3 Cumulative Effects

The cumulative effects of the projects discussed in Section 6.2 and the proposed project are assessed in the following subsections.

6.3.1 Air Quality

6.3.1.1 Construction Impacts

Several of the projects described in Section 6.2 are beginning constructedion, currently under construction, or close to the end of construction. Therefore, these projects are unlikely to create cumulative construction impacts in combination with the proposed project because they are expected to be completed before the proposed project has started construction.

However, due to the lengthy construction schedule for the Harry S. Bridges Avenue Realignment and Alameda Corridor projects in the vicinity of HGS, the construction of these projects will potentially overlap with the proposed project. In addition, two of the projects in the vicinity of VGS are in the planning phase, and two are in the permitting phase. Depending on when the projects are approved and permitted, the construction schedules may overlap with the construction of the proposed project. Some cumulative impacts may occur due to construction of these projects, if they overlap with proposed project construction. The mitigation measures discussed in Section 4.2.6 should reduce the cumulative impacts to the maximum extent feasible. Any remaining cumulative impacts are expected to be localized and temporary in nature and within the normal amount of construction activity that occurs daily in these highly industrial areas.

6.3.1.2 Operational Impacts

The projects identified in the vicinity of this project are primarily land-use projects, and the resulting emissions will be due primarily from mobile sources. Several of the projects identified in the vicinity of the proposed project are likely to generate long-term emissions from operations. Since these projects will be subject to SCAQMD permitting and/or other State permitting requirements, it is expected that emissions will be adequately controlled and offset in order to minimize significant long-term cumulative impacts to air quality.

6.3.2 Biological Resources

No cumulative impacts to biological resources are expected to occur as a result of the proposed project as it will be located on existing developed sites with no known biological resources that extend on and beyond the project sites.

This conclusion is consistent with CEQA Guidelines §15130(a), which states in part, “Where a lead agency is examining a project with an incremental effect that is not ‘cumulatively considerable,’ a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.” Therefore, since the project-related cultural resources impacts do not exceed the SCAQMD’s significance criteria,

cumulative biological resources impacts are not expected from the implementation of the proposed project.

6.3.3 Cultural Resources

No cumulative impacts to cultural resources are expected to occur as a result of the proposed project as it will be located on existing developed sites and there are no known cultural resources that extend on and beyond the project sites.

Since the project-related impacts to cultural resources do not exceed the SCAQMD's significance criteria, consistent with CEQA Guidelines §15130(a), cumulative cultural resources impacts are not expected from the implementation of the proposed project.

6.3.4 Energy Sources

No significant cumulative impact on energy sources is expected to occur from construction, as the construction demand for energy at the project sites will be negligible, temporary, and is not considered to be wasteful. Additionally, the objective of the proposed project is to construct state-of-the-art electrical power generating facilities, which will efficiently produce electrical energy and alleviate power shortages experienced during peak hours in California.

Since the project-related energy impacts do not exceed the SCAQMD's significance criteria, consistent with CEQA Guidelines §15130(a), cumulative energy impacts are not expected from the implementation of the proposed project.

6.3.5 Geology/Soils

No unique geologic resources are located at the three project sites. Seismic hazards will be mitigated to insignificance using proper design and construction standards. No cumulative impacts to geologic structures or processes are expected to occur from the combined construction or operation of the projects discussed in Section 6.2.

Since the mitigated project-related geology/soils impacts do not exceed the SCAQMD's significance criteria, consistent with CEQA Guidelines §15130(a), cumulative impacts to geology/soils are not expected from the implementation of the proposed project.

6.3.6 Hazards and Hazardous Materials

Most of the cumulative projects discussed in Section 6.2 pose no substantial hazards or risk of upset because, based on available information, they do not utilize hazardous materials to a significant degree. Therefore, no significant cumulative impacts from hazards are expected.

6.3.7 Noise

No significant noise impacts from construction-related activities are anticipated as a result of the proposed project at the HGS and VGS. Increased construction noise levels as a result of the proposed project at SGS will be mitigated to levels of insignificance and are primarily attributable

to construction equipment and vehicles. None of the individual projects identified near the SGS will in combination with the proposed project contribute to increased noise on a short-term basis. Considering the existing noise levels in the areas where the project sites are located and the potential from the proposed project, the cumulative impacts from operational noise are not expected to be significant.

Since the project-related noise impacts at the HGS and VGS do not exceed the SCAQMD's significance criteria and the construction-related noise impacts at SGS will be mitigated to levels of insignificance, significant cumulative noise-related impacts are not expected from the implementation of the proposed project.

6.3.8 Solid/Hazardous Waste

Both nonhazardous and hazardous waste landfills used by LADWP for the project sites generally have expected life capacities ranging from 20 to 30 years. Although LADWP will implement waste minimization techniques to ensure that waste impacts from the proposed project remain insignificant, landfills in the region have finite capacities. However, the incremental waste that will be generated by the proposed project over the life span of the disposal facilities is negligible compared to the capacity. Therefore, no significant cumulative solid/hazardous waste impacts are anticipated to result.

Since the project-related energy impacts do not exceed the SCAQMD's significance criteria, consistent with CEQA Guidelines §15130(a), cumulative impacts related to solid/hazardous waste are not expected from the implementation of the proposed project.

6.3.9 Transportation/Traffic

As discussed in Section 4.11, the proposed project is not expected to create long-term impacts to traffic in the area of the HGS, SGS, and VGS sites. Additionally, the short-term construction impacts at the project sites is considered insignificant and is not expected to affect traffic patterns in these areas, even if related projects in these areas were to overlap with the proposed project construction.

Insignificant short-term construction impacts are expected to occur at the HGS, SGS, and VGS sites during the PM peak hour (4:00 to 5:00 PM). Cumulative effects on traffic and circulation in the vicinity of these project sites will be transitory due to the temporary nature of the construction.

Since the project-related transportation impacts do not exceed the SCAQMD's significance criteria, consistent with CEQA Guidelines §15130(a), cumulative transportation/traffic-related impacts are not expected from the implementation of the proposed project.

6.4 Mitigation Measures

Cumulative impacts from individual projects considered together may affect air quality and hazards. In addition, geology/soils and noise impacts have been mitigated to levels of

insignificance. Mitigation measures for these environmental issue areas are identified in Subsections 4.2.5.1, 4.6.3, 4.7.10, and 4.9.3. Implementation of the mitigation measures proposed in Chapter 4 will assist in mitigating cumulative air quality impacts.

7.0 ORGANIZATIONS AND PERSONS CONSULTED

CEQA Guidelines §15129 requires that organizations and persons consulted be provided in the EIR.

In the course of preparation of the EIR for the Los Angeles Department of Water and Power's Electrical Generation Stations Modifications Project, various federal, state, and local agencies; industries; and individuals have been consulted. A Notice of Preparation for this EIR was distributed to over 300 parties and individuals in October 2000. Additionally, the Notice was announced in the Los Angeles Times. Comments received in the Notice have been reviewed and as appropriate been used to focus the analysis in this EIR.

Listed below are the following organizations and individuals who provided input to the EIR.

7.1 Organizations

Austin-Foust Associates, Inc.

California Air Resources Board

City of Los Angeles Planning Department

California Water Service Company

County of Los Angeles

California Department of Conservation – Division Mines and Geology

Conejo Archaeological Consultants

Los Angeles County Fire Department

Los Angeles County Sanitation Districts

Los Angeles County Sheriff's Department

Port of Los Angeles

South Coast Air Quality Management District

Southern California Gas Company

7.2 Persons Consulted

Barbara Collins, Ph.D., Professor of Botany, California Lutheran University

Enrique Huerta, Planning Technician, City of El Segundo

Rob Wood, Native American Heritage Commission

Ester Won, California Historical Resources Information System

7.3 List of Preparers

South Coast Air Quality Management District, Diamond Bar, California

ENSR International, Camarillo, California

Parsons Engineering Science, Pasadena, California

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