STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of:	)	**Docket No. 00-AFC-14C**
	)	
	)	
EL SEGUNDO POWER	)	**PETITION TO AMEND FINAL**
REDEVELOPMENT PROJECT	)	**DECISION**
	)	
EL SEGUNDO ENERGY CENTER LLC	)	
	)	

PETITION TO AMEND FINAL DECISION

April 16, 2012

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I. INTRODUCTION

This Petition seeks to amend the Final Decision[1] issued by the California Energy Commission ("CEC" or "Commission") to El Segundo Energy Center LLC ("ESEC or Petitioner") for the El Segundo Power Redevelopment Project (CEC Docket No. 00-AFC-14C; herein referred to as "ESPR Project"). Petitioner submits this Petition to request minor modifications to the CEC's Final Decision for the ESPR Project. The instant Petition provides the information required under Title 20, California Code of Regulations,[2] section 1769. Petitioner also provides additional analysis of the proposed modifications in the enclosed Petition to Amend document prepared on behalf of Petitioner by its consultants AECOM ("Supplemental Analysis").

[1] The Commission issued its Final Decision on the ESPR Project application for certification on February 2, 2005 and approved ESEC's major amendment petition on June 30, 2010.

[2] All references to the California Code of Regulations herein refer to Title 20 unless otherwise specified.

II. SUMMARY OF PROPOSED CHANGES

Petitioner requests changes to the Final Decision for the ESPR Project based on factors that were not known the time of the Final Decision and new information that Petitioner has received from third parties. First, Petitioner has been provided final design information by its gas turbine supplier, Siemens, that varies from the preliminary design information that was available in 2007, at the time Petitioner filed a Petition to Amend ("PTA") the CEC's Final Decision for the ESPR Project to change the project design to Siemens equipment. The final design information now available from Siemens changes the anticipated aqueous ammonia flow rate to the gas turbine selective catalytic reduction ("SCR") system during certain transient operating modes, in order to control nitrogen oxide ("NOx") to permitted levels. Therefore, Petitioner requests a change to the range of ammonia injection rates specified in Air Quality Condition of Certification AQ-2 to comport with estimated operational parameters of the Siemens turbines and to ensure compliance with maximum permitted levels of NOx.

Second, Petitioner has determined that it is not viable to construct and operate an ammonia pipeline from the neighboring Chevron Refinery, as proposed in the 2007 PTA along with the potential delivery of ammonia via truck, given the decreased ammonia demand at the facility as a result of a variety of regulatory factors. With the elimination of the pipeline option, the ESPR Project will only receive ammonia deliveries to the existing onsite storage tank by tanker truck. Therefore, the requirement for a venturi scrubber on the ammonia storage tank to control emissions during refilling of the tank by pipeline, as provided in Air Quality Condition of Certification AQ-31, is no longer necessary.

The requirements of Air Quality Conditions of Certification AQ-2 and AQ-31 are reflected in South Coast Air Quality Management District ("SCAQMD") RECLAIM/Title V

Permit Conditions D12.11 and E57.2, respectively. Petitioner has requested that SCAQMD revise these air permit conditions, consistent with the changes proposed herein for AQ-2 and AQ-31. The proposed changes to AQ-2 and AQ-31, and the corresponding air permit conditions, are discussed in further detail in the accompanying Supplemental Analysis.

Finally, Petitioner requests that the name of the project be changed from the El Segundo Power Redevelopment Project to the El Segundo Energy Center Project. Petitioner requested and received approval from the Commission to transfer ownership of the ESPR Project to El Segundo Energy Center LLC when the previous owner, El Segundo Power II LLC, was dissolved as an entity in 2008. Petitioner now requests that the name of the project be changed to El Segundo Energy Center Project to reflect the CEC-approved change in ownership and make the name of the project consistent with the owner's name. Because this particular modification is an administrative change only, Petitioner does not provide further analysis of this requested change.

III. INFORMATION REQUIRED PURSUANT TO CALIFORNIA CODE OF REGULATIONS SECTION 1769

A. Complete description of the proposed modifications, including new language for any conditions that will be affected. (Section 1769(a)(1)(A).)

The proposed modifications to the ESPR Project necessitate two changes to the Final Decision: a change in the permissible range of aqueous ammonia flow rates to the SCR units (Condition of Certification AQ-2) and elimination of the requirement for the aqueous ammonia storage tank to be equipped with a scrubber (Condition of Certification AQ-31). Below is a more thorough overview of these changes. A comprehensive analysis of the proposed changes is presented in the accompanying Supplemental Analysis.

1. Modification to Condition of Certification AQ-2.

Condition of Certification AQ-2 currently limits aqueous ammonia flow to the gas turbine SCR units to between 4.8 and 11.5 gallons per hour. This range in the aqueous ammonia rate was provided in the 2007 PTA based on preliminary design information provided by the gas turbine manufacturer, including the assumption that the gas turbine outlet NOx concentration was 9 parts per million ("ppm") at 15 percent oxygen ("O_2"). However, final design information provided recently by Siemens shows that during some transient operating modes, the gas turbine NOx outlet could be as high as 25 ppm at 15 percent O_2. At this gas turbine outlet NOx level, the 29 percent aqueous ammonia flow rate necessary to control NOx levels to the permitted level of 2.0 ppm at 15 percent O_2 could be as high as approximately 48.9 gallons/hour for each gas turbine/SCR unit. If a compliance margin of 50 percent is added to this maximum flow rate to account for possible short term spikes in NOx levels, the revised maximum aqueous ammonia flow rate would be approximately 75 gallons/hour.

In addition to the proposed change in the maximum allowable aqueous ammonia flow rate, Petitioner seeks to change the minimum aqueous ammonia flow rate permitted in Condition of Certification AQ-2. This is necessary because there will often be times during steady-state operation when the gas turbine outlet NOx concentration could be very low (i.e., well below 9 ppm at 15 percent O_2), which will correspond to relatively low aqueous ammonia flow rates. Because compliance with the NOx permit limit of 2.0 ppm will be done with the CEM system and compliance with the ammonia slip limit will be assessed with a calculation approach using SCR inlet/outlet NOx levels, there is little need for a minimum aqueous ammonia flow limit in the SCAQMD permit or in the corresponding limits in Condition of Certification AQ-2. However, it is Petitioner's understanding from discussions with SCAQMD staff that a minimum

ammonia flow number must remain in the air permit for Title V monitoring purposes. Therefore, to keep a minimum aqueous ammonia flow number in the air permit and to also allow for low ammonia flow rates when gas turbine NOx outlet levels are low, Petitioner requests a change in Condition of Certification AQ-2 to a minimum aqueous ammonia flow rate of 1 gallon/hour. While Petitioner recognizes there are probable operating conditions (i.e., minimum load, gas turbine outlet NOx levels) where the aqueous ammonia flow rates would be expected to exceed 1 gallon/hour, a Condition of Certification allowing for 1 gallon/hour, coupled with the anticipated maximum aqueous ammonia flow rate will amply cover the range of operating conditions and associated aqueous ammonia flow rates to comply with NOx emission limits. Therefore, Petitioner requests that the Commission approve the following changes to Condition of Certification AQ-2:

> The operator shall install and maintain a flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH_3) to the SCR to combined cycle turbines 5 and 7. The operator shall also install and maintain a device to continuously record the parameter being measured. It shall be calibrated once every twelve months. The ammonia injection rate shall remain between ~~4.8~~ **1** gallon~~s~~ per hour and ~~11.5~~ **75** gallons per hour.
> Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

2. Deletion of Condition of Certification AQ-31.

Condition of Certification AQ-31 requires the aqueous ammonia storage tank to vent to a two-stage venturi scrubber during tank loading. The Final Decision included this requirement because it was anticipated at that time that the ammonia storage tank would primarily be filled via a pipeline from the nearby Chevron Refinery, with delivery via tanker truck as necessary during pipeline outages. Due to a number of factors, discussed in more detail below and in the Supplemental Analysis, ESEC is proposing to eliminate construction of the new ammonia

pipeline from the ESPR Project. Instead, the ESPR Project will rely on tanker truck deliveries to replenish the required aqueous ammonia, as El Segundo Generating Station ("ESGS") does now.

Condition of Certification AQ-30, requiring that the ammonia storage tank be vented during filling only to the vessel from which it is being filled, addresses potential venting of emissions during filling of the storage tank via tanker truck, by requiring that the storage tank be vented only to the tanker truck during filling. In this manner, no emissions will be vented to the atmosphere during the filling of the storage tank by tanker truck. This Petition seeks to amend the Final Decision by deleting Condition of Certification AQ-31, as the facility will not refill the ammonia storage tank via pipeline and it is therefore not necessary for the aqueous ammonia storage tank to be equipped with a scrubber. In fact, allowing the tank to vent to the atmosphere through the venturi scrubber would not be appropriate, considering potential emissions are better controlled through the requirements of AQ-30. Consequently, Petitioner requests that the Commission delete Condition of Certification AQ-31. In accordance with this request, Petitioner is also asking that SCAQMD remove Condition E57.2 and Control Device C64 (the storage tank scrubber) from the facility's air permit.

3. Change of Name of Facility

The final modification presented in this Petition is to the project name. More specifically, the original proceeding approved the El Segundo Power Redevelopment Project – or the ESPR Project. Herein, Petitioner requests the Commission change the name of the project from the ESPR Project to the El Segundo Energy Center Project. This modification will allow the project name to reflect the name of the current owner, El Segundo Energy Center LLC. As this modification will have no substantive impact, no further analysis was conducted for this proposed change.

B. The Necessity for the Proposed Modification. (Section 1769(a)(1)(B).)

Section 1769(a)(1)(B) requires a discussion of the necessity of the proposed modifications. Both of the proposed modifications to the ESPR Project and the related Air Quality Conditions of Certification are necessary. The shift in the estimated range of aqueous ammonia injection rates is directly related to final design information provided by the turbine manufacturer. It is necessary to change the permissible range of aqueous ammonia injection rates in accordance with this new information so that the new ESPR Project units can maintain compliance with permit limits of 2.0 ppm NOx during certain transient operating conditions.

The option for delivery of aqueous ammonia via pipeline from the Chevron Refinery is no longer viable, given the decreased demand for ammonia by the ESPR Project and the existing ESGS that is now evident. With emissions reduction credits ("ERCs") from the SCAQMD Priority Resource no longer available, in the 2007 PTA ESEC proposed the shutdown ESGS Unit 3 in order to provide the ERCs necessary to operate the new ESPR Project units. In order to comply with the new State Water Resources Control Board Once-Through Cooling Policy for the Use of Coastal and Estuarine Waters for Power Plant Cooling by the deadline of December 31, 2015, ESEC will shutdown ESGS Unit 4 earlier than otherwise anticipated. In the remaining time that ESGS Unit 4 will operate, its operating hours will be significantly reduced in order to meet the emissions limits for fine particulate matter within the ESGS air permit. As more fully discussed in the Supplemental Analysis, these circumstances have conspired to significantly reduce the combined ammonia demand of the ESPR Project and ESGS, such that the construction of a new ammonia pipeline from the Chevron Refinery is no longer supported. Therefore, it is necessary for the proposed ammonia pipeline to be eliminated as part of the ESPR Project

With the elimination of the construction of an ammonia pipeline, it is necessary to delete Condition of Certification AQ-31 to ensure that a venturi scrubber is not installed on the existing aqueous ammonia storage tank. It would not be appropriate to vent ammonia emissions from the tank through the scrubber where the tank is not being refilled via pipeline. Condition of Certification AQ-30, which would remain unchanged, will ensure that ammonia emissions are not inappropriately vented during tank refilling, by requiring that any emissions are vented back to the tanker truck.

The modest changes to the ESPR Project now proposed would not necessary, but for the approval of the ESPR Project in 2010 and the changes to the approved project design that have come to light as details related to the operation of the new units are finalized.

The CEC evaluated the environmental impacts of the ESPR Project through the application for certification ("AFC") process, as well as during the subsequent PTA proceeding. The proposed modifications must be addressed as an amendment to the 2005 Commission Decision for the ESPR Project and 2010 amendment of that Decision, rather than as a separate project. The proposed modifications are a "but-for" consequence of the AFC and PTA proceedings and, therefore, must be evaluated as part of the ESPR Project, rather than as a new or independent project. (*San Joaquin Raptor/Wildlife Rescue Ctr. v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 731-34 (noting that the development and necessary sewer expansion to serve the development were part of the same project and were improperly addressed in two separate environmental review documents); *see also Laurel Heights Improvement Ass'n of San Francisco, Inc. v. Regents of the Univ. of California* (1988) 47 Cal.3d 376, 396-98 (noting that environmental review documents must address reasonably foreseeable consequences of a project and their effects).) Accordingly, addressing the proposed modifications as wholly separate from

or outside of the ESPR Project would be improper piecemealing of the project. (*San Joaquin Raptor/Wildlife Rescue Ctr.*, 27 Cal.App.4th at 734.)

C. The Proposed Modifications Are Based Upon Information Previously Unknown to Petitioner. (Section 1769(a)(1)(C).)

Section 1769(a)(1)(C) requires a discussion of whether the proposed changes are based on information previously known by Petitioner. In this case, Petitioner was not aware of the need for the proposed modifications at the time of the original AFC proceeding nor at any time during subsequent PTA proceedings. As previously discussed, new information has been provided to Petitioner from Siemens related to the range of ammonia injection rates that will be necessary to achieve 2 ppm NOx emissions limits. The information was not available when the 2007 PTA was submitted, nor before the 2010 Decision was issued approving the PTA. In fact, Siemens provided its best estimates at that time based on the preliminary design of the units. Likewise, Petitioner was unaware at the time of the 2007 PTA that the option for delivery of ammonia via pipeline would not come to fruition. However, it is now appropriate to remove that option and ensure the proper containment of ammonia emissions through the deletion of AQ-31.

D. The Proposed Modifications Do Not Change or Undermine the Assumptions, Rationale, or Other Bases of the Final Decision. (Section 1769(a)(1)(D).)

The Proposed modifications to Air Quality Conditions of Certification AQ-2 and AQ-31 do not change or undermine the assumptions, rationale, or other bases of the Final Decision approving the ESPR Project or the Commission's amendment of the Final Decision in 2010. In 2010, the Commission voted in favor of Petitioner's PTA to modify the design of the ESPR Project to employ new rapid response combined cycle gas turbine technology and eliminate once-through seawater cooling. The instant Petition does not alter or undermine these previously approved changes, or any other major elements or characteristics of the ESPR Project. The

minor modifications now proposed are the result of (1) final design information provided by the gas turbine manufacturer, that could not have been known at the time the preliminary design for the ESPR Project was developed, and (2) an option for aqueous ammonia delivery that is no longer viable. The core components and rationale for approval of the ESPR Project, as an air-cooled, rapid response peaker project, remain unchanged with these minor modifications.

With respect to the elimination of pipeline delivery of ammonia, aqueous ammonia is currently delivered to the existing El Segundo Energy Center facility via tanker truck. This method of delivery of ammonia to the ESPR Project was retained in the AFC and the 2007 PTA, as it was anticipated that truck delivery of ammonia would still be necessary during periodic planned or unplanned outages of the planned ammonia pipeline. Therefore, while the AFC anticipated that ammonia would primarily be delivered via pipeline to the ESPR Project, delivery of ammonia by truck was also fully evaluated and approved by the Commission. Thus, the proposed modification to eliminate pipeline delivery and the associated environmental mitigation measure in Condition of Certification AQ-31 does not change or undermine the underlying assumptions presented in the AFC or the 2007 PTA related to supply of aqueous ammonia, as approved by the Commission.

E. An Analysis of the Impacts the Proposed Modifications May Have on the Environment and Proposed Measures to Mitigate Any Significant Adverse Impacts (Section 1769(a)(1)(E).)

The proposed modifications will not have a significant adverse impact on the environment. A thorough analysis of the effects of the proposed modifications is set forth in the accompanying Supplemental Analysis.

F. The Impacts of the Modification of the Facility's Ability to Comply with Applicable LORS (Section 1769(a)(1)(F).)

Petitioner believes the proposed modifications will not impact the ESPR Project's ability

to comply with all applicable laws, ordinances, regulations or standards ("LORS"); an explanation of the project's continued compliance with LORS is provided in the accompanying Supplemental Analysis.

G. How the Proposed Modifications May Affect the Public (Section 1769(a)(1)(G).)

The proposed modifications have a very low potential for an effect on the public. Petitioner has conducted a thorough analysis of the proposed modifications, including potential impacts to the public, which is provided in the accompanying Supplemental Analysis. This analysis shows that proper mitigation measures are in place such that the potential for adverse impacts to the public from the proposed changes is insignificant.

H. Potential Effect on Property Owners, the Public, and the Parties to the Application Proceeding (Section 1769(a)(1)(H) and (Section 1769(a)(1)(I).).)

Nearby property owners are not expected to be affected by the proposed modifications. A complete analysis of the proposed modifications and potential impact to property owners, the public, and other parties is set forth in the accompanying Supplemental Analysis. As required by Section 1769, a list of potentially affected property owners has been provided in conjunction with the Petitioner's Petition to Amend.

IV. CONCLUSION

For all the reasons above, and as set forth in the accompanying Supplemental Analysis, Petitioner requests the Commission approve the proposed modifications to the ESPR Project.

Dated: April 17, 2012

By:_____

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SUPPLEMENTAL ANALYSIS

(APRIL 2012)

El Segundo Power Redevelopment Project

Petition to Amend Ammonia Delivery Method, Permitted Ammonia Flow Rate and Project Name Change

Submitted to the:

California Energy Commission

Prepared By:

AECOM

999 Town and Country Road, Orange, CA

Prepared for:

El Segundo Energy Center LLC

April 2012

El Segundo Power Redevelopment Project

Petition to Amend
Ammonia Delivery Method, Permitted Ammonia Flow Rate and Project Name Change

El Segundo Energy Center LLC

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Appendix B: List of Interested Parties

1.0 INTRODUCTION

1.1 Project History and Overview of Amendments

El Segundo Energy Center LLC (ESEC) is requesting minor amendments to the El Segundo Power Redevelopment Project (ESPR Project), as approved by the California Energy Commission (CEC) Final Decision on February 2, 2005 (Final Decision) and amended in June 2010 by the Commission Decision on Amendment (Amended Final Decision).

This Petition to Amend (PTA) for Ammonia Delivery Method, Permitted Ammonia Flow Rate and Project Name Change describes the requested Project modifications and provides an environmental analysis of the potential effects of the proposed changes. Potential environmental impacts associated with the ESPR Project were fully evaluated in the Project's Application for Certification (AFC), the CEC's 2002 Final Staff Assessment (FSA), the 2005 Final Decision, ESEC's 2007 Petition to Amend the ESPR Project, the CEC's 2010 Revised Staff Analysis, and the CEC's 2010 Amended Final Decision. Therefore, this PTA only considers potential changes in impacts that may occur as a result of the ESPR Project modifications proposed in this PTA.

The first requested ESPR Project modification (i.e., "Ammonia Delivery Method") is the elimination of construction of a new ammonia supply pipeline, delivery of ammonia to the ESPR Project via this pipeline, and installation of equipment to control ammonia emissions during pipeline delivery of ammonia to an existing underground storage tank. With this change, the ESPR Project would therefore retain the option for ammonia to continue to be delivered via tanker truck, as the existing generation units at the ESPR Project site have historically received ammonia via tanker truck for existing Selective Catalytic Reduction (SCR) systems. The 2005 Decision and the 2010 Amended Decision allow for ammonia delivery via tanker truck in event of interrupted ammonia delivery via pipeline.

The second requested ESPR Project modification (i.e., "Permitted Ammonia Flow Rate") is the proposed change to the range of the ammonia flow rates specified in the Amended Final Decision and Condition D12.11 of the Facility RECLAIM/Title V permit issued by South Coast Air Quality Management District (SCAQMD). The proposed ammonia flow rates in this amendment will reflect recent operating data provided by the gas turbine manufacturer.

The last requested ESPR Project modification is a request to change the project name from El Segundo Power Redevelopment Project to El Segundo Energy Center Project in order to align the project name closely to the project owner, El Segundo Energy Center LLC. The project owner was changed to El Segundo Energy Center LLC via a PTA in 2008. This amendment is a purely administrative change and therefore no environmental evaluation of this request is provided.

As part of the evaluation set forth herein, the Project's final Conditions of Certification were reviewed and proposed changes to affected Conditions are provided.

1.2 Consistency of Amendment with License

Section 1769(a)(1)(D) of the CEC Siting Regulations requires a discussion of the Amendment's consistency with the requisite laws, ordinances, regulations, and standards (LORS) and whether the modifications are based upon new information that changes or undermines the assumptions, rationale, findings, or other bases of the Final Commission Decision for the ESPR Project. If the Project is no

longer consistent with the license, an explanation of why the modification should be permitted must be provided. The sections that follow provide an explanation of the proposed modification, rationale for the proposed modification, and a LORS compliance analysis. Proposed changes to the existing Conditions of Certification are discussed with the impacts analyses in Section 3.0.

1.3 Necessity of Proposed Changes

Sections 1769(a)(1)(B) and 1769(a)(1)(C) of the CEC Siting Regulations require a discussion of the necessity for the proposed changes to the Project and whether this modification is based on information known by the petitioner during the certification proceeding. This information is provided in detail in this Petition to Amend and is summarized briefly below.

1.3.1 Ammonia Delivery Method Change

Relative to the proposed change of the ammonia delivery method, which would result in the ammonia pipeline not being installed for the Project, this PTA is based on information that was not available or foreseen by Applicant at the time of licensing before the CEC. At the time of original licensing, the ESPR Project was conceived of as a base-loaded facility whose generating capacity would result in a significant use of ammonia for emissions control purposes. At the time of licensing and Final Decision, the existing generation (Units 3 and 4) were intended to continue to be available as base-loaded steam boilers that require ammonia for the respective SCR system. The project ammonia demand supported construction of an ammonia supply pipeline directly from the nearby Chevron El Segundo Refinery with Chevron as the intended supplier of ammonia.

Modifications subsequently approved by the CEC included the use of Siemens Rapid Response Combined Cycle (R2C2) technology to significantly reduce startup emissions, deliver substantial megawatts more quickly to the grid, and eliminate the need for cooling water discharge to the ocean or to a Publicly Owned Treatment Works. The amended plant design included a change in operation scenario from a base-loaded facility to a peaking plant with the efficiency of a base-loaded plant. Since the processing of the 2007 Petition to Amend, several state and federal regulations and local air district (i.e., SCAQMD) rules have been changed that have affected the future operating status of existing Units 3 and 4 at El Segundo Generating Station. Namely, the California Water Resources Control Board's Statewide Once-Through Cooling (OTC) Policy for the Use of Coastal and Estuarine Waters for Power Plant Cooling (State OTC Policy), which implements federal Clean Water Act (CWA) Section 316(b) regulations, requires that Units 3 and 4 come into compliance with the Policy by December 31, 2015. El Segundo Generating Station has indicated that it would shutdown and replace these Units (as feasible) to comply with the Policy, thereby eliminating the ammonia demand of these steam boilers in the near term. Also, the recent change of SCAQMD Rules 1309.1 (Priority Reserve) and 1315 (internal offset bank) eliminated the availability of air district internal credits to power plants for purchase to offset the emissions from new sources such as the Siemens R2C2 units. Consequently, for the Final Amended Decision, ESEC elected to shutdown Unit 3 at the time of commissioning of the new Siemens units (by 2013) to fully offset the emissions; this permit change driven by SCAQMD rules therefore eliminates the future ammonia demand of Unit 3 in the more immediate timeframe. In addition, to not trigger new source review for new sources of fine particulate matter (PM2.5), ESEC elected at the time of processing the Final Amended Decision to place a PM2.5 cap of 100 tons per year on the El Segundo Generating Station. Assuming the Siemens units run to the 60% contractual capacity factor assumed in the Title V permit analysis, operating hours of Unit 4 will be significantly less than its potential to emit (i.e., estimated up to 40% capacity factor).

Therefore, due to the above changes that were not known or foreseeable at the time of the licensing of the ESPR Project, a necessity to change the ESPR Project to modify the ammonia delivery method (i.e., elimination of the ammonia pipeline from the Chevron Refinery) has been established. The resulting

change would therefore result in one of the Air Quality Conditions of Certification being no longer needed, and hence could be deleted.

1.3.2 Permitted Ammonia Flow Rate Changes

Regarding the proposed modification to the ammonia flow rates, this PTA is also based on information that was not available or foreseen by the Applicant/ESEC at the time of licensing the ESPR Project. Final design information provided recently by Siemens, the turbine manufacturer, shows that during some transient operating modes, the gas turbine nitrogen oxide (NOx) emissions could be either higher or lower than previously understood. In order to ensure that ammonia flow is sufficient to control NOx emissions to permit levels, and simultaneously control ammonia slip, ammonia flow must be carefully controlled during the transient periods of both low and high NOx emission potential. Based on the new data provided by Siemens, both the minimum ammonia flow and the maximum ammonia flow must be adjusted to ensure NOx and ammonia slip permit limits are maintained during all possible turbine operating scenarios in compliance with the facility RECLAIM/Title V permit and the associated Condition of Certification AQ-2 in the Amended Final Decision.

1.4 Cumulative Impacts

Section 3.0 provides an analysis of potential impacts of the proposed modifications to each environmental area and a cumulative impact assessment is included within the discussion. As shown in Section 3.0, the modifications discussed herein will not result in significant, unmitigated cumulative impacts, and the proposed modifications will not change the assumptions or conclusions made in the Amended Final Decision.

1.5 Compliance with Laws, Ordinances, Regulations, and Standards

The Final Decision and Amended Final Decision certifying the ESPR Project concluded that the Project complied with all applicable LORS. As discussed in Section 3.0, the proposed modifications will not affect the Project's ability to comply with all applicable LORS.

2.0 PROPOSED PROJECT MODIFICATIONS

2.1 Ammonia Delivery Method: Pipeline Elimination

ESEC proposes a Project modification to eliminate the construction of a new ammonia supply pipeline for delivery of ammonia to the Project. This change would also eliminate the necessity of installing equipment on the existing ammonia storage tank to control the release of emissions during delivery of ammonia via pipeline.

The ESPR Project will utilize SCR to reduce combustion generated NOx emissions to less than the maximum levels permitted in the Amended Final Decision and the Project's air permit. Aqueous ammonia (29% ammonia and 71% water) will be used as a reactant within a catalyst to break down NOx emissions to water vapor and nitrogen. The Amended Final Decision provides that ammonia will be stored in an existing 20,000-gallon capacity, double-walled underground storage tank (UST), which is equipped with leak detectors, pressure relief valves and gauges for temperature and pressure. This tank serves the currently operating units at El Segundo Generating Station and is filled via periodic tanker truck deliveries.

As part of the ESPR Project, deliveries of aqueous ammonia were to be facilitated through construction of a proposed pipeline from the Chevron El Segundo Refinery located across Vista del Mar Boulevard, east of the facility, instead of relying exclusively on tanker truck deliveries. The bulk of the pipeline was to run aboveground, with a section routed underground beneath Vista del Mar Boulevard. The pipeline was to be designed and built in accordance with prevailing engineering standards and requirements, including valves and leak detection equipment. Due to the potential need for both planned and unplanned maintenance on the pipeline conducted onsite or offsite by Chevron (and therefore out of the control of ESEC), delivery of ammonia by tanker truck will continue to be required as allowed by the ESPR Project Final Decision (and Final Amended Decision).

In accordance with the Amended Final Decision Conditions of Certification, ESPR Project air permits, and standard ammonia delivery practices, ammonia vapors within the UST which are displaced during tanker truck deliveries are routed to the tanker truck via a vapor return system. The filling operation via tanker truck is therefore a 'closed loop' system designed to eliminate any tank venting at the Project site. It is not possible to implement such a closed loop arrangement during filling of the UST via the proposed pipeline. Instead, the tank would have been vented through a two-stage venturi scrubber to process the ammonia vapors during filling of the tank from the pipeline, as provided by Condition of Certification AQ-31. This type of scrubber is a highly efficient (though not 100% efficient) control device for ammonia vapors.

The proposed Project modification eliminates the previously approved construction of the ammonia delivery pipeline, and provides for the continued delivery of ammonia only via tanker truck. Based on the elimination of the pipeline, the closed loop vapor exchange method utilized in tanker truck deliveries will control ammonia vapor emissions, and therefore the proposed addition of a two-stage venturi scrubber on the UST would also be eliminated from the Project. Accordingly, this PTA seeks to delete Condition of Certification AQ-31 in its entirety, as follows:

~~***AQ-31****: The operator shall vent this equipment to the two-stage venturi scrubber described as Device C64 whenever the tank is undergoing loading of ammonia.*~~

~~***Verification**: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.*~~

Without the ammonia pipeline feeding directly to a storage tank, parts of the existing Condition of Certification **HAZ-3** are no longer needed and should be deleted, as follows:

HAZ-3 *The project owner shall revise the existing CalARP Program Risk Management Plan (RMP)**, as needed to comply with the regulations**. Similarly, the project owner shall also revise its existing RMP pursuant to the USEPA RMP Program.* ~~*Both RMPs shall be expanded to include discussions to prevent and control the accidental release of ammonia from the pipeline. Those discussions shall elaborate on the various safety devices selected for the pipeline including double sleeve construction, provisions for backup safety devices, protective shut-in actions, emergency support systems, monitoring programs and personnel training, as a minimum. The shut-in actions shall include responses to pipeline overpressures and also leaks.*~~

ESEC also proposes the removal of permit condition E57.2 from the RECLAIM/Title V permit for this Project. A copy of the request for minor revisions to the RECLAIM/Title V permit for the ESPR Project, as filed on March 16, 2012 with SCAQMD, is included as Appendix A of this PTA.

Based on the most recent projections of ammonia needs to control NOx to the permit-specified level of 2.0 parts per million (ppm), and the likely turbine operating hours on an annual basis for Unit 4 (existing steam boiler), 5 and 7, with a 10% contingency, it is estimated that the plant's ammonia need will be up to approximately 350,000 gallons per year, but will drop off further when Unit 4 is currently anticipated to retire by December 31, 2015 in compliance with State OTC Policy. This amount is equivalent to slightly more than one tanker truck delivery per week, based on an average delivery volume of 5,000 gallons.

2.2 Ammonia Flow Rate Range Change

ESEC proposes a second Project modification to change the permissible range of ammonia flow rates to the SCR system, in order to control NOx emissions through the SCR to less than the maximum permit limit of 2.0 ppm.

A range of ammonia injection rates of between 4.8 gallons per hour and 11.5 gallons per hour was originally anticipated, based on preliminary design information provided by the gas turbine manufacturer, Siemens, including the assumption that the gas turbine outlet NOx concentration is 9 ppm @ 15% oxygen (O_2). This information was provided to the CEC with ESEC's 2007 PTA, as well as to SCAQMD during the 2007 permitting of the gas turbines.

Final design information provided recently by Siemens shows that during some transient operating modes, the gas turbine NOx outlet could be as high as 25 ppm @ 15% O_2. At this gas turbine outlet NOx level, the 29% aqueous ammonia flow rate necessary to control NOx levels to the permitted level of 2.0 ppm @ 15% O_2 could be as high as approximately 48.9 gallons/hour[1] for each gas turbine/SCR unit.

[1] Based on a gas turbine outlet NOx level of 25 ppm @15% O_2, stack NOx level of 2 ppm @ 15%O_2, full load operation at 2,096 MMBtu/hr, ammonia (NH_3) slip of 5 ppm @ 15% O_2, exhaust flow rate of 64,670,126 dscf/hr, NOx SCR inlet of 4.1961 lb-mole/hr, NOx SCR outlet of 0.3357 lb-mole/hr, NOx reduction of 3.8604 lb-mole/hr, NH_3 required for NOx reduction 5.4046 lb-moles/hr (based on Siemen's assumption of 1.4 lb-mole NH_3/1 lb-mole NOx based on 40% NO_2/60% NO in exhaust), NH_3 required 316.8 lbs/hr (based on 17 lbs/lb-mole of NH_3 and 29% aqueous ammonia), NH_3 slip of 0.8392 lb-mole/hr, NH_3 slip of 14.27 lbs/hr (based on 17 lbs/lb-mole NH_3 and 29% aqueous ammonia). Total aqueous ammonia required = 366.0 lbs/hr or 48.9 gallons/hr (based on 29% aqueous ammonia density of 7.48 lbs/gallon).

If a compliance margin of 50% is added to this maximum flow rate to account for possible short term spikes in NOx levels, the revised maximum aqueous ammonia flow rate would be approximately 75 gallons/hour.

In addition to a change in the maximum allowable aqueous ammonia flow rate, a change is needed to the minimum allowable aqueous ammonia flow rate. This change is necessary because there will often be times during steady-state operation when the gas turbine outlet NOx concentration could be very low (i.e., well below 9 ppm @ 15% O_2), which will correspond to relatively low aqueous ammonia flow rates. Because compliance with the NOx permit limit of 2.0 ppm will be done with the continuous emissions monitoring (CEM) system and compliance with the ammonia slip limit will be assessed with a calculation approach using SCR inlet/outlet NOx levels, there is little need for a minimum aqueous ammonia flow limit in the facility license or air permit. However, it is our understanding from discussions with SCAQMD staff that a minimum ammonia flow number must remain in the permit for Title V monitoring purposes. Therefore, to keep a minimum aqueous ammonia flow number in the permit and to also allow for low ammonia flow rates when gas turbine NOx outlet levels are low, a minimum aqueous ammonia flow rate of 1 gallon/hour should be specified in the RECLAIM/Title V permit. While recognizing there are probably operating conditions (i.e., minimum load, gas turbine outlet NOx levels) where the aqueous ammonia flow rates would be expected to exceed 1 gallon/hour[2], a permit condition of 1 gallon/hour, coupled with the anticipated maximum aqueous ammonia flow rate, will amply cover the range of operating conditions and associated aqueous ammonia flow rates to comply with NOx emission limits.

Condition of Certification AQ-2 currently provides for an ammonia injection rate of between 4.8 gallons per hour and 11.5 gallons per hour. ESEC requests that AQ-2 be revised as follows:

AQ-2: *The operator shall install and maintain a flow meter to accurately indicate the total hourly throughput of injected ammonia (NH3) to the SCR in combined cycle turbines 5 and 7. The operator shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months. The ammonia injection rate shall remain between* ***1****~~4.8~~ gallon~~s~~ per hour and ~~11.5~~****75*** *gallons per hour.*

Verification: *The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).*

AQ-2, as currently written, is consistent with the facility's current RECLAIM/Title V Permit, Condition D12.11, which similarly limits the aqueous ammonia flow to the gas turbine SCR units to between 4.8 and 11.5 gallons per hour. ESEC has requested changes to the RECLAIM/Title V permit that correspond with its requested changes to AQ-2. A copy of the requested minor revisions is included in Appendix A.

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[2] Based on a gas turbine outlet NOx level of 5 ppm @15% O_2, stack NOx level of 2 ppm @ 15%O_2, low load operation at 1258 MMBtu/hr (60% of full load), NH_3 slip of 0 ppm @ 15% O_2, exhaust flow rate of 38,814,417 dscf/hr, NOx SCR inlet of 0.5037 lb-mole/hr, NOx SCR outlet of 0.2014 lb-mole/hr, NOx reduction of 0.3023 lb-mole/hr, NH_3 required for NOx reduction 0.4231 lb-moles/hr (based on Siemens assumption of 1.4 lb-mole NH_3/1 lb-mole NOx based on 40% NO_2/60% NO in exhaust), NH_3 required 24.8 lbs/hr (based on 17 lbs/lb-mole of NH_3 and 29% aqueous ammonia), NH_3 slip of 0 lbs/hr. Based on these assumptions relating to operating conditions, total aqueous ammonia required equals 24.8 lbs/hr or 3.3 gallons/hr (based on 29% aqueous ammonia density of 7.48 lbs/gallon).

In summary, the proposed change in the range of allowable ammonia flow rates is required to address transient conditions that could occur during turbine operations. The control of NOx emissions according to the levels mandated in the CEC license and the facility air permit remains a critical requirement under all operating conditions. This change in the Project ensure that these permit limits will be met.

2.3 Project Name Change

The Project owner, El Segundo Energy Center LLC, proposes to change the name of the Project from the “El Segundo Power Redevelopment” Project to the “El Segundo Energy Center” Project. This is requested not as a project change or modification, but simply as an administrative change which does not require formal evaluation under Section 1769 of Title 20 of the California Code of Regulations. The proposed name change reflects the CEC-approved change of ownership in 2008 to El Segundo Energy Center LLC and makes the name of the Project consistent with the owner’s name. This change would have no effect on the environment or the public and requires no substantive change to any existing Conditions of Certification. ESEC requests that if the proposed name change is approved, the Commission’s decision on the PTA include a statement that any reference in the ESPR Project’s Conditions of Certification to “El Segundo Power Redevelopment” or “ESPR” be considered a reference to the ESPR Project’s new name, “El Segundo Energy Center.”

3.0 ENVIRONMENTAL ANALYSIS

This section analyzes the potential impacts associated with the proposed Project Amendments:

1) The change in ammonia delivery method due to the elimination of the proposed ammonia pipeline; and

2) Expansion of the range of allowable ammonia injection rates for the SCR units, in order to control NOx emissions from the Project's combustion gas turbines.

The potential for impacts are analyzed in detail relative to air quality, hazardous materials, traffic/transportation, and worker safety/fire protection related to the change in ammonia delivery method. Only impacts to air quality are analyzed in detail for the change in the range of the permitted ammonia flow rate. For both changes, the potential for impacts from the remaining resource topics are summarized in two tables, one for each of the above changes.

3.1 Overview of the Proposed Changes

3.1.1 Ammonia Delivery Method

As described in the 2005 Final Decision, the ESPR Project will utilize the existing ammonia underground storage tank (UST) for storage of 29% aqueous ammonia to be supplied to the new SCR units to control NOx emissions from the natural-gas fueled combustion turbines. This tank also serves the existing units at the El Segundo Generating Station.

Previously, the ESPR Project proposed replacing current ammonia delivery via tanker truck with an ammonia supply pipeline from the nearby Chevron Refinery to minimize the anticipated increased truck deliveries of ammonia that would serve the base-loaded 2x1 combined cycle plant licensed in the 2005 Final Decision and the continued potential ammonia demand of base-loaded steam boiler Units 3 and 4. The ESPR Project also anticipated that delivery of ammonia by tanker truck would continue to be necessary to serve the based-loaded 2x1 combined cycle plant and Units 3 and 4 during scheduled or unplanned outages of the new pipeline.

The ESPR Project also included installation of a two-stage two-stage venturi scrubber on the existing ammonia UST to control ammonia vapors during tank filling via the pipeline.

Since the 2005 Final Decision, significant changes to the plant design, operating scenarios and regulations have collectively negated the presumed Project benefits of delivering ammonia to the El Segundo Generating Station via pipeline delivery. The analysis in the subsequent sections underscore that the Siemens R2C2 design and the operating scenarios as documented in the 2010 Amended Final Design will not have the ammonia demand of a based-loaded plant. Furthermore, the State OTC Policy requirements and SCAQMD rules for offsetting emissions from power plants have dictated the operating future of Units 3 and 4; these Units will retire in the near future, which was not assumed in the 2005 Final Decision, which significantly reduces the potential ammonia demand of the Project site from that assumed in the 2005 Final Decision. Unit 3 will retire by 2013 as part of the emissions offset package specified in Amended Final Decision and in the RECLAIM/Title V Permit to Construct, due to the unavailability of Rule 1309.1 (Priority Reserve) air credits for power plants since the 2005 Final Decision.

Unit 4 currently has restricted availability to operate (to an estimated 40% capacity factor) due to the PM2.5 cap of 100 tons/year placed on the facility; furthermore, Unit 4 is currently scheduled to retire by December 31, 2015 as means to comply with State OTC Policy requirements.

3.1.2 Ammonia Flow Rate Range

In 2007, with the submittal of the PTA to change the plant design to the Siemens R2C2 Units, the range of ammonia injection rates to the combustion turbines (i.e., Units 5 and 7) was projected based on preliminary design information, and the permit limits specified in the Amended Final Decision and the facility's RECLAIM/Title V permit. Based on this preliminary information, the range of ammonia injection flow rates necessary to ensure compliance with permit limits for NOx was calculated to be 4.8 to 11.5 gallons per hour.

Since that time, final turbine design information provided by the manufacturer indicates that the upper and lower emission rates for NOx emitted from the turbine, i.e., prior to control by the SCR units using ammonia, span a much wider range than was previously understood during the preliminary design phase. While these lower and higher NOx emission rates represent transient, short-term conditions, they must be taken into account when planning for emissions control, which must be maintained within the very stringent short-term permit limits under all foreseeable operational conditions. These permit limits include both NOx, which is maintained through the ammonia injection in the SCR units, and ammonia slip, which is essentially a limit on excess, unreacted ammonia. If ammonia injection rates are not carefully matched to turbine NOx emissions, either excess NOx emissions or excess ammonia slip may occur. It is therefore imperative that ammonia injection rates provide the required operational flexibility needed to ensure permit limit compliance.

The revised calculations of the range of ammonia injection rates needed to accommodate these potential transient conditions indicate that injection rates during minimal NOx emission conditions may need to be as low as 1 gallon per hour; and, during short-term high-NOx emissions periods, as high as 75 gallons per hour. ESEC notes that although these calculations result in injection rates expressed in gallons per hour, the duration of transient conditions is expected to be only minutes.

3.2 Air Quality

This section includes an evaluation of whether the proposed Project Amendments – elimination of construction of an ammonia delivery pipeline, installation of an associated two-stage venturi scrubber, delivery of ammonia to the Project only by tanker truck, and a change in the range of ammonia flow rates – will cause a significant adverse impact to air quality. The analysis concludes that no significant impacts will occur.

3.2.1 Description

3.2.1.1 Ammonia Delivery Method

Potential air quality impacts could be associated with either construction or operations related to the proposed changes.

As described in the AFC and FSA, construction of several linear facilities, including the reclaim water pipeline, a wastewater pipeline, and the aqueous ammonia pipeline, would produce construction-related emissions. Sources of construction-related emissions are: 1) fuel combustion emissions from equipment used to construct the facilities and delivery vehicles transporting construction supplies, and 2) emissions during earthwork of PM2.5 and respirable particulate matter (PM10).

Although relatively shorter than some of the other linear facilities being constructed as part of the Project, the ammonia pipeline construction would have contributed construction-related emissions. While these emissions would have been a minor contribution to the overall linear facility construction emissions, they nonetheless will be eliminated under the proposed Project Amendments to not construct the ammonia pipeline for the Project. Similarly, very minor emissions associated with installing a two-stage venturi scrubber on the UST are eliminated under the proposed Project Amendments. Therefore, the Project as amended would have a slightly lower impact on air quality related to emissions from Project construction activities.

Under the approved Project, operational emissions associated with the pipeline and venturi scrubber, supplemented with tanker truck deliveries as needed, would consist of 1) venting the UST, through the venturi scrubber, during filling from the pipeline, and 2) fuel combustion emissions associated with occasional ammonia tanker truck deliveries. By design there were no ammonia emissions from operation of the pipeline itself.

Under the proposed Project Amendments, UST venting would no longer occur and the two-stage venturi scrubber would be eliminated. During UST filling, displaced vapors will be vented back to the tanker truck to prevent the escape of ammonia. These vapors are then exchanged and/or vented at the off-site ammonia terminal.

Without the ammonia pipeline from the Chevron Refinery, ammonia would continue to be delivered via tanker truck to El Segundo Generating Station – a baseline at the time of the 2000 AFC and the current method of ammonia delivery at El Segundo Generating Station for the operation of existing Units 3 and 4. Elimination of the ammonia pipeline from Chevron would result in approximately one to two truck trips per week, as compared to an assumed two trips per year to support ammonia demand during potential ammonia pipeline maintenance/outages. Based on an increase in the number of tanker truck deliveries to the site to approximately one per week, operational fuel combustion emissions would increase under the proposed Amendments. In comparison to the entirety of emissions associated with ESPR Project operation, the increase in emissions associated with approximately one to two truck additional truck trips to the facility each week is negligible. The retirement of Unit 4 by December 31, 2015 would further reduce the ammonia deliveries to approximately one truck trip per week.

3.2.1.2 Ammonia Flow Rate Range

The other change that is being proposed in this PTA is an increase in the permitted range of flow rates for ammonia injection. Specification of an allowed range for the ammonia flow rate in the initial Determination of Compliance issued by the SCAQMD for the ESPR Project was seen as a way to minimize the ammonia slip associated with the SCR system for NOx control. As explained above, information obtained from the manufacturer indicates that the upper levels identified by the SCAQMD may not be sufficient to maintain compliance with stringent permit limits for NOx emissions during certain transient conditions. Conversely, the lower levels specified in the permit by SCAQMD are considerably greater than needed during the majority of steady-state operations, and maintaining such a high level as the minimum flow rate would actually lead to considerable excessive ammonia slip. Extending the range of allowed ammonia flow rates will provide ESEC with greater flexibility in maintaining NOx emission levels while still minimizing ammonia slip to the degree practicable.

3.2.2 LORS Compliance

There would be no additional applicable LORS relative to the proposed Project Amendments. Operation of the tanker trucks would continue to be subject to SCAQMD Rule 413.1. This rule establishes a sulfur content limit for diesel fuel of 0.05 percent by weight, as well as record keeping requirements and test methods.

With respect to the change in ammonia flow ranges, the proposed change requires SCAQMD to approve an identical change to permitting ammonia injection rates in the facility's RECLAIM/Title V permit.

3.2.3 Analysis

Continuing to use tanker trucks to supply the Project with ammonia rather than use of a planned ammonia pipeline and ammonia storage tank with a two-stage venturi scrubber for the Project as approved does not materially change projected air emissions associated with facility construction or operations.

The change to the ammonia injection flow rate range will improve the ability of the facility to meet its air emissions requirements provided in the Amended Final Decision's Air Quality Conditions of Certification and the RECLAIM/Title V permit.

3.2.4 Cumulative Impacts

The Project's activities affecting air quality are regulated by existing laws and regulations to prevent unacceptable off-site impacts and risks to the public. The proposed Project Amendments will not change any Project mitigation measures designed to reduce potential air quality impacts from the ESPR Project to less-than-significant levels. The proposed change in delivery method of ammonia to the Project will not cumulatively contribute to air quality impacts, as the modification will decrease emissions associated with construction and will only negligibly increase overall operational emissions. The proposed change in ammonia flow rates would not have any adverse impact to air quality and would ensure that NOx emissions from the Project comply with permit limits. No cumulative impacts are therefore expected as a result of this proposed change to the ESPR Project.

3.2.5 Conclusions and Recommendations

The proposed Project Amendments will not result in any significant or cumulative impacts related to Air Quality. In order to ensure that compliance with NOx emissions limits can be met, the proposed change to Condition of Certification AQ-2 as shown below is recommended. Deletion of Condition of Certification AQ-31 to remove unnecessary conditions is also recommended.

3.2.6 Proposed Modifications to Conditions of Certification

Based on the proposed Project changes and the foregoing analysis, the following highlighted changes are proposed to the existing AQ-2 Condition of Certification:

AQ-2: *The operator shall install and maintain a flow meter to accurately indicate the total hourly throughput of injected ammonia (NH3) to the SCR in combined cycle turbines 5 and 7. The operator shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months. The ammonia injection rate shall remain between* ***1*** *~~4.8~~ gallon~~s~~ per hour and* ***75*** *~~11.5~~ gallons per hour.*

Verification: *The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).*

ESEC is also requesting a change to the corresponding SCAQMD condition in the facility's RECLAIM/Title V Permit to ensure consistency between the Project's Condition of Certification and the RECLAIM/Title V Permit. When approved by SCAQMD, the revised RECLAIM/Title V Permit Condition

D12.11 will reflect the same ammonia flow rate range as revised Condition of Certification AQ-2, i.e., 1 gallon per hour to 75 gallons per hour.

The Conditions of Certification that control emissions associated with refilling of the ammonia tank via tanker truck and pipeline are AQ-30 and AQ-31, respectively. Based on the proposed elimination of the ammonia pipeline which retracts the need for the venturi scrubber, Condition of Certification AQ-31 is no longer needed and should be removed as a Project condition. Condition of Certification AQ-30 will remain in place to control potential emissions from refilling of the ammonia tank by truck, as shown below.

AQ-30*: The operation shall vent this equipment, during filling, only to the vessel from which it is being filled.*

Verification*: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.*

~~***AQ-31****: The operator shall vent this equipment to the two-stage venturi scrubber described as Device C64 whenever the tank is undergoing loading of ammonia.*~~

~~***Verification****: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.*~~

3.3 Hazardous Materials

This analysis evaluates whether the proposed Project Amendments – to eliminate construction of an ammonia delivery pipeline and associated production and operation of the ammonia delivery system at the Chevron refinery for ESEC's purposes, to eliminate installation of an associated two-stage venturi scrubber, and to deliver ammonia to the Project only by tanker truck – will cause a significant adverse impact as a result of the transportation, use, handling, storage, or disposal of hazardous materials.

3.3.1 Description

Under either the current approved Project, or the proposed Project Amendments, delivery of ammonia will occur during ESPR Project operations to supply the combustion turbine SCR units with ammonia to control NOx emissions. Elimination of the ammonia pipeline changes the primary ammonia delivery method that would have been used for the Project once it is completed. It also eliminates the production of ammonia and associated operation, maintenance, and safety contingencies of a dedicated ammonia delivery pipeline by Chevron on the Chevron refinery specifically for ESEC.

Aqueous ammonia is a hazardous chemical; it is both toxic and corrosive. Therefore, ammonia storage and distribution systems are subject to a variety of regulatory and code (e.g., Uniform Fire Code and local building code) requirements designed to minimize or eliminate fugitive emissions during ammonia handling and storage. As described in the AFC and the FSA, the impacts of ammonia use relate to the possibility of a process upset or accident that results in an ammonia discharge. Well-established, conservative modeling methods are utilized to predict the potential impact of an accidental ammonia release, such as the methods and guidance issued by U.S. Environmental Protection Agency (EPA) relative to the Risk Management Program requirements and the State of California's Accidental Release Prevention (CalARP) Program.

The potential impacts of a sudden and accidental ammonia release at the Project site were evaluated in the AFC and subsequent Response to Data Request (CEC Data Request #93, April 2001), using the methods and guidance issued by EPA and the CalARP Program. These offsite consequences analyses

(OCA) examined worst-case release impacts due to a) a rupture of the ammonia supply pipeline on the ESEC property between the property line and the existing UST, and b) a catastrophic release of the entire contents of an ammonia tanker truck as the result of an accident during truck unloading.

Consistent with EPA and CalARP guidance, the analyses intentionally applied unrealistically conservative assumptions regarding both the rate that ammonia is released to the air and how rapidly it disperses. In the case of a tanker truck accident, the analysis was especially conservative because it involved several unlikely factors. For example, the worst-case assessment assumed that the entire tank volume of aqueous ammonia, stored at 100°F, instantaneously spilled onto a flat smooth surface during a hot, calm night when the air temperature was also 100°F. Given that existing standard procedures preclude delivery of aqueous ammonia at night, and the average summertime high temperature in El Segundo is only 75°F, the stable dispersion conditions assumed in the worst-case risk assessment are generally unrealistic. Furthermore, any release of ammonia from a tanker on the El Segundo Generating Station would be limited to approximately 100 foot linear area between the entrance gate and the ammonia UST location; the entrance road leading to the UST is sloped to the north-northwest away from the residential areas. The UST is located within a three-sided building which shields it from the beach and residential areas.

Overall, however, the two worst-case release scenarios remain valid, and the methods and underlying assumptions of the OCA have not changed since the AFC and Response to Data Request were submitted. For an OCA, four benchmark levels are generally defined: 1) 2,000 ppm is lethal; 2) 500 ppm is immediately dangerous to life and health; 3) 200 ppm is the level identified by the EPA and State of California as the emergency response level under the Risk Management and CalARP Programs, and is a level which can cause discomfort and difficulty breathing with prolonged exposure; and 4) 75 ppm is the level considered by the CEC to be without adverse effects on the public.

The prior analyses indicate that the worst-case release from either a pipeline rupture or release of the entire tanker truck contents would result in off-site impacts. In the case of the pipeline rupture, the initial analysis in the AFC indicates that ammonia concentrations would drop to 200 ppm within about 0.1 mile of the release. The supplemental analysis provided in the Response indicates that an area of 0.2 mile in diameter would potentially have ammonia concentrations above the CEC-selected significance threshold level of 75 ppm. A portion of the public beach at the northwest corner of Project site, and a section of Vista Del Mar Road would be within this 0.2 mile radius. For the tanker truck release, the maximum zone of influence above the 200 ppm emergency response level is approximately 0.3 mile and the distance to reach the 75 ppm significance level is approximately 0.5 mile in diameter. This 0.5 mile area encompasses a few residential locations south of the Project site, in addition to public beach areas near the power plant and Vista Del Mar Road.

The estimates of worst-case offsite consequences fail to put into perspective, however, the actual likelihood of such an incident. As stated in the FSA, there would be expected to be 0.0000063 such pipeline release incidents on an annual basis, and 0.000038 such tanker truck releases on an annual basis. This translates to approximately one pipeline release every 156,000 years, and one tanker truck accident every 26,000 years. Clearly, the likelihood of either type of release is exceedingly remote.

It is also important to note that, although the AFC and subsequent documents present the contrast between a tanker truck delivery-related accident and a rupture of an ammonia supply pipeline, this is not truly an either/or scenario. All documents acknowledge that tanker truck deliveries would occasionally occur due to pipeline service interruptions, such as planned or unplanned maintenance. As a result, while the potential for catastrophic tanker truck accidents might be lower with the pipeline in place (since there would be fewer deliveries), the consequences of such a release cannot be eliminated from consideration. In other words, because the likelihood of the tanker truck spill is so low, whether there are two ammonia tanker truck deliveries per year, one per month, or one per week is largely immaterial as

statistically speaking, the occurrence of such an accident would still be unlikely to happen. Amending the Project to eliminate the proposed pipeline allows the threat and consequences of a pipeline rupture to be eliminated from consideration.

In either of the above scenarios (pipeline rupture or tanker truck spillage) or any frequency of deliveries, the mitigation for potential impacts from an ammonia release is the development of a Risk Management Plan (RMP), along with proper design of the unloading area and operator training. The RMP identifies potential process safety hazards and identifies ways to reduce the risk from accidents and human error occurring, and is reviewed and approved by the local Certified Unified Program Agency (CUPA) as well as the CEC. The El Segundo Generating Station currently takes delivery of ammonia by tanker truck and has a RMP that covers this activity. In the Final Decision for the ESPR Project, the CEC determined that the potential for impacts from a catastrophic ammonia release was insignificant, even with the allowance for ammonia deliveries by tanker truck as a back-up. All of these prudent precautions such as a RMP would be maintained should this PTA be approved. Therefore, the potential for impacts from an accidental ammonia release from the ESPR Project would be insignificant with the application of the mitigation measures require by the Final Decision and the Amended Final Decision.

3.3.2 LORS Compliance

There are no changes to LORS associated with hazardous materials handling as a result of the proposed Project Amendments. The facility will continue to be subject to CalARP requirements at Title 19, Chapter 4.5 of the California Code of Regulations, which implement the provisions of California Health and Safety Code, section 25500 et seq, requiring preparation and implementation of a facility RMP for ammonia; Title 8, California Code of Regulations, section 5189, which requires development of a Process Safety Management (PSM) program; Article 80 of the Uniform Fire Code (UFC); and various ordinances of the City of El Segundo, including but not limited to ordinances 1088, 1264, 1280 and 1285. The Project's compliance with these requirements for ammonia delivery was previously analyzed and described, and the proposed Project Amendments would not alter the Project's compliance. As indicated below in Section 3.3.6, the facility's RMP would not require contemplated revisions driven by the addition of the delivery pipeline and scrubber.

The California Department of Motor Vehicles specifically licenses all drivers who carry hazardous materials. Drivers transporting hazardous materials are required to check for weight limits and conduct periodic brake inspections. Commercial truck operators handling hazardous materials are also required to take instruction in first aid and procedures on handling hazardous waste spills. The California Vehicle Code and the Streets and Highways Code (Sections 31600 through 34510) ensure that the transportation and handling of hazardous materials are conducted in a manner that protects public safety. Enforcement of these statutes is under the jurisdiction of the California Highway Patrol. The Project, as approved, is subject to these requirements and the proposed Project Amendments would maintain consistency with these requirements.

3.3.3 Analysis

A catastrophic release of ammonia from a tanker truck accident is a remote possibility for both the Project as approved and the Project as it would be amended. The FSA concluded that, "The slight chance or very low probability of occurrence of each individual scenario, as estimated, suggests that it is unlikely that such accidents would occur." As also stated in the FSA, the ESPR Project includes safety systems that add several layers of protection and defense between hazardous materials and the public as part of accident prevention. These include, but are not limited to, use of written plans and procedures for hazardous materials management, fire extinguishing and spill response equipment for emergencies and training programs for plant personnel in hazardous materials handling.

There is no material change in the likelihood of a release or the potential impacts of a release as a result of the proposed Project Amendments. While anticipated ammonia truck deliveries will increase from two per year to approximately one to two truck deliveries per week (approximately one truck delivery per week when Unit 4 is retired), the likelihood of a major spill will remain close to the one per 26,000 years chance of occurrence previously calculated.

3.3.4 Cumulative Impacts

As stated in the FSA, hazardous material transport, use, and disposal associated with the ESPR Project are regulated by existing laws and regulations to prevent unacceptable off-site risks to the public. The proposed Project Amendments would not alter the conditions placed on the Project designed to reduce any potential impacts from the ESPR Project to less-than-significant levels. The cumulative impact analysis previously conducted for the ESPR Project concluded that there are no other projects with related potential impacts in the vicinity of the ESPR Project such that there are potential cumulative impacts associated with hazardous materials. In addition, the reduction of construction, production, operation, and maintenance of a dedicated ammonia pipeline delivery system by Chevron refinery for ESEC would eliminate potential cumulative impacts associated with Chevron's internal capital improvements and normal operation/maintenance programs at their refinery. The Project Amendments do not increase the use of ammonia for the ESPR Project and do not otherwise significantly increase the potential impacts of hazardous materials such that the Amendments would cause a significant cumulative impact. No cumulative impacts related to hazardous materials are therefore expected with the amendment of the ESPR Project.

3.3.5 Conclusions and Recommendations

The proposed Project Amendments will not result in any significant or cumulative impacts related to the Hazardous Materials resource area. The modification to Condition of Certification HAZ-3 as shown below is recommended.

3.3.6 Proposed Modifications to Conditions of Certification

The Project as approved includes Condition of Certification HAZ-3 that requires ESEC to update the RMP to expand its "discussions to prevent and control accidental releases of ammonia from the pipeline. Those discussions shall elaborate on the various safety devices selected for the pipeline including double sleeve construction, provisions for backup safety devices, protective shut-in actions, emergency support systems, monitoring programs and personnel training, as a minimum. The shut-in actions shall include responses to pipeline overpressures and also leaks."

The existing facility RMP will require minor updates to address Units 5, 6 and 7, such as incorporating new piping runs into schematics and drawings. However, based on the proposed Project Amendments to continue tanker truck delivery of ammonia, which is already addressed in the existing RMP, HAZ-3 should be modified to require update of the existing RMP as necessary relative to the new units, but to eliminate discussion of the pipeline.

HAZ-3 *The project owner shall revise the existing CalARP Program Risk Management Plan (RMP)**, as needed to comply with the regulations**. Similarly, the project owner shall also revise its existing RMP pursuant to the EPA RMP Program. ~~Both RMPs shall be expanded to include discussions to prevent and control the accidental release of ammonia from the pipeline. Those discussions shall elaborate on the various safety devices selected for the pipeline including double sleeve construction, provisions for backup safety devices, protective shut-in actions, emergency support systems, monitoring programs and personnel training, as a minimum. The shut-in actions shall include responses to pipeline overpressures and also leaks.~~*

Verification: *At least 45 days prior to startup of Units 5, 6, and 7, the project owner shall furnish a final copy of each updated RMP to the CPM, CESFD and CMBFD. An initial draft of the CalARP RMP shall be provided to the CPM and the CESFD for review and comments. The final CalARP RMP shall be approved by the CPM. Similarly, an initial draft of the EPA RMP shall be provided to the CPM and the CESFD for review and comments, at the time it is submitted to the EPA for review. The final copy of the EPA RMP shall reflect recommendations of the CPM and the CESFD.*

3.4 Traffic and Transportation

This analysis evaluates whether the proposed Project Amendments, providing for the delivery of ammonia to the Project via tanker truck and the elimination of construction of an ammonia pipeline, will have a significant adverse impact on traffic or transportation.

3.4.1 Description

Elimination of the proposed ammonia pipeline would increase the anticipated number of tanker truck deliveries to the Project site from an estimated two per year to approximately one to two truck deliveries per week (approximately one per week when Unit 4 retires in the near term); these numbers are considerably less than the baseline conditions at the time of the filing of the AFC where the potential truck deliveries for Unit 3 and 4 under base-loaded operations could be as much as 3 trucks deliveries per week. These deliveries will follow the designated truck route for the Project, i.e., Interstates 405 (I-405) for trucks traveling north or south and 105 (I-105) for those truck trips originating east of the Project. Trucks using I-405 would exit on to I-105 traveling west. From I-105, all truck traffic would follow the same route, exiting to Imperial Highway, proceeding west on Imperial Highway and south via Vista Del Mar Boulevard to the Project entrance.

Ammonia deliveries will typically occur during non-commute hours. Based on the estimated range of one to two truck deliveries per week for the ESPR Project, there will be no impact on the level of service (LOS) on any local roadway.

3.4.2 LORS Compliance

Hazardous materials deliveries, including ammonia, are subject to compliance with numerous Federal and State requirements, including Title 49, Code of Federal Regulations; California Vehicle Code, sections 31303-31309 and 32000-32053; and California Health and Safety Code, sections 25160 et seq.

There are no changes to LORS associated with hazardous materials handling as a result of the proposed Project Amendments. Transportation of ammonia in tanker trucks to the site will be subject to all existing federal, state and local requirements outlined in the AFC, FSA, 2007 PTA, and revised FSA.

3.4.3 Analysis

The proposed Project changes would have essentially no effect on traffic and transportation within the vicinity of the ESPR Project location during construction. Although the elimination of ammonia pipeline construction results in slight decreases in construction worker traffic and the total number of truck deliveries to the site during the construction phase, these reductions are immaterial relative to total construction traffic generated by the Project. In fact, the previous Project analysis concluded that ammonia pipeline construction would have no impact on Vista del Mar Boulevard. During operations, the proposed Project Amendments will have only a negligible change in impacts on traffic and transportation. There will be no impact to LOS on any local roadway as a result of the Project Amendments. Also, one to two ammonia truck deliveries per week under the Project Amendments is less than the two to three truck deliveries that were necessary per week to provide ammonia to existing

Units 3 and 4 under base-loaded operations. Therefore, removing the ammonia pipeline from the Project will have no material impact on traffic and transportation.

3.4.4 Cumulative Impacts

The proposed Project Amendments will not change the conditions placed on the Project to ensure that any potential impacts to traffic and transportation associated with the ESPR Project are reduced to less-than-significant levels. There is no impact on traffic and transportation related to the proposed Amendments, and the addition of one to two (round trip) truck deliveries per week during non-peak hours does not contribute to any potential cumulative impact on traffic and transportation. No cumulative impacts are therefore expected from the ESPR Project Amendments.

3.4.5 Conclusions and Recommendations

The proposed Project Amendments will not result in any significant or cumulative impacts related to Traffic and Transportation. No changes to the Conditions of Certification related to Traffic or Transportation are recommended.

3.4.6 Proposed Modifications to Conditions of Certification

No modifications are proposed to any Traffic or Transportation Conditions of Certification.

3.5 Worker Safety and Fire Protection

The purpose of this section is to evaluate whether the proposed Project Amendments – to remove construction of an ammonia delivery pipeline and installation of a two-stage venturi scrubber from the Project and provide for ammonia delivery via truck – will cause a significant adverse impact on worker safety and fire protection.

3.5.1 Description

The proposed Project changes would have essentially no effect on worker safety or fire protection relative to construction activities. Eliminating ammonia pipeline construction from the Project does not materially affect the nature or scale of Project construction. It does eliminate specific construction activities at Chevron refinery that would not otherwise occur but for the dedicated ammonia pipeline from the refinery to El Segundo Generating Station.

Ammonia is a hazardous and toxic chemical which poses a number of worker safety hazards if handled improperly. Hazardous materials handling, including ammonia handling, during facility operations is addressed in the facility's existing and future Operations and Maintenance Safety and Health Program.

This program includes the following programs and plans:

- Injury and Illness Prevention Program (8 CCR § 3203);
- Emergency Action Plan (8 CCR § 3220);
- Hazardous Materials Management Program;
- Operations and Maintenance Safety Program; and
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The above programs address routine ammonia handling. Effects of a catastrophic ammonia release, which could affect both workers and others, are addressed in the preceding evaluation of hazardous materials.

Ammonia is a non-flammable gas; therefore, fire protection is not affected by its delivery method whether by pipeline or by tanker truck.

3.5.2 LORS Compliance

Worker safety requirements are specified primarily in 29 U.S. Code § 651 et seq. (Occupational Safety and Health Act of 1970); 29 CFR §1910.1 - 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations); and in California Labor Code § 6300 and regulations codified at Title 8 of the California Code of Regulations, beginning with §337-560 and continuing with §1514 through 8568. These requirements address, among other things, hazard communication, hazardous materials management practices, personal protective equipment, and emergency action planning.

There are no changes to LORS associated with worker safety as a result of the proposed Project Amendments. Transportation of ammonia in tanker trucks to the site will be subject to all existing federal and state worker safety requirements, as previously analyzed for the Project.

3.5.3 Analysis

Removing the ammonia pipeline from the Project and delivering ammonia via tanker truck will have no material impact on worker safety, as the same worker safety protections will be implemented for the Project and ensure worker safety whether there are two tanker truck deliveries of ammonia per year, or approximately one to two truck deliveries per week.

3.5.4 Cumulative Impacts

Under the proposed Project Amendments, there will be no changes to the mitigation measures provided as Conditions of Certification, which will reduce any potential impacts to worker safety from the ESPR Project to less-than-significant levels. Potential worker safety and fire protection impacts associated with the Project are not altered by the Project Amendments. Therefore, there are no cumulative worker safety and fire protection impacts with the amendment of the ESPR Project.

3.5.5 Conclusions and Recommendations

The proposed Project Amendments will not result in any significant or cumulative impacts related to Worker Safety and Fire Protection. No changes to the Conditions of Certification related to Worker Safety and Fire Protection are recommended.

3.5.6 Proposed Modifications to Conditions of Certification

No modifications are proposed to any Worker Safety and Fire Protection Conditions of Certification.

3.6 Remaining Resource Areas

The purpose of this analysis is to determine if the proposed changes of 1) removing the planned ammonia pipeline and two-stage venturi scrubber and leaving in place the current plant arrangements for ammonia delivery; or 2) the change in range of ammonia flow rate, will cause a significant adverse impact related to resources excluding those evaluated above.

3.6.1 Introduction and Analysis

The potential adverse impacts of the proposed Project Amendments on the following remaing resource areas were evaluated:

- Biological Resources
- Cultural Resources
- Geology and Paleontology
- Land Use
- Noise and Vibration
- Public Health
- Socioeconomics
- Soil and Water Resources
- Visual Resources
- Waste Management

Due to the nature of the proposed Project Amendments, minimal analysis was necessary to determine the impact of the proposed change on these areas. Table 1 summarizes the impacts from the change in the method of ammonia delivery and Table 2 summarizes the analysis related to the change in the range of ammonia flow rates.

3.6.2 LORS Compliance

Consistent with the analysis, there are no additional LORS associated with the proposed Project Amendment that are relevant to any of the resource areas.

3.6.3 Cumulative Impacts

Consistent with the conclusion that the proposed Project change will have no impacts in the above resource areas, there are no cumulative impacts for these resources associated with the proposed permitted ammonia flow rate Project Amendment.

3.6.4 Conclusions and Recommendations

The proposed permitted ammonia flow rate Project Amendment will not result in any significant or cumulative impacts to these other resource areas.

3.6.5 Proposed Modifications to Conditions of Certification

No modifications to the approved Conditions of Certification for these resource areas are necessary as a result of the proposed permitted ammonia flow rate Project Amendment.

Table 1 Remaining Resource Areas Analysis: Ammonia Delivery Method

Resource	Analysis	Conclusion
Biological Resources	The proposed changes will have no effect on biological resources. The proposed Project Amendments would eliminate the potential venting of ammonia from the venturi scrubber – an environmental benefit. A release of ammonia from either a tanker truck or ammonia pipeline would have similar potential impacts on biological resources if the release occurred (although the incident rate of tanker truck release is estimated to be on order of one in more than 20,000 years), such that the proposed change to use of tanker truck delivery exclusively would not represent any change from the approved Project in potential impacts to biological resources.	No impacts
Cultural Resources	The proposed changes will have no effect on cultural resources because there is no change in anticipated ground disturbance associated with the Project and no change in the protections provided within the Final Decision and Amended Final Decision for cultural resources.	No impacts
Geology and Paleontology	The proposed changes will have no effect on geology and paleontology because there is no change in anticipated ground disturbance associated with the Project.	No impacts
Land Use	The proposed changes will have no effect on land use, as the proposed Amendments do not alter the Project location or change the proposed use of the Project site.	No impacts
Noise and Vibration	The proposed changes will have no effect on noise and vibration, because the proposed change will eliminate one aspect of Project construction and only slightly increase the number of truck deliveries to the Project site, by approximately one delivery per week.	No impacts
Public Health	The proposed changes to the ammonia delivery system have no effect on the amount of ammonia routinely emitted from the Project, i.e., ammonia slip. Non-routine, accidental releases of ammonia which could affect public health are discussed in the Hazardous Materials analysis (Section 3.3).	No impacts (refer to hazardous materials analysis)
Socioeconomics	The proposed changes will have no effect on socioeconomics, as the Amendments would not change the major elements or planned operation of the Project.	No impacts
Soil and Water Resources	The proposed changes could have a slight benefit on soil and water resources. A release of ammonia from a tanker truck accident while filling the ammonia tank would occur in a controlled containment area at the power plant while a rupture of the ammonia pipeline would have a potential impact on soil and water resources at the site	No impacts

Table 1 Remaining Resource Areas Analysis: Ammonia Delivery Method

Resource	Analysis	Conclusion
	of the rupture. However, the potential for either type of accident to occur is considered to be exceedingly small, and hence the potential for impact to soils and water resources from either method of ammonia delivery is considered to be negligible.	
Visual Resources	The proposed changes will have a slight beneficial effect on visual resources, as the Amendments would eliminate the presence of a new pipeline, which would have potentially been visible as a low-profile industrial element from certain public viewpoints.	No impacts
Waste Management	The proposed changes will have no effect on waste management, as the ammonia consumed by the Project will remain unchanged and there is no waste associated with the use of ammonia by the facility.	No impacts

Table 2 Remaining Resource Areas Analysis: Ammonia Flow Rate Range Change

Resource	Analysis	Conclusion
Biological Resources	The proposed change will have no effect on biological resources, because the change in ammonia flow rates into the SCR system will not result in greater emissions of ammonia to the atmosphere. In fact, the expansion of the range of ammonia flow rates will ensure that ammonia slip and NOx emissions are adequately controlled under all operating conditions and in compliance with permit limits.	No impacts
Cultural Resources	The proposed change will have no effect on cultural resources, because there is no change in anticipated ground disturbance associated with the Project and no change in the protections provided within the Final Decision and Amended Final Decision for cultural resources.	No impacts
Geology and Paleontology	The proposed change will have no effect on geology and paleontology because there is no change in anticipated ground disturbance associated with the Project.	No impacts
Hazardous Materials	The proposed change will not have a material effect on the type or quantity of hazardous materials used, or their handling and delivery. Although the allowable ammonia flow rate will increase, the facility will still be required to tightly control the ammonia slip levels, the ammonia used will be mostly consumed in the emissions control process, and the higher flow rate is only expected to be needed during some transient operating modes when NOx spikes can occur for short (a few minutes) periods.	No impacts
Land Use	The proposed change will have no effect on land use, as the	No impacts

Table 2 Remaining Resource Areas Analysis: Ammonia Flow Rate Range Change

Resource	Analysis	Conclusion
	proposed change does not alter the Project location or change the proposed use of the Project site.	
Noise and Vibration	The proposed change will have no effect on noise and vibration, because a change in the ammonia injection rates into the SCR system will not alter the noise or vibration that the generating units produce.	No impacts
Public Health	The proposed change to ammonia flow rate will have no impact on public health because the change in the range of flow rates will ensure that NOx emissions are adequately controlled under all operating conditions. The change in ammonia flow rates into the SCR system will not result in greater emissions of ammonia to the atmosphere (see Hazardous Materials above).	No impacts
Socioeconomics	The proposed change will have no effect on socioeconomics, as the change would not change the major elements or planned operation of the Project.	No impacts
Soil and Water Resources	The proposed change will have no effect on soil and water resources because the change in the range of ammonia flow rates will be within the contained SCR equipment and will not result in increased use of ammonia at the facility.	No impacts
Traffic and Transportation	The proposed change will have no impact on traffic and transportation, as the proposed change in ammonia flow rates will not result in an increase in use of ammonia or necessitate additional deliveries of ammonia to the Project.	No impacts
Visual Resources	The proposed change will have no effect on visual resources, as the change would not significantly change the physical components of the Project.	No impacts
Waste Management	The proposed change will have no effect on waste management.	No impacts
Worker Safety and Fire Protection	The proposed change will have no effect on worker safety or fire protection as a change in ammonia injection rates into the SCR system does not present a potential danger to workers or increase the risk of fire.	No impacts

3.7 Summary of Proposed Modifications to Conditions of Certification

As discussed in the sections above, if approved, this PTA recommends the following changes to Conditions of Certification AQ-2 and HAZ-3, and the deletion of AQ-31. No other changes are requested at this time. The requested revisions are summarized below:

AQ-2: *The operator shall install and maintain a flow meter to accurately indicate the total hourly throughput of injected ammonia (NH3) to the SCR in combined cycle turbines 5 and 7. The operator shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months. The ammonia injection rate shall remain between* ***1*** *~~4.8~~ gallon~~s~~ per hour and* ***75*** *~~11.5~~ gallons per hour.*

Verification: *The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).*

~~***AQ-31****: The operator shall vent this equipment to the two-stage venturi scrubber described as Device C64 whenever the tank is undergoing loading of ammonia.*~~

~~***Verification****: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA and the Commission.*~~

HAZ-3 *The project owner shall revise the existing CalARP Program Risk Management Plan (RMP)****, as needed to comply with the regulations****. Similarly, the project owner shall also revise its existing RMP pursuant to the EPA RMP Program.* ~~*Both RMPs shall be expanded to include discussions to prevent and control the accidental release of ammonia from the pipeline. Those discussions shall elaborate on the various safety devices selected for the pipeline including double sleeve construction, provisions for backup safety devices, protective shut-in actions, emergency support systems, monitoring programs and personnel training, as a minimum. The shut-in actions shall include responses to pipeline overpressures and also leaks.*~~

Verification: *At least 45 days prior to startup of Units 5, 6, and 7, the project owner shall furnish a final copy of each updated RMP to the CPM, CESFD and CMBFD. An initial draft of the CalARP RMP shall be provided to the CPM and the CESFD for review and comments. The final CalARP RMP shall be approved by the CPM. Similarly, an initial draft of the EPA RMP shall be provided to the CPM and the CESFD for review and comments, at the time it is submitted to the EPA for review. The final copy of the EPA RMP shall reflect recommendations of the CPM and the CESFD.*

3.8 References

California Energy Commission, 2010. Commission Decision to the Amendment, El Segundo Power Redevelopment Project, Application for Certification (00-AFC-14), Los Angeles County, CEC-800-2010-015. June.

California Energy Commission, 2005. Commission Decision, El Segundo Power Redevelopment Project, Application for Certification (00-AFC-14), Los Angeles County, CEC-800-2005-001-CMF. February.

California Energy Commission, 2002, Final Staff Assessment, El Segundo Power Redevelopment Project, Application for Certification (00-AFC-14), Los Angeles County, CEC-800-2005-001-CMF. August.

El Segundo Power, LLC, March 16, 2012, letter to Mr. John Yee, Supervisor, SCAQMD, RECLAIM/Title V Facility Permit for El Segundo Power Redevelopment Project (Facility ID 115663).

4.0 Potential Affects on the Public and Property Owners

Consistent with the requirements of the CEC Siting Regulations Section 1769 (a)(1)(G), (H) and (I), this section summarizes the proposed modifications effects on the nearby property owners, the public, and parties in the application proceeding.

4.1 Potential Effects on the Public and Nearby Property Owners

The proposed modification to the ammonia delivery system has a negligible potential for an effect on the public or nearby property owners. ESEC has conducted a thorough analysis of the proposed modifications, including potential impacts to the public, which is provided in the previous sections of this document. This analysis demonstrates that proper mitigation measures are in place such that the potential for adverse impacts to the public or property owners from the proposed changes are insignificant.

As demonstrated in this document:

- ammonia is currently delivered to ESGS by tanker truck;
- some tanker truck deliveries were envisioned to continue for the approved ESPR Project as a back-up to the proposed ammonia pipeline;
- the difference in the probability of an ammonia tanker truck spill is statistically insignificant (one in every 26,000 years) in either the approved or modified project;
- the analysis is very conservative and hence results are overestimated; and
- the facility will continue to have a RMP and will implement training and other mitigation measures such that the potential for impacts has been mitigated to insignificance.

For these reasons, the public, nearby or adjacent property owners are not expected to be affected by the proposed modifications.

4.2 List of Property Owners

Section 1769 (a)(1)(H) of the CEC Siting Guidelines requires that a list of surrounding property owners that could be affected by the modification be provided with the PTA. As discussed above, the proposed modifications are not expected to change the potential for impact to the surrounding property owners over that for the approved ESPR Project. Therefore, a list of surrounding property owners has not been provided. Instead, the proof of service list from the 2007 AFC siting case and other interested parties to this proceeding have been provided in Appendix B.

Appendix A

Letter to John Yee, South Coast Air Quality Management District
March 16, 2012
Reclaim/Title V Facility Permit for the El Segundo Power Redevelopment Project (Facility ID 115663)
Proposed Minor Revisions Request

El Segundo Power, LLC.
301 Vista Del Mar Boulevard
El Segundo, CA 90245
Phone: 310.615.6028
Fax: 310.615.6060

March 16, 2012

Mr. John Yee
Supervisor
South Coast AQMD
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

Subject: RECLAIM/Title V Facility Permit for the El Segundo Power Redevelopment Project (Facility ID 115663)

Dear Mr. Yee:

El Segundo Power, LLC is pleased to submit the enclosed District application forms requesting a minor RECLAIM/Title V permit change for the El Segundo Power Redevelopment Project (ESPR). We are requesting the following two minor changes to the RECLAIM/Title V permit:

- A revision to the aqueous ammonia flow rates listed in Permit Condition D12.11 for the two gas turbines; and
- The removal of a requirement for a venturi scrubber listed in Permit Condition E57.2 for the aqueous ammonia storage tank.

Aqueous Ammonia Flow Rate Revision

Permit Condition D12.11 currently limits the aqueous ammonia flow to the gas turbine selective catalytic reduction (SCR) units to between 4.8 and 11.5 gallons per hour. This range in the aqueous ammonia rate was provided to the SCAQMD during the 2007 permitting of the gas turbines based on preliminary design information, including the assumption that the gas turbine outlet NOx concentration was 9 ppm @ 15% O_2. However, final design information provided recently by Siemens shows that during some transient operating modes, the gas turbine NOx outlet could be as high as 25 ppm @15% O_2. At this gas turbine outlet NOx level, the 29% aqueous ammonia flow rate necessary to control NOx levels to the permitted level of 2 ppm @ 15% O_2 could be as high as approximately 48.9 gallons/hour[1] for each gas turbine/SCR unit. If a compliance margin

[1] Based on a gas turbine outlet NOx level of 25 ppm @15% O_2, stack NOx level of 2 ppm @ 15%O_2, full load operation at 2096 MMBtu/hr, NH_3 slip of 5 ppm @ 15% O_2, exhaust flow rate of 64,670,126 dscf/hr, NOx SCR inlet of 4.1961 lb-mole/hr, NOx SCR outlet of 0.3357 lb-mole/hr, NOx reduction of 3.8604 lb-mole/hr, NH_3 required for NOx reduction 5.4046 lb-moles/hr (based on Siemens assumption of 1.4 lb-mole NH_3/1 lb-mole NOx based on 40% NO_2/60% NO in exhaust), NH_3 required 316.8 lbs/hr (based on 17 lbs/lb-

of 50% is added to this maximum flow rate to account for possible short term spikes in NOx levels, the revised maximum aqueous ammonia flow rate would be approximately 75.0 gallons/hour.

In addition to a change in the maximum allowable aqueous ammonia flow rate, we are requesting a change to the minimum allowable aqueous ammonia flow rate. This is necessary because there will often be times during steady-state operation when the gas turbine outlet NOx concentration could be very low (i.e., well below 9 ppm @ 15% O_2), which will correspond to relatively low aqueous ammonia flow rates. Because compliance with the NOx permit limit of 2.0 ppm will be done with the CEM system and compliance with the ammonia slip limit will be assessed with a calculation approach using SCR inlet/outlet NOx levels, there is little need for a minimum aqueous ammonia flow limit in the SCAQMD permit. However, it is our understanding from discussions with SCAQMD staff that a minimum ammonia flow number must remain in the permit for Title V monitoring purposes. Therefore, to keep a minimum aqueous ammonia flow number in the permit and to also allow for low ammonia flow rates when gas turbine NOx outlet levels are low, we request a minimum aqueous ammonia flow rate of 1.0 gallon/hour. While we recognize there are probable operating conditions (i.e., minimum load, gas turbine outlet NOx levels) where the aqueous ammonia flow rates would be expected to exceed 1.0 gallon/hour[2], a permit condition of 1.0 gallon/hour, coupled with the anticipated maximum aqueous ammonia flow rate will amply cover the range of operating conditions and associated aqueous ammonia flow rates to comply with NOx emission limits. Therefore, we request the following change to Permit Condition D12.11:

D12.11 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia.

*…The ammonia injection rate shall remain between ~~4.8~~ **1.0** gallon per hour and ~~11.5~~ **75.0** gallons per hour…*

Removal of the Requirement for a Venturi Scrubber

Permit Condition E57.2 currently requires the aqueous ammonia storage tank to vent to a two-stage venturi scrubber during tank loading. During the permitting of the ESPR in 2007, this permit requirement was needed because it was anticipated at that time that one of the ways the storage tank could be filled was via a pipeline from the nearby Chevron

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mole of NH_3 and 29% aqueous ammonia), NH_3 slip of 0.8392 lb-mole/hr, NH_3 slip of 14.27 lbs/hr (based on 17 lbs/lb-mole NH_3 and 29% aqueous ammonia). Total aqueous ammonia required = 366.0 lbs/hr or 48.9 gallons/hr (based on 29% aqueous ammonia density of 7.48 lbs/gallon).

[2] Based on a gas turbine outlet NOx level of 5 ppm @15% O_2, stack NOx level of 2 ppm @ 15%O_2, low load operation at 1258 MMBtu/hr (60% of full load), NH_3 slip of 0 ppm @ 15% O_2, exhaust flow rate of 38,814,417 dscf/hr, NOx SCR inlet of 0.5037 lb-mole/hr, NOx SCR outlet of 0.2014 lb-mole/hr, NOx reduction of 0.3023 lb-mole/hr, NH_3 required for NOx reduction 0.4231 lb-moles/hr (based on Siemens assumption of 1.4 lb-mole NH_3/1 lb-mole NOx based on 40% NO_2/60% NO in exhaust), NH_3 required 24.8 lbs/hr (based on 17 lbs/lb-mole of NH_3 and 29% aqueous ammonia), NH_3 slip of 0 lbs/hr. Total aqueous ammonia required = 24.8 lbs/hr or 3.3 gallons/hr (based on 29% aqueous ammonia density of 7.48 lbs/gallon).

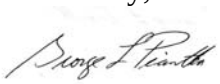
Refinery. The second way the tank could be filled was via tanker truck deliveries. To control filling losses when the storage tank is being filled by a tanker truck, the SCAQMD permit included Permit Condition E144.2 which requires that the storage tank be vented back to the tanker truck during filling operations. The project will rely entirely on ammonia storage tank filling via tanker trucks, as the facility does now. Therefore, it is no longer necessary for the aqueous ammonia storage tank to be equipped with a scrubber. Consequently, we request that Permit Condition E57.2 and Control Device C64 (the storage tank scrubber) be removed from the SCAQMD permit.

Enclosed are the SCAQMD application forms for the requested changes to the permit conditions for the two gas turbines and the aqueous ammonia storage tank. Also enclosed is a check in the amount of $4,350.29 payable to the District to cover the filing fee for the requested permit change, including the 50% additional fee for an expedited review by the District. The amount of this filing fee was determined based on the SCAQMD's online permit application filing fee calculator, as summarized below.

- Change of condition for first gas turbine (no engineering evaluation needed): $694.16
- Change of condition for second gas turbine (50% discount for identical unit): $347.08
- Change of condition for ammonia storage tank (no engineering evaluation needed): $694.16
- Expedited permit fee (50% of above amounts): $867.70
- Title V/RECLAIM permit minor modification fee: $1,747.19
- Total fee required: $4,350.29

If you have any questions or need further information, please don't hesitate to contact me at 760-710-2156 (office) or 760-707-6833 (cell).

Sincerely,



George L. Piantka, PE
Director, Environmental Business
NRG Energy, Inc., West Region

Attachment
Enclosures

cc: Mary Dyas, CEC
Gerry Bemis, CEC
Ken Coats, SCAQMD
John McKinsey, Stoel Rives LLP
CEC Dockets 00-AFC-14C

Appendix B

List of Interested Parties

APPLICANT George Piantka, P.E. NRG Energy, West 5790 Fleet Street, Suite 200 Carlsbad, CA 92008 **george.piantka@nrgenergy.com**	**COUNSEL FOR APPLICANT** John McKinsey Stoel Rives, LLP 500 Capitol Mall, Suite 1600 Sacramento, CA 95814 **Jamckinsey@stoel.com**
APPLICANT'S CONSULTANT Geoff Knight AECOM 999 Town & Country Road Orange, CA 92868 Geoff.knight@aecom.com	
INTERESTED AGENCIES	
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