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## **2.0 PROJECT DESCRIPTION**

### **2.1 Project Objectives**

SCAQMD Regulation XX – RECLAIM is an alternative regulatory program designed and adopted by the SCAQMD to reduce NO<sub>x</sub> and SO<sub>x</sub> emissions from stationary sources in the Basin while lowering the cost of attaining clean air through the use of market incentives. The goals of RECLAIM are to give facilities added flexibility in meeting their emission reduction requirements, to lower the cost of compliance, and achieve clean air for the Basin. RECLAIM facilities receive a starting emissions allocation beginning in 1994, with additional declining annual allocations until an ending allocation is reached in 2003. Facility operators are free to choose emission control strategies that work best for their facility. The emission goals are established in the form of annual allocations comprised of RTCs. Facilities comply with RECLAIM by installing control equipment that limits their annual NO<sub>x</sub> and/or SO<sub>x</sub> emissions to below or at their annual allocations; or by purchasing additional RTCs to account for any exceedances above their annual allocations.

To help LADWP comply with its annual RECLAIM allocations for future years and improve in-Basin power reliability, LADWP is proposing modifications to its VGS, which is located in the Sun Valley area of the City of Los Angeles. It is envisioned that the proposed project, consistent with the intent of RECLAIM, will achieve an overall decrease in NO<sub>x</sub> emissions, resulting in both localized and regional air quality benefits.

To accomplish the aforementioned goals at the earliest possible time, LADWP has entered into a legally binding Compliance Agreement with the SCAQMD. The agreement requires that LADWP begin equipment installation and modifications at the VGS such that affected power generating units will be in-use by Summer 2003. The modifications that will occur at the facility are summarized in the following sections.

### **2.2 Project Overview**

The LADWP is proposing to install a new CCGF at an existing generating station. The CCGF will replace four existing utility boilers with two CTGs, a new STG, two HRSGs and associated SCR systems, cooling towers, and ancillary equipment.

### **2.3 Project Location**

The LADWP Valley Generating Station is located at 11801 Sheldon Street in the City of Los Angeles (Sun Valley) (Figures 2.3-1 and 2.3-2). The facility is bounded by Glenoaks Boulevard to the northeast and San Fernando Road to the southwest (Figure 2.3-3). The Union Pacific Railroad parallels San Fernando Road to the southwest of the site. The Tujunga Wash, a flood control channel, is to the northwest.

The land use surrounding the facility is primarily commercial and industrial. Other uses located nearby on San Fernando Road include an emergency medical clinic, a hospital and two motels. The closest residential property is located approximately one-half mile to the north of the VGS. A sand and gravel plant is located adjacent and to the northwest of the site.

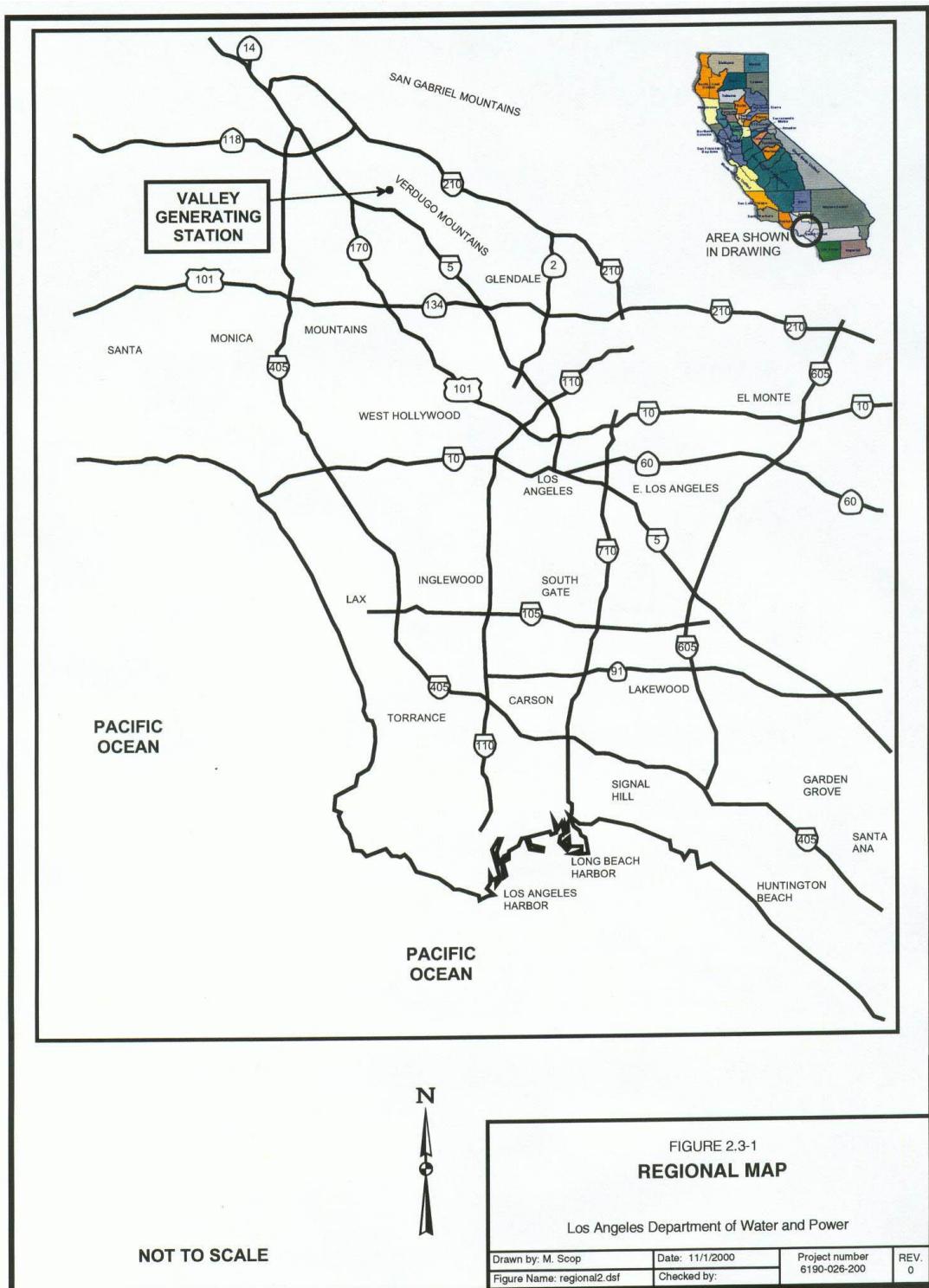
#### **2.4 Proposed Project**

The VGS is a 150-acre electric power generating facility designed to supply power to the LADWP distribution grid. The facility currently consists of four utility boilers with associated generating capacities ranging from 100 MW to 172.8 MW. LADWP is proposing to install new combined cycle generating equipment at the VGS to replace the four existing boilers.

The proposed project includes the installation of two new CTGs, a STG, two HRSGs with associated SCR, cooling towers and ancillary equipment to control various combustion emissions. The proposed project will also include a change in service of one existing 20,000-gallon AST which will be used to store distillate fuel. Two new 20,000-gallon ASTs will be constructed to store aqueous ammonia for the SCR units.

#### **Power Generating Equipment**

The combined cycle equipment will include two General Electric PG7241 FA CTGs in a two-on-one configuration with one General Electric steam generator. The excess heat from the two turbines will be supplied to the steam generator. The equipment will be designed to provide a base load capacity of approximately 500 MW with a peaking capacity of 574 MW. The combined cycle facility will be fired by natural gas with the capability to fire with distillate fuel under emergency conditions. The CTGs will produce thermal energy through the combustion of natural gas and the conversion of thermal energy into mechanical energy required to drive the compressors and generators, which produce electricity. Air is supplied to the CTGs through an inlet air filter and evaporative coolers by an air inlet duct. Fuel (natural gas) is supplied at approximately 450 pounds per square inch gauge pressure (psig) by gas compressors. This mixture of fuel and air is ignited and burned, producing high temperature pressurized gas to drive the turbine and electric generator.



**Figure 2.3-1 Regional Map**

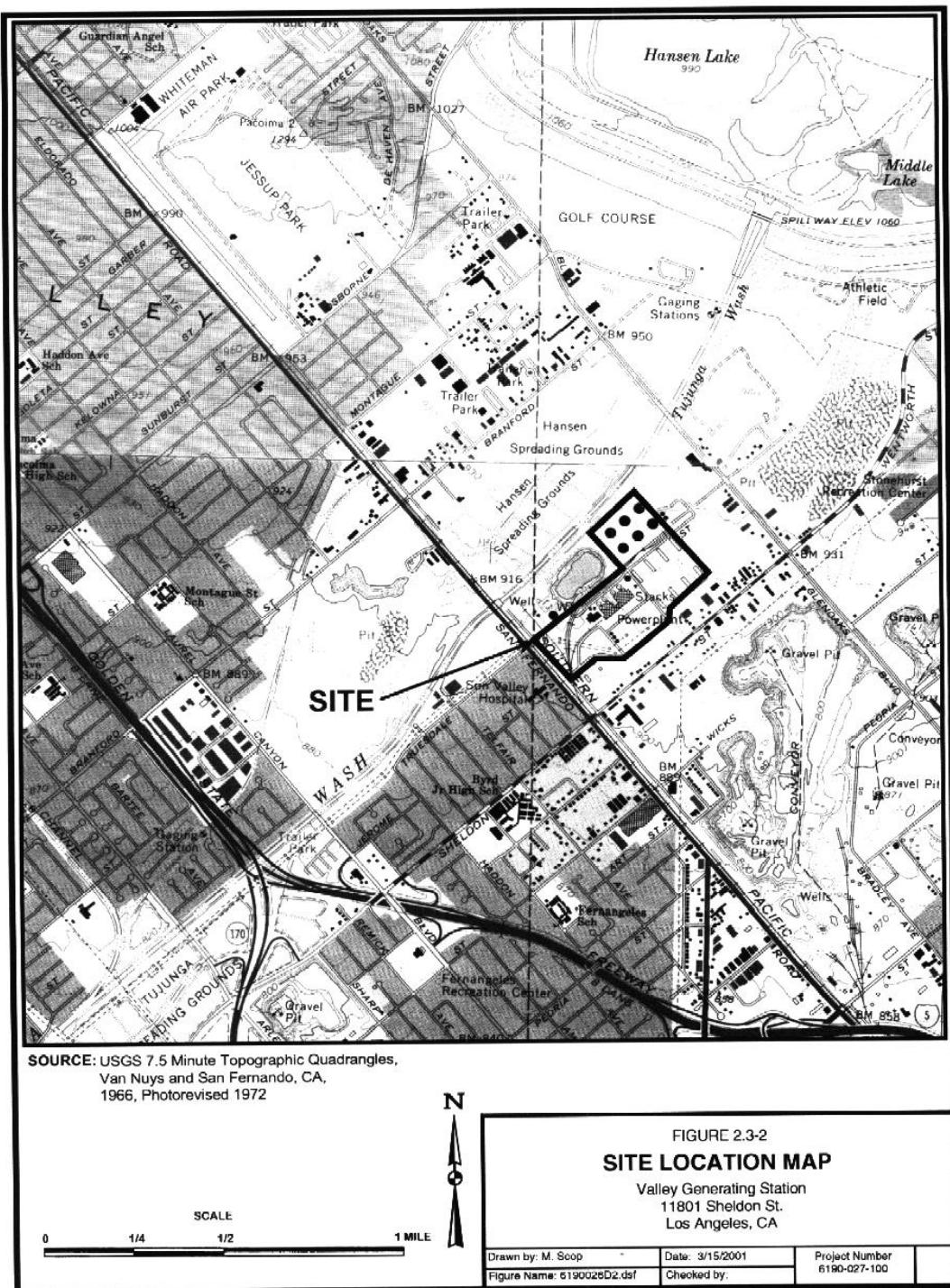


Figure 2.3-2 Site Location Map

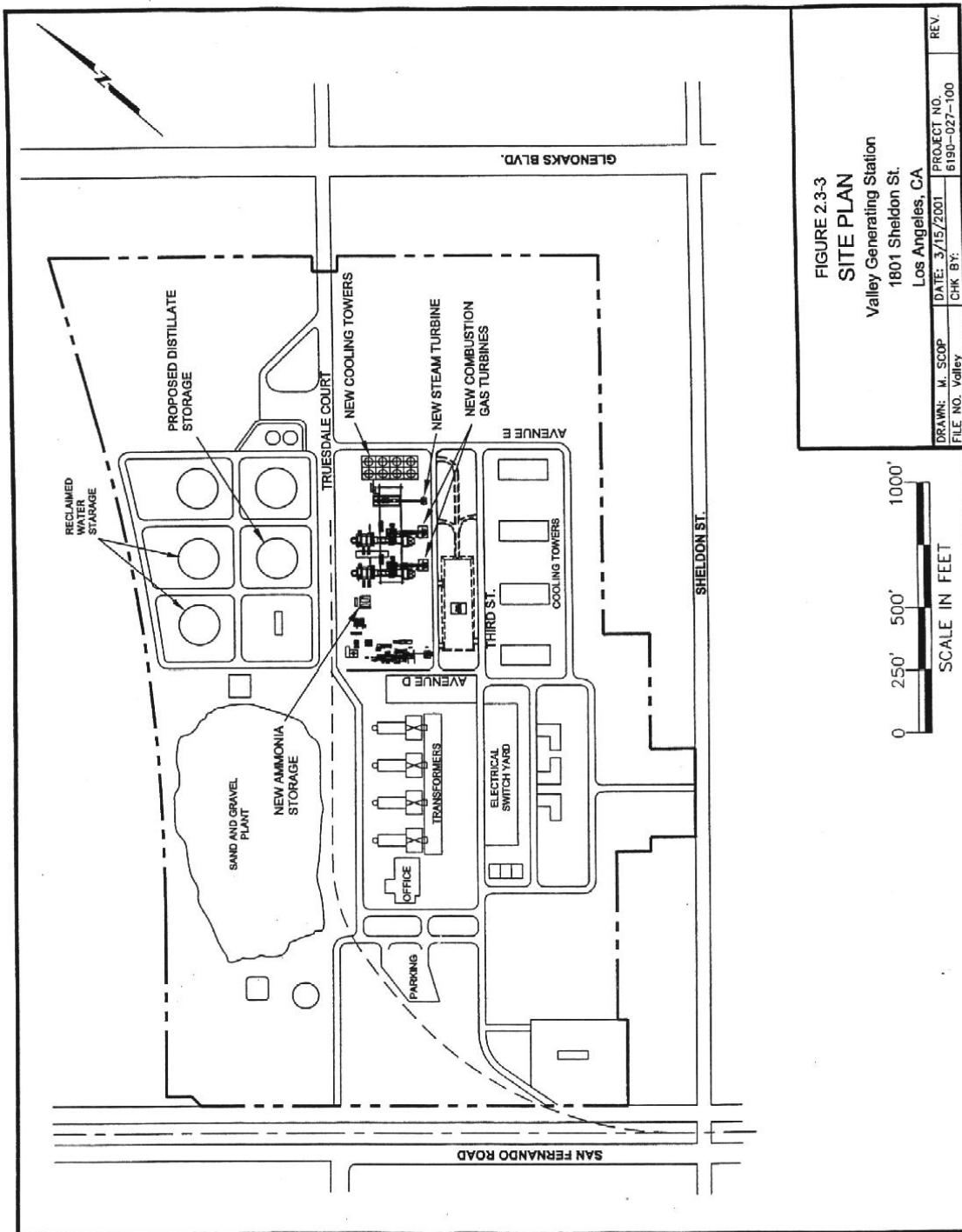


Figure 2.3-3 Site Plan

Duct burners will raise the temperature of exhaust gases from two CTGs, which will then be directed to individual HRSGs, each with its own stack. Steam generated from the HRSGs will flow through high and low pressure piping to the STG. Exhaust steam will be vented from the turbine to a circulating water-cooled condenser and then returned by pumps to the HRSGs. Each of the three electrical generators will feed each of the three corresponding generator step-up transformers which will be connected by pole lines to the existing switchyard and 230 kilovolt transmission lines. Excess heat from the power generation process will be managed by installing new cooling towers.

The CTGs will include built-in pollution controls based on a dry combustion design to reduce NO<sub>x</sub> emissions. SCR will be installed on the HRSGs to reduce NO<sub>x</sub> emissions. In addition, each CTG will include a weatherproof, acoustic (e.g., sound dampening) enclosure with separate compartments for the turbine and generator. Lighting as well as fire and gas detection equipment will be provided in each compartment.

### **Selective Catalytic Reduction (SCR)**

SCR is a post-combustion control technology capable of reducing inlet NO<sub>x</sub> emissions by 90 percent or more. SCR systems reduce NO<sub>x</sub> in flue gas by combining ammonia and oxygen with NO<sub>x</sub> in the presence of a catalyst to form nitrogen molecules and water vapor. A typical SCR system is comprised of an ammonia storage tank, vaporization and injection equipment for ammonia, a booster fan for the flue gas, an SCR reactor with catalyst, and instrumentation and control equipment.

Ammonia is diluted with air and injected into the gas stream through a matrix of nozzles. The amount of ammonia introduced into the system varies based on NO<sub>x</sub> reduction requirements, but is approximately a 1:1 molar ratio of ammonia to NO<sub>x</sub>.

For this project, the type of ammonia that will be used is aqueous ammonia. The use of aqueous ammonia requires the vaporization of the ammonia solution. Vaporization of the ammonia and water is done prior to injection of the ammonia into the flue gas stream. An injection grid ensures proper distribution of the ammonia in the flue gas flow.

The mixture of ammonia and flue gas then passes into the catalytic reactor. The SCR process anticipated to be used at the VGS will use a catalyst with an optimal temperature window of approximately 350° to 400° Centigrade to facilitate a heterogeneous reaction between NO<sub>x</sub> and ammonia.

Pursuant to SCAQMD Rule 1303(a), air pollution control systems associated with the CTGs must be designed to comply with the Best Available Control Technology (BACT) requirements. Typical BACT emission rates are shown in Table 2.4-1.

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**Table 2.4-1**  
**Summary of BACT Requirements for Combined Cycle Power Plants**

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NOx	CO	VOC	PM10	SOx
2.5 ppmvd at 15% O <sub>2</sub> , 1-hour rolling average OR 2.0 ppmvd at 15% O <sub>2</sub> , 3-hour rolling average	6 ppmvd at 15% O <sub>2</sub> , 3-hour rolling average	2 ppmvd at 15% O <sub>2</sub> , 1-hour rolling average OR 0.0027 pounds per million British thermal units (based on higher heating value)	An emission limit corresponding to natural gas with fuel sulfur content of no more than 1 grain/100 standard cubic feet	An emission limit corresponding to natural gas with fuel sulfur content of no more than 1 grain/100 standard cubic feet (no more than 0.55 ppmvd at 15% O <sub>2</sub> )

Reference: California Air Resources Board, September, 1999  
ppmvd = parts per million volume dry

In addition, the BACT requirement for ammonia slip is five ppmvd or less at 15 percent O<sub>2</sub>.

The catalyst planned for use in the SCR associated with the two HRSGs will be vanadium based on a titanium support matrix. Vanadium catalysts are preferred for their high activity, insensitivity to sulfur in the exhaust, and useful life span.

### **Ammonia Handling and Storage**

Aqueous ammonia (ammonium hydroxide at 29.5 percent concentration by weight) will be used to reduce NO<sub>x</sub> emissions. Aqueous ammonia has been selected primarily for its ease of use and its ability to be safely transported and handled onsite at the VGS. The ammonia will be delivered by truck and stored in two new 20,000-gallon ASTs.

The aqueous ammonia will be atomized with air and vaporized with hot flue gas. The ammonia/air mixture will be blended with a static mixer, and injected into the flue gas ahead of the catalyst bed via an injection grid.

It is expected that an incremental increase in the quantity of ammonia will be delivered to the site via two to three 5,000-gallon tanker trucks per month. Each truck will pump aqueous ammonia into the storage tanks through a liquid fill line while extracting ammonia vapor from the tank through a vapor recovery system. Truck routes for hauling aqueous ammonia will depend on the selection of an ammonia supplier and the supplier's location. Further information on ammonia delivery may be found in the Transportation/Traffic and Hazards Sections in Chapters 3 and 4 of this [Draft/Final](#) EIR.

### **2.5 Permits and Approval**

The proposed project will require a number of permits and approvals before construction can commence. The major permits will include SCAQMD air permits (e.g., permits for the

new CTGs, SCR, and ammonia tanks). Permits may also be required from the City of Los Angeles. The City of Los Angeles is a CEQA responsible agency for this project<sup>1</sup>. Table 2.5-1 outlines the various federal, state, and local permits and approvals required by each regulatory agency. The table also includes a listing of other regulations and requirements that must be met during construction and/or operation.

**Table 2.5-1**  
**List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements**

Agency Permit or Approval	Requirement	Applicability to Project	Action Taken
<b>Federal</b>			
Environmental Protection Agency (U.S. EPA)	New Source Performance Standards (NSPS) 40 Code of Federal Regulations (CFR) Part 60 General Provisions (Subpart GG)	Requires facilities subject to an NSPS to provide notification, maintain and submit records, and in some cases undertake performance tests	Will comply as required
	Accidental Release Prevention Risk Management Program, 40 CFR 68 (and California Accidental Release Program, Title 19, Div. 2, Chapter 4.5)	Offsite consequence analysis required for pentane, ethanol, and butane	Will conduct analysis, if required
	Protection of Stratospheric Ozone, 40 CFR 82 Subpart F	Requires use of certified servicing equipment and personnel and recordkeeping for equipment containing ozone depleting refrigerants	Will use certified equipment, if required
	Superfund Amendment and Reauthorization Act (SARA) Title III	Requires reporting offsite releases of hazardous materials	Will report if materials are released

<sup>1</sup> “ ‘Responsible Agency’ means a public agency which proposes to approve a project for which a lead agency is preparing an EIR. . .” (CEQA Guidelines §15381).

**Table 2.5-1 (Continued)**  
**List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements**

Agency Permit or Approval	Requirement	Applicability to Project	Action Taken
<b>Federal</b>			
U.S. EPA (cont'd)	Emergency Planning and Community Right-to-Know (EPCRA), §302	Requires disclosure of hazardous substances being used	Will disclose hazardous substances located onsite
	40 CFR 403	General standards for pretreatment of wastewater discharges to POTWs	Will meet standard
	Resource Conservation and Recovery Act (RCRA)	Requires proper handling of hazardous waste material	Will meet standard
	National Pollutant Discharge Elimination System	Requires compliance with Clean Water Act standards for discharges to Waters of the U.S.	Will meet standard
Occupational Safety and Health Administration	Process Safety Management Occupational Safety and Health Administration (OSHA) 29 CFR 1910	Worker process safety standards	Will implement standard
<b>State</b>			
Caltrans	Transportation permit	Application to transport overweight, oversize, and wide loads on state highways	Will meet standard, if applicable
Health and Safety Code Chapter 6.95	California Business Plans	Modify/update plan to reflect changes to quantities/types of hazardous materials	Will modify plan
Cal-OSHA	Construction-related permits	Excavation, construction, demolition, and tower and crane erection permit	Will obtain permit
Office of Environmental Health Hazard Assessment	Proposition 65 warnings for known exposures to listed chemicals	Required if significant risk identified exceeds regulatory limit	Will provide warnings if required
<b>Local</b>			
Regional Water Quality Control Board (RWQCB)	NPDES permit for stormwater runoff and point sources associated with construction and industrial activities	Required for stormwater runoff from construction activities involving 5 acres or more and point source discharges from industrial activities	Will obtain appropriate permit/plan
	Remedial action plan	Required if contaminated soil is found and remediated	Will develop plan, if required

**Table 2.5-1 (Continued)**  
**List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements**

Agency Permit or Approval	Requirement	Applicability to Project	Action Taken
<b>Local (continued)</b>			
SCAQMD	CEQA Review/EIR	SCAQMD is the lead agency for certification of the proposed project EIR	Will not receive permits unless compliance demonstrated
	SCAQMD Rule 201: Permit to Construct	Applications are required to construct or modify stationary emissions sources	Will submit application
	AB2588: Air Toxics Hot Spots Information and Assessment Act reporting	Periodic updating of air toxic emissions inventories and health risk assessment	Will modify inventory if required
	SCAQMD Rule 203: Permit to Operate	Applications are required to operate stationary emissions sources	Will submit application
	SCAQMD Rule 212: Standards for Approving Permits	Requires public notification under specific circumstances	Will provide notification if required
	SCAQMD Rule 401: Visible Emissions	Provides limitations to visible emissions from single emission sources	Will limit visible emissions
	SCAQMD Rule 402: Nuisance	Discharges which cause a nuisance to the public are prohibited	Will not cause public nuisance
	SCAQMD Rule 403: Fugitive Dust	Contains control requirements for operations or activities that cause or allow emission of fugitive dust	Will provide appropriate controls
	SCAQMD Rule 409: Combustion Contaminants	Provides a limitation on total combustion contaminants	Will not receive permits unless demonstrate compliance
	SCAQMD Rule 431.1: Sulfur Content of Gaseous Fuels	Restricts sulfur content of gaseous fuels	Will use compliant fuel
	SCAQMD Rule 475: Electric Power Generating Equipment	Places limit on combustion contaminants from electric power generating equipment	Will limit combustion contaminants
	SCAQMD Rule 1113: Architectural Coatings	Specifies allowable VOC content of coatings for structures	Will use compliant coatings
	Rule 1166: Excavation of Volatile Organic Compound Contaminated Soils	Required if soils to be excavated are contaminated with hydrocarbons	Will provide controls for excavated hydrocarbon-impacted soils
	SCAQMD Regulation XIII: New Source Review, All Rules	Requires BACT on all new emission sources, requires offsets, modeling for criteria pollutants other than NO <sub>x</sub> and SO <sub>x</sub>	BACT will be installed, offsets purchased, and modeling performed

**Table 2.5-1 (Concluded)**  
**List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements**

Agency Permit or Approval	Requirement	Applicability to Project	Action Taken
<b>Local (continued)</b>			
SCAQMD (cont'd)	Rule 1401: New Source Review of Toxic Air Contaminants	Specifies limits for cancer risk, cancer burden, and noncancer acute and chronic hazard index; new or modified permit units must apply Best available control technology for toxic air contaminants (T-BACT) if over maximum allowed risk levels	Will not exceed risk thresholds, and will apply T-BACT if required
	SCAQMD Rule 1415: Reduction of Refrigerant Emissions from Stationary Refrigeration and air conditioning Systems.	Certain requirements for installation operation of refrigerant systems.	Will reduce refrigerant emissions, if required
	SCAQMD Regulation XVII: Prevention of Significant Deterioration, All Rules	Requires BACT on all new emission sources, establishes limits for maximum allowable increase in pollutant concentrations	Will install BACT, will not exceed pollutant concentration limits
	SCAQMD Regulation XX, RECLAIM, All Rules	Requires facilities to manage NOx and SOx emission levels to facility allocations; requires monitoring, reporting and recordkeeping of emissions; requires BACT on emission sources	Will not exceed NO <sub>x</sub> or SO <sub>x</sub> allocations, will perform required monitoring, reporting and recordkeeping, will install BACT as required
	SCAQMD Regulation XXX: Title V Operating Permits	Title V air pollution control permit system implemented to comply with the federal Clean Air Act (CAA) as amended in 1990	Will apply for amended Title V permit, will meet requirements of CAA
	Acid Rain Permit, SCAQMD Reg. XXXI, (40 CFR Parts 72 - 79 incorporated by reference)	VGS is a federally listed Phase II Acid Rain facility requiring a permit.	Will submit application for permit modification.
County of Los Angeles, Fire Planning and Prevention Division	Permit for AST and storage of flammable materials; business disclosure form, building plan check	Required for ASTs and areas where storage of flammable materials occur; required for storage of hazardous materials; required to review plans for construction	Submission of appropriate AST permit
	California Accidental Release Prevention (CalARP)	Required to revise the Risk Management Plan (RMP)	Develop/ modify RMP if required
Los Angeles County Department of Public Works	Wastewater discharge approval	Required when discharging into sewer	Will modify permits if required

## **2.6 Construction**

### **2.6.1 Schedule**

The Compliance Agreement between the SCAQMD and LADWP specifies the timeframe for the proposed project. Construction activities, including demolition, site preparation and construction, are scheduled to begin in the spring of 2002 and continue through the summer of 2003. Construction activities are anticipated to take place six days per week, Monday through Saturday, from 6:00 a.m. to 5:00 p.m. However, night and/or Sunday shifts may be required to ensure that construction activities stay on schedule.

### **2.6.2 Plan**

Prior to initiating construction, a detailed construction plan will be developed to identify necessary resources and to define the construction supervisory and technical field organization and staffing levels required for the project. The methods and procedures for sequencing and implementing construction operations will also be detailed in the construction plan. In addition, a project safety program will be developed consistent with federal and state requirements.

However, due to the aggressive schedule of this proposed project, some of the construction plans will not be available in time for inclusion in this [DraftFinal](#) EIR. Therefore, as a worst-case approach to analyzing the construction-related impacts associated with the proposed project, the SCAQMD will use as a template the construction impact analysis that LADWP undertook in its EIR for the Harbor Repowering Project (LADWP, 1993). In this analysis, LADWP analyzed the impacts associated with removing two steam boilers and associated STGs and installing two combustion turbines along with several small tanks.

Construction activities will require a laydown area within the existing facility to store equipment and materials. In addition, contractors may require that temporary trailers be located onsite for construction planning and management activities.

## **2.7 Operation of the Project**

Once complete, the proposed project will not require additional personnel to support operations at the VGS. The facility will operate 24 hours per day, seven days per week.

## **2.8 Project Termination and Decommissioning**

The estimated life of the modifications to the VGS is expected to be over 30 years. Equipment that is no longer effective may then be shut down and/or decommissioned, replaced, or modified in accordance with applicable regulations and market conditions prevailing at the time of termination. Decommissioning would likely involve a combination of salvage or disposal in accordance with applicable federal, state, and local regulations, as well as site restoration consistent with the surrounding land use and zoning laws.